Systematics and phylogeny of the tribe *Ceratapiini* (*Coleoptera*: *Curculionoidea*: *Apionidae*)

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ABSTRACT. Palaearctic genera, subgenera and species of the tribe *Ceratapiini* are revised, keyed and figured; bionomical data are summarized for each species. General morphology, distribution, origin and relationships of all tribes included into supertribus *Aspidapitae* are disscussed. Among them *Ceratapiini* are considered as the only non-Gondwanian group, arosen in the Tertiary period in Asia. A hypothesis on the origin, evolution and migration routes of major *Ceratapiini* lineages during the Tertiary and Quarternary periods is presented. The purportedly Palaearctic tribe *Metapiini* ALONSO-ZARAZAGA, 1990 was found to be represented in Namibia by the species described as *Apiotherium* (*Teuchocnemapion*) *hobohmi* VOSS. Afro-Madagascan genus *Prototrichapion* is excluded from the tribe *Ixapiini* ALONSO-ZARAZAGA, 1990 of the supertribus *Apionitae* ALONSO-ZARAZAGA, 1990 and transferred to supertribus *Aspidapitae* ALONSO-ZARAZAGA, 1990. A new tribe *Prototrichapiini* is proposed (type genus: *Prototrichapion* VOSS, 1959) and considered as a sister group of *Ceratapiini*. Cladistic analysis of 27 species and species groups of *Ceratapiini* was based on 39 characters and a new generic classification is proposed. A new genus *Protoceratapion* is erected for *Apion deletum* SCHILSKY, 1906 (type species) and *A. tibetanum* BALFOUR-BROWNE, 1944. The following two new subgenera are proposed: *Taphrotopium* subgenus *Omphatopium* (type species: *Apion irkutense* FAUST, 1888) and *Ceratapion* subgenus *Angustapion* (type species: *Apion akbesianum* DESBROCHERS, 1897). The genus *Acanephodus* ALONSO-ZARAZAGA, 1990 is reduced to subgeneric rank within *Ceratapion*, the *Acanephodus* subgenus *Clementiellus* is maintained as a subgenus of *Ceratapion*. Six species, new to the science, are described: *Omphalapion pseudodispar* (Austria, Czech Rep. - Moravia, Hungary, Moldova, Bosnia, Macedonia, Bulgaria, Turkey, Israel, Iran), *Diplapion saudiarabicum* (Saudi Arabia), *Ceratapion poggii* (Libya), *Ceratapion klapperichi* (Jordan), *Ceratapion fremuthi* (Turkey - Anatolia, Iran, Azerbaijan), *Ceratapion libicum* (Libya). A new status is proposed for *Apion caullei* WENCKER, 1858 and *Ceratapion wanati* ALONSO-ZARAZAGA, 1993, both as subspecies of *Ceratapion penetrans* (GERMAR, 1817). *Ceratapion armatum* (GERSTAECKER, 1854) and its relatives are transferred from the subgenus *Echinostroma* to *Ceratapion s. str.* The following new synonyms are proposed: *Omphalapion fossicolle* (DESBROCHERS, 1889) - (=*Apion fossulatum* DESBROCHERS, 1897); *Diplapion confluens* (KIRBY, 1808) - (=*Apion inapertum* DESBROCHERS, 1897); *D. detritum* (MULSANT & REY, 1858) - (=*Apion confluens* var. *crenulatum* DESBROCHERS, 1894); *Ceratapion onopordi onopordi* (KIRBY, 1808) - (=*Apion rugipenne* HOCHHUTH, 1851, =*Apion frater* DESBROCHERS, 1870, =*Apion hipponense* DESBROCHERS, 1894, =*Apion jablokovkhnzoriani* BAJTENOV, 1982); *C. onopordi parviclava* (DESBROCHERS, 1897) - (=*Apion chenocephalum* DESBROCHERS, 1902, =*Apion cavatum* DESBROCHERS, 1906, =*Apion quadricostatum* SCHILSKY, 1906); *C. penetrans penetrans* (GERMAR, 1817) - (=*Apion ovipenne*

Hochhuth, 1851); *C. longiclava* (Desbrochers, 1897) - (=*Apion clavatum* Schilsky, 1906); *C. decolor* (Desbrochers, 1875) - (=*Ceratapion parcior* Voss, 1964, =*Apion efratense* Bajtenov & Lodos, 1978); *C. sefrense* (Desbrochers, 1897) - (=*Apion angustius* Desbrochers, 1898). An incorrect original spelling of the name *Omphalapion hookeri* (Kirby, 1808) is emended to *O. hookerorum*. Neotypes of *Apion ragusae* Everts, *Apion squamans* Desbrochers and *Apion fallaciosum* Desbrochers, as well as lectotypes for further 48 nominal taxa, are designated. The subgenus *Aceratapion* Voss, 1969 (type species: *Ceratapion kabulense* Voss, 1969) described in *Ceratapion* is synonymized with the genus *Catapion* Schilsky, 1906. Of the species erroneously classified in the tribe *Ceratapiini*: *Apion schneideri* Tournier, 1878 is transferred to the genus *Catapion*, *Apion rudicolle* Hochhuth, 1851 is placed in the genus *Eutrichapion* (*s. lato*), and *Apion helveticum* Desbrochers, 1906 is synonymized with *Ischnopterapion loti* (Kirby, 1808). The following new synonym is proposed: *Catapion schneideri* (Tournier, 1878) - (=*Apion koenigi* Desbrochers, 1897).

CONTENTS

I. INTRODUCTION

Species included in the present revision from the beginning of XX c. were classified in subgenera *Omphalapion*, *Taphrotopium*, *Diplapion* and *Ceratapion* of a very broadly understood genus *Apion* HERBST. Authors of the most recent complete catalogue of the Palaearctic *Apionidae* (WINKLER & WAGNER, 1930, 1932) include in this taxon nearly 70 species, almost as many names being regarded as synonyms or varieties. Since that time more species have been described and the number of specific names referred at present to these subgenera exceeds 180. The members of the group have never been comprehensively revised, and detailed studies were devoted to only a few species groups. Except for the modern revision of 11 species related to *Ceratapion carduorum* and *C. penetrans* (ALONSO-ZARAZAGA 1991b), interpretation of many species contained in those papers (WAGNER 1911, 1918) was solely based on inaccurate original descriptions and thus they are out of date. Like in other beetle groups, most data on the fauna of this taxon pertain to Central Europe and the British Isles, both areas being intensely studied for centuries. Data from the remaining regions of the Palaearctic are fragmentary and most often date from the end of XIX and beginning of XX c. In view of the scanty knowledge of species by the then entomologists and unresolved synonymy of many species, most of such data require verification.

The problem of evolutionary relationships between the traditionally distinguished subgenera *Omphalapion*, *Taphrotopium*, *Diplapion* and *Ceratapion* remains completely obscure, both with respect to their mutual relations and to their relationships with other groups of the *Apionidae*. Earlier workers ignored the problem, and only from the sequence of taxa in catalogues and broader papers on the genus *Apion* it can be inferred which of them were regarded as closer related. Until recently this found no reflection in the classification of *Apionidae* - a very broad concept of the genus *Apion* was commonly accepted, only the number of subgenera distinguished increased. The paper by ALONSO-ZARAZAGA (1991) resulted in an essential change of the situation. The author reclassified the Palaearctic *Apionidae* based on the results of cladistic analysis of characters. He elevated most of hitherto subgenera to the generic rank, described many new generic-level taxa and created an array of tribes - among them the tribe *Ceratapiini*. Although the advertised third part of his revision, containing a detailed description of the methods and results of his cladistic analysis, still remains unpublished, it follows from an earlier outline (ALONSO-ZARAZAGA 1989b) that the problems of origin and major evolutionary stages of the *Ceratapiini* have not been solved in that paper.

When undertaking the task of the first comprehensive revision of the taxa included in the tribe *Ceratapiini*, I had in mind the following objectives:

1. Providing, as far as possible, complete morphological descriptions and keys for identification of all the species of the tribe.

2. Clarifying synonymy and nomenclature problems based on all the available types of nominal species.

3. Summarizing data on the biology of each species.

4. Verifying and supplementing distribution data based on unpublished materials from most European museums.

5. Ascertaining sister-group of the *Ceratapiini* and their evolutionary relationships with other higher taxa of the subfamily *Apioninae*.

6. Identifying the main evolutionary lineages of the *Ceratapiini* and an attempt at a phylogeny reconstruction.

II. HISTORY OF STUDIES ON THE *CERATAPIINI*

In the World coleopterological literature there are few papers devoted exclusively to taxa constituting the tribe *Ceratapiini*. Advance in the studies on this group resulted usually from research on the entire subfamily *Apioninae*, the most important data being contained in comprehensive monographs of the group. Some papers by WAGNER, HOFFMANN, BAJTENOV & LODOS and ALONSO-ZARAZAGA are exceptions to this rule.

Below, the most important events in the studies on the *Ceratapiini* are presented chronologically.

1775 - DEGEER described *Curculio cyaneus*, later considered by SCHOENHERR (1833) to be a synonym of *A. gibbirostre* GYLL. The name is unavailable because of its homonymy with *Curculio cyaneus* LINNAEUS.

1792 - PAYKULL described *Curculio laevigatus*, the first species at present included in the *Ceratapiini*. In the same year FABRICIUS described the same species under the name *Attelabus sorbi*.

1797 - HERBST created the genus *Apion* and described in it among others *A. sulcifrons*.

1807 - KIRBY published the first comprehensive paper on the genus *Apion* of England, describing several species of *Ceratapiini* widespread in Europe.

1817 - Publication of the German translation of KIRBY's monograph, by E. F. GERMAR. It was supplemented with descriptions of new species, among others two widespread European species of *Omphalapion* and *Ceratapion*.

1833-39 - Publication of a monumental weevil monograph by SCHOENHERR, where GYLLENHAL and BOHEMAN described a few species of *Ceratapiini*.

1854 - GERSTAECKER described four species of *Ceratapiini*, including *Apion armatum* and *A. orientale* - two of the few still then undescribed Central European species.

1893-96 - In consecutive volumes of "Le Frelon" DESBROCHERS published a comprehensive monograph of the Palaearctic *Apionidae*, later adding to it several suplements. He was the first to divide the genus *Apion* into several groups of related species.

In 1866-1908 DESBROCHERS published nearly 40 taxonomical and faunistic papers on the *Apionidae*; he is author of ca. 1/3 nominal species among the Palaearctic *Ceratapiini*. Unfortunately, besides describing many previously unknown species - mainly from northern Africa and Asia, his papers contributed little to the knowledge of the group. On the contrary, DESBROCHERS's careless attitude to the names, characters and types of the described taxa created a considerable chaos, still persisting in the systematics of *Ceratapiini*.

1901 - SCHILSKY published the first of four volumes of "Die Käfer Europas", devoted to the genus *Apion*. He distinguished the first eight subgenera, including *Omphalapion* and *Ceratapion*. In this and subsequent volumes the author included comparatively exact descriptions of the species of *Ceratapiini*, described several new species and listed an array of new synonyms. His work is the last comprehensive paper on the Palaearctic *Ceratapiini*.

1904 - WAGNER described *Apion austriacum* - the last of Central European species of the group.

1906 - SCHILSKY distinguished within the subgenus *Ceratapion* three informal species groups, two corresponding to the later described subgenera *Diplapion* and *Taphrotopium*.

1910 - publication of the volume of "Coleopterorum Catalogus" devoted to the *Apioninae*.

1911 - WAGNER, describing *Apion boehmi*, provided a determination key to all the species of *Ceratapion macrorrhynchum* group.

1912 - The last catalogue of the world *Apioninae* by H. WAGNER appeared in the series "Genera Insectorum".

1916 - In a popular book "Fauna Germanica" devoted to beetles, REITTER gave subgeneric names *Diplapion* and *Taphrotopium* to two groups of species distinguished earlier by SCHILSKY. Thus he established a division of this group of *Apionidae* into four subgenera, that would be accepted by all authors for nearly 50 years.

1918 - WAGNER published a revision of 12 species of the groups *Apion onopordi* and *A. armatum*.

1930-32 - publication of the catalogue of the Palaearctic *Apioninae*, in which WAGNER "involuntarily" became guilty of a nomenclatorial chaos publishing 15 unavailable subgeneric names. In the part pertaining to the species included at present in the *Ceratapiini*, WINKLER & WAGNER listed many new or differently interpreted synonyms and changed the status of many species, subspecies and varieties.

1944 - BALFOUR-BROWNE described *Apion tibetanum* - the only species of *Ceratapiini* from Tibet, very important for phylogenetic considerations.

1958 - A third part of the monograph of the *Curculionidae*, including *Apioninae*, appeared in the series "Faune de France". Ad. HOFFMANN summarized, among others, almost all data on the biology of European *Ceratapiini*, though he treated them uncritically.

1959 - VOSS (1959c) elevated subgenus *Ceratapion* to the generic rank and included *Diplapion* and *Taphrotopium* as its subgenera. This act was not accompanied by any justification and such a status of these taxa was not accepted by other authors.

1964 - In the paper devoted to the biology of Central European weevils SCHERF considered among others all species of the *Ceratapiini*, listing new data on 7 of them.

1966 - VOSS (1966b) elevated subgenus *Omphalapion* to the generic rank. In this and two other papers the author erroneously included in that genus several species of the Ethiopian region.

1968 - In his monograph of the *Apioninae* of North and Central America KISSINGER erroneously included 7 American species in the subgenus *Ceratapion*. In the introductory part, based on selected European species, the author gave diagnoses of the subgenera *Omphalapion*, *Taphrotopium*, *Diplapion* and *Ceratapion*; he was the first to pay attention to the characters of tegmen and internal sac of the aedeagus.

1977 - DIECKMANN published a monograph of the *Apioninae* of the former GDR in which he included detailed data on the biology and distribution, as well as very good identification keys to all the Central European species of *Ceratapiini*. He discussed also the status of several forms from different areas of the Palaearctic.

1991 - Two papers by ALONSO-ZARAZAGA were published, significantly changing the classification of this group of *Apioninae*. In one (1991b), comprising a revision of 11 species of the groups *carduorum* and *penetrans*, the author accepted the generic status of *Ceratapion* and described a new subgenus *Echinostroma*. The paper, being the first modern revision of these species groups, fully clarified the very complicated nomenclature and provided very detailed data on the morphology, biology and distribution of species. ALONSO-ZARAZAGA was the first student of the *Apionidae* to apply cladistic methodology to establish evolutionary realtionships between particular species. In the other paper (1991), mentioned already in the introduction, the Spanish author created the tribe *Ceratapiini*, elevated subgenera *Omphalapion*, *Diplapion* and *Taphrotopium* to the generic rank and described new genera *Acentrotypus* and *Acanephodus* - the latter with a new subgenus *Clementiellus*. Despite the objections to the narrow genus concept adopted in that paper, it will certainly result in permanent abandoning of anachronic classification of the *Apionidae*, based on an enormous genus *Apion* divided into several dozen of subgenera.

III. MATERIAL AND METHODS

As a result of the studies on the tribe *Ceratapiini* started in 1986, type material of most nominal species was examined, as well as material of over 7500 specimens, from the collections of most European museums and specialists in the *Apionidae*. The list of collections, with the abbreviations used in the text, is presented below.

AJ - coll. A. JADWISZCZAK (Łódź, Poland)

AK - coll. A. KUŚKA (Jastrzębie Zdrój, Poland)

AZ - coll. M. A. ALONSO-ZARAZAGA (Museo Nacional de Ciencias Naturales, Madrid, Spain)

BMNH - British Museum (Natural History), London, England (now The Natural History Museum)

DEI - Deutsches Entomologisches Institut, Eberswalde, Germany
EP - coll. E. Palm (Føllenslev, Denmark)
FA - coll. F. Angelini (Francavilla Fontana, Italy)
FS - coll. F. Sacco (Roma, Italy)
FSF - Forschungsinstitut Senckenberg, Frankfurt am Main, Germany
GO - coll. G. Osella (Aquila, Italy)
HG - coll. H. Gønget (Copenhagen, Denmark)
HMNH - Hungarian Museum of Natural History, Budapest, Hungary
IRB - Institut Royal des Sciences Naturelles de Belgique, Bruxelles, Belgium
ITZA - Instituut voor Taxonomische Zoölogie, Zoölogisch Museum, Universiteit van Amsterdam, The Netherlands
IZR - Instituto di Zoologia, Universita degli Studi di Roma, Italy
IZW - Museum and Zoological Institute, Polish Academy of Sciences, Warsaw, Poland
JE - coll. J. -M. Ehret (Montceau-les-Mines, France)
JF - coll. J. Fremuth (Hradec Kralove, Czech Rep.)
JS - coll. J. Strejček (Praha, Czech Rep.)
JSZ - coll. J. Szypuła (Wrocław, Poland)
KMB - Museum Alexander Koenig, Bonn, Germany
KS - coll. K. Schön (Litvinov, Czech Rep.)
LD - coll. L. Dieckmann (Eberswalde, Germany) (now in DEI)
LM - coll. L. Magnano (Verona, Italy)
MCG - Museo Civico di Storia Naturale "G. Doria", Genova, Italy
MCM - Museo Civico di Storia Naturale di Milano, Italy
MCR - Museo Civico di Zoologia, Roma, Italy
MF - coll. M. Ferragu (Paris, France)
MHNG - Muséum d'Histoire Naturelle, Genève, Switzerland
MK - coll. M. Košťál (Hradec Kralove, Czech Rep.)
MM - coll. M. Mazur (Cracow, Poland)
MNB - Museum für Naturkunde der Humboldt Universität, Berlin, Germany
MNHP - Muséum National d'Histoire Naturelle, Paris, France
MNHW - Museum of Natural History, Wroclaw University, Poland
MR - coll. M. Russel (Bretton, England)
MRAC - Musee Royal de l'Afrique Centrale, Tervuren, Belgium
MW - coll. M. Wanat (Wrocław, Poland)
MZL - Museum of Zoology and Entomology, Lund University, Sweden
NHMB - Natural History Museum, Basel, Switzerland
NMP - National Museum in Prague, Czech Rep.
NMW - Naturhistorisches Museum Wien, Austria
NRS - Naturhistoriska Riksmuseet, Stockholm, Sweden
PS - coll. P. Stachowiak (Poznań, Poland)
PSP - coll. P. Sprick (Hannover, Germany)
RB - coll. R. Borovec (Nechanice, Czech Rep.)

RML - Rijksmuseum van Natuurlijke Historie, Leiden, The Netherlands

SMNS - Staatliches Museum für Naturkunde, Stuttgart, Germany

SMTD - Staatliches Museum für Tierkunde, Dresden, Germany

SS - coll. S. SMRECZYŃSKI (presently in the Department of Systematic Zoology and Zoogeography, Jagiellonian University, Cracow, Poland)

VK - coll. V. KARASJOV (Institut of Zoology, Byelorussian Academy of Sciences, Minsk, Byelorussia)

VZ - coll. V. ZHERICHIN (Paleontological Institute of the USSR Academy of Sciences, Moscow, Russia)

WS - coll. W. SUPPANTSCHITSCH (Wien, Austria)

ZIS - Zoological Institute of the USSR Academy of Sciences, Sankt Petersburg, Russia

ZMC - Zoologisk Museum, Copenhagen, Denmark

ZMH - Zoological Museum, Helsinki, Finland

ZMUH - Zoologisches Institut und Zoologisches Museum, Universität Hamburg, Germany

ZSM - Zoologische Staadtssammlung, München

More important collections, which were not accessible for the reasons entirely beyond my control, include those of E. EVERTS and M. S. BAJTENOV. The former is deposited in ITZA, but it appeared impossible to find in it types of one of the apionid species described at the end of XIX c. by E. EVERTS. Types of numerous species described by M. S. BAJTENOV are deposited at the Instite of Zoology, Kazakh Academy of Sciences in Alma-Ata - an institution with which, like with BAJTENOV himself, I was unable to enter in cooperation.

Description of each species is accompanied by a full list of the type material examined by me. For each lectotype designated in this paper and for most holotypes and paratypes, a full description of labels accompanying the specimens is given, the labels being denoted by consecutive letters a, b, c... This procedure was omitted in the case of species revised by ALONSO-ZARAZAGA (1991b), since that author gives very exact data on the subject.

All the drawings and measurements of specimens were made using the stereomicroscope Carl Zeiss Jena and grid eyepiece. Corresponding body parts in various species are drawn to the same scale. Recognizing the significance of figures in taxonomic revisions and their superiority over verbal description (MAYR 1969), I tried to present most significant morphological characters of each species in semi-diagrammatic figures. Only in the case of species included in the relatively well and abundantly illustrated revision by ALONSO-ZARAZAGA (1991b), I limited the number of figures to those illustrating the most important key or phylogenetically relevant characters.

In order to examine reproductive organs, slides in Canada balsam were made according to the standard procedure. It was found that 96% alcohol could well be omitted when dehydrating the preparation. Thus, after clearing, the preparation was transferred from distilled water directly to absolute alkohol, and then to xylen and a drop of thin balsam on a plate of transparent plastic, pinned under the specimen. Use of such plates makes it possible to alter position the embedded structures in selected planes, which is necessary especially when examining the folded margins of tegminal plate. For this reason, when examining copulatory apparatus in the *Apionidae*, it is not advisable to make slides covered with cover glass. The preparations were examined in light microscope under 160× i 640× magnifications.

Names of particular components of aedeagus follow the terminology of LINDROTH (1957), considering changes and new terms proposed by KISSINGER (1968) and ALONSO-ZARAZAGA (1983, 1991). Nomenclature of particular parts of rostrum was adopted after DAMOISEAU (1967). The term metarostrum means the basal part of rostrum, from its base to the beginning of the widening above antennal insertion. Mesorostrum is the section of rostrum widened above the antennal insertion, prorostrum - section from the end of mesorostrum to the apex of rostrum.

In order to ascertain the variability range of proportions of various body parts, 22 measurements were taken from each species. Up to 15 specimens of each sex were measured. The measurements were taken at 62.5 × (10 measurements) or 100 ×. Explanation of abbreviations of particular measurements and techniques used are listed below in alphabetical order.

apw - pronotum width at anterior margin,

arw - width of rostrum apex,

bew - width of elytral base, measured through the middle of humeral calli, and if the latter are absent, at their probable level,

bpw - pronotum width at base,

brl - distance between antennal insertion and rostrum base (in species with large mesorostral teeth the distance was measured from their apices)

el - elytra length, measured in top view in a position when the base and apex of elytra are at the same level,

eyl - eye length, measured in top view, when the head is horizontally positioned,

hl - head length (the measurement considers the natural degree of its withdrawal into pronotum),

hw - head width, measured across the middle of eyes,

mew - maximum elytra width,

minrw - minimum rostrum width,

mpw - maximum pronotum width,

msrw - maximum mesorostrum width,

mtrw - minimum metarostrum width,

pft - maximum thickness of profemur,

pl - pronotum length,

ptbl - protibia length,

ptbmw - maximum width of fore tibia, excluding the brown vestiture on the inner side of tibia apex (in males having a mucro-like spine on fore tibia, its length was included in the measurement),

ptsl - protarsus length,

rl - rostrum length, measured in top view, in a position in which the base and apex are at the same level,

scl - antennal scape length.

The body length was measured in top view, from the base of rostrum to the apex of elytra, in a position in which they are at the same level. The antennal insertion determines the ratio between their distance from the eye and and the total rostrum length. The tarsus width is always its maximum width, measured at the level of its third segment.

In order to make the morphological descriptions more concise, in each the variability level of the proportions between particular body parts is given as a synthetic set of 22 indices. When the variability ranges of particular indices differ significantly between sexes, they are given separately for male (m) and female (f). In case where the variability ranges of species, subspecies or sexes overlap, but differ statistically significantly, mean values are given in parentheses (M), and in some cases also standard deviation (SD) and the number of measurements (n) are listed. Results of measurements given by ALONSO-ZARAZAGA (1991b) for *Ceratapion calcaratum*, *C. armatum* and species of the group *C. carduorum* and subgenus *Echinostroma* are included in the respective variability ranges.

The body colour given in descriptions of particular species always pertains to fully sclerotized specimens. Characters of ventral side of the body are given only when they are taxonomically important.

Under distribution of each species, countries from which the species is recorded for the first time are marked with an asterisk. In the lists of examined material localities which could not be assigned to any country are listed at the beginning, and then countries are arranged alphabetically. For common species simplified lists are given, omitting the number of specimens from each locality (only the total number of examined specimens is then given), collector names and dates of collection of particular specimens. In the case of species included in the revision of ALONSO-ZARAZAGA (1991b), only specimens not examined by that author are listed.

Phylogenetic analysis of the *Ceratapiini* was based on cladistic methodology, whose principles were described in numerous theoretical papers (HENNIG 1965, 1966, NELSON & PLATNICK 1981, WILEY 1981, WATROUS & WHEELER 1981). The analysis was performed using HENNIG86 programme (version 1.5) of J. S. FARRIS (1988).

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IV. ORIGIN AND EVOLUTION OF THE *CERATAPIINI*

IV. 1. SYSTEMATIC POSITION.

Till mid 50s authors dealing with the systematics of the *Apionidae* did not touch the subject of the relationships between the family level taxa. The status of a subfamily within the family *Curculionidae* was commonly accepted for this group, and an artificial genus *Apion* was maintained, into which over 90% of circa 4000 nominal species of all zoogeographic regions were included. Starting with the turn of XIX c., with increasing knowledge of the group, increasingly more subgenera were distinguished, the process pertaining mainly to the Palaearctic fauna. In 1955 Crowson in his fundamental paper on the classification of beetle families justified the necessity of elevating the *Apionidae* to the rank of family within the superfamily *Curculionoidea* and presented evidence in favour of inclusion of the subfamily

Nanophyinae. His publication can be regarded as the beginning of the discussion on the mutual relations of all the apionid taxa. Most later papers on the subject (CROWSON 1981, KUSCHEL in litt., MORIMOTO 1976, SANBORNE 1981) were devoted to taxa, whose appurtenance to the *Apionidae* is problematic (*Ithycerus* SCHÖNHERR, *Eurhynchus* SCHÖNHERR, *Cylas* LATREILLE, *Antliarhis* BILLBERG, *Car* BLACKBURN, *Caenominurus* VOSS) and did not touch the subject of division of the *Apionidae* proper into tribes. The first attempt at such a division is contained in a comprehensive monograph of North American *Apionidae* (KISSINGER 1968). Its author distinguished six tribes, among others *Ithycerini*, constituting a distinct family according to the above authors, as well as *Eurhinini* and *Cyladini*, later transferred to the family *Brentidae*. KISSINGER reduced also the subfamily *Nanophyinae* to the tribal rank within the *Apioninae*, and the tribe *Tanaonini* to the subtribal rank within the *Apionini*, which seems very much debatable. At the same time he distinguished a new tribe *Aplemonini* based solely on the absence of septum separating the mid coxae. A more detailed morphological analysis of the genera included by KISSINGER in the *Aplemonini* clearly indicates a polyphyletic character of the group. The concept of the American author was based on a too limited set of characters and at present seems unacceptable.

In 1989 and 1991 ALONSO-ZARAZAGA published the first two parts of a comprehensive study on the higher taxa of the *Apionidae* of Palaearctic. The paper is the first critical work, based on detailed morphological studies of most species of this zoogeographic region and methods accepted in modern taxonomy. The higher-level classification of the *Apionidae* proposed in it exceeds the limits of the Palaearctic fauna, since most of the tribes distinguished are also represented in other zoogeographic regions. ALONSO-ZARAZAGA distinguished two supertribes within the subfamily *Apioninae*: *Aspidapitae* and *Apionitae*, with 11 tribes. The division into two evolutionary lineages was based on the structure of male pygidium, whose apical part in the *Aspidapitae* is completely hidden under the elytra, does not differ from the remaining part of pygidium in the sculpture and degree of sclerotization and is not separated by a transverse furrow. In the *Apionitae* the apex of pygidium in male is visible from the outside, and sculptured and sclerotized like ventrite 5. The remaining part of pygidium, covered by the elytra, is distinctly separated from the exposed part, much weaker sclerotized and almost devoid of puncturation. Because of such a structure of pygidium, the posterior margin of ventrite 5 in the male *Apionitae* is straight or incised, and in females it is always broadly rounded. This is a synapomoprhy of the tribes *Apionini*, *Ixapiini*, *Exapiini*, *Aplemonini*, *Piezotrachelini* and *Oxystomatini*, constituting a monophyletic supertribe *Apionitae*. In few genera (*Ixapiini*: *Ixapion* ROUDIER & TEMPÈRE, *Trichopterapion* WAGNER, *Neapion* ALONSO-ZARAZAGA; *Oxystomatini*: *Chlorapion* GYÖRFFY) the structure of male pygidium is atypical. In the *Ixapiini* the separation of the exposed, apical part is incomplete, since the transverse furrow does not reach the lateral margins of pygidium. Based on this character, ALONSO-ZARAZAGA (1989b) regards the *Ixapiini* as the most plesiomorphous group in the supertribe *Apionitae*.

The male pygidium structure in members of the tribes *Ceratapiini*, *Metapiini*, *Aspidapiini*, *Malvapiini* and *Kalcapiini*, constituting the supertribe *Aspidapitae*, is plesiomorphous and as such does not testify to the monophyletic character of the group. The wing structure is a very important character not considered in the analysis by ALONSO-ZARAZAGA. In the *Ixapiini* and all the other *Apionitae* the wing has a radial cell. The cell is present also in the members of the subfamily *Nanophyinae* and a plesiomorphous South African tribe *Tanaonini*, its presence being thus undoubtedly plesiomorphous. The cell is absent in all the members of the supertribe *Aspidapitae*. Its disappearance is a synapomorphy of all the tribes of *Aspidapitae* and clearly indicates monophyletic character of the group.

The tribe *Ceratapiini* is the most distinct group of the Palaearctic *Aspidapitae*, characterized by the highest number of autapomorphies. These include: strongly thickened antennal scape (this often involves also funicular segments), distinctly squamous microsculpture of antennae, completely connate and more or less smooth antennal club, tarsal claws devoid of denticles and tegminal plate with fenestrae closed from the outside and with variously developed lateral fold[1]. Also the trophic relation with plants of the family *Asteraceae* is a peculiar character of this tribe among the Palaearctic *Apionidae*. The lack of significant apomorphous characters shared with any of the remaining tribes of the *Aspidapitae*, strongly emphasises the distinct position of the *Ceratapiini* and raises doubts as to the existence of the common ancestor of the *Ceratapiini* and any of the tribes distinguished among the *Aspidapitae* by ALONSO-ZARAZAGA. The latter author (1989b) draws attention to the existence of three distinct evolutionary lineages within the group: *Ceratapiini*, *Metapiini* and a monophyletic group *Aspidapiini-Malvapiini-Kalcapiini*, but he found no characters indicative of mutual relationships of these lineages. He regards the *Ceratapiini* as the most plesiomorphous group of the *Aspidapitae* and generally of the Palaearctic *Apionidae*, which would be evidenced by the absence of membranous apical lobes of the tegminal plate, absence of microchaetae, and by the presence of macrochaetae on the apices of parameroid lobes. He considers the tribe *Metapiini* to be very plesiomorphous as well, pointing to an array of similarities with the most primitive tribe of the *Apionitae* - *Ixapiini*. Though not explicit, it follows from the above statements that according to ALONSO-ZARAZAGA the remaining group of tribes forming the supertribe *Aspidapitae* is phylogenetically much more advanced. This is not confirmed by the geographic distribution of the tribes just named. The distribution areas of the most plesiomorphous apionid taxa unequivocally indicate a Gondwanian origin of the family. Considering the degree of diversification and the worldwide distribution of both supertribes, it can be supposed that the split into the *Aspidapitae* and *Apionitae* took place very early and that both groups are also of Gondwanian origin. Of the tribes of *Aspidapitae* only *Kalcapiini*, *Aspidapiini* and *Malvapiini* are much diversified and widely distributed in the Paleotropical area. They are represented there by taxa with much more numerous plesiomorphous

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[1]cf. p. 33

characters than Palaearctic genera, e.g. genus *Pseudaspidapion* WANAT (*Aspidapiini*), with well preserved, externally open tegminal fenestrae, or the genus *Caenapion* Voss, with the most primitive structure of tegminal plate and an array of characters intermediate between the *Aspidapiini* and *Malvapiini*. Likewise, the structure of tegmen and spiculum gastrale in *Afrothymapion* WANAT place this genus between the tribes *Malvapiini* and *Kalcapiini*. The members of these three tribes in the Palaearctic have much more numerous specialized characters, and thus it seems that the lineage originated in the area of the former Gondwanian continent, the invasion of the present Palaearctic being a much later event. Also the tribe *Metapiini*, recorded hitherto only from the Palaearctic, is represented in the Ethiopian region. The species described by Voss from Namibia as *Apiotherium* (*Teuchocnemapion*) *hobohmi* is no doubt its member. The species differs from the Palaearctic *Metapiini* in a broad separation of mid coxae, in which it resembles the genus *Prototrichapion* Voss and plesiomorphous African *Aspidapiini*, *Kalcapiini* and *Malvapiini*. Probably also other species included by Voss in the genus *Apiotherium* belong to the *Metapiini* (describing one of the Palaearctic species, he treated the genus *Metapion* as a subgenus of *Apiotherium*). Externally they very much resemble members of the speciose genus *Harpapion* Voss, while the structure of pygidium and wings was disregarded by that author. The tribe *Ceratapiini*, considered by ALONSO-ZARAZAGA to be the most plesiomorphous, is an exclusively Palaearctic group, which would indicate that it is phylogenetically the youngest among the *Aspidapitae*.

Such a picture of evolution of the *Aspidapitae* may be also indicated by the data on host plants of particular tribes. According to TAKHTADZHJAN (1980, 1981, 1987) the family *Asteraceae*, including host plants of the *Ceratapiini*, belongs to the subclass *Asteridae*, phylogenetically younger than the subclasses *Dilleniidae* and *Rosidae*, which comprise host plants of nearly all the remaining *Aspidapitae*.

The subclass *Asteridae* includes also *Lamiaceae*, which are hosts to Palaearctic species of *Squamapion* BOKOR, the most specialized genus within the *Kalcapiini* with respect to the structure of copulatory apparatus. Members of the tribes *Aspidapiini* and *Malvapiini*, and at least some of the morphologically most plesiomorphous African groups of the *Kalcapiini* (e.g. species related to *Apion* (*s. lato*) *geminum* WAGNER and *A.* (*s. lato*) *moerens* WAGNER) are biologically associated with plants of the order *Malvales* of the phylogenetically old subclass *Dilleniidae*.

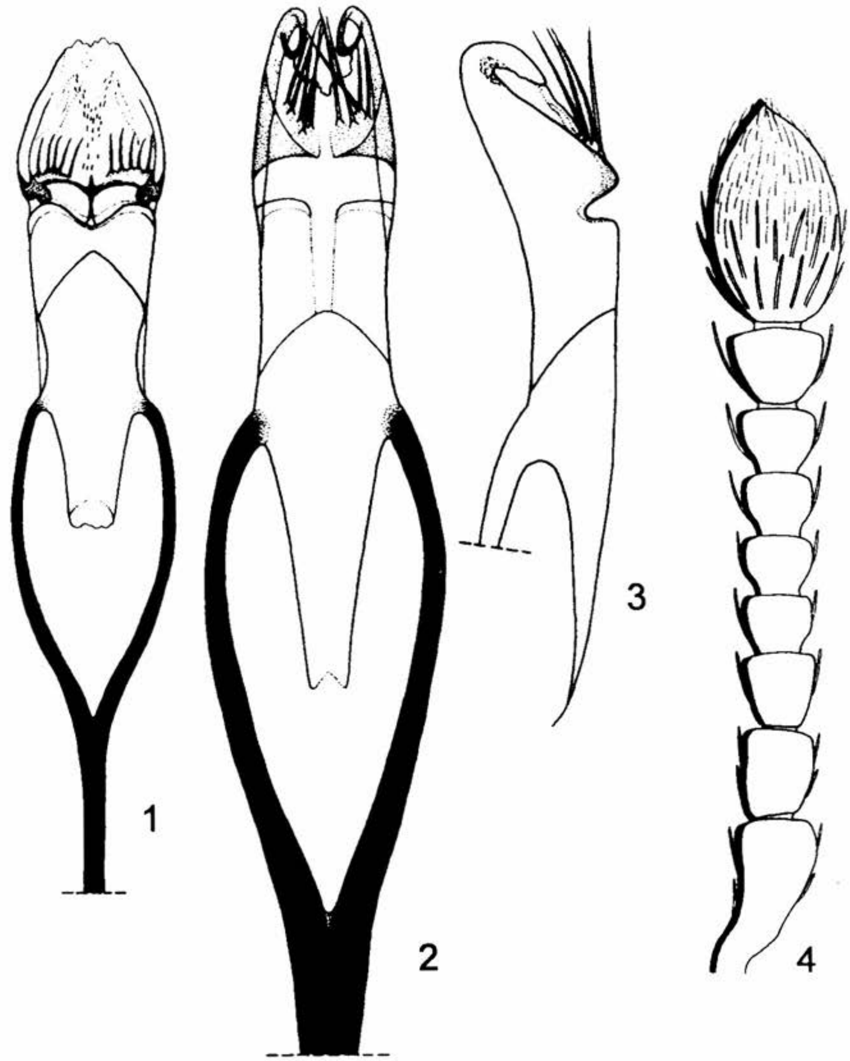
The characters which, according to ALONSO-ZARAZAGA, justify the especially primitive condition of the *Ceratapiini*, do not appear convincing either. The numerous and long macrochaetae were preserved also by the above mentioned African genus *Caenapion*, whereas the lack of membranous, microchaetae-covered apical lobes of tegminal plate seem to result from a secondary reduction rather than be an ancestral character, like in e.g. *Tanaonini* (sensu ALONSO-ZARAZAGA). The presence of such lobes is characteristic of all the remaining tribes of the *Aspidapitae*, as well as of all the tribes of the *Apionitae*. Thus it can be conjectured with a high probability that both the membranous lobes and microchaetae appeared already in the common ancestor of both the main lineages of the *Apionidae*. Their absence in the *Ceratapiini* should be regarded as one more apomorphy of the group.

It follows from the above considerations that the sister group of the tribe *Ceratapiini* should be sought outside the area of Palaearctic. After analysing the structure of the members of all Afrotropical and Oriental taxa of the generic level in the *Apioninae*, I found that a small genus *Prototrichapion* Voss, distributed in eastern Africa and Madagascar, ought to be regarded as such a group. In spite of the plesiomorphous structure of the male pygidium, typical of the *Aspidapitae*, the genus was unjustly included in the tribe *Ixapiini* by Alonso-Zarazaga (1991). That author probably based his classification on the external similarity between the members of both groups and on the presence of specialized setae on both 9th and 7th elytral interval, regarding the pygidium structure in *Prototrichapion* as a secondary modification. Actually, apart from the pygidium typical of the *Aspidapitae*, species of *Prototrichapion* have also wings devoid of radial cell. The simultaneous presence of both these characters decides the appurtenance of the genus to the supertribe *Aspidapitae*. In view of the tendency to reduce the specialized setae on particular intervals, common in the *Apionidae*[1], the arrangement of setae, exceptional among the *Aspidapitae*, and common with the *Ixapiini* and some other members of the *Apionitae*, is a symplesiomorphous character of no greater significance for phylogenetic inferences.

The most significant characters shared by *Prototrichapion* and the *Ceratapiini* pertain to the structure of antennae. In both groups they are thick, the scape being strongly widened towards apex and S-like bent at the base, together with funicular segments covered with distinct scale-like microsculpture; club segments are completely connate (fig. 4). Such an antennal structure is not known in other *Apioninae* and is undoubtedly a synapomorphy of both those groups. Their close relationship is also indicated by the structure of tegminal plate. In *Prototrichapion* membranous apical lobes are present in a vestigial form, and the few microchaetae are confined to a small, mid area of these lobes (*P. basipenne* (Marshall), *P. setulosum* (Beguin-Billecocq)) or disappear completely (*P. penicillatum* (Marshall), *P. sp.* from Zair). In this genus there also appears a tendency to external closing of the fenestrae - in *P. basipenne* they are distinctly narrowed as a result of formation of a lobular process of the dorsal membrane of tegminal plate (fig. 1), whereas in *P. penicillatum* the fenestrae are completely closed far from the lateral margin of tegminal plate (figs 2, 3). In both groups broadening of the rostrum at antennal insertion in the form of denticles, and the presence of spines on the first segments of male tarsi, are common. The latter character appears only exceptionally in other tribes of the *Aspidapitae* (*Kalcapion* Schilsky, *Caenapion sp.* from Nigeria). Also these characters may indicate a closer relationship between *Prototrichapion* and *Ceratapiini*, though their susceptibility to evolutionary changes in various groups of the *Apionidae* is much higher than that of characters mentioned above. Species of *Prototrichapion* live on plants of the Palaeotropical genus *Fagara*, belonging to the family *Rutaceae* and subclass *Rosidae*, which, according to Takhtadzhjan (1981, 1987), gave origin

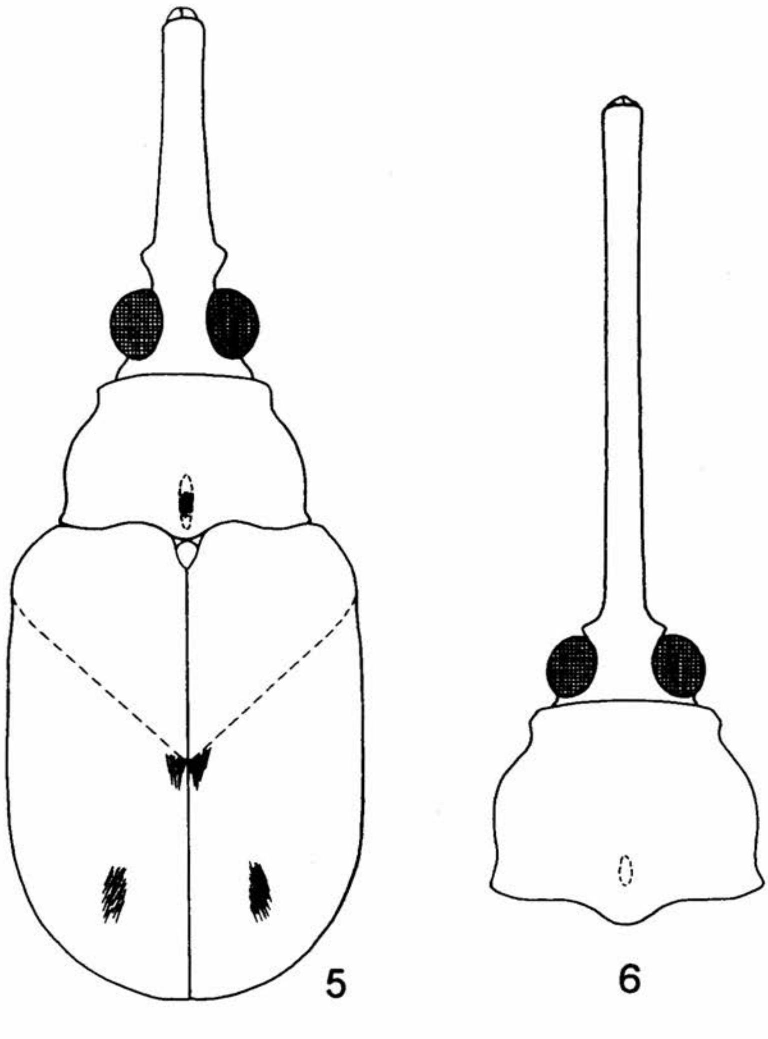
[1]The problem is discussed in detail in the next chapter.

to the group *Asteridae*. The above evidence in my opinion fully justifies the hypothesis of a close relationship between the *Ceratapiini* and *Prototrichapion*. In the phylogenetic analysis of the *Ceratapiini* both these taxa are regarded as sister groups.

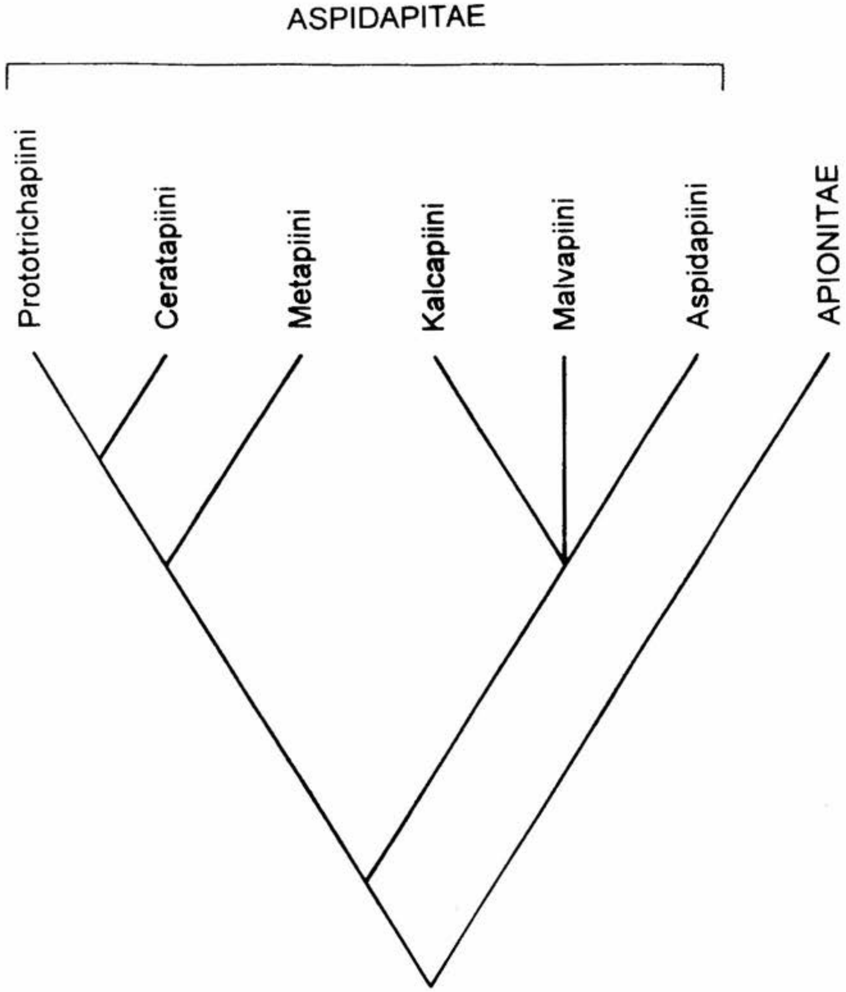


1-3. Tegmen: 1 - *Prototrichapion basipenne* (dorsal view); 2 - *P. penicillatum* (dorsal view); 3 - *P. penicillatum* (lateral view). 4. Male antenna of *P. penicillatum*

Also the tribe *Metapiini* displays many similarities with the genus *Prototrichapion*. This pertains especially to the random arrangement of the vestiture of elytral intervals, antennae inserted close to the head, presence of distinct denticles on the mesorostrum and the trophic relation with the *Rutaceae*. Also the structure of aedeagus is very similar in both groups, though in this case the similarities have a symplesiomorphic nature. The structure of antennae in the *Metapiini* does not show apomorphous characters typical of *Prototrichapion* and the *Ceratapiini*. However, it



5, 6. *Prototrichapion basipenne*, body in dorsal view: 5 - male, 6 - female (head and pronotum) is noteworthy that the scape is apically more distended than in the members of the lineage *Aspidapiini-Malvapiini-Kalcapiini*, whereas the club segments are very compactly arranged in all the species. In view of the lack of significant apomorphous characters shared with the *Aspidapiini-Malvapiini-Kalcapiini*, it appears that the tribe *Metapiini* is phylogenetically closer to the lineage *Prototrichapion-Ceratapiini*. A hypothetical phylogenetic tree of the *Aspidapitae* is presented in fig. 7. In my opinion in order to ascertain mutual relationships of the groups *Aspidapiini*, *Malvapiini* and *Kalcapiini*, a detailed study on their members in the Ethiopian and Oriental fauna is necessary. The clear separateness of these tribes in the Palaearctic



7. Supposed phylogenetic tree of the supertribe *Aspidapitae*

becomes obscured in the zoogeographic regions just named, and the existence of taxa of intermediate characters may suggest that distinguishing separate tribes in this evolutionary lineage is unjustified.

The characters of the genus *Prototrichapion* discussed above, though they indicate a common origin with the *Ceratapiini*, do not justify its inclusion in the tribe. Species of *Prototrichapion* do not have other characters typical of the *Ceratapiini* - their tarsal claws are provided with broad, triangular teeth, and the tegminal plate have no lateral fold. They also differ from the *Ceratapiini* with respect to many important morphological (puncturated frons with a vestigial median furrow, at least partly preserved basal ridge of the pronotum, random arrangement of scales and the presence of erect tufts of setae on elytral intervals (figs 5, 6), specialized setae preserved on the 7th and 9th intervals, broadly separate mid coxae) and biological characters (development on the *Rutaceae*, larvae in fruits). The geographic ranges of both taxa are not the same - members of the genus *Prototrichapion* inhabit the African continent (Guinea, Kenia, Tanzania, Zair, South African Republic - including Cape Province) and Madagascar. Though most characters of *Prototrichapion* which distinguish this genus from the *Ceratapiini* are symplesiomorphous, in my opinion it is justified to assign the same rank to both taxa and erect a monotypic tribe *Prototrichapiini* **trib. nov**. for the genus *Prototrichapion* Voss, 1959 (Voss 1959d: 316; type species: *Apion penicillatum* Marshall, by original designation).

IV. 2. MORPHOLOGY

The review of morphological characters of the *Ceratapiini* presented below considers only imaginal characters. Because of the very scanty knowledge of the larvae (known for less than 10% species), the characters of that stage could not be used in the phylogenetic analysis. The morphological characters are discussed in view of their usefulness for consideration on the relationships between particular phylogenetic lineages within the tribe. Some characters shared by all the members of the *Ceratapiini* are also discussed, in an attempt to ascertain their plesiomorphous vs. apomorphous nature. In the case of characters considered in the cladistic analysis their value is explained.

Body colour and microsculpture.

The body colour is most often species-specific in the family *Apionidae*, and its variation may have a geographic character or even depend on the kind of soil on which the host plant grows. The same pertains to the metallic green or blue body sheen, appearing independently in many groups of closely related species, both within the *Aspidapitae* and the *Apionitae*. However, the sexual dichroism in the colour of elytra, occurring only in the genera *Omphalapion* and *Acentrotypus*, is exceptional among the *Apionidae* and undoubtedly apomorphous.

Strongly developed microsculpture and the absence of distinct body sheen associated with it is probably a plesiomorphous character in the *Aspidapitae*. This is indicated by the prevalence of such sculpture in all the tribes of the group, especially in *Prototrichapion*, *Kalcapiini*, *Metapiini* and *Aspidapiini*. In the *Ceratapiini* fairly often microsculpture becomes more delicate and many species are characterized by a distinct sheen of elytra, and sometimes also of pronotum. This is most often accompanied by a distinct reduction in the vestiture. However, the existence of various intermediate forms renders it impossible to polarize the character states, and thus it was omitted from the character matrix in cladistic analysis. For similar reasons the degree of development of microsculpture and puncturation of the last three abdominal ventrites were disregarded. Contrary to the opinion of ALONSO-ZARAZAGA (1991), that the stronger microsculpture and reduction of depth or even disappearance of puncturation on these ventrites ("thymapiine punctation") is an important character of the tribe *Ceratapiini*, and also *Kalcapiini*, *Aspidapiini* and *Metapiini*, in many members of *Ceratapiini* (e.g. in a part of species of *Omphalapion*, *Taphrotopium*, *Acanephodus*, *Ceratapion deletum*, *C. secundum*, *C. gibbifrons*) the sculpture of the 5th ventrite is distinctly closer to the sculpture of ventrites 1-2 than to that of 3-4. In other species, e.g. in the subgenus *Clementiellus* or a part of species of the group *C. macrorrhynchum* the sculpture is of intermediate character and can not be classified with any of the above types. It is noteworthy that the possible differences involve only sculpture of the 5th ventrite. Ventrites 3-4 always have a stronger developed reticulate or scale-like microsculpture and weaker puncturation than ventrites 1-2, and this is a rule in almost all members of the *Apioninae*. The presence of sculpture of "thymapiine punctation" type in primitive south African genera included by ALONSO-ZARAZAGA (1984, 1991) in the tribe *Tanaonini* (*Afrotibicina* ALONSO-Z., *Mecolenus* SCHOENHERR, *Apiomorphus* WAGNER, *Setapion* BALFOUR-BROWNE) may result from a strongly developed microsculpture of entire body in members of these genera. In the genus *Tanaos* SCHOENHERR, characterized by a poorly developed body microsculpture, there are no such differences in the degree of development of puncturation between particular abdominal sternites. In the light of recent studies of MAY (1993) on the structure of larvae of the members of the genus *Tanaos* (type genus of the tribe *Tanaonini*), which demonstrated that it should be placed with the genus *Antliarhis* in the family *Antliarhinidae* (the author treats both *Apionidae* and *Antliarhinidae* as subfamilies of the *Brentidae*), the relationship of the remaining four genera, included by ALONSO-ZARAZAGA (l.c.) in the tribe *Tanaonini*, with the genus *Tanaos* and other apionid groups requires a more detailed study. It is very likely that they form a separate tribe.

Two types of body microsculpture are recognized by me in the *Ceratapiini*: reticulate (reticulum with flat "mesh") and scale-like ("mesh" convex). The terms are consequently used in species descriptions in the systematic part.

VESTITURE

In the *Ceratapiini* it is uniform, most often delicate, composed of hair-like or piliform scales; in many groups it tends to get reduced. On elytral intervals the scales are mostly arranged in one or two more or less regular rows, like in the members of the tribes *Aspidapiini* and *Kalcapiini*. A different type of elytral vestiture occurs in the genus *Prototrichapion* and the tribes *Metapiini* and *Malvapiini*, where the arrangement of scales on the interval is completely random, and the number of purported rows ranges from 3 to 5. It is difficult to say which of the above types is more plesiomorphous in the family *Apionidae*. I am rather inclined to regard the random elytral vestiture as such, mostly because of its common presence in the subfamilies *Nanophyinae* and *Eurhynchinae*. Unfortunately, in most of the primitive *Apioninae* (*Afrotibicina*, *Apiomorphus*, *Mecolenus*, *Cybebini*, New Zealand genus *Neocyba* KISSINGER, genera *Pterapion* FAUST and *Rhadinocyba* FAUST from New Caledonia) and in the genus *Tanaos* the body vestiture has become reduced to a degree which makes it impossible to observe its arrangement. In *Podapion* RILEY the vestiture of elytral intervals is distinct and has an intermediate character (arranged in two irregular rows), perhaps because of the strong narrowing of the intervals. The random arrangement of scales on the intervals is also found in the *Apionitae*, e.g. in the genera *Ixapion* ROUDIER & TEMPÈRE, *Trichopterapion* WAGNER and *Hemiperapion* WAGNER.

The pronotum vestiture is discussed under "pronotum".

ROSTRUM

Its length and curvature in both sexes are species-specific, in the female directly dependent on the bionomics of species. The presence/absence and the shape and size of the denticle above the base of antennae should also be regarded as species-specific. The presence of distinct, triangular denticles in the genus *Prototrichapion*, a part of species of *Falsoconapion* VOSS and *Squamapion* (only African) and in most *Metapiini*, and the fact that the character is widespread in the genus *Ceratapion* may indicate its plesiomorphous status in these groups. On the other hand, the absence of a distinct widening of the mesorostrum in those taxa of *Ceratapiini* that have the most numerous primitive characters, speaks in favour of regarding such a structure of rostrum as ancestral in the tribe. A high diversification and continuous variation in the structure of mesorostrum in some species groups (e.g. in the subgenus *Echinostroma*), and also its probable correlation with the thickness of antennae in some taxa, make the character less significant for phylogenetic inferences.

In most *Apioninae* on the underside of prorostrum there is a delicate, flat median costa separating two narrow and shallow grooves which terminate before the rostrum apex. The character, typical of most genera of the *Aspidapitae* (in *Aspidapiini* and most *Kalcapiini* there are additionally rows of punctures in the grooves), and in the *Ceratapiini* of the genera *Diplapion*, *Ceratapion* and *Acanephodus*, is plesiomoprhous. In the remaining genera of the *Ceratapiini* the sculpture of the underside of prorostrum undergoes modifications which consist either in the disappearance of the grooves and costa, and the reduction of microsculpture (*Taphrotopium*), or in the widening of the grooves with a strongly developed microsculpture on all the rostrum width (*Omphalapion*, *Acentrotypus*).

MOUTHPARTS

I studied their structure in 12 species of all the genera. It is typical of the subfamily *Apioninae*, with two-segmented, short maxillary palpi and one-segmented labial palpi, labium has no ligula. The only differences observed involve the length of setae on the lacinia and, to a much lesser extent, the shape of labium. They can be of some taxonomic significance at species level, but the difficulties in obtaining adequate microscopic slides makes them of little use in practice.

ANTENNAL SCROBES

The length of the scrobes depends on the distance between the antennal bases and the head, and on the degree to which they enter the underside of head, and as such is not significant. In *Prototrichapion* and a majority of the genera of the *Aspidapitae* the lateral edges of the scrobes reach on the underside of head more or less half eye length, and apart from them the underside of head is roughly sculptured. The same pertains also to a great part of the *Ceratapiini*. Such a state of this character should be regarded as plesiomorphous. The disappearance of scrobes on the underside of head is apomorphous. The character is discussed in more detail under "head structure".

ANTENNAE

The similarities in the structure of antennae between the genus *Prototrichapion* and the tribe *Ceratapiini* are discussed in a chapter IV. 1. Contrary to the former taxon, in the *Ceratapiini* the thickness of antennae displays a considerable variation. In extreme cases (*Omphalapion*, *Taphrotopium irkutense*, *Ceratapion deletum*) the antennae become almost as slender as in the remaining *Apionidae*, preserving however, at least in vestigial form, the scale-like microsculpture typical of the lineage *Ceratapiini*. Because of the impossibility of defining separate states of this character, and of its considerable variability between related species (e.g. in the subgenus *Echinostroma*), it was not used in the cladistic analysis.

The structure of antennal club in the genus *Prototrichapion* is more primitive than in the members of *Ceratapiini*. This is manifest in a strongly developed, rough microsculpture of the entire club, pubescence of basal half of the club, closely resembling the ring-like arranged setae on the funicular segments and in vestigial sutures between the connate segments (fig. 4). The club in the *Ceratapiini* is smoother, usually with a light sheen, its pubescence is much sparser, more delicate and more uniform - though in many species the setae at the base of club are distinctly longer and stronger than on its remaining part. The differences in the intensity of microsculpture and in the club pubescence between the male and female, reported as a character of the tribe *Ceratapiini* by ALONSO-ZARAZAGA (1991) are marked in few species and very slight. Besides, in some species (e.g. *Taphrotopium sulcifrons*) the situation is the reverse than stated by that author i.e. the club is more shiny and less pubescent in the female.

In the genera *Diplapion*, *Taphrotopium*, *Acentrotypus* and in some species groups of the genus *Ceratapion* the club may be sexually dimorphic. This usually consists in a slight difference in its length between the sexes, which is often obscured by individual variation. Only rarely the differences are more distinct and accompanied by other modifications of the club in the male. Important modifications of the club and funicular segments were included in the phylogenetic analysis when they are not autapomorphies of particular species groups.

The distance between the base of antennae and the rostrum base in the *Ceratapiini* ranges from 0.11 to 0.35 rostrum length. The variation has no distinctly discrete character, the antennal insertion varying much between congeneric species (*Omphalapion*, *Taphrotopium*). Considering the antennal insertion in species of *Prototrichapion*, close to the rostrum base, it appears that this is a plesiomorphous character in the lineage, while displacement of the antennal bases towards the middle of rostrum is secondary. On the other hand, much indicates that the antennal insertion is to a large extent influenced by the place, and especially depth of egg-laying. A very strong displacement of antennal bases towards the head in the genus *Prototrichapion*, especially pronounced in females, may result from the fact that the egg-laying and larval development in this group take place in seeds, and the eggs are laid deep (a similar tendency occurs in other groups of the *Apionidae* of the same bionomics, e.g. in the genus *Exapion* BEDEL). It is thus possible that this type of antennal insertion in *Prototrichapion* is a specialized character, associated with the biology, and in the common ancestor of *Prototrichapion* and the *Ceratapiini* the antennal bases were more removed from the head. Because of the pattern of variation of this character in the tribe *Ceratapiini* and the impossibility of unequivocal polarization, it was not included in the cladistic analysis.

HEAD

The variation of the head shape, and the size and convexity of eyes in all the *Aspidapitae* is interspecific and thus of no significance when analysing generic-level taxa.

The frons sculpture provides, however, important characters. In *Prototrichapion* and the remaining *Aspidapitae* the frons is always punctate, with a very delicate, often disappearing single median sulcus. The sulcus becomes deeper and more distinct only in single species of various genera and tribes (*Aspidapion aeneum* (FABRICIUS), *Metapion merale* (FAUST), *Falsoconapion sp.*). In almost all the members of the tribe *Ceratapiini* on the frons there is a higher number of sulci; they are most often delicate and cover all the frons width. This character state should be regarded as plesiomorphous in this group and ancestral in relation to modifications which consist in the reduction of the number of sulci to four or two (*Taphrotopium*, *Diplapion*, *Ceratapion rhopalorrhynchum*) and fusion of bases of the pair of median sulci (*Taphrotopium*, *Diplapion*). A partial or complete disappearance of the sulci as a result of considerable reduction of the frons sculpture (*Ceratapion akbesianum*), or supraposition of puncturation on them (*Acanephodus*, *Ceratapion kasbekianum*, *C. cylindricolle*, *C. longiclava*, *C. boehmi*, *C. gibbifrons*, *C. scalptum*) should also be viewed as modifications. In the latter case as a rule fragments of some sulci are preserved. Convexity or concavity of the frons found in some taxa are species-specific autapomorphies and were omitted from the cladistic analysis.

In the genus *Prototrichapion* and in the entire *Aspidapitae* the vertex is punctate on various area, while the tempora are smooth, with a single row of punctate around the eye margin. These character states should be regarded as plesiomorphous. In the *Ceratapiini* both characters create sometimes interpretation problems. In species of *Ceratapion* and *Acanephodus* with completely reduced vertex puncturation (*A. robusticornis*, *C. uniseriatum*, *C. dentirostre*) also the temporal sculpture is usually very weak and it is often difficult to ascertain the borders of the punctate area in the upper part of the temple. In species of the group *C. macrorrhynchum* the vertex puncturation only slightly exceeds the level of the posterior margin of eye, and also on tempora the punctate area is usually narrow, though always at least two rows of punctures are present (exceptionally in *C. akbesianum* and sometimes in *C. macrorrhynchum* the vertex and temple puncturation disappears completely).

The gular region of the head in all the *Aspidapitae* is smooth and transversely wrinkled, the gular suture is delicate and not impressed. A distinct puncturation of the gular area appearing in *Acanephodus onopordi*, *A. parens* and *Ceratapion scalptum* should be regarded as species-specific (examples of its variation between closely related species are found in the genera *Perapion* and *Apion*). Likewise, a distinct widening and concavity of the gular suture in the three species just named, as well as in *Taphrotopium sulcifrons*, *T. cuprifulgens*, *T. irkutense* and some species of *Omphalapion* is an apomorphous character.

The underside of head outside the antennal scrobes is strongly, irregularly sculptured in the genera *Diplapion*, *Acentrotypus*, *Acanephodus* and *Ceratapion*. A similar sculpture is present in most genera of the *Aspidapitae* (*Prototrichapion*, *Aspidapion*, *Alocentron*, *Malvapion*, *Rhopalapion*, most species of *Metapion*, *Squamapion* and *Falsoconapion*) and should be regarded as ancestral within the group. In species of *Ceratapion*, in which the scrobes do not enter the underside of head or are there shortened, the roughly sculptured area extends towards the anterior of head. Both these character are treated jointly as apomorphous modifications. Similarly, a complete disappearance of the rough microsculpture on the underside of head in the genera *Taphrotopium* and *Omphalapion* is regarded as a specialized character. In the members of these genera the antennal bases are usually considerably removed from the head and the antennal scrobes disappear quite gradually already on the basal part of rostrum. The miscrosculpture of the underside of head in these species is identical with that of the underside of metarostrum and bottom of antennal scrobes.

PRONOTUM

Its shape in the members of the *Ceratapiini* is fairly uniform, the differences in the proportions or degree of rounding of the sides being species-specific. Only in the genus *Omphalapion* it clearly departs from that standard and in this case a broad and very strongly rounded pronotum was commonly regarded as a generic character. However, also in this group the degree of rounding of pronotum varies, *O. fossicolle* being a species especially departing from the others in respect of this character.

Alonso-Zarazaga (1991) distinguished in the *Apionidae* two, in his opinion well defined, types of pronotum vestiture: "centripetal", where the piliform scales on both sides of the disc are arranged obliquely towards the centre, and on the anterior and posterior margin of pronotum are situated transversely and adhere to its edge, and "centrifugal", where all the vestiture is arranged parallel to the body axis, and in front is situated perpendicular to the pronotum margin, most often protruding outside it. According to this division in the *Ceratapiini* there is only "centripetal" type, though in some species, e.g. in *Ceratapion uniseriatum*, the vestiture of the base of pronotum has an intermediate character. In the *Aspidapitae* both types of vestiture are found; a typical "centrifugal" arrangement occurs in most *Kalcapiini* (exception: genus *Melanapion* Wagner) and a part of the *Aspidapiini* (*Alocentron*, *Aspidapion s. str.*, *Pseudaspidapion*), as well as in the genus *Prototrichapion*, comprising however also species of distinctly intermediate vestiture (*P. penicillatum* (Marshall)). Contrary to Alonso-Zarazaga I think that both those types of pronotal vestiture can not be clearly defined. The disc vestiture of "centrifugal" arrangement is rarely directed entirely straight anterad, more often only piliform scales just next to the midline of pronotum are so directed, while the scales on sides are to various degree oblique. Such an arrangement is very often found in species of "centripetal" type of vestiture. Besides, the arrangement of disc vestiture is often illegible and the neighbouring piliform scales are variously directed. The arrangement of scales on the pronotum margins seems to be of more significance, but in many taxa it is different on the anterior and posterior margin. The "centrifugal" type on the posterior and "centripetal" on the anterior margin is found e.g. in *Aspidapion aeneum* (Fabricius), *Melanapion minimum* (Herbst), and in the *Apionitae* in a part of species of *Eutrichapion* Reitter, in the genus *Oxystoma* Dumeril and a Palaeotropical genus *Harpapion* Voss. A reverse arrangement is found among others in the genera *Malvapion* Hoffmann, *Rhopalapion* Schilsky, *Meperapion* Voss, *Allotrichapion* Voss, in a part of species of *Metapion* Schilsky (e.g. *M. obtectum* Schilsky, *M. densesquamatum* Pic), and in the *Apionitae* e.g. in the genus *Exapion* Bedel, though there the scales never protrude beyond the anterior margin of pronotum. In my opinion the arrangement of scales on the posterior margin of pronotum depends only on the degree of development of the basal ridge of pronotum, which Kissinger (1968) termed "basal flange". When fully developed, it is of equal breadth on full length of the pronotum base, separated from the rest of the disc by a slight, saddle-like concavity or even a delicate line, the posterior corners of pronotum being distinctly bent outwards, while the piliform scales on the flange are situated roughly perpendicular to the posterior margin of pronotum. As a result of a narrowing or partial or even complete disappearance of the basal flange, the scales are arranged more parallelly to the pronotum margin. The degree of development of the basal flange and the type of its vestiture are not correlated with the type of vestiture of the anterior margin, and these characters should be considered independently. It is impossible to unambiguously evaluate the presence of basal flange as an ancestral vs. specialized character. Its common occurrence in the *Aspidapitae* and *Apionitae* might suggest its plesiomorphous condition. On the other hand, it is absent in extant primitive *Apionidae* of the tribe *Tanaonini* (sensu ALONSO-ZARAZAGA) and the genus *Podapion* RILEY. It seems more likely that the basal flange of pronotum was well developed already in the ancestor of *Aspidapitae*, and its reduction in the tribes *Ceratapiini*, *Metapiini* and *Malvapiini* is secondary and took place independently. This would explain the presence of a well developed flange in most species of *Prototrichapion*, as a plesiomorphous character. Likewise, the presence of anterad protruding vestiture on the anterior margin of pronotum should be regarded as a synapomorphy of the *Aspidapitae*. Such a type of vestiture prevails in all the tribes of the *Aspidapitae* except for the *Ceratapiini* and *Metapiini*, and is practically absent outside this group. Assuming this, the transverse and adherent vestiture in all the *Ceratapiini*, most *Metapiini* and some few genera and species of other tribes is an apomorphous character (reversal). Also in this case the protruding scales on the anterior margin of pronotum in the genus *Prototrichapion* is plesiomorphous, and its intermediate appearance in *P. penicillatum* indicates that the evolutionary change of this character in the lineage *Prototrichapion* - *Ceratapiini* was probable.

The pronotum puncturation and the size of prescutellar fovea in the *Ceratapiini* are species-specific and thus were omitted from the phylogenetic analysis.

In many *Ceratapiini* on the sides of pronotum in its posterior part a delicate pleural line is marked, running roughly parallelly to the pronotum margin. The line is often incontinuous, usually removed from the pronotum margin, and the belt outside is devoid of puncturation. In the genus *Omphalapion* the pleural line is most often displaced towards the pronotum margin, practically forming its bordering on some distance or disappears completely, only in *O. fossicolle* its course is typical. The character is absent in *Prototrichapion* and the remaining *Aspidapitae*, and thus it can be accepted that it appeared at a certain, probably early, stage of evolution of the *Ceratapiini*. The presence of similarly running and variously concave line in some primitive genera of the *Apionidae* (*Rhadinocyba* FAUST, *Myrmacyba* HELLER) indicates that it may be an ancestral character, probably associated with visible pleural suture of the pronotum, and its appearance in a part of *Ceratapiini* has a secondary (atavistic) nature.

The prosternum in *Prototrichapion* and most genera of the *Aspidapitae* (*Aspidapion*, *Pseudaspidapion*, *Melanapion*, *Falsoconapion*, *Metapion*, *Malvapion*, *Rhopalapion*, most species of *Squamapion*) is at least 1.5 times shorter than the pleural (postcoxal) part of pronotum. In most *Ceratapiini* both these parts of pronotum are of similar length, which is regarded as an apomorphous character.

On the pleural part of pronotum there is no longitudinal suture, and the sternellum is completely accreted and poorly distinct in all the *Aspidapitae* except for some members of the tribe *Metapiini*. The situation is similar in all the

Ceratapiini, only in *Taphrotopium steveni* the sternellum is monstrously enlarged and protruding.

SCUTELLUM

It is visible in all the species of *Ceratapiini*, including those in which wings and humeral calli of elytra are completely reduced. It is always small, triangular or rounded, flat or slightly concave. It does not provide useful taxonomic characters.

ELYTRA

Most characters of elytra, such as their shape, width of rows, degree of convexity and sculpture of intervals, are species-specific characters in the *Apionidae*. An undoubtedly apomorphous character is a total reduction of humeral calli, characteristic of *Taphrotopium irkutense* and two species included in the genus *Ceratapion* and not found in any other tribe of the *Aspidapitae*. While in *T. irkutense* it is certainly a species autapomoprhy, in the case of *C. deletum* and *C. tibetanum*, close with respect to many other characters, it is difficult to determine whether the character was acquired by them independently or appeared in the common ancestor of these two species. Both are mountain species, and the hitherto, very fragmentary, data on their geographic distribution indicate a broad separation of their ranges. In members of the *Apionidae* examples of full reduction of the humeral calli are very rare, but those that are known provide evidence that the character may have a very different value. In the genus *Synapion* SCHILSKY it is a synapomorphy of all the species. In east African species *Conapium gallinula* (GERSTAECKER) and *Piezotrachelus fornicatus* (WAGNER) the character appears in populations of these species from high mountain altitudes, while specimens from lowland populations have more or less developed humeral calli, and a part of them are even able to fly.

The few characters of elytra important at the generic level in the *Apioninae* include the length of the first stria at the base of elytra and the number and pattern of connection between the striae in the apical part of elytra. The former character does not show any variation in the *Ceratapiini* and has a plesiomorphous nature, typical of most *Apioninae*. Only in the case of the latter character the *Ceratapiini* do not depart from the rest of *Aspidapitae* with respect to the number of elytral striae, whereas their arrangement undergoes modifications in some taxa. In most *Ceratapiini* the striae are connected in the arrangement 1+2+9, 3+4, 5+6, 7+8, typical of all the *Aspidapitae* and ancestral in the *Apioninae* (ALONSO-ZARAZAGA 1991). In the genus *Omphalapion* the inner striae are connected in a pattern 3+8, 4+5, 6+7, connections of striae 4-7 being often interrupted. In a few species groups of *Ceratapion* the connection between the 1st and 9th stria disappears (sometimes also between striae 2 and 9). In some species of *Ceratapion* the 2nd stria is distinctly bent outwards before it connects with stria 9, which according to ALONSO-ZARAZAGA (1991) is a plesiomoprhous character in the family *Apionidae*. It seems, though, that in the *Ceratapiini* the bend of the 2nd stria is a secondary character, resulting from an elongation and stronger convexity of the elytral apex. The bend is distinctly weaker than in the primitive *Apionidae*, and is absent in the remaining *Aspidapitae*.

SPECIALIZED SETAE

Their presence is characteristic of the families *Apionidae*, *Rhynchitidae* and *Antliarhinidae* (genus *Tanaos*), not found in the remaining *Curculionoidea*. In the *Rhynchitidae* they are numerous, on the elytra at least a few per interval (they could be recognized only in species with adherent elytral vestiture - e.g. in the genus *Pselaphorhynchites* SCHILSKY). In the *Apionidae* there is a clear tendency to reduce their number, till a complete disappearance. In the subfamily *Nanophyinae* primitive forms have a few specialized setae on each of intervals 3, 5, 7, 9. In a few genera their number besomes reduced to a single seta in the anterior part of the 9th interval (ALONSO-ZARAZAGA 1989). A similar situation takes place in south African genera (*Tanaonini* sensu ALONSO-ZARAZAGA), regarded as the most primitive among the *Apioninae*. In some species of the genus *Apiomorphus* WAGNER numerous setae are present on odd intervals, in the genera *Tanaos* SCHOENHERR and *Afrotibicina* ALONSO-Z. they are limited to the 7th interval (two to four in *Tanaos*, one in *Afrotibicina*). The tendency to reduce the number of specialized setae occurs also in the members of the poor apionid fauna of New Caledonia and Papuan Region - from a regular row of 4-5 setae in the parapical part of interval 9 in the genera *Pterapion* FAUST and *Rhadinocyba* FAUST (*R. aenea* HELLER, *R. splendida* HELLER) to a single seta in the genus *Myrmacyba* HELLER. In the groups *Aspidapitae* and *Apionitae* there is a common presence of single setae on interval 9 (*Aspidapitae*) or 9 and/or 7 (*Apionitae*). In both groups the setae are absent in some taxa, but according to ALONSO-ZARAZAGA (1991) the reduction may take place independently in various phylogenetic lineages. The above examples confirm this opinion.

In the tribe *Ceratapiini* there is a clear tendency to reduce the specialized setae, though the value of this character for phylogenetic analysis is very much limited. The fragility of the setae results in their easy breaking off, and worn or poorly preserved specimens almost always are devoid of them, or else the setae stick to the elytra thus rendering observations difficult. This makes it impossible to ascertain the character state when at least a few specimens with well preserved vestiture are not available. The lack of distinct correlation with other morphological characters indicates that the reduction may proceed independently in many phylogenetic lineages. Examining larger series of well preserved specimens of some species revealed that in some species the setae are present only in a small fraction of the population and it can not be excluded that it is an atavism. This pertains especially to all the species of the genus *Diplapion*, and also to *Ceratapion uniseriatum* and *C. beckeri*, in which the presence of setae was observed only in one of over twenty specimens examined. It often happens that the seta is present on one elytron only. For the above reasons the character was not included in the phylogenetic analysis.

MESOSTERNUM

In most *Apionidae* the episterna are completely accreted to the mesosternum, and the course of suture separating them is visible only after clearing the specimen in KOH. The suture is well visible in few primitve genera of the *Apionitae*

(*Lispotherium* FAUST, species of *Rhadinocyba* from New Guinea) and this is certainly a plesiomoprhous character. The suture appears as a very delicate and barely visible line in many species of the *Apionidae* of various genera, in the *Aspidapitae* in *Prototrichapion* (not in all species), few species of *Squamapion* (e.g. in *S. vicinum* (KIRBY)) and *Falsoconapion*, as well as in some species of *Ceratapiini*. In the latter group the lines terminate sometimes in small, shallow pits, situated just close to the border of articular surface of the mesosternum (*Omphalapion*, subgenus *Echinostroma*), which I regard as an apomorphous character.

The suture separating the episterna and epimera of the mesosternum in the *Apionidae* is always distinct. Most often on the episterna it is directly adjoined by a regular row of punctate with scales, usually separated by an additional ridge. In many members of the *Ceratapiini* the ridge disappears partly or wholly. In the genus *Taphrotopium* and in *Ceratapion deletum* and *C. tibetanum* also the row of punctate adjoining the suture disappears or becomes quite irregular. The character displays an equally wide variation in most Palaearctic genera of the *Aspidapitae* and was not used in the cladistic analysis.

MID COXAE

In the *Aspidapitae* they are always separated by processes of the meso- and metasternum. The breadth of the septum differs distinctly in *Prototrichapion* (0.40-0.45 coxa width) and the *Ceratapiini* (0.15-0.20 coxa width), and is similarly variable in other tribes of the *Aspidapitae*, e.g. *Kalcapiini*. Both in *Prototrichapion* and in species of the *Ceratapiini* the processes of meso- and metasternum are of equal length. In *Prototrichapion* both are similar, very poorly convex. ALONSO-ZARAZAGA (1991) listed a stronger, tubercular convexity of the metasternal process among the tribal characters of the *Ceratapiini*. Examining this character in the members of the tribe reveals that the process in a few species (*Ceratapion deletum, C. tibetanum, C. beckeri, C. armatum, C. kasbekianum, C. opacinum*) is almost flat, and in other species the degree of its convexity displays a continuous variation.

METASTERNUM

The degree of elongation of the metasternum, expressed as the ratio of its length to the length of mid coxae, in the *Ceratapiini* is much varied and ranges between 0.8 in *Taphrotopium irkutense* and over 2 in species of the group *Ceratapion macrorrhynchum*. In the *Aspidapitae* the ratio as a rule exceeds 1.5, only in the genera *Melanapion* and *Pseudapion* it is 1.2-1.3. In the genus *Prototrichapion* it somewhat exceeds 1.5, even in species with very short and broad elytra, such as *P. setulosum* or *P. basipenne*. Shortening of the metasternum below 1.5 length of mid coxae in a part of the *Ceratapiini* is regarded as an apomorphus character. Species of *Omphalapion*, *Taphrotopium* and *Acentrotypus* characterized by a shorter metasternum, have also relatively shorter and broader elytra than the remaining members of the *Ceratapiini*. In other groups of the *Aspidapitae* both these characters are most often similarly correlated, though there are exceptions to the rule.

Among the *Ceratapiini*, *Taphrotopium irkutense* is such an exception. The species is characterized by the shortest metasternum and relatively the longest elytra among the members of the three genera mentioned above.

A small tubercle or a longitudinal keel in the middle of male metasternum is found among the *Ceratapiini* only in the group of *C. cylindricolle* and this is an autapomorphy of this group.

Abdominal ventrites

Their proportions and sculpture in the *Ceratapiini* display a considerable constancy and do not provide characters useful for phylogenetic analysis. Modifications observed sometimes, such as stronger concavity of the suture between the ventrites 1 and 2 more pronounced on sides, or presence of a tubercle on ventrite 1 in males are species-specific. The 5th ventrite is usually similarly convex in both sexes, broadly rounded at the apex, with no secondary sexual characters in the male. Its lateral margins in the *Ceratapiini* are usually very slightly concave, only in the genus *Omphalapion* there are more distinct impressions in corresponding places.

Male pygidium

In the *Ceratapiini* it is always completely hidden under the elytra, with no transverse furrow and varied puncturation - typical of the *Aspidapitae*.

Legs

The legs have most secondary sexual male characters in the *Apionidae* and the same pertains to the tribe *Ceratapiini*. Compared to other tribes of the *Aspidapitae* the characters are in this group much more diversified and are of considerable taxonomic significance at the species level. The usefulness of such characters for the analysis of relationships between the higher taxa seems, however, problematic. In the case of characters repeated in various species groups, their independent origin can not, as a rule, be excluded. The role of the secondary male characters of the legs and underside of the body is usually facilitating "grip" of the female during copulation. The resulting functional limitations result in numerous repetitions of the same adaptations, e.g. the presence of spurs on the tibiae, spines on the underside of tarsi or on the metasternum, or a concavity on the 5th ventrite, in not very closely related taxa. On the other hand, such characters easily undergo evolutionary modifications as a result of sexual selection, which is manifest in their wide interspecific variability. This for example pertains to the shape of tibial mucrones in the genera *Harpapion* and *Trichapion* Wagner or the sculpture and degree of development of specialized profemoral areas in the North American genus *Fallapion* Kissinger. Only two of the leg structure modifications in males of the *Ceratapiini* were used in the cladistic analysis. One is a spade-like widening and twisting of the apical parts of fore tibiae, combined with displacement and narrowing of the basal surface for the tarsi, as well as with lateral flattening of the first tarsal segments, occurring in the groups of *Ceratapion penetrans* and *C. armatum* and in *C. kasbekianum*. The character is not correlated with many other important morphological characters in these three species groups, but the degree of complication of the modification appears to limit considerably the probability of its multiple origin. The second character, regarded as significant and typical of most species of the *Ceratapiini*, is the presence of spines on the underside of the tarsi of various legs. Of various states of this character, the presence of such spines on all the pairs of legs is regarded as the most plesiomorphous. It is common in the genus *Prototrichapion*. The reduction of spines on the fore, fore and mid or all the legs was regarded as independent apomorphous characters.

The other characters of the apex of male fore tibiae, such as their bend, presence of a spine or a lobe-like widening, were omitted from the phylogenetic analysis of the genus *Ceratapion*. Though all such modification have a similar nature, the differences in shape and position of the spines and widenings in relation to the basal surface for tarsi indicates their independent origin in the subgenera *Ceratapion s.str.* and *Echinostroma*, as well as in the groups of *C. macrorrhynchum* and *C. beckeri*.

An apomorphous character which distinguishes the *Ceratapiini* from all the other members of the *Aspidapitae* except for the genus *Taeniapion*, is a disappearance of the broad, triangular denticle at the base of tarsal claws. Only in some species of the genus *Diplapion* there is in that place an angular thickening, in the remaining groups the claws are simple or with at most a weak and smooth thickening at the base.

Metathoracic wings

The venation in the *Ceratapiini* is typical of the entire subfamily *Apioninae*, of no taxonomic significance. Like in all the *Aspidapitae* the wing has no vestigial radial cell. In many species populations from the northern part of the distribution range have wings shortened to various degree in all or a part of individuals. In other species (e.g. *Ceratapion austriacum*, *C. carduorum*, *C. gibbirostre*, a part of species of the group *C. macrorrhynchum*) the wings are of normal length, but most or even all the individuals lose the ability of flight as a result of reduction of the wing muscles. Generally, the loss of flight abilities is a common phenomenon in the *Ceratapiini* and involves at least a part of populations of over half of the species examined.

Metendosternite

A fairly complex structure of the metendosternite, of a considerable significance in the family-level systematics of beetles, had not previously been studied in detail in the family *Apionidae*. The only paper in which differences in the structure of the metendosternite were illustrated (Morimoto 1976) pertains to a few taxa whose appurtenance to the *Apionidae* is debatable. In the *Ceratapiini* the general structure of the metendosternite is typical of most members of the subfamily *Apioninae* examined by me; with a triangular, widening basad stalk and long, sinuous, and narrowing distad furcal arms (fig. 18). In *Prototrichapion* the base of stalk is comparatively narrow, and the furcal arms are nearly straight, of even breadth to their apices. A complete reduction of the anterior tendons is fairly frequent in the *Ceratapiini*, but their presence or absence are found in closely related species, and thus the character is of no systematic value at the generic level. The differences observed in the structure of metendosternite in the species of *Ceratapiini* involve mainly the breadth of stalk and furcal arms and the course of costae and stronger sclerotized areas. In view of the lack of any data on the variation in the structure of metendosternite in the *Aspidapitae*, the differences were not used in the phylogenetic analysis.

AEDEAGUS

Like in most other beetle families, it provides many characters significant for the analysis of relationships between species, and often also taxa of generic and family level in the *Apionidae*. In particular this pertains to the structure of tegminal plate which, unlike the other families of the *Curculionoidea*, in the *Apionidae* is well developed and diversified. The importance of the characters of copulatory apparatus in the tribe *Ceratapiini* is additionally supported by the identical or nearly identical structure of aedeagus in most of the closely related, vicariant species. The estimate of some characters as plesio- vs. apomorphous was discussed by KISSINGER (1968) and ALONSO-ZARAZAGA (1983, 1989, 1991). It follows clearly from their papers and from my own analysis of the structure of aedeagus in many Palaearctic and tropical taxa of the *Apionidae*, that a great majority of characters are subject to parallel evolution in many phylogenetic lineages. This to a lesser or greater extent renders it difficult to apply them when studying the relationships between the higher level taxa.

TEGMEN

Some of its characters, such as the absence of membranous apical lobes and of microchaetae, have been discussed in the previous chapter. In few species on the sides of parameroid lobes there are single microchaetae. However, since in the remaining *Aspidapitae* they are always situated on the membranous or lateral apical lobes, it is difficult to say whether or not both structure are actually homologous.

In most *Aspidapitae* the tegminal plate is stiffly accreted to the basal, fork-like piece of the tegmen. In few taxa (*Pseudapion*, *Malvapion*) as a result of disappearance of the sclerotization the junction become articular. Likewise, a distinctly articular junction occurs in few *Ceratapiini* (*Diplapion confluens*, *D. nitens*, *Acanephodus onopordi*, *A. parens*). In the remaining species it is often impossible to describe unambiguously the type of junction because of the different degree of the junction sclerotization. The character is thus of no importance for the phylogenetic analysis.

In all the *Ceratapiini* the tegminal plate is split at the apex and divided into two parameroid lobes. The depth of the split varies very much, in extreme cases reaching beyond the level of fenestrae (*Taphrotopium irkutense*, *T. sulcifrons*), but the variation is continuous and it is impossible to distinguish definite character states. In the remaining tribes of the *Aspidapitae* the split between the parameroid lobes is never as deep as in the *Ceratapiini*, and in many genera the lobes are completely fused. In most cases (among others in the genus *Prototrichapion*) the split involves mainly the apical membranous lobes and at most slightly enters the parameroid lobes proper. A deeper split of the tegminal plate in the *Ceratapiini* is probably associated with the disappearance of the apical membranous lobes and with a "displacement" of the split downwards, and should be regarded as an apomorphy of the tribe.

A disappearance or shortening of the macrochaetae in the *Apionidae* is an apomorphy, appearing in numerous phylogenetic lineages. In the *Ceratapiini* the macrochaetae are always present, shorter than in the genus *Prototrichapion* (exception: *Ceratapion beckeri*), situated apically or subapically. Two categories of their length can be clearly distinguished, and the longer macrochaetae are regarded as plesiomoprhous.

An ancestral type of fenestrae in the *Aspidapitae* is characterized by their opening to the outside, clearly marked edges and a separation by a narrow median septum. This type of fenestrae is found in a part of species of *Prototrichapion*, as well as in the tribes *Metapiini*, *Kalcapiini* (*Melanapion* WAGNER) and *Aspidapiini* (*Pseudaspidapion*). Modifications, consisting in external closing of the fenestrae and/or their disappearance appear independently in members of most tribes. Most often it is a useful character when distinguishing between the generic level taxa. In the tribe *Ceratapiini* only in one species (*Ceratapion deletum*) there are primitive open fenestrae. In the remaining species they are always closed, and in many species groups there is an independent tendency towards their enlargement and partial or complete disappearance. Only their distinct decrease in size, deepening and appearance of a second pair of delicate, round openings in the ventral membrane of the tegminal plate (double margined fenestrae) in species of *Acanephodus* and *Clementiellus* are the modifications that should be regarded as relevant to the cladistic analysis.

In nearly all the species of *Ceratapiini* on the sides of apical lobes directly above the fenestrae there are several microscopic pores (sensillae) of unknown function. They are probably remnants of the reduced macrochaetae; possibly they might play a chemoreceptory role. In some species the pores occupy a larger area on the apical lobes. Sometimes the pores are elongate and, at least at first glance, they may resemble microchaetae. An extreme case of their modification is that of *Ceratapion boehmi*, in which they are prolonged into short and thin processes on the underside of parameroid lobes. Apart from this exceptional case, the degree of variation of the character is slight and does not allow its use in the cladistic analysis.

A characteristic, apomorphous trait of the *Ceratapiini*, absent in members of the remaining *Apionidae* known to me, is the presence of a delicate bordering of the tegminal plate, further called lateral fold. Neither origin nor function of the fold are known, perhaps it is a remnant of the latero-ventral flaps of tegminal plate which have disappeared in the *Ceratapiini*, and are well developed in the remaining tribes of the *Aspidapitae*. The lateral fold is absent only in some few species of the genus *Ceratapion* and in the genus *Taphrotopium*, but its disappearance has most obviously a secondary nature. The different degree of development and modifications of the lateral fold, correlated with other morphological characters, seem very important for phylogenetic inferences on the *Ceratapiini*. In view of the lack of possibility of comparison with other groups of the *Aspidapitae*, the ancestral condition of the lateral fold can be estimated only based on the analysis of variation of this character in the entire group. The lateral fold running along the whole length of the plate, just close to its outer margin, is regarded as the most plesiomorphous. This type of lateral fold is the most widespread in the *Ceratapiini* and all the modifications observed can be derived from it. Only the differences in length of the lateral fold and its disappearance on some sections were not taken into account, since they vary between closely related species, and often also between individuals. Only the more significant modifications of the ancestral type of lateral fold are regarded as apomorphous. These include a distinct removal from the margin of tegminal plate in the mid section, strong inwards bend and a reinforcement of the basal section of lateral fold above the fenestrae to form a kind of pocket, with accompanying disappearance of the remaining part of the fold, reinforcement and bending of the apical part of the fold from the parameroid lobe margin, accompanied by a disappearance of the basal section, disappearance of the lateral fold at a simultaneous formation of outwards broadened apical lobes of the paramerae. The remaining cases of the total reduction of the lateral fold are regarded as an outcome of the disappearance of the dorsal portion of ring (group of *Ceratapion cylindricolle*), considerable simplification of the structure of tegminal plate (group of *C. decolor*) or as species-specific character (*C. aegyptiacum*, *C. mundum*) and, consequently, not taken into account in the phylogenetic analysis. Despite a high probability that some of the modifications of the lateral fold represent consecutive stages of a transformation series, I resigned such an approach. I tried to avoid an excessive polarization of characters in a situation in which the structure is peculiar to the *Ceratapiini* and there are no data on the possible pathways of its evolution.

Apomorphous characters useful for the phylogenetic analysis of the tribe *Ceratapiini*, and not found in the remaining *Aspidapitae*, include also a hook-like inward bend of the apices of parameroid lobes, prolongation of the outer margins of the dorsal portion of ring up to the junction with the forked basal piece, and a presence of numerous thin seta-like processes on the underside of tegminal plate. Also a partial or total disappearance of the dorsal portion of ring, resulting in the fenestrae being in their lower parts open on a considerable distance, has an apomorphous nature. The condition is characteristic of more specialized *Kalcapiini* (*Squamapion*, *Falsoconapion*). However, in that group the character is associated with a total reconstruction of the tegminal plate, consisting in a complete longitudinal division into two parts connected by a delicate membrane, complete reduction of fenestrae and considerable reduction of the entire dorsal membrane of tegminal plate (probably both membranes, dorsal and ventral, fuse). In genera of a more primitive structure of paramerae (*Melanapion*, *Afrothymapion*) both the fenestrae, and the dorsal portion of ring limiting them posteriorly, can be distinguished. This is an evidence that the character appeared independently in the *Ceratapiini* and *Kalcapiini*.

The degree of protrusion of prostegium beyond the base of tegminal plate displays a wide variability in most tribes of the *Aspidapitae* and is difficult to polarize. In the *Ceratapiini* the prostegium is mostly short and not or only slightly produced beyond the junction with the forked basal piece. Species of the genus *Acanephodus* and some species of the genus *Diplapion* and group of *Ceratapion macrorrhynchum* are exceptions, but in all the three groups the outline of prostegium margin is quite different. The latter character also displays a considerable variation in the *Ceratapiini*, and a comparison with the genus *Prototrichapion* and with other related tribes does not allow determining its particular states as plesio- vs. apomorphous. In such a situation the prostegium characters were excluded from the cladistic analysis.

Another character impossible to unambiguously polarize is the presence of a pair of longitudinal lines or carinae on the tegminal plate in a large part of species of the *Ceratapiini*. The carinae run very close to each other (e.g. in the group of *Ceratapion cylindricolle*, in *C. beckeri*) or are to various degree separated and displaced towards the sides of tegminal plate, often are incomplete and disappear on various sections, or else fuse with each other, especially on the prostegium. The character is widespread in many groups of the *Apionidae*, which might suggest its plesiomorphous condition, but its considerable variation and the lack of certainty as to its homology in various phyletic lineages renders it of little use for the phylogenetic studies.

MEDIAN LOBE

Its shape in the *Apionidae* and in most beetle families easily undergoes evolutionary changes and was excluded from the reconstruction of phylogeny of the *Ceratapiini*, though in many species groups it is characterized by considerable constancy. Also the degree of split and sclerotization of the ventral side of tubular part, degree of separation of the dorsal plate and the length of apophyses (temones) were also omitted as often difficult to define and in many cases intraspecifically variable. The only exernal character of the aedeagus the merits consideration in the phylogenetic analysis, because of its distinctly apomorphous condition, is the presence of the membrane connecting the bases of apophyses in *Ceratapion opacinum*, *C. austriacum* and *C. decolor*.

The most important characters of the median lobe of aedeagus involve the structure of internal sac. The internal sac protruding beyond the base of aedeagus, the presence of a pair of regular chains of basally expanded denticles, sometimes accompanied by regularly arranged spines on the sides of ejaculatory orifice, as well as the presence of sclerites and delicate plates in the orifice are regarded as apomorphous characters of the *Ceratapiini*.

In all the remaining tribes of the *Aspidapitae* the internal sac is completely enclosed in the aedeagus and this condition should be regarded as ancestral in this group. In the *Ceratapiini* its protrusion beyond the tubular part of aedeagus appears in the genera *Omphalapion*, *Taphrotopium* and *Ceratapion*, and is probably associated with the body elongation. In the first two cases this pertains to single species, i.e. *Omphalapion fossicolle* and *Taphrotopium irkutense*. Considering other characters, the species are the most primitive members of their respective genera and it is likely that in the remaining species of *Omphalapion* and *Taphrotopium*, with the shortening of body, a secondary retraction of the sac into the aedeagus took place. In the genus *Ceratapion* the protruding internal sac is found in several species (*C. kasbekianum*, *C. gibbiceps*, groups of *C. macrorrhynchum* and *C. cylindricolle*), characterized by especially elongate elytra.

The regular chains of basally expanded denticles in the internal sac are fairly widespread in the *Apionidae*, but in the *Aspidapitae* they are found, apart from the *Ceratapiini*, only in the genera *Squamapion* and *Falsoconapion*. The latter two genera are also the only ones that have a characteristic, regular arrangement of minute spines externally to the arcuately bent chains of denticles in the orificial region (as in figs 101, 112). Since both these characters are absent in primitive genera of the *Kalcapiini*, it should be assumed that in both tribes they appeared independently as apomorphies. In the tribe *Ceratapiini* typically developed chains of denticles occur in the genera *Acentrotypus*, *Omphalapion* and *Taphrotopium*. In the latter genus only *T. irkutense* has the chains distinct and long, while in the remaining species they are strongly shortened. Among the species previously included in the genus *Ceratapion*, the chains are present only in *C. deletum* and *C. tibetanum* - both very primitive with respect to other characters. In the remaining species only exceptionally (groups of *C. carduorum*, *C. beckeri*) in the upper part of internal sac rows of denticles can be observed, however they are not quite regular, as a rule there are more than two such rows, and the "denticles" do not differ in shape from the dense spines of the sac.

Among the *Aspidapitae* only members of the genus *Ceratapion* have typical sclerites in the internal sac of aedeagus. Two main types of sclerites, probably of different origin, can be distinguished. Conical sclerites of smooth margins are present in most representatives of the subgenus *Echinostroma* and probably originate from spines irregularly arranged on the sac walls. The spines in some species (*Omphalapion beuthini*, *Taphrotopium irkutense*, *Ceratapion deletum*, *C. akbesianum*) are distinctly enlarged, though with no stronger sclerotization, and may serve as an illustration of the evolution towards conical sclerites. Another type of sclerites is more widespread and more diverse in the genus *Ceratapion*. It comprises sclerites of dentate margins and most often crescentic shape. They probably originate from the denticle chains discussed above, as a result of their shortening and subsequent fusion of the bases of particular denticles. This is supported by the structure and usually even number of the sclerites (two, exceptionally eight - in *C. gibbiceps*). In the group of *C. carduorum* there is a single sclerite of this type, but on its margin there are two rows of denticles which would indicate a fusion of the two original sclerites into one. Different types of sclerites are found in *C. calcaratum* and in the group of *C. armatum*. In the former the sclerites have a form of two long tapes, denticulate on the inside. This structure, present also in one species of *Omphalapion* (*hookerorum*), is clearly intermediate between the regular chains of denticles and typical crescentic sclerites, and serves as an additional evidence for the suggested origin of the latter. The sclerites in the group of *C. armatum* have a shape exceptional in the whole genus and their origin can not be inferred from their form. Their central position and arrangement in two rows or clusters speak in favour of their homology with the denticulate sclerites, whereas their shape is closer to the conical sclerites. Perhaps they originated as a result of reduction in the number of denticles in the chains and elongation of the apices and disappearance of the broadened bases of the denticles that remained. The origin of two clusters of long spines at the ejaculatory orifice in *C. dentirostre*, *C. scalptum* and in the group of *C. penetrans* is also unclear. Though these species always have two such clusters, the arrangement of their component spines or long sclerites shows no traces of a row, and they are always accompanied by typical conical sclerites.

In the groups *Acanephodus* and *Clementiellus* the internal sac has no sclerites, but in the orifice there is a pair of very delicate transverse plates, not found in other *Aspidapitae*.

Contrary to the structures discussed above, the presence/absence and the number, size and the degree of diversification of the spines of internal sac are of low significance for the analysis of the generic-level taxa. The characters easily undergo changes in groups of closely related species. Examples can be found in the genus *Omphalapion* and the group of *C. macrorrhynchum*.

Spiculum gastrale

In the *Ceratapiini* it always has a form of symmetrical fork of a variable length ratio of the forked part and manubrium, which is dictinctly longer in species of elongate body. The forked part is in some species constantly more or less lobular (*Diplapion*, *Ceratapion armatum*, *C. secundum*, *C. decolor*, *C. opacinum*), in others (*C. beckeri*, *Ceratapion s.str.*) the shape displays an intraspecific variation. The fork-like form of spiculum is present in *Prototrichapion* and widespread in the *Aspidapitae*. Only in members of the tribe *Kalcapiini* the spiculum has been clearly modified, the modification consisting in the fusion of both arms of the fork with a broad membrane, and a partial or complete disappearance of the manubrium.

Female genitalia

Their structure is very uniform in more specialized *Apionidae* and the lack of characters useful for the analysis at the generic level. Few departures from the typical structure in the *Ceratapiini*, such as reticulate microsculpture on the coxites in *Ceratapion uniseriatum*, or incision and stronger sclerotization of the inner margins of coxites in *C. dentirostre* (ALONSO-ZARAZAGA 1991b), are taxonomically significant at the species level.

IV. 3. BIONOMICS AND ECOLOGY

Based on the hitherto data it can be said, that the bionomics of species of the *Ceratapiini* is strictly associated with the family *Asteraceae*, and more precisely with the tribes *Anthemideae*, *Inuleae*, *Echinopeae*, *Carlineae* and *Cardueae* (according to TAKHTADZJAN, 1987). Apart from the *Ceratapiini* in the Old World only *Apion* (*s. lato*) *astri* LEA is associated with the *Asteraceae*, and more precisely with the genus *Aster* (ZIMMERMAN 1994). In the Nearctic and Neotropical Region on the plants of this family there live only a few species of *Coelocephalapion* WAGNER (*Apionitae*) (KISSINGER 1968). More detailed data on host plants, structure and development of larval stages of the *Ceratapiini* are very fragmentary and pertain to only several percent of species, whose great majority are European. The first information on host plants can be found already in the XIX c. entomological literature. Among more recent papers summarizing the state of knowledge of the biology of species of the *Ceratapiini*, works of SCHERF (1964), DIECKMANN (1977) and ALONSO-ZARAZAGA (1991b) should be mentioned first of all. Older papers, including those by WAGNER (1941) and HOFFMANN (1958), are mostly of little credibility, since they often list plants on which beetles were collected accidentally as host species. The biology of Asian and north African, and also some Mediterranean species, is almost completely unknown and only in single cases plants on which specimens were collected, are listed.

Among the European species few are monophagous. Most are oligophages associated with one or a few closely related genera of the *Asteraceae*. Sometimes, like in the case of *Taphrotopium sulcifrons*, the species are monophagous only in a part of their distribution range. There are, however, no reliable data on the spectrum of host plants in the entire distribution range of each species, or on the survival rate of larvae on various plants. Such a research has been undertaken only very recently (CLEMENT et al. 1989, FREESE 1991).

Larvae feed in various parts of their host plants. Lower parts of stems, rootstock and upper parts of root are decidedly the most often invaded. In the case of plants forming low rosettes, larvae sometimes feed in the main ribs of leaves. All species of the genus *Ceratapion* and most species of *Diplapion* develop probably in this way. Larvae of *Acentrotypus brunnipes* and *Taphrotopium sulcifrons* develop in upper parts of stems or apical buds causing galls. The development of species of *Omphalapion* and of *Diplapion detritum* takes place in inflorescences, the larvae feeding in the flower bottom or in ripening seeds. In all the members of *Ceratapiini* the metamorphosis takes place in the feeding place of the larva. The pupal stage lasts up till 2 weeks. Imagines appear in Central European conditions from June till

August, and winter over. As a rule there is one generation per year, exceptions (*T. sulcifrons*, *Acanephodus onopordi*) are discussed in the systematic part.

The structure of larva was described only in a few species of the *Ceratapiini*, and only in the case of *Ceratapion damryi* the description (MELIS 1941) includes the structure of the head capsule, mouthparts and chaetotaxy. During the field studies in Poland I managed to collect larvae of *Omphalapion laevigatum*, *O. dispar*, *O. hookerorum*, *Taphrotopium sulcifrons*, *Diplapion confluens*, *Acanephodus onopordi* and *Ceratapion austriacum*. Apart from differences in the body shape and chaetotaxy, their structure is almost identical, and in respect of the characters of antennae, mandibles, maxillae, labium and spiracles does not depart from that of the larvae of other Palaearctic *Apioninae*. There are no data on the number and differences in the structure of larval instars.

With respect to their ecological requirements the *Ceratapiini* constitute a very xerotermophilous group, associated with stony and sandy semideserts, steppes and xeric grasslands. In Central and northern Europe many species occur in anthropogenic ruderal and segetal plant communities characterized by similar thermal conditions; their wide distribution is probably due to such habitats. Only few species, such as *Diplapion stolidum*, *Acanephodus onopordi*, *Ceratapion gibbirostre* or *C. penetrans*, are more eurytopic and found also in more humid meadow and forest habitats.

The very incomplete data on the biology of the *Ceratapiini* have not been used in the phylogenetic analysis in this paper. This results especially from the complete lack of information on host plants of the most primitive, Asian members of most genera. The biological data were applied only to verify the results of the analysis based on the morphological characters.

IV. 4. PHYLOGENY

The analysis includes 67 species of the *Ceratapiini*. *Omphalapion rhodopense*, *Ceratapion edentatum*, *C. fallaciosum*, *C. klapperichi* sp. nov., whose males are unknown, and *C. bacanasicum*, whose male I did not have at my disposal, are excluded from the analysis. Species unknown to me (*C. bokharanum*, *C. proximum*, *C. nurense*), whose original descriptions disregard most important morphological characters, are also omitted. The systematic division of the *Ceratapiini* proposed by ALONSO-ZARAZAGA (1991) was adopted as a starting point. In order to simplify the analysis, 6 species groups were distinguished, showing such a high morphological similarity that their monophyletic nature can hardly raise any doubts. Except for the group of *C. macrorrhynchum*, each includes 2-3 species, mostly vicariant, characterized by a similar or almost identical structure of the aedeagus. When species included by previous authors in particular genera or subgenera display more significant differences, they were considered separately or as groups of closely related species (this pertains to the genus *Taphrotopium* and subgenera *Echinostroma* and *Ceratapion s.str.*). The list of taxa and species groups considered in the cladistic analysis is presented below (species included are given in parentheses).

1. Genus *Omphalapion*
(*O. fossicolle*, *O. laevigatum*, *O. dispar*, *O. concinnum*, *O. pseudodispar* sp. nov., *O. beuthini*, *O. buddebergi*, *O. hookerorum*).
2. *Taphrotopium irkutense*.
3. *T. sulcifrons* group
(*T. sulcifrons*, *T. cuprifulgens*).
4. *Taphrotopium steveni*.
5. *Acentrotypus brunnipes*.
6. Genus *Diplapion*
(*D. stolidum*, *D. nitens*, *D. confluens*, *D. detritum*, *D. squamans*, *D. squamuliferum*, *D. hamatum*, *D. sareptanum*, *D. saudiarabicum* sp. nov., *D. westwoodi*).
7. Subgenus *Acanephodus s. str.*
(*A. onopordi*, *A. parens*).
8. Subgenus *Clementiellus*
(*A.* (*C.*) *orientalis*, *A.* (*C.*) *robusticornis*).
9. *Ceratapion* (*s. str.*) *calcaratum*.
10. *C.* (*s. str.*) *carduorum* group
(*C. carduorum*, *C. gibbirostre*, *C. damryi*).
11. *Ceratapion* (*Echinostroma*) *uniseriatum*.
12. *C.* (*E.*) *dentirostre*.
13. *C.* (*E.*) *scalptum*.
14. *C.* (*E.*) *penetrans* group
(*C. penetrans*, *C. basicorne*, *C. curtii*).
15. *C.* (*E.*) *armatum* group
(*C. armatum*, *C. dalmatinum*, *C. kazakhstanicum*).
16. *C. tibetanum*.
17. *C. deletum*.
18. *C. rhopalorrhynchum*.
19. *C. beckeri*.
20. *C. kasbekianum*.
21. *C. macrorrhynchum* group
(*C. aegyptiacum*, *C. mundum*, *C. peninsulae*, *C. libicum* sp. nov., *C. boehmi*, *C. fremuthi* sp. nov., *C. sejugum*, *C. akbesianum*, *C. macrorrhynchum*, *C. perlongum*, *C. transsylvanicum*, *C. nalderae*, *C. lancirostre*, *C. sefrense*).
22. *C. opacinum*.
23. *C. cylindricolle* group
(*C. cylindricolle*, *C. longiclava*, *C. poggii* sp. nov.).
24. *C. secundum*.
25. *C. gibbiceps*.
26. *C. gibbifrons*.
27. *C. decolor* group
(*C. decolor*, *C. austriacum*).

Taxa and	Characters																																						
species groups	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39
OMPHALAPION	1	0	1	0	1	0	1	0	1	0	0	0	1	1	0	0	1	1	0	0	1	1	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	1	0
T. irkutense	0	1	0	0	1	0	1	0	1	0	0	0	1	0	0	1	0	1	0	0	0	1	0	0	0	1	1	0	1	0	0	1	0	0	0	1	0	1	0
T. sulcifrons - gr.	0	1	0	0	1	0	2	0	1	0	0	1	1	1	0	0	0	1	0	1	0	1	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	1	0
T. steveni	0	1	0	0	1	0	2	0	1	0	0	1	1	1	0	0	0	1	0	1	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0
ACENTROTYPUS	1	0	1	0	0	0	0	0	1	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	1	0
DIPLAPION	0	0	0	0	0	1	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C. tibetanum	?	0	0	0	0	0	0	0	0	1	0	0	0	?	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
C. deletum	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
ACANEPHODUS s. str.	0	0	0	0	0	0	0	1	0	1	0•	0	1	1	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1	0.	0	0	0	0	1	0	0
CLEMENTIELLUS	0	0	0	0	0	0	0	1	1	1	0	0	1	1	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	?	0	0	0	0	0	1	0	0
C. rhopalorrhynchum	0	0	0	0	0	0	0	0	0	1	0	0	1	1	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
C. beckeri	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
C. carduorum - gr.	0	0	0	1	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0
C. calcaratum	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
C. (E.) uniseriatum	0	0	0	1	0	0	0	0	1	1	0	0	1	?	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
C. (E.) dentirostre	0	0	0	1	0	0	0	0	1	1	0	0	1	1	0	0	1	0	0	1	0	0	1	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0
C. (E.) scalptum	0	0	0	0	0	0	0	1	0	1	0	0	1	1	0	0	1	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0
C. (E.) penetrans - gr.	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	0	1	0	1	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0
C. (E.) armatum - gr.	0	0	0	1	0	0	0	0	0	1	2	0	1	0	0	0	0	0	1	1	0	1	0	0	0	0	0	?	?	?	?	0	0	?	0	0	0	0	0
C. kasbekianum	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	0	0	0	1	1	0	1	0	1	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0
C. macrorrhynchum - gr.	0	0	0	1	0	0	0	0	0	1	0	0	1	0	1	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0
C. opacinum	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
C. cylindricolle - gr.	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0
C. secundum	0	0	0	1	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
C. gibbiceps	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	0	0	0	0	1	0	1	0	1	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0
C. gibbifrons	0	0	0	1	0	0	0	1	0	1	1	0	1	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
C. decolor - gr.	0	0	0	1	0	0	0	0	0	1	0	0	1	0	1	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1

Tab. 1. Character matrix

As a result of critical review of morphological characters of the *Ceratapiini,* 39 characters served as a basis for the analysis with the aid of HENNIG 86 programme. Their list is presented below. It comprises only apomorphous states of each character, denoted with "1" in the matrix, or with a higher number when consecutive stages of transformation series of a character are concerned. Plesiomorphous states, denoted as "0", have been discussed in detail in the previous chapter. In principle, character states of the same structure were regarded as independent characters, when there were no clear indications that they formed a series of evolutionary transformations. This pertains to characters 2-3, 4-5, 6-8, 20-21 and 28-31. In such cases all the taxa devoid of a given apomorphy obtained "0" value. Numbering of characters corresponds to their sequence in the matrix (tab. 1). Character 7 was treated as non-additive, the remaining multistate characters (11, 34) were treated as additive. Autapomorphous characters of particular taxa and species groups were omitted, as not influencing the outcome of analysis.

1. Elytra sexually dichroic.

2. Ventral side of prorostrum smooth and shining, without a median keel and grooves.

3. Venter of prorostrum with a median keel extremely narrow or partly evanescent; grooves very broad, taking the whole rostrum breadth.

4. Antennal scrobes evanescent before or just in front of the head venter, the whole interocular area asperate.

In *C. dentirostre* and some species of the *C. macrorrhynchum* species group lateral carinae of the scrobes reach anterior 1/3 of the interocular area, but some few asperities are present here. In both cases the character is valued as 1.

5. The whole interocular area glabrous, microsculptured like bottom of the antennal scrobes; puncturation or asperities, if present, restricted to the narrow, transverse area beyond the eyes.

In *C. opacinum* and *C. kasbekianum* interocular area is even and scale-like microsculptured far beyond half of the eye length and the puncturation and asperities are unclear, but the lateral carinae bordering antennal scrobes are distinct in front half of the interocular area. In both species the character is valued as 0.

6. Frons with two striolae or sulci, parallel or connected basally to form V or U.

7. Frons:
   - with numerous fine striolae, the two median convergent posterad or V-like (1),
   - with four deep sulci, the two median clearly V-like (2).

8. Striolae of the frons concealed by coarse puncturation.

9. Vertex smooth, impunctate.

10. Temples punctate far beyond the eyes (at least two rows of punctures).

11. Male antennal club:
   - slightly concave in basal half; funicular segments not modified (1),

- with a distinct depression in basal half; two distal funicular segments broadened, flattened or concave at inner side (2).

12. Male antennal club longer and distal funicular segments evidently shorter than in female.

13. Prosternum as long or only slightly shorter than the postcoxal part of prothorax.

14. Pronotal sides with more or less distinct pleural line, bounding an impunctate area along the posterior margin.

In *C. tibetanum* the pronotum has at sides a few coarse wrinkles close to the posterior margin. In *C. uniseriatum* the sculpture of pronotal sides is composed of very coarse, partly confluent punctures reaching or not the posterior margin and leaving incomplete, fine line occasionally recognizable. In both species the character state cannot be established for certain and has been shown in table 1 as "?".

15. Elytral humeral calli completely reduced.

16. Elytral striae apically connected 1, 2, 9 (or 1, 2+9), 3+4, 5+6, 7+8.

17. Mesepisternal sutures visible, ending in pits.

18. Metasternum at most 1.4 times longer than the mid coxae.

19. Male protibiae spatulate and twisted apically; basal protarsomere compressed.

20. Male basal metatarsomere with a ventral spine, fore and mid tarsi unarmed.

21. All male tarsi without a ventral spine.

22. Tegminal macrochaetae strongly shortened.

23. Parameroid lobes with seta- or spine-like processes at ventral side.

24. The dorsal portion of ring not separated laterally from the tegminal plate fusion to the forked basal piece.

25. Fenestrae very small, depressed and double-margined.

26. The tegminal dorsal portion of ring broadly broken medially or vanising.

27. Apices of parameroid lobes hook-like curved inwards.

28. Lateral fold present only in apical part of the tegminal plate, incurved.

29. Lateral fold absent, apices of the parameroid lobes expanded outwards.

30. Lateral fold sinuous and strenghtened to form some kind of a pocket at base of each parameroid lobe.

31. Lateral fold distinct throughout the tegminal plate, in basal section clearly shifted inwards.

Strong modification of the tegminal plate in the *C. armatum* species group does not allow ascertaining the lateral fold presence and course. Nearly complete reduction of the lateral fold in the subgenus *Clementiellus* is undoubtedly a secondary modification, so the character 31 is stated as "?".

32. Internal sac of aedeagus distinctly projecting beyond the tubular part of median lobe.

33. Internal sac of aedeagus with conical sclerites and a pair of clusters of strong spines in the orificial region.

34. Median part of the internal sac of aedeagus:
   - with a pair of long, tape-like and serrate sclerites (1),
   - with a pair of small, serrate sclerites (2),
   - with a single sclerite bearing a double row of denticles (3).

35. Internal sac of aedeagus with an even number of serrate sclerites in the basal part.

36. Internal sac of aedeagus with uniformly distributed, small spines at both sides of the orifice.

37. Orificial region of the internal sac with a pair of fine, transverse plates.

38. Internal sac of aedeagus with a pair of regular chains of basally expanded and bar-like denticles.

39. Bases of the apophyses of the median lobe of aedeagus broadly membranous.

The data matrix of 27 species and working species groups with 39 characters was analysed using m* and bb options of the program HENNIG86 (FARRIS 1988). The analysis resulted in 2 equivalent cladograms 83 steps long, with consistency index (ci) of 50, and retention index (ri) of 70, shown in fig. 8. The resulting cladograms are identical with respect to characters, the only difference involving the relative position of the three main evolutionary lineages in the genus *Ceratapion*. One of the cladograms (A in fig. 8) has a trichotomy of *Ceratapion s. str.*, *Acanephodus* + *Echinostroma*, and the group of 7 species and working species groups (further called *Angustapion* lineage), while the second cladogram (B) is completely resolved, but the clade *Ceratapion. s. str.* + *Angustapion* is not supported by any synapomorphy. The former (trichotomous) cladogram remains as the only one in further analysis with the use of HENNIG86, when successive weighting option is applied (parameters: length=277, ci=82, ri=91). The same cladogram remains the only one, when characters 2-3, 4-5, 6-8, 20-21 and 28-31 are treated as five multistate and non-additive (the data matrix is then of 31 characters).

Five main evolutionary lineages of the *Ceratapiini* can be distinguished in the obtained cladograms.

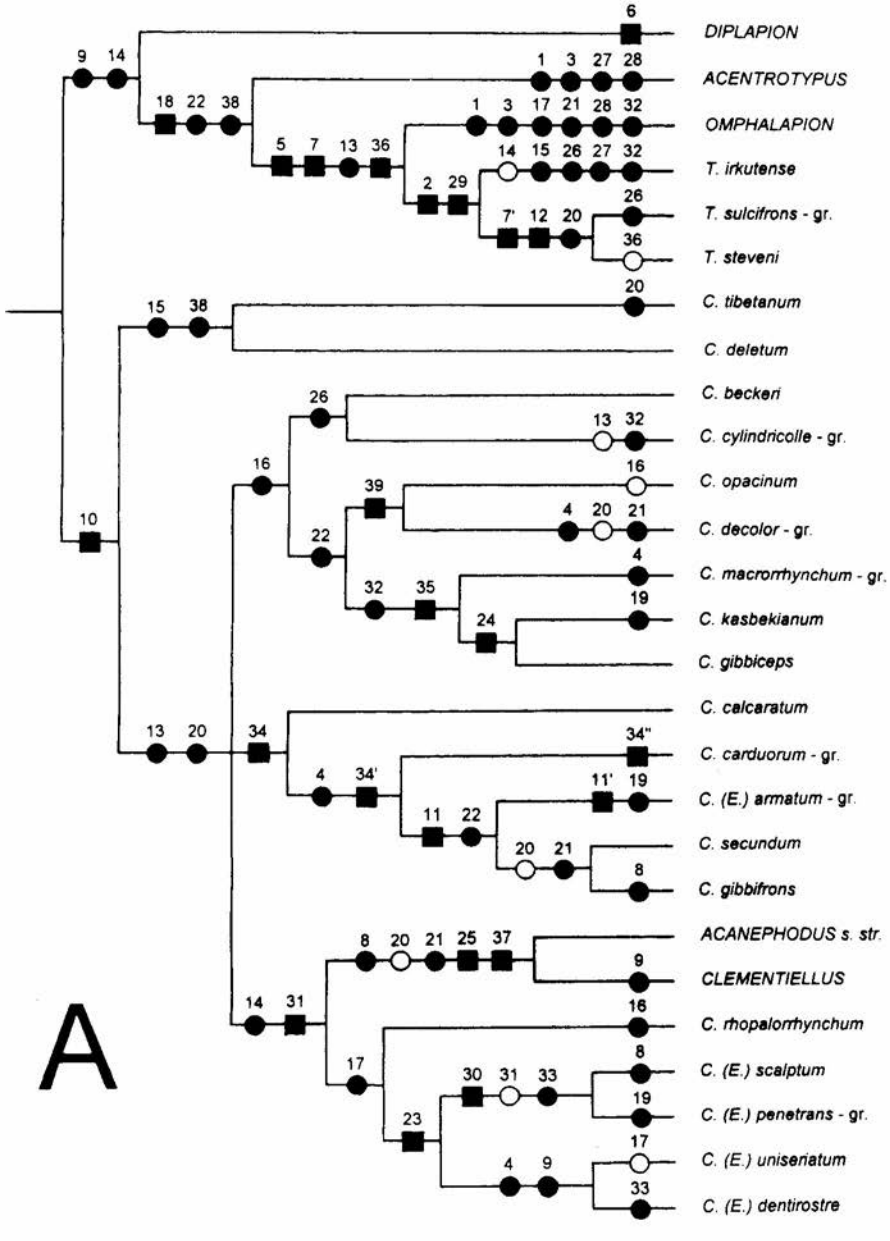
1. *Diplapion* + *Acentrotypus* + *Omphalapion* + *Taphrotopium* lineage, supported by two synapomorphies: 9 (impunctate vertex) and 14 (pronotal pleural line present). Within this lineage the genus *Diplapion* is a clearly distinct taxon, in having peculiar arrangement of the frontal sulci (character 6) and in other characters it is closest to species of *Ceratapion s. lato*. The remaining taxa of this lineage form monophyletic groups well delimited by the shortened metasternum (character 18) and tegminal macrochaetae (character 22), and the presence of regular rows of denticles within the internal sac of aedeagus.

The genera *Acentrotypus* and *Omphalapion* share apomorphies 1 (elytra sexually dichroic), 3 (ventral grooves of the prorostrum broadened) and 28 (lateral fold modified and present only on apices of the parameroid lobes), and a hypothesis that they are sister groups can be taken into consideration, as shown in fig. 9. The alternative cladogram is, however, one step longer than that presented in fig. 8 (the apomorphy 13 appearing in the common ancestor of *Acentrotypus* + *Omphalapion* + *Taphrotopium* and reversed in *Acentrotypus*) and assumes, in turn, homoplasy of characters 5, 7 and 36. Furthermore, characters 3 and 28 in *Acentrotypus* and *Omphalapion* are somewhat differently developed. In *Acentrotypus* the prorostral grooves are shorter and not limited externally by sharp ridges, present in the members of *Omphalapion*. The course of lateral fold in both genera is also different. In *Acentrotypus* it connects the outer and inner margin of the parameroid lobe with a regular arc. In *Omphalapion* there is no such connection, and the lateral fold is not so regular. The differences indicate a possibility of homoplasy in case of both characters. *O. fossicolle* and *T. irkutense*, certainly the most primitive species in their respective genera, are especially relevant to the discussion on the mutual relations of *Acentrotypus*, *Omphalapion* and *Taphrotopium*. The former is characterized by the frons with striolae arranged identically as in *T. irkutense*, pronotum of a shape and sculpture typical of the genus *Taphrotopium* and distinctly elongate elytra. In the shape and sculpture of pronotum, antennal insertion remote from head and slender antennae, *T. irkutense* is closer to the members of the genus *Omphalapion* than to *Taphrotopium*. The above examples indicate similar tendencies in the evolution of both genera, which would confirm their common origin. This is also supported by the association with plants of the same tribe *Anthemideae,* whereas *Acentrotypus brunnipes* is the only representative of the *Ceratapiini*, that lives on plants of the genera *Filago* and *Gnaphalium* of the tribe *Inuleae*.

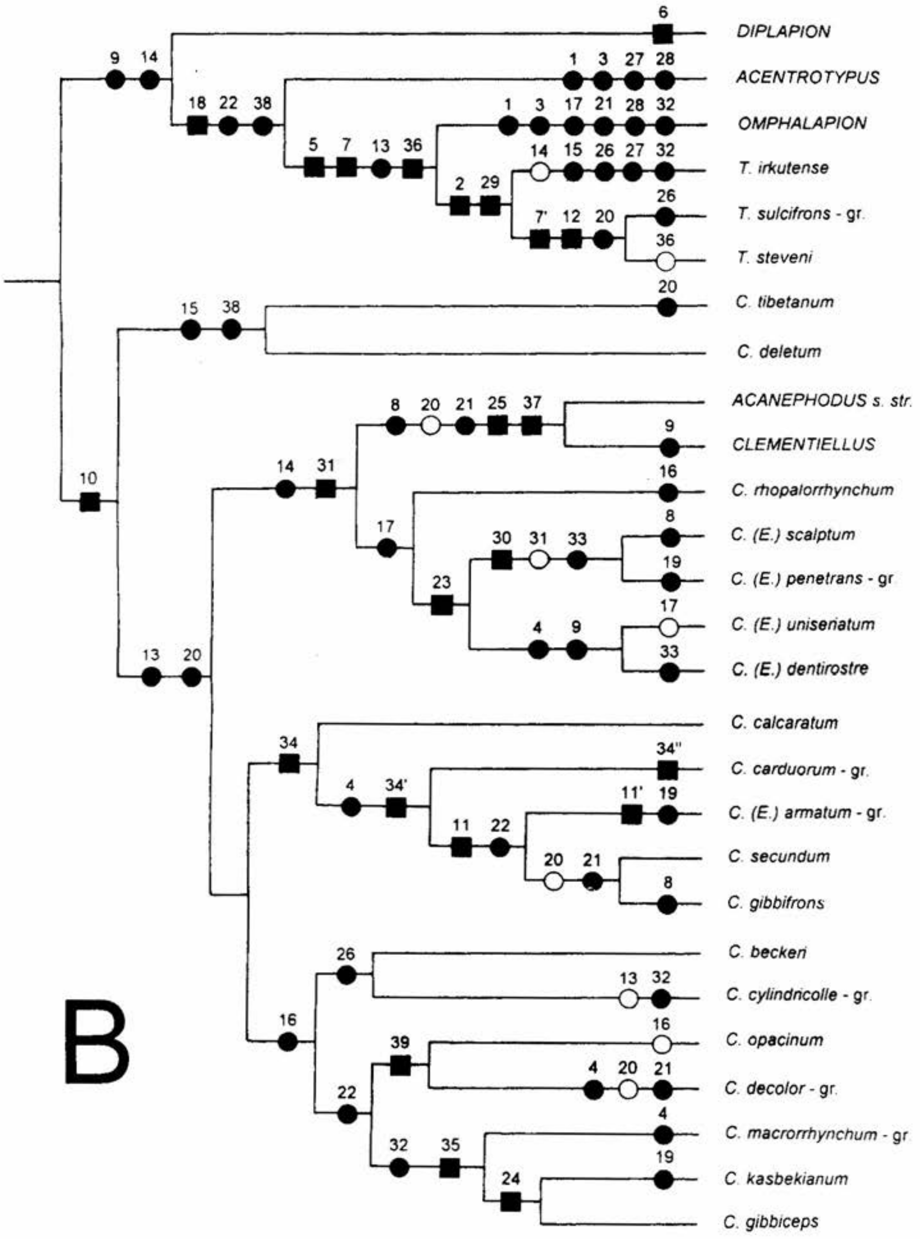
2. *C. deletum* + *C. tibetanum* lineage is the sister group of all the remaining species of *Ceratapion* and the only representative of *Ceratapion s. lato* that shares regular chains of denticles in the internal sac (character 38) with the genera *Acentrotypus*, *Omphalapion* and *Taphrotopium* of the preceding lineage. Another synapomorphy of these two species is 15 (elytra without humeral calli).

3. *Acanephodus* + *Echinostroma* lineage has synapomorhies 14 (pronotal pleural line present) and 31 (tegminal lateral fold long, in basal section shifted inwards). The species classified hitherto in the subgenera *Acanephodus s. str.* and *Clementiellus* form the most distinct monophyletic group within *Ceratapion s. lato*, characterized by striolae of the frons partly or completely concealed by puncturation (character 8), male tarsi unmodified (character 21), tegminal fenestrae very small, depressed and double-margined (character 25) and the internal sac of aedeagus having a pair of fine plates in the orifice (character 37). The monophyly of the species classified in the *Ceratapion* subgenus *Echinostroma* is supported by the synapomorphy 17 (mesepisternal sutures visible and ending in small pits).

In the common lineage *Acanephodus* + *Echinostroma* there is a clear tendency to shorten the lateral fold: from complete and present also on the inner margins of parameroid lobes in *Acanephodus s. str*, through the fold running along the entire inner margin of the tegminal plate in *C. rhopalorrhynchum*, *C. dentirostre* and *C. uniseriatum*, to the fold present only in the basal part of each parameroid lobe in *C. scalptum* and in the group of *C. penetrans*. The position of the latter two taxa in the obtained cladograms confirms the conjecture, that the reinforcement and S-like



8. Two most parsimonious cladograms of the *Ceratapiini* obtained with HENNIG86 procedure
(see also page 47)

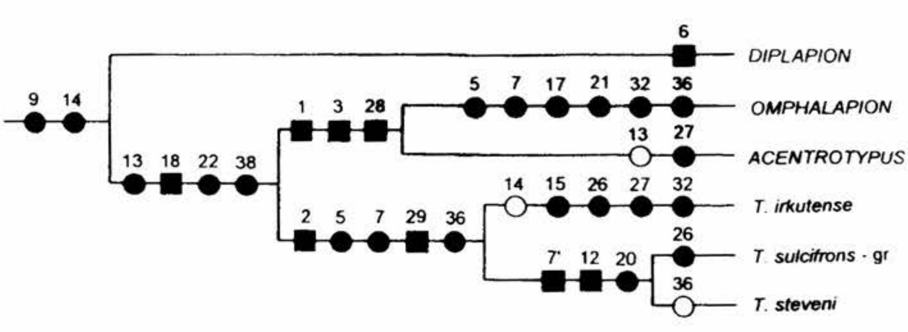

DIPLAPION
ACENTROTYPUS
OMPHALAPION
T. irkutense
T. sulcifrons - gr.
T. steveni
C. tibetanum
C. deletum
ACANEPHODUS s. str.
CLEMENTIELLUS
C. rhopalorrhynchum
C. (E.) scalptum
C. (E.) penetrans - gr.
C. (E.) uniseriatum
C. (E.) dentirostre
C. calcaratum
C. carduorum - gr.
C. (E.) armatum - gr.
C. secundum
C. gibbifrons
C. beckeri
C. cylindricolle - gr.
C. opacinum
C. decolor - gr.
C. macrorrhynchum - gr.
C. kasbekianum
C. gibbiceps
B

bend of the lateral fold (character 30), being their synapomorphy, is a further modification of character 31. Exceptionally, a complete or nearly complete reduction of the lateral fold in the subgenus *Clementiellus* is a peculiar autapomoprhy of that taxon. In the subgenus *Echinostroma* a relation of *C. rhopalorrhynchum* to the remaining members of the subgenus should be clarified. The fact, that I had at my disposal only one male of not fully sclerotized copulatory apparatus does not exclude the presence of processes on the underside of tegminal plate in this species. Perhaps, like in *C. uniseriatum*, also in this species the processes are reduced and preserved only in some specimens. Likewise, the absence of sclerites in the internal sac of aedeagus in *C. uniseriatum* and *C. rhopalorrhynchum* may result from their secondary reduction. The structure of antennae and rostrum places *C. rhopalorrhynchum* close to the lineage *uniseriatum* + *dentirostre*, and in my opinion their common origin can not be excluded.

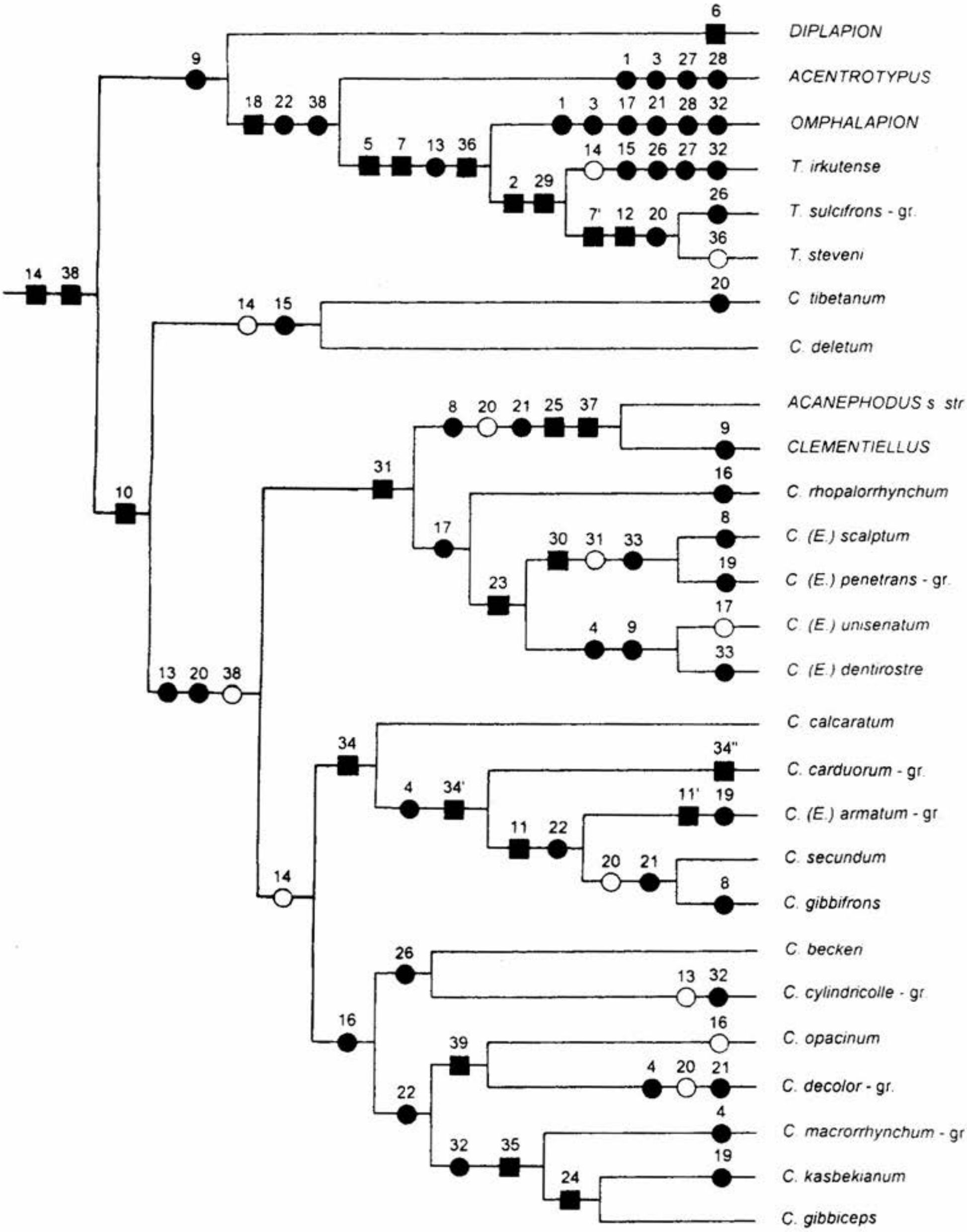
4. *Ceratapion s. str.* lineage, apart from *C. calcaratum* and *C. carduorum* species groups included in the subgenus by Alonso-Zarazaga (1991b), includes also *C. secundum*, *C. gibbifrons* and the *C. armatum* species group. The monophyly of this group is supported by synapomorphy 34 (internal sac of aedeagus with median, denticulate sclerites).

5. *Angustapion* lineage comprising all the remaining species of *Ceratapion* and supported by synapomorphy 16 (elytral striae 1, 2, 9 apically disconnected), which appears as a homoplasy also in *C. rhopalorrhynchum*.

It follows from the cladograms that the pleural line of pronotum (character 14) appeared as an apomorphy independently in the ancestors of the lineages *Diplapion* + *Acentrotypus* + *Omphalapion* + *Taphrotopium* and *Acanephodus* + *Echinostroma*. The possibility of its presence in a modified form in *C. tibetanum* (having vertically wrinkled posterior pronotal sides) and examples of its independent disappearance in some species of *Omphalapion*, *T. irkutense* and *C. uniseriatum* indicate that the pleural line appeared in that tribe very early, and its reduction is a major evolutionary tendency and could have taken place also in the common ancestor of the subgenus *Ceratapion s. str.* and the *Angustapion* lineage. The variant in which the



9. An alternative cladogram of the genera *Diplapion*, *Acentrotypus*, *Omphalapion* and *Taphrotopium*



10. Phylogenetic tree of *Ceratapiini* (characters 14, 38 modified)

pleural line appears already in the ancestor of the *Ceratapiini* and undergoes a secondary reduction in the above mentioned taxa, seems much more probable than the independent appearance of this character in two different phylogenetic lineages. In such a situation reversal 14 would support monophyly of the group *Ceratapion s. str.* + *Angustapion*.

In the cladograms apomorphy 38 appears independently in the lineages *C. deletum* + *C. tibetanum* and *Acentrotypus* + *Omphalapion* + *Taphrotopium*. Considering the fact that many species of *Ceratapion* have paired serrate sclerites formed most probably of two regular rows of denticles in the internal sac of aedeagus, it should be at least equally likely that such rows of denticles appeared already in the common ancestor of the *Ceratapiini* and in the further evolution were transformed into paired sclerites or disappeared in the genera *Acanephodus* and *Ceratapion*. In view of almost complete absence of any structures in the internal sac of aedeagus in all the members of *Diplapion*, it is very likely, that the disappearance of the mentioned rows of denticles in this genus took place independently and constitutes its apomorphy. Even more clearly than in the case of character 14, the tendency to simplify the structure of internal sac and disappearance of structures such as regular rows of denticles or sclerites prevails in the *Ceratapiini*. Besides *Diplapion*, examples confirming the tendency are provided by the genus *Taphrotopium*, subgenus *Ceratapion s. str.*, the *C. macrorrhynchum* species group and *C. uniseriatum*.

Perhaps also character 10 (temples broadly punctate) appeared already in the ancestor of the entire tribe. The puncturation of tempora is better developed in the genus *Diplapion* than in the members of the genera *Acentrotypus*, *Omphalapion* and *Taphrotopium* (single row of punctures is always present, in some species becoming roughly double underneath), and it is thus possible that its incomplete reduction is the case.

The cladogram in which characters 14 and 38 were interpreted in agreement with the above remarks is presented in fig. 10. With respect to the arrangement of taxa it is identical with cladogram B in fig. 8, but the modification of characters 14 and 38 made it two steps longer. In spite of this, I regard it as the most probable tree of the *Ceratapiini*, since such an interpretation of the two characters just named is in better agreement with the evolutionary tendency observed in particular lineages.

From the presented cladograms and the above considerations it follows that, besides the clearly distinct, primitive group *C. deletum* and *C. tibetanum* of unknown bionomics, two main evolutionary lineages can be distinguished in the tribe *Ceratapiini*. The first comprises the genera *Diplapion*, *Acentrotypus*, *Omphalapion* and *Taphrotopium*, the second includes *Ceratapion* and *Acanephodus*. The division is additionally supported by biological data. Species of the former group are associated with plants of the tribes *Anthemideae* and *Inuleae*, according to TAKHTADZHJAN (1987) members of the subfamily *Asteroideae*, while representatives of the latter lineage live on plants of the tribes *Echinopeae*, *Carlineae* and *Cardueae*, included in the subfamily *Lactucoideae*.

In consequence of the detailed analysis of evolutionary relationships between the phylogenetic lineages in the *Ceratapiini*, a reclassification of its higher taxa becomes necessary. The results of the analysis confirm the monophyletic character of most hitherto described genera and subgenera, and they seem justified methodologically. The estimate of the value of characters on which they were based remains, however, problematic. Of 39 characters used in the cladistic analysis, over half turned out to be homoplasies, or their evolution involved a reversal to the ancestral condition. This testifies to a clear mosaic nature of the evolution of the tribe. This pertains especially to the most speciose and most diverse genus *Ceratapion*, in which some characters, e.g. shortened antennal scrobes on the underside of head, disappearance of sulci on the frons and spines on hind tarsi of the male, or shortening of the parameroid macrochaetae, appear independently three or four times. The remaining secondary sexual characters of the male and the structure of mesorostrum display an even greater homoplasious tendency. The genus *Ceratapion* sensu ALONSO-ZARAZAGA (1991) is paraphyletic, because of the exclusion of the genus *Acanephodus*, which has a common ancestor with the group of members of *Ceratapion* that form the subgenus *Echinostroma*. It is the most diverse genus in the tribe *Ceratapiini*, but its main evolutionary lineages are distinguished by much fewer synapomoprhies than the remaining taxa of the tribe, in addition they are often homoplasies. In view of this fact, splitting the group in many genera does not seem sufficiently justified. A traditional, broader concept of the genus *Ceratapion* seems more practical, with the main phylogenetic lineages, including that of *Acanephodus*, as subgenera; the genus *Ceratapion* is treated in this way in the present paper. The solution may not be in strict agreement with the rules of classification based on cladistic analysis, because of the clear differences in the rank assigned to taxa in each in the two main evolutionary lineages within the *Ceratapiini*. I adopted it, however, believing that it very well reflects the poorly documented evolutionary relationships between the lineages in the genus *Ceratapion* and that it better serves the stability of nomenclature. An additional argument in favour of the inclusion of the lineage of *Acanephodus* in the genus *Ceratapion* is its biological association with plants of the tribe as the host plants of the subgenera *Echinostroma* and *Ceratapion s. str.* - *Cardueae*. A relatively high number of autapomorphies of the subgenus *Clementiellus*, pronouncing its distinctness from the species of *Acanephodus s. str.*, indicates a necessity of maintaining it in the genus *Ceratapion*. Ultimately I propose a division of the tribe *Ceratapiini* into six genera discussed below.

Genus *Protoceratapion* nov.[1]

It includes two Central Asian species *P. deletum* and *P. tibetanum*. Apart from the completely reduced elytral humeral calli, the genus is based almost exclusively on plesiomorphous characters, since it follows from the earlier analysis that the

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[1]Description on p. 76

punctate temples and rows of denticles in the internal sac of aedeagus that characterize both species may be apomorphies that appeared already in the ancestor of the *Ceratapiini* and were subsequently modified in most phylogenetic lineages. The primitive character of the genus may also be indicated by the laterally open fenestrae of the tegminal plate in *P. deletum* - not found in the remaining *Ceratapiini* and widespread in other more primitive tribes of the *Aspidapitae*, though in this case it is rather a reversal. The close relationship of both species is evidenced by the similar structure of the median lobe of aedeagus and, except for that of fenestrae and lateral fold, the tegminal plate. Their other common characters omitted from the cladistic analysis include relatively slender and not very strongly scale-like microsculptured antennae, very weak and blunt widening of the rostrum above their bases and probably the absence of specialized setae (a more extensive material is necessary to confirm the latter character in *P. tibetanum*). Both species differ from each other among others in the structure of male tarsi. The male of *P. tibetanum* has a ventral spine only on hind tarsi, like most species of the genus *Ceratapion*, while *C. deletum* is the only member of the *Ceratapiini* with ventral spine on mid and hind tarsi. Assuming that the ancestor of the *Ceratapiini* had, like in the tribe *Prototrichapiini*, spines on all the male tarsi, the preserved spine on mid tarsi in the latter species is one more evidence of its primitive nature.

Genus *Diplapion* Reitter.

A Western Palaearctic genus, comprising 10 species whose morphology is the least diverse in the entire tribe. Their synapomorphy is the presence of a pair of frontal sulci connected or converging with their bases. It follows from the cladistic analysis that the genus was the first to separate from the common lineage *Acentrotypus* + *Omphalapion* + *Taphrotopium*, biologically associated with the subfamily *Asteroideae*. Of the taxa forming the evolutionary lineage, *Diplapion* shares the most numerous characters with the *Ceratapion* lineage. They include among others relatively elongate both metasternum and the whole body, intermediate puncturation of the temples, complete reduction of regular rows of denticles in the internal sac of aedeagus and larval development predominantly in rootstock. Combined with the plesiomorphous structure of male tarsi (all ventrally spined), tarsal claws basally angled in some species (in which it resembles members of the other tribes of *Aspidapitae*, having tarsal claws basally dentate), unmodified lateral fold of tegminal plate and, perhaps, incomplete lateral closure of the fenestrae leaving a suture connecting them with the plate margin in the *D. detritum* species group, particularly in *D. saudiarabicum* sp. nov., this indicates that the genus *Diplapion* is the most primitive in the lineage leading to the genera *Omphalapion* and *Taphrotopium*. On the other hand, the species of this genus have the most specialized aedeagus, characterized by a considerable simplification of the structure of internal sac, very tight connection between the dorsal plate and the remainder of median lobe, tegminal plate articulated in some species and long, bifid prostegium.

Genus *Acentrotypus* Alonso-Zarazaga.

A monotypic genus, including *A. brunnipes* widely distributed in the Western Palaearctic. The species shares an array of characters both with the members of *Omphalapion*, and of *Taphrotopium*, and the problem of their mutual relationships was discussed above. They form a very distinct phylogenetic lineage, characterized by the disappearance of head puncturation, modification of the typical sculpture of the underside of prorostrum, shortened metasternum and parameroid macrochaetae, modified apical section of the lateral fold of tegminal plate and presence of regular rows of denticles in the internal sac, as well as weak or absent mesorostrum widening, reduction of specialized setae, narrow elytral striae, reduced body vestiture and a tendency to enlarge and reduce the tegminal fenestrae. The characters testifying to the most primitive morphological structure of the genus *Acentrotypus* in its lineage are: frons sculpture, sculpture of the underside of prorostrum departing the least from that typical of the *Ceratapiini*, the strongest elongated elytra and the structure of male tarsi. Autapomorphies of *Acentrotypus* include the shape of pronotum, exceptional among the *Ceratapiini*, and the disappearance of prescutellar fovea combined with a considerable reduction of puncturation of pronotal disc.

Genus *Omphalapion* Schilsky.

The genus, including 9-10 species of fairly uniform morphological structure, is characterized by the highest number of specialized characters, though most of them are homoplasies. Besides an array of characters used in the cladistic analysis, its autapomorphies comprise distinct sexual dimorphism in the body size and rostrum structure, erect pubescence on the male rostrum, strongly rounded pronotum with the pleural line displaced towards its posterior margin and the way of connecting the striae at elytral apex.

Genus *Taphrotopium* Reitter.

It comprises 4 species, of which only one is widely distributed in the Western Palaearctic, the remaining being limited in their distribution to Asia. Characters that distinguish this genus from other taxa of the *Ceratapiini* include the disappearance of grooves and median keel on the venter of prorostrum, and apically expanded parameroid lobes, as well as the shape of median lobe of aedeagus, which is very broad and rounded apically. *T. irkutense* is clearly distinct from the remaining species of *Taphrotopium* with respect to many important characters. Besides the primitve structure of antennae and male tarsi, and the frons sculpture, the species is characterized by an array of specialized traits, e.g. strong rounding of the pronotum sides and disappearance of the pleural line, reduction of the humeral calli of elytra or very much shortened metasternum. The latter character may suggest that the relatively strong elongation of elytra and abdominal segments in *T. irkutense* is also of secondary nature. The structure of aedeagus in this species is very interesting. Compared to its congeners the median lobe is very primitive, its structure being close to that found in less specialized members of the genus *Omphalapion*. However, the structure of tegminal plate in *T. irkutense* should be regarded as the most specialized in the two genera, which is evidenced by a complete disappearance of the fenestrae and dorsal portion of ring, very deep median notch and apices of the parameroid lobes both hook-like bent inwards and bearing semicircular lateral plates. The above characters, distinguishing *T. irkutense* from the remaining species of the genus, justify in my opinion creating for it a separate subgenus *Omphatopium* nov.[1]. The remaining species, included in the subgenus *Taphrotopium s. str.*, are characterized by the presence of four deep sulci on frons, strongly thickened and sexually dimorphic antennae, and absence of ventral spines on male fore and mid tarsi, as well as a tendency to reduce the structures of the internal sac of aedeagus.

Genus *Ceratapion* Schilsky

The most diverse and speciose genus of the tribe *Ceratapiini*, with 55 species and subspecies, of a distribution comprising almost entire Palaearctic. Its characteristic features are: the absence of regular chains of denticles in the internal sac of aedeagus, presence of ventral spine on only hind tarsi in the male (the spine disappearing in some species), prosternum and postcoxal part of prothorax equally or subequally long (except for the *C. cylindricolle* species group), long metasternum and the set of host plants limited to the tribes *Echinopeae, Carlineae* and *Cardueae*. Contrary to the remaining taxa, the genus *Ceratapion* displays no tendency towards modification of the ancestral type of sculpture of the underside of prorostrum and the course of the apical section of lateral fold of the tegminal plate, or to basal connection between the median pair of striolae on frons. Various modifications of the male leg structure, strongly dilated and dentiform mesorostrum, disappearance of antennal scrobes and the presence of sclerites in the internal sac of aedeagus are, however, common. In most cases the characters appear independently in various evolutionary lineages. In view of the considerable diversity of particular evolutionary lineages of the genus *Ceratapion*, a division into five subgenera is proposed.

1. Subgenus *Acanephodus* Alonso-Zarazaga.

It includes two morphologically very close species, of which one is distributed in the entire Palaearctic except Japan and northern areas of Asia, while the other is limited to the western fringes of the Mediterranean region. They are characterized, among others, by a slight widening of the mesorostrum, partial or complete reduction of sulci on frons, head coarsely punctate far behind eyes, presence of the pleural line on pronotum and specialized setae on elytra, as well as the absence of secondary sexual characters on the male legs and venter. The subgenus is especially distinct in

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[1]Description on p. 106

the structure of the copulatory apparatus. The median lobe of aedeagus has erect setae on strongly curved subapical part and denticulate margins of the orifice, internal sac has no sclerites, being instead provided with a pair of extremely delicate plates in the orificial region. The tegminal plate has small, depressed and double-margined fenestrae, very distinct, complete and shifted inwards lateral fold, strongly produced backwards and doubly incised prostegium and long macrochaetae.

2. Subgenus *Clementiellus* Alonso-Zarazaga.

Like the preceding subgenus, it comprises two very similar species, which are vicariant and distributed in the western part of Palaearctic. Its common origin with the subgenus *Acanephodus* is evidenced by the disappearance of frontal sulci and spine on the male tarsi, and first of all by a similar structure of tegminal fenestrae and the presence of delicate plates in the orifice of the median lobe of aedeagus. Apomorphous characters that distinguish the subgenus from the previous one include the reduction of vertex puncturation and lateral fold of the tegminal plate, well developed mesorostral teeth and disappearance of elytral specialized setae. A peculiar character of males of the subgenus *Clementiellus* is the presence of a small pointed tubercle in the middle of the first abdominal ventrite.

3. Subgenus *Echinostroma* Alonso-Zarazaga.

The most diverse of the three subgenera forming the evolutionary lineage that is characterized by the presence of pleural line on pronotum and removal of the lateral fold from the margin of tegminal plate. It comprises 8 species forming two distinctly separate groups. The first, distinct in its sinuous, strenghtened and pocket-like lateral fold of the tegminal plate, comprises *C. scalptum* and species related to *C. penetrans* and is widely distributed in the Western Palaearctic. The second, including the remaining three members of the subgenus, is represented on both ends of the Western Palaearctic. Apart from the tegminal lateral fold which forms no pocket and is not sinuous, it is characterized by very strongly developed teeth of mesorostrum and very stout antennae. The presence of seta-like processes on the venter of tegminal plate and conical sclerites in the internal sac of aedeagus are typical of the subgenus *Echinostroma*. Both these structures may, however, undergo reduction in some species. The subgenus differs from *Acanephodus* and *Clementiellus* in the presence of a pair of distinct pits on the mesosternum and the ventral spine on male metatarsi, as well as in the strong elongation and deep split of the parameroid lobes.

4. Subgenus *Ceratapion s. str.*

According to Alonso-Zarazaga (1991b) the subgenus comprises three Western Palaearctic species of the *C. carduorum* group and *C. calcaratum* endemic to

Canary Islands. In the sense proposed in this paper the subgenus includes also two Asian species, *C. secundum* and *C. gibbifrons*, as well as three species of the group of *C. armatum* - the latter species being included by ALONSO-ZARAZAGA (l. c.) in the subgenus *Echinostroma*. The subgenus *Ceratapion s. str.* is characterized by the presence of denticulate or serrate sclerites in the middle part of the internal sac of aedeagus, complete junction of striae 1, 2, 9 at elytral apex and usually strong development of the mesorostral teeth, which are usually bent anterad. Species forming this subgenus display a large morphological diversity. *C. calcaratum* has the most primitive structure - this is evidenced by the very poor development of mesorostral teeth, not shortened antennal scrobes, constant presence of specialized setae and especially the structure of aedeagal sclerites. The most specialized is the group of species related to *C. armatum*, whose males are characterized by a unique structure of antennae, tegminal plate and aedeagal sclerites, and flattened and twisted apices of protibiae. The close relationship of the *C. armatum* group with *C. secundum* and *C. gibbifrons* is testified to by the shared disappearance of antennal scrobes, internally concave base of antennal club, similar shape and sexual dimorphism in the structure of mesorostral teeth, vanishing of specialized setae, shortened parameroid macrochaetae and a considerable reduction of all the structures of the internal sac of aedeagus, except sclerites.

5. Subgenus *Angustapion* nov.[1]

It comprises 25 species of the last of the main evolutionary lineages in the genus *Ceratapion*. Its distinction is based on the absence of connection between the 1st and the remaining striae at the apex of elytra in almost all of its members, but the character appears also as an autapomorphy in *C. (Echinostroma) rhopalorrhynchum*. The subgenus *Angustapion* is the closest relative of the subgenus *Ceratapion s. str.*, this being evidenced by the disappearance of the pleural line on pronotum and, apart from the cases of reduction of its various sections, the lack of modifications of lateral fold of the tegminal plate. The cladistic analysis revealed the existence of three phylogenetic lineages in the subgenus, but the evolutionary relationships, compared to other groups, are the poorest documented.

The common origin of *C. beckeri* and the *C. cylindricolle* species group raises no doubts. The species of this phylogenetic lineage are characterized by a similar structure of the tegminal plate - with long macrochaetae, broadly rounded parameroid lobes, a pair of fine carinae, close to each other and situated in the middle of prostegium and a partial or total reduction of the dorsal portion of ring in all species except *C. poggii* sp. nov. The species share also the considerable elongation of the antennal club and a similar shape of the median lobe of aedeagus.

Another well separated group of species consists of *C. kasbekianum*, *C. gibbiceps* and species related to *C. macrorrhynchum*. They share a very similar structure of the whole aedeagus, with very short parameroid macrochaetae, complete dorsal portion

[1]Description on p. 299

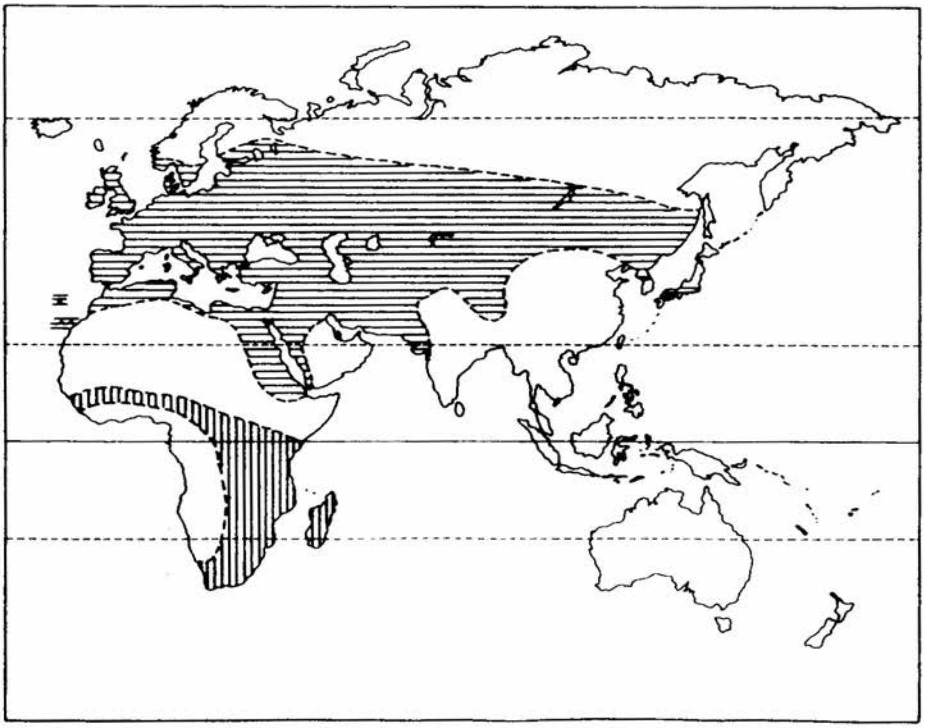
of ring, a pair of close median carinae absent, and the base of internal sac armed with crescentic sclerites and numerous spines (reduced in some species of the *C. macrorrhynchum* group), as well as strongly elongate body and the rostrum weakly dilated at antennal insertion.

Much more doubts are raised by the position of the groups of *C. decolor* and *C. opacinum*. The membranous connection between the bases of aedeagal apophyses in those species does not seem to be a very important character (as poorly developed it appears also in *C. beckeri*, *C. macrorrhynchum* and *C. akbesianum*) and weakly supports their hypothetical common ancestry. They differ distinctly in the structure of rostrum, male metatarsi and sculpture of the head venter. The sculpture of the underside of head in *C. decolor* and *C. austriacum* places them close to the species of the group *C. macrorrhynchum*. A complete closure of the internal sac inside the tubular part of the aedeagal median lobe and the reduction of its structures are also observed in some species of the latter group (*C. macrorrhynchum*, *C. aegyptiacum*). The above facts indicate that the *C. decolor* species group may be the sister group of the *C. macrorrhynchum* species group and of the *C. kasbekianum* + *C. gibbiceps* lineage. *C. opacinum* is the only species of the subgenus *Angustapion*, in which elytral striae 1, 2, 9 are fully connected apically, and it can not be excluded that it is the sister species of all the remaining species in this evolutionary lineage.

IV. 5. ZOOGEOGRAPHIC ANALYSIS

The tribe *Ceratapiini* inhabits nearly all the Palaearctic area, from the Canary Islands and the north-west African countries to the Amur Region, North Korea and Japan (map 1). The northern distribution border is 64 parallel in Scandinavia and the European part of Russia; in Asian parts of Russia the border is unknown because of the complete lack of faunistic data. It can be supposed that for most species it coincides with the northern range of the woodland steppe formation, and only more eurytopic species, such as *Ceratapion onopordi* or *C. gibbirostre* penetrate into the taiga zone. The southern distribution border of the *Ceratapiini* on almost whole of its length coincides with the borders of Palaearctic, only single species entering the Ethiopian Region in Ethiopia, Sudan and in the south of Arabian Peninsula. The distribution of the *Ceratapiini* in the Palaearctic is uneven. As a xero- and thermophilous group, in the northern part of Europe they are represented by few species. The fauna of eastern Asia is still poorer, only three species having been recorded from there hitherto; only *Ceratapion opacinum* is endemic to that area. The main area of distribution of the *Ceratapiini* comprises the basins of the Mediterranean and Black Seas, Asia Minor, Iran and montainous areas of Middle Asia. To a large extent it agrees with the borders of the Mediterranean Subregion sensu SCHILDER (1956).

The problem of the sequence of origin of particular tribes of the *Aspidapitae* is discussed in one of the previous chapters. Attempts at estimating the time of their origin have to be based on the analysis of their geographic ranges, palaeogeographic and palaeoecological data. The earliest fossil *Apionidae* are known from the Baltic amber, the finds being thus much too young to include the period of diversification of the *Aspidapitae* into main evolutionary lineages. The genus *Prototrichapion* is represented both on the African continent and on Madagascar, whose separation took place already at the beginning of the Coenozoic (CORYNDON & SAVAGE 1973) and resulted in several endemic genera and families of vertebrates. If there was no later crossing of the sea barrier, the genus would have originated not later than 70-60 mln years ago. The same applies to the tribe *Aspidapiini*, fairly abundantly represented on Madagascar. Of the remaining tribes, the *Kalcapiini* are strongly diversified in the entire Palaeotropical Region, and the *Metapiini* are represented in South Africa which is a refuge of primitive apionid groups. All this indicates that the diversification of the *Aspidapitae* into their present-day tribes took place at the end of the Mesozoicum, the Palaearctic tribe *Ceratapiini* being the only exception. As indicated by an analysis of illustrations and descriptions presented recently by ZIMMERMAN (1991, 1994), the supertribe is represented in the Australian fauna at least by the genus *Pseudaspidapion* WANAT (*subopacum* LEA) and perhaps by *Allotrichapion* VOSS, though they might have reached Australia as early as the



Map 1. Geographical ranges of the tribes *Ceratapiini* (horizontal hatching) and *Prototrichapiini* nov. (vertical hatching)

Tertiary from the Oriental Region. Such an origin of all the Australian apionid fauna was suggested by ZIMMERMAN (1994), but in my opinion at least in the case of representatives of the tribes *Rhadinocybini* ALONSO-Z. and *Notapionini* ZIMMERMAN, and the subfamily *Rhinorhynchidiinae* their Gondwanian origin is more likely. Till now there are no Neotropical records of the *Aspidapitae* which might suggest an earlier origin of the group. However, the fauna of South America, and also Australia, has never been studied in detail.

Among amber inclusions the *Aspidapitae* are represented by one species included by ZHERICHIN (1971) in the subgenus *Aspidapion* and, according to that author, close to Malgasian species. Judging from the description, the species belongs to the genus *Pseudaspidapion*, widely distributed in the Palaeotropical Region.

The weevil fauna of the Oligocene Baltic amber had little to do with the present Palaearctic fauna. It included many components of Gondwanian origin, close to groups occurring at present in the Ethiopian, Oriental and Neotropical or even - as in the case of the genus *Car* BLACKBURN - Australian Regions (ZHERICHIN 1971). Palaeobotanical data indicate a subtropical character of the European climate during the Oligocene. It is possible that, like with the genus *Pseudaspidapion*, the then distribution of the tribe *Prototrichapiini* comprised also Eurasia, and its limitation to the savannah zone of Africa and Madagascar resulted from later climatic changes. Next possibilities of invasion of Asia by the *Prototrichapiini* appeared after the contact between it and the Indian subcontinent, and after Africa connected with the Anatolian-Iranian land strip, which took place in the Oligocene or lower Miocene (CORYNDON & SAVAGE 1973, HEISSIG 1979, BOULIN 1981). The former possibility seems less likely, since no species of *Prototrichapiini* has been recorded from India. However, the knowledge of Oriental *Apionidae* is much poorer than that of the Ethiopian fauna, and the distribution pattern of some tropical groups, e.g. genus *Pseudorhinapion* VOSS, or species groups related to *Conapium gracile* (GERSTAECKER), *C. benignum* FAUST and *C. fuscitarse* (WAGNER) suggests, that they could have migrated from Africa to SE Asia through the Indian subcontinent. On the other hand, after the land connection between Africa and Asia Minor had been formed, a migration road opened for the African savannah fauna eastwards, and among others the genera *Pseudoconapion* VOSS, *Piezotrachelus* SCHOENHERR and *Pseudopiezotrachelus* WAGNER reached India through the present-day Iran, Pakistan and Afghanistan. In one case an Afro-Indian distribution range is the case. *Pseudaspidapion brunneorufum* (BALFOUR-BROWNE), recorded from India, is widely distributed in eastern Africa, and in Kenia and Tanzania it co-occurs with species of *Prototrichapion*. Thus the presence of the *Prototrichapiini* in India can not be excluded. Even if the tribe never invaded Eurasia, climatic conditions of Africa, when it got in contact with the Anatolian-Iranian area, enabled occurrence of its members on north-eastern fringes of the continent, adjoining the probable region of origin of the *Ceratapiini*.

In most of the main evolutionary lineages of the *Ceratapiini* the most primitive species occur in Asia Minor and on the Iranian Plateau (*Diplapion - hamatum*; *Omphalapion - fossicolle*; *Echinostroma - rhopalorrhynchum*; group of *Ceratapion macrorrhynchum - akbesianum*) or in Middle Asia (*Protoceratapion*; *Taphrotopium - irkutense*). The only exception is *C. calcaratum*, endemic to the Canary Islands - the most primitive member of the subgenus *Ceratapion s. str.* Among the 27 species and species groups, morphologically distinct and included in the phylogenetic analysis, only two are not represented in Asia Minor and/or Middle Asia. The areas of western and central Asia are also distribution centres of most genera of the *Asteraceae* which include host plants of the *Ceratapiini* - among others *Artemisia*, *Anthemis*, *Echinops*, tribe *Cardueae* (TAKHTADZHJAN 1981). These facts clearly indicate that it is in those areas, that the centre of origin of the *Ceratapiini* should be placed. Because of very many gaps in the knowledge of the distribution of Asian species, and of very scanty knowledge of the fauna of the mountains of central Asia and Iranian Plateau (especially Tibet and Zagros Mts), a more precise localization of the centre of origin of the group is impossible. Assuming that the Miocene range of the *Prototrichapiini* did not reach far outside Africa and Arabian Peninsula, its most probable localization would be Iranian Plateau. However, if the group was present in Asia as early as in the Oligocene, or came there on the Indian subcontinent, the place of origin would rather be Tibet or one of mountain massifs of central Asia surrounding the Tethis Ocean. The present relict range of the genus *Protoceratapion* would confirm the latter hypothesis - the fauna of many insect groups in those mountains is older than that of the surrounding plains (PRAVDIN & MISHTSCHENKO 1980). In the former case it should be regarded as a remnant of a wider distribution, limited as a result of increasing aridity of the climate.

Early stages of the evolution, and perhaps even the very origin of the *Ceratapiini*, should be associated with the beginning of regression of the Tethis. The aridity and continental character of the climate, increasing from the mid Miocene till the Pliocene, involved both Middle Asia and Asia Minor (MARKOV 1960, PRAVDIN & MISHTSCHENKO 1980). At that time the Anatolian-Iranian land strip was connected with Middle Asia and, irrespective from the place of origin of the first *Ceratapiini*, there were possibilities of their rapid dispersal in the entire area. Hence probably the considerable distances between the purported centres of origin of some closely related genera, e.g. *Omphalapion* and *Taphrotopium*. The distribution area of *O. fossicolle* and the west Asian distribution border of the genus *Anthemis* (TAKHTADZHJAN, 1981) indicate that the genus *Omphalapion* originated in Asia Minor. The present range of *Taphrotopium*, and especially the primitive subgenus *Omphatopium*, and the high diversity of the flora of *Artemisia* in Middle Asia, place the centre of origin of the latter genus just there. The origin of the remaining of the five main evolutionary lineages of the *Ceratapiini* is much more difficult to ascertain and requires more complete data on the Asian fauna. Probably most speciation events had then a sympatric character and consisted in acquiring new species of host plants. The process of radiation and dispersal of the group that invaded a quite new ecological niche - both with respect to a "competition-free" group of plants and to the habitat - could have proceeded very rapidly. It is thus very likely that all the genera and subgenera of the *Ceratapiini* existed already in the lower Miocene.

The receding and drying Tethis Ocean created favourable conditions for a rapid westward migration of the *Ceratapiini*. As early as the Miocene the group reached western fringes of Europe and Africa, as well as Canary Is., where it is now represented by relict and primitive species. The migration to Europe took place first of all along sea coasts. A great part of species inhabiting sandy and salty Asian deserts that came into existence after the Tethis had receded - the original areas of diversification of the *Ceratapiini* - originate from the coastal flora of the Tethis (IL'IN 1947, 1958). With decreasing sea level favourable conditions appeared for dispersal of psammo- and halophilous groups of the *Asteraceae*, followed by the *Ceratapiini* from Asia into the entire Mediterranean basin. *Ceratapion dentirostre* and *C. curtii* are probably relicts of that period. The range of the former is limited at present to the coast of Morocco and Spain, and the closest allied *C. uniseriatum* occurs on deserts of central Asia and Iranian Plateau (map 2). *C. curtii* occur on several Mediterranean islands, distant from each other (Sardinia, Sicilia, Hvar, Crete) and populations of each display some peculiarities (ALONSO-ZARAZAGA 1991b).

Main migration routes of the Miocene fauna of *Ceratapiini* to Europe must have run along the northern coast of the then Pontic Sea, and on the northern and southern coasts of the Mediterranean. Probable expansion routes of some genera and species groups, based on their present distribution, are presented in table 2. It

Map 2. Distribution of *Ceratapion dentirostre* (hollow circles) and *C. uniseriatum* (solid circles)

follows from the juxtaposition that the northern-Mediterranean route was the most often used. Its course is well illustrated by the present distribution range of *Acentrotypus brunnipes*, with many primitive characters; the range extends from the Iranian Plateau to the southern parts of the British Isles and northern coasts of Denmark and Germany (map 3).

The increasing influence of the Sahara Desert, that had started to form since the mid Miocene, limited the migartion possibilities of more mesophilous groups of the *Ceratapiini* along the northern coast of Africa. The route was used by species of the genus *Diplapion*, group of *C. macrorrhynchum* and probably of the subgenus *Ceratapion s. str*, which seems to be most closely related to *C. edentatum* and *C. fallaciosum*. At the end of Miocene (Messinian) there existed a land connection between the present-day Morocco and the Iberian Peninsula, and between the Tunisian land and Sicily (AZZAROLI & GUAZZONE 1980). It was probably then that the north-western African fauna became enriched with species of *Omphalapion*, *Acentrotypus*, *Acanephodus*, *Clementiellus* and *Echinostroma* coming from Europe, and some species of the genus *Diplapion* (*detritum*, *confluens*, *stolidum*?). The migration in the opposite direction was much less intense, only single species of *Diplapion* (*squamuliferum*, perhaps also *nitens*) and *Ceratapion lancirostre* having reached Western Europe.

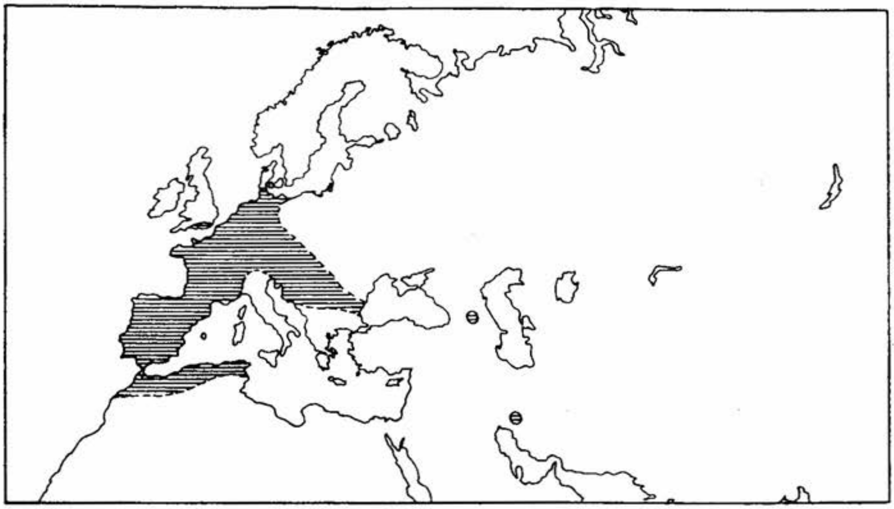
Migration route / Taxon or species group	North-Pontic	North-Mediterranean	South-Mediterranean
Omphalapion	-	+	-
Taphrotopium	+	-	-
Acentrotypus	-	+	-
Diplapion	+	+	+
Clementiellus	-	+	-
Echinostroma	+	+	-
C. armatum group	+	-	-
C. cylindricolle group	+	?	-
C. macrorrhynchum group	-	+	+
C. decolor group	-	+	-

Tab. 2. Probable routes of Tertiary migrations of some groups of *Ceratapiini* to Europe

It is most difficult to ascertain which groups of the *Ceratapiini* reached Europe by the north Pontic route. The present-day occurrence of many of them along the northern coasts of the Black Sea and in Transcaucasia may result from a post-Pleistocene migration from the Pontic refuge; furthermore, there are almost no data on the fauna of the extensive area between the Caspian Sea and the central Asian mountains. Certainly, the route was used by the genus *Taphrotopium* and species of the group of *Ceratapion armatum*, and perhaps also some species of *Diplapion* (*sareptanum*), *Echinostroma* (*penetrans*) and *Angustapion* (*cylindricolle*) migrating to Europe.

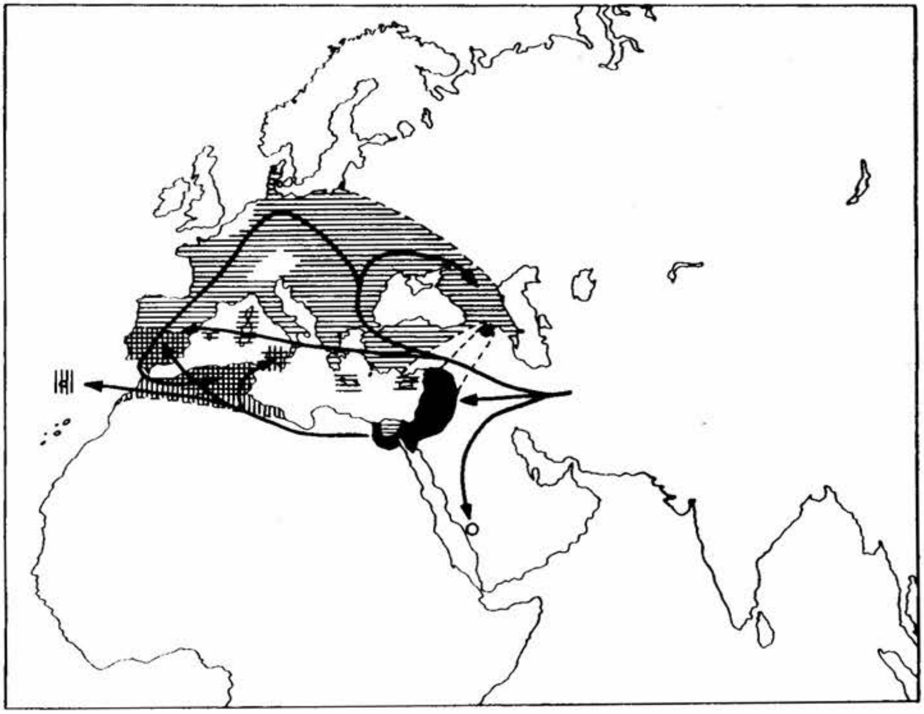
Some groups of the *Ceratapiini* dispersed simultaneously along two or even all the three (*Diplapion*) routes. When this involved the same species, the isolated populations acquired, after a time, specific status. On the Mediterranean coast this must have been the case in the group of *Diplapion detritum* originating from Asia Minor or Iranian Plateau (map 4). The Tertiary diversification of the group is evidenced by the occurrence of *D. squamuliferum* on Madeira. The role of barrier separating populations of the same species that migrated from Middle Asia was also played by the Pontic Sea. This might be the reason for the pairs of sibling species of *Taphrotopium* (*sulcifrons* - *cuprifulgens*) and *Diplapion* (*sareptanum* - *hamatum*) (maps 5, 6). Perhaps the same was responsible for origin of *Ceratapion penetrans* and *C. basicorne*.

The last significant speciation period in the history of *Ceratapiini* was the Pleistocene Glacial Period. Like in many other animal groups, in Europe the most important part was played by the Iberian and Pontic subrefuges, and to a lesser



Map 3. Distribution of *Acentrotypus brunnipes*

extent Adriatic (DE LATTIN 1947, 1967; WARCHAŁOWSKI 1976). All the observed cases of partial or complete vicariance of sibling species in the western and eastern Europe must date from that period. The western Mediterranean populations, separated by the Pyrenees, gave raise to *Ceratapion robusticorne*, *C. longiclava*, *C. penetrans wanati* and, perhaps, to *Omphalapion beuthini*, *Diplapion nitens* and *C. parens*. Iberian and north African populations of *C. onopordi* which is ancestral to *C. parens* also display a certain separateness from populations of the remaining part of Europe. It is thus possible that the origin of *C. parens* had a biological background. Each of the species just named has its own, morphologically slightly different, counterpart in the central and eastern part of the Mediterranean basin; the counterparts must have survived the Ice Age in the Pontic subrefuge. These are, correspondingly, *Omphalapion dispar*, *Ceratapion orientale*, *C. cylindricolle*, *C. p. penetrans*. It is possible that very eurytopic *Diplapion stolidum* and *C. onopordi* preserved continuous ranges in the central and eastern parts of the Mediterranean basin, or even along the northern coasts of the Black Sea and in the Caspian refuge. During the interglacial periods and after the Ice Age, the Pontic subrefuge was a dispersal source of such species as *Diplapion detritum*, *D. confluens*, *Ceratapion basicorne*, *C. beckeri*, *C. decolor* and *C. macrorrhynchum*.

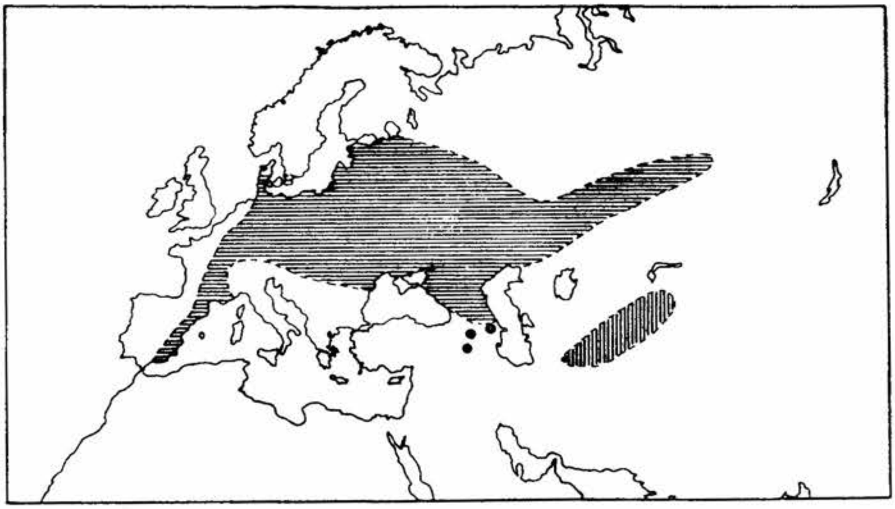


Map 4. Present distribution and probable Tertiary migration routes of the *Diplapion detritum* species group; horizontal hatching - *D. detritum*, vertical hatching - *D. squamuliferum*, blacked area - *D. squamans*, hollow circle - *D. saudiarabicum*

With progressing Miocene westward dispersal of the fauna of *Ceratapiini*, the genetic differences between the European and ancestral populations from Asia Minor must have increased. This was probably enhanced also by a different, more humid European climate. Species receding to the Pontic subrefuge should have been different already from their more eremial ancestors. Climatic conditions during the glaciations made possible their migrations to then woodland-covered Mesopotamia (WARCHAŁOWSKI 1976). At that time their original ancestral populations were pushed southwards and eastwards, to the eremial Levantine and Irano-Turanian refuges (Syroeremisches, Iranoeremisches, Turanoeremisches Zentren according to DE LATTIN, 1967).

One of the results of such an isolation could be that pairs of sibling species of *Omphalapion* (*dispar* - *concinnum*, *laevigatum* - *fossicolle*), *Diplapion* (*detritum* - *squamans*), *Ceratapion* (*macrorrhynchum* - *sejugum* or *fremuthi*), subspecies *C. onopordi parviclava* and *C. scalptum caviceps* came into existence, as well as the interpopulation differences in *D. confluens* and *C. decolor*, discussed in the systematic part. In this context one of the conclusions is that the taxa representing the eremial Levantine and Irano-Turanian element are more primitive than the European species.

In the case of *Ceratapiini* the Adriatic subrefuge played a small part. Only the origin of *Ceratapion dalmatinum* can be associated with its existence. Perhaps persistence of an isolated population of *C. decolor* in that area may explain the present-day disjunction of its distribution range and certain distinctness of the French specimens.

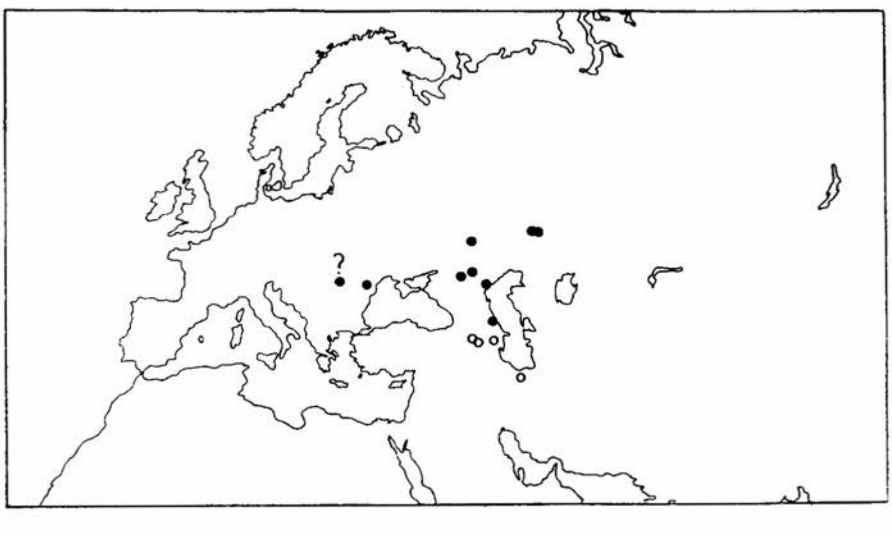


Map 5. Distribution of *Taphrotopium sulcifrons* (horizontal hatching) and *T. cuprifulgens* (vertical hatching)

Besides the main three Mediterranean subrefuges, a certain role in the formation of the present-day European fauna of the *Ceratapiini* was played by the area of the Pannonian Basin. Most probably Central European *Ceratapion austriacum* and *C. transsylvanicum* originated from populations of *C. decolor* and *C. perlongum*, isolated in the Pannonian refuge. Such an origin seems less certain in the case of *Omphalapion buddebergi* - the eastern range of this species requires a more detailed study.

Some widely distributed, eurytopic or coastal, species of the *Ceratapiini* could have survived the Pleistocene glaciations in the entire Mediterranean refuge, as well as in isolated populations north of it. This could pertain especially to *Acentrotypus brunnipes*, *Omphalapion hookerorum*, *Diplapion stolidum*, *Ceratapion onopordi*, *C. s. scalptum*, *C. penetrans* and *C. gibbirostre*. As a rule, isolation of at least a part of populations of those species disappeared during the interglacial periods, which precluded formation of separate taxa, but resulted in some geographic variation, observed e.g. in *C. o. onopordi*. In some cases, however, this could lead to a stronger diversification, and such was probably the scenario of the separation of *C. carduorum* and *C. damryi*.

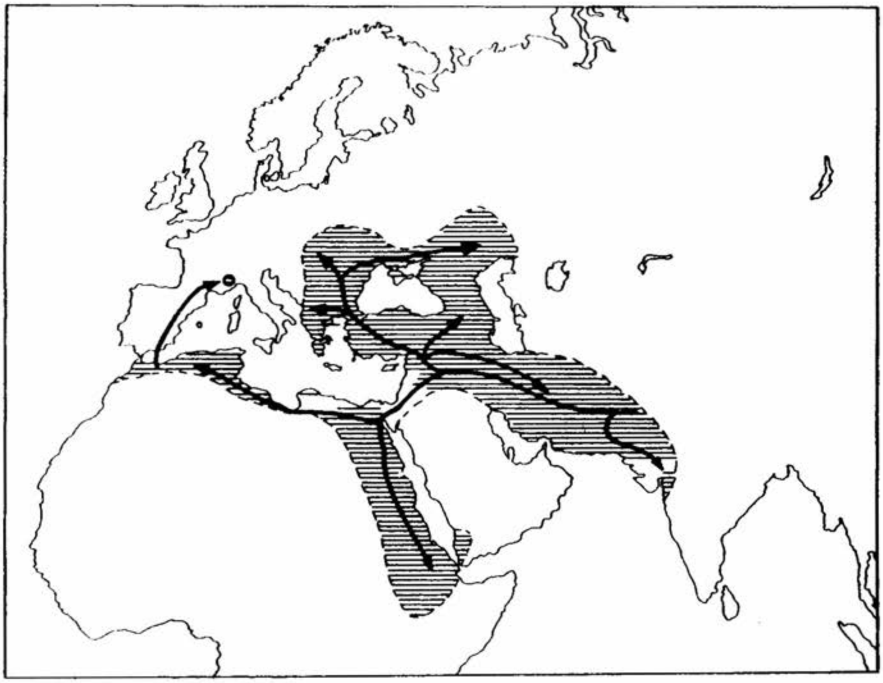
The groups that arrived in Europe by the north Pontic route survived the cooler climatic phases in the Caspian refuge (Kaspisches Zentrum according to DE LATTIN, 1967). Certainly this pertained to *Taphrotopium sulcifrons*, *Diplapion sareptanum* and *Ceratapion armatum*, and probably also to *D. stolidum* and *C. cylindricolle*. Some members of the groups, whose earlier migration to Europe took place along the northern Mediterranean route, could also reach the Caspian refuge; an example



Map 6. Distribution of *Diplapion sareptanum* (solid circles) and *D. hamatum* (hollow circles)

is *C. perlongum* (map 7). The effect of the Ice Age on the Asian fauna and flora was much smaller than in Europe. The glaciers existed only in the mountains, and on the plains only the range of particular vegetational zones changed (MARKOV et al. 1965). Eremial African, Syrian, Iranian and Turanian refuges (DE LATTIN 1967) were much poorer separated than the refuges in Europe. Between most of them there were connections or they were separated only by narrow sea straits, presenting no problem to flying beetles. This found its reflection in the fauna of *Ceratapiini* - most species are widely distributed, and populations from remote areas do not show any greater differences. It seems that, apart from a transitory limiting and shifting of their ranges in the maximum of particular glaciations, the Pleistocene distribution of Asian species of *Ceratapiini* corresponded to the present state.

The present distribution of the *Ceratapiini* in Europe results from their expansion after the glaciacions have receded. The ranges of most species originating from various Mediterranean subrefuges are close to each other or overlapping. It is not quite clear if this took place during the Atlantic climatic optimum, or later. Probably the warm but humid climate of the Atlanticum, which resulted in a formation of a compact forest zone in Europe, favoured dispersal of only more mesophilic species. At that time the vast ranges of *Ceratapion onopordi* and *C. gibbirostre* could have



Map 7. Present distribution and probable Tertiary migration routes of the *Ceratapion macrorrhynchum* species group

come into being. The expansion of more xerothermophilous stenotopic species of the *Ceratapiini* took place gradually, with increasing aridity of the climate and increasing area of open steppe habitats. Certainly, the process was accelerated during historical times, with increasing agricultural and economic activity of humans. Its effect was an intense deforestation and spreading of ruderal and segetal habitats, abounding with host plants of the *Ceratapiini*.

Check-list of the species:

Family *Apionidae* SCHOENHERR, 1823

Subfamily *Apioninae* SCHOENHERR, 1823

Supertribus *Aspidapitae* ALONSO-ZARAZAGA, 1991

Tribus *Ceratapiini* ALONSO-ZARAZAGA, 1991

Genus *Protoceratapion* nov.

P. deletum **(SCHILSKY, 1906)**
Apion egregium WAGNER, 1906b
P. tibetanum **(BALFOUR-BROWNE, 1944)**

Genus *Acentrotypus* ALONSO-ZARAZAGA, 1991

A. brunnipes **(BOHEMAN, 1839)**
Apion laevigatum KIRBY, 1808 (see remarks on p.88)

Genus *Taphrotopium* REITTER, 1916

Subgenus *Taphrotopium s. str.*

T. **(*s. str.*) *sulcifrons*** **(HERBST, 1797)**
T. **(*s. str.*) *cuprifulgens*** **(SCHILSKY, 1906)**
Apion karatavicum BAJTENOV, 1973
T. **(*s. str.*) *steveni*** **(GYLLENHAL, 1839)**
Apion Steveni var. *nigerrimum* FAUST, 1894
Apion Steveni f. *picipes* WAGNER, 1906b

Subgenus *Omphatopium* nov.

T. **(*O.*) *irkutense*** **(FAUST, 1888)**

Genus *Omphalapion* SCHILSKY, 1901

O. fossicolle **(DESBROCHERS, 1889)**
Apion fossulatum DESBROCHERS, [1897], **syn. nov.**
O. laevigatum **(PAYKULL, 1792)**
Attelabus Sorbi FABRICIUS, 1792
Curculio viridescens MARSHAM, 1802
Apion carbonarium GERMAR, 1817
Apion Sahlbergi SCHOENHERR in HUMMEL, 1825
O. rhodopense **(ANGELOV, 1962)**
O. hookerorum **(KIRBY, 1808) (emend.)**
Apion Hookeri KIRBY, 1808
Apion dispar a. *viridescens* GERHARDT, 1910b
Apion Hookeri a. *nigricans* GERHARDT, 1912

O. buddebergi **(BEDEL, 1887)**

Apion sorbi var. *extinctum* KRAATZ, 1888

O. dispar **(GERMAR, 1817)**

Apion corcyraeum SCHILSKY, 1906b

Apion brisouti BEDEL, 1887

O. pseudodispar **sp. nov.**

O. beuthini **(AN. HOFFMANN, 1874)**

O. concinnum **(SCHILSKY, 1906)**

Apion puncticolle SCHILSKY 1906, nec BEGUIN-BILLECOCQ, 1905.

Genus *Diplapion* REITTER, 1916

D. sareptanum **(DESBROCHERS, 1867)**

Apion curtipenne DESBROCHERS, 1870

D. hamatum **(WAGNER, 1906)**

D. westwoodi **(WOLLASTON, 1864)**

D. stolidum **(GERMAR, 1817)**

D. nitens **(SCHILSKY, 1901)**

D. confluens **(KIRBY, 1808)**

Apion roelofsi EVERTS, 1879

Apion confluens var. *asiaticum* DESBROCHERS, [1894]

Apion inapertum DESBROCHERS, [1897], **syn. nov.**

D. detritum **(MULSANT & REY, 1858)**

Apion ragusae EVERTS, 1879

Apion viridicoeruleum EVERTS, 1879

Apion confluens var. *crenulatum* DESBROCHERS, [1894], **syn. nov.**

Apion subcrenulatum DESBROCHERS, [1900-01]

Apion catenulatum WAGNER, 1910b

Apion catenulatum var. *rumaniacum* WAGNER, 1910b

D. squamans **(DESBROCHERS, 1906)**

D. saudiarabicum **sp. nov.**

D. squamuliferum **(DESBROCHERS, 1891)**

Apion detritum var. *subsquamiferum* DESBROCHERS, [1894]

Genus *Ceratapion* SCHILSKY, 1901

Subgenus *Acanephodus* ALONSO-ZARAZAGA, 1991, stat. nov.

C. (*A.*) *parens* **(DESBROCHERS, 1870)**

Apion rectipes DESBROCHERS, 1891bc

C. (*A.*) *onopordi onopordi* **(KIRBY, 1808)**

Apion penetrans var. *rugicolle* STEPHENS, 1831

Apion rugipenne HOCHHUTH, 1851, **syn. nov.**

Apion frater DESBROCHERS, 1870, **syn. nov.**

Apion hipponense DESBROCHERS, [1894], **syn. nov.**

Apion jablokovkhnzoriani BAJTENOV, 1982, **syn. nov.**

Apion onopordi ab. *carycinopus* WAGNER, 1918

C. (*A.*) *onopordi parviclava* **(DESBROCHERS, 1897)**

Apion chenocephalum DESBROCHERS, 1902, **syn. nov.**

Apion cavatum DESBROCHERS, 1906, **syn. nov.**

Apion quadricostatum SCHILSKY, 1906, **syn. nov.**

Subgenus *Clementiellus* ALONSO-ZARAZAGA, 1991

***C.* (*C.*) *orientale* (GERSTAECKER, 1854)**

Apion Henschi REITTER, 1901
Apion similans SCHILSKY, 1901

***C.* (*C.*) *robusticorne* (DESBROCHERS, 1866)**

Apion insolitum DESBROCHERS, 1870
Œpion [sic!] *bipartitum* DESBROCHERS, 1902

Subgenus *Echinostroma* ALONSO-ZARAZAGA, 1991

***C.* (*E.*) *rhopalorrhynchum* (YABLOKOV-KHNZORIAN, 1967)**

***C.* (*E.*) *uniseriatum* (FAUST, 1885)**

Apion sculpticolle DESBROCHERS, [1897]
Apion insculpticolle DESBROCHERS, 1902
Apion remaudierei AD. HOFFMANN, 1956

***C.* (*E.*) *dentirostre* (GERSTAECKER, 1854)**

***C.* (*E.*) *scalptum scalptum* (MULSANT & REY, 1858)**

Apion scalptum MULSANT & REY, 1859

***C.* (*E.*)*scalptum caviceps* (DESBROCHERS, 1870)**

Apion pilicorne DESBROCHERS, [1875]

***C.* (*E.*) *penetrans penetrans* (GERMAR, 1817)**

Apion ovipenne HOCHHUTH, 1851, **syn. nov.**
Apion subconicicolle DESBROCHERS, 1870
Apion distans DESBROCHERS, 1889

***C.* (*E.*) *penetrans caullei* (WENCKER, 1858), stat. nov.**

***C.* (*E.*) *penetrans wanati* ALONSO-ZARAZAGA, 1993, stat. nov.**

***C.* (*E.*) *basicorne* (ILLIGER, 1807)**

Apion subdentirostre DESBROCHERS, [1875]
Apion simillimum DESBROCHERS, 1891bd
Apion Caullei v. *subcavifrons* DESBROCHERS, [1894]
Apion spathula DESBROCHERS, [1894]
Apion atripenne DESBROCHERS, 1902
Apion tauricum DESBROCHERS, 1902
Apion alliariae: HERBST, 1797 et auctt., nec LINNAEUS, 1758.

***C.* (*E.*) *curtii* (WAGNER, 1920)**

Subgenus *Ceratapion s. str.*

***C.* (*s. str.*) *calcaratum* (WOLLASTON, 1864)**

***C.* (*s. str.*) *carduorum* (KIRBY, 1808)**

Apion galactidis WENCKER, 1858
Apion carduorum var. *meridianum* WENCKER, 1864
Apion magyaricum GYÖRFFY, 1923
Apion carduorum var. *Ferdinandi* SCHATZMAYR, 1925
Apion lacertense TOTTENHAM, 1941

***C.* (*s. str.*) *gibbirostre* (GYLLENHAL, 1813)**

Curculio cyaneus DEGEER, 1775, nec LINNAEUS, 1758.
Apion tumidum STEPHENS, 1835
Apion russicum DESBROCHERS, 1870
Apion conforme DESBROCHERS, [1875]
Apion carduorum v. *Kenedii* BOKOR, 1923

C. (s. str.) *damryi* (DESBROCHERS, 1894)
Apion gridellii F. SOLARI, 1940

C. (s. str.) *armatum* (GERSTAECKER, 1854)
Apion barnevillei WENCKER, 1864

C. (s. str.) *dalmatinum* (GYÖRFFY, 1923)

C. (s. str.) *kazakhstanicum* (TER-MINASSIAN, 1969)

C. (s. str.) *secundum* (TER-MINASSIAN, 1975)
Apion secundum TER-MINASSIAN, 1975
Apion dentirostis [sic!] TER-MINASSIAN, 1972, nec GERSTAECKER, 1854

C. (s. str.) *gibbifrons* (HUSTACHE, 1932)
Apion cystocephalus BAJTENOV & LODOS, 1978

Subgenus *Angustapion* nov.

C. (A.) *opacinum* (FAUST, 1887)

C. (A.) *cylindricolle* (GYLLENHAL, 1839)
Apion Montandoni DESBROCHERS, [1897]
Apion longiceps SCHILSKY, 1906

C. (A.) *longiclava* (DESBROCHERS, 1897)
Apion clavatum SCHILSKY, 1906: no. 3, **syn. nov.**
Apion fallaciosum: auctt., nec DESBROCHERS, 1892.

C. (A.) *bokharanum* GYÖRFFY, 1923

C. (A.) *poggii* sp. nov.

C. (A.) *beckeri* (DESBROCHERS, 1875)
Apion biseriatum DESBROCHERS, [1875]
Apion sublaevithorax DESBROCHERS, [1894]
Apion angulirostre SCHILSKY, 1901

C. (A.) *decolor* (DESBROCHERS, 1875)
Apion decolor var. *brevithorax* DESBROCHERS, [1897]
Ceratapion parcior VOSS, 1964, **syn. nov.**
Apion efratense BAJTENOV & LODOS, 1978, **syn. nov.**

C. (A.) *austriacum* (WAGNER, 1904)

C. (A.) *klapperichi* sp. nov.

C. (A.) *kasbekianum* (GERSTAECKER, 1854)
Apion angustissimum DESBROCHERS, 1889

C. (A.) *gibbiceps* (DESBROCHERS, 1894)

C. (A.) *mundum* (BALFOUR-BROWNE, 1942)

C. (A.) *peninsulae* WANAT, 1990

C. (A.) *lancirostre* (CHEVROLAT, 1859)
Apion lanciferum DESBROCHERS, [1897] (unjustif. emend.).

C. (A.) *sefrense* (DESBROCHERS, 1897)
Apion angustius DESBROCHERS, [1898], **syn. nov.**

C. (A.) *macrorrhynchum* (EPPELSHEIM, 1888)

C. (A.) *transsylvanicum* (SCHILSKY, 1906)

C. (A.) *perlongum* (FAUST, 1891)

C. (A.) *akbesianum* (DESBROCHERS, 1897)

C. (A.) *sejugum* (DESBROCHERS, 1893)
Apion sejugum DESBROCHERS, [1894]

C. (*A.*) ***fremuthi*** **sp. nov.**
C. (*A.*) ***nalderae*** **(MARSHALL, 1938)**
C. (*A.*) ***boehmi*** **(WAGNER, 1911)**
C. (*A.*) ***aegyptiacum*** **(DESBROCHERS, 1870)**
C. (*A.*) ***libicum*** **sp. nov.**

Subgenus ?:

C. ***edentatum*** **(DESBROCHERS, 1891)**
Apion edentatum DESBROCHERS, [1894]
C. ***fallaciosum*** **(DESBROCHERS, 1892)**
C. ***bacanasicum*** **(BAJTENOV, 1973)**

Ceratapion **species incertae sedis:**

C. ***proximum*** **(GYÖRFFY, 1923)**
C. (***Angustapion***) ***brevitibia*** **(BAJTENOV, 1977)**
C. ***nurense*** **(BAJTENOV, 1977)**

Taxa erroneously classified in *Ceratapiini*:

Catapion **SCHILSKY, 1906**
Ceratapion subg. *Aceratapion* VOSS, 1969, **syn. nov.**
Catapion schneideri **(TOURNIER, 1878), comb. nov.**
Apion Kőnigi DESBROCHERS, 1897, **syn. nov.**
Trichapion **(*s. lato*)** ***rufipenne*** **(GYLLENHAL, 1839)**
Holotrichapion pisi **(FABRICIUS, 1801)**
Apion indistinctum MOTSCHULSKY, 1849
Eutrichapion **(*s. lato*)** ***rudicolle*** **(HOCHHUTH, 1851)**
Ischnopterapion loti **(KIRBY, 1808)**
Apion helveticum DESBROCHERS, 1906, **syn. nov.**
Alocentron curvirostre **(GYLLENHAL, 1833)**
Apion (*Ceratapion*) *nonveilleri* AD. HOFFMANN, 1953
Metapion oculare **(GYLLENHAL, 1833)**
Apion kolenatii KOLENATI, 1858

Tribus *Ceratapiini* ALONSO-ZARAZAGA, 1991

Tribus *Ceratapiini* ALONSO-ZARAZAGA, 1991: 42. Type genus: *Ceratapion* SCHILSKY, 1901.

DESCRIPTION

Rostrum without distinct lateral carinae, occasionally with a single groove at the base of prorostrum, usually strongly scale-like microsculptured.

Antennae scale-like microsculptured, inserted at basal 0.15-0.33 of rostrum, usually thick; the scape strongly swollen at apex, its base more or less sinuous; pedicel as wide as the scape or only a little narrower; club completely connate, g!abrous and finely setose; antennal scrobes situated ventrally.

Head underside with transverse keels obsolete or absent, not hollowed, rarely with a minute subocular tooth in profile; eyes of moderate size; frons broad, usually with logitudinal grooves or striolae of varied number and shape.

Pronotal vestiture centripetal, on the front margin transverse and adpressed, on the hind margin obliquely directed; basal flange obsolete or absent; sternellum and pleural lobes of the pronotum connate, without a trace of longitudinal median suture.

Scutellum small, triangular, round or oval, non tuberculate.

Elytra nine-striate, first stria basally shortened and not reaching apex of the scutellum; the 2nd apically straight or weakly curved outwards, apical sections of the striae not distinctly deepened; specialized seta single in subapical part of the 9th interval or absent.

Mesepisternal sutures absent or weak and sometimes ending in small pits. Mesocoxae separated by 0.15-0.20 coxa width, intercoxal processes of the meso- and metasternum equally long, the latter usually tuberculiform, separated from the metasternum by transverse depression; anterior metasternal rim obsolete, only slightly indicated at the outer parts of coxae. Fifth sternite apically rounded, similar in both sexes (often more convex in male); male pygidium of aspidapionine type, uniform and completely hidden. Metathoracic wing without a rudimentary radial cell.

Femora with fine vertical wrinkles in middle parts; male tibiae without typical mucrones (in some *Ceratapion* species with small, acute spines on the fore and, sometimes, mid tibiae); tarsal claws simple.

Male genitalia: tegminal plate with latero-ventral lobes absent, laying entirely on dorsal side of penis and not enveloping it, with variously shaped and developed lateral fold at sides; fenestrae nearly always well defined, laterally closed (exception: *Protoceratapion deletum*), medially separate; apical membranous lobes and microchaetae absent; macrochaetae nearly always relatively short, fine and low in number, attached apically or subapically on the parameroid lobes; ventral part of the tegmen widely forked, with a long manubrium. Median lobe of aedeagus flattened, its dorsal lobe broad, separate from its base or nearly so, weakly and evenly sclerotised, without a median keel. Spiculum gastrale narrowly forked or, sometimes, spatulate, with long manubrium.

Biology. Host plants of the family *Asteraceae*, larval development predominantly in stems or rootstocks.

Distribution. Palaearctic region.

REMARKS

I have not examined the Australian *Apion* (*s. lato*) *astri* LEA, and its systematic position remains unclear. Its general appearance (as showed by ZIMMERMAN, 1991 in vol. 5, pl. 80 of his monograph), association to *Asteraceae* (namely to the genus *Aster*) and the simple tarsal claws are shared with Palaearctic *Ceratapiini*, but the antennae are thin and apparently bear 3-segmented, inconnate club. Also the mucronate mid and hind male tibiae are not known in *Ceratapiini*.

KEY TO GENERA

1. Frons with two longitudinal sulci - parallel or confluent and forming V- or U-like pit, impunctate or only with a few punctures close to the eye margins. .... *Diplapion* REITT.

-. Frons with more sulci or widely punctured. .... 2.

2. Head with the vertex impunctate, temples with a single row of punctures close to the posterior eye margin or impunctate. Metasternum distinctly shorter than 1.5 mid coxa length. Body usually short and broad, elytra not more than 1.4× longer than wide (in males of *A. brunnipes* and *T. irkutense* 1.6×). .... 3.

-. Vertex usually punctate, temples with at least a double row of punctures. Metasternum at least 1.5× longer than mesocoxae. Body elongate, elytra at least 1.5× longer than wide (sometimes in *C. onopordi* 1.4×). .... 5.

3. Frons concave, with numerous, parallel sulci. Pronotum stronger constricted subbasally than subapically, punctures on the pronotal disc very sparse and minute, not larger than single ommatidium; prescutellar fovea wanting. .... *Acentrotypus* ALONSO-Z.

-. Frons flat, if concave then the median pair of sulci confluent and V-like. Subapical constriction of the pronotum stronger than sub-basal; puncturation at least on the pronotal sides distinct and dense, punctures much larger than single ommatidium; prescutellar fovea distinct, only sometimes very small and obscured by pronotal puncturation. .... 4.

4. Elytral striae apically joined 1+2+9, 3+8, 4+5, 6+7 or junctions of the striae 4-7 incomplete. Prorostrum ventrally with two broad grooves separated medialy by a narrow carina and laterally bordered with sharp margins. Sexes dichroic, elytra black in males, metallic blue or green in females. Male tarsi simple. .... *Omphalapion* SCHILSKY

-. Elytral striae joined 1+2+9, 3+4, 5+6, 7+8. Venter of the prorostrum smooth and shiny. Body colour not differing in sexes. At least first segment of the male hind tarsi with a small ventral spine.
.... *Taphrotopium* Reitt.

5. Humeral calli of the elytra wanting. Internal sac of aedeagus with two chains of small denticles arched near the orifice.
.... *Protoceratapion* gen. nov.

-. Elytra with humeral calli, sometimes weak. Internal sac of aedeagus without regular chains of denticles.
.... *Ceratapion* Schilsky

Genus *Protoceratapion* nov.

Etymology. The name reflects primitiveness of the genus among *Ceratapiini*. Gender neuter.

Type species: *Apion deletum* Schilsky.

Description

Rostrum weakly dilated at the antennal insertion; underside of prorostrum with a median keel and a pair of narrow grooves.

Antennae slender to moderately thick, inserted at a distance from the rostrum base slightly loger than the eye diameter. Antennal scrobes bordered with carinae reaching a half of eye length posterad, interocular area distinctly asperate beyond them. Frons wider than rostrum base, with numerous and extremely fine longitudinal striolae, in part obscured by puncturation. Eyes small, vertex and temples punctured far beyond the eyes.

Pronotum without a typical pleural line, closely punctate; prosternum much shorter than the postcoxal part of prothorax.

Scutellum present, very small.

Elytra elongate, broadest in middle or nearly so, humeral calli and specialized setae absent; striae apically connected 1+2+9, 3+4, 5+6, 7+8, stria 2 apically curved outwards. Mesosternum with the episternal sutures invisible, mesepimeral sutures shallow and indistict, without a row of scaliferous punctures. Metasternum about 1.45-1.6× longer than the mesocoxae.

Basal segment of the male meso- and/or metatarsi with a ventral spine.

Metathoracic wings completely reduced.

Paramerae firmly connected with the remainder of the tegmen; parameroid lobes long, separate to at least the level of fenestrae; macrochaetae 2-4, long, apical; fenestrae well defined, large, narrowly separate, laterally open (*P. deletum*) or closed (*P. tibetanum*); dorsal portion of ring complete, very narrow; lateral fold close to lateral margins of the tegminal plate, long and distinct in *P. deletum*, almost invisible in *P. tibetanum*; prostegium even, more or less truncate, not projecting beyond the plate base. Internal sac of penis not projected beyond the tubular part of the median lobe, armed with a pair of chains of small denticles, curved outwards in the orificial region, and with numerous minute spines in the middle part. Spiculum gastrale Y-shaped, manubrium up to twice as long as the forked part.

Biology unknown.

Distribution. Tian-Shan, Tibet.

KEY TO SPECIES

1. Elytra in male 1.5×, in female 1.55-1.65× longer than wide (figs 11-13); intervals flat to slightly convex. Antennae slender, funicular segments 2-6 elongate (figs 24, 25). Rostrum weakly curved (figs 14, 15). Body vestiture conspicuous, white. Internal sac of aedeagus with several long spines in the basal part (figs 19, 20). Paramerae with laterally open fenestrae and distinct lateral fold (fig. 22). .... *P. deletum* (Schils.)

-. Elytra more elongate, in male 1.7× longer than wide (fig. 26); intervals strongly raised. Antennae much thicker, funicular segments 2-6 not longer than wide (fig. 28). Rostrum strongly curved (fig. 27). Body vestiture hardly visible. Basal part of the internal sac of penis without long spines (fig. 31). Parameroid fenestrae laterally closed, lateral fold very indistict (fig. 34). .... *P. tibetanum* (B-Br.)

Protoceratapion deletum **(Schilsky, 1906)**

(figs 11-25)

Apion deletum Schilsky, 1906: no.38.
Apion (Ceratapion) egregium Wagner, 1906b: 204.
Apion notatum Wagner, 1906b: 204 (unavailable name, ICZN 1985, Art. 11e).

Literature: Schilsky, 1906b: LXXXVI; Wagner, [1915]: 31 (*egregium*); Bajtenov, 1974: 278, 1980: 49.

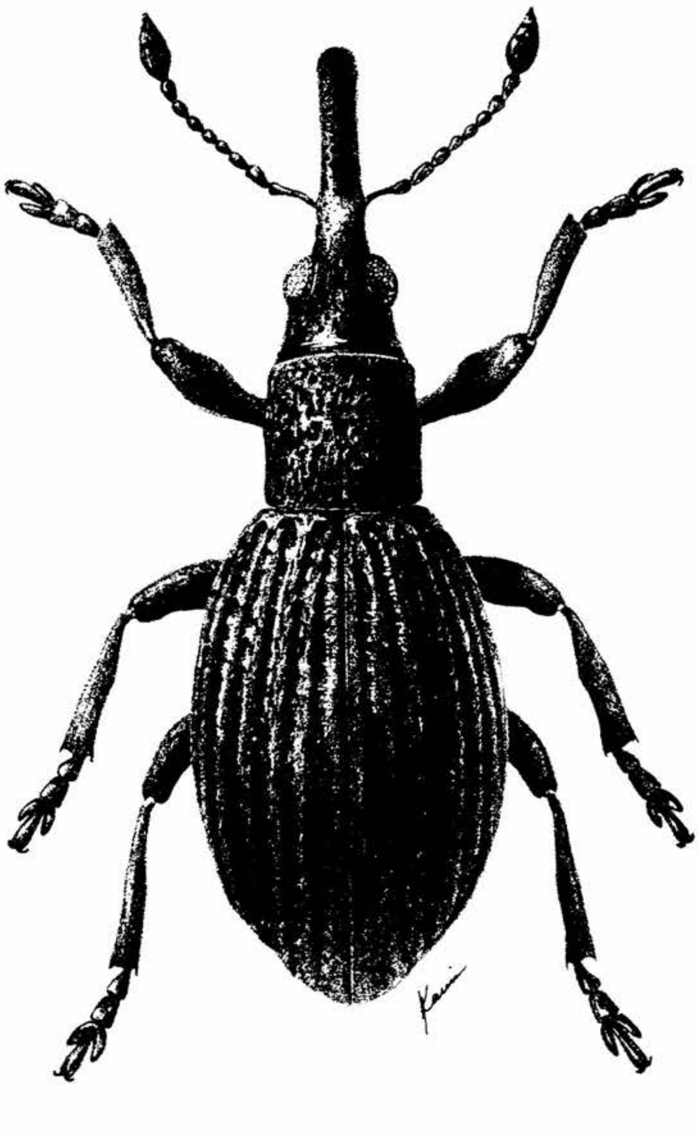
The names *A. deletum* and *A. egregium* were published in the same year, the above priority follows Bajtenov (1980).

Type material examined

A. deletum **Schil.** Holotype f: a)Dschilarik, b)D. Rttr. [head and prothorax missing] (coll. Schilsky, MNB). ***A. egregium*** **Wgn.** Lectotype f: a)Alexander-Gbg., Tokmak, coll. Hauser 1899, b)*notatum* m., Wagner det., c)*Ceratapion deletum* (Schils.), det. M. Wanat (NMW) (present designation); paralectotypes: data as in the lectotype, 4f (NMW, SMTD, NRS, ZSM).

Description

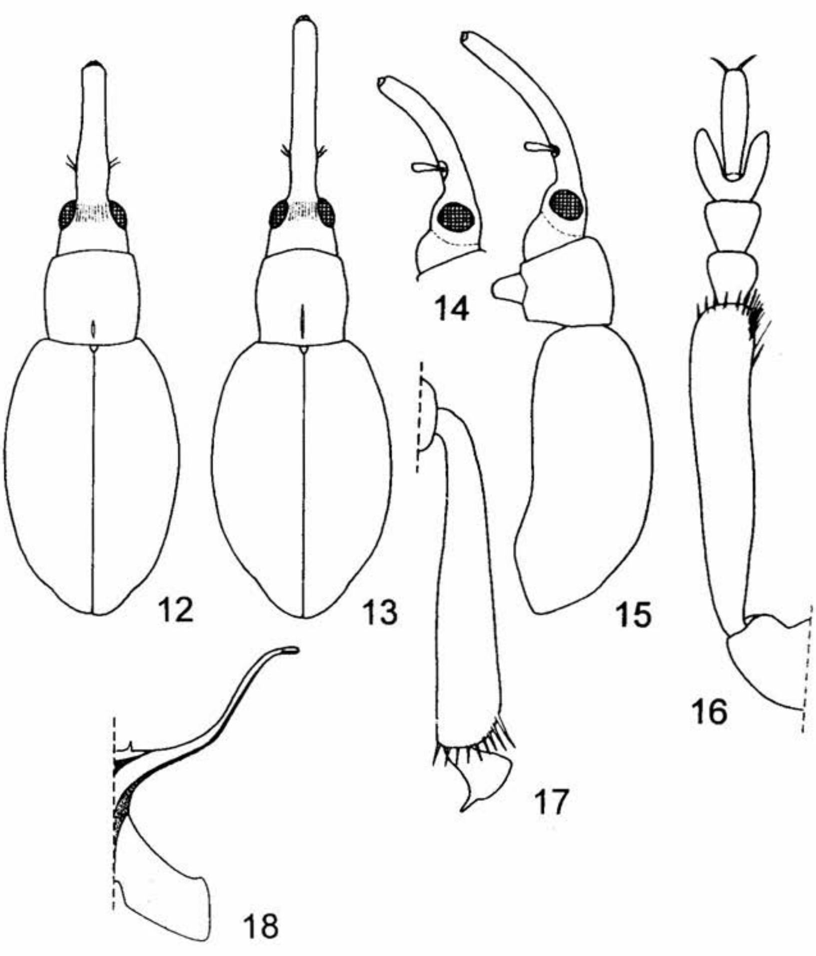
Length 2.00-2.44 mm. Body black, very weakly shining; legs testaceous to piceous brown, with darker tarsi; antennae dark castaneous. Vestiture distinct,



11. *Protoceratapion deletum*, dorsal view

composed of white-grey, piliform scales, arranged in two irregular rows on the elytral intervals, their length equals interval width; scales in the elytral striae similar to those on the intervals, separate.

Indices. ***rl/pl:*** m: 1.37-1.42, f: 1.65-1.89; ***rl/msrw:*** m: 3.82-4.12, f: 5.38-6.37; ***scl/msrw:*** m: 0.95-1.04, f: 1.20-1.38; ***msrw/mtrw:*** 1.07-1.15; ***msrw/arw:*** m: 1.30-1.55, f: 1.12-1.24; ***msrw/minrw:*** m: 1.33-1.55, f: 1.18-1.30; ***msrw/eyl:*** 0.92-1.14; ***brl/eyl:*** m: 0.89-1.03, f: 1.02-1.28; ***eyl/hl:*** 0.48-0.62; ***hl/hw:*** 0.75-0.86; ***mpw/hw:*** m: 1.42-1.48, f: 1.47-1.57; ***bpw/apw:*** 1.04-1.12; ***pl/mpw:*** 0.94-1.06; ***mew/mpw:*** m: 1.92-1.96, f: 1.96-2.06; ***el/pl:*** m: 2.86-2.90, f: 2.96-3.48; ***el/mew:*** m: 1.49-1.54, f:



12-18. *Protoceratapion deletum*: 12-15 - body outline, 12 - male, dorsal view, 13 - female, dorsal view; 14 - male (head), lateral view; 15 - female, lateral view; 16 - male fore tibia (lateral view) and tarsus (dorsal view); 17 - male hind tibia and first metatarsomere (lateral view); 18 - metendosternite

1.54-1.63; ***mew/bew:*** 1.37-1.63; ***bew/mpw:*** 1.21-1.44; ***pft/msrw:*** m: 0.94-1.00, f: 1.08-1.19; ***ptbl/pl:*** 1.08-1.28; ***ptbl/ptbmw:*** 5.63-7.00; ***ptsl/ptbl:*** m: 0.64-0.69, f: 0.60-0.65.

Rostrum almost cylindrical, weakly and uniformly curved, with single scales only on the metarostrum; puncturation hardly visible, scale-like microsculpture strong, only the apex of rostrum glabrous; rostrum underside weakly shining, median keel slightly exceeding half of prorostrum length.

Antennae inserted at basal 0.22-0.24 (m), 0.18-0.21 (f) of rostrum; scape long and slender, more than 3× longer than wide; funicular segments elongate, only the 7th as long as wide, the first at least twice as long as wide; club varying in shape, 2.0-2.5× longer than wide; antennal segments polished, with the scale-like microsculpture strongly reduced, especially on funicular segments 2-7; antennal pubescence very fine, opalescent, weakly protruding.

Head subconical; eyes very small, regularly convex and weakly prominent; frons flat, about 1.2× wider than the rostrum base, with striolae very fine and sometimes evanescent, usually shorter than the eye; vertex and occiput even, the former densely punctate on a distance approximating eye length, occasionally the punctures confluent into irregular striae; temples punctate on a distance of about half of eye diameter; venter of the head convex between eyes.

Pronotum small, weakly rounded at sides, subapical and sub-basal constrictions indistinct; pronotal walls thin; puncturation shallow and dense, not very regular, on average punctures of 2-3× ommatidium size, about half diameter apart, interspaces almost flat, microreticulate; prescutellar fovea long, not broader than punctures; pronotal sides punctate throughout.

Elytra of variable outline and convexity, especially in females; striae at the elytral base slightly wider, in middle 1-1.5× narrower than the intervals, distictly edged, with septae of punctures deepened; intervals flat to slightly convex, strongly and irregularly microsculptured.

Metasternum globose, distinctly and almost confluently punctate, about 1.6× longer than the mesocoxae. First two ventrites weakly microsculptured, their puncturation dense, punctures much smaller than those on the pronotum; ventrite 5 almost flat.

Legs slender; protarsus 3.0-3.4 as long as wide; its second segment only slightly transverse, third of equal width and length; onychium exceeding third segment by 0.8-0.9 length. Basal segments of the male meso- and metatarsus with an acute ventral spine.

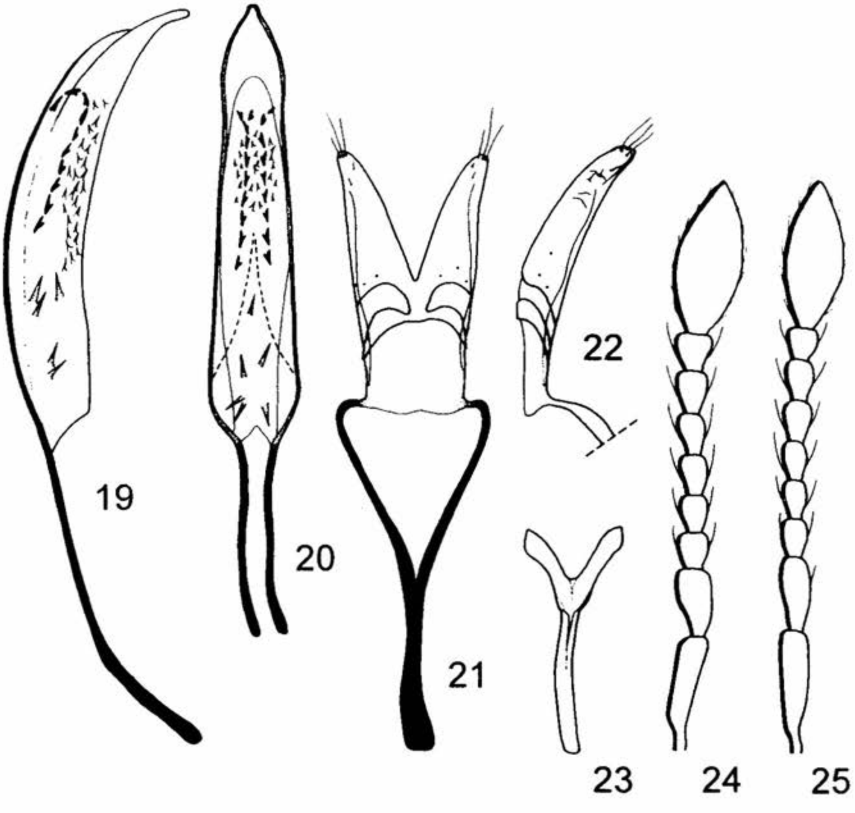
Tegmen with manubrium not longer than the forked basal piece; parameroid lobes apically with 2-3 macrochaetae, subapically with a few transverse wrinkles and 2-3 short, minute setae; lateral fold distict, crossing fenestrae, subapically broken, with its apical portion usually curved inwards and entering internal margin of the lobe; fenestrae widely opened laterally; tegminal plate without longitudinal carinae or melanized lines.

Median lobe of aedeagus shaped as in figs 19, 20; apophyses of variable length, shorter than the tubular part of the lobe; internal sac with chains of denticles reaching a half of its length basad, ventrally with dense, numerous micro-spines, basal half of the sac with few conspicuous, weakly melanized and irregularly arranged spines.

Distribution. Tian-Shan Mts. (Eastern Uzbekistan, Kirghistan, South-Eastern Kazakhstan).

OTHER MATERIAL EXAMINED

KAZAKHSTAN: Wernyj [Alma-Ata], 1m, coll. C. BOSCH (FSF); Dschasil-Kul, Ala-tau [near Tschimkent], 15 VII 1873, leg. KUSHAKEVITSCH, 1m, coll. H. WAGNER (ZSM), 1m, coll. A. HOFFMANN (MNHP); Kungej Alatau, 11 VIII 1970, 1f, leg. M. BAJTENOV; Alma-Arasan n. Alma-Ata, 30 V 1974, 1f, leg. A. PFEFFER (LD); Zailijskij Alatau, Medeo n. Alma-Ata, 6-9 VII 1980, 2m 5f, leg. K. SCHÖN (DEI, MF, MNHW, SS).



19-25. *Protoceratapion deletum*: 19, 20 - median lobe of aedeagus, 19 - lateral view, 20 - dorsal view; 21 - tegmen, dorsal view; 22 - tegminal plate, lateral view; 23 - spiculum gastrale; 24, 25 - antenna, 24 - male, 25 - female

KIRGHISTAN: Issyk-Kul Lake, Ak-Tersk, 27 V 1979, 1f, leg. G. V. MILENDER (VK); Terskej-Alatau, riv. Chon-Kyzyl-Su, 18 km S Pokrovka, 2200-2350 m, under stones, 9 VII 1988, 4m 2f, leg. V. YANUSHEV (VZ).

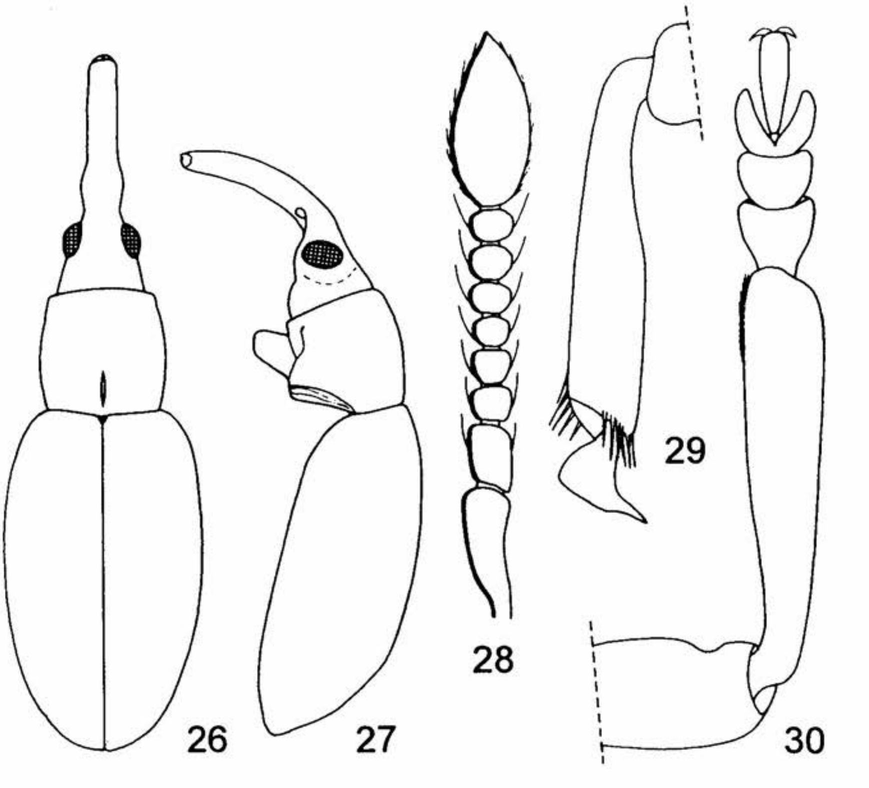
Protoceratapion tibetanum (BALFOUR-BROWNE, 1944)

(figs 26-35)

Apion (*Ceratapion*) *tibetanum* BALFOUR-BROWNE, 1944: 8.

MATERIAL EXAMINED

Holotype m: E Tibet: Lhodzong, Poshö, 12600 ft., 15 V 1936, leg. R. J. H. KAULBACK; B.M. 1937-547 (BMNH).

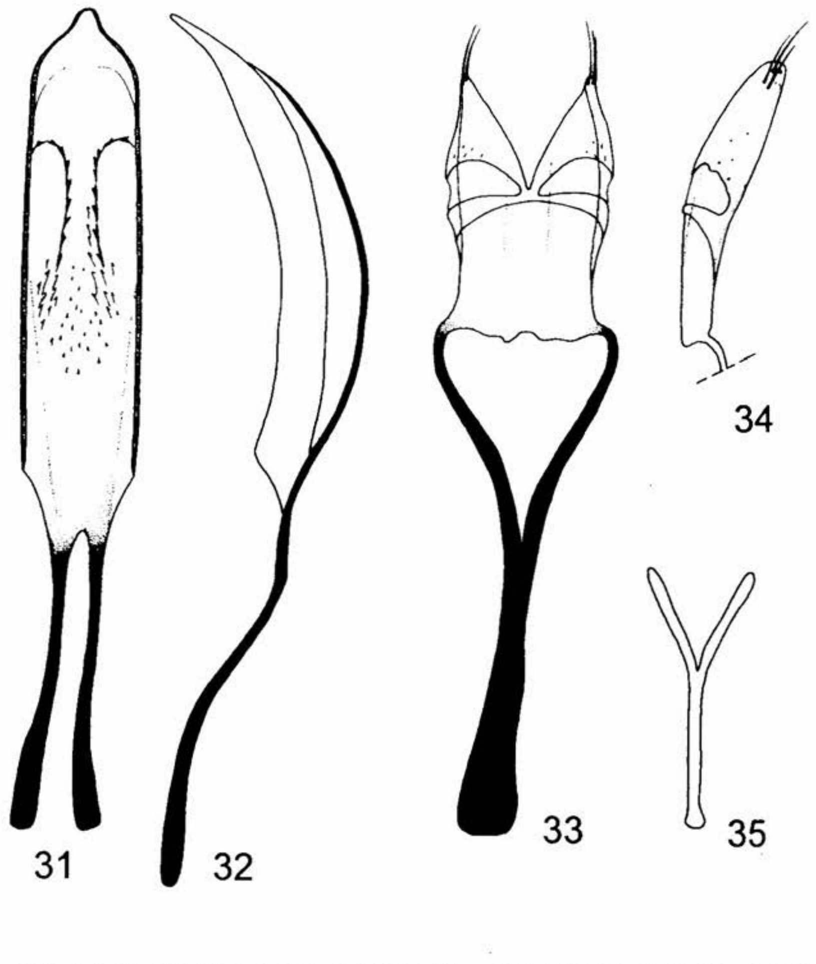


26-30. *Protoceratapion tibetanum* (holotype male): 26, 27 - body outline, 26 - dorsal view, 27 - lateral view; 28 - antenna; 29 - male hind tibia nad first metatarsomere (lateral view); 30 - male fore tibia (lateral view) and tarsus (dorsal view)

Description

Length 2.45 mm. Body black, dull; elytra scarcely polished; legs and antennae piceous brown. Vestiture very fine, dark and transparent, hardly visible, only in the apical part of elytra more distict.

Indices (m). ***rl/pl:*** 1.26; ***rl/msrw:*** 3.78; ***scl/msrw:*** 1.0; ***msrw/mtrw:*** 1.15; ***msrw/arw=msrw/minrw:*** 1.43; ***msrw/eyl:*** 1.22; ***brl/eyl:*** 1.01; ***eyl/hl:*** 0.61; ***hl/hw:*** 0.73; ***mpw/hw:*** 1.60; ***bpw/apw:*** 1.08; ***pl/mpw:*** 1.03; ***mew/mpw:*** 1.67; ***el/pl:*** 2.77; ***el/mew:*** 1.72; ***mew/bew:*** 1.28; ***bew/mpw:*** 1.30; ***pft/msrw:*** 0.91; ***ptbl/pl:*** 1.03; ***ptbl/ptbmw:*** 5.67; ***ptsl/ptbl:*** 0.55.



31-35. *Protoceratapion tibetanum* (holotype male): 31, 32 - median lobe of aedeagus, 31 - dorsal view, 32 - lateral view, 33 - tegmen, dorsal view; 34 - tegminal plate, lateral view; 35 - spiculum gastrale

Rostrum strongly, regularly arched, except for the metarostrum bare, with strong microsculpture and dense, elongate, very shallow punctures, the shiny apical part as long as the rostrum width.

Antennae inserted at basal 0.22 rostrum, much thicker than those in *P. deletum*; all segments of the funicle equally wide, first 1.5 as long as wide, the remaining transverse, somewhat spherical (fig. 28), with the scale-like microsculpture distinct; club 2.2× longer than wide; antennal pubescence yellowish-brown, opalescent, more conspicuous than those in *P. deletum*.

Head and eyes shaped as in *P. deletum*; frons a little wider, rugose, with striolae irregular and hardly visible; occiput slightly elevated, separated from the vertex by an indistict transverse sulcus; temples rugosely punctate on a distance of 2/3 eye diameter; sculpture of the vertex and head underside as in *P. deletum*.

Pronotum relatively larger than in *P. deletum*, with sides weakly and uniformly rounded; disc surface uneven, with punctures of 2-3× ommatidium size, deep, less than half diameter apart, interspaces raised, microreticulate; prescutellar fovea small, as long as 3 punctures combined; pronotal sides with a few distinct vertical wrinkles along the hind margin.

Scutellum extremely small.

Elytra elongate, uniformly oval; striae not distinctly edged; intervals strongly convex, with microsculpture weaker than in *P. deletum*, composed mostly of transverse wrinkles and minute punctures.

Underside of body completely mat; ventrites 1, 2 strongly microreticulate, coarsely punctate, punctures similar to those on the pronotum or larger; fifth ventrite strongly convex. Metasternum short, only 1.45 mid coxa length.

Femora and tibiae shaped as in *P. deletum*; tarsi shorter, second segment of the protarsus 1.4× wider than long, third small, 1.25× wider than long. Only the basal segment of the metatarsus with long ventral spine.

Tegminal plate with a pair of extremely fine submedian carinae; parameroid lobes short, macrochaetae 4, transverse wrinkles and additional short subapical setae absent; fenestrae laterally closed near the plate margin; lateral fold extremely fine and indistinct.

Median lobe of aedeagus broad, parallel-sided; internal sac with additional denticles basad of the arched chains, minute spicules coarser and less numerous than in *P. deletum*, basal part of the sac unarmed.

Female unknown.

Distribution. China (Eastern Tibet).

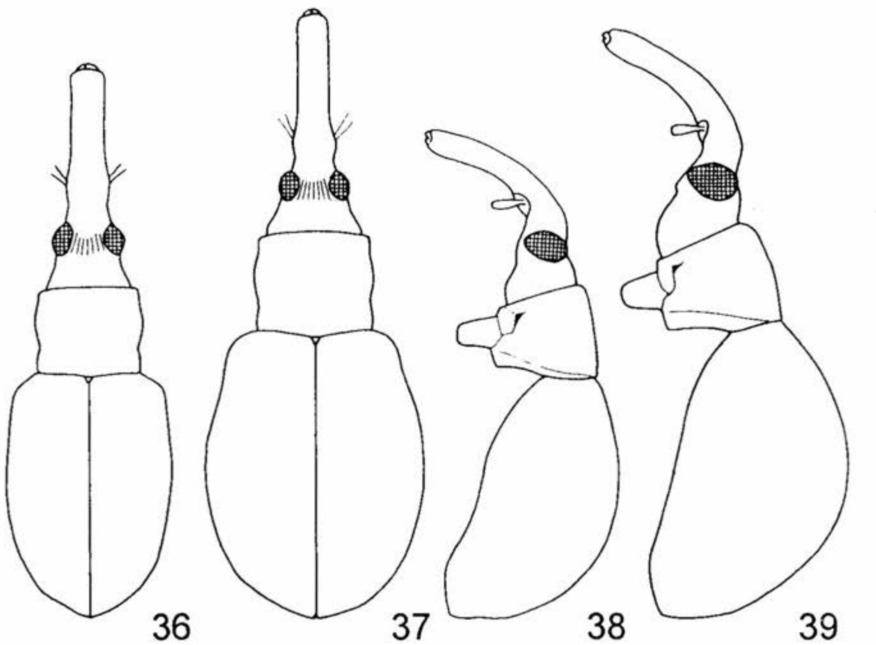
Genus *Acentrotypus* Alonso-Zarazaga, 1991

Acentrotypus Alonso-Zarazaga, 1991: 51. Type species: *Apion brunnipes* Boheman (by original designation).

Description

Elytra sexually dichroic, piceous black in the male, metallic blue or violet in the female.

Rostrum stout, of the same length and shape in both sexes; mesorostrum weakly, obtusely dilated; ventral side of prorostrum in basal half with two broad, shallow grooves, which are not margined laterally and are separated by a flat, almost disappearing median keel.



36-39. *Acentrotypus brunnipes*, body outline: 36 - male, dorsal view; 37 - female, dorsal view; 38 - male, lateral view; 39 - female, lateral view

Antennae uniform in both sexes.

Head with the frons concave and distinctly, densely striolate; vertex impunctate; temples with rugose sculpture and/or puncturation just behind the eyes only (distance less than 1/3 eye diameter); antennal scrobes vanishing between eyes, underside of head with irregular granulae and strong scale-like microsculpture ending rapidly behind the eye, the head profile angulate or toothed at that place; gular suture not deepened.

Pronotum with subapical constriction obsolete, the basal one stronger, shifted far from the pronotum base; prescutellar fovea completely reduced; pleural line distinct and complete, shifted from the hind margin of pronotum; prosternum at least 1.5× shorter than the postcoxal part of prothorax.

Elytra proportionally short, clearly wider and more inflated in female; striae very fine, bare, apically connected 1+2+9, 3+4, 5+6, 7+8, with septae of punctures not deepened; specialized setae absent.

Mesosternum with the episternal sutures and pits missing. Metasternum about 1.3× longer than the mid coxae, its intermesocoxal process strongly raised.

Basal segments of all male tarsi with minute ventral spine.

Tegmen with manubrium at least twice as long as the basal piece; tegminal plate fused to the basal piece arms, with margins finely corrugate sub-basally; macrochaetae 2-4, short, subapical, arranged in transverse row; fenestrae weakly delimited, usually broadly separate, laterally closed far from the plate margin; lateral fold only in apical part of parameroid lobe, short and arched; dorsal portion of ring often incomplete; prostegium evenly sclerotized, slightly projected backwards into an acute or bidentate process.

Median lobe of aedeagus parallel-sided, apically projected into acute tip; internal sac not projecting beyond the lobe, with chains of denticles in orificial (arched) and basal (parallel) parts, median part with numerous and conspicuous spines of broadened bases.

Spiculum gastrale shallowly forked, with long manubrium.

Biology. Host plants of the tribus *Inuleae*.

Distribution. Mediterranean region, east to Iran and Caucasus, Western Europe (predominantly on coasts).

Monotypic genus.

Acentrotypus brunnipes (Boheman, 1839)

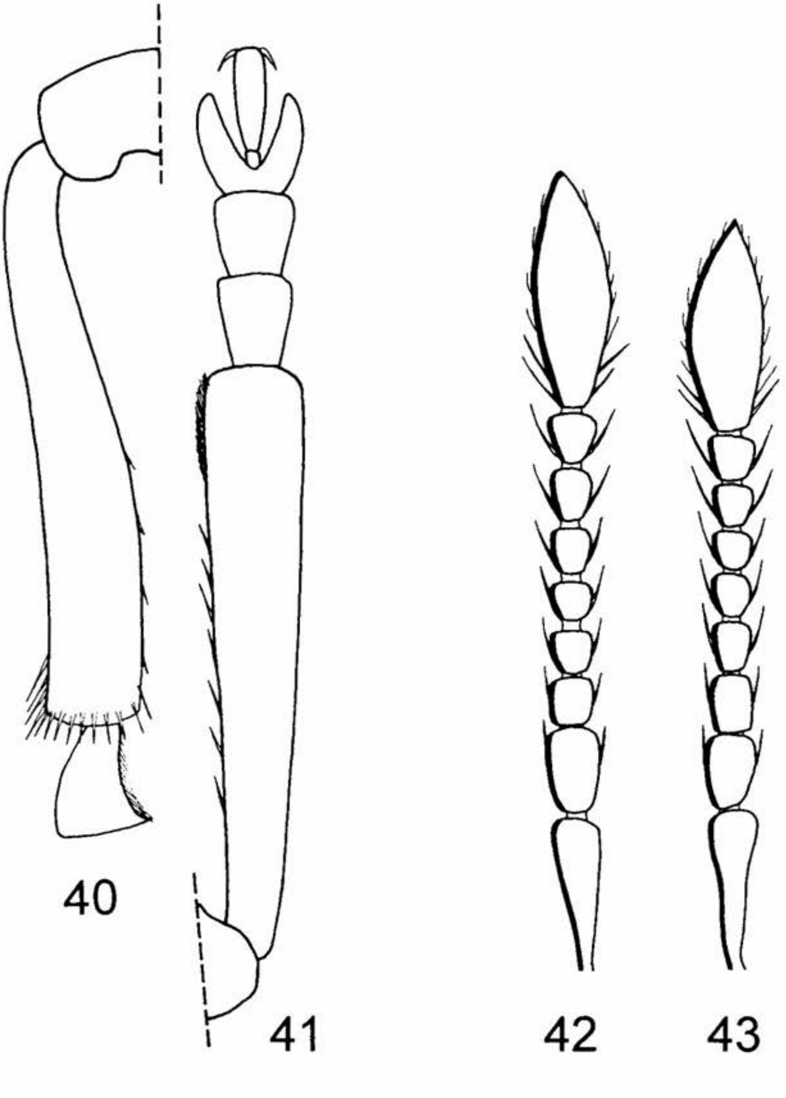
(figs 36-48)

Apion laevigatum Kirby, 1808: 70.
Apion brunnipes Boheman, 1839: 386.
Apion brunneipes [sic!]: Bedel, 1886: 212.

Literature: Walton, 1844: 454; Perris, 1863 (*laevigatum*): 455; Wencker, 1864: 141 (*laevigatum*); Bedel, 1887: 365; Desbrochers, [1894]: 121; Schilsky, 1901: no.27, 1906b: XI; Reitter, 1916: 243; Schatzmayr, 1925: 65; Hustache, 1931: 37; Normand, 1937: 236; Györffy, 1956: 4; Hoffmann, 1958: 1509; Buhr, 1964: 504, 561; Smreczyński, 1965: 47; Köstlin, 1973: 87; Angelov, 1976: 67; Dieckmann, 1977: 81; Lohse, 1981: 154; Ehret, 1983: 132, 1990: 227; Morris, 1990: 47; Alonso-Zarazaga, 1990: 51.

TYPE MATERIAL EXAMINED

A. brunnipes **BOH.** Lectotype f: a)orange square, b)*brunnipes* SCHH. Paris, AUBÉ, c)Riksmuseum Stockholm (NRS) (present designation); paralectotype f: b) label as in the lectotype (NRS).



40-43. *Acentrotypus brunnipes*: 40 - male hind tibia and first metatarsomere (lateral view); 41 - male fore tibia (lateral view) and tarsus (dorsal view); 42,43 - antenna, 42 - male, 43 - female

Holotype m of *A. laevigatum* KIRBY labelled a)53, b)146, c)KIRBY, d)Holotype and preserved in KIRBY's collection (BMNH) is conspecific with the lectotype of *A. brunnipes* BOH. (ALONSO-ZARAZAGA, pers. comm.).

The name *Apion laevigatum* KIRBY, 1808 became a junior subjective homonym of *Curculio laevigatus* PAYKULL, 1792 (presently *Omphalapion laevigatum*) when both species were placed in the same genus *Apion* HERBST. Thus the commonly used name of this species is *Apion brunnipes* BOH. According to the priority rule (ICZN, art. 23a) the older name *A. laevigatum* KIRBY should be resurrected after placing both species in separate genera. It would cause an inconvenience, as some apionid and curculionid specialists still use the genus *Apion* in its traditional, wide sense. The name *Apion laevigatum* KIRBY has not been used for this species for 50 years. On this ground an application for its rejection will be submitted to the International Commission of Zoological Nomenclature.

DESCRIPTION

Length m: 1.59-2.02 mm, f: 2.11-2.30 mm. Legs and antennae castaneous to piceous brown, lighter in male. Body vestiture obsolete on the dorsum, more distinct, though fine, on the ventral side; legs clothed with white, piliform scales.

Indices. ***rl/pl:*** 1.48-1.60; ***rl/msrw:*** m: 3.82-3.98, f: 4.05-4.43; ***scl/msrw:*** 0.79-0.97; ***msrw/mtrw:*** m: 0.90-0.92, f: 0.92-1.00; ***msrw/arw=msrw/minrw:*** m: 1.24-1.38, f: 1.36-1.43; ***msrw/eyl:*** 0.96-1.13; ***brl/eyl:*** 0.77-0.96; ***eyl/hl:*** m: 0.57-0.65, f: 0.56-0.58; ***hl/hw:*** 0.80-0.98; ***mpw/hw:*** m: 1.50-1.63, f: 1.66-1.75; ***bpw/apw:*** 0.98-1.08; ***pl/mpw:*** m: 1.88-1.93, f: 0.92-0.97; ***mew/mpw:*** m: 1.60-1.67, f: 1.75-1.83; ***el/pl:*** 2.59-2.96; ***el/mew:*** m: 1.44-1.59, f: 1.42-1.51; ***mew/bew:*** 1.19-1.36; ***bew/mpw:*** m: 1.22-1.38, f: 1.37-1.43; ***pft/msrw:*** 0.81-0.93; ***ptbl/pl:*** m: 1.34-1.48, f: 1.21-1.30; ***ptbl/ptbmw:*** m: 6.00-6.75, f: 5.40-5.90; ***ptsl/ptbl:*** 0.49-0.56.

Rostrum elevated over the head and strongly curved in its basal part, on dorsum and at sides closely punctate nearly to the apex, punctures elongate, often confluent into irregular grooves, microsculpture variably developed, stronger in male.

Antennae moderately slender, inserted in basal m: 0.21-0.24 (M 0.23), f: 0.20-0.23 (M 0.21) of rostrum; scape 3× longer than wide; length/width ratio of the first funicular segment 1.4-1.6, club 2.8-3.0; antennal vestiture fine, greyish to brownish, opalescent, weakly protruding.

Head with sides strongly convergent apicad; frons concave, 0.8 as wide as the rostrum base; eyes convex and relatively big, covering entire height of the head in profile.

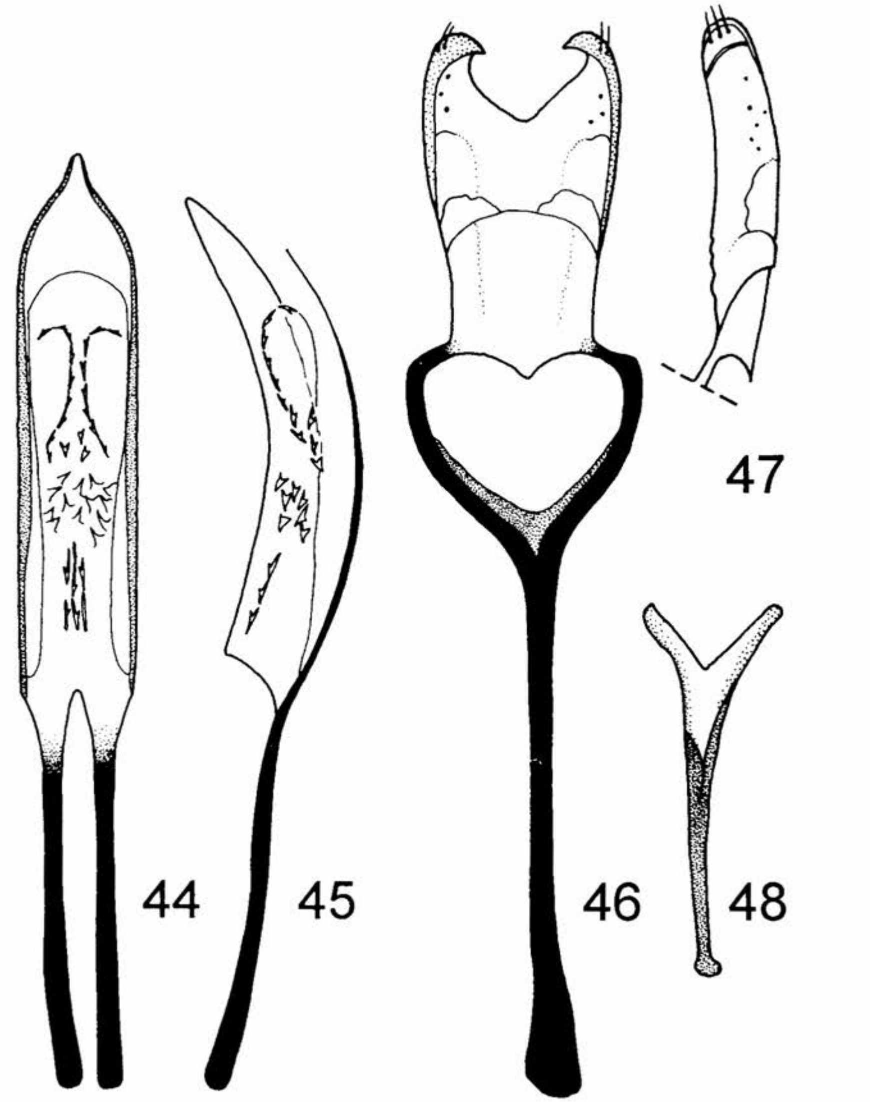
Pronotum with thick walls, weakly convex; disc glabrous, microreticulate, obsoletly punctate, punctures on the disc 2-3 diameters apart, not larger than single ommatidium, on pronotal sides more conspicuous; margins of the coxal cavities not thickened.

Scutellum minute.

Elytra with distinct humeri, almost parallel-sided and weakly convex in male, rounded and strongly globose in female; intervals flat, at least 6× wider than the striae, impunctate and microreticulate.

Venter of the body globose, with moderately large punctures, on average one diameter apart.

Legs long, especially in male; femora weakly thickened; protarsus about 3× longer than broad, with second segment isodiametric; onychium exceeding third segment by 0.4-0.5 length.



44-48. *Acentrotypus brunnipes*: 44, 45 - median lobe of aedeagus, 44 - dorsal view, 45 - lateral view; 46 - tegmen, dorsal view; 47 - tegminal plate, lateral view; 48 - spiculum gastrale

Metathoracic wings of normal length, their muscles mostly reduced.

Genital structures as described above.

Biology. It lives on plants of the tribus *Inuleae*, namely *Filago gallica* L., *F. germanica* L., *F. minima* (SM.) FR., *Gnaphalium silvaticum* L., *G. luteoalbum* L., according to ALONSO ZARAZAGA (1991) also on *Logfia* CASS. and *Omalotheca* CASS. species. The larvae develop in inflorescences and/or leaf buds, causing gall-like deformations. In Southern and Central Europe eggs are laid since April, beetles appear in June/July. NORMAND's (1937) collecting this species on *Carduus pycnocephalus* L. was certainly accidental.

Distribution. Tunisia, Algeria, Morocco, Spain, Portugal, France, England, Belgium, The Netherlands, Switzerland, Germany, Czech Rep., Silesia (Poland ?), Hungary, Croatia, Bosnia, Bulgaria, Georgia*, Iran*.

OTHER MATERIAL EXAMINED

Legrono, 1m (MNB); Uuele, 1 ex., coll. ROELOFS (ITZA).

ALGERIA: 1f, ex coll. DESBROCHERS (ITZA); Batna, 1f, coll. FAUST (SMTD); Kabylie: Bou-Berak, 1 ex., leg. L. PUEL (ZSM).

BELGIUM: F. de la Houssiere, 12 X 1879, 1f, leg. H. DONCKIER (IRB).

BULGARIA: Drenovo, 6 VI 1912, 1f, leg. M. HILF (DEI).

CROATIA: Spalato [Split], 1m, leg. KARAMAN (MNB).

FRANCE: "Gallia m.", 2 exs (ZSM); Vosges: Andoilles, 1f (DEI); Seine-et-Marne: Fontainebleau, 11 VII 1913, 2 exs, leg. P. M. MALLET (IRB), VI 1965, 1m, leg. M. FERRAGU (KS); Duchaine n. Fontainebleau, 1f (ITZA), 1f, leg. SCHRÖDER (ZMH); Loiret: Volstin n. Montereau, 6 II 1965, 2f, leg. J. PERICART (AZ); Côte-d'Or: Dijon, 4 exs (ZSM), 1 ex. (FSF), 1 ex. (DEI); Seine-Maritime: Roun, 1 ex.; Orne, 4 exs; Ain: Bugey, 1 ex. - coll. A. FAUVEL (IRB).

GEORGIA: Vashlovanskiy Zapovednik, ravine of Pantishar, 14 V 1988, 1f, leg. A. TSCHOLOKAVA (ZIS).

GERMANY: 1f (HMNH); "Westpreussen", 1 ex., leg. REITTER (ITZA); Holstein: Eutin, 5 VIII 1916, 1 ex., 9 VIII 1916, 2 exs (FSF), 7 IX 1916, 1 ex. (IZW), 11 IX 1916, 3m 3f, leg. KÜNNEMANN (DEI), 23 VII 1918, 4 exs (ZMC, LD), 11 VIII 1918, 1m, leg. KÜNNEMANN (DEI), 28 VIII 1918, 1 ex. (IZW), 15 VII 1919, 1 ex. (FSF), 28 VIII 1919, 2 exs (IZW), 26 IX 1919, 1m (LD), 3 VIII 1920, 4 exs (FSF), 7 VIII 1920, 1 ex. (IZW), 12 VIII 1920, 1 ex. (ITZA), 27 IX 1920, 1 ex. (NMW); Eunitz, 1f (ZMH); Rheinland, 1 ex., leg. KRAATZ (NMW); Nassau, 1m (HMNH); Wiesbaden, 1 ex., coll. F. KESSEL (IZW).

HERZEGOVINA: 1f, leg. HENSCH (MNB).

IRAN: Kohkiluyeh: Yasudj, 30°36'N/51°36'E, 26 V 1974, 1m, leg. A. SENGLET (MHNG).

MOROCCO: Ifrane, 31 V 1989, 1m, leg. L. BUCHHOLZ (PS).

[POLAND ?]: "Silésie", 1 ex., coll. J. ODIER (MHNG).

SPAIN: Pozuelo Fuente [? Madrid: Pozuelo], 1896, 1 ex. (ZSM); Madrid, 1m, leg. LAUFFER; Gibraltar, 1f, leg. CHAMPION (MNB); Málaga: Marbella, 10-30 IV 1960, 1 ex., leg. T. PALM (MZL); Ciudad Real: Pozuelo de Calatrava, 1 ex. (FSF).

SWITZERLAND: Genf [Geneve], 1 ex., leg. KIESENWETTER (ZSM).

Genus *Taphrotopium* REITTER, 1916

Apion subgenus *Taphrotopium* REITTER, 1916: 241. Type species: *Apion sulcifrons* HERBST (by original designation).

DESCRIPTION

Vestiture of the body obsolete to completely reduced. Elytra metallic bluish or greenish in both sexes.

Rostrum of nearly equal length in both sexes; mesorostrum weakly, obtusely dilated; underside of the prorostrum glabrous, median keel and longitudinal grooves missing.

Antennae with fine and short pubescense.

Head with the vertex impunctate; temples at most with few punctures; frons with few striolae, fine to very deep, the two median converging or confluent and V-like; antennal scrobes vanishing before the eyes; venter of the head smooth; gular suture at least in the front part hollowed.

Pronotum rounded laterally, its walls very thick; prescutellar fovea conspicuous; prosternum as long as, or only slightly shorter than, the postcoxal part of prothorax.

Elytra strongly convex; striae apically connected 1+2+9, 3+4, 5+6, 7+8; specialized setae absent.

Episternal sutures of the mesosternum visible, not ending in pits; mesoepimeral sutures without a distinct row of scaliferous punctures. Metasternum at most 1.35 as long as the mesocoxae, its intermesocoxal process conspicuous, button-like.

Inner margin of the tibiae with short, dark, erected setae throughout. Basal segment of the male tarsi at least on hind legs ventrally spined.

Tegminal plate fused to the basal piece arms; parameroid lobes deeply notched - at least to the level of approximately middle of fenestrae, its apices widened outwards; macrochaetae few and short; fenestrae large and weakly delimited to completely vanishing; lateral fold absent; prostegium not or weakly projected backwards, its hind margin truncate or bidentate.

Median lobe of aedeagus broad and flat, widely rounded at apex; internal sac with two chains of denticles near the orifice.

Spiculum gastrale Y-shaped, manubrium moderately long.

Biology known in one species. Host plants of the genus *Artemisia*.

Distribution. Central and Western Asia, Europe.

KEY TO SUBGENERA AND SPECIES

1. Frons with four deep longitudinal sulci. Antennae very thick, distal funicular segments and the club sexually dimorphic (figs 53, 54, 69, 70). Humeral calli of the elytra present. Basal segment of male metatarsus with minute ventral spine (subgenus *Taphrotopium* s. str.).
 .... 2.
-. Frons with fine longitudinal striolae, the two median usually convergent. Antennae slender, weakly dimorphic (figs 88, 89). Humeral calli of the elytra absent. Basal segments of all male tarsi with conspicuous ventral spines (subgenus *Omphatopium* nov.)
 .... *T. (O.) irkutense* (Fst.)
2. Sternellum strongly prominent, well visible in lateral view (fig. 71). Rostrum 1.2-1.4× longer than the pronotum. Antennae separated from the eye by a distance shorter than the eye length. Frons and vertex flat, even. Intervals 3× wider than the striae at elytral base. Tarsus with few stout, brownish setae on the ventral side, its third segment small and narrow (fig. 73).
 .... *T.* (*s. str.*) *steveni* (Gyll.)
-. Sternellum not prominent. Rostrum more than 1.5× longer than the pronotum. Antennae separated from the eye by at least 1.5 eye length. Frons depressed, vertex elevated backwards. Elytral intervals at least 5× wider than the striae. Tarsus with dense, white pubescence on the ventral side, its third segment much wider than the second.
 .... 3.
3. Head sub-semicircular; eyes slightly convex, sticking out of the head outline (fig. 64).
 .... *T.* (*s. str.*) *sulcifrons* (Hbst.)
-. Head narrow, subconical; eyes completely flat, not prominent (fig. 65).
 .... *T.* (*s. str.*) *cuprifulgens* (Schil.)

Subgenus *Taphrotopium s. str.*

Description

Body vestiture completely reduced.

Antennae thick, strongly microsculptured, in male with the club much longer and distal funicular segments shorter and more transverse than in female.

Frons with four deep sulci, the median pair convergent to completely confluent; gular suture deeply hollowed on whole length.

Pronotum with sides rounded only in middle part; pleural line present or pronotal sides broadly impunctate along the hind margin; prescutellar fovea very large and deep, reaching half pronotum length.

Elytra with humeral calli developed; striae much narrower than the intervals, not catenulate-punctate; striae 1, 2, 9 broadened apically.

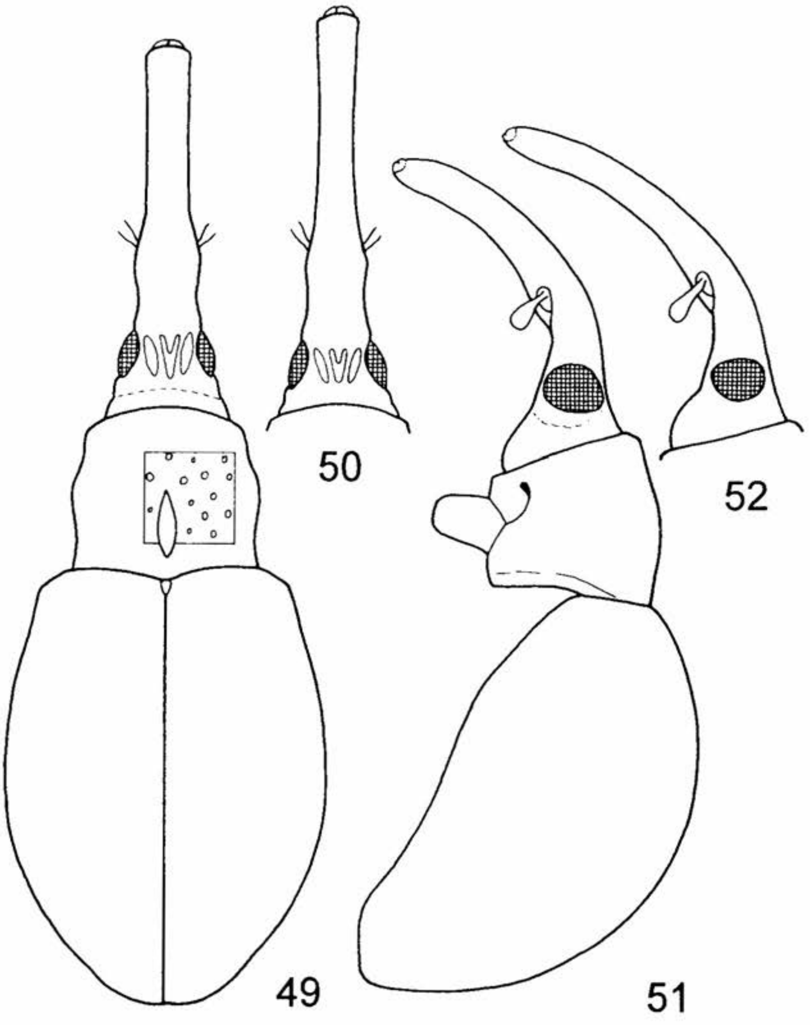
Metasternum 1.0-1.3 as long as the mid coxae.

Basal segment of the male metatarsus with a minute ventral spine.

Tegminal plate without distinct longitudinal carinae; apices of the parameroid lobes outward-curving; margins of fenestrae and the arched line present.

Internal sac of aedeagus with the chains of small denticles strongly reduced, present only in the orificial region.

Distribution. Palaearctic, from Middle Siberia to Spain.



49-52. *Taphrotopium* (*s. str.*) *sulcifrons*: 49 - male, body outline in dorsal view; 50 - female, head in dorsal view; 51 - male, body outline in lateral view; 52 - female, head in lateral view

Taphrotopium (*s. str.*) *sulcifrons* (HERBST, 1797)

(figs 49-61, 63, 64)

Apion sulcifrons HERBST, 1797: 132.

Literature: WENCKER, 1864: 209; KALTENBACH, 1874: 352; DESBROCHERS, [1894]: 121; SCHILSKY, 1901: no.28, 1906b: XI; REITTER, 1916: 243; SCHATZMAYR, 1925: 66; HUSTACHE, 1931: 35; GYÖRFFY, 1956: 4; AD. HOFFMANN, 1958: 1508; SCHERF, 1964: 118; SMRECZYŃSKI, 1965: 47; DIECKMANN, 1967: 57, 1977: 80; KISSINGER, 1968: 296, figs o-r; SOLODOVNIKOVA, 1969: 291; SOLODOVNIKOVA & TALITSKIY, 1972: 788; IOANNISIANI, 1972: 266; TER-MINASSIAN, 1972: 799; KÖSTLIN, 1973: 86; LOHSE, 1981: 154; SCHÖN, 1983; EHRET, 1990: 227; ALONSO-ZARAZAGA, 1990: 51, 52.

TYPE MATERIAL EXAMINED

***A. sulcifrons* HBST.** Lectotype m: a)35194, b)*sulcifrons* HBST. Berol. SCHÜPP. (MNB) (present designation); paralectotypes: 1m 2f of the same series of specimens, labelled with small, white and red squares (MNB).

DESCRIPTION

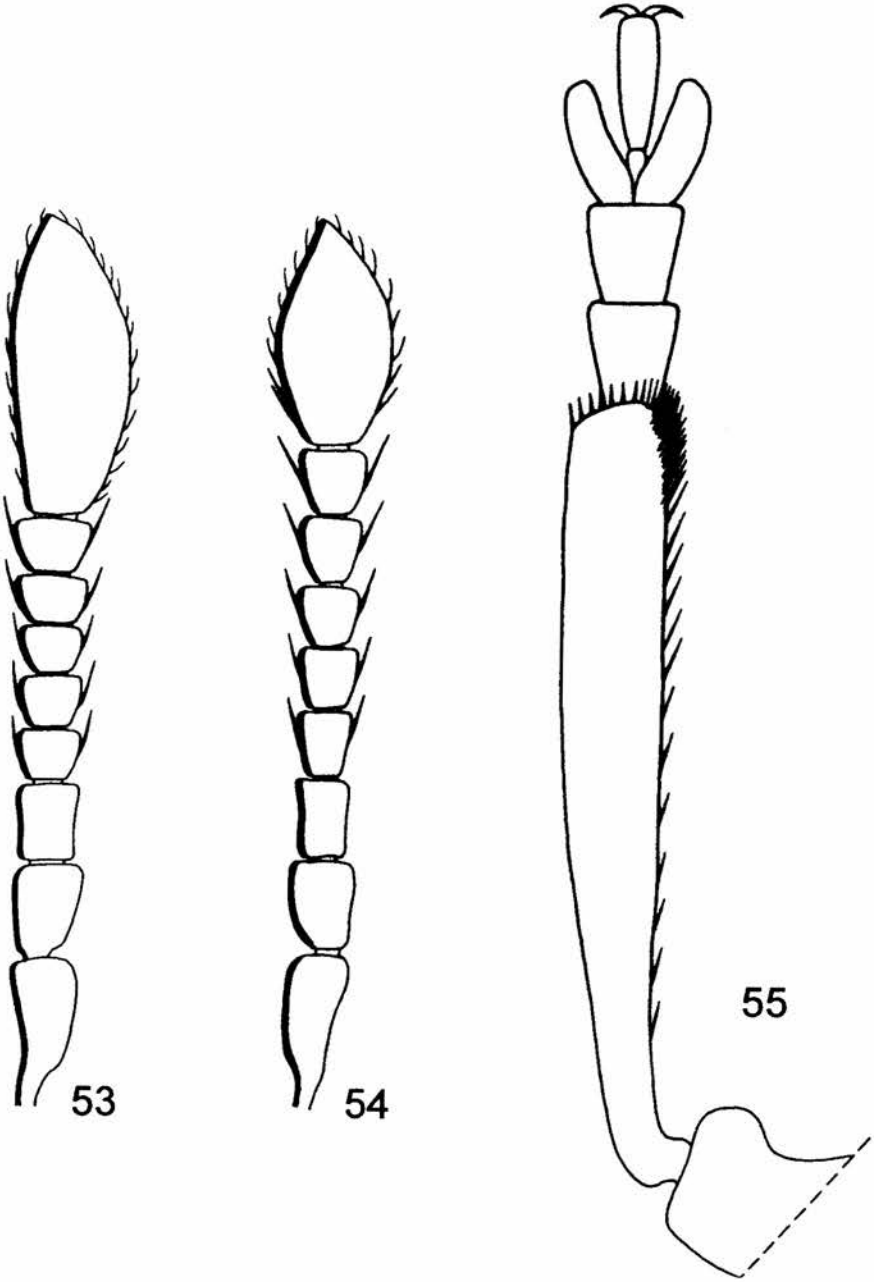
Length m: 1.90-2.85 mm, f: 2.32-3.25 mm. All body parts black, elytra with distinct blue, violet or, sometimes, brassy metallic tinge.

Indices. ***rl/pl:*** m: 1.52-1.68, f: 1.72-1.92; ***rl/msrw:*** m: 4.28-4.83, f: 5.09-5.82; ***scl/msrw:*** m: 0.69-0.76 (M 0.71), f: 0.74-0.93 (M 0.84); ***msrw/mtrw:*** 1.05-1.15; ***msrw/arw:*** 1.28-1.56; ***msrw/minrw:*** 1.40-1.65; ***msrw/eyl:*** 1.14-1.38; ***brl/eyl:*** m: 1.14-1.47, f: 1.44-2.04; ***eyl/hl:*** 0.61-0.84; ***hl/hw:*** 0.60-0.84; ***mpw/hw:*** m: 1.86-2.04 (M 1.93), f: 1.93-2.20 (M 2.04); ***bpw/apw:*** 1.05-1.25; ***pl/mpw:*** 0.86-1.05; ***mew/mpw:*** m: 1.49-1.73, f: 1.70-1.85; ***el/pl:*** m: 2.44-2.63 (M 2.54), f: 2.50-2.93 (M 2.66); ***el/mew:*** 1.38-1.61; ***mew/bew:*** 1.18-1.34; ***bew/mpw:*** m: 1.27-1.36 (M 1.32), f: 1.33-1.49 (M 1.40); ***pft/msrw:*** 0.81-1.00; ***ptbl/pl:*** 1.23-1.41; ***ptbl/ptbmw:*** 6.17-7.83; ***ptsl/ptbl:*** 0.47-0.57.

Rostrum strongly, uniformly curved, shagreened, with extremely fine puncturation; mesorostrum obtusely expanded at antennal insertion; prorostrum slightly thicker in male.

Antennal insertion at basal m: 0.20-0.26, f: 0.21-0.29 of rostrum; length/width ratio of the scape m: 1.9-2.1. f: 2.3-2.4, first funicular segment 1.2-1.3, the remaining segments shorter and wider in male, length/width of sixth and seventh m: 0.7, f: 0.9-1.0; club in male distinctly asymmetrical, 2.4-2.6× longer than wide, longer than 5 distal funicular segments combined; club in female almost regularly fusiform, 1.8-2.0× longer than wide, shorter than 4 distal funicular segments combined.

Head sub-semicircular; eyes slightly convex; frons narrower than the rostrum base, depressed, with 4 broad and deep sulci, two median of which V-shaped; temples with single punctures along the posterior eye margin; underside of head between eyes flat, with strong scale-like microsculpture, non-granulate.



53-55. *Taphrotopium* (*s. str.*) *sulcifrons*: **53 - male antenna, 54 - female antenna; 55 - male fore tibia (lateral view) and tarsus (dorsal view)**

Pronotal disc shiny, finely microreticulate, randomly punctate, punctures superficial, of at most 2× ommatidium size and 2-3 diameters apart; punctures on pronotal sides 2-3 times larger, elongate, ending far before the hind margin of pronotum; pleural line often vanishing; prescutellar fovea extremely deep; margins of procoxal cavities distinctly swollen; sternellum not prominent.

Elytra globose, slightly pyriform; inner striae at least 5× narrower than the intervals, with more or less distinct edges and septae weakly depressed; outer striae much narrower, superficial; intervals flat, impunctate, with dense, fine microsculpture and sparse transverse wrinkles.

Metasternum 1.30-1.35× longer than the mesocoxae. First two ventrites with punctures as large as those on the pronotal disc, about one diameter apart; fifth ventrite convex in both sexes.

Legs long; tarsi with normal "sole" of dense white pubescence; protarsus 2.6-2.8 as long as wide, two basal segments equally long, isodiametric, the third one much wider; onychium exceeding third segment by half length.

Usually macropterous, but wing muscles reduced.

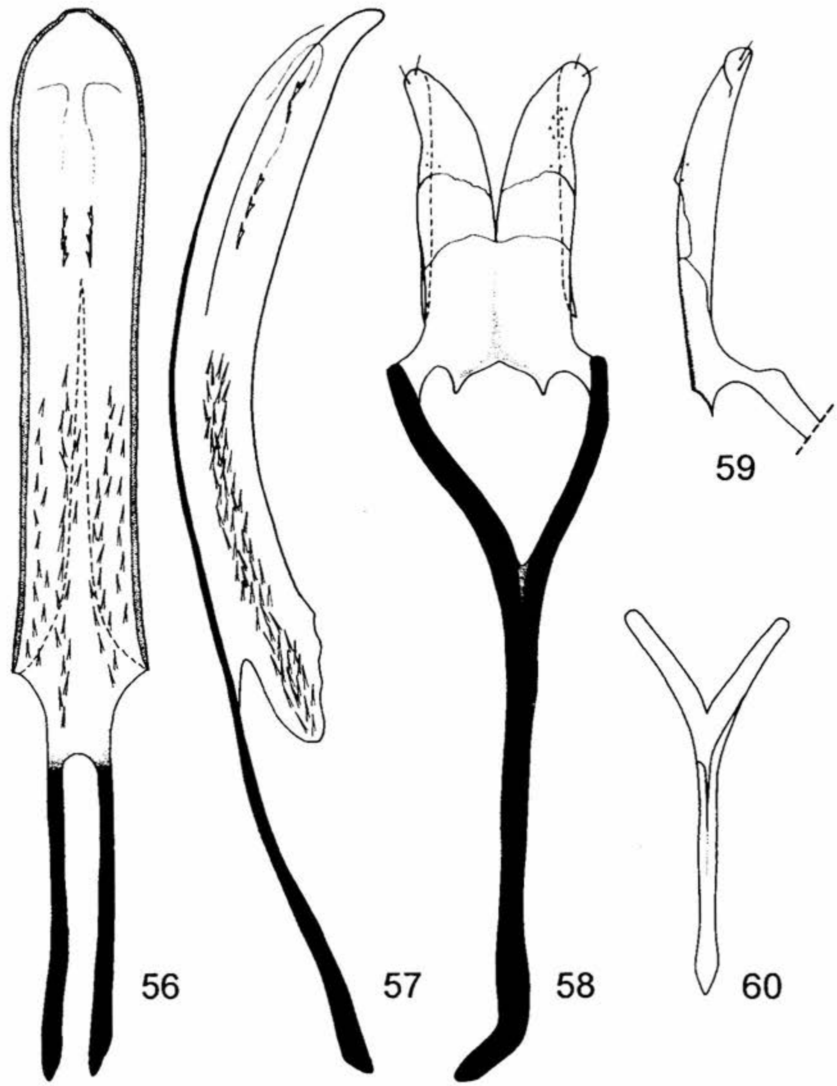
Aedeagus weakly sclerotized. Parameroid lobes with apices weakly expanded outwards, bearing 2 macrochaetae, dorsally smooth or, sometimes, with several minute spines; fenestrae scarcely visible, variable, most often large and occupying the whole plate width; dorsal portion of ring incomplete to nearly absent, rarely complete and very narrow; prostegium predominantly with stronger sclerotized median carina, basally forked and running to broadly separated, acute projections of the posterior margin.

Median lobe of aedeagus slightly narrowed medially, broadly rounded apically, with extremely short, truncate tip; apophyses shorter than the tubular part, their bases usually membranous; internal sac slightly projecting behind the tube, in basal half with dense, long spines, denticles 3-5 in each chain, stronly elongate and weakly sclerotized.

Spiculum gastrale widely forked, with manubrium twice as long as the fork.

Biology. In Central Europe monophagous on *Artemisia campestris* L., in Southern Europe observed also on other *Artemisia* species, like *A. gallica* Willd., *A. crithmifolia* D.C. The larvae live singly in small, round, oval or fusiform galls on stems. According to Dieckmann (1977) there is only one generation per year and freshly emerged beetles appear in July. I came to another conclusion after my field studies on this species in Józefów (Roztocze, E Poland). I found several galls containing immature beetles or already empty on the short, early spring stems of *A. campestris*. Apparently due to the larval feeding, the growth of these stems had been stopped - they were very rachitic, yellowish and only several centimeters long. At the same time, and often on the same plants, I observed new galls containing young larvae in upper parts of the higher stems. In Poland beetles can be collected on the plants from early spring till autumn and no major seasonal decreases in number have been observed by me. Dieckmann (l.c.) observed females bearing eggs in the abdomen at the beginning of July, and according to Kaltenbach (1874) larvae are present in galls still in September. The above facts clearly indicate that two generations can develop per year at least in a part of Central European populations of *T. sulcifrons*.

Distribution. Spain, France, Germany, Denmark, Sweden (Skånia), Baltic countries, Poland, Byelorussia, Ukraine (Podolia, Klevan, Kiev), Czech Rep., Slovakia, Austria, Hungary, Rumania, Moldova, Russia (European part north to Sankt Petersburg, Western Siberia: Barnaul, Dagestan), Georgia.



56-60. *Taphrotopium* (*s. str.*) *sulcifrons*: 56,57 - median lobe of aedeagus, 56 - dorsal view, 57 - lateral view; 58 - tegmen, dorsal view; 59 - tegminal plate, lateral view; 60 - spiculum gastrale

REMARKS

Hitherto males have not been found in the materials from the Iberian Peninsula examined by me and ALONSO-ZARAZAGA (pers. comm.).

OTHER MATERIAL EXAMINED

AUSTRIA: Ulrichskirchen, 1 ex., leg. J. SPURNY (LM).

CZECH REP.: "Moravia", 1 ex. (ZMH).

FRANCE: Rhône: Lyon, 7 exs; Bouches du Rhône: 1 ex. (IRB), Fos sur Mer, 3 exs (MHNG); Var: St Raphael, 1 ex.; Pyr. orient.: Prader, 1f (IRB); Vernet, 1f (MNB); Vernet-les-Batus, 9 exs (mf); Aude, 1 ex. (MNHP); Col de la Bataille, 400 m, s/*Artemisia campestris*, 6-8 VI 1974, 1f, 16 VII 1976, 1m - leg. J. PÉRICART (AZ); Gard: Quincandon, 1f (MHNG).

GERMANY: Ückermünde, 6 exs; Mark: Umg. Chorin, 2 exs; Weimar, 1 ex. (IZW); Saxonia: Märkl, 1 ex.; Rostock, 2 exs (DEI); Königs Wusterhausen, 2 exs (MNB).

HUNGARY: 3 exs (IRB), 5 exs (FSF); Acs, 4 exs, coll. v. HEYDEN (DEI); Budapest, 1 ex., leg. ZOPPA (MCM).

POLAND: Pomer.[ania], 1 ex., coll. BOHEMAN (NRS); Silesia, 1 ex., leg. REITTER (DEI); Zoppot [Sopot], 1 ex., leg. TIMM (MCM); Baltic Coast: Cetniewo, Wolin I.; Pomerania Lake Region: Szczecin; Masurian Lake Region: Puszcza Piska - Szeroki Bór, Puszcza Augustowska - Rubcowo; Nizina Wielkopolsko-Kujawska: Grodno; Nizina Mazowiecka (Mazovian Lowland): Pomorze n. Ciechanów; Puszcza Białowieska (Białowieża Forest); Wyżyna Małopolska: Pabianice, Skowronno n. Pińczów; Roztocze: Józefów Biłgorajski, Kąty n. Zamość - 178 exs (IZW, ZMH, MW).

RUMANIA: Constanta, 1 ex. (MHNG).

RUSSIA: "Russia mer.", 1 ex. (FSF), 1m (SMTD); Sarepta [Krasnoarmyeysk], 8 exs (ITZA), 3 exs (IRB), 2 exs (FSF), 1 ex. (IZW), 4 exs (DEI), 2 exs (MHNG), 3 exs (SMTD); Saratov, 2 exs, leg. BECKER (ITZA); Samara [Kuybyshev], 2 exs, coll. FAUST (SMTD); Kalininskaya obl.: Rzhev, 9 VII 1891, leg. BIANCHI (FSF); Tomsk [W Siberia], 1 ex., coll. F. KESSEL (IZW); Rostovskaya obl.: Nizhne Kunbryucheskaya, 1 VI 1953, 1 ex.; Volgogradskaya obl.: Arshan'-Zel'men', 9 VII 1952, 5 exs - leg. K. ARNOLDI; Uralskaya obl.: Dzhanybek, 16 VI 1954, 1 ex., leg. K. MIKHAJLOV; N Caucasus: Ush. Dzhamagat n. Teberda, 14 VIII 1988, 2 exs, leg. V. GRACHEV (VZ).

SPAIN: 1f, leg. LAUFFER (MNB); Almeria: Sal de las Estancias, SW Rubio, 1500-1800 m, 5 V 1985, 1f, leg. A. WARCHAŁOWSKI (DEI); Barcelona: Argentona, 27 V 1974, 1f, leg. A. COMELLINI (MHNG); Sierra Nevada: Fte del Hervidero Monachie, 28 VI 1983, 1f; La Estrella, 28 VI 1983, 1f (AZ).

SWEDEN: Skånia: 4 exs, coll. Mannerheim, Nyholm; Ivö, 29 VI-2 VII 1946, 6 exs, 2-3 VII 1948, 6 exs, leg. A. OLSSON, 10 VIII 1950, 3 exs, leg. O. SJÖBERG (NRS); Vinslövs s:n, 14 VIII 1954, 1m, leg. G. ISRAELSON (ZMH).

UKRAINE: Podolia: Hołosko, 1 ex., Sinków, 6 exs; Kołodróbka, 1 ex. (IZW); Kiev, 2 exs, leg. EVERSMAN (SMTD).

***Taphrotopium* (*s. str.*) *cuprifulgens* (SCHILSKY, 1906)**
(figs 62, 65, 66)

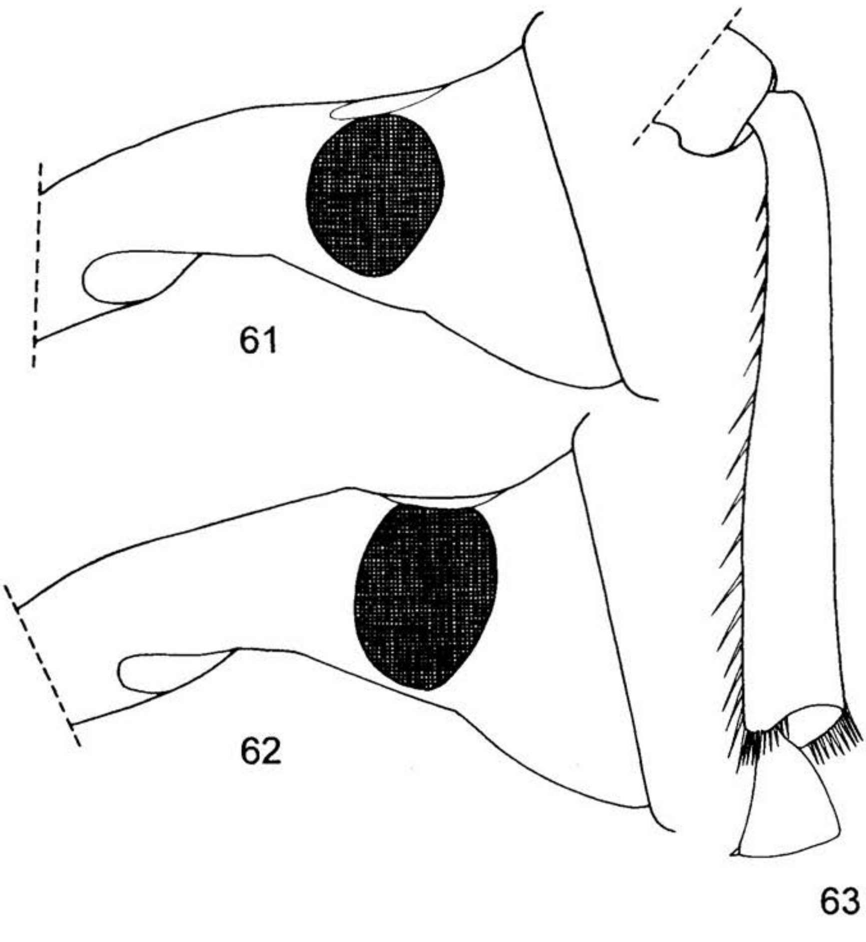
Apion (*Ceratapion*) *sulcifrons* v. *cuprifulgens* SCHILSKY, 1906b: XI.
Apion karatavicum BAJTENOV, 1973: 61.

Literature: BAJTENOV, 1974: 278; SCHÖN, 1983; ALONSO-ZARAZAGA, 1990: 51, 52.

TYPE MATERIAL EXAMINED

A. sulcifrons* var. *cuprifulgens SCHIL. Lectotype f (designation of SCHÖN, 1983); paralectotypes: 4f (MNB).

Types of *A. karatavicum* BAJT. have not been examined.

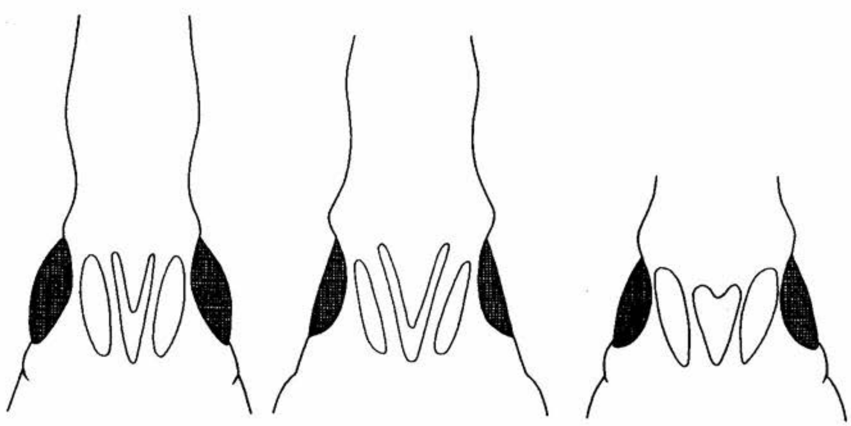


61,62. Head profile: 61 - *Taphrotopium* (*s. str.*) *sulcifrons*, 62 - *T.* (*s. str.*) *cuprifulgens*. 63. *T. sulcifrons*, male hind tibia and first metatarsomere (lateral view)

Description

Body length m: 2.12-2.70 mm, f: 2.44-3.10 mm. Elytra with metallic glint mostly bluish, sometimes cupreous or black. Legs and antennae often piceous brown.

Indices. ***rl/pl:*** m: 1.46-1.66, f: 1.71-1.83; ***rl/msrw:*** m: 3.98-4.80, f: 5.21-5.60; ***scl/msrw:*** m: 0.63-0.78, f: 0.73-0.83; ***msrw/mtrw:*** 1.05-1.19; ***msrw/arw:*** 1.33-1.50; ***msrw/minrw:*** 1.38-1.56; ***msrw/eyl:*** m: 1.11-1.28, f: 1.32-1.38; ***brl/eyl:*** m: 1.33-1.50, f: 1.70-1.75; ***eyl/hl:*** m: 0.63-0.80, f: 0.55-0.63; ***hl/hw:*** 0.70-0.94; ***mpw/hw:*** m: 2.03-2.21 (M 2.13), f: 2.14-2.32 (M 2.24); ***bpw/apw:*** 1.13-1.20; ***pl/mpw:*** 0.91-1.05; ***mew/mpw:*** m: 1.68-1.79, f: 1.88-1.97; ***el/pl:*** m: 2.35-2.58, f: 2.67-2.86; ***el/mew:*** 1.35-1.43; ***mew/bew:*** m: 1.18-1.26, f: 1.24-1.29; ***bew/mpw:*** m: 1.42-1.48, f: 1.51-1.54; ***pft/msrw:*** 0.84-0.91; ***ptbl/pl:*** 1.25-1.35; ***ptbl/ptbmw:*** m: 6.67-7.27, f: 7.33-7.67; ***ptsl/ptbl:*** m: o.50-0.53, f: 0.47-0.49.



64 65 66

64-66. Head outline: 64 - *Taphrotopium* (*s. str.*) *sulcifrons* (Poland); 65 - *T.* (s. str.) *cuprifulgens* (SE Kazakhstan); 66 - *T. cuprifulgens* (Azerbaijan: Aras Valley)

The species is much less variable than *T. sulcifrons*, differing from it only in the characters listed below.

Rostrum base more elevated above the frons. Antennal insertion m: 0.25-0.28, f: 0.23-0.25. Head subconical; eyes completely flat; vertex more strongly elevated posterad. Pronotal puncturation usually finer and sparser.

Aedeagus as in *T. sulcifrons*. Paramerae less variable; minute spines on the dorsum of parameroid lobes not observed; fenestrae always large; dorsal portion of ring broadly disconnected. Median lobe not distinct in both species, the differences illustrated by SCHÖN (1983) and ALONSO-ZARAZAGA (1991) are within infraspecific variability range of *T. sulcifrons*.

Biology unknown.

Distribution. Armenia, S Azerbaijan, Iran*, Turkmenistan, Uzbekistan, Tadzhikistan, Kirghistan, Western (Karatau Mts.) & South-Eastern Kazakhstan.

Probably SCHATZMAYR's (1925) account of *T. sulcifrons* in Syria could be referred to this species.

REMARKS

T. sulcifrons and *T. cuprifulgens* are allopatric species, with the ranges meeting in the Caucasus. It can be concluded from the relatively poor material from this area, that the former species occurs in the Northern Caucasus south to Georgia (Tbilisi) and Dagestan, while *T. cuprifulgens* was collected only in Armenia and Southern Azerbaijan. The status of both as distinct species is not certain and should be verified basing on materials from the whole Caucasian region, and especially from the area between the Caspian Sea and Tian-Shan Mts. It is likely that the disjunction observed there is only a result of inadequate materials. The shape of head in some specimens of *T. cuprifulgens* from the Aras Valley (FSF) and the vicinity of Baku (GO) examined by me show some affinities to *T. sulcifrons*. On the other hand, a few European specimens of *T. sulcifrons* had flattened eyes and head nearly as narrow as in typical *T. cuprifulgens*. The character is apparently an adaptation to an intense insolation and appears independently in some other desert apionids, like *Ceratapion gibbiceps* or *Mesotrichapion conocephalum* (DESBROCHERS), being strongly infraspecifically variable in the latter species. Until the distribution of both *T. cuprifulgens* and *T. sulcifrons* is studied in more detail and some bionomic data on the former come to light, the subspecific status of *T. cuprifulgens* can be considered.

OTHER MATERIAL EXAMINED

ARMENIA: 1m, leg. LEDER & REITTER (SMTD). Erevan, 1898, 1 ex., leg. KORB (MNB); Echmiadzin, 23 III 1916, 1 m, leg. W. EICHLER (IZW); Dzhrvezh n. Erevan, 9 VI 1987, 1 ex. (VK).

AZERBAIJAN: Araxesthal, 1m 1f, leg. LEDER & REITTER (FSF); 90 km N Baku, 19 VI 1984, 1f (GO), leg. BEZBARMA (GO).

IRAN: Azerbaidjan: Maku, 39°08'N/44°30'E, 23 VI 1973, 2m 1f, leg. A. SENGLET (MHNG).

KAZAKHSTAN: Aulie-Ata [Dzhambul], 1 ex. (MNB), 1m 2f (SMTD), 1 ex. (ZMH), 4 exs (coll. H. WAGNER, ZSM).

KIRGHISTAN: Chon-Arik, 30 km S Frunze, 600 m, 2-4 VII 1981, 1 ex., leg. V. KUBAN (LD); Jardan, S Fergana, 2000 m, 15 VII 1984, 1f, leg. L. BEHNE (DEI).

UZBEKISTAN: "Syr Daria", 1 ex. (IRB); Alai Khreb.: Jordon, 1800 m, 22-23 VI 1981, 2 exs, leg. B. ZVERIC (MF).

Other localities listed by SCHÖN (1983).

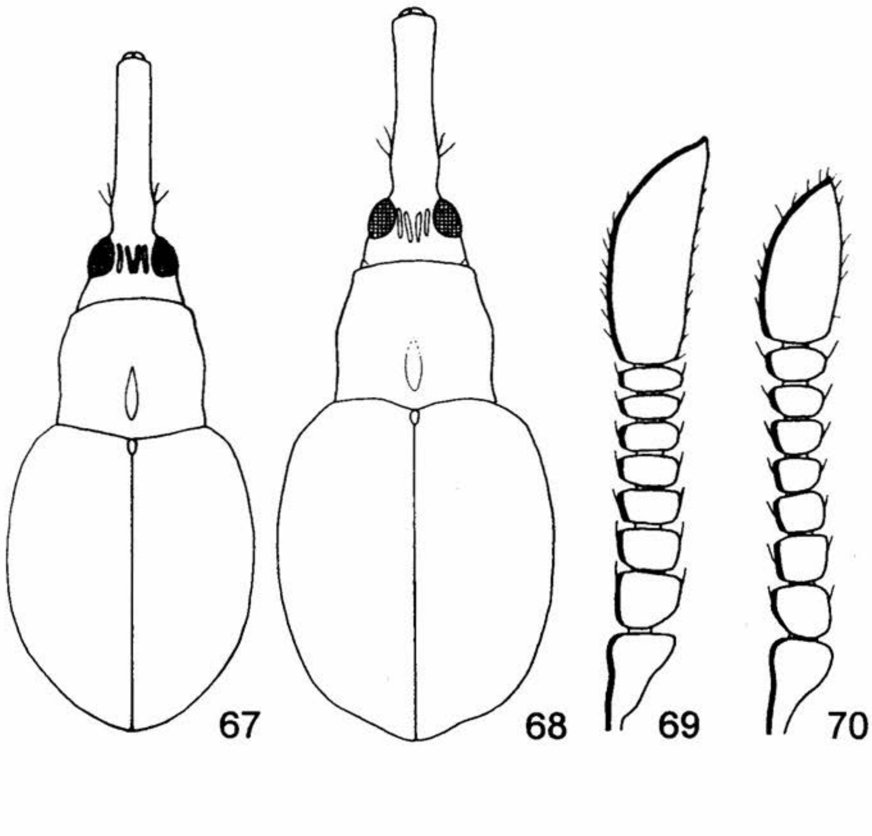
***Taphrotopium* (*s. str.*) *steveni* (GYLLENHAL, 1839)**
(figs 67-79)

Apion Steveni GYLLENHAL, 1839: 393.
Apion Steveni var. *nigerrimum* FAUST, 1894: 65.
Apion (*Ceratapion*) *Steveni* f. *picipes* WAGNER, 1906b: 208.

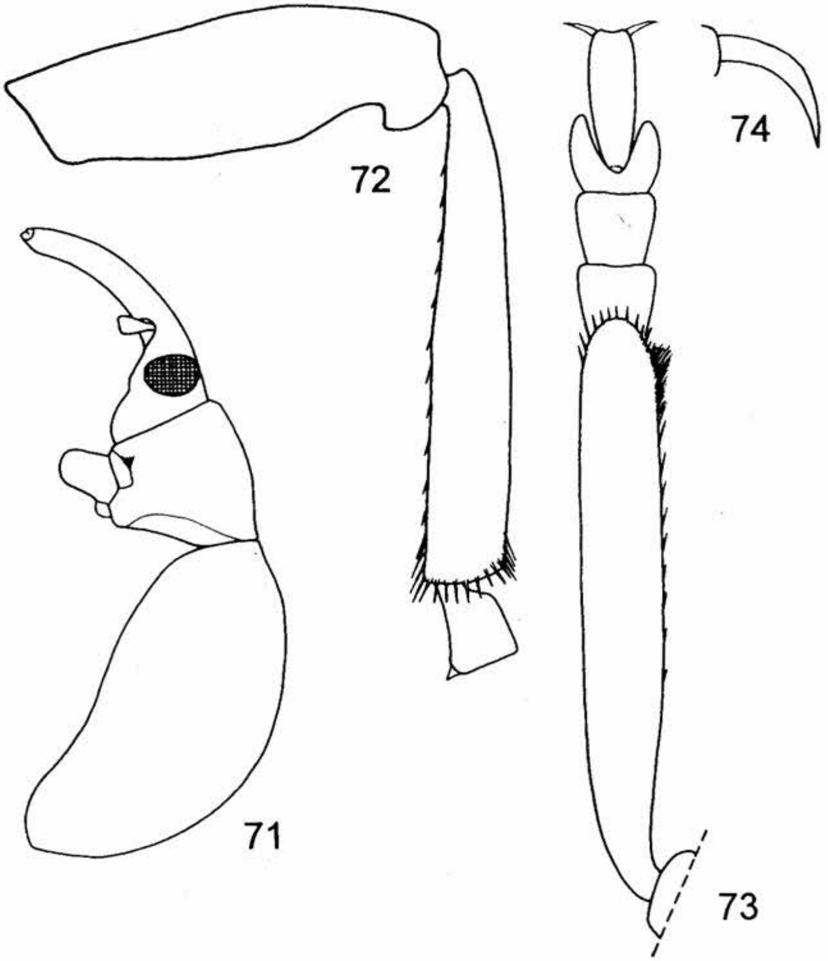
Literature: DESBROCHERS, 1870: 186, 1891: 327, [1894]: 120; SCHILSKY, 1901: no.29, 1906b: XI; TER-MINASSIAN, 1972: 799.

TYPE MATERIAL EXAMINED

A. steveni* GYLL.** Holotype f: a)Astrachan, STEVEN, b)Typus, c)Riksmuseum Stockholm (NRS). *A. steveni* **var.** ***nigerrimum **FST.** Lectotype f: a)Kopet-Dagh, b)*Apion steveni* var. *nigerrimum* FST., c)Coll. J. FAUST, d)Syntypus (SMTD) (present



67-70. *Taphrotopium* (*s. str.*) *steveni*: 67,68 - body outline, 67 - male, 68 - female; 69,70 - antenna, 69 - male, 70 - female designation). ***A. steveni* f. *picipes*** **WGN.** Lectotype f: a)Prov. Kuldscha, Ober. Ili-Thal, F. HAUSER 1897, b)Type v. *Ap. Steveni* sbsp. *picipes* m., coll. H. WAGNER (coll. G. FREY, ZSM) (present designation); paralectotypes: 2 exs: a)Turkestan: Tschimgth. [SE Kazakhstan: Tschimkent], b)coll. HAUSER, c)*steveni* var. nov. *picipes* m. typ!, WAGNER det.; 1f: a)Turkestan: Kara-Su [Uzbekistan: ca. 50 km SE Tashkent], b) & c) as in the previous specimens (NMW).



71-74. *Taphrotopium* (*s. str.*) *steveni*: 71 - female body in lateral view; 72 - male hind femur, tibia and first metatarsomere (lateral view); 73 - male fore tibia (lateral view) and tarsus (dorsal view); 74 - tarsal claw in profile

Description

Body length 2.22-2.57 mm. Pronotum and elytra metallic blue or green; rostrum and antennae castaneous to piceous brown; legs testaceous to nearly black, with trochanters darkened.

Indices. ***rl/pl:*** 1.22-1.41; ***rl/msrw:*** m: 3.90-4.65 (M 4.20), f: 3.89-4.10 (M 4.00); ***scl/msrw:*** 0.71-0.80; ***msrw/mtrw:*** 1.00-1.08; ***msrw/arw=msrw/minrw:*** 1.30-1.46; ***msrw/eyl:*** 0.97-1.05; ***brl/eyl:*** 0.69-0.78; ***eyl/hl:*** 0.60-0.65; ***hl/hw:*** 0.62-0.88; ***mpw/hw:*** 1.66-1.84; ***bpw/apw:*** 1.14-1.28; ***pl/mpw:*** 0.89-0.97; ***mew/mpw:*** m: 1.62-1.75, f: 1.73-1.88; ***el/pl:*** m: 2.28-2.57 (M 2.45), f: 2.46-2.63 (M 2.56); ***el/mew:*** m: 1.37-1.46, f: 1.31-1.36; ***mew/bew:*** 1.17-1.29; ***bew/mpw:*** m: 1.32-1.38, f: 1.40-1.49; ***pft/msrw:*** 1.00-1.12; ***ptbl/pl:*** 1.18-1.36; ***ptbl/ptbmw:*** 6.57-7.60; ***ptsl/ptbl:*** 0.48-0.55.

Rostrum similar in both sexes, weakly curved, alutaceous in male, weakly shining in female; metarostrum scarcely wider than the prorostrum; mesorostrum barely dilated; prorostrum cylindrical, minutely and superficially punctate.

Antennae very thick, inserted at basal 0.16-0.20 of rostrum and less than the eye diameter from head; all segments equally wide, the scape 1.3-1.4, the 1st funicular segment 0.9-1.0 as long as wide, the remaining segments much more transverse in male, the last two in male 2.2-2.5×, in female 1.4-1.6× wider than long; male club about 3× longer than wide, as long as 6 distal funicular segments combined, in basal 2/3 sub-cylindrical, with strongly asymmetrical apex; female club ca. 2× longer than wide, much less asymmetrical, slightly longer than last 4 funicular segments combined.

Head distinctly transverse; eyes small, weakly prominent; frons flat, as wide as the rostrum base, impunctate, median pair of sulci at most slightly convergent; underside of head convex between eyes .

Pronotum weakly convex dorsally; puncturation similar on the disc and pronotal sides, coarse and irregular, punctures shallow, as large as 4 ommatidia, on average half diameter apart; pleural line distinct; sternellum strongly prominent, well visible in profile.

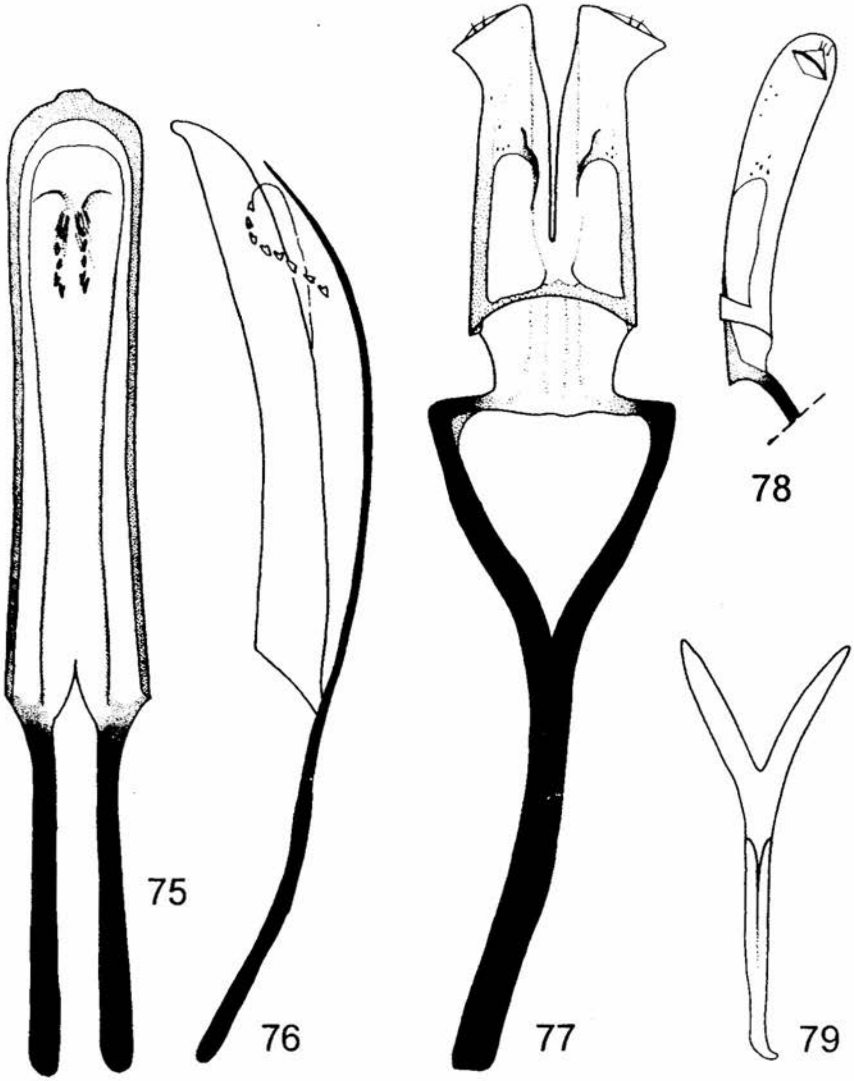
Elytra short, rounded, widest near middle, proportionally smaller in male; intervals flat, in the middle of elytra 3-3.5× wider than the striae, with confused row of minute punctures; striae shallow, with punctures very small and far apart; outer striae as wide as the inner ones but shallower and not so distinctly edged.

Metasternum as long as the mesocoxae, in middle with transversely-oval punctures. Ventrites 1, 2 shallowly and randomly punctate, punctures much finer than those on the pronotum.

Legs almost bare; tibiae weakly dilated apicad; tarsi short and narrow, ventrally with stout brownish setae on the segment margins instead of normal "sole", the second segment 0.80-0.85 as long as wide, third very small, scarcely wider than the second; onychium thick, exceeding third segment by its whole length.

Predominantly brachypterous, only one male with normally long wings has been found in the material.

Apices of the tegminal plate distinctly expanded outwards, forming triangular lobes; macrochaetae extremely fine; fenestrae well defined, elongate, in the upper inner corners bordered with strongly sclerotized margins; dorsal portion of ring very narrow, always complete; prostegium not projecting backwards, truncate, with 2-4 hardly visible, longitudinal, darker lines.



75-79. *Taphrotopium* (*s. str.*) *steveni*: 75,76 - median lobe of aedeagus, 75 - dorsal view, 76 - lateral view; 77 - tegmen, dorsal view; 78 - tegminal plate, lateral view; 79 - spiculum gastrale

Median lobe of aedeagus shaped as in *T. sulcifrons*, its dorsal plate distinctly narrowed in basal half; internal sac armed only with chains of 7-10 short denticles.

Spiculum gastrale as in fig. 79.

Biology unknown.

Distribution. Russia (South-East of European part, Western Siberia), Armenia, Azerbaijan*, Uzbekistan, Turkmenistan, South-Eastern Kazakhstan, Kirghistan, North-Western China.

OTHER MATERIAL EXAMINED

AZERBAIJAN: Aljat n. Baku, 13 VI 1983, 1m, leg. B. MALEC (KS).

CHINA: Kuldja [Kulja, Sinkiang prov.], 22 V 23, 1 ex., leg. BEIEK (ZMC).

IRAN: "Persia", 1 ex., coll. FAUST (SMTD).

KAZAKHSTAN: Syr-Darja, 4 exs, leg. B. v. BODEMEYER (ZMC, SMTD, IRB); Aulie-Ata [Dzhambul], 5 exs (MNB); Semirjetschensk, Djarkent [SE Kaz.: Panfilov], 1 ex. (FSF); Wernoje [Alma-Ata], 1908, 5 exs (ZSM); W. Mujun-kum, 1f, leg. A. KIRCHELDORFF, coll. H. WAGNER (ZSM).

KIRGHISTAN: Issyk-Kul, 1 ex. (ZMH); Mabygen n. Shurab, 17 VIII 1971, 4 exs, leg. L. PRITYKINA (VZ).

RUSSIA: "Russia mer.", 2 exs (ITZA), 2 exs (SMTD), 1 ex. (MHNG); Sarepta [Krasnoarmyeysk], 16 exs (MNHP), 2 exs (ZMH), 18 exs (MHNG), 9 exs (MNB), 10 exs (FSF), 7 exs (ITZA), 14 exs (ZSM), 5 exs (IRB), 19 exs (DEI), 1 ex. (LD), 2 exs (SMTD), 1 ex. (NMW); Rostovskaya obl.: Dyabino, 45 km E Kamensk, 14 VI 1950, 1 ex.; Volgogradskaya obl.: Tinguta, 5 VII 1959, 3 exs - leg. K. ARNOLDI (VZ); Elton [El'ton], 3 exs, leg. BECKER (MHNG); Uralskaya obl.: Dzhanybek, 17 VI 1984, 1 ex., leg. K. MIKHAJLOV (VZ); Tomsk (W Siberia), 1 ex., leg. KÖNIG (MNB).

UZBEKISTAN: Djizak [Dzizak], leg. HAUSER, 2f; Buchara, 1 ex. (SMTD).

Subgenus *Omphatopium* nov.

Etymology. A combination of the names *Omphalapion* and *Taphrotopium*, expressing in some respects intermediate characters of the type species.

Type species: *Apion irkutense* FAUST.

DESCRIPTION

Elytra with microscopic hair-like scales.

Antennae relatively thin, inserted at a distance from the head longer than 1.5 eye diameter; club and distal segments of the funicle not sexually dimorphic.

Frons flat, with a few fine striolae and indistinct punctures; gular suture fine, ending in small, deep pit in front.

Pronotal sides strongly rounded from nearly the base to front margin, punctate to posterior margin, with incomplete pleural line close to the pronotal margin.

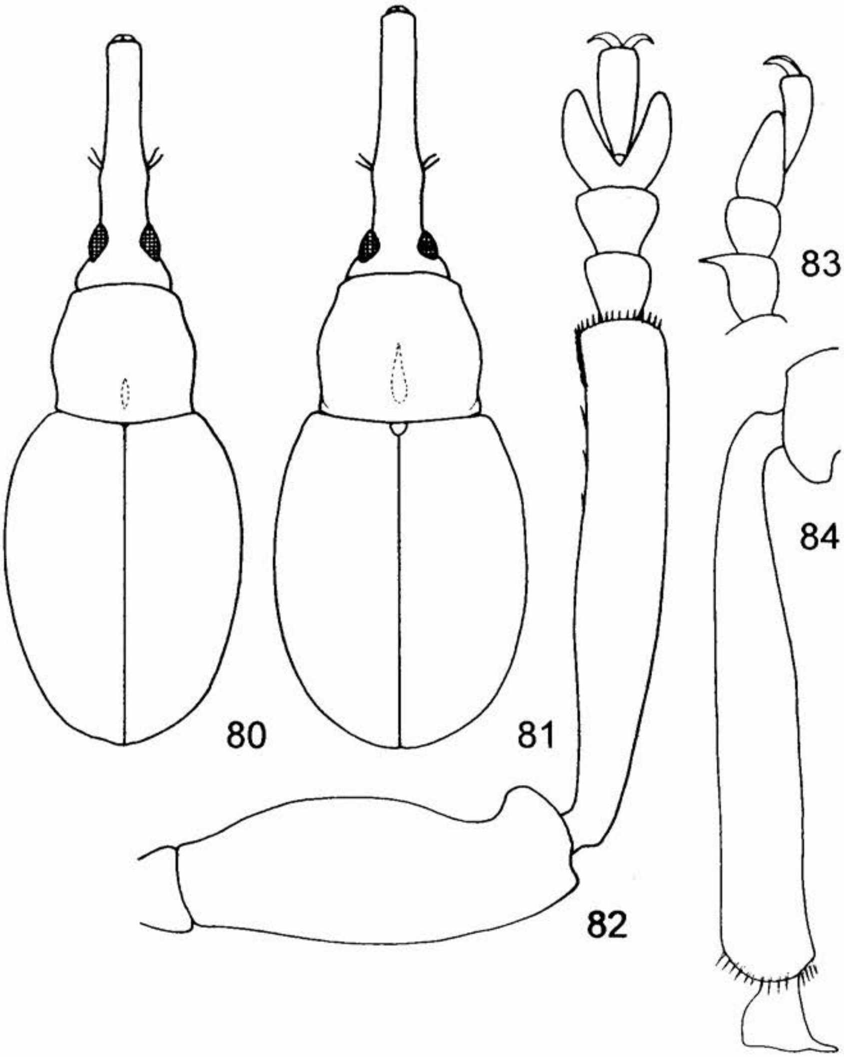
Elytra uniformly oval; humeral calli absent; striae broad, in the basal part of elytra as wide as the intervals.

Metasternum distinctly shorter than the mesocoxae.

All male tarsi with the basal segment ventrally spined.

Metathoracic wings completely reduced.

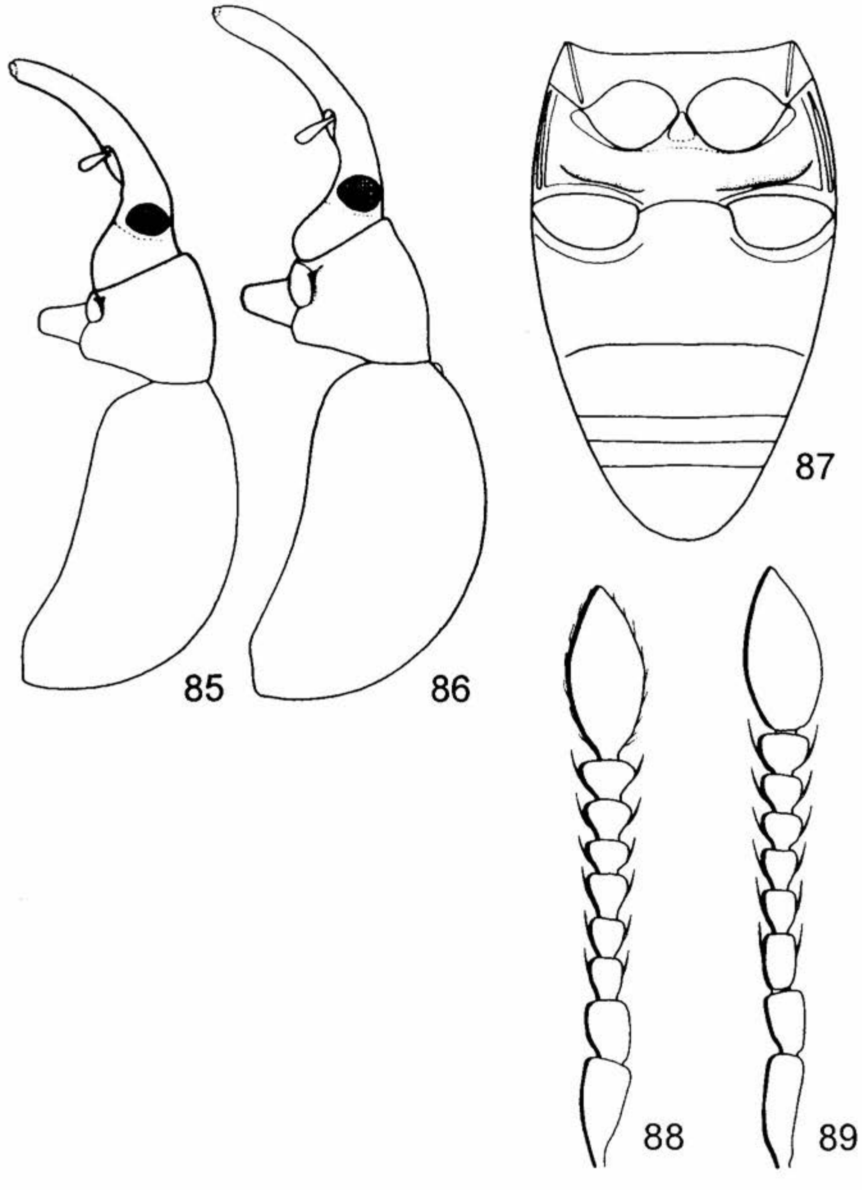
Tegminal plate with a pair of complete, widely separate longitudinal carinae; apices of the parameroid lobes strongly modified, curved inwards, with large, rounded lateral lobes bearing macrochaetae; fenestrae, dorsal portion of ring and the arched line vanishing.



80-84. *Taphrotopium* (*Omphatopium*) *irkutense*: 80,81 - body in dorsal view, 80 - male, 81 - female; 82 - male fore femur, tibia (lateral view) and tarsus (dorsal view); 83 - male protarsus in profile; 84 - male hind tibia and first metatarsomere (lateral view)

Internal sac of aedeagus with projected backwards, unarmed part nearly as long as the apophyses; chains of denticles in the orificial region long and distinct.

Distribution. Central Asia.

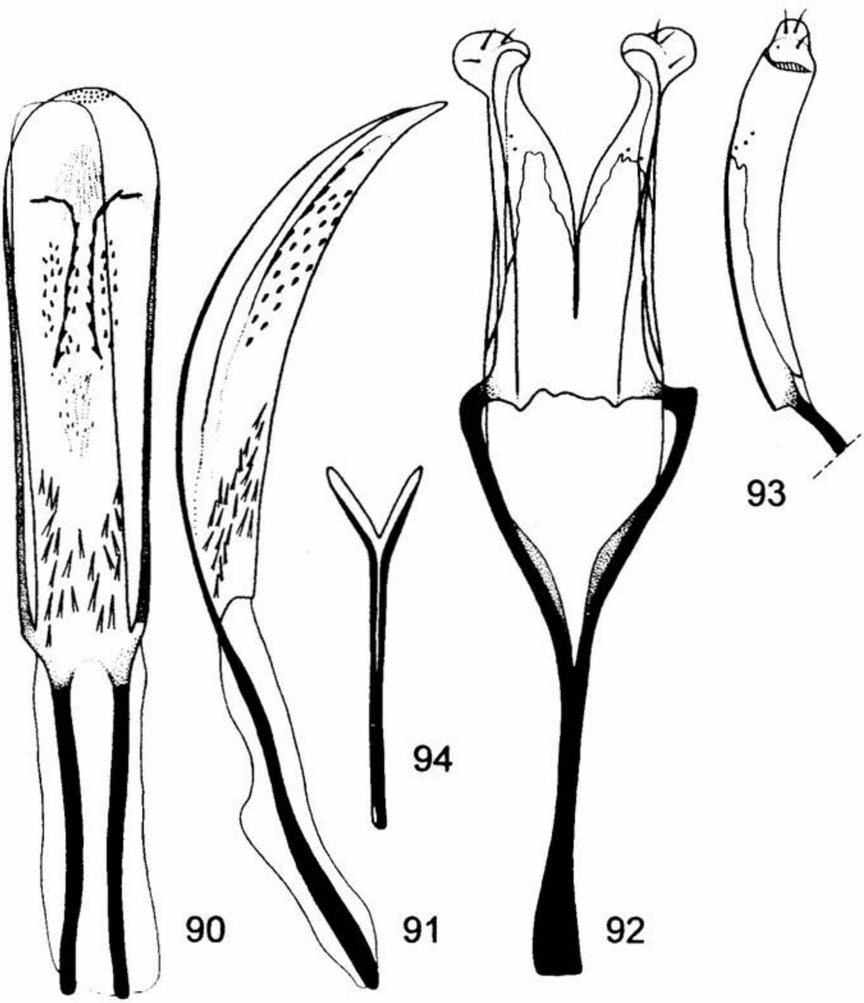


85-89. *Taphrotopium (Omphatopium) irkutense*: 85,86 - body outline in lateral view, 85 - male, 86 - female; 87 - mesosternum, metasternum and abdominal ventrites; 88 - male antenna; 89 - female antenna

***Taphrotopium* (*O.*) *irkutense* (FAUST, 1888)**
(figs 80-94)

Apion irkutense FAUST, 1888: 174.

Literature: FAUST, 1890: 63; DESBROCHERS, [1897]: 14; SCHILSKY, 1902: no.16, 1906b: XXXV; WAGNER, 1906b: 195, [1915]: 31; BAJTENOV, 1974: 278, 1983: 60; KOROTYAEV, 1990: 221.



90-94. *Taphrotopium* (*Omphatopium*) *irkutense*: 90,91 - median lobe of aedeagus, 90 - dorsal view, 91 - lateral view; 92 - tegmen, dorsal view; 93 - tegminal plate, lateral view; 94 - spiculum gastrale

TYPE MATERIAL EXAMINED

Lectotype f: a)golden square, b)Irkutsk, EVERSMAN, c)Coll. FAUST 1900, d)*Apion irkutense* FST., e)Sammlung Dr. K. DANIEL (ZSM) (present designation).

DESCRIPTION

Length 2.26-2.77 mm. Body with very weak bluish lustre; legs and antennae dark to piceous brown.

Indices. ***rl/pl:*** m: 1.33, f: 1.47-1.66; ***rl/msrw:*** m: 3.71, f: 4.42-5.05; ***scl/msrw:*** 0.59-0.79; ***msrw/mtrw:*** 1.03-1.12; ***msrw/arw=msrw/minrw:*** 1.48-1.63; ***msrw/eyl:*** 1.31-1.50; ***brl/eyl:*** m: 1.48, f: 1.60-2.03; ***eyl/hl:*** 0.52-0.72; ***hl/hw:*** 0.72-0.86; ***mpw/hw:*** 2.12-2.37; ***bpw/apw:*** m: 1.17, f: 1.19-1.23; ***pl/mpw:*** 0.90-0.96; ***mew/mpw:*** m: 1.55, f: 1.60-1.70; ***el/pl:*** 2.55-2.69; ***el/mew:*** 1.46-1.57; ***mew/bew:*** m: 1.22, f: 1.26-1.39; ***bew/mpw:*** 1.22-1.30; ***pft/msrw:*** 0.94-1.08; ***ptbl/pl:*** 1.18-1.21; ***ptbl/ptbmw:*** m: 5.82, f: 6.29-7.18; ***ptsl/ptbl:*** m: 0.52, f: 0.47-0.49.

Rostrum moderately curved, both on dorsum and sides strongly microsculptured, with fine elongate punctures; mesorostrum obtusely dilated, barely wider than the metarostrum; prorostrum cylindrical.

Antennae slightly thicker in male; insertion at basal 0.25-0.29 of rostrum; length/width ratios: scape m: 2.2, f: 3.0-3.2, first funicular segment m: 1.3-1.4, f: 1.5-1.6, second m: 1.2, f: 1.7-1.8; club fusiform, 2.2-2.7× longer than wide.

Head subconical; eyes small, weakly convex; frons narrower than the rostrum base, with striolae variable in number and arrangement, usually the two median convergent; temples strongly divergent, with single punctures along the eye margin; underside of head between eyes flat.

Pronotum relatively large, convex, both on disc and sides coarsely punctate, punctures 4× ommatidium size, at most half diameter apart; prescutellar fovea shallow, of variable size; sternellum inconspicuous.

Scutellum rounded, sometimes hardly visible.

Elytra globose; intervals flat to slightly raised, in mid length 2.5-3× wider than the striae, with microsculpture composed partly of irregular, transverse wrinkles.

Metasternum deepened medially, laterally between mid- and hind coxae distinctly elevated, coarsely punctate. Suture between ventrites 1 and 2 distinct, deepened laterally; ventrites with punctures similar to those on the pronotum, second with a distinct median pit in female; fifth ventrite with the scale-like microsculpture hardly visible, coarsely punctate.

Legs robust; tibiae weakly dilated apicad; tarsi short, protarsus 2.5× longer than wide, second segment 1.25× wider than long, onychium exceeding third segment by 0.4 length; ventral spine of the male tarsi as long as at least half basal segment's height.

Tegminal manubrium not longer than the forked basal piece; paramerae split to basal 1/4 length, with 3-4 macrochaetae; upper margins of the fenestrae visible, extremely fine and irregular; prostegium not projecting backwards, with two very indistinct and broadly separate acute pojections on the posterior margin.

Median lobe of aedeagus broad, slightly narrowing basad, uniformly rounded apically; the denticles of the internal sac arranged in chains strongly elongate, below the chains minute, regularly distributed spines, basal part of the sac with long spines.

Spiculum gastrale with manubrium more than 3× longer than the forked part.

Biology incompletely known, KOROTYAEV (1990) collected it from *Artemisia glauca* PALL. et WILLD.

Distribution. Russia (South-Western Siberia, Altai, Baikal Lake surroundings), Northern Kazakhstan.

OTHER MATERIAL EXAMINED

RUSSIA: "Osnatjenn." [vic. of Minusinsk, southern Krasnojarskiy Kr.], 1f, leg. HAMMARSTR. (ZMH),, 1m 1f, leg. EHNBERG, coll. FAUST; Werchne-Udinsk [Chitinskaya obl.: Verkhne-Udinskoye, 51°13'N/117°37'E], 1f, coll. K. A. PENECKE (SMTD); Krasnoyarskiy Kr.: Krasnoyarsk, 1m, coll. H. WAGNER (ZSM); Minusinsk, 1f, leg. K. EHNBERG (ZMH); Altai, 1f (labelled "*altaicus* m."); Sib.[eria] occ., 1f - coll. DESBROCHERS (MNHP).

Genus *Omphalapion* SCHILSKY, 1901

Apion subgenus *Omphalapion* SCHILSKY, 1901: G, no.41. Type species: *Curculio laevigatus* PAYKULL, 1792 (by original designation).

DESCRIPTION

Males distinctly smaller, with pronotum and elytra black, obscurely shining; females with elytra distinctly metallic green or blue; legs and antennae in females black, in males mostly dark to piceous brown. Body vestiture very fine, usually scarcely visible.

Rostrum expressing strong sexual dimorphism in length; mesorostrum weakly, obtusely dilated; prorostrum in the male protrudingly setose in apical quarter to half length, ventrally strongly scale-like microsculptured, with a very narrow, sometimes vanishing median carina and a pair of broad and shallow longitudinal grooves which are usually bordered with sharp edges laterally.

Antennae thin, finely setose, with segments 2-4 distinctly narrower than the pedicel.

Head short, strongly transverse, rarely more elongate and subconical; eyes weakly convex, slightly protruding from the head outline, larger in males; frons flat, irregularly punctate, with fine, variously shaped longitudinal striolae vanishing in some species and/or specimens, median striolae often slightly convergent; vertex impunctate; temples at most with a single row of punctures; antennal scrobes ending before the eye front margins; venter of head between eyes flat, strongly scale-like microsculptured, non granulate.

Pronotum usually strongly rounded laterally and distinctly convex to globose; pleural line present, variously shaped, mostly very close to hind pronotum margin; prosternum as long as the very short postcoxal part of prothorax; sternellum not distinct.

Elytra much wider than the pronotum, short, slightly flattened on the disc; humeral calli distinct; striae narrow, visibly bare, apically joined 1+2+9, 3+8, 4+5, 6+7, connections of the striae 4-7 often incomplete; intervals flat, transversely wrinkled - more evidently so in male - and irregularly punctate; specialized setae absent.

Episternal sutures of the mesosternum apparent, ending in small pits anteriorly; epimeral sutures with a regular row of scaliferous punctures. Metasternum 1.0-1.2 as long as the mesocoxae, only in *O. fossicolle* the ratio is 1.5; intermesocoxal process of the metasternum weakly elevated. Fifth ventrite with lateral depressions more distinct in females.

Male legs lack any sexual modifications.

Metathoracic wings of normal length, their muscles reduced in all examined males.

Tegmen with stout manubrium and forked basal piece fused to the plate; parameroid lobes broadly separate; sensillae reaching half of each lobe length; macrochaetae short, apical; lateral fold with the apical part always present, incurved and forming variously shaped folds, the basal part predominantly rudimentary to completely vanishing; fenestrae small and well margined or enlarged, with margins partly disappearing, narrowly to incompletely separate; dorsal portion of ring very narrow, complete; prostegium weakly projecting backwards, without longitudinal carinae, sometimes with fine, darker median line.

Median lobe of aedeagus more or less uniformly shaped in all species, apically narrowed with small truncate projection; apophyses shorter than the tubular part, broadly separate basally; internal sac with a pair of chains of denticles variably long, orificial region usually with uniformly distributed minute spines.

Biology. Host plants belong to the genera *Anthemis* L., *Matricaria* L., *Tripleurospermum* Schulz Bip. and *Achillea* L. of the tribus *Anthemidae*. Larvae inhabit inflorescences, feeding inside the green bottom of anthodium or on developing seeds, and pupate in the larval camera. The species have one generation per year, eggs are laid in the spring, adults appear from July to the beginning of August. Males are much rarer in museal materials and in Central Europe collected exclusively in July/August. The only males collected in the early spring came from Southern Greece and Israel, but this probably resulted from possible developing of second generation in the eastern Mediterranean region. Apparently copulation takes place soon after adults emerge from pupae and the males are die soon after, not hibernating. Some facts observed by me in the field indicate that the copulation can proceed still in the larval camera. In over 20 flower heads of *Anthemis arvensis* L. infested by *O. laevigatum* and *O. dispar* examined by me in Łódź (Central Poland) in mid July I found a pair of fresh adults or two, rarely three larvae considerably differing in size in each larval camera. Such a model of life cycle would well explain the rarity of males in the field, their small body and striking lack of any modifications of the male tarsi and tibiae, to hold the much larger and strongly convex female for copulation.

Distribution. North-Western Africa, Europe, Asia Minor, Caucasus, Western Kazakhstan.

REMARKS

All the Ethiopian species classified in the subgenus or genus *Omphalapion* by VOSS (1959, 1966, 1966b) belong to the undescribed genus of the tribe *Catapiini* (*Apionitae*).

KEY TO SPECIES

1. Prescutellar fovea large and deep, at least 1/4 of the pronotum length, much broader than pronotal punctures. ..... 2.
-. Prescutellar fovea fine, not broader and deeper than pronotal punctures, often concealed by puncturation. ..... 3.
2. Pronotal sides strongly rounded only in the median part (figs 95, 98); disc flattened, its front margin slightly thickened and elevated, the base separated by an indistinct transverse sulcus; puncturation very irregular, punctures of variable size, close to the front and hind pronotum margins absent; prescutellar fovea approximates half pronotum length. Elytra 1.35-1.40× longer than wide. ..... *O. fossicolle* (DBR.)
-. Pronotal sides more uniformly rounded (figs 106, 107); the disc regularly convex and punctate from the base to the anterior margin, the latter not thickened and elevated; pronotal puncturation regular, punctures of similar size; prescutellar fovea not longer than 1/3 pronotum length. Elytra 1.20-1.35× longer than wide. ..... *O. laevigatum* (PAYK.)
3. Pronotal puncturation confluent into long and very dense striae. Elytra very short, globose in the anterior part (figs 117, 118). ..... *O. rhodopense* (ANG.)
-. Punctures on the pronotum isolated. Elytra in the anterior part weakly convex to nearly flat. ..... 4.
4. Prorostrum distinctly tapering in both sexes (figs 119, 120); rostrum in male 0.8-0.9, in female 1.05-1.15 as long as the pronotum. Gular suture broad and deeply hollowed. Elytra 1.4-1.5× longer than wide. ..... *O. hookerorum* (KBY.)
-. Prorostrum cylindrical or medially contracted; rostrum in male 0.9-1.2 (mostly >1), in female 1.2-1.7 as long as pronotum (if shorter than 1.2, then elytra less

than 1.3× longer than wide). Gular suture fine, not hollowed. Elytra length/width ratio <1.4.
.... 5.

5. Elytra piceous black.
.... (males) 6.

-. Elytra metallic blue or green.
.... (females) 11.

6. Internal sac of aedeagus unarmed in the basal half (figs 145, 147).
.... 7.

-. Basal half of the internal sac with conspicuous, long spines (figs 146, 148).
.... 9.

7. Pronotum proportionally small, elytra/pronotum maximum width ratio 1.65-1.80; pronotal punctures predominantly round to shortly oval. Head narrow, 0.80-0.85 as long as wide; eyes large, weakly convex (fig. 155).
.... *O. concinnum* (SCHIL.) (m)

-. Pronotum larger, elytra/pronotum maximum width ratio 1.45-1.65; punctures on the pronotal disc elongate-oval to fusiform. Head more transverse, 0.60-0.65 as long as wide; eyes more convex (figs 130, 154).
.... 8.

8. Rostrum longer, 3.6-3.9 as long as the mesorostrum width. Eyes larger and less prominent, taking 0.85-0.95 total head length (fig. 130). Prescutellar fovea always visible, usually as long as 4-5 pronotal punctures combined. Elytra shorter, 1.25-1.35× longer than wide, in the hind part often slightly concave along the suture. Body length 1.9-2.2 mm.
.... *O. buddebergi* (BED.) (m)

-. Rostrum 2.9-3.4 as long as the mesorostrum width. Eyes smaller, taking 0.75-0.85 total head length (fig. 154). Prescutellar fovea absent or rudimentary. Elytra more elongate, 1.35-1.45× longer than wide, in the hind part always evenly convex. Body length 1.5-2.0 mm.
.... *O. dispar* (GERM.) (m)

9. Rostrum distinctly constricted sub-basally (fig. 156). Elytra usually widening from base to half length. Body length 1.6-1.9 mm (Western Europe).
.... *O. beuthini* (AN. HOFFM.) (m)

-. Sub-basal constriction of the rostrum very weak to nearly absent (figs 136, 154). Elytra in basal half almost parallel-sided. Body length 1.9-2.2 mm.
.... 10.

10. Rostrum strongly curved in basal part (fig. 137). Pronotum relatively small, elytra/pronotum length ratio 2.3 (North-Western Africa).
.... *O. sp.* (m)

-. Rostrum weakly, more uniformly curved (as in fig. 134). Pronotum proportionally larger, elytra/pronotum length ratio 2.4-2.5 (South-Eastern Europe, Asia Minor).
.... *O. pseudodispar* sp. nov. (m)

11. Body length 2.3-2.6 mm. Rostrum 1.6-1.7× longer than the pronotum, 5.7-6.6× longer than the mesorostrum width, distinctly curved - usually more strongly so in sub-basal than apical part (figs 127, 131); meta- and prorostrum distinctly constricted. Pronotal punctures distinctly elongate, fusiform. Elytra short, inflated, in hind part usually slightly concave along the suture.
.... *O. buddebergi* (BED.) (f)

-. Smaller species, body length 1.8-2.4 mm. Rostrum shorter, less than 1.55 pronotum length and 4.0-5.8× longer than the mesorostrum width, weakly and uniformly curved (figs 128, 129, 132, 157-159). Punctures on the pronotal disc round, oval or shortly fusiform. Hind part of the elytra evenly convex.
.... 12.

12. Antennal scape 3.6-4.2× longer than wide (fig. 141), as long as, or longer than the mesorostrum width (rostrum long, almost cylindrical, sub-basal and subapical constrictions very weak to obsolete; pronotum relatively large; elytra elongate, in basal half usually almost parallel-sided (fig. 128).
.... *O. dispar* (GERM.) (f)

-. Antennal scape 3.0-3.3× longer than wide (figs 140, 142), distinctly shorter than the mesorostrum width.
.... 13.

13. Head narrow, subconical, its length/width ratio mostly >0.8 (fig. 129); temples much longer than half of the eye diameter (pronotum usually very small; elytra long, distinctly widening from base to middle of length).
.... *O. concinnum* (SCHIL.) (f)

-. Head shorter and much more transverse, its length/width ratio mostly <0.6 (figs 157-159); temples shorter than half of the eye diameter.
.... 14.

14. Rostrum 1.3-1.5× longer than the pronotum, distinctly constricted sub-basally; dilatation of the mesorostrum usually extended anterad to about half prorostrum length (fig. 159) (pronotum relatively small; elytra distinctly widened from base to middle of length, their length/width ratio 1.3-1.4; Western Europe).
.... *O. beuthini* (AN. HOFFM.) (f)

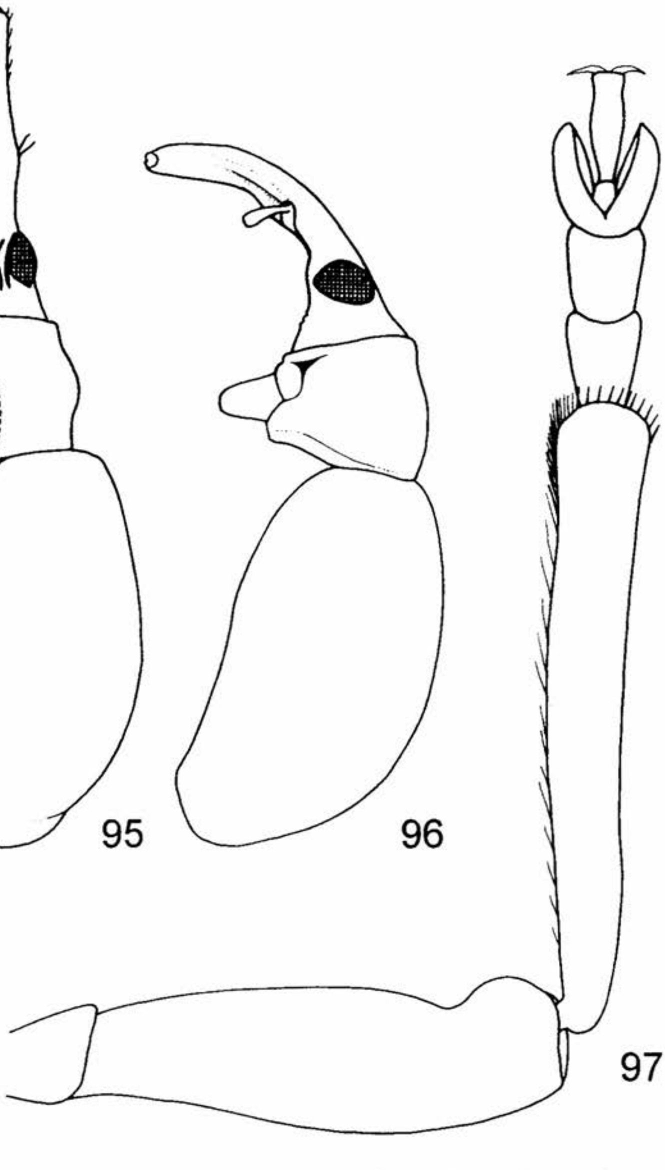
-. Rostrum 1.0-1.3 as long as the pronotum, sub-basal constriction obsolete, dilatation of the mesorostrum weak to nearly absent.
.... 15.

15. Elytra short; pronotum proportionally large (fig. 157) (South-Eastern Europe, Asia Minor).
.... *O. pseudodispar* sp. nov. (f)

-. Elytra more elongate; pronotum smaller (fig. 158) (North-Western Africa).
.... *O. sp.* (f)

Omphalapion fossicolle Desbrochers, 1889
(figs 95-105)

Apion fossicolle Desbrochers, 1889: XXXIV.
Apion fossulatum Desbrochers, [1897]: 15, **syn. nov.**

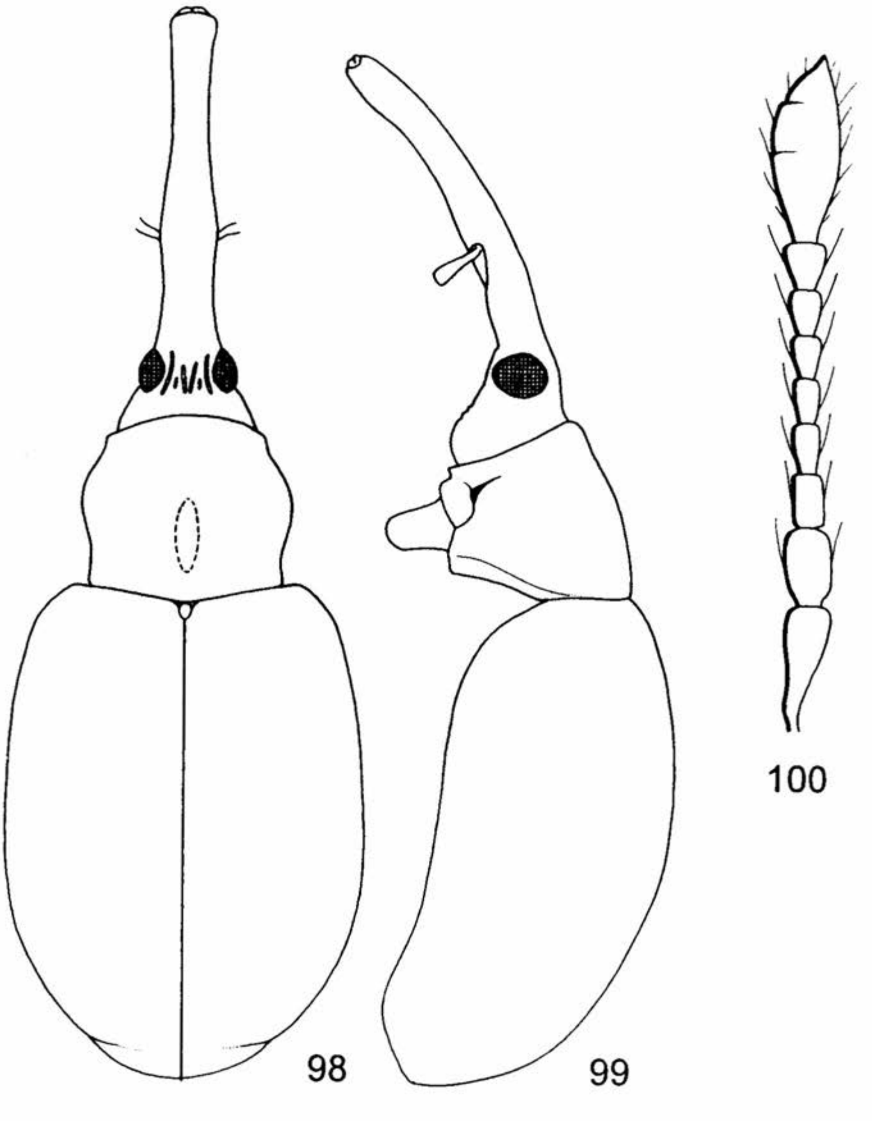


95-97. *Omphalapion fossicolle* (holotype male): 95,96 - body outline, 95 - dorsal view, 96 - lateral view; 97 - fore femur, tibia (lateral view) and tarsus (dorsal view)

Literature: DESBROCHERS, [1894]: 122.

TYPE MATERIAL EXAMINED

A. fossicolle **DBR.** Holotype m: a)Asie min., b)m, c)type decrit., d)Ex Musaeo DESBROCHERS 1914 (coll. DESBROCHERS, MNHP). ***A. fossulatum*** **DBR.** Holotype f: a)Syrie, b)Ex Musaeo DESBROCHERS 1914 (coll. DESBROCHERS, MNHP).



98-100. *Omphalapion fossicolle*: 98,99 - female body, 98 - dorsal view, 99 - lateral view; 100 - male antenna

Description

Body length m: 2.66 mm, f: 3.00-3.52 mm. Pronotum and elytra with short, opalescent hair-like scales, visible only under high magnification.

Indices. ***rl/pl:*** m: 1.54, f: 1.71-1.81; ***rl/msrw:*** m: 4.24, f: 5.41-6.25; ***scl/msrw:*** 0.71-0.75; ***msrw/mtrw:*** m: 1.11, f: 1.14-1.18; ***msrw/arw:*** m: 1.25, f: 1.31-1.41; ***msrw/minrw:*** m: 1,32, f: 1.45-1.67; ***msrw/eyl:*** m: 1.00, f: 1.11-1.17; ***brl/eyl:*** m: 1.40, f: 2.24-2.44; ***eyl/hl:*** m: 0.61, f: 0.62-0.74; ***hl/hw:*** m: 1.02, f: 0.76-0.81; ***mpw/hw:*** m: 1.99, f: 2.07-2.30; ***bpw/apw:*** m: 1.21, f: 1.23-1.27; ***pl/mpw:*** m: 0.85, f: 0.89-0.92; ***mew/mpw:*** m: 1.72, f: 1.80-1.87; ***el/pl:*** m: 2.77, f: 2.68-2.82; ***el/mew:*** 1.34-1.39; ***mew/bew:*** 1.20-1.24; ***bew/mpw:*** m: 1.43, f: 1.48-1.53; ***pft/msrw:*** m: 0.80, f: 0.95-1.05; ***ptbl/pl:*** m: 1.37, f: 1.26-1.32; ***ptbl/ptbmw:*** m: 7.55, f: 6.19-6.41; ***ptsl/ptbl:*** 0.48-0.51.

Rostrum shagreened, strongly arched in male, almost porrect in female; prorostrum cylindrical (male) or widening in apical half (female), in both sexes basally with a fine lateral carina and shallow impunctate groove below it; puncturation of rostrum shallow and indistinct, partly confluent, especially on the male prorostrum; male mesorostrum with small median pit; antennal scrobes approximating front of the head, occasionally weakly marked between eyes.

Antennae inserted far from the head, in male in basal 0.33, in female 0.33-0.38 of rostrum; proportions of the scape, funicular segments and the club variable, similar in both sexes, length/width ratios: scape 2.7-2.8, first funicular segment 1.5-1.7, second 1.2-1.5, third 1.5-1.8, the remaining predominantly slightly elongate; club 2.2-2.8× longer than wide, with transverse sutures partly visible, its pubescence distinctly protruding.

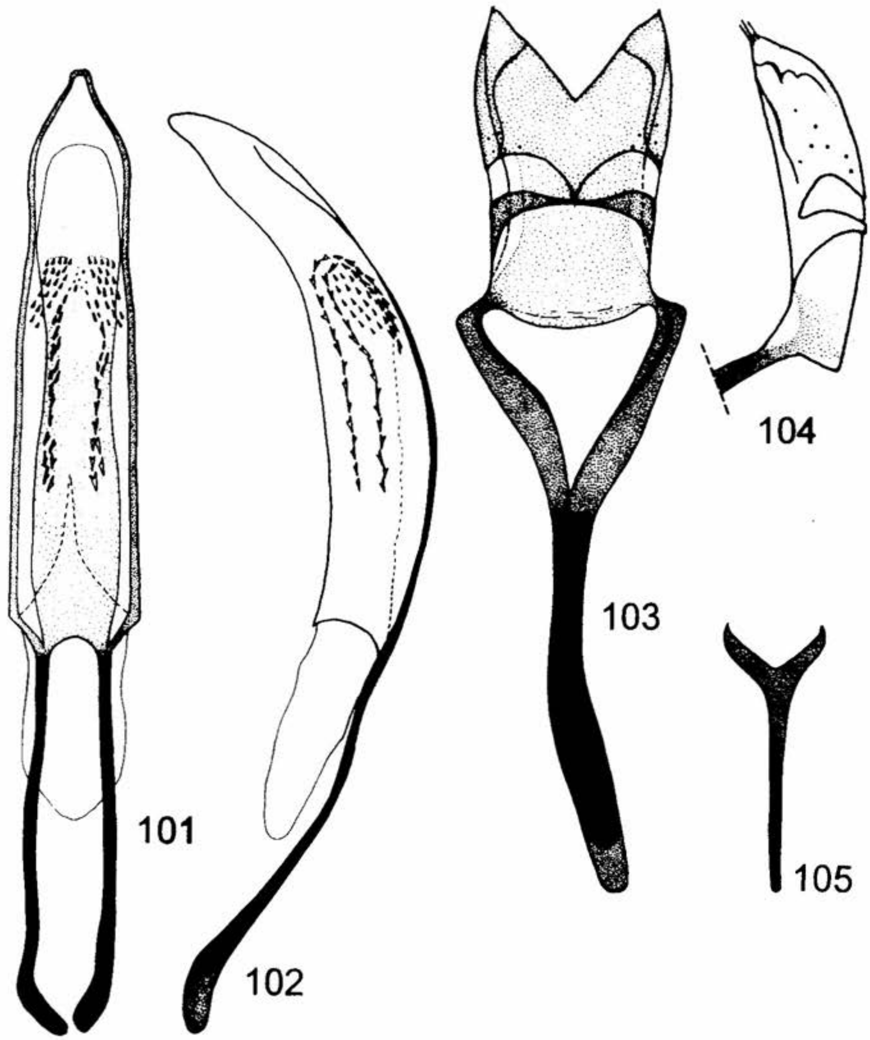
Head relatively small, conical; frons much narrower than the rostrum base (m: 0.7, f: 0.80-0.85), impunctate, striolae variably shaped, irregular; eyes much smaller in female; underside of head with few conspicuous transverse wrinkles visible in profile just behind the eyes, in the middle often irregularly granulate; gular suture strongly deepened in anterior 1/2 length.

Pronotum basally and apically almost parallel-sided, in middle of sides strongly rounded; disc flattened, with the front margin slightly elevated and the basal part separated by an indistinct transverse depression; puncturation coarse, very irregular, absent along front and hind pronotal margins, punctures of 3-5× ommatidium size, less than half diameter apart in middle of disc and sides, becoming much smaller and not so close backwards; interspaces of the punctures slightly raised, microreticulate - more densely so in the posterior half of pronotum; prescutellar fovea very large and deep, reaching or exceeding middle of pronotal disc, as wide as 2.5 diameters of the largest punctures; pleural line distinct, not very close to the pronotum margin; prosternum slightly longer than the postcoxal part of prothorax.

Elytra moderately convex; intervals flat or slightly concave, in the elytra middle 3-3.5× wider than the striae, impunctate; striae shallow.

Metasternum about 1.5 as long as the mesocoxae, its intermesocoxal process often strongly protruding. Ventrites 1, 2 shining, punctate much more finely and sparingly than the pronotal disc, the separating suture deepened sub-laterally; last ventrite distinctly punctate.

Legs slender; femora very weakly thickened medially, at most 1.5× wider than apices of the tibiae; inner margins of tibiae with obliquely raised setae throughout; tarsi short, protarsus about 3× longer than wide, its two basal segments slightly elongate, onychium exceeding third segment by 0.5 length.



101-105. *Omphalapion fossicolle* (holotype): 101,102 - median lobe of aedeagus, 101 - dorsal view, 102 - lateral view; 103 - tegmen, dorsal view; 104 - tegminal plate, lateral view; 105 - spiculum gastrale

Tegminal manubrium with lighter end; the plate 1.6× longer than wide; parameroid lobes broad, triangular, acute, separate to about half length, with the outer margins straight; macrochaetae 2-3; lateral fold as in fig. 104; fenestrae well defined, strongly transverse, very narrowly separate; posterior margin of the prostegium slightly rounded, with few transverse wrinkles.

Median lobe of aedeagus with apophyses 2/3 tube length; internal sac projecting backwards to about half apophyse length, armature composed of long chains of denticles, exceeding half tube length basad and distinctly bent in the orifice, and small areas covered with uniformly distributed minute spines on both orificial sides.

Spiculum gastrale with manubrium 3× longer than the forked part.

Distribution. Turkey (Southern Anatolia), Syria.

OTHER MATERIAL EXAMINED

TURKEY: Akbes [Ekbes], 1895, 1f, coll. A. HOFFMANN (MNHP); vil. Antakya: Amanus [Amanus Daglari], 1891, 1f (IRB); vil. Adana: Cilicien, Adana, 1f, coll. PENECKE; vil. Maras: Maras, 800 m, 1f, leg. W. H. MUCHE (SMTD); vil. Mersin: Mersin, 22 IV 1967, 1f, leg. W. WITTMER (MHNG).

Omphalapion laevigatum (PAYKULL, 1792)

(figs 106-116)

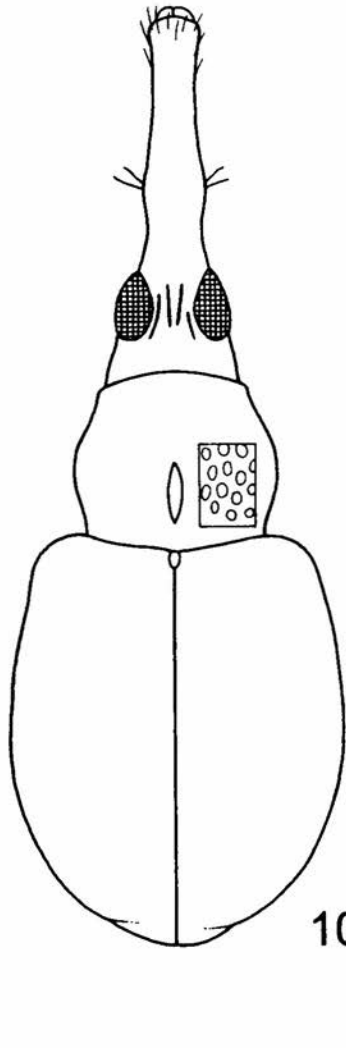
Curculio laevigatus PAYKULL, 1792: 141, nec FABRICIUS, 1792.
Attelabus Sorbi FABRICIUS, 1792: 390.
Attelabus Sorbi: PAYKULL, 1800: 178.
Curculio viridescens MARSHAM, 1802: 249.
Apion carbonarium GERMAR, 1817: 176.
Apion Sahlbergi SCHOENHERR in HUMMEL, 1825: 61.
Curculio sorbi: MARSHAM, 1802: 244.
Apion sorbi HERBST [sic!]: CORNELIUS, 1858: 220, et auctt.

Literature: WENCKER, 1864: 224 (*sorbi*); BEDEL, 1887: 362; DESBROCHERS, [1895-96]: 163; SCHILSKY, 1901: no.41, 1902b: 366, 1906b: XXXVI; REITTER, 1916: 247; SCHATZMAYR, 1925: 48; HOFFMANN, 1929: 137, 1958: 1525; HUSTACHE, 1931: 107; WAGNER, 1941: 52; GYÖRFFY, 1956: 19; SCHERF, 1964: 117; BUHR, 1964: 160; SMRECZYŃSKI, 1965: 50; KISSINGER, 1968: 295, figs i-l; SOLODOVNIKOVA & TALITSKIY, 1972: 788; IOANNISIANI, 1972: 269; TER-MINASSIAN, 1972: 800; KÖSTLIN, 1973: 96, 1985: 72, 1990: 90; BAJTENOV, 1974: 278; ANGELOV, 1976: 84; DIECKMANN, 1977: 88; LOHSE, 1981: 157; EHRET, 1983: 141, 1990: 231; MORRIS, 1990: 49 (*sorbi*).

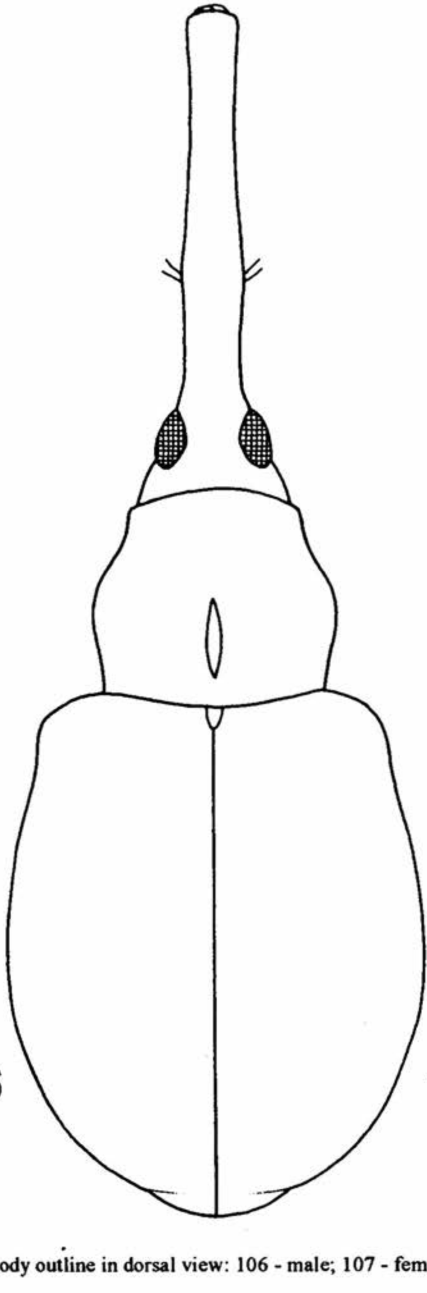
TYPE MATERIAL EXAMINED

C. viridescens **MARSH.** Lectotype f: a)25 f, b)59, c)*viridescens* MARSH typi (BLAIR's handwritting), d)Holotype, e)Hololectotypus, des. ALONSO-ZARAZAGA (coll. KIRBY, BMNH) (ALONSO ZARAZAGA, pers. comm.).

There is a single male of *O. laevigatum* in the STEPHENS collection (BMNH), clearly coming from the collection of MARSHAM (provided with a characteristic round, white label) and originally determined as *Curculio sorbi* (ALONSO-ZARAZAGA, pers. comm.).



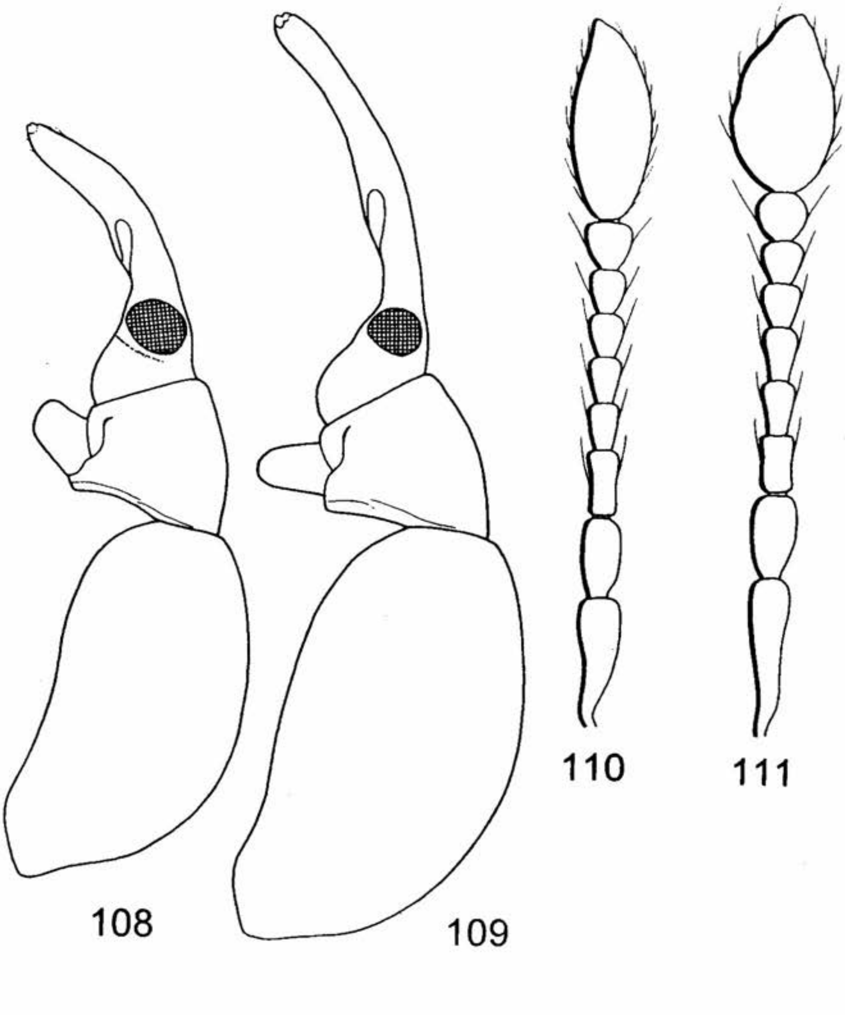
106



107

106,107. *Omphalapion laevigatum*, body outline in dorsal view: 106 - male; 107 - female

The name *Curculio laevigatus* PAYKULL, 1792 is homonymous with *Curculio laevigatus* FABRICIUS, 1792 (now in curculionid *Otiorhynchus*). Also in 1792 Fabricius described *Attelabus sorbi*, according to SCHILSKY (1901) synonymous with *C. laevigatus* PAYKULL. PAYKULL himself adopted the name *A. sorbi* and used it for his *C. laevigatus* in subsequent "Fauna Suecica" (1800). However, FABRICIUS (1792) quoted PAYKULL's *Curculio laevigatus* while describing *A. sorbi* (p. 390). Thus, though both FABRICIUS and PAYKULL papers were published in the same year, it is evident that PAYKULL's name has priority in this case. As a result, *Curculio laevigatus* PAYKULL is a valid name of the above species, *Attelabus sorbi* FABRICIUS is its junior

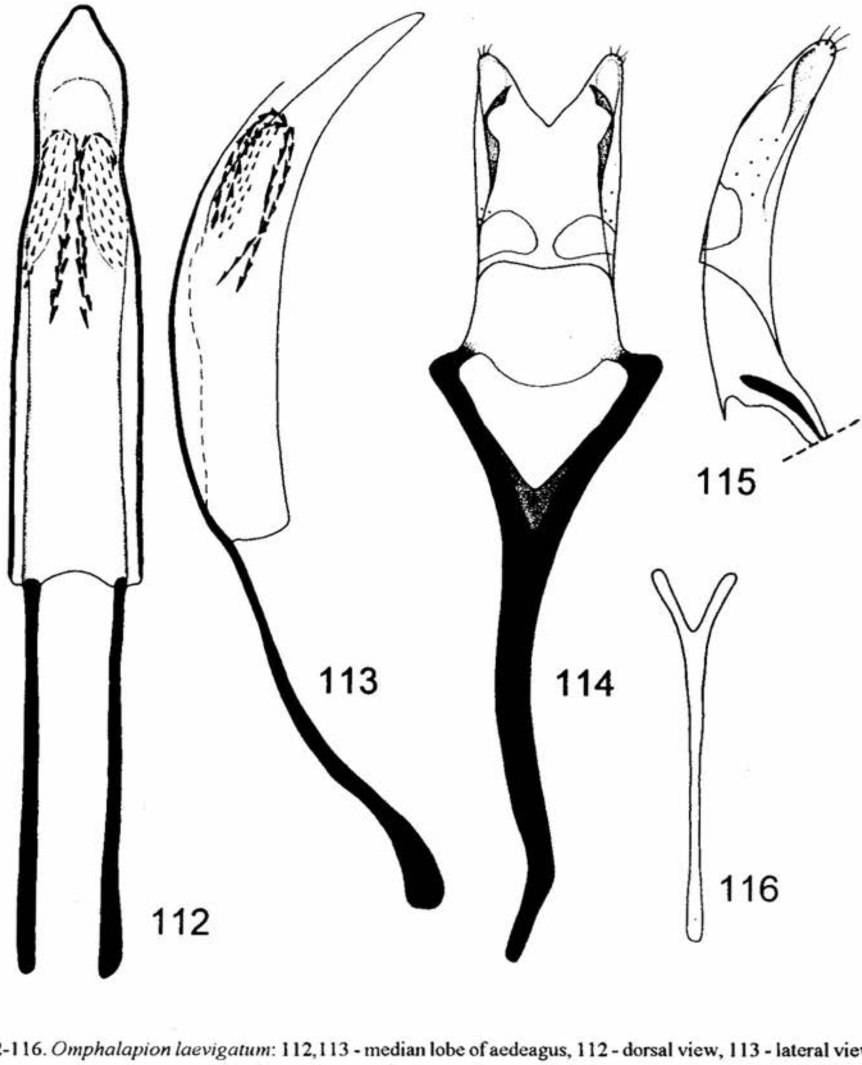


108-111. *Omphalapion laevigatum*: 108,109 - body in profile, 108 - male, 109 - female; 110 - male antenna; 111 - female antenna synonym, while *Curculio laevigatus* FABRICIUS is invalid and should be replaced with another name.

DESCRIPTION

Body length m: 2.12-2.58, f: 2.30-2.94 mm.

Indices. ***rl/pl:*** m: 1.20-1.37, f: 1.64-1.92; ***rl/msrw:*** m: 3.67-4.21, f: 5.57-6.69; ***scl/msrw:*** m: 0.68-0.82, f: 0.84-1.06; ***msrw/mtrw:*** 1.06-1.16; ***msrw/arw:*** m: 1.27-1.34, f: 1.18-1.30; ***msrw/minrw:*** m: 1.28-1.34, f: 1.34-1.39; ***msrw/eyl:*** m: 0.90-0.97, f: 0.97-1.05; ***brl/eyl:*** m: 1.12-1.30, f: 1.86-2.31; ***eyl/hl:*** 0.67-0.84; ***hl/hw:***



112-116. *Omphalapion laevigatum*: 112,113 - median lobe of aedeagus, 112 - dorsal view, 113 - lateral view; 114 - tegmen, dorsal view; 115 - tegminal plate, lateral view; 116 - spiculum gastrale

0.65-0.87; ***mpw/hw:*** m: 1.67-1.81, f: 1.92-2.11; ***bpw/apw:*** 1.20-1.32; ***pl/mpw:*** m: 0.94-0.97, f: 0.86-0.92; ***mew/mpw:*** m: 1.64-1.76, f: 1.76-1.96; ***el/pl:*** m: 2.25-2.47, f: 2.48-2.83; ***el/mew:*** m: 1.29-1.35 (M 1.32), f: 1.20-1.33 (M 1.27); ***mew/bew:*** m: 1.16-1.25, f: 1.21-1.37; ***bew/mpw:*** m: 1.36-1.47 (M 1.41), f: 1.39-1.57 (M 1.47); ***pft/msrw:*** m: 0.87-1.03 (M 0.94), f: 0.98-1.09 (M 1.03); ***ptbl/pl:*** 1.12-1.29; ***ptbl/ ptbmw:*** m: 6.23-6.67, f: 5.36-6.21; ***ptsl/ptbl:*** 0.54-0.60.

Rostrum in female shaped and sculptured similarly as in *O. fossicolle*, in male weakly curved, with no distinct lateral carina.

Antennae in male slightly, in female distinctly thinner than in the previous species, inserted at basal 0.31-0.36 of rostrum; length/width ratios: scape m: 2.1-2.5, f: 3.5-4.0, first funicular segment 1.6-2.0, second 1.6-1.9, club m: 2.0-2.5, f: 1.7-1.9, distal funicular segments not wider than long.

Venter of head without granulae or asperities, transverse wrinkles very fine, invisible in profile.

Pronotal sides rounded nearly to the base; disc regularly convex, evenly punctate from base to apex, punctures quite uniform, at most 4× ommatidium size; prescutellar fovea not longer than 1/3 pronotum and not wider than 2 punctures combined; pleural line concealed by punctures, more distinct only in its upper part; prosternum slightly shorter than the postcoxal part of prothorax.

Elytra shorter and more strongly convex, in relation to pronotum smaller than in *O. fossicolle*; striae more strongly impressed.

Metasternum 1.20-1.25× longer than the mid coxae.

The remaining external characters as in *O. fossicolle*.

Tegminal manubrium sinuate, much longer than the forked basal piece; the plate 2.3-2.5× longer than wide; parameroid lobes notched to less than half length, with apices narrowly rounded; macrochaetae 2-5, very short; fenestrae distinctly margined, not very large, variably shaped, well separate, externally closed far from the plate margin; lateral fold modified as in fig. 115; prostegium margin usually broadly rounded, occasionally irregular and completely transparent.

Median lobe of aedeagus in basal half parallel-sided, distinctly narrowed in apical 1/4; internal sac not projecting, chains of denticles not exceeding middle of the tube, symmetrical, uniformly spinose areas usually larger than in *O. fossicolle*, basal half of the sac unarmed.

Spiculum gastrale with manubrium 4.5-5× longer than the forked part.

Biology. It lives on few *Anthemis* species (*A. tinctoria* L., *A. arvensis* L., *A. cotula* L., *A. montana* L.). Recorded also from *Matricaria chamomilla* L. and *Tripleurospermum perforatum* (MÉRAT) WAGENITZ (= *T. inodorum* (L.) C.H. SCHULTZ), but these data could refer to other species or only feeding beetles. I collected numerous larvae, pupae and fresh adults in July 1989 from flower heads of *A. arvensis*. The larvae feed in a green bottom of the inflorescence, which is usually slightly enlarged, but rarely deformed. There are two (sometimes three) larvae in one flower head, always of different size and sex. Larval camera is thickly stuffed with brownish larval excrements. The larvae are easy to distinguish from the larvae of *O. dispar* collected on the same plant by strongly sclerotized dorsal parts of thoracic segments.

Distribution. Spain, France, England, Wales, Scotland, Italy, Switzerland, Germany, Sweden, Finland, Baltic countries, Poland, Byelorussia, Ukraine, Russia, Czech Rep., Slovakia, Austria, Hungary, Moldova, Slovenia, Croatia, Bosnia, Greece, Bulgaria, Turkey, Georgia, Western Kazakhstan.

The record from Syria (Schatzmayr, 1925), requires confirmation, because of possible misidentification with the previous species.

Other material examined

Aetol. alp., 4f, leg. Kiesenwetter (ZSM).

AUSTRIA: Ulrichskirchen, 1m, leg. J. Spurny (LM); Steiermark: Bärndorf, 4f, leg. Moosbrugger (MNB); Kärnten, 1f (ZMH).

BOSNIA: Sarajevo, Ilidze, 1f, leg. J. Fodor (HMNH).

BULGARIA: Nessebar, 27 VI, 29 IX 1965, 2f, leg. T. Palm (MZL).

CROATIA: Istria: Portoroz, VII 1959, 2f, leg. T. Palm (MZL).

CZECH REP.: J. Hradec, 1 VII 1977, 1m 1f; "Ogora u Tachova", 17 V 1986, 1f - leg. P. Sláma (KS); Moravia: Dačic, 9m 4f, leg. v. Zoufal (LM).

FINLAND: Aland [Ahvenanmaa]: Saltvik, 20 VI 1919, 1f; Karis Lojo [Karjalohia], 18 VIII 1916, 2m 1f; Lojo [Lohia], 24 VIII 1920, 1m, 10 VI 1915, 1f - leg. H. & H. Lindberg; Jomala, 1f, leg. Mäklin; Yläne, 1f; Vaaseni, 3f - leg. Karvonen (ZMH).

FRANCE: Marseille, 1m (MHNG).

GERMANY: Thuringia sept., 19 X 1906, 4 V 1917, 1 XII 1917, 3f; München, 23 V 1902, 7 IX 1902, 20 V 1906, 2 III 1907, 2 IV 1907, 28 IV 1907, 12 VII 1907, 25 I 1908, 22 V 1908, 10 XI 1909, 11 f; Tharandt, 1m; Oberpfalz: Kastl, IV 1913, 2f; Lolsnitz, V 1913, 1f - leg. Waegner; Schneidemühl., 1f, leg. Lass; Vogtland: Kemnitztal, 2m 1f; Brambach, 1949, 1f; Schönberg, VII 1947, 1f, 24 V 1951, 1f - leg. K. Ermisch (MNB); Bayern: Landshut, 24 XI 57, 1f, leg. O. Müller; Pfaffenhofen, 29 VIII1906, 1m (ZSM); Mecklemburg: Kothendorf, VIII 1930, 1m, leg. Hennigs (PS); Holstein: Preetz, 1m, leg. Kirsch (DEI).

GREECE: Parnassos, 2f, leg. Paganetti (MNB).

HUNGARY: 1m (MHNG).

ITALY: Limonetto, 1294 m, VII-VIII 1912, 1m (MHNG); Abruzzi: Piandi Cascino, 1100 m, 7 VII 1989, 1m (GO); Umbria: Monti Sibillini, Castellucio, VII 1954, 1f (LM).

POLAND: Pomerania Lake Region: Sztum, Wieżyca n. Kartuzy, Bielinek at Odra riv.; Masurian Lake Region: Puszcza Piska - Szeroki Bór, Puszcza Augustowska - Rubcowo; Nizina Mazowiecka (Mazovian Lowland): Konstancin; Podlasie: Białystok; Puszcza Białowieska (Bialowieza Forest); Silesia; Wyżyna Krakowsko-Wieluńska: Cracow, Bobolice n. Olkusz; Wyżyna Małopolska: Rogów k. Koluszek, Łódź, Modlica n. Łódź, Pabianice, Giełzów, Żądlowice Reserve; Wyżyna Lubelska:

Gródek n. Hrubieszów; Roztocze: Józefów Biłgorajski, Nart, Biała Góra n. Tomaszów Lub. - 61 ex. (IZW, MNB, MW, MHNG).

RUSSIA: vic. of St. Petersburg, 1m 1f (WS).

SLOVAKIA: Remata n. Handlové, 15 VI 1967, 1f, leg. J. Brožik (KS).

SLOVENIA: Carniolia, 5 exs; Laibach [Lubljana], 5f; Veldes [Bled], 1f (ZMC); Kalobje, 3f; Podcetrtek, 1f - leg. V. Kodric; Medvove, 1 V 1913, 1f; Golovce, 14 III 1913, 1f - leg. Gspan (MHNG).

SPAIN: Gerona: Playa de Aro, 3 VI 1973, 2m, leg. H. & K.W. Harde (SMNS).

SWEDEN: Örby, 21 VII 1922, 1m, leg. H. Lindberg (ZMH).

UKRAINE: Podolia: Lackowicze n. Baranowicze; Krzywczyce n. Lvov; Hołosko Wielkie; Kołodróbka - 5f (IZW); Rawa Russkaya, 7-8 VIII 1916, 2m 2f; Winniki; 28 VII 1916, 16m 4f; Hulesze, 31 VII 1916, 4m - leg. J. Fodor (HMNH).

Omphalapion rhodopense (Angelov, 1962)

(figs 117, 118)

Apion rhodopensis [sic!] Angelov, 1962: 199.

Literature: Angelov, 1976: 87; Schön, 1981: 189; Behne, 1989: 321.

Type specimens not examined.

Description

Length f: 1.45-2.10 mm. Body completely bare, black, elytra with obscure bluish or greenish tinge, shining.

Male unknown.

Indices (f). ***rl/pl:*** 1.56-1.80; ***rl/msrw:*** 6.22-7.32; ***scl/msrw:*** 0.93-0.97; ***msrw/mtrw:*** 1.00-1.07; ***msrw/arw:*** 1.20-1.23; ***msrw/minrw:*** 1.20-1.31; ***msrw/eyl:*** 0.88-0.98; ***brl/eyl:*** 1.11-1.47; ***eyl/hl:*** 0.75-0.84; ***hl/hw:*** 0.58-0.61; ***mpw/hw:*** 2.06-2.16; ***bpw/apw:*** 1.42-1.55; ***pl/mpw:*** 0.82-0.91; ***mew/mpw:*** 1.60-1.75; ***el/pl:*** 2.09-2.40; ***el/mew:*** 1.11-1.20; ***mew/bew:*** 1.22-1.34; ***bew/mpw:*** 1.26-1.37; ***pft/msrw:*** 1.26-1.36; ***ptbl/pl:*** 1.04-1.10; ***ptbl/ptbmw:*** 5.11-7.07; ***ptsl/ptbl:*** 0.48-0.50.

Rostrum very weakly, regularly curved to almost porrect, shagreened, punctures obsolete, elongate; meso- and metarostrum equally wide, usually slightly wider than the prorostrum; prorostrum cylindrical.

Antennal insertion at basal 0.19-0.21 of rostrum; scape ca. 3× longer than wide; proportions of funicular segments variable, length/width of the first 1.60-1.75, second 1.3-1.8, sixth 1.2-1.3, seventh 0.8-1.0; club 2.0-2.2× longer than wide.

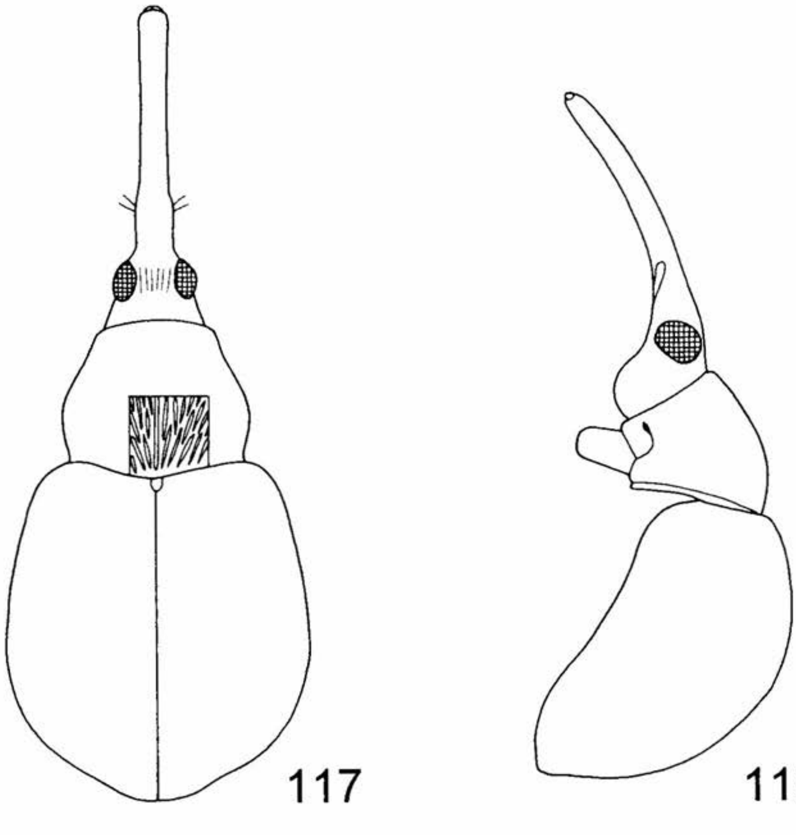
Head subconical; frons with striolae often partly to entirely vanishing; gular suture fine.

Pronotum strongly rounded, widest before, at or behind half length; disc strongly convex, with hind part more elevated; puncturation confluent into narrow, very dense and irregular sulci of slightly centrifugal arrangement; prescutellar fovea predominantly unrecognizable, but in some specimens visible as fine, straight sulcus of nearly whole pronotum length; pleural line distinct, complete, close to the pronotum margin.

Elytra pyriform, very short, almost semicircular in lateral view, with the apex invisible in dorsal view; intervals flat to barely concave, basally 1.5-2×, in middle parts 3-3.5× wider than the striae, with strong, irregular microsculpture; striae weakly impressed.

Legs realtively short; protarsus 2.3-2.5× longer than wide; onychium stout, exceeding third segment by at most 1/3 length.

Biology. Associated with *Achillea depressa* IKA, eggs are laid into not fully developed inflorescences, details of larval development unknown. ANGELOV collected this species since April till the end of June. Also in June a great number of beetles was collected by BEHNE and SZUJECKI. If late flowering of *Achillea* species is taken into account, it seems that all these specimens were collected just after overwintering or of the time of egg-laying. This was the probable reason for males



117   118

117,118. *Omphalapion rhodopense*, female body outline: 117 - dorsal view; 118 - lateral view missing among the few hundred specimens found (see remarks on pp. 112, 113). Parthenogenesis is not known in *Apionidae*, even in the alpine species from Atlas and Alps, so such a mode of life in *O. rhodopense* seems unlikely.

Distribution. Bulgaria (Rhodope Mts., Pirin Mts., vicinity of Trn).

OTHER MATERIAL EXAMINED

BULGARIA: "Rumel., Stanimaka", 11 V 1909, 1f, leg. RAMBOUSEK (ex coll. J. HAVELKA); Simitli, 1 VI 76, 1f, leg. LAUFERN (KS); Rhodope Mts.: Velingrad, 20 VI 1960, 20f, leg. A. SZUJECKI (IZW), 800 m, 11 VI 1987, 1f, leg. L. BEHNE (MW); 10 km S Velingrad, 900 m, 21 VI 1988, 2f, leg. M. KOŠTÁL (KS).

Omphalapion hookerorum (KIRBY, 1808)

(figs 119-126)

Apion Hookeri KIRBY, 1808: 69 (incorrect original spelling).
Apion dispar a. *viridescens* GERHARDT, 1910b: 7.
Apion Hookeri a. *nigricans* GERHARDT, 1912: 6.
Apion Hoockeri [sic!]: auctt.

Literature: WENCKER, 1864: 150; BEDEL, 1887: 363; KRAATZ, 1888: 172; DESBROCHERS, [1895-96]: 158; SCHILSKY, 1901: no.43, 1906b: XXXVII; URBAN, 1914: 229; REITTER, 1916: 247; SCHATZMAYR, 1925: 47; HOFFMANN, 1929: 140, 1958: 1528; HUSTACHE, 1931: 111; BALFOUR-BROWNE, 1944b: 152; GYŐRFFY, 1956: 19; KOCHER, 1961: 25; SCHERF, 1964: 117; SMRECZYŃSKI, 1965: 51; SOLODOVNIKOVA, 1969: 292; IOANNISIANI, 1972: 270; TER-MINASSIAN, 1972: 800; KÖSTLIN, 1973: 99, 1985: 73; ANGELOV, 1976: 86; DIECKMANN, 1977: 90; LOHSE, 1981: 157; EHRET, 1983: 143, 1990: 232; MORRIS, 1990: 49; FREESE, 1991.

Holotype f labelled a)52, b)145, c)KIRBY, d)Holotype is preserved in KIRBY's coll. at BMNH. It represents the species commonly known as *A. hookeri* (ALONSO-ZARAZAGA, pers. comm.).

KIRBY (1808) says in the original description (p. 70) "I am idebted to the kindness of an excellent naturalist, Mr. W. J. HOOKER of Norwich, who first discovered it, for this species. Many other nodescripts have been taken by him and his brother Mr. J. HOOKER, and I name this insect after them ...". According to the Article 32(c) of ICZN the name *hookeri* is thus an incorrect original spelling and should be emended to *hookerorum* (H. GØNGET, pers. comm.).

DESCRIPTION

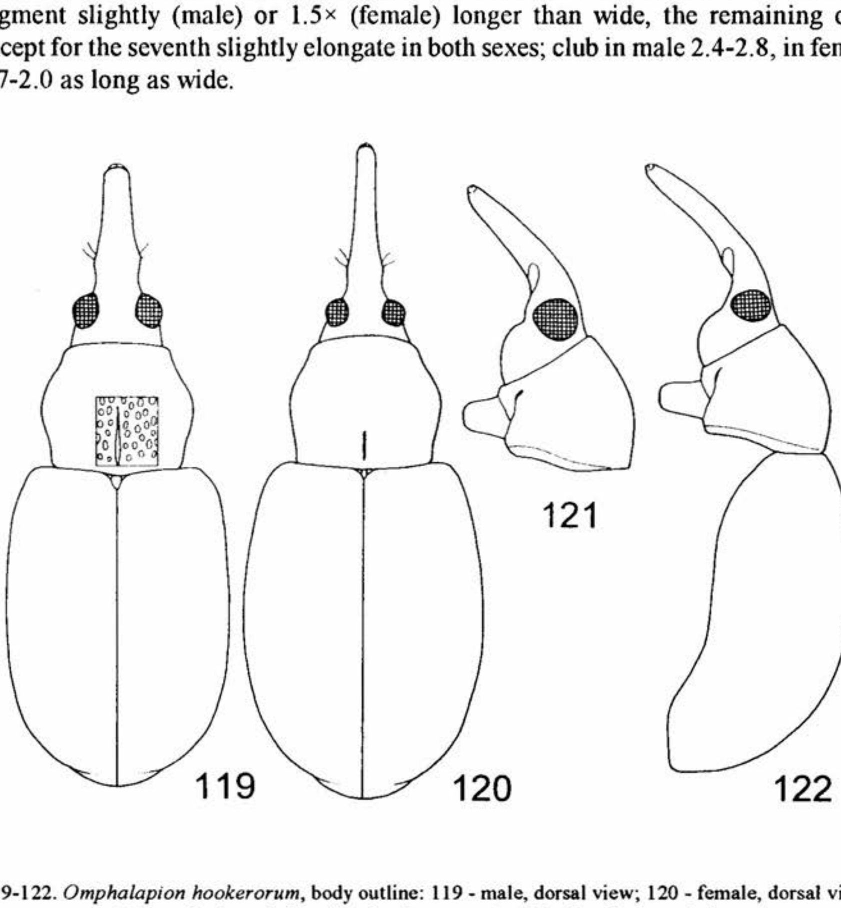
Length m: 1.76-2.20, f: 1.95-2.40 mm. Body vestiture more distinct than in the remaining species of the genus; piliform scales whitish, slightly longer than half elytral interval width, present also on the frons and metarostrum.

Indices. ***rl/pl:*** m: 0.85-0.89, f: 1.05-1.15; ***rl/msrw:*** m: 2.68-3.10, f: 4.06-4.57; ***scl/msrw:*** m: 0.55-0.61, f: 0.72-0.79; ***msrw/mtrw:*** 1.04-1.08; ***msrw/arw=msrw/***

minrw: m: 1.55-1.70 (M 1.63), f: 1.44-1.61 (M 1.51); ***msrw/eyl:*** 1.04-1.15; ***brl/eyl:*** m: 0.77-0.93, f: 1.02-1.19; ***eyl/hl:*** 0.77-0.87; ***hl/hw:*** m: 0.55-0.59, f: 0.50-0.53; ***mpw/hw:*** m: 1.80-1.85, f: 1.95-2.02; ***bpw/apw:*** 1.19-1.39; ***pl/mpw:*** 0.90-0.95; ***mew/mpw:*** m: 1.46-1.50, f: 1.55-1.62; ***el/pl:*** m: 2.32-2.37, f: 2.47-2.56; ***el/mew:*** 1.42-1.51; ***mew/bew:*** m: 1.17-1.20, f: 1.22-1.25; ***bew/mpw:*** 1.23-1.32; ***pft/msrw:*** m: 1.00-1.12, f: 1.08-1.14; ***ptbl/pl:*** m: 0.92-0.97, f: 0.99-1.03; ***ptbl/ptbmw:*** 5.29-6.02; ***ptsl/ptbl:*** 0.61-0.67.

Rostrum short, in profile angulate above antennal insertion; prorostrum tapering to the apex, more distinctly so in male, in lateral view straight in male, with few protruding setae at the extreme apex only, slightly curved in female; rostrum surface strongly shagreened, with extremely shallow, evanescent punctures, lateral carina absent; underside of prorostrum without median carina and lateral edges; antennal scrobes obsolete.

Antennal insertion at basal m: 0.25-0.29, f: 0.22-0.25; scape 1.5× longer than wide and globular apically in male, twice as long as wide in female; basal funicular segment slightly (male) or 1.5× (female) longer than wide, the remaining ones except for the seventh slightly elongate in both sexes; club in male 2.4-2.8, in female 1.7-2.0 as long as wide.



119-122. *Omphalapion hookerorum*, body outline: 119 - male, dorsal view; 120 - female, dorsal view; 121 - male, lateral view (head and pronotum); 122 - female, lateral view

Head short, strongly transverse; eyes small, prominent, especially in male somewhat conical; frons as wide as the rostrum base or nearly so, rugosely microsculptured, occasionally with indistinct punctures, striolae absent; underside of head behind eyes glabrous; gular suture deepened anteriorly, with a small pit.

Pronotum sub-hexagonal; disc strongly convex, densely punctate, punctures oval, 2-2.5× ommatidium size, at most half of diameter apart, interspaces flat, scale-like microsculptured, completely mat; prescutellar fovea linear, often completely vanishing; pleural line well visible, complete.

Elytra distinctly elongate, parallel-sided (male) to weakly rounded laterally (female), dorsally flattened on the disc; intervals in middle parts 1.5-1.8× wider than the striae, in male with dense transverse wrinkles, in female with a single row of minute, shallow punctures; striae well impressed.

Legs short; femora distinctly thickened, more robust in male; third tarsal segment conspicuous; onychium long, exceeding third segment with more than half length.

Tegminal basal piece large, much longer than the manubrium; the plate 2.7-3.0× longer than wide; parameroid lobes roundly notched to basal 1/3 length, in profile distinctly tapering apicad, with lateral margins straight; macrochaetae 3, equally long; lateral fold rudimentary, subapical; fenestrae very large, semicircular, medially confluent, with outer margins partly vanishing; dorsal portion of ring very thin medially; prostegium narrow, with well separated lateral flaps and incomplete median carina running into more strongly sclerotized, projecting process of posterior margin.

Median lobe of aedeagus distinctly tapering to apical 1/4 length; apophyses as long as half of the tube, tape-like in 2/3 length; internal sac with denticles connate into a pair of long, inwardly serrate tapes reaching basal 1/4 sac, uniformly distributed spines in orificial region wanting.

Biology. In Central Europe it is apparently monophagous on *Tripleurospermum perforatum* (MÉRAT) WAGENITZ (= *T. inodorum* (L.) C.H. SCHULTZ), in France larvae were observed also on *Matricaria maritima* L. (HOFFMANN, 1958). The larvae feed on developing seeds, not building distinct camerae causing deformation of the inflorescence. Adult females adults are often found feeding on other *Anthemideae* species, mainly on *Matricaria chamomilla* L., *M. discoidea* DC. and *Anthemis cotula* L. According to FREESE (1991) they can even lay eggs into flower heads of *M. discoidea* in early spring, when *T. perforatum* anthodia are still in buds, but the larvae do not develop on this plant. Older literature records on hosting of *O. hookerorum* by some species of *Hieracium* (*umbellatum* L.) and *Leontodon* (*hispidus* L., *autumnalis* L.) were certaily based on accidental collecting.

Distribution. Libya, Algeria, Morocco, Spain, Portugal, France, England, Wales, Italy, Switzerland, Germany, Denmark, Norway, Sweden, Finland, Baltic countries, Poland, Byelorussia, Ukraine, Czech Rep., Slovakia, Austria, Hungary, former Yugoslavia, Bulgaria, Greece, Cyprus, Turkey, Syria, Armenia, Russia (from Karelia to Dagestan).

Other material examined

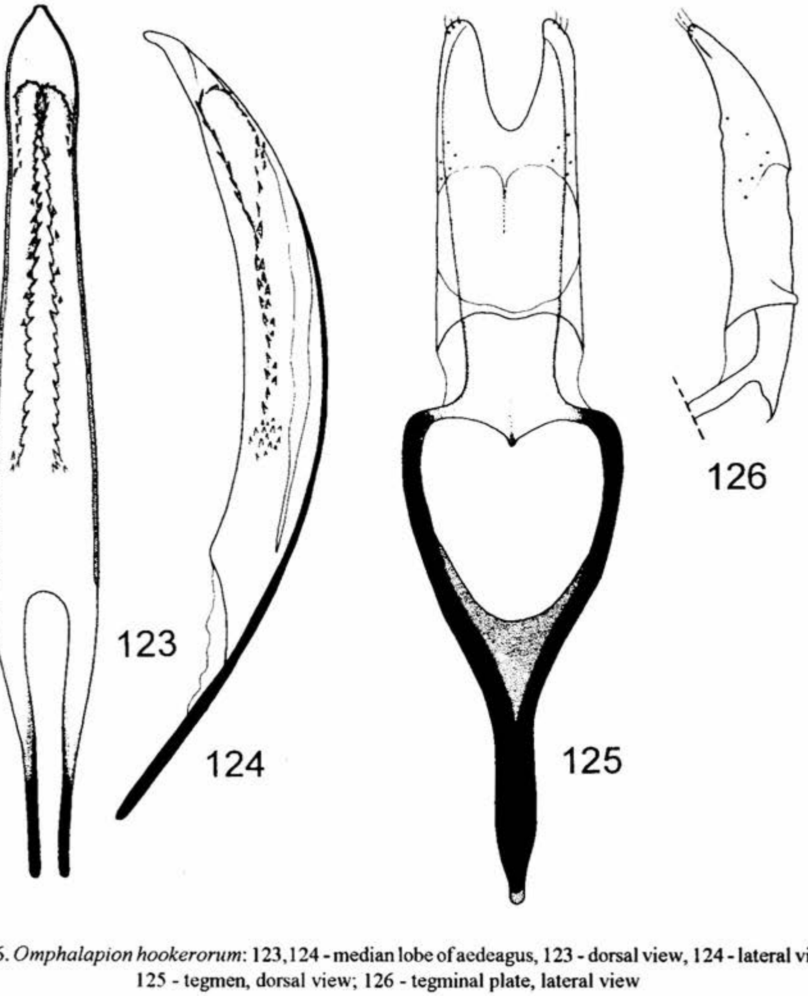
AUSTRIA: Burgenland: Umgeb. Jois, 23 VI 1983, 1f; Güssing, 27 IV 1986, 1f; Rechnitz, 27 IV 1986, 10f, 4 VI 1988, 2f; Podersdorf, 3 VI 1988, 12f; Apetlon, 3 VI 1988, 1f; Neusiedl. Panzergraben, 12 V 1988, 1f, 24 VI 1990, 1m 3f, 23 VI 1991, 1f; Siegendorf, 22 VI 1991, 1f; Mödling Eichkogel, 23 VI 1990, 2f; Oslip Silberberg, 27 V 1990, 2f - leg. W. Suppantschitsch (WS).

BULGARIA: Rhodope: Pamporovo, 3 VII 1966, 1f, leg. K. Ermisch (MNB); Nessebar, 4 VII, 16 IX 1965, 4f, leg. T. Palm (MZL).

CZECH REP.: Bilina, VII 1948, V 1949, 8f, leg. J. Strejček (LM).

ENGLAND: 2f (MHNG).

FINLAND: Kb., Joensuu, 25-27 VI 1975, 1f, leg. O. Martin (ZMC).



123-126. *Omphalapion hookerorum*: 123,124 - median lobe of aedeagus, 123 - dorsal view, 124 - lateral view; 125 - tegmen, dorsal view; 126 - tegminal plate, lateral view

FRANCE: Vosges, 1f, coll. WENCKER; Bas. Alpes: 30 V 1959, 1f; Drôme: Col Croix-Haute, 1150 m, 20 V 1959, 1f, leg. A. COMELLINI (MHNG); Eure: Louviers, 12 VI 1980, 1f, 13 VIII 1980, 1m; Hauts de Seine: Fontenay aux Roses, 6 VII 1979, 1f; Côte d'Or: pres Magnien, 12 IX 1987, 1m; Saône et Loire: Mont Frivant, 13 VII 1987, 1f; Le Mauguin, 15 IV 1988, 1f; Autun, Les Ragots, 5 VII 1988, 1f; Roussillon, La Bise, 610 m, 1 VI 1990, 2f; Isère: Lac Palabru pres Méry, 21 VII 1987, 2m; Savoie: Les Menuires, Reberty, Les Bruyeres, 1850 m, 20 VIII 1990, 1f (JE).

GERMANY: 1m 2f (DEI); Bredow n. Berlin; Holstein: Eutin, Lübeck; Saxonia; Hannover; Elsass: Colmar - 17f (MHNG, IZW, DEI).

HUNGARY: Hortobagy, 17 VIII 1991, 1m (WS).

ITALY: Piemonte: Torino: Presana, 2f (MHNG).

POLAND: Baltic Coast: Wolin I., Dębina n. Słupsk, Wrześcienko n. Lębork; Masurian Lake Region: Augustowska Forest - Rubcowo, Ełk, Gutkowo n. Olsztyn, Giżycko, Danowo n. Giżycko; Nizina Wielkopolsko-Kujawska: Małków at Warta riv., Ruda Milicka; Nizina Mazowiecka (Mazovian Lowland): Warsaw vic.; Puszcza Białowieska (Bialowieza Forest); Lower Silesia: Wrocław, Oława, Wołów, Ślęża Massif, Dąbrowa Niemodlińska, Wrocisławice n. Środa Śl.; Wyżyna Małopolska: Rogów, Wągry and Popień n. Koluszki, Łódź, Modlica n. Łódź, Gałkówek, Bronisławów at Sulejów Lake, Chotel Czerwony, Skorocice, Grabowiec Reserve, Skowronno & Szczerbaków n. Pińczów, Owczary n. Busko-Zdrój; Wyżyna Lubelska: Tarnogóra n. Izbica, Gródek n. Hrubieszów; Roztocze: Józefów Biłgorajski, Kąty n. Zamość, Biała Góra n. Tomaszów Lub., Zwierzyniec; Western Sudetes: Jelenia Góra; Eastern Sudetes: Kietrz; Eastern Beskids: Przemyśl - 98 exs (IZW, AK, MW).

SLOVAKIA: Latorica Leles, 3 VII 1992, 3f; Velký Horeš, 4 VII 1992, 1f (WS).

SPAIN: Guadarrama, 1m, leg. BEUTHIN (DEI).

TURKEY: Antalya, 100 km n. Ekurdur, 950 m, 6 V 1992, 2f (WS).

UKRAINE: Podolia: Żeżawa, 2 VIII 1932, 1f; Olchowce, 21 VII 1933, 4f; Wołczków, 12 VII 1933, 1f; Sinków, 25 VII 1933, 1f; Babińce n. Borszczów, 22-23 VII 1935, 1m 4f - leg. Sz. TENENBAUM (IZW).

Omphalapion buddebergi (BEDEL, 1887)

(figs 127, 130, 131, 133, 143, 145, 150, 151)

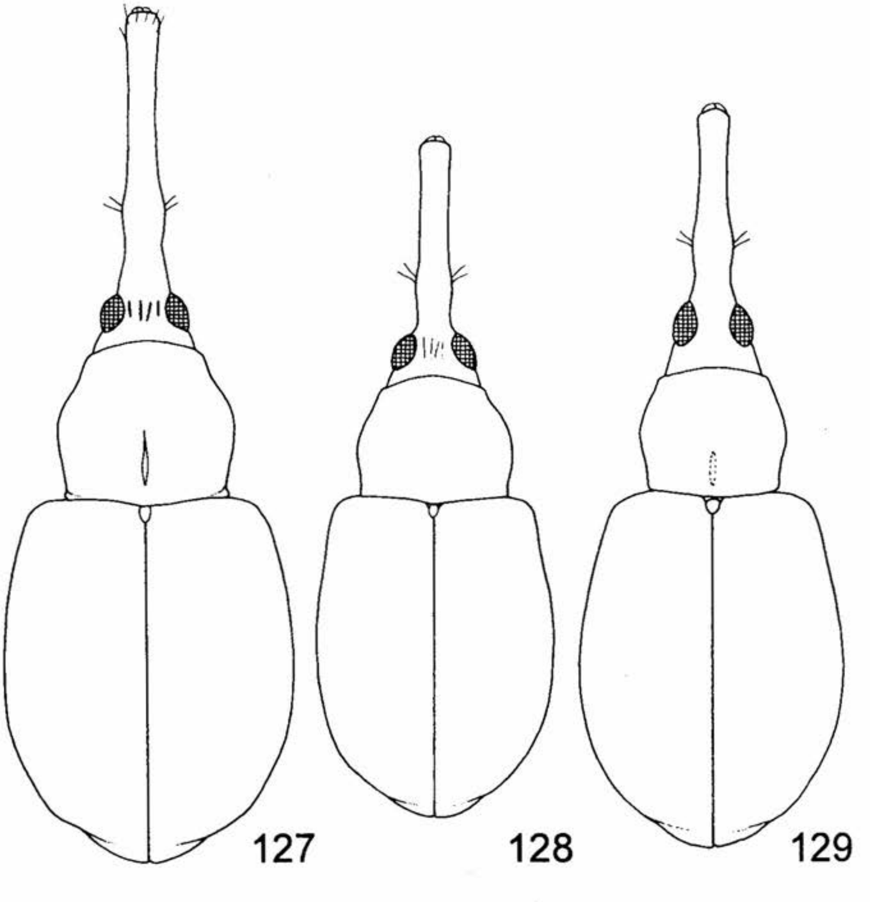
Apion Buddebergi BEDEL, 1887: 363.
Apion sorbi var. *extinctum* KRAATZ, 1888: 174.

Literature: DESBROCHERS, [1895-96]: 162 (*extinctum*); SCHILSKY, 1901: no.42 (*extinctum*), 1906: no.27a (*extinctum*), 1906b: XXXIX (*extinctum*); REITTER, 1916: 247; SCHATZMAYR, 1925: 48; HOFFMANN, 1929: 137, 1958: 1524; HUSTACHE, 1931: 108; SMRECZYŃSKI, 1965: 51; KÖSTLIN, 1973: 97, 1985: 72; DIECKMANN, 1977: 89; LOHSE, 1981: 158; PETRYSZAK & MAZUR, 1986: 85; EHRET, 1990: 231; BURAKOWSKI et al., 1992: 195.

Type specimens of *A. buddebergi* have not been found in BEDEL's collection (MNHP), but I examined a large series of specimens labelled "Nassau" and collected by BUDDEBERG, preserved at MNB, DEI and ZSM. Two males coming apparently from the same series are in H. WAGNER's collection (ZSM) - one provided with a handwritten label "Cotype v. *Ap. Buddebergi* BED. ex c V. BUDDEBG.". Description of *A. sorbi* var. *extinctum* was based on a single female coming from the series collected in Nassau by BUDDEBERG and sent to KRAATZ by BEDEL.

DESCRIPTION

Length m: 1.92-2.14, f: 2.31-2.54 mm. Male legs and antennae piceous brown. Body vestiture extremely fine, hair-like scales shorter than 1/3 elytral interval width.



127-129. Female body in dorsal view: 127 - *Omphalapion buddebergi*; 128 - *O. dispar*; 129 - *O. concinnum*

Indices. ***rl/pl:*** m: 1.09-1.24, f: 1.61-1.70; ***rl/msrw:*** m: 3.58-3.88, f: 5.74-6.61; ***scl/msrw:*** m: 0.64-0.70, f: 0.88-1.09; ***msrw/mtrw:*** 1.10-1.24; ***msrw/arw:*** m: 1.38-1.48, f: 1.29-1.42; ***msrw/minrw:*** 1.40-1.55; ***msrw/eyl:*** 0.92-0.97; ***brl/eyl:*** m: 0.89-1.08, f: 1.85-1.90; ***eyl/hl:*** m: 0.85-0.90, f: 0.82-0.85; ***hl/hw:*** m: 0.59-0.65, f: 0.60-0.82; ***mpw/hw:*** m: 1.74-1.77, f: 1.99-2.08; ***bpw/apw:*** 1.19-1.34; ***pl/mpw:*** 0.90-0.98; ***mew/mpw:*** 1.53-1.68; ***el/pl:*** m: 2.12-2.29, f: 2.24-2.40; ***el/mew:*** 1.23-1.36; ***mew/bew:*** 1.19-1.27; ***bew/mpw:*** m: 1.29-1.33, f: 1.36-1.39; ***pft/msrw:*** m: 0.94-0.98, f: 1.15-1.23; ***ptbl/pl:*** 1.12-1.19; ***ptbl/ptbmw:*** m: 6.45-6.78, f: 6.80-7.05; ***ptsl/ptbl:*** m: 0.57-0.60, f: 0.52-0.54.

Rostrum in both sexes distinctly curved in basal part, with prorostrum almost straight, dorsally, especially in male, from base to about middle of prorostrum slightly flattened and angulate laterally, occassionally with fine lateral carina on the prorostrum; metarostrum distinctly narrowing forward; basal part of rostrum smooth, microreticulate, with single punctures, prorostrum closely, shallowly punctate, slightly rugose in male, punctures mostly confluent; antennal scrobes about twice as long as the cavities.

Antennal insertion at basal 0.25-0.30 of rostrum; length/width of the scape m: 2.2-2.4, f: 3.3-3.8, first and second funicular segments m: 1.2-1.5, f: 1.8-2.0, the remaining in male isodiametric except for the sligthly transverse seventh one, in female at least third and fourth distinctly elongate, seventh as long as wide, distal segments with straight sides, inversely conical; length/width of the club m: 2.3-2.6, f: 2.0-2.3.

Head short, in female subconical, in male often subsemicircular; frons as wide as 0.70-0.75 rostrum base, equal or slightly narrower than minimum metarostrum width, striolae in female always present, in male less distinct due to stronger microsculpture; venter of head without more conspicuous wrinkles; gular suture fine.

Pronotum relatively large, strongly and uniformly rounded from base, subapical constriction weak; disc distinctly convex, highest behind middle, puncturation dense, regular, punctures oval to fusiform, sligthly centrifugal, 2.5-3× ommatidium size, interspaces flat to weakly convex, not wider than half puncture diameter, in the middle of disc punctures often adjoin; prescutellar fovea well visible, not wider and deeper than single puncture, variably long, not exceeding middle of pronotal disc.

Elytra short, inflated; intervals 1.8-2× wider than the striae, flat, first usually slightly depressed in hind, sloping part of the elytra, transverse wrinkles obsolete in both sexes; striae well deepened.

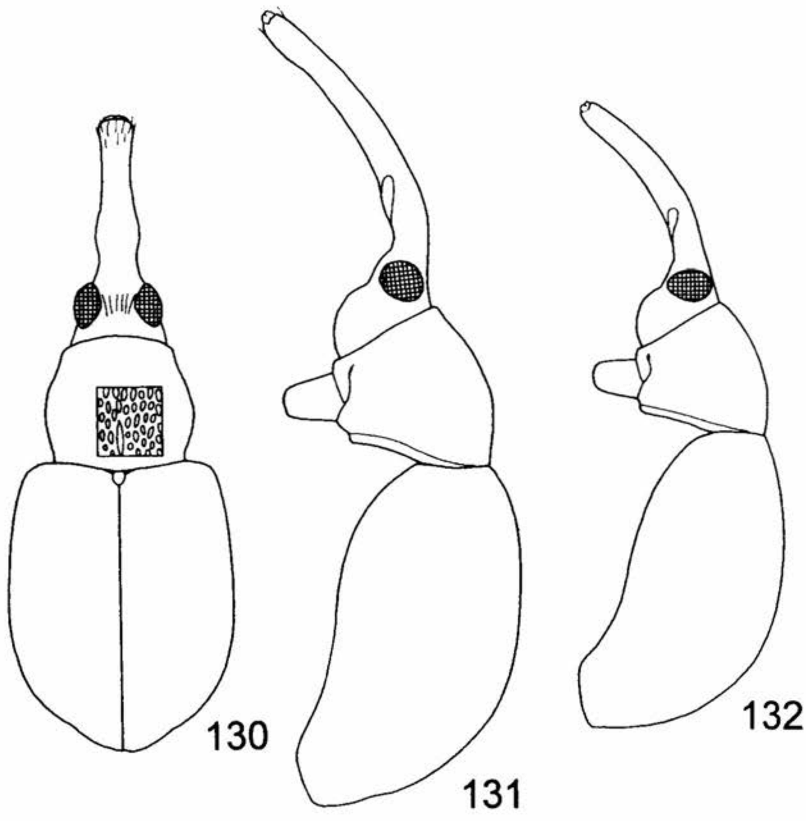
Ventrites 1, 2 shiny, with shallow punctures round to transversely-oval, nearly as large as those on the pronotum, the separating suture more or less distincly deepened at both sides of the ventrites.

Legs relatively long and slender; protarsus 2.9-3.1× longer than wide, with two basal segments elongate, onychium exceeding third segment by ca. 0.4 length.

Tegmen with manubrium longer than the basal piece; tegminal plate 2.2-2.5× longer than wide; parameroid lobes separate on less than half length, their outer margins distinctly, arcuately emarginate sub-basally; macrochaetae 2-3; basal part of the lateral fold present, apical part indistinctly folded; fenestrae large, as long as the parameroid lobes, with weakly delimited margins, scarcely separate, distance between the plate margin and fenestra very narrow; prostegium evenly sclerotized, with weak median projection, lateral flaps well separated.

Tubular part of the median lobe of aedeagus long, 5.0-5.3× longer than wide; internal sac dorsally with oblique, variably sized areas uniformly covered with minute spines at both sides of the orifice, chains of denticles short, ending distinctly before the sac middle, the distal, arched portions of chains indenticulate, middle part of the sac with an elongate cluster of microscopic, setiferous granulae, hardly visible in profile; basal half of the sac unarmed.

Biology. Hitherto recorded exclusively from *Anthemis tinctoria* L., the larvae develop in inflorescences, probably in the green bottom.



130-132. Body outline: 130 - *Omphalapion buddebergi*, male, dorsal view; 131 - *O. buddebergi*, female, lateral view; 132 - *O. dispar*, female, lateral view

Distribution. Spain, Southern Germany, Poland*, Czech Rep. (Moravia)?, Hungary ?, Bulgaria, Russia (subcaucasian areas, Dagestan)?, Armenia?

Presence of *O. buddebergi* in Moravia has been questioned by DIECKMANN (1977). Record from Hungary by HUSTACHE (1931) has not been later confirmed by GYÖRFFY (1956) and DIECKMANN (l.c.).

REMARKS.

Data from Southern Russia (SOLODOVNIKOVA, 1969; DIECKMANN, 1977) may refer to other, closely related species. I have not examined females documenting these records, but found one female very similar to *O. buddebergi* in Armenian material (Chosrov, 5-15 VI 1987, leg. V. KARASJOV). It differs from Central European specimens in a slightly shorter, weakly and uniformly curved rostrum, as well as in coarser and more rounded punctures on the pronotal disc, being almost identical as in *O. dispar*. The elytra of this specimen are shaped exactly like in *O. buddebergi*, but the first interval is not stronger depressed subapically. Occasionally the characters were expressed similarly in examined females from Germany and Poland, but it was observed only in very small specimens, while the Armenian female approximates the maximum body size of *O. buddebergi*. A more extensive material of the easternmost populations of *O. buddebergi* should be studied to establish the taxonomic status of this form.

OTHER MATERIAL EXAMINED

BULGARIA: Pirin Mts., Karlanovo env., 24 VI 1983, 1f (RB).

GERMANY: 2m 2f, coll. REITTER (MNB, ZSM); Germania mer., 5m 13f (ZSM); Nassau, 6m 12f (MNB), 3m 4f (DEI), 5m 21f (ZSM), 1m 2f (MHNG), leg. BUDDEBERG, 3m 3f (ZSM), 2m 3f (DEI); Thüringia: Freyburg a. U. Schweigenberge, 24 VII 1960, 2m, 13 VII 1963, 4m 3f; Freyburg a. U. Zscheiplitz, 1 VIII 1956, 1m 2f, 7 VIII 1956, 4m 3f, 9 VIII 1956, 1f - leg. DORN (MNB); Arnstadt, 30 VII 1942, 1f, 4 VIII 1942, 1m, 28 VII - 6 VIII 1948, 5m 4f - leg. W. LIEBMANN (DEI, MNB); Jena, 1f (MNB), Leutra-Tal, 20 IX 1965, 1m ("Zucht aus Fruchtstand von *Anthemis tinctoria*"), leg. BUHR (DEI); Zscheiplitz, 7 VIII 1956, 1m 1f, leg. DORN; Freyburg/ Unstrut, 29 V 1971, 1f, leg. M. Huth, 29 VIII 1987, leg. L. DIECKMANN, 1m 2f (DEI), 1f (WS), 25 VII 1985, 1m 1f, 30 VII - 3 VIII 1988, 2m 8f, leg. K. -D. FRITSCHE (KS, WS); Freyburg U., Zeuchfeld, 28 VIII 1984, 2f, leg. MOHR; Freyburg U., Kiesgrube, 29 VII 1979, 5m 4f, leg. FRITSCHE.

POLAND: Lubelska Upland: Opoka Wielka n. Annopol, 23 V 1993, 5f, leg. MW & J. SZYPUŁA, 24 V 1994, 19f, leg. J. SZYPUŁA (MW, JSZ).

SPAIN: Provincia de Madrid, 1m 5f, leg. J. LAUFFER (MNB).

Omphalapion dispar (GERMAR, 1817)

(figs 128, 132, 134, 139, 141, 144, 147, 152-154)

Apion dispar GERMAR, 1817: 181.
Apion (Omphalapion) corcyraeum SCHILSKY, 1906b: no.2.
Apion brisouti BEDEL 1887: 363.

Literature: WENCKER, 1864: 170; KRAATZ, 1888: 172; SCHILSKY, 1901: no.44, 1906: no.27a, 1906b: XXXVII; WAGNER, 1906b: 208, 1910b: 941; PEYERIMHOFF, [1912]: 312; REITTER, 1916: 247; SAINTE-CLAIRE DEVILLE, 1924: 123; SCHATZMAYR, 1925: 46; HOFFMANN, 1929: 139, 1958: 1526; HUSTACHE, 1931: 108; GYÖRFFY, 1956: 19; SMRECZYŃSKI, 1965: 51; SOLODOVNIKOVA, 1969: 292; KÖSTLIN, 1973: 97, 1985: 72; ANGELOV, 1976: 85; DIECKMANN, 1977: 89; LOHSE, 1981: 158; EHRET, 1983: 142, 1990: 232; MATUSEVICH, 1991: 184.

TYPE MATERIAL EXAMINED

A. dispar **GERM.** Lectotype m: a)35203, b)*dispar* GERM., Berol., SCHÜPP., c)pink square, d)m, e)Lectotypus *Apion dispar* GERM., Design. DIECKMANN 1965 (MNB) (present designation); paralectotypes: 2m 5f of the same series, labelled as paralectotypes by DIECKMANN (MNB). ***A. corcyraeum*** **SCHIL.** Lectotype m: a)Corfu, b)CHAMPION, c)m (coll. SCHILSKY, MNB) (present designation); paralectotypes: 1f - labels as in the lectotype; 1f - a)Corfu, b)f, c)Typus; 1m 2f - a)Corfu, Potamos; 2f - a)Corfu, b)U. SAHLB., c)f, d)1400, e)*dispar*; 3m - a)Balkan, Corfu, PAGANETTI, 03 (MNB, DEI).

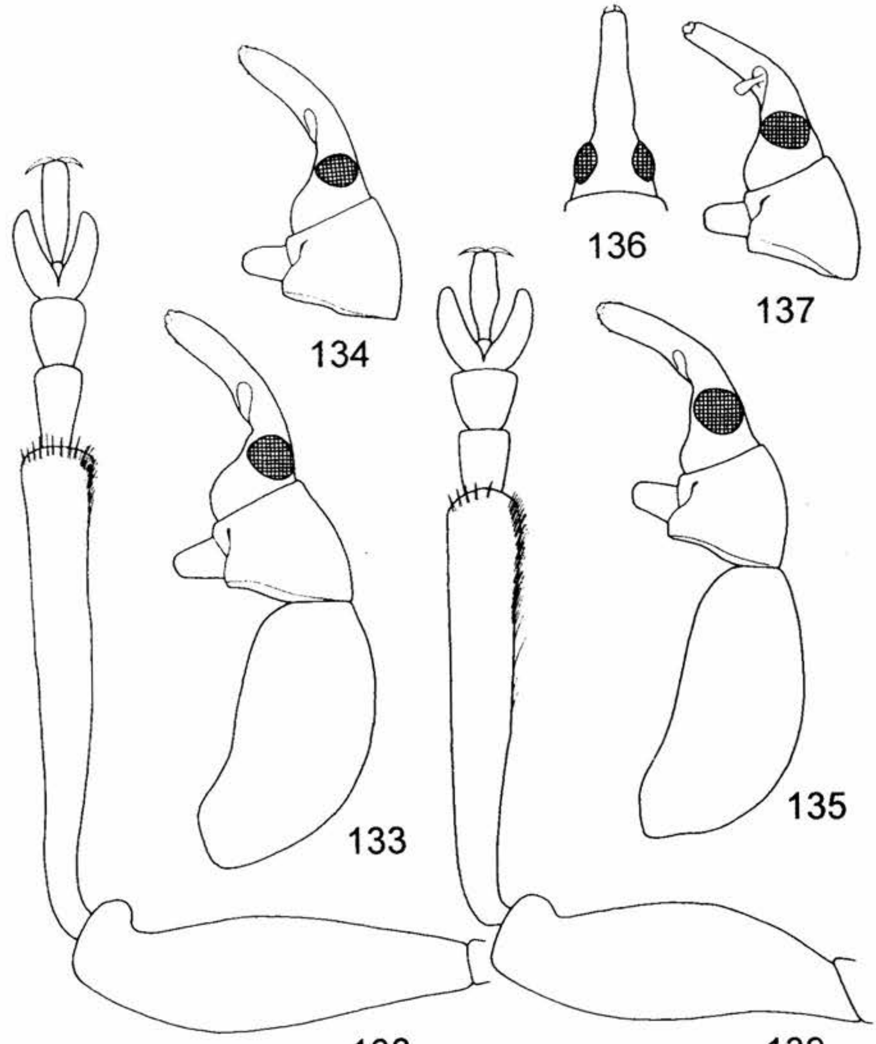
Type material of *A. brisouti* BEDEL has not been examined by me. The species was synonymized with *O. dispar* by DIECKMANN (1977).

DESCRIPTION

Body length m: 1.45-2.00, f: 2.08-2.35 mm. Male legs and antennae mostly black, rarely piceous brown. Vestiture well visible, hair-like scales as long as 0.3-0.5 elytral interval width.

Indices. ***rl/pl:*** m: 0.93-1.13 (M 1.05), f: 1.20-1.56 (M 1.40); ***rl/msrw:*** m: 2.87-3.44 (M 3.24), f: 4.86-5.85 (M 5.53); ***scl/msrw:*** m: 0.54-0.78, f: 0.97-1.14 (M 1.04); ***msrw/mtrw:*** m: 1.07-1.19 (M 1.12), f: 1.01-1.14 (M 1.07); ***msrw/arw:*** m: 1.26-1.33 (M 1.29), f: 1.14-1.45 (M 1.24); ***msrw/minrw:*** m: 1.26-1.39 (M 1.31), f: 1.14-1.52 (M 1.29); ***msrw/eyl:*** 0.91-1.14; ***brl/eyl:*** m: 0.73-1.12 (M 0.93), f: 1.27-1.85 (M 1.46); ***eyl/hl:*** m: 0.77-0.85, f: 0.67-0.89 (M 0.78); ***hl/hw:*** m: 0.59-0.65, f: 0.54-0.67 (M 0.60); ***mpw/hw:*** m: 1.65-1.87 (M 1.74), f: 1.90-2.12 (M 2.03); ***bpw/apw:*** m: 1.10-1.32, f: 1.23-1.38 (M 1.30); ***pl/mpw:*** 0.85-0.92; ***mew/mpw:*** m: 1.47-1.56 (M 1.53), f: 1.60-1.70 (M 1.64); ***el/pl:*** m: 2.22-2.53 (M 2.37), f: 2.27-2.63 (M 2.46); ***el/mew:*** m: 1.34-1.42 (M 1.37), f: 1.22-1.42 (M 1.34); ***mew/bew:*** m: 1.15-1.19, f: 1.15-1.31; ***bew/mpw:*** m: 1.24-1.36, f: 1.23-1.44 (M 1.35); ***pft/msrw:*** m: 0.96-1.04 (M 1.00), f: 1.06-1.27 (M 1.19); ***ptbl/pl:*** m: 1.01-1.18 (M 1.11), f: 1.02-1.10 (M 1.06); ***ptbl/ptbmw:*** m: 5.97-6.67, f: 5.10-6.07 (M 5.62); ***ptsl/ptbl:*** 0.52-0.62.

Rostrum shorter than in *O. buddebergi* (rl/msrw!), in male more uniformly curved, with mesorostrum less expanded and not so much wider than the metarostrum, in female weakly and regularly curved, basally not elevated, predominantly almost cylindrical, with meta- and prorostrum barely contracted; rostrum sculpture similar to that in *O. buddebergi*, in female punctures on the prorostrum usually well isolated.

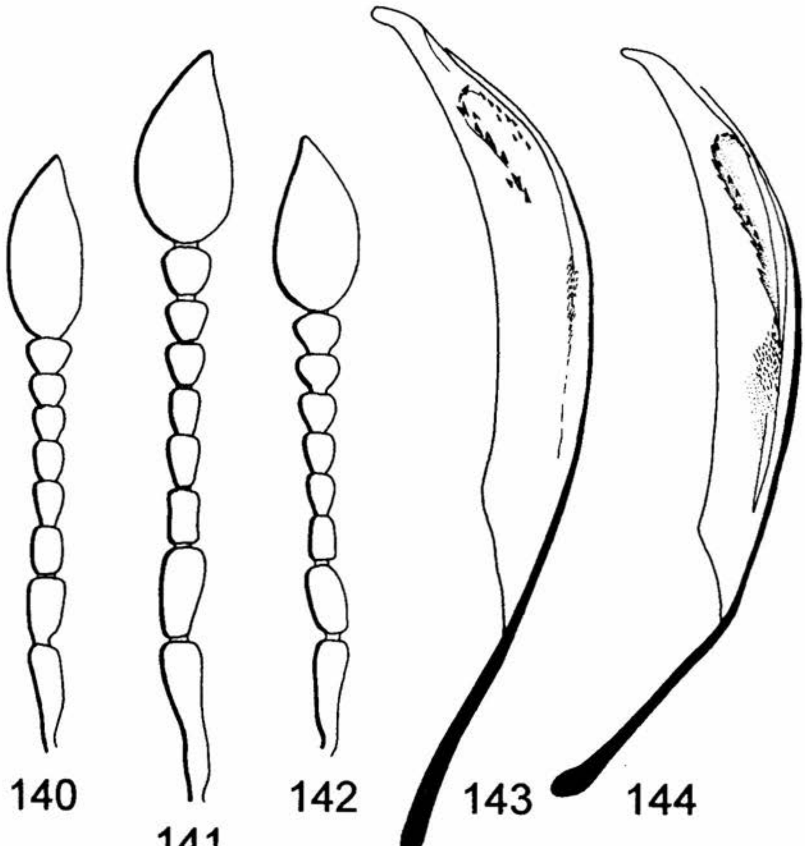


133-137. Male body outline: 133 - *Omphalapion buddebergi*, lateral view; 134 - *O. dispar*, head and pronotum in lateral view; 135 - *O. concinnum*, lateral view; 136,137 - *Omphalapion* sp. (Algeria), 136 - head in dorsal view, 137 - head and pronotum in lateral view. 138,139. Male fore femur, tibia (lateral view) and tarsus (dorsal view): 138 - *O. concinnum*; 139 - *O. dispar*

Antennal insertion at basal 0.26-0.31 of rostrum; segmental proportions variable, especially in male, length/width ratios: scape m: 2.3-3.0, f: 3.6-4.2, first and second funicular segments 1.5-1.9, club m: 2.4-2.6, f: 2.0-2.2; funicular segments 4 to 6 in female longer than wide, rarely some of them isodiametric, the seventh isodiametric or slightly elongate, never transverse.

Head short, strongly transverse; male eyes smaller than in related species, variably convex; frons 0.8-0.9 as wide as the rostrum base, with striolae variably expressed; underside of head without more conspicuous wrinkles; gular suture fine.

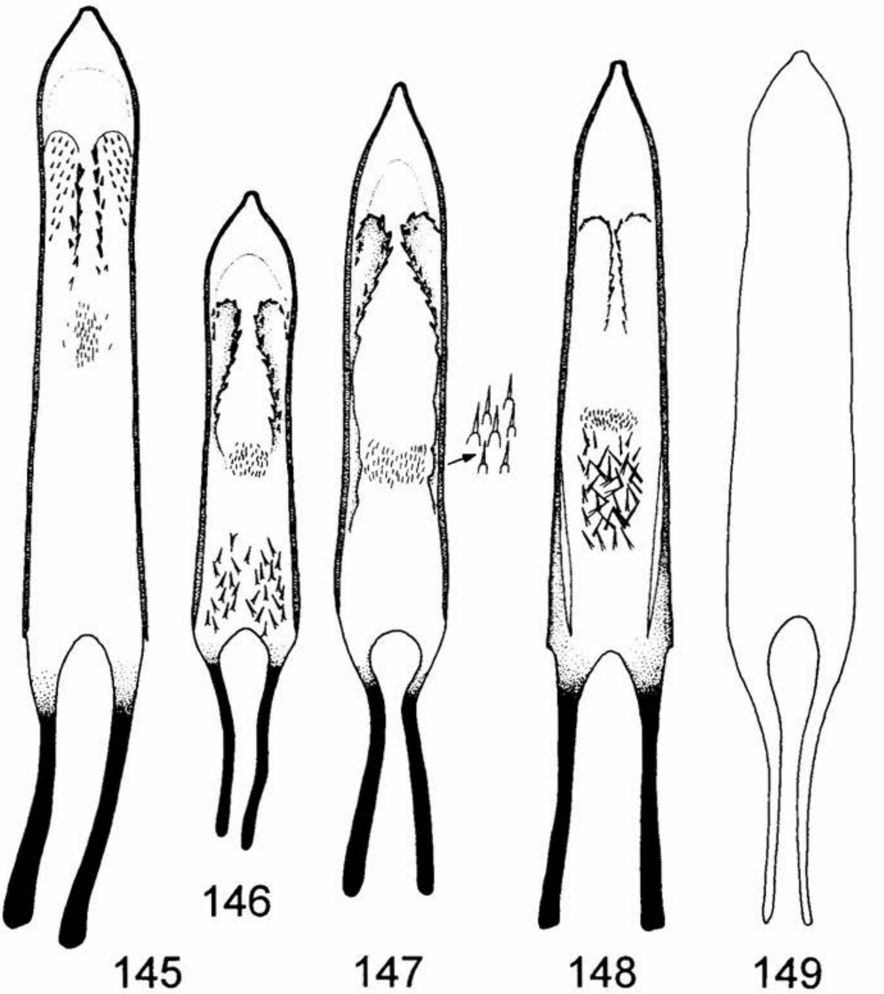
Pronotum in relation to elytra large, uniformly convex; puncturation confused, not centrifugal, punctures round, oval or shortly fusiform, at least in front of the disc smaller, shallower and sparser than in the previous species; prescutellar fovea



140-142. Female antenna: 140 - *Omphalapion concinnum*; 141 - *O. dispar*; 142 - *O. pseudodispar* sp. nov.
143,144. Median lobe of aedeagus in lateral view: 143 - *O. buddebergi*; 144 - *O. dispar*

mostly completely vanishing, sometimes visible as a very fine line not longer than 2-3 punctures, occasionally in some specimens from Greece longer and more impressed.

Elytra in male shaped as in *O. buddebergi*, in female more elongate, weakly widened posterad, mostly subrectangular; first interval not depressed subapically.

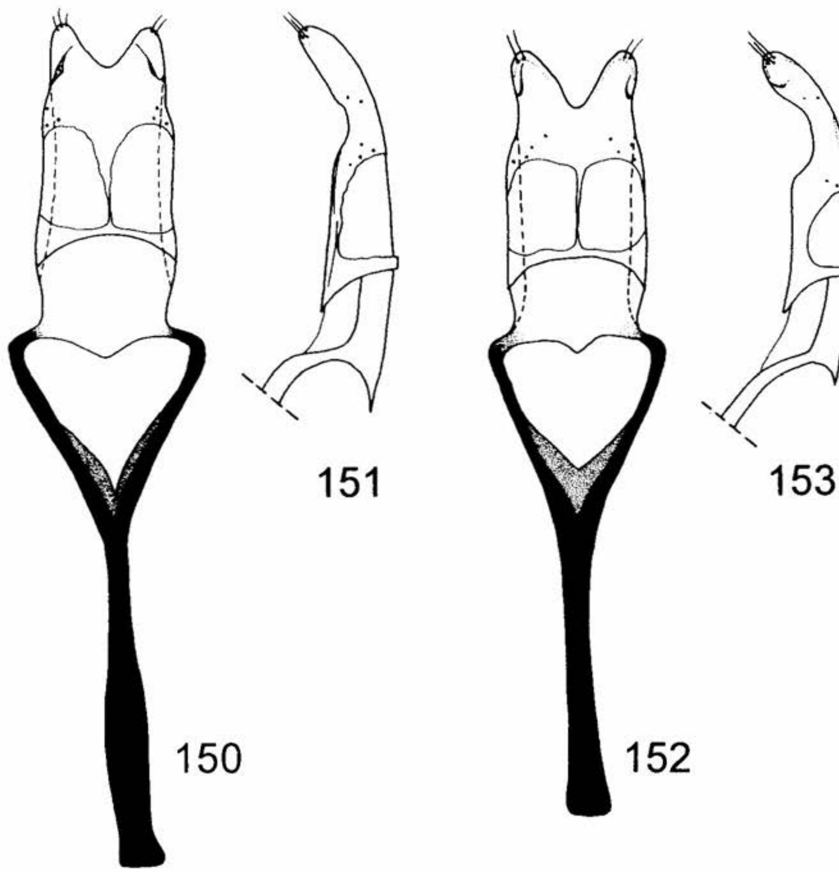


145-149. Median lobe of aedeagus in dorsal view: 145 - *Omphalapion buddebergi*; 146 - *O. beuthini*; 147 - *O. dispar*; 148 - *O. pseudodispar* sp. nov. (SE Anatolia: Oguzeli, coll. DEI); 149 - *O. pseudodispar* sp. nov. (Austria: Hohenau, coll. DEI), showing variation of an outline

Legs shorter than in *O. buddebergi* (ptbl/ptbmw!); protarsus 2.4-2.8× longer than wide, its two basal segments 1.1 as long as wide to nearly isodiametric.

The remaining external characters as in *O. buddebergi*.

Genital structures slightly different from those in *O. buddebergi*; tegminal plate 1.3-2.2× longer than wide (such a wide variability range results from variable extent of lateral downfolding); lateral emargination of the parameroid lobes variably deep, usually strong; lateral fold apically distinct, basally absent; fenestrae strongly variable in size, sometimes completely confluent.



150-153. Tegmen: 150,151 - *Omphalapion buddebergi*, 150 - dorsal view, 151 - tegminal plate, lateral view; 152,153 - *O. dispar*, 152 - dorsal view, 153 - tegminal plate, lateral view

Median lobe of aedeagus 4.5-5.0× longer than wide; apophyses mostly curved inwards sub-basally; internal sac with rows of denticles variably developed, reduced to few denticles in each or longer and strongly curved outwards apically, rarely extended basad as a variably long, indenticulate margin (fig. 147), uniformly distributed spines in the orifice absent, the cluster of microscopic setiferous granulae in middle part of the sac round or transversely-oval.

Biology. Larvae develop in the green bottom of flower heads of *Anthemis arvensis* L., *A. tinctoria* L., *A. cotula* L., *A. montana* L. Unlike *O. laevigatum*, walls of larval camera are green and not covered by thick layer of brown excrements, and larval thoracic segments have no strongly sclerotized dorsal plates. According to PEYERIMHOFF [1912] in Algeria the species develop in inflorescences of *Anthemis pedunculata* DESF., but this might have referred to another species, described here as *Omphalapion* sp. Beetles are often found on *Matricaria* and *Tripleurospermum* species, and according to the literature records also on *Hieracium umbellatum* L.

Distribution. Algeria?, Morocco?, Malta, France, Belgium, Italy, Switzerland, Germany, Denmark, Sweden, Baltic countries, Poland, Byelorussia, Ukraine, Czech Rep., Slovakia, Austria, Hungary, Croatia, Bosnia, Rumania, Bulgaria, Greece, Turkey, Syria?, Jordan?, Armenia, Russia (to Dagestan).

The sample collected by W. R. DOLLING and documenting his and M. G. MORRIS' recent records from England, examined by me, represents *O. beuthini*. Occurrence in Syria and Jordan dubious, the literature data probably refer to *O. concinnum*. Old records from North-Western Africa should be confirmed by newer findings.

OTHER MATERIAL EXAMINED

Aetol. alp., 1f, leg. KIESENWETTER (ZSM).

ARMENIA: 1f, leg. LEDER & REITTER (MNB).

AUSTRIA: 1m 2f (MHNG); Steiermark - 1f (MNB), coll. EPPELSHEIM, 2m 1f (DEI); Knittelfeld, 3m, coll. P. FRANCK (IZW); St. Johann, ob. Hohenburg, 1m, leg. T. v. WANKA (ZSM); Zarnsdorf b. Scheibbs, 5 X 1972, 1f, leg. RESSL (DEI); Kärnten, 1m 1f, coll. W. EICHLER (IZW).

BOSNIA: Dervent [Derventa], 2f, leg. Hilf ; Sarajevo, 1f; Bjelašnica pl., 1m - leg. APFELBECK (MNB).

BULGARIA: Rhodope, 1 VII 1928, 2m, leg. J. FODOR (HMNH); Sandanski env., 19 VI 1983, 1m 1f, leg. R. BOROVEC (RB).

CROATIA: Slavonia: Nasice, 7-10 VII 1f, leg. T. PALM (MZL); Satorina, 1624 m alt., 30 VI 1910, 1f, leg. MEUSEL (MNB).

CZECH REP.: Bohemia, 1m (IZW); "Paskau", 1f; "Pilsen", 2f, leg. NATTERER; Bilina, V 1949, 1f, leg. J. STREJČEK; Moravia: "Pilowitz", 1m, coll. H. WAGNER (ZSM); Dačic, 2f, leg. v. ZOUFAL (LM); "Zlabings", VII 1940, 1m, leg. MADERA (DEI).

FRANCE: 1f (MHNG); Corse: Porto Vecchio, 1f (MHNG); Ghizmaccia, 5 VI 1961, 1m, 12 VI 1961, 1f, sur *Anthemis arvensis*, leg. J. PERICART (JE); Isère: St Marcellin, 3 VII 1923, 1m, leg. V. PLANET; Drôme: 1f (MHNG).

GERMANY: Ins. Rügen: Neu Reddevitz; Rosenau; Hannover; Weferlingen; Hamburg; Holstein: Eutin; Ob. Vogtland: Schönland; Somerfeld; Hochwasser; Rheinland: Hunsrück; Elberfeld; Boppard; Bayern: Regensburg; Westfalen: Rheinberg; Harz: Wernigwode, Blankenburg; Berlin; Sachsen; Mark: Eichwalde, Frankfurt a. O.; Byhleguhre, Spreewald; Thur.: Arnstadt; Schlachtberg - 23m 38f (MNB, DEI).

GREECE: Parnassos, 1903, 1f, leg. PAGANETTI (DEI); Zante [Zakinthos]: Kalamaki, 1909, 1f. leg. M. HILF (DEI); Kephallenias [Kefallinia]: 2m 4f (MNB, DEI); Avythos-See, 4m 1f; Argostoli, 2m 1f; Charakti, 3f - 1908, leg. M. HILF (DEI); Corfu [Kérkira]: 7m 3f, leg. PAGANETTI (MNB, DEI, IZW), V 1929, 3m 4f (MNB); 1f; 9 V 1913, 1f, leg. A. KRAMER (MNB); Triklinon; Messongi; Valianiti; Gastauri - V 1964, 5f, leg. T. PALM (MZL); Potamos, 1m 1f (WS), 1905, 7m 3f, leg. O. LEONHARD (DEI), IV 1905, 1m; Hagi Mathias, 600 m, 1905, 1m - leg. O. LEONHARD (MNB); Attica [Attiki], 1m (ZSM); Kiphisia [Kifisia], Pentelikon [Mt Pendeli Oros], 2f (MNB), 25 IV 1935, 3m; Levkas Is: Apolpena, 29 IX 1993, 1f, leg. ASSING; Lazarata, 25 IX 1993, 2f, leg. SPRICK & ASSING (PSP); Peloponnisos: Gythion [Yithion], 30 IV 1935, 3m - leg. J. FODOR (HMNH); Lavra (Morea), 1f, leg. HOLTZ (ZSM).

HERZEGOVINA: Velež Planina, 1f (DEI).

HUNGARY: Tata, 9 V 1976, 1f, leg. L. DIECKMANN (DEI).

ITALY: Sicilia, 1m (MNB), 1f (DEI); Ficuzza, 2f, leg. O. LEONHARD (ZSM, DEI); Trentino alto Adige: Bozen [Bolzano], 1m, leg. LUDY, ex coll. REITTER (MNB); Liguria: Portobino, Riviera, 2m (MNB); Toscana: Garfagnana, 1f, leg. PAGANETTI; Poggibonsi, 3 VI 1976, 1f, leg. WELLSCHMIED; C. San Gimignano n. Siena, 11 V 1987, 1f, leg. G. RÖSSLER; Lazio: Camerata Nuova, 1909, 2f, leg. L. KRÜGER (DEI); Calabria: La Sila, Volpintesta, Camigliatello, VI 1960, 2m (LM); Sta Eufemia d'Aspromonte, 2m, leg. PAGANETTI (ZSM); Puglia: Martina, 2 VII 1978, 1f, leg. F. MONTEMURRO (FA); Gargano, S. Giovanni, 1f (ZSM); A.[lpes] M.[aritimes], Turini [Torino?], 1 VIII 1944, 1m, coll. OCHS (MHNG).

MALTA: 1m (DEI).

POLAND: Galicja: Winniki, 28 VII 1916, 5m 4f; Hulesze, 31 VII 1916, 7m 1f - leg. J. FODOR (MNB); Pomerania Lake Region: Wieżyca n. Kartuzy; Masurian Lake Region: Puszcza Augustowska - Rubcowo; Nizina Mazowiecka: Dembe Wielkie; Puszcza Białowieska (Bialowieza Forest); Silesia: Jastrzębie Zdr.; Wyżyna Krakowsko-Wieluńska: Cracow; Wyżyna Małopolska: Rogów n. Koluszki, Łódź, Pabianice, Modlica & Tuszynek n. Łódź, Chociszew, Wola Rakowa, Miechów; Roztocze: Zwierzyniec; Józefów Bilgorajski, Biała Góra n. Tomaszów Lub.; Western Beskids: Cieszyn, Łapanów; Bieszczady Mts.: Wetlina - 56 exs (IZW, MW, MHNG, ZSM, DEI).

SLOVAKIA: Zavod n. Malacky, 26 VI 1984, 1m, leg. L. DIECKMANN (DEI); Malý Horeš, 5-15 VII 1979, 1m 3f, leg. K. SCHÖN; Somotor, 13 VII 1979, 1m, leg. P. TYRNER (KS).

SLOVENIA: Laibach [Lubljana], 10 I 1916, 1f, 20 I 1916, 1f, 17 III 1917, 1f; Prevole, 30 VI 1916, 1m; Posavie, 25 VI 1936, 1m - coll. GSPAN; Slake, Podcetrtek, 1f, coll. KODRIC (MHNG).

SWITZERLAND: Ct. Zürich, Albis, 1m (WS); Geneve: Avully, 9 VII 1963, 1m, leg. C. BESUCHET (MHNG).

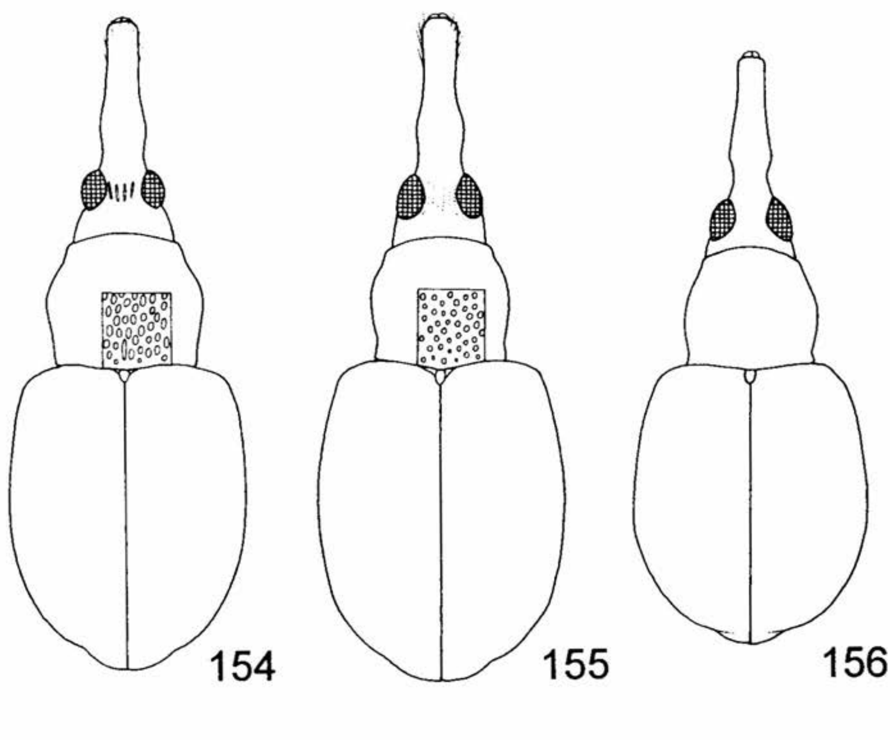
TURKEY: vill. Antalya: Kumluca, 90 km S Antalya, 22 V 1991, 2m 1f (WS); Side [Selimiye], 0-20 m, 27 IV 1992, 1f (RB).

UKRAINE: Podolia: Zaleszczyki, Mielnica, Rzęsna Poland, Kołodróbka, Wołczków, Olchowce, Babińce n. Borszczów - 35 exs (IZW).

Omphalapion concinnum (SCHILSKY, 1906)

(figs 129, 135, 138, 140, 155)

Apion concinnum SCHILSKY, 1906b: CXVIII.
Apion (*Omphalapion*) *puncticolle* SCHILSKY, 1906: no.27, nec BEQUIN-BILLECOCQ, 1905.



154-156. Male body in dorsal view: 154 - *Omphalapion dispar*; 155 - *O. concinnum*; 156 - *O. beuthini*

Type material examined

Lectotype m: a)Museum Paris, Perse, Chaine bordiere S.-O de suse a Ispahan (alt 60 a 4500 m.), J. De Morgan, 1904, b)Type, c)*Apion puncticolle* m., Type-1905 (coll. Schilsky, MNB) (present designation).

Description

Body length m: 1.90-2.12 mm, f: 2.14-2.41 mm. Male tibiae, tarsi and antennae dark brown. Body vestiture as in *O. dispar*.

Indices. ***rl/pl:*** m: 1.02-1.21, f: 1.30-1.52; ***rl/msrw:*** m: 3.08-3.40, f: 4.74-5.33; ***scl/msrw:*** m: 0.63-0.73, f: 0.76-0.86 (M 0.82); ***msrw/mtrw:*** m: 1.07-1.19, f: 1.06-1.25; ***msrw/arw:*** m: 1.30-1.43, f: 1.25-1.40 (M 1.30); ***msrw/minrw:*** m: 1.33-1.43, f: 1.31-1.46; ***msrw/eyl:*** m: 0.83-0.89, f: 0.86-0.97; ***brl/eyl:*** m: 0.66-0.89 (M 0.78), f: 1.17-1.37 (M 1.27); ***eyl/hl:*** m: 0.72-0.75, f: 0.60-0.75 (M 0.69); ***hl/hw:*** m: 0.81-0.84, f: 0.71-0.89 (M 0.79); ***mpw/hw:*** m: 1.65-1.71, f: 1.89-2.01; ***bpw/apw:*** m: 1.24-1.35, f: 1.11-1.35 (M 1.27); ***pl/mpw:*** 0.87-0.97; ***mew/mpw:*** m: 1.64-1.79 (M 1.70), f: 1.66-1.86 (M 1.78); ***el/pl:*** m: 2.50-2.63 (M 2.54), f: 2.56-2.80 (M 2.67); ***el/mew:*** m: 1.29-1.36, f: 1.33-1.44; ***mew/bew:*** m: 1.20-1.23, f: 1.21-1.32; ***bew/mpw:*** m: 1.36-1.45 (M 1.40), f: 1.35-1.51 (M 1.42); ***pft/msrw:*** m: 0.94-0.99, f: 1.03-1.09; ***ptbl/pl:*** m: 1.20-1.39 (M.1.28), f: 1.10-1.21 (M 1.16); ***ptbl/ptbmw:*** m: 6.27-7.25 (M 6.75), f: 6.11-6.56 (M 6.30); ***ptsl/ptbl:*** 0.53-0.60.

Distinct from *O. dispar* only in the following characters:

Rostrum/head length ratio m: 1.9-2.3, f: 2.7-3.7; rostrum in male more distinctly bent sub-basally; in female with rounded dilatation of the mesorostrum well expressed, metarostrum constriction always distinct and the apical part of prorostrum widened.

Female antennae with scape distinctly shorter than mesorostrum width, 3.0-3.3× longer than wide; basal funicular segment 1.4-1.7 as long as wide, segments 5 and 6 isodiametric, the seventh always wider than long; club variable but usually more elongate, 2.1-2.4× longer than wide.

Head distinctly longer (hl/hw!), in male subsemicircular, in female subconical, with temples longer than half eye diameter and strongly divergent basad; eyes not distinctly protruding from the head outline, in male very large; frons in the male 0.7 as wide as the rostrum base, striolae distinct to completely vanishing.

Pronotum in relation to elytra small and narrow; punctures on the disc in the Iranian specimens round, shallow, 2× ommatidium size, one or more diameter apart, in those from Israel puncturation oval, denser, not very distinct from that in *O. dispar*; interspaces flat, strongly microreticulate; prescutellar fovea rudimentary or absent.

Elytra in female pyriform, distinctly narrowing basad.

Legs more slender in both sexes (ptbl/ptbmw!), especially in male; male protarsus 2.9-3.1× longer than wide, its basal segment 1.2-1.3 as long as wide.

Male and female genital structures similar as in *O. dispar*; rows of denticles in the internal sac weakly developed, not extended basad and leaving the apical curved part indenticulate.

Biology unknown.
Distribution. Israel*, Lebanon*, Iran.

OTHER MATERIAL EXAMINED

IRAN: Kordestan, Sheikh Ata, 35°30'N/46°28'E, 16 IX 1975, 2f; E. de Marivan, 35°32'N/46°20'E, 16 IX 1975, 1f - leg. A. SENGLET (MHNG).

ISRAEL: Galilea: Ginosar, 20-21 V 1973, 19m 18f; Tel Dan, 22 V 1973, 1f; Gatad, 500 m, 30 V 1973, 5f, 14 VI 1973, 3f - leg. I. LÖBL (MHNG).

LEBANON: Les Cedres n. Becharre, 1950-2000 m, 2 IV 1975, 1f, leg. C. BESUCHET (MHNG).

REMARKS

Little known species described from Iran and here quite easy to distinguish from *O. dispar*. However, the population from Eastern Mediterraneum is less distinct in respect of some characters (i.e. rostrum length, pronotum relative size and puncturation) and taxonomic status of this species should be studied based on a larger material from the north-eastern peripheries of its distribution range.

***Omphalapion pseudodispar* sp. nov.**

(figs 142, 148, 149, 157)

Etymology. The name expresses very close affinities of the new species to *O. dispar*.

DESCRIPTION

Body length m: 1.92-2.20 mm, f: 1.80-2.48 mm. Vestiture fine, hair-like scales not longer than 1/3 elytral interval width.

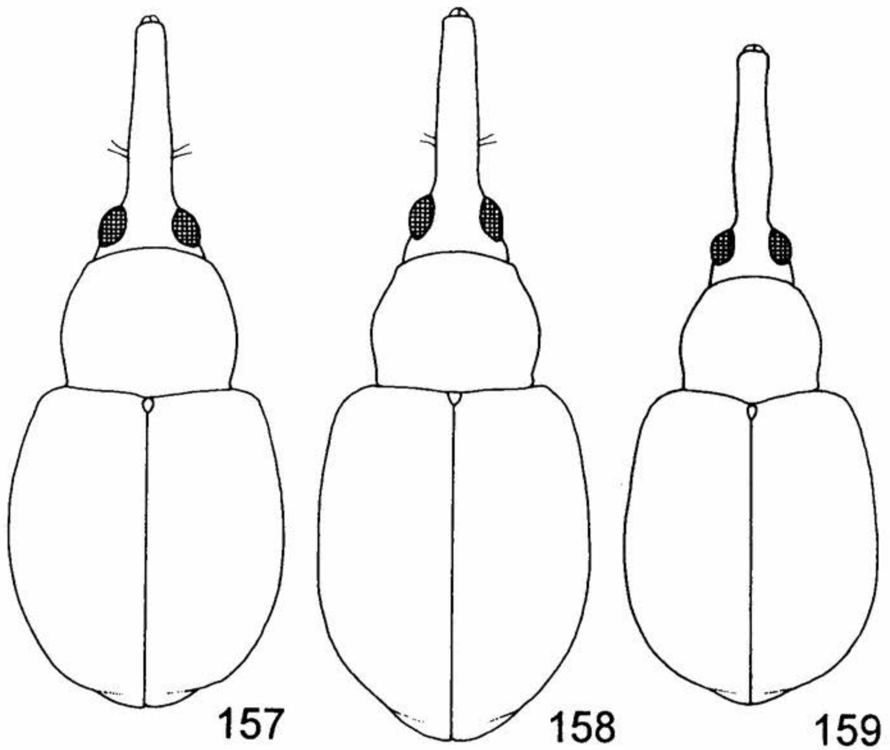
Indices. ***rl/pl:*** m: 0.84-1.00 (M 0.93), f: 1.00-1.33 (M 1.19); ***rl/msrw:*** m: 2.83-3.11 (M 3.00), f: 4.03-5.16 (M 4.64); ***scl/msrw:*** m: 0.64-0.72, f: 0.70-0.94 (M 0.83); ***msrw/mtrw:*** m: 1.07-1.13 (M 1.11), f: 1.00-1.09 (M 1.05); ***msrw/arw:*** m: 1.43-1.57 (M 1.48), f: 1.17-1.42 (M 1.31); ***msrw/minrw:*** m: 1.43-1.57 (M 1.48), f: 1.24-1.46 (M 1.36); ***msrw/eyl:*** 0.90-1.06; ***brl/eyl:*** m: 0.67-0.95 (M 0.83), f: 0.90-1.45 (M 1.19); ***eyl/hl:*** m: 0.71-0.89, f: 0.72-0.97; ***hl/hw:*** 0.52-0.67; ***mpw/hw:*** m: 1.69-1.93 (M 1.82), f: 1.76-2.06 (M 1.98); ***bpw/apw:*** m: 1.24-1.36, f: 1.20-1.32; ***pl/mpw:*** 0.87-0.95; ***mew/mpw:*** m: 1.48-1.57 (M 1.53), f: 1.54-1.73 (M 1.62); ***el/pl:*** m: 2.03-2.31 (M 2.21), f: 2.22-2.37 (M 2.29); ***el/mew:*** m: 1.26-1.39 (M 1.33), f: 1.21-1.33 (M 1.28); ***mew/bew:*** m: 1.13-1.23, f: 1.18-1.28; ***bew/mpw:*** 1.24-1.40; ***pft/msrw:*** m: 0.89-0.99 (M 0.94), f: 1.04-1.19 (M 1.11); ***ptbl/pl:*** m: 0.99-1.14 (M 1.07), f: 0.96-1.08 (M 1.01); ***ptbl/ptbmw:*** m: 5.89-6.78, f: 5.20-6.21; ***ptsl/ptbl:*** 0.51-0.60.

Male. Externally not distinct from males of *O. dispar*; length and shape of rostrum, antennal proportions, shape of head, eye convexity, shape and puncturation of pronotum, as well as its size in relation to elytra equally variable. Median lobe of aedeagus relatively long, 4.5-5.0 as long as wide; internal sac with numerous long spines in basal half. The remaining structures of the sac and paramerae as in *O. dispar*.

Female. Rostrum shorter than in *O. dispar* (rl/pl!), broadest at base; metarostrum parallel-sided or slightly narrowed towards antennal insertion; prorostrum slightly narrowed apicad, most often contracted medially; in some specimens rostrum is almost regularly narrowed from base to apex, thus resembling that of *O. hookerorum*. Antennal scape 3.0-3.5× longer than wide, shorter than the mesorostrum width; sixth funicular segment isodiametric, seventh slightly broader than long. Head strongly transverse (hl/hw!). Pronotum relatively large; punctures elongate, close. Elytra shorter than in *O. dispar* (el/mew!). Genital structures not distinct from those of other species related to *O. dispar*.

Fine prescutellar fovea visible in most specimens.

The species is equally variable and sometimes very difficult to distinguish from *O. dispar* if only females are at disposal. The females from Bosnia and Macedonia



157-159. Female body in dorsal view: 157 - *Omphalapion pseudodispar* sp. nov.; 158 - *Omphalapion* sp. (Algeria); 159 - *O. beuthini* (Spain) have rostrum approximating that of *O. dispar* in length but the elytra keep *O. pseudodispar* proportions.

Biology not studied, but adults are often collected together with *O. dispar*, so the same *Anthemis* host plants are likely. Short female rostrum may indicate larval feeding on developing seeds, like in *O. hookerorum*.

Distribution. Austria, Czech Rep. (Moravia), Hungary, Moldova, Bosnia, Macedonia, Bulgaria, Turkey, Israel, Iran.

TYPE MATERIAL.

Holotype m: a)Turkey, Tekirdag [vil. Tekirdag], 1 VII 1987, leg. E. BARANIAK (MW in MNHW).

Paratypes (20m, 40f):

Ŕečkowitz, 1f, leg. FORMÁNEK (WS); Bilowitz, 1f, leg. FORMANEK (MW).

AUSTRIA: Hagenbrunn, Wien, 1f, coll. Madera; Hohenau, 16 VI 1975, 1m 1f, leg. WELLSCHMIED; Baumgarten, 28 VII 1965, 1f; Sollenau, 6 V 72, 1f - leg. E. GOTZ; Burgenland: Umg. Neusiedlersee, 5 V 1967, 1f, leg. HAAS; Neusiedl. Panzergraben, 9 VII 1973, 1m 1f; Frauenkirchen, 11 VI 1973, 4m 3f, "von Kamille" - leg. WELLSCHMIED; Winden, Zeilerberg, 3 V 1989, 1f, leg. SIEDE; St. Margarethen, 22 VI 1991, 1f, Zurndorfer Heide, 23 VI 1991, 1f - leg. L. BEHNE (DEI, MW); Neusiedlersee, 1m, coll. UYTTENBOOGAART (RML); Rechnitz, 27 IV 1986, 1f; Zurndorf, 2 VI 1988, 1f - leg. W. SUPPANTSCHITSCH (WS, MW).

BOSNIA: 1f (DEI).

BULGARIA: Kosharitsa n. Nessebar, 7-16 V 1985, 1f, leg. WRASE (DEI); Kazanlyk, 20 VII 1976, 1f, leg. D. TARNAWSKI (MW).

CZECH REP.: Moravia: Dačic, 1f, leg. ZOUFAL (MHNG).

HUNGARY: Kalocsa, coll. APFELBECK (Mus. G. Frey), 6f (ZSM), 1f (MW), coll. STAUDINGER, 2m (MNB); Jászkisér, VI 1912, 1f, leg. GYÖRFFY, coll. W. EICHLER (IZW).

IRAN: Kordestan, Sheikh Ata, 35°30'N/46°28'E, 16 IX 1975, 2f; SE of Kal'eh Dju, 35°19'N/46°20'E, 14 IX 1975, 1f; Kermanshah: Kangavar, 34°29'N/47°55'E, 1 VII 1974, 1m; Mahi Dasht, 34°14'N/46°42'E, 29 VI 1974, 2m; Lorestan: Azna, 33°28'N/49°22'E, 23 VI 1974, 1f - leg. A. SENGLET (MHNG, MW).

MACEDONIA: Vardarebene, 2m 2f; Langasa-Göll, 2f - leg. A. SCHATZMAYR (DEI, MW).

MOLDOVA: Èernowitz [Tschernovtsy], leg. FORMANEK, 1m, coll. G. FREY (ZSM), 2m (MW).

TURKEY: Smyrna [Izmir], coll. U. SAHLBERG, 1m (MNB); "Syrie, Akbes, C.D. 1891" [Ekbes], 1m (IRB); Ak-Chéhir [NW vil. Konya: Aksehir], 1900, 1f, leg. KORB (IZW); vil. Kütahya: Simav, 18 VI 1972, 1f; vil. Gaziantep: Oguzeli, 8 VI 1972, 1m - leg. N. LODOS (DEI); vil. Isparta: Egridir, 6 VI 1986, 1f, leg. KADLEC & VOŘIŠEK (KS); vil. Antalya: Saklikent, 25 V 1991, 1f, leg. H. SCHMID (WS).

Omphalapion beuthini (An. Hoffmann, 1874)

(figs 146, 156, 159)

Apion beuthini An. Hoffmann, 1874: 208.
Apion benthini [sic!]: Desbrochers, 1891b: 48.
Apion brisouti: Desbrochers et auctt., nec Bedel 1887.
Apion dispar: auctt. brit., nec Germar, 1817.

Literature: Desbrochers, [1895-96]: 160 (*brisouti*); Schatzmayr, 1925: 47 (*brisouti*); Hoffmann, 1929: 140 (*brisouti*), 1958: 1527 (*brisouti*); Hustache, 1931: 109 (*brisouti*); Dolling, 1975: 181 (*dispar*); Morris, 1990: 49 (*dispar*); Alonso-Zarazaga, 1991: 45.

Original description was based on a single female from Spain. Holotype not examined, apparently lost. The taxonomic status of the species adopted here follows Alonso Zarazaga (1991).

Description

Length m: 1.60-1.92, f: 1.82-2.19 mm. Body size on average smaller than in three previous species, only the British specimens approximate *O. dispar* in length. Vestiture distinct, hair-like scales usually as long as half elytral interval width.

Indices. ***rl/pl:*** m: 1.07-1.18 (M 1.11), f: 1.34-1.47 (M 1.41); ***rl/msrw:*** m: 3.08-3.20 (M 3.16), f: 4.51-4.91 (M 4.68); ***scl/msrw:*** m: 0.62-0.73, f: 0.77-0.89 (M 0.82); ***msrw/mtrw:*** m: 1.19-1.27 (M 1.24), f: 1.04-1.18 (M 1.14); ***msrw/arw:*** m: 1.38-1.52 (M 1.43), f: 1.30-1.43 (M 1.35); ***msrw/minrw:*** m: 1.40-1.52 (M 1.45), f: 1.30-1.50 (M 1.38); ***msrw/eyl:*** 0.93-1.16; ***brl/eyl:*** m: 0.89-1.09 (M 0.98), f: 1.03-1.26 (M 1.19); ***eyl/hl:*** m: 0.71-0.79, f: 0.67-0.90; ***hl/hw:*** 0.51-0.75; ***mpw/hw:*** m: 1.54-1.71 (M 1.64), f: 1.70-1.80 (M 1.77); ***bpw/apw:*** m: 1.25-1.34, f: 1.20-1.33; ***pl/mpw:*** 0.88-0.95; ***mew/mpw:*** m: 1.62-1.70 (M 1.67), f: 1.68-1.89 (M 1.80); ***el/pl:*** m: 2.40-2.50 (M 2.45), f: 2.50-2.72 (M 2.65); ***el/mew:*** m: 1.30-1.37 (M 1.34), f: 1.32-1.38 (M 1.34); ***mew/bew:*** m: 1.18-1.30, f: 1.18-1.32; ***bew/mpw:*** m: 1.31-1.39, f: 1.38-1.49; ***pft/msrw:*** m: 0.82-0.90 (M 0.86), f: 0.90-1.09 (M 1.01); ***ptbl/pl:*** m: 1.18-1.30 (M 1.22), f: 1.08-1.1.26 (M 1.15); ***ptbl/ptbmw:*** m: 5.88-6.49, f: 5.68-6.25; ***ptsl/ptbl:*** 0.53-0.66.

Closely related and similar to other species of the *O. dispar* complex, it can be distinguished by the following combination of characters:

Rostrum distinctly constricted sub-basally in both sexes, in female strongly variable in length, predominantly thicker than in related species, with the dilatation of mesorostrum usually extended forwards to about half prorostrum length

Antennae with the scape 3.0-3.3 as long as wide, distinctly shorter than mesorostrum width; seventh funicular segment isodiametric to barely transverse.

Head relatively narrow, rather subrectangular than subconical.

Pronotum especially in female relatively small; punctures nearly round to shortly fusiform, less than half diameter apart, sometimes confluent; prescutellar fovea variable, as long as 3-4 punctures to nearly absent.

Elytra in male slightly, in female distinctly pyriform.

Median lobe of aedeagus shorter than in the previous species - length/width 3.8-4.5; internal sac basally armed with numerous long spines similar to those in *O. pseudodispar*. The remaining genital features not distinct from both *O. dispar* and *O. pseudodispar*.

Biology not thoroughly studied. HOFFMANN (1958) reported the species from *Tripleurospermum perforatum* (MÉRAT) WAGENITZ (= *T. inodorum* (L.) C.H. SCHULTZ), *Anthemis arvensis* L. and *A. montana* L.

Distribution. Spain, France, England*.

REMARKS

The species was often misidentified as *O. dispar* and its bionomics and distribution await a more exact definition. It was recorded as *A. brisouti* from Northern Africa by BEDEL and DESBROCHERS, but its occurrence there needs to be confirmed. All the specimens from Morocco and Algeria examined by me seem to belong to another species described below .

MATERIAL EXAMINED.

ENGLAND: Kent, Lydden, 4 VIII 1967, 2m 2f, leg. DOLLING (DEI).

FRANCE: 2f, leg. REITTER; Corsica, V 60, 1f, PRUNELLI (MHNG); Finistère: Morlaix, 1m, leg. E. HERVÉ - coll. H. WAGNER (ZSM); Haute Vienne: 1f, coll. v. HEYDEN (ex coll. DESBROCHERS, det. as "*brisouti* pars. BED. DB.") (DEI); St Barbant, leg. L. MESMIN, 1m (MHNG), 1m 1f (coll. HOFFMANN, MNHP); Verneuil, V 1922, 1m 1f.

SPAIN: Lago de Una, 1m, leg. CHAMPION (MW); Andalusia, 1f, leg. KIRSCH (DEI); Ciudad Real, 10 VIII 1969, 1f, leg. A. SENGLET (MHNG).

***Omphalapion* sp.**

(figs 136, 137, 158)

The form known from North-Western Africa, closest to *O. pseudodispar* and remaining undescribed here because of insufficient knowledge of distribution and geographical variability of both *O. pseudodispar* and *O. beuthini,* and until the type specimens of the latter and *A. brisouti* BEDEL are examined.

The only examined male has rostrum sub-basally curved evidently more strongly than in the remaining species of *O. dispar* complex, with meta- and mesorostrum nearly equally wide. Median lobe of aedeagus 4.7× longer than wide, the internal sac armature not distinct from that of *O. beuthini* and *O. pseudodispar*. Length and shape of the female rostrum and head identical as in *O. pseudodispar,* but pronotum relatively smaller and elytra more elongate.

Indices. ***rl/pl:*** m: 1.02, f: 0.98-1.21 (M 1.14); ***rl/msrw:*** m: 2.99, f: 4.12-4.81 (M 4.40); ***scl/msrw:*** m: 0.66, f: 0.75-0.89 (M 0.81); ***msrw/mtrw:*** m: 1.07, f: 1.03-1.08; ***msrw/arw:*** m: 1.48, f: 1.20-1.37 (M 1.30); ***msrw/minrw:*** m: 1.48, f: 1.20-1.40 (M

1.31); ***msrw/eyl:*** m:1.02, f: 0.89-1.08 (M 0.98); ***brl/eyl:*** m: 0.85, f: 0.90-1.39 (M 1.16); ***eyl/hl:*** m: 0.80, f: 0.71-0.89; ***hl/hw:*** m: 0.66, f: 0.49-0.61; ***mpw/hw:*** m: 1.74, f: 1.75-2.06 (M 1.90); ***bpw/apw:*** m: 1.27, f: 1.16-1.32; ***pl/mpw:*** m: 0.91, f: 0.88-0.95; ***mew/mpw:*** m: 1.61, f: 1.55-1.74 (M 1.64); ***el/pl:*** m: 2.33, f: 2.34-2.48 (M 2.41); ***el/mew:*** m: 1.32, f: 1.25-1.42 (M 1.35); ***mew/bew:*** m: 1.26, f: 1.17-1.31; ***bew/mpw:*** m: 1.27, f: 1.27-1.42; ***pft/msrw:*** m: 0. 94, f: 1.04-1.20 (M 1.09); ***ptbl/pl:*** m: 0.24, f: 1.03-1.16 (M 1.08); ***ptbl/ptbmw:*** m: 6.40, f: 5.80-7.07; ***ptsl/ptbl:*** 0.54-0.59.

MATERIAL EXAMINED

ALGERIA: distr. Bejaia: Ziama, 13 VI 1986, 1m; Tichy, 17 III 1987, 2f, 19 III 1987, 3f; Falaises, 16 V 1986, 2f; Sétif, 28 II 1986, 1f - leg. A. WARCHAŁOWSKI (MW).

MOROCCO: M. Atlas, Ifrane, 6 IV 48, 1f (coll. HOFFMANN, MNHP).

Genus *Diplapion* REITTER, 1916

Apion subgenus *Diplapion* REITTER, 1916: 241. Type species: *Apion stolidum* GERM. (by original designation).

DESCRIPTION

Body in both sexes black. Vestiture distinct, adpressed.

Rostrum bare; mesorostral dilatation not forming distinct teeth; venter of the prorostrum with a median keel separating broad, not distinctly microsculptured longitudinal grooves.

Antennae similar in both sexes, with strong scale-like microsculpture; pubescence of distal funicular segments clearly finer than that of the proximal ones.

Frons flat, with a pair of sulci mostly confluent and V- or U-like, impunctate or with single punctures only along eye margins; vertex impunctate, even; temples with a single row of punctures close to the posterior eye margin; antennal scrobes reaching half eye length on the head underside; gular suture fine.

Pronotum with the pleural line distinct; prescutellar fovea small; prosternum usually 1.5-2× shorter than the postcoxal part of prothorax; sternellum inconspicuous.

Elytra with distinct humeri, elongate, moderately convex; striae connected 1+2+9, 3+4, 5+6, 7+8 apically; specialized setae observed in few specimens.

Episternal sutures of the mesosternum missing; the epimeral ones distinctly catenulate-punctate, sharply edged internally. Metasternum ca. 1.5× longer than the mid coxae, intermesocoxal process more or less tuberculiform, more prominent than the corresponding process of the mesosternum.

Basal segments of all male tarsi ventrally spined.

Forked basal piece of tegmen several times shorter than the manubrium, tegminal plate articulated or fused to it; parameroid lobes variably long and notched, but never to the fenestrae level; macrochaetae long, numerous; lateral fold variably long, submarginal; fenestrae well defined, small, broadly separate; dorsal portion of ring narrow, complete; prostegium evenly sclerotized, distinctly bifid.

Median lobe of aedeagus with the dorsal plate firmly connate on most of its length; internal sac not projecting behind the tube, unarmed or at most with extremely fine rugosities in the orificial region.

Spiculum gastrale narrowly forked, with long manubrium.

Biology. Species develop on plants of the tribus *Anthemideae,* mainly of the genera *Anthemis* L., *Matricaria* L., *Tripleurospermum* SCHULZ BIP. and *Leucanthemum* MILLER, in the Mediterranean region also on *Artemisia* L. and, according to ALONSO-ZARAZAGA (1991), *Chamaemelum* MILLER and *Argyranthemum* SCHULZ BIP. In Central Europe always one generation per year, eggs are laid in the spring, fresh adults emerge since mid June, chiefly in July. Both males and females overwinter.

Distribution. Western Palaearctic, as far east as 60°E.

KEY TO SPECIES

1. Frons with a pair of fine striolae narrower than single ommatidium (fig. 251). Pronotum coarsely punctate, punctures at least 2× ommatidium size, less than half diameter apart.
.... 2.

-. Frons with deep sulci, mostly confluent and much wider than single ommatidium (figs 252-257). Punctures on the pronotum at most slightly larger than single ommatidium, separated by a distance much longer than puncture diameter.
.... 4.

2. Elytra with strong brassy lustre. Rostrum very thin, strongly arched, in male at least 5.4×, in female 6.5× longer than wide (figs 179, 180). Pronotum cylindrical. Striolae on the frons V-like.
.... *D. westwoodi* (WOLL.)

-. Elytra alutaceous black. Rostrum thicker, weakly curved, in male 3.8-4.6×, in female 4.8-5.8× longer than wide. Pronotum rounded at sides. Striolae on the frons usually separate basally.
.... 3.

3. Elytra oval, widest at or slightly behind middle, with sides more or less uniformly rounded, dorsally weakly and evenly convex (figs 160, 165); inner intervals near the base of elytra not narrower, in middle 1.5× wider than striae. Puncturation of the pronotal disc finer and denser, largest punctures slightly larger than 2 ommatidia, about half diameter apart (fig. 163). Male basal segment of mid tarsi with the ventral spine much smaller than that of protarsus, not produced over the "sole" pubescence.
.... *D. sareptanum* (DBR.)

-. Elytra pyriform, widest distinctly behind middle, with sides straight-line divergent from base, dorsally flattened in front (figs 161, 162, 167, 169); inner intervals near the base of elytra slightly narrower, in middle barely wider than the striae. Pronotal puncturation coarser but sparser and more irregular, largest

punctures of 3× ommatidium size, interspaces often equal to the puncture diameter (fig. 164). Male basal segment of mid tarsi with the ventral spine nearly as long as that of protarsus, distinctly projecting over the "sole" pubescence.
.... *D. hamatum* (WGN.)

4. Antennae short and thick, distal segments of the funicle in male 1.8-2×, in female 1.5-2× wider than long (figs 248, 249).
.... *D. saudiarabicum* sp. nov.

-. Antennae much thinner, distal funicular segments isodiametric or slightly elongate.
.... 5.

5. Sulci on the frons predominantly straight, V-like, basally not deepened and widened (figs 253, 256).
.... 6.

-. Sulci on the frons arched inwards, U-like, their bases often enlarged into deep pit (figs 252, 254, 255).
.... 7.

6. Body vestiture composed of narrowly lanceolate or oval, pure white scales (fig. 228). Prorostrum sub-cylindrical (figs 229, 230). Male protibiae slightly curved inwards apically. Median lobe of aedeagus narrow, acute apically (as in fig. 238); tegminal plate strongly elongate, deeply notched (as in fig. 240). Female rostrum 1.6-1.7× longer than the pronotum.
.... *D. squamuliferum* (DBR.)

-. Body vestiture composed of piliform, greyish scales. Prorostrum at least in basal 1/3 narrowing (figs 206, 207). Male protibiae straight. Median lobe of aedeagus broad, uniformly rounded apically (fig. 216); tegminal plate short, shallowly emarginate apically (fig. 212). Female rostrum 1.20-1.57, on average 1.45× longer than pronotum.
.... *D. confluens* (KBY.)

7. Body vestiture composed of broadly oval scales, ca. 4× longer than wide (fig. 227).
.... *D. squamans* (DBR.)

-. Body vestiture composed of piliform or hair-like scales (fig. 226).
.... 8.

8. Sulci on the frons very short, confluent on nearly whole length (figs 255). Male: protibiae slightly curved inwards apically (fig. 221); ventral spine of the protarsus conspicuous, as long as half tarsal segment height (fig. 224); median lobe of aedeagus (exc. apophyses) 7× longer than wide (fig. 238). Female: rostrum thin, strongly curved, usually more than 5.5× longer than wide (figs 218, 220); antennal scape 1.1-1.5× longer than the mesorostrum width.
.... *D. detritum* (M. & R.)

-. Sulci on the frons separate at least on half length (fig. 252). Male: protibiae straight; ventral spine of the protarsus minute, not projecting over the "sole" pubescence of the tarsal segment (fig. 199); median lobe of aedeagus 4× longer

than wide (fig. 201). Female: rostrum thicker, weakly curved, usually much less than 5× longer than wide (figs 192, 193); antennal scape 0.95-1.1 as long as the mesorostrum width.
.... 9.

9. Body slender (figs 191, 193). Pronotum in relation to elytra smaller, trapeziform, with relatively thin walls; punctures on the disc superficial, smaller than single ommatidium, at least 3 diameters apart. Elytra distinctly shining; intervals in the middle 2.5-3× wider than the striae.
.... *D. nitens* (SCHIL.)

-. Body more robust (figs 190, 192). Pronotum relatively larger, rounded at sides, with thick walls; punctures on the disc deeper, slightly larger than single ommatidium, at most 1-2 diameters apart. Elytra with very weak sheen; intervals strongly, irregularly microsculptured, not more than 2.5× wider than the striae.
.... *D. stolidum* (GERM.)

Diplapion sareptanum (DESBROCHERS, 1867)

(figs 160, 163, 165, 166, 168, 170-178, 251)

Apion sareptanum DESBROCHERS, 1867: 216.
Apion curtipenne DESBROCHERS, 1870: 179.

Literature: DESBROCHERS, [1894]: 103; SCHILSKY, 1901: no.22, 1906b: XII; WAGNER, 1910b: 940; GYÖRFFY, 1956: 6; BAJTENOV, 1974: 278.

TYPE MATERIAL EXAMINED

A. sareptanum **Dbr.** Lectotype m: a)Sarepta, b)STIERLIN, c)Type, d)coll. STIERLIN, e)*Sareptanum* DB., WAGNER det. (DEI) (present designation); Paralectotype f: labels a), d), e) like in the lectotype (DEI). ***A. curtipenne*** **DBR.** Lectotype m: a)Hongrie, b)m, c)Ex Musaeo DESBROCHERS 1914 (coll. DESBROCHERS, MNHP) (present designation); paralectotypes: 1f - data as in the lectotype; 1m: a)Hung. mer. (coll. DESBROCHERS, MNHP).

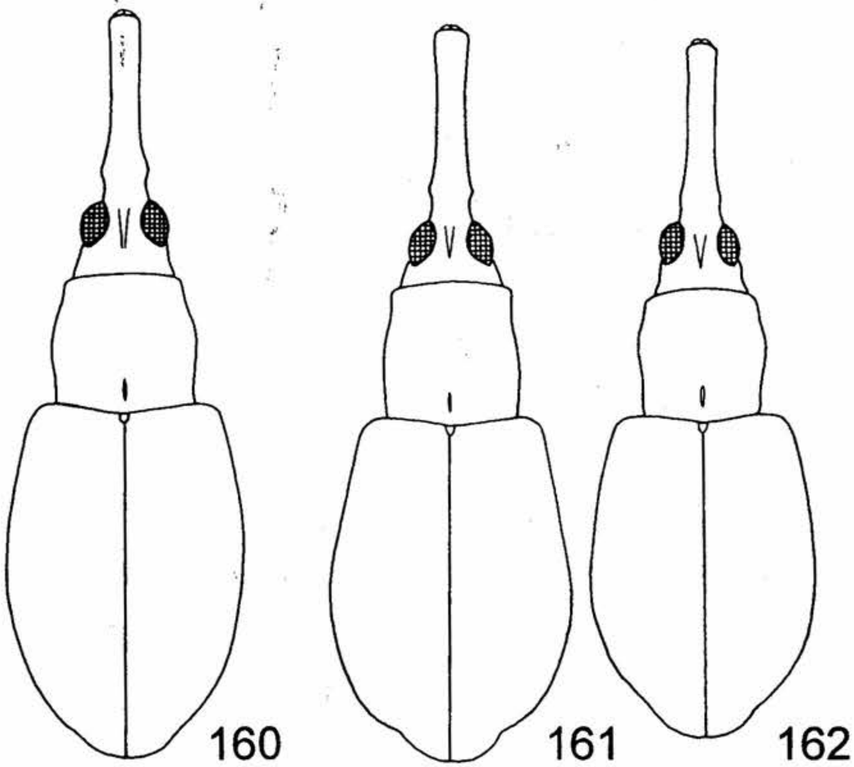
DESCRIPTION

Length m: 1.78-2.09 mm, f: 2.09-2.20 mm. Body surface strongly microsculptured, only elytra weakly shining; legs and antennae piceous brown. Vestiture distinct, composed of pure white piliform scales, not longer than 2/3 maximum elytral interval width.

Indices. ***rl/pl:*** m: 1.22-1.40, f: 1.43-1.58; ***rl/msrw:*** m: 3.77-4.08, f: 4.80-5.17; ***scl/msrw:*** m: 0.76-0.82, f: 0.88-0.92; ***msrw/mtrw:*** m: 1.16-1.21, f: 1.12-1.13; ***msrw/arw:*** m: 1.45-1.53, f: 1.30-1.45; ***msrw/minrw:*** 1.37-1.61; ***msrw/eyl:*** 0.84-0.97; ***brl/eyl:*** 0.69-0.83; ***eyl/hl:*** 0.60-0.75; ***hl/hw:*** 0.74-0.93; ***mpw/hw:*** 1.60-1.66; ***bpw/apw:*** 1.08-1.20; ***pl/mpw:*** 0.93-1.02; ***mew/mpw:*** 1.63-1.78; ***el/pl:*** 2.54-2.86; ***el/mew:*** 1.45-1.58; ***mew/bew:*** 1.20-1.35; ***bew/mpw:*** 1.29-1.40; ***pft/msrw:*** 1.03-1.19; ***ptbl/pl:*** m: 1.12-1.15, f: 1.20-1.23; ***ptbl/ptbmw:*** m: 5.67-6.00, f: 6.12-6.35; ***ptsl/ptbl:*** 0.60-0.61.

Rostrum weakly, regularly curved, conspicously dilated at antennal insertion; prorostrum cylindrical, on dorsum and at sides strongly scale-like microsculptured, occasionally at sides minutely punctured.

Antennae similar in both sexes, their articulation at basal m: 0.20-0.21, f: 0.15-0.19 of rostrum; length/width ratio of the scape 2.2-2.5, first segment of the funicle

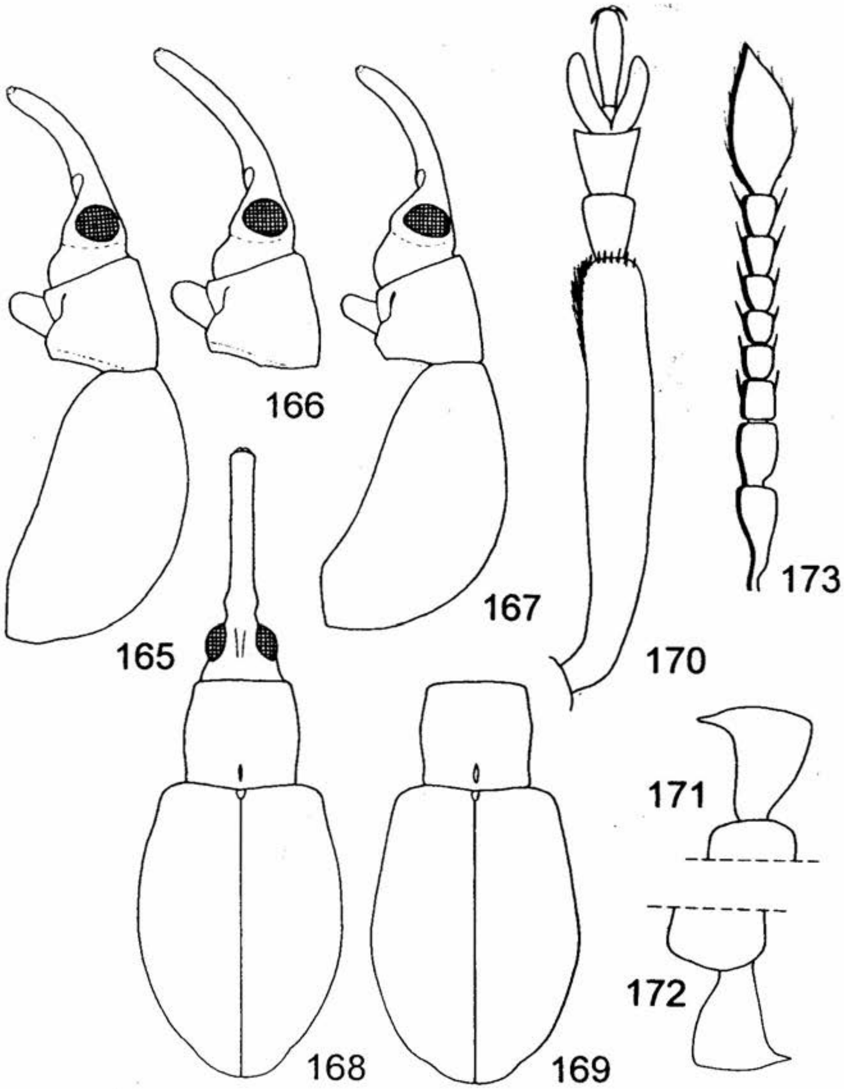


160 161 162

163 164

160-162. Male body in dorsal view: 160 - *Diplapion sareptanum*; 161 - *D. hamatum* (Iran: Polour); 162 - *D. hamatum* (Armenia: Fontan). 163,164. Puncturation of pronotal disc: 163 - *D. sareptanum*; 164 - *D. hamatum*

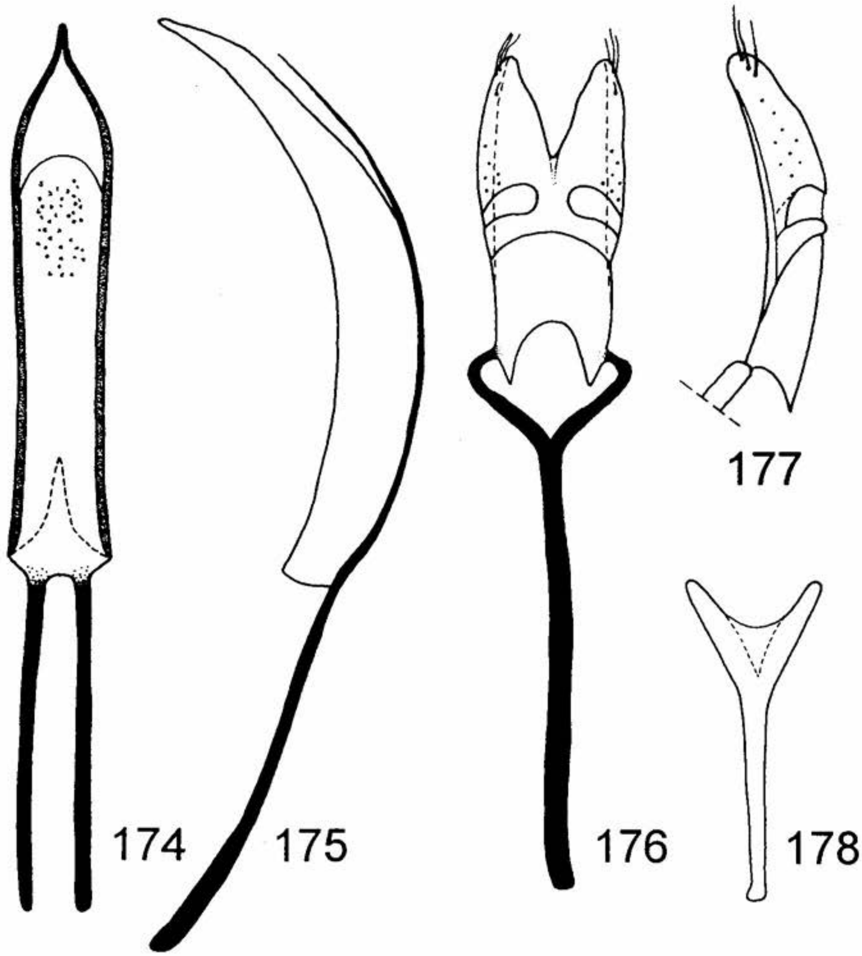
1.4-1.5, median segments isodiametric, the last two slightly elongate; club acuminate at apex, as long as 4 distal funicular segments together, 1.8-2.2× longer than wide.



165-169. Body outline: 165 - *Diplapion sareptanum*, male, lateral view; 166 - *D. sareptanum*, female head and pronotum in lateral view; 167 - *D. hamatum*, male, lateral view; 168 - *D. sareptanum*, female, dorsal view; 169 - *D. hamatum*, pronotum and elytra in dorsal view. 170-173. *D. sareptanum*: 170 - male fore tibia (lateral view) and tarsus (dorsal view); 171 - male first protarsomere in profile; 172 - male first metatarsomere in profile; 173 - female antenna

Frons as broad as rostrum base, slightly convex, with microsculpture similar to that on the dorsal side of rostrum; sulci fine, not wider than single ommatidium, seldom confluent basally, sometimes parallel; vertex glabrous, strongly microreticulate; temples in upper part with a single, and further down with a double row of scaliferous punctures; venter of the head convex between eyes, in profile without subocular tooth.

Pronotum with thick walls, rounded at sides; disc flattened; punctures deep, irregular in size, at most slightly larger than double ommatidium, interspaces



174-178. *Diplapion sareptanum*: 174,175 - median lobe of aedeagus, 174 - dorsal view, 175 - lateral view; 176 - tegmen, dorsal view; 177 - tegminal plate, lateral view; 178 - spiculum gastrale weakly raised, not wider than half of the puncture diameter, with strong, scale-like microsculpture; prescutellar fovea minute, often completely vanishing; pleural line hardly visible.

Elytra clearly convex, in basal half gradually rounded; striae coarse, with punctures and piliform scales distinct; intervals flat, the inner as broad as, or slightly broader than the striae at elytral base, at least 1.5× broader in the middle of elytra, with relatively large but very shallow punctures and strong, irregular microsculpture; specialized setae not observed.

Male tibiae apically straight; ventral spine of the protarsus conspicuous, as long as 1/2 first tarsal segment height; hind and especially mid tarsi with the spine much smaller, not projecting over the "sole" pubescence.

Metathoracic wings and their muscles normally developed.

Paramerae as in figs 176, 177; parameroid lobes separate to about basal 1/4; macrochaetae 2-3 long, ordered, additional one shorter, attached lower and more inwardly; lateral fold long and distinct; lower and often also upper borders of the fenestrae finely extended towards lateral margin of the plate and nearly reaching it; lobes of the prostegium short but median emargination deep, exceeding fusion of the basal piece arms to the prostegium.

Median lobe of aedeagus apically produced into variably long, acute process; internal sac with microscopic asperities in the orifice.

Spiculum gastrale with variably long manubrium, apical part often incompletely forked.

Biology unknown.

Distribution. Hungary ?, Rumania, Russia (southern European part, to Ural Mts.).

Recorded also from Turkey (Desbrochers, [1897]), which might have referred to *D. hamatum*, and from Austria, where it is not likely. Occurrence of *D. sareptanum* within the present boundaries of Hungary has never been confirmed, Györffy (1956) omitted it from Hungarian fauna.

Other material examined

RUMANIA: Dobrogea: Hirsova, 1f, leg. A. L. Montandon (HMNH).

RUSSIA: "Russia mer.", 3 exs (SMTD), 3 exs (MHNG); Sarepta [Krasnoarmieysk], 1f (NRS), 1f (LD), 7 exs (IRB), 2 exs (MHNG), 18 exs (FSF), 10 exs (MNB), 5 exs (ITZA), 2 exs (ZMH), 3 exs (DEI), leg. Becker, 2 exs (NMW), 8 exs (MHNG), 3 exs (SMTD), 13 exs (ZSM), 3 exs (MCM), 2 exs (NRS), 10 exs (DEI), 6 exs (HMNH), leg. Kirsch [?], 4 exs (SMTD), leg. Jakovlev, 1 ex. (SMTD); Astrachan, 2 exs, leg. Jakovlev (SMTD); Rostovskaya obl.: Zavyetnoye, 11 VII 1952, 27 exs; Volgogradskaya obl.: Arshan'-Zel'men', 6-9 VII 1952, 3 exs - leg. K. Arnoldi; Orenburgskaya obl.: Donguz riv., Donguzskaya - Perovskaya, 5 VI 1989, 1 ex. (VZ); Kasmarka riv. n. Orenburg, 2 exs, leg. Faust (SMTD); S Dagestan: Kasumkent, 1m, leg. Faust, coll. Reitter (HMNH).

Diplapion hamatum (WAGNER, 1906)

(figs 161, 162, 164, 167, 169)

Apion (Ceratapion) hamatum WAGNER, 1906: 22.
Apion (Diplapion) sareptanum v. *hamatum*: WINKLER & WAGNER, 1930: 1391.
Apion (Diplapion) sareptanum hamatum: TER-MINASSIAN, 1972: 799.

Literature: WAGNER, [1915]: 32.

TYPE MATERIAL EXAMINED

Lectotype m: a)Caucasus, Araxesthal, b)*Ap. sareptanum* v. *hamatum* m., WAGNER det., c)Type v. *Apion hamatum* WGNR., M.K.Z. 3, 1906-08, d)m, e)Coll. WAGNER, f)Sammlung G. FREY (ZSM) (present designation).

DESCRIPTION

Body length 1.68-2.19 mm.

Indices. ***rl/pl:*** m: 1.28-1.43, f: 1.40-1.60; ***rl/msrw:*** m: 4.25-4.56, f: 4.92-5.77; ***scl/msrw:*** m: 0.79-0.88, f: 0.88-1.08; ***msrw/mtrw:*** 1.09-1.18; ***msrw/arw:*** m: 1.35-1.56, f: 1.25-1.37; ***msrw/minrw:*** m: 1.42-1.56, f: 1.28-1.44; ***msrw/eyl:*** 0.77-0.93; ***brl/eyl:*** 0.74-0.93; ***eyl/hl:*** 0.67-0.79; ***hl/hw:*** 0.72-0.82; ***mpw/hw:*** 1.48-1.66; ***bpw/apw:*** 1.04-1.14; ***pl/mpw:*** 0.98-1.12; ***mew/mpw:*** 1.75-1.92; ***el/pl:*** m: 2.40-2.60 (M 2.53), f: 2.49-2.77 (M 2.64); ***el/mew:*** 1.40-1.55; ***mew/bew:*** 1.26-1.35; ***bew/mpw:*** 1.34-1.43; ***pft/msrw:*** m: 1.00-1.12, f: 1.13-1.20; ***ptbl/pl:*** 1.07-1.16; ***ptbl/ptbmw:*** 5.75-7.29; ***ptsl/ptbl:*** m: 0.61-0.67, f: 0.58-0.64.

The species is extremely similar to *D. sareptanum* in its external characters and not distinct in the genital structures. The only differences are listed in the key on p. 152.

Biology unknown.

Distribution. Azerbaijan (Aras Valley), Armenia, Iran* (Elburz Mts.).

REMARKS

D. sareptanum and *D. hamatum* form a pair of vicariant and sibling species of the distribution pattern analogous to that of *Taphrotopium sulcifrons* and *T. cuprifulgens* disscussed on p. 101. Also in this case the taxonomic status of both as distinct species could be verified after obtaining more exact data on their distribution in the Caucasian region and their biology. It is noteworthy that the diagnostic characters of *D. hamatum*, while well expressed in Iran, become less evident in the Armenian specimens.

OTHER MATERIAL EXAMINED

Caucasus, 1m, coll. BOSCH (FSF).

ARMENIA: Suchoj Fontan [Fontan], 1911, leg. H. KULZER, 1m 1f (LD), 2m 3f (ZSM); Gocht n. Carni, Azat vall., 1600 m, 15 VI 1988, 1m (JS).

IRAN: Elburz Mts: Polour, 2100-2200 m, 15 V 1970, 4f, leg. WITTMER & v. BOTHMER (NHMB).

Diplapion westwoodi (WOLLASTON, 1864)
(figs 179-189)

Apion Westwoodi WOLLASTON, 1864: 311.

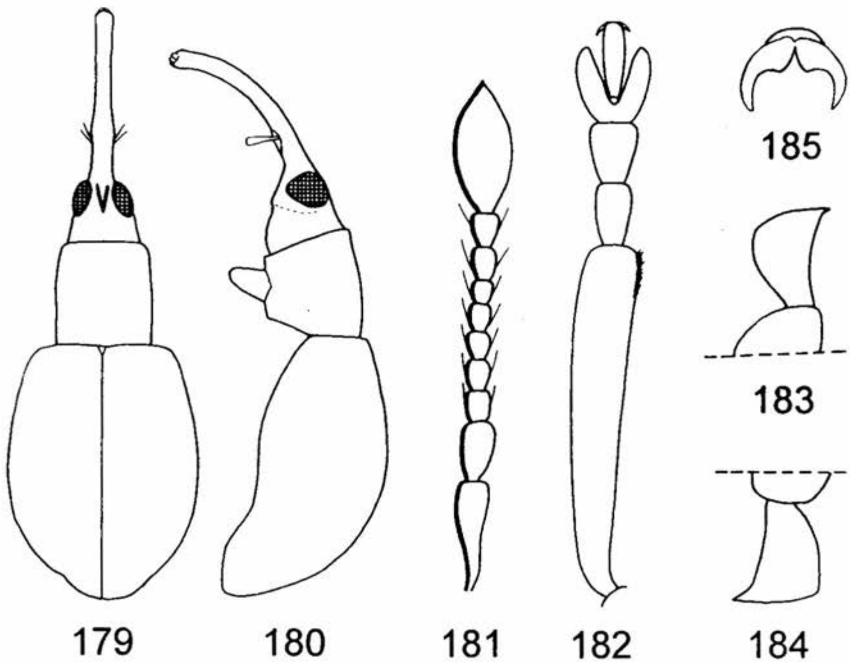
Literature: LINDBERG H. & H., 1958: 18.

TYPE MATERIAL EXAMINED

Lectotype m: a)*A. westwoodi* WOLL., b)Type (coll. WOLLASTON, BMNH) (present designation); paralectotypes: 1f - data as in the lectotype (BMNH); 1m: a)I. Can. WOLL., b)Type, c)*A. Westwoodi* WOLL., Gr. Canar., I. Canariens, d)Coll. ROELOFS (IRB).

DESCRIPTION

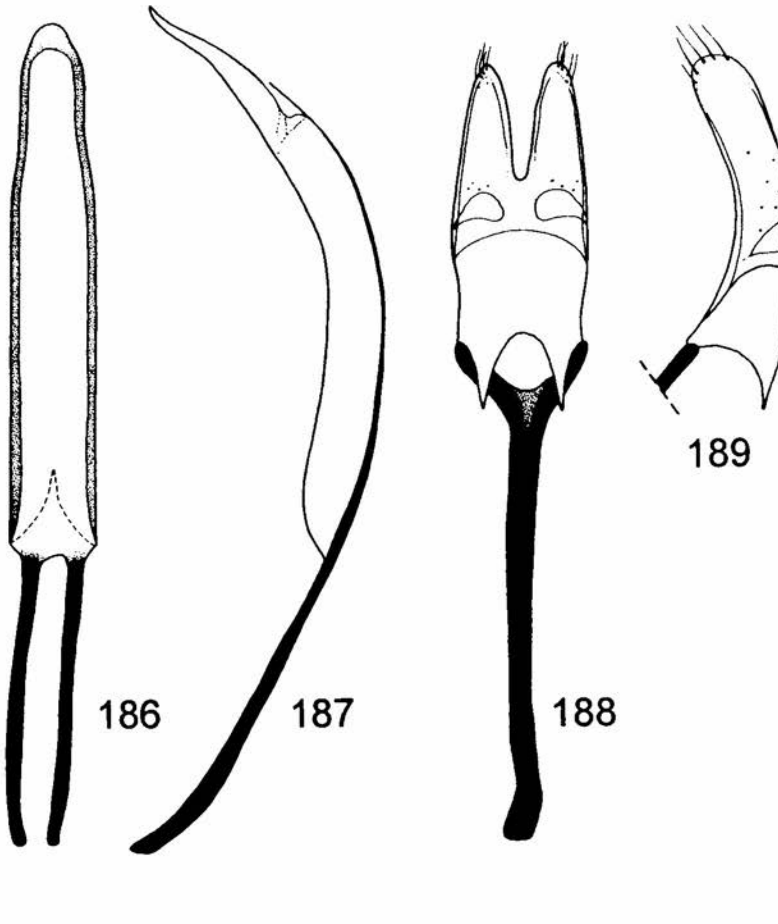
Body length 1.70-1.94 mm. Derm black, strongly shining, with distinct brassy or coppery lustre; tibiae and tarsi dark brown. Vestiture distinct, composed of long white or yellowish piliform scales, on the elytra as long as the interval maximum breadth, on the pronotum slightly shorter.



179-185. *Diplapion westwoodi*: 179,180 - female body outline, 179 - dorsal view, 180 - lateral view; 181 - male antenna; 182 - male fore tibia (lateral view) and tarsus (dorsal view); 183 - 184 - male first metatarsomere in profile; 185 - tarsal claws

Indices. ***rl/pl:*** m: 1.54-1.60, f: 1.64; ***rl/msrw:*** m: 5.38-5.49, f: 6.56; ***scl/msrw:*** m: 1.14-1.23, f: 1.40; ***msrw/mtrw:*** 1.11-1.18; ***msrw/arw:*** m: 1.24-1.29, f: 1.18; ***msrw/minrw:*** 1.40-1.47; ***msrw/eyl:*** m: 0.81-0.85, f: 0.74; ***brl/eyl:*** 1.05-1.07; ***eyl/hl:*** 0.59-0.65; ***hl/hw:*** m: 0.82-0.88, f: 1.02; ***mpw/hw:*** m: 1.47-1.50, f: 1.64; ***bpw/apw:*** 1.07-1.10; ***pl/mpw:*** 0.98-1.09; ***mew/mpw:*** m: 1.83-1.98, f: 2.00; ***el/pl:*** 2.71-2.76; ***el/mew:*** m: 1.43-1.50; ***mew/bew:*** m: 1.34-1.35, f: 1.31; ***bew/mpw:*** m: 1.35-1.48, f: 1.52; ***pft/msrw:*** m: 1.24-1.27, f: 1.45; ***ptbl/pl:*** m: 1.17-1.19, f: 1.25; ***ptbl/ptbmw:*** 6.00-6.25; ***ptsl/ptbl:*** 0.58-0.62.

Rostrum thin, strongly arched, in the male weakly dilated at antennal insertion, in female almost cylindrical; entire prorostrum weakly microsculptured, shining, with scarce and very fine puncturation.



186-189. *Diplapion westwoodi*: 186,187 - median lobe of aedeagus, 186 - dorsal view, 187 - lateral view; 188 - tegmen, dorsal view; 189 - tegminal plate, lateral view

Antennae very thin, inserted at basal m: 0.23-0.24, f: 0.22 of rostrum; length/ width of the scape 3-3.5, basal funicular segment 1.8-2, segments 6 and 7 clearly longer than wide; club nearly symmetrical, 2.1-2.2× longer than wide.

Head subconical; eyes large, weakly prominent; frons with strong scale-like microsculpture, at sides with few minute, scaliferous punctures, sulci fine and superficial, variably long, basally confluent to form a "V"; underside of head between eyes nearly flat, in profile without a distinct subocular tooth.

Pronotum cylindrical, with moderately thick walls; punctures on the disc of 2-3× ommatidium size, less than half diameter apart, interspaces slightly convex, finely microreticulate; prescutellar fovea inconspicuous, not wider than the punctures, elongate; pleural line fine but well visible.

Elytra relatively short and broad, pyriform, considerably convex; intervals flat, near the base of elytra 2×, in the middle 3.5-4× wider than striae; striae deep, scaliferous, first and second distinctly outcurved apically; specialized setae not observed.

Tibiae and tarsi slender; two basal segments of protarsus both elongate, onychium exceeding third segment by 0.35-0.50 length; ventral spines of all the male tarsi of equal size, exceeding the "sole" pubescence; tarsal claws short, distinctly swollen basally.

Tegminal plate articulated to extremely shortly forked basal piece; parameroid lobes separate nearly to the base; macrochaetae 4-5, arranged in arched, transverse row; lateral fold distinct on both outer and inner sides of the parameroid lobes; lower margins of the fenestrae somewhat extended outwards; prostegium with long, triangular lobes.

Median lobe of aedeagus parallel-sided, slightly narrowed in apical 1/4, the apex broadly rounded, in profile slightly upturned; internal sac without a trace of any structures.

Distribution. Canary Is. (Gran Canaria).

OTHER MATERIAL EXAMINED

CANARY IS.: 1m (SMTD).

Diplapion stolidum (GERMAR, 1817)

(figs 190, 192, 201-205, 252)

Apion stolidum GERMAR, 1817: 218.
Apion confluens: GYLLENHAL, 1827: 531, nec KIRBY, 1808.

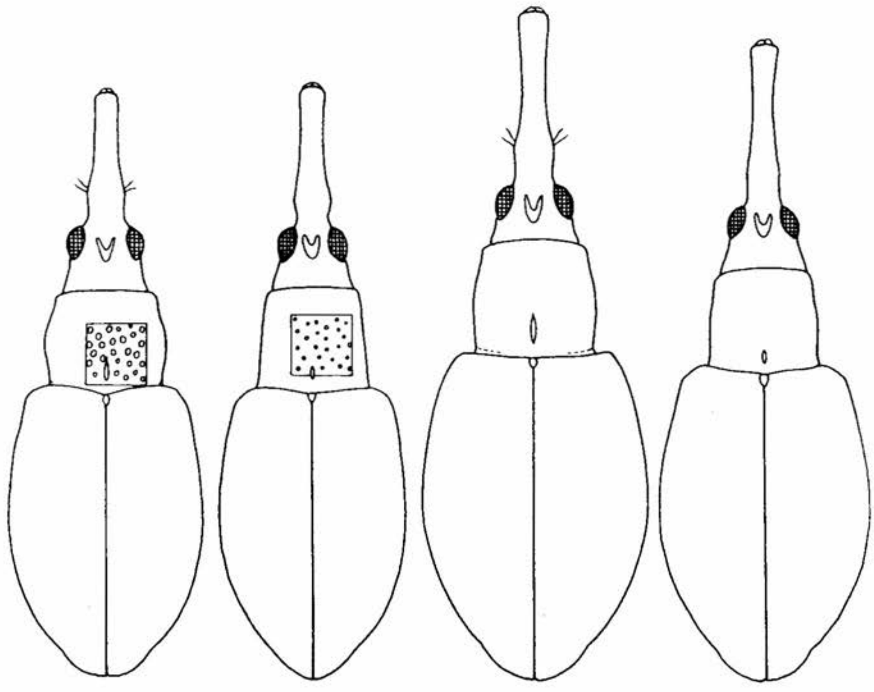
Literature: WALTON, 1844: 454; WENCKER, 1864: 139; BEDEL, 1887: 365; DESBROCHERS, [1894]: 119; SCHILSKY, 1901: no.25, 1906b: XIII; REITTER, 1916: 244; SAINTE-CLAIRE DEVILLE, 1924: 125; SCHATZMAYR, 1925: 72; HUSTACHE, 1931: 39; BALFOUR-BROWNE, 1944b: 152; GYÖRFFY, 1956: 5; HOFFMANN, 1958: 1505; SCHERF, 1964: 118; SMRECZYŃSKI, 1965: 46; CHROLINSKY, 1965: 108; SOLODOVNIKOVA, 1969:

291; SOLODOVNIKOVA & TALITSKIY, 1972: 787; IOANNISIANI, 1972: 266; TER-MINASSIAN, 1972: 799; KÖSTLIN, 1973: 83, 1985: 65; BAJTENOV, 1974: 278; ANGELOV, 1976: 64; DIECKMANN, 1977: 78; LOHSE, 1981: 153; EHRET, 1983: 131, 1990: 226; MORRIS, 1990: 46.

TYPE MATERIAL EXAMINED

Lectotype f: a)35052 Berolin. SCHÜPP. (historical coll. MNB) (present designation); paralectotypes: 4m 3f - data as in the lectotype (MNB), 1m: a)*Apion stolidum*, SCHUPPEL, h. in Germania bor. (coll. DEJEAN, IRB).

According to the letter information of Dr. L. DIECKMANN there are 8 specimens under the name of *A. stolidum* in the main part of GERMAR's collection preserved at the Halle Museum. Four of them represent the species commonly known as *D. confluens* (KBY.). The remaining are true *D. stolidum* but they are labelled "England" (3 exs) and "Chv." [CHEVROLAT] (1 ex.), thus being no type specimens. The series preserved at MNB examined by me consists of one specimen provided with a large square label "*stolidum* GERM., Berol., SCHÜPP.*" and a smaller one with the number 35052, and another seven specimens provided with minute green square



190 191 192 193

190-193. Body outline in dorsal view: 190 - *Diplapion stolidum*, male; 191 - *D. nitens*, male; 192 - *D. stolidum*, female; 193 - *D. nitens*, female labels. The specimens are undoubtedly the type series. All of them were examined by Dr. DIECKMANN in 60-ties and the specimens with green square provided with his handwritten labels "35052 Berolin. SCHÜPP". Among the type specimens only one female belongs to the species commonly known under the name of *A. stolidum* and it is designated here as the lectotype for the sake of stability of the nomenclature. The remaining seven specimens, including the one bearing the original head label, are *D. confluens* KBY. and have correct determination labels of Dr. DIECKMANN. The type specimen from DEJEAN's collection is *D. confluens* KBY. too.

DESCRIPTION

Length 1.80-2.30 mm. All body parts black; head, rostrum and pronotum alutaceous, elytra weakly shining (occasionally in Mediterranean specimens more strongly so). Vestiture fine, composed of greyish hair-like scales scarcely longer than half elytral interval width.

Indices. ***rl/pl:*** m: 1.22-1.32 (M 1.27), f: 1.27-1.82 (M 1.43); ***rl/msrw:*** m: 3.54-3.84, f: 3.86-4.92; ***scl/msrw:*** m: 0.79-0.90, f: 0.96-1.11; ***msrw/mtrw:*** 1.04-1.19; ***msrw/arw:*** 1.29-1.45; ***msrw/minrw:*** 1.32-1.53; ***msrw/eyl:*** 0.96-1.08; ***brl/eyl:*** m: 0.68-0.83 (M 0.76), f: 0.74-1.07 (M 0.88); ***eyl/hl:*** 0.54-0.75; ***hl/hw:*** m: 0.80-0.88 (M 0.86), f: 0.69-0.86 (M 0.76); ***mpw/hw:*** m: 1.49-1.57 (M 1.53), f: 1.54-1.74 (M 1.65); ***bpw/apw:*** 1.07-1.18; ***pl/mpw:*** 0.85-1.02; ***mew/mpw:*** 1.60-1.77; ***el/pl:*** m: 2.74-2.96 (M 2.86), f: 2.86-3.19 (M 2.97); ***el/mew:*** 1.52-1.76; ***mew/bew:*** 1.14-1.28; ***bew/mpw:*** 1.32-1.45; ***pft/msrw:*** 0.97-1.07; ***ptbl/pl:*** 0.98-1.24; ***ptbl/ptbmw:*** 4.53-5.80; ***ptsl/ptbl:*** 0.58-0.64.

Rostrum with strong microsculpture and fine, irregular puncturation, more distinctly curved in female, strongly variable in length and shape in profile; distal half of the prorostrum in male cylindrical, in female more or less distinctly dilated.

Antennal insertion at basal m: 0.18-0.23 (M 0.21), f: 0.17-0.20 (M 0.19) of rostrum; length/width of the scape m: 2.5, f: 3, first funicular segment m: 1.3-1.4, f: 1.5-1.6, the remaining sub-isodiametric in both sexes; club varying in shape, 1.8-2.5× longer than wide.

Eyes relatively small, variably convex, occasionally somewhat eccentrical; frons minutely punctate, with sulci as long as, or slightly shorter than the eye, usually confluent to about half length, but sometimes connected only with bases and thus shaped almost as in *D. confluens* (fig. 252); underside of head between eyes flat, in lateral view with a minute subocular tooth.

Pronotum with thick walls, rounded at sides; puncturation shallow but distinct, somewhat irregular, punctures larger than single ommatidium, at most 2 diameters apart, the interspaces flat, with strongly scale-like microsculpture making pronotal surface completely mat; prescutellar fovea narrow, variably long; pleural line distinct; prosternum nearly as long as the postcoxal part of prothorax.

Elytra varying in shape; intervals flat to weakly convex, at the base of elytra 1.5-2×, in the middle 2-2.5, only exceptionally 3 times wider than the striae, with strong, irregular microsculpture, variable and often consisting of transverse wrinkles; striae well impressed; specialized setae observed in few specimens.

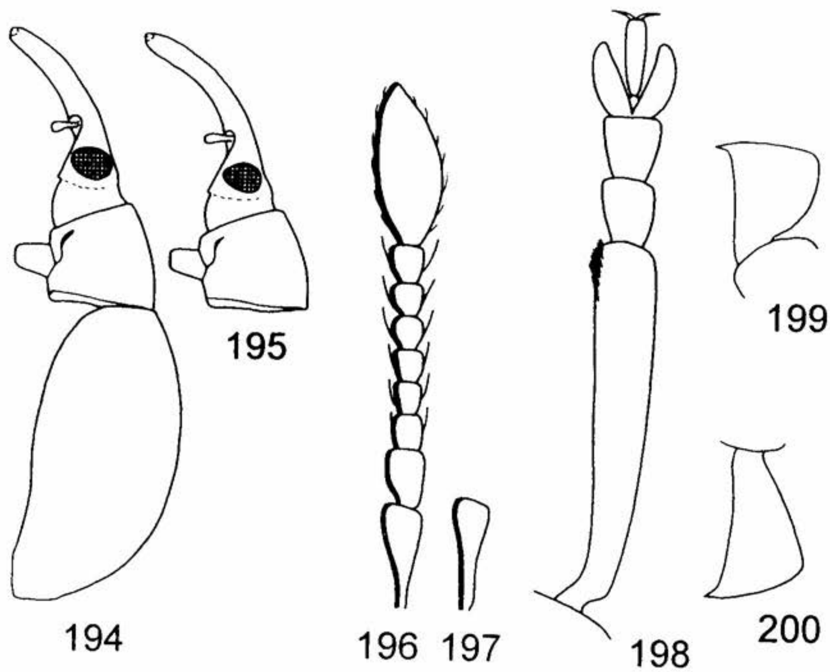
Legs not very slender; fore tibiae in male straight; tarsi relatively short, first two segments of the protarsus barely longer than wide, onychium exceeding third segment by 0.35-0.40 length; all male tarsi with the ventral spine minute, not longer than 0.2 of the basal tarsal segment's height and not protruding over the "sole" pubescence.

Metathoracic wings of normal length, their muscles well developed.

Tegminal plate short, subarticulated; parameroid lobes broad, notched to nearly basal 1/4; macrochaetae 4-6 long, confused, additional single, short macrochaeta close to inner margin of each lobe; lateral fold obscure; margins of the fenestrae not extended outwards; dorsal portion of ring broad, subequal to maximum fenestra length; prostegium shallowly indentate.

Median lobe of aedeagus broad, parallel-sided, in distal 1/3 gradually narrowed and broadly rounded at apex, in lateral view apically straight; internal sac completely bare.

Biology. Associated with *Leucanthemum vulgare* LAM., perhaps also with other plants of the tribus *Anthemideae* - adults are notoriously collected on *Matricaria chamomilla* L., *Tripleurospermum perforatum* (MÉRAT) WAGENITZ (= *T. inodorum*



194-200. *Diplapion nitens*: 194 - male body in lateral view; 195 - female head and pronotum in lateral view; 196 - male antenna; 197 - female antennal scape; 198 - male fore tibia (lateral view) and tarsus (dorsal view); 199 - male first protarsomere in profile; 200 - male first metatarsomere in profile

(L.) C.H. SCHULTZ), *Anthemis tinctoria* L. and/or *A. arvensis* L. Records on the larval development on some of these plants (URBAN, 1921, IHSSEN, 1954) possibly refer to *D. confluens* - both species were often confused. The larvae bore inside the rootstock and upper parts of roots.

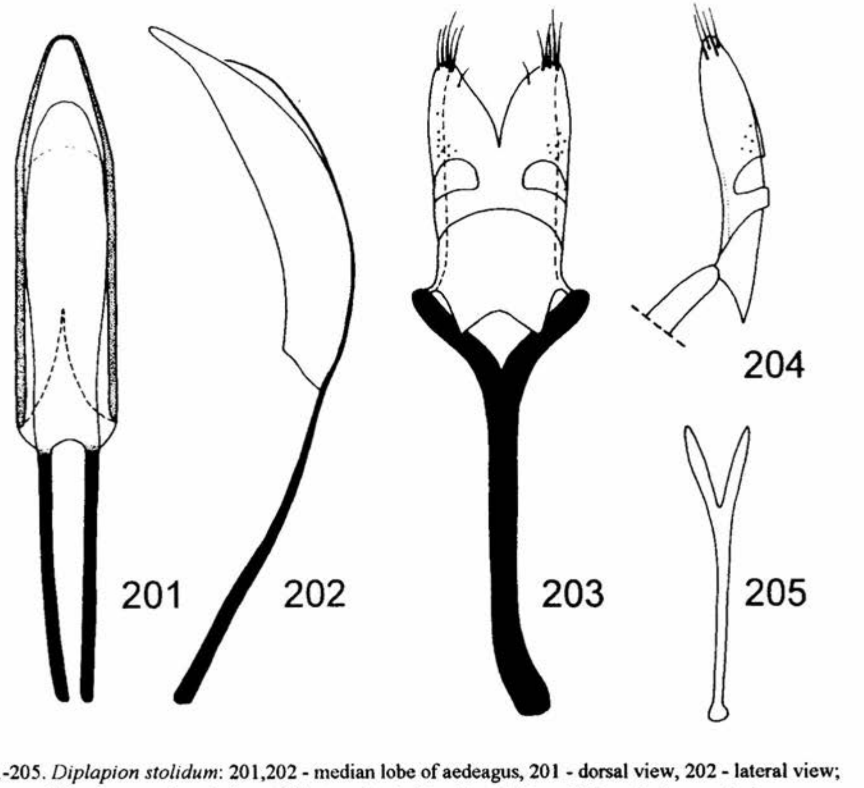
Distribution. Algeria, Spain, France (incl. Corsica), England, Wales, Scotland?, Ireland, Italy, Switzerland, Germany, Denmark, Norway, Sweden, Finland, Baltic countries, Poland, Byelorussia, Ukraine, Czech Rep., Slovakia, Austria, Hungary, Rumania, Moldova, Slovenia, Croatia, Bosnia, Herzegovina, Montenegro, Bulgaria, Greece, Cyprus, Russia (from Karelia to Ural Mts. and Dagestan), Armenia, Azerbaijan, Western Kazakhstan.

Recorded also from Morocco, which requires verification due to possible misidentification with *D. nitens*.

OTHER MATERIAL EXAMINED

ALGERIA: 3f, coll. DESBROCHERS (MHNG, DEI).

AUSTRIA: Mauthen; Steiermark: Umg. Graz; Bärndt; Umg. Wien; Mödling; Oberkrain; Kärnten: Villach; Seebach; Kumitzberg - 20 exs (IZW, FSF, HMNH, MCM, IRB).



201-205. *Diplapion stolidum*: 201,202 - median lobe of aedeagus, 201 - dorsal view, 202 - lateral view; 203 - tegmen, dorsal view; 204 - tegminal plate, lateral view; 205 - spiculum gastrale

BULGARIA: Dragalevcy, 1f, leg. Z. CMOLUCH (SS); Melnik, 27 VI 1979, 1 ex. (MM).

CROATIA: Istria: Sistiana, 2 exs (ITZA).

CZECH REP.: Lipno; Luzice; Trabice; Jeseniky Mts: Bela; Moravia: Lednice; Bilina - 8 exs (KS, HMNH, LM).

FINLAND: Aland [Ahvenanmaa] Is.: Finström, Palsböle; Eckerö; Esbo [Espoo]; Karislojo [Karjalohia]; Lojo [Lohja]; Vaaseni; Korpo [Korppoo]; Jaakkima; Valkjärvi; Nykyrka; Perna; Inga [Inkoo]; Ekenäs [Tammisaari]; Joutseno; Rautus; Kontschosero; Pargas; Padasjoki; Hattula; Helsinki - 36 exs (ZMH).

FRANCE: Corse, 2 exs (IRB); Isére: Saint Vallier; Hautes Alpes: Briançon; Bas-Rhin: Strasbourg; Haut-Rhin: Colmar; Losere: Mende; Yonne: Druyes; Coulanges; Allier; Calvados: Caen; Dubourgais; Foutenay le Marmion; Mouen; Percy; Fresnay; Pontenay; Mondeville; Jura: Dôle; Orne: Saint Praimbault; Hautes Pyr.: Montbourguet; Seine-Marit.: Rouen; Nord: Lille; Herault: Montpellier; Marne: Germain; Bazancourt; Ay; Saône-et-Loire: Macon; Ariege; Eure: Plainville; Loire Atlant.: La Bernerie; Haute Marne: Saint Michel; Indre-et-Loire; Alpes Marit.: Courmettés - 62 exs (MHNG, SMTD, MNB, IRB).

SPAIN: 1 ex. (HMNH).

GERMANY: Umg. Berlin, Schwarzenkrug; Mainz; Mainufer; Mittelfranken: Ansbach; Weimar: Buchfart; Werra, Wendehsn. b. Treffurt; Rhein: Gustavsburg; Rheintal: Neuenburg; Pfalz: Asselheim; Altrip; Ludwigshafen; Iggelbach; Ebernburg; Holstein: Eutin; Beutinerholz; Magdeburg; Harz: Thale; Blankenburg; Chemnitz; Leipzig; Dresden; Mark: Kalkberge n. Rüdersdorf; Thuringia: Kyffhäuser; Kaiserstohl; Hennenwiesen, Naumburg; Hainleite, Ahrendsburg; München - 131 ex. (FSF, SMTD, ITZA, SS, ZMUH, IZW, MNB).

HERZEGOVINA: Bjelasnica, 1901, 4 exs, coll. LEONHARD (DEI, HMNH, IZW).

HUNGARY: Ujpest; Mons Csovanyos; Bichar; Szokolya - 4 exs (SMTD).

ITALY: Piemonte: Varallo; Limone, 1000-1200 m; Lombardia: Milano; Lago di Como, Mte Bisbino; Veneto: Verona, Parolctto, S. Zeno di Montagna; Monte Baldo, Ferrara; V. Squaranto; Liguria: Genova; Orero; Voltaggio; Nervi; Rapallo; Monte Antola; Emilia-Romagna: Basinalbo; Friuli-Venezia Giulia: Mossa; Latisana; Staz. Carnia; Isonzo; Toscana: Panzano; Viareggio; Losa - 63 exs (FSF, SMTD, DEI, MCM, IRB, LM, GO).

LITHUANIA: Vilnius vic., 3 exs (SS).

MONTENEGRO: Pojana, 1 ex. (SMTD).

POLAND: Bellinchen a. O. [Bielinek], 1 ex. (FSF); Liegnitz [Legnica], 2 exs (IRB); Pomerania; Masurian Lake Region: Puszcza Borecka - Lipowo, Puszcza Augustowska - Rubcowo, Puszcza Piska - Szeroki Bór; Puszcza Białowieska (Bialowieza Forest); Lower Silesia: Wroclaw-Wojnów; Wyżyna Krakowsko-Wieluńska : Cracow; Wyżyna Małopolska : Pińczów, Łódź, Tuszynek n. Łódź, Miechów; Wyżyna Lubelska : Tarnogóra n. Izbica; Roztocze: Biała Góra n. Tomaszów Lub., Józefów Biłgorajski, Dziewcza Góra n. Niedzieliska; Kotlina Sandomierska (Sandomierz Bassin): Tarnów; Western Beskids: Rytro; Eastern Beskids: Łuczyce n. Przemyśl; Bieszczady Mts.; Pieniny Mts. - 112 exs (IZW, SS, MW).

RUMANIA: Bukarest, 21 V 1939, 9 exs, leg. P. H. LINDBERG (ZMH); Banat, 2 exs, leg. REITTER (ITZA).

RUSSIA: Samara [Kuybyshev], 2 exs; Dagestan: Derbent, 1m (SMTD); Ural: Chelabinskaya obl.: Il'menskij gosudarstv. zapovednik, 6 IX 1981, 7 VI 1984, 18 VIII 1984 - 3 exs, leg. A. LAGUNOV; Kostromskaya obl.: Manturovskij r-n: Shilovo, 21 VII 1981, 1 ex.; Ugory, 27 V 1984, 1 ex. - leg. E. M. VESELOVA (VZ); Karelia: Ksv. Vaaseni, 30 X 1942, 1 ex., leg. V. KARVONEN (NRS); Petersburg, 1 ex. (MNB).

SLOVENIA: Postoina, Wiese, 16 VIII 1958, 1 ex., leg. ENDRÖDY-YOUNGA (HMNH).

SWEDEN: 2 exs (SMTD); Skånia: Rörum; Uppland: Fiby urskog, Vänge; Vassunda, Tursbo; Öland: Vickleby; Bohus: Koster - 8 exs (NRS, ZMH).

SWITZERLAND: Unter-Engadin, Zernez, 1400 m; Münstertal, Santa Maria, 1400 m - 2 exs (ZMH).

UKRAINE: Podolia: 5 exs (SS); Bukovina: Czernowitz [Tschernovtsy]; Banilla - 7 exs (SMTD).

Diplapion nitens (SCHILSKY, 1901)

(figs 191, 193-200)

Apion (*Ceratapion*) *nitens* SCHILSKY, 1901: no.24.

Literature: SCHILSKY, 1906b: XII, CXVI; PEYERIMHOFF, 1926: 381; SCHATZMAYR, 1933: 170; NORMAND, 1937: 236; DIECKMANN, 1977: 78.

TYPE MATERIAL EXAMINED

Lectotype f: a)Kabylia, Ancey, b)f, c)Typus, d)**nitens* SCHILS. (coll. SCHILSKY, MNB) (present designation); paralectotype f - data as in the lectotype (coll. v. HEYDEN, DEI).

DESCRIPTION

Body length 1.90-2.43 mm. Head, pronotum and elytra distinctly shining. Vestiture usually much finer than in *D. stolidum*.

Indices. ***rl/pl:*** m: 1.30-1.43, f: 1.38-1.67; ***rl/msrw:*** m: 3.71-3.89, f: 4.58-5.52; ***scl/msrw:*** m: 0.79-0.86, f: 0.96-1.09; ***msrw/mtrw:*** 1.04-1.18; ***msrw/arw:*** m: 1.45-1.47, f: 1.22-1.45; ***msrw/minrw:*** m: 1.45-1.53, f: 1.29-1.45; ***msrw/eyl:*** m: 0.97-1.07, f: 0.93-0.97; ***brl/eyl:*** 0.69-0.93; ***eyl/hl:*** 0.55-0.78; ***hl/hw:*** 0.67-0.89; ***mpw/hw:*** 1.43-1.63; ***bpw/apw:*** 1.07-1.30; ***pl/mpw:*** 0.86-1.02; ***mew/mpw:*** 1.70-1.96; ***el/pl:*** 2.86-3.36; ***el/mew:*** 1.45-1.67; ***mew/bew:*** 1.20-1.28; ***bew/mpw:*** 1.39-1.57; ***pft/msrw:*** m: 0.96-1.00, f: 1.00-1.07; ***ptbl/pl:*** 1.00-1.16; ***ptbl/ptbmw:*** m: 5.73-6.00, f: 5.00-5.65; ***ptsl/ptbl:*** 0.58-0.67.

Body less robust than in the previous species.

Pronotum weakly narrowed anterad, with straight sides, its walls weakly thickened; puncturation superficial, sometimes nearly vanishing, punctures smaller than single ommatidium, regular in size, 3-5 diameters apart, the interspaces always flat, microreticulate, in some specimens very densely so, making pronotal surface weakly shiny; prescutellar fovea much wider than the punctures.

Elytral intervals flat, in basal part at least 2×, in the middle not less than 2.5× wider than the striae, weakly microsculptured especially in the middle of elytral disc; striae weakly impressed; specialized setae not observed.

The remaining external characters, as well as the genital structures, as in *D. stolidum*.

Biology. In Algeria collected on *Anthemis pedunculata* Desf. and *A. tuberculata* Boiss.

Distribution. Tunisia, Algeria, Morocco*, Southern Spain*, Italy (Sicilia)*.

Other material examined

ALGERIA: 1f (det. as v. *subsquamiferum* by Wagner) (MNB), 1f (MHNG), 1 ex. (ITZA), 1 ex. (IRB), 1f (ZMH); Oran, 1m (FSF); Alger, 1m (FSF), 1f (det. as *detritum* by Desbrochers) (NRS), 1 ex. (MNHP), 11 VI 1935, 1f, coll. A. Schatzmayr (MCM); Constantine, 1f (HMNH), El Meridj, 5 X 71, 2m 1f, leg. Constantin (SMNS); Blidah [Blida], 1m 3f, coll. Tournier (MHNG); Sebdou, 1 ex., coll. Desbrochers (MNHP); Kabylie: 1 ex. (IRB); Djebel Bou-Berak, 2 exs (SMTD), 1m (DEI), 350 m, 19 V 1988, 1f, leg. Burckhardt, Besuchet & Löbl (MHNG); Teniet-el-Had, 1 ex., leg. L. Bedel (IRB); Djurdjura Mts, Tikida, 1500 m, 26 VI 1987, 1m; Setif, 27 XII 1985, 1m 3f, 24 III 1987, 1f; Amouchas, 800 m, 20 VI 1986, 1m 1f; Jijel: Ziama, 50 m, 13 VI 1986, 2f - leg. A. Warchałowski (DEI, LD, MW), Laverdure, 7 X 1929, 1f, 9 X 1929, 1f (det. as *detritum subsquamiferum*), coll. A. Schatzmayr (MCM); Guelma, S Annaba, 4 IV 1985, 1f, leg. M. Bergeal (DEI); Hammmam-Meskoutine [ca 25 km W Guelma], 1886, 2 exs (det. as *roelofsi* Ev.), coll. Sédillot (MNHP).

ITALY: Sicilia, Dint. Palermo, IV 11, 2f, leg. Anguis (MCR).

MOROCCO: 1f (FSF), 1 ex. (ZMH), 1m 1f (det. as v. *subsquamiferum* by Wagner) (HMNH), 1m 1f (IZW), 1m (det. as *detritum* ssp. *subsquamiferum* = *nitens* by Wagner) (SS); Dra el Mizan [Draa el Mizane n. Guercif], leg. Ancey, 1m 1f (MNB), 1f (DEI); Atlas med.: Ras el Ma, 24-29 VI 1926, 1f; Azrou, 24 VI-2 VII 1926, 2f - leg. Lindberg (ZMH).

SPAIN: Málaga: Estepona, 24-26 VII 1969, 1m, leg. A. Senglet (MHNG); Cadiz: S. M. del Tesorillo, X 1965, 1m, leg. Ferrer Andreu (AZ).

TUNISIA: 2m (FSF), 1m (det. as *detritum* v. *ragusae* by Desbrochers, and as *stolidum* by Dieckmann) (DEI), 1 ex. (MNHP), 1f (HMNH); Le Kef, leg. Normand, 3f (FSF), 1m (MHNG), 1f (SMTD), 2f (det. as *detritum* ssp. *subsquamiferum* by Györffy) (HMNH); Teboursouk, 3m 1f (FSF), 1m 3f (NMW), 2m 1f (det. as *detritum* ssp. *subsquamiferum* by Wagner) (DEI); Ain Draham, 1m, leg. B. v. Bodemeyer (SMTD), 14 V 29, 1 ex. (IRB); Souk-el-Arba, 2 exs, coll. Reitter (ITZA); Sousse, 17-29 V 1969, 1m, leg. T. Palm (MZL).

Diplapion confluens **(KIRBY, 1808)**

(figs 206-216, 253)

Apion confluens KIRBY, 1808: 62.
Apion roelofsi EVERTS, 1879: 58.
Apion confluens var. *asiaticum* DESBROCHERS, [1894]: 120.
Apion inapertum DESBROCHERS, [1897]: 13, **syn. nov.**
Apion stolidum: GYLLENHAL, 1827: 532, nec GERMAR, 1817.

Literature: WALTON, 1844: 454; WENCKER, 1864: 140; BEDEL, 1887: 365; DESBROCHERS, [1894]: 119; SCHILSKY, 1901: no.26, 1906b: XII; REITTER, 1916: 244; SAINTE-CLAIRE DEVILLE, 1924: 125; SCHATZMAYR, 1925: 71; HUSTACHE, 1931: 40; NORMAND, 1937: 236; WAGNER, 1941: 52; GYÖRFFY, 1956: 5; HOFFMANN, 1958: 1506; SMRECZYŃSKI, 1965: 46; CHROLINSKY, 1965: 108; KISSINGER, 1968: 293, figs j-l (*stolidum*); SOLODOVNIKOVA & TALITSKIY, 1972: 787; KÖSTLIN, 1973: 82, 1985: 65; BAJTENOV, 1974: 278; ANGELOV, 1976: 65; DIECKMANN, 1977: 78; LOHSE, 1981: 153; ALONSO-ZARAZAGA, 1981: 72; EHRET, 1983: 130, 1990: 226; MORRIS, 1990: 46; MATUSEVICH, 1991: 184.

TYPE MATERIAL EXAMINED

A. inapertum **DBR.** Lectotype m: a)Perse sept., b)Ex Musaeo DESBROCHERS 1914, c)nouv. prepar. BAJTENOV (coll. DESBROCHERS, MNHP) (present designation). In the original description DESBROCHERS mentions "Arménie russe" as terra typica, but in the catalogue included in the same paper (p. 38) the statement under *A. inapertum* is "Perse occident.". The specimen belongs to the "short rostrum" form (see remarks below).

Holotype f *A. confluens* KBY., labelled a)44, b)119, c)KIRBY, d)Holotype, represents the species commonly known under this name and is preserved in KIRBY's coll. at BMNH (ALONSO-ZARAZAGA, pers. comm.).

Both the head label "var. *asiaticum*" and specimens named so are missing in DESBROCHERS collection preserved at MNHP, as well as in the collection of PIOCHARD DE LA BRÛLERIE, who was the collector. The variety was described from "Syrie, Jéricho" and superficially compared by DESBROCHERS to *A. confluens*. Among the series of the latter there are a male and a female labelled "Syrie" in DESBROCHERS collection, and both of them have rostrum shorter than the European specimens. However, the four Syrian specimens in the collection of P. DE LA BRÛLERIE coming from "Damas" are closer to European ones in respect of rostrum length.

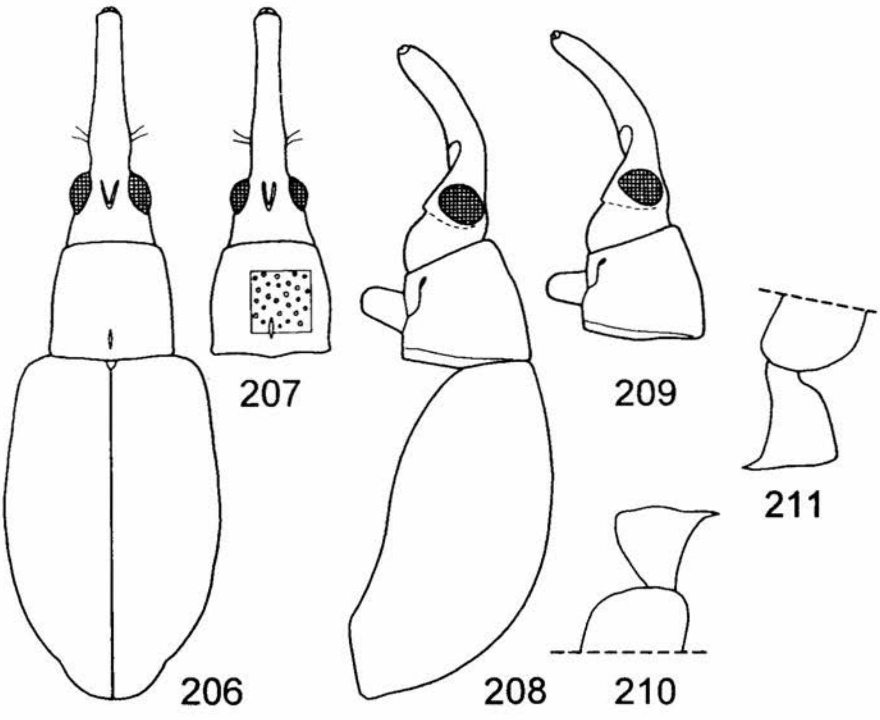
Holotype of *A. roelofsi* EV. (Limbourg Néerlandais: Valkenburg, VI, leg. ROELOFS) has not been found.

DESCRIPTION

Body 2.0-2.5 mm long, entirely black. Pronotum dull to weakly shining; elytra in the Central European specimens predominantly with slight sheen, in the Mediterranean region mostly well polished. Vestiture fine, hair-like scales white or greyish, as long as about 2/3 elytral interval width.

Indices. ***rl/pl:*** m: 1.12-1.51, f: 1.20-1.57; ***rl/msrw:*** m: 3.10-3.73, f: 3.89-5.13; ***scl/msrw:*** m: 0.72-0.91, f: 0.82-1.08; ***msrw/mtrw:*** 1.04-1.21; ***msrw/arw:*** m: 1.40-1.60, f: 1.26-1.50; ***msrw/minrw:*** m: 1.40-1.63, f: 1.32-1.58; ***msrw/eyl:*** m: 0.90-1.07, f: 0.89-1.07; ***brl/eyl:*** 0.62-0.86; ***eyl/hl:*** 0.54-0.68; ***hl/hw:*** 0.70-0.88; ***mpw/hw:*** 1.41-1.66; ***bpw/apw:*** 1.13-1.24; ***pl/mpw:*** 0.85-1.06; ***mew/mpw:*** 1.72-1.93; ***el/pl:*** 2.96-3.49; ***el/mew:*** 1.58-1.77; ***mew/bew:*** 1.17-1.29; ***bew/mpw:*** 1.40-1.61; ***pft/msrw:*** 0.91-1.14; ***ptbl/pl:*** 1.01-1.15; ***ptbl/ptbmw:*** 5.35-6.13; ***ptsl/ptbl:*** 0.56-0.66.

Rostrum relatively short, more or less bent in basal part, then almost straight, in male somewhat subulate, angled at antennal insertion, with prorostrum at least in proximal 1/2 distinctly narrowed, then cylindrical; female rostrum usually parallel-sided from base to antennal insertion, with prorostrum gradually narrowed anterad to about its middle, in apical half cylindrical or weakly widened, mesorostrum seldom slightly, obtusely expanded; rostrum surface shagreened to more or less shining, variably sculptured.



206-211. *Diplapion confluens*: 206 - male body in dorsal view; 207 - female head and pronotum in dorsal view; 208 - male body in lateral view; 209 - female head and pronotum in lateral view; 210 - male first protarsomere in profile; 211 - male first metatarsomere in profile

Antennal insertion at basal m: 0.18-0.22, f: 0.17-0.19 of rostrum; breadth and proportions of the antennal segments similar as in *D. stolidum,* equally variable.

Eyes distinctly convex, rarely somewhat subconical; frons with sulci 0.7-1 as long as the eye, narrow, V-like, separate on at least 2/3 length, not, or obsoletly broadened at basal junction; underside of the head with interocular area flat, subocular tooth present in profile.

Pronotum small compared to elytra, usually straight at sides and weakly narrowed anterad, seldom slightly rounded at sides; puncturation shallow but distinct, punctures of an ommatidium size or slightly larger, mostly one diameter apart, interspaces of the punctures flat, microreticulate; prescutellar fovea fine, short; pleural line distinct.

Elytra elongate, oval, weakly convex, often slightly flattened between the base and middle of the disc; intervals flat, sub-basally twice, in the middle 3× wider than the striae; striae shallow, with well visible scales; specialized setae rarely present.

Male protibiae straight throughout; tarsal proportions variable, protarsus with the second segment 1-1.3 as long as broad, onychium exceeding the third one by 0.3-0.4 length; all male tarsi with the ventral spines similar in size, as long as 0.3-0.4 basal tarsal segment height, slightly projecting over the "sole" pubescence.

Wings normally long, their muscles reduced in some examined specimens.

Tegminal plate shallowly incised apically; macrochaetae numerous (12-15), confused; fenestrae very small, transverse, laterally closed very far from the outer plate margin; dorsal portion of ring narrow; lateral fold indistinct, long; posterior projections of the prostegium short and broad.

Median lobe of aedeagus broad, parallel-sided, apically subtruncate, with apex of the dorsal plate unusually narrowed and pointed, running into a shallow longitudinal furrow on the ventral plate; internal sac unarmed, distinctly folded in the orifice and forming complicated, more or less constant pattern.

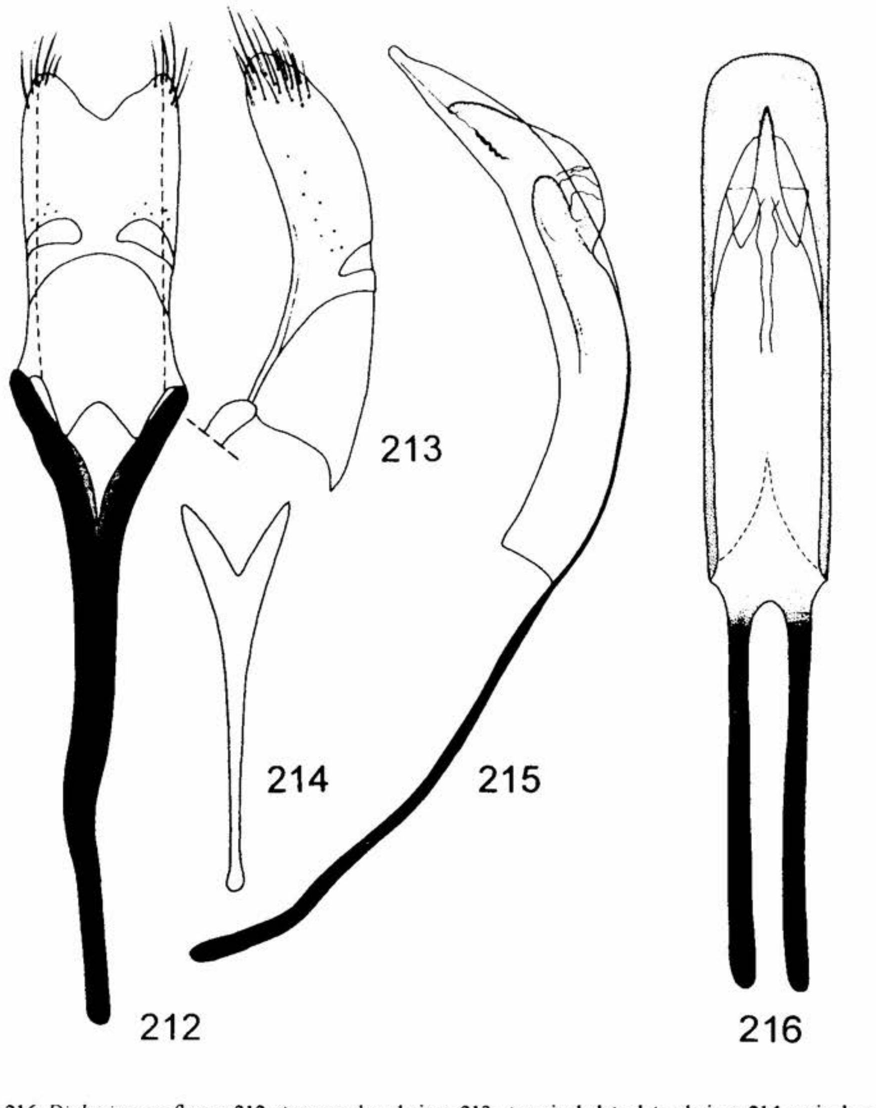
Spiculum gastrale variable, the fork often somewhat plate-like.

Biology. The larvae found on *Matricaria chamomilla* L., *Tripleurospermum perforatum* (Mérat) Wagenitz (= *T. inodorum* (L.) C.H. Schultz), and *Anthemis arvensis* L., feeding in lower parts of stem and in rootstock, often causing weak thickenings.

Distribution. Tunisia, Algeria*, Spain, France (incl. Corsica), The Netherlands, England, Wales, Scotland, Italy (incl. Sicilia & Sardinia), Switzerland, Germany, Denmark, Norway, Sweden, Finland, Lithuania, Poland, Byelorussia, Ukraine, Czech Rep., Slovakia, Austria, Hungary, Rumania, Moldova, Croatia, Serbia, Macedonia, Albania, Bulgaria, Greece, Cyprus, Turkey, Syria, Israel, Jordan, Iran, Armenia, Azerbaijan, Georgia, Russia (European part, north to Karelia), Western Kazakhstan.

Remarks

The specimens from Eastern Mediterranean region (var. *asiaticum* Dbr.) are distinct in some external characters, and especially in those from Iran the differences are statistically significant. The rostrum is shorter [in square parentheses the respective values for European specimens are given] ***rl/pl:*** m: 1.12-1.25 [1.19-1.51], M=1.21 [1.28]; f: 1.20-1.48 [1.35-1.57], M=1.33 [1.46]; ***rl/msrw:*** f: 3.89-4.49 [4.33-5.13]; M=4.14 [4.64]), eyes smaller (***msrw/eyl:*** m: 0.90-1.03 [1.03-1.07], M=0.97 [1.05]; f: 0.93-1.07 [0.89-1.00]), female mesorostrum broader and antennal scape shorter (***scl/msrw:*** f: 0.82-0.90 [0.96-1.08], M=0.86 [1.00]). The differences are more obscure but present in the specimens from Armenia and Syria. Also in the



212-216. *Diplapion confluens*: 212 - tegmen, dorsal view; 213 - tegminal plate, lateral view; 214 - spiculum gastrale; 215,216 - median lobe of aedeagus, 215 - lateral view, 216 - dorsal view whole Anatolia and Cyprus the "short rostral" form prevails in the material, but often is accompanied by specimens that are intermediate and/or not distinct from the European specimens. The variability is not incontinuous and the differences are not strong enough, to sufficiently support the subspecific status of the eastern form.

OTHER MATERIAL EXAMINED

Caucasus: (orient.), 1 ex. (IZW).

ALBANIA: Tirana, 1f, leg. LONA & ROVASINI (MCM); Ipek, 2 exs; Kula Lums, 1 ex. - leg. CSIKI (HMNH).

ALGERIA: Oran, 1 ex. (IRB); Cherchell, 15 VI 1955, 1m, leg. W. LIEBMANN (SMNS).

ARMENIA: 6 exs, leg. LEDER & REITTER (HMNH).

AUSTRIA: Wien; Mödling; Münchendorf - 5 exs (HMNH, ITZA, ZSM).

AZERBAIJAN: Araxesthal [Aras Valley], 1f, leg. LEDER & REITTER (HMNH).

BULGARIA: Rhodope, 1 VII 1928, 8 exs, leg. J. FODOR (HMNH); Sofia, 3 exs (MNB); Varna, 10 exs (IZW, MNB, SS), 16 VI 1956, 2 exs, leg. BALOGH; Rila Mts, IX 1928, 1 ex., leg. BIRÓ (HMNH); Sandanski, 6 exs (IZW, MM), 5-10 VI 1976, 4 exs, leg. K. MAJER (KS), 24 VI 1979, 3 exs, 2 VII 1979, 2 exs; Melnik, 27 VI 1979, 1 ex. (MM); Sozopol, 16 VIII 1971, 7 exs, leg. M. UHLIG (MNB), 15 VII 1976, 1 ex., leg. E. BARANIAK (PS). Arkutino, 24 VI 1984, 1 ex.; Sliven, 29 VI 1984, 2 exs - leg. KADLEC & VORISEK; Slancev Brjag, 1 VI 1964, 1 ex., leg. J. STREJČEK, 1-10 VII 1983, 4 exs, leg. P. TYRNER (KS); Nessebar, VI, IX 1965, 30 exs, leg. T. PALM (MZL), 20 VI-6 VII 1965, 8 exs, leg. K. ERMISCH (MNB); Trevna, V-VI 1912, 1 ex., leg. M. HILF; Sredna Gora, aquae Chissar, 29 VI 1969, 1 ex., leg. A. WARCHAŁOWSKI (DEI); Zitarovo, 7 exs; Kiten, 3 exs - leg. Z. CMOLUCH (SS).

CROATIA: Istria: Pola [Pula], 26 IX 1919, 2 exs, coll. SCHATZMAYR (MCM).

CYPRUS: 2 exs, leg. BAUDI (DEI); Perivolia, 29 VI 1939, 1 ex., leg. H. LINDBERG (ZMH).

CZECH REP.: Vysocany n. Chomutov; Bilina; Moravia: Brno - 9 exs (MCM, KS, HMNH, LM).

ENGLAND: Cumbria: Maryport; Nr. St. Bees; Jersey Is. (Golfe de St. Malo) - 5 exs (AZ, IRB).

FINLAND: Aland [Ahvenanmaa] Is.: Eckerö Torp, 1 ex. (ZMH).

FRANCE: 3 exs (DEI); Corse: Pont d'Acorane, Sartene; Olmo; Ajaccio - 7 exs (MHNG, MNB, IRB); Hyeres; Camargue; Drôme: Grignan; Herault: Les Stes. Maries; Montpellier; Allier: Lavoine; Alpes de Haute Provence: Digne; Hautes Pyr.: Tarbes; Calvados; Savoie; Seine-Marit.: Rouen; Var: Hyeres; Saône-et-Loire: Macon - 31 ex. (MHNG, SMNS, ZMH, ZSM, DEI, IRB).

GEORGIA: Abkhasia: Gadauta, 30 VI 1986, 1 ex., leg. B. ZVARIC (KS).

GERMANY: Mark: Gr. Machnow; Frankfurt a. Oder; Grainberg; Württemberg., Waldstetten; Schönau b. Leipzig; Prödel; Walzenwehr; Harz: Thale; Naumburg, Scheiplitzer Teiche; Leissling; Wurzburg; Hannover - 21 ex. (PS, FSF, IZW, MNB, ITZA, ZSM).

GREECE: 3 exs (MNB); Crete: 6 exs (SMTD, SMNS, MNB, DEI); Knossos, 1934, 1 ex., leg. BARTON (HMNH); Chania, Strati/Paleochôra, 3 VIII 1970, 4 exs; Iraklion, Charakas, 24 VII 1970, 1 ex. -leg. A. SENGLET (MHNG); Cycladen [Kiklades], 2 exs (SMTD); Naxos, Chalkis, 27-30 VI 1968, 19 exs, leg. A. SENGLET (MHNG); Sporades Ils: Skantzourg, 6 VI 1981, 2m 1f, leg. LIEBEGOTT (FSF); Karpathos, 1 ex., leg. v. OERTZEN (MNB); Rhodos Is.: Epta Pigai, 17 V 1983, 1 ex., leg. R. DANIELSSON (MZL); Kefalinia: 7 exs (SMTD, SMNS, HMNH); Avythos, 1908, 4 exs, leg. HILF (SMTD, MCM); Argostoli, 1908, 2 exs, leg. M. HILF (DEI); Lesvos Is.: Mythilini [Mitilini], 29 IX-19 X 1987, 1f, leg. M. BONESS (SMNS); Corfu [Kérkira], 5 exs, leg. PAGANETTI (ITZA, SMNS, HMNH); Santorin Is.: Merovigei, 4 V 1979, 1 ex., leg. H. SCHMALFUSS (MZL); Peloponnisos: Navplion, 1 ex. (ZSM); Argolis, 14 V 1960, 1 ex., leg. N. GYLLENSVÄRD (MZL); N. Evvoias: Nea Artaki, 8 IX 1982, 1 ex., leg. A. SETTE (GO); Athine, 1 ex. (ITZA); Athine-Skaramanga, 27-30 V 1939, 1 ex.; Pendeli, 24 V 1939, 2 exs - leg. P. H. LINDBERG (ZMH); Thessalia: Volo, 1 ex., leg. A. COMELLINI (MHNG); Saloniki [Thessaloniki], 24 exs (MCM, ZSM, SMTD, MNB, DEI), 13-18 V 1968, 1 ex., leg. A. SENGLET (MHNG); Mesolongion, 1 ex. (SMTD).

HUNGARY: Neusiedler See; Budapest; Ujpest; Isaszeghi; Debrecen - 21 ex. (SMTD, MNB, SS).

IRAN: Lorestan: Ma'amulan, 33 20'N/47 54'E, 6 VIII 1973, 1m; Aligudarz, 33 21'N/49 48'E, 7 VIII 1973, 1 ex.; Bakhtiyari: Dimeh, 32 29'N/50 16'E, 8 VIII 1973, 3 exs; Farsan, 32 17'N/50 31'E, 11 VIII 1973, 1m; Esfahan: Nowghan, 33 14'N/49 59'E, 7 VIII 1973, 1f; Tehran: Polour, 2300 m, 35 51'N/52 04'E, 17 VII 1973, 3 exs; Ilam: Tchaharmelleh, 33°57'N/46°17'E, 28 VI 1974, 1f; Kordestan: E Marivan, 35°32'N/46°20'E, 16 IX 1975, 1m - leg. A. SENGLET (MHNG).

ISRAEL: Jaffa [Yafo], 1f, leg. SIMON (DEI); Tiberiade, 1 ex. (IRB).

ITALY: Sicilia: 10 exs (SMTD, ZSM, FSF, ZMC, MNB); Madonie; Nicolosi - 2 exs (DEI); Sardinia: 3 exs (SMTD); Assuni; Nuoro, Siniscola; M. Albo; Oristano; S. Giorgio; S. Teresa; Alghero; Sorgano; Aritzo - 55 exs (ITZA, AZ, MCM, MNB, HMNH, MZL, DEI); Guarda [Lago di Garda]; Lombardia: Milano; Toscana: Capraia, Porto; Arezzo, Pergine; Guazzino; Lazio: Roma; Camerata Nuova; Marche: S. Giorgio; Abruzzi: Castel di Sangro; Puglia: Brindisi; Manduria, S. Pietro; Lecce, S. Cetaldo; Monte Gargano; Calabria: Santa Eufemia d'Aspromonte; Christiana; Gambarie; Bagaladi; Praia a Mare; Basilicata: Lago Pantano di Pignola - 25 exs (MCM, SMNS, HMNH, ZMC, LM, GO, FA, ZSM, ZMUH, DEI).

JORDAN: Wadi Sir, 600 m, 8 VI 1956, 4 exs, leg. J. KLAPPERICH (HMNH, ZMUH).

SYRIA: "Ledikiye, N. Syrien", 1 ex., coll. F. KESSEL (IZW).

MACEDONIA: Vardar, 38 exs (MCM, SMTD, MNB, ZMH, HMNH, DEI); Magarevo, 25 VII 1936, 1 ex.; Ohrid, 7 VII 1936, 1 ex. - leg. J. FODOR (HMNH).

POLAND: Pomerania; Silesia; Nizina Wielkopolsko-Kujawska: Ciechocinek, Łęczyca; Nizina Mazowiecka (Mazovian Lowland): Warszawa, Czosnów, Dembe Wielkie, Pyry, Kaczy Dół, Nowosady; Puszcza Białowieska (Bialowieza Forest);

Wyżyna Krakowsko-Wieluńska: Cracow; Wyżyna Małopolska: Rogów n. Koluszki, Łódź, Miechów vic.; Góry Świętokrzyskie Mts.; Roztocze: Radecznica; Eastern Beskids: Tuchów; Pieniny Mts.: Krościenko - 53 exs (IZW, SS, HMNH, MW).

RUMANIA: Transsylvania, 4 exs; Banat, 4 exs (SMTD); Craiova, 1 ex. (IZW).

SERBIA: Kosovo: Mitrovica, 1918, 1 ex., leg. Csiki (HMNH).

SLOVAKIA: Sturovo, 1 ex. (KS).

SPAIN: 1 ex. (ZMUH); I. de Mallorca: Bunola, 1 ex., coll. Tenenbaum (IZW); Escorial, 8 exs; Madrid, 1 ex.; Avila, 1 ex. - leg. Lauffer (MNB); Carril Forestal, Soportojer, 1700 m, 29 VI 1983, 2 exs; Granada: Sierra Nevada, Vde. La Estrella, 28 VI 1983, 2 exs; El Chercón, 1200 m, 10 VII 1982, 2 exs - leg. Alonso-Zarazaga; La Laguna, El Padul, 12 XI 1978, 2 exs, leg. M. Avila (AZ); Baza, 17 VI 1960, 1 ex., leg. Sattler-Remane (ZSM); Pinos Genil, 3 VI 1967, 1f, leg. F. Heller (SMNS); Jaén: 2 exs (ZSM); Bco. Bas. Alhori, 8 VII 1982, 1 ex. (AZ); Huelva: La Rabida, 2 exs; Sierra de Guadarrama: Cercedilla, IX 1912, 1 ex. (SMTD); Almeria: Salinas de Cerillos, 1 ex. - leg. B. Malkin (IZW); Sar de las Estancias, SW Rubio, 1500-1800 m, 5 V 1985, 1f, leg. A. Warchałowski (LD); Ciudad Real, 10 VIII 1969, 1 ex., leg. A. Senglet (MHNG); Segovia: San Ildefonso, 1 ex. (SMTD); Córdoba, 2 exs, coll. Kraatz (DEI).

SWEDEN: Skånia: Ven; Särö; Skövde - 3 exs (ZMH).

SWITZERLAND: 1 ex. (SMTD).

TURKEY: Anatolia, 2 exs (IRB); Akbes [Ekbes], 1891, 1m (IRB); Smyrna [Izmir], 1f (det. as *stolidum* var. *asiaticum* by Wagner), leg. J. Sahlberg (ZMH), 1 ex. (MNB); Tekirdag, 27 VI 1987, 1 ex.; vil. Edirne: Kesan, 5 VII 1987, 1 ex.; Istanbul, 2 exs (DEI), V 1914, 31 ex., leg. Biró (HMNH); vil. Istanbul: Catalca, 14 IX 1988, 1f - leg. E. Baraniak (PS); vil. Giresun: Qulaucak, 17 VII 1975, 1 ex.; Bulancak, 17 VII 1975, 2 exs; Adapazari, 25 VI 1969, 2 exs; vil. Ordu: Gurgentepe gec., 9 VI 1969, 2 exs; vil. Manisa: Boz Dag, 1500 m, VII 1973, 1 ex.; vil. Bolu: Abant, 1000 m, 21 VI 1975, 1 ex.; vil. Erzurum: Askale, 1800 m, 11 VII 1971, 1 ex.; vil. Van: Erçis, 1800 m, 3 VII 1971, 1 ex.; vil. Niksar: Ardicli, 7 VI 1969, 1 ex. - leg. G. Osella; vil. Edirne: Uzkoköpru, 27 VI 1973, 1 ex., leg. M. & G. Osella (GO); vil. Balikesir: Gönen, 25 VI 1962, 1 ex., leg. K. Wellschmied (ZMUH).

UKRAINE: Podolia: Zaleszczyki; Obiżowa; Radecznica; Lesieczniki; Sinków; Mielnica; Dźwinogród - 10 exs (IZW); Bukovina, 2 exs (SMTD).

Diplapion detritum (Mulsant & Rey, 1858)

(figs 217-226, 238-242, 255)

Apion detritum Mulsant & Rey, 1858: 261.
Apion detritum Mulsant & Rey, 1859: 3.
Apion ragusae Everts, 1879: 58.
Apion viridicoeruleum Everts, 1879: 59, pl.5c.
Apion confluens var. *crenulatum* Desbrochers, [1894]: 120, **syn. nov.**
Apion subcrenulatum Desbrochers, [1900-01]: 79.
Apion (Ceratapion) catenulatum Wagner, 1910b: 944.

Apion (Ceratapion) catenulatum var. *rumaniacum* WAGNER, 1910b: 944.
Apion rumacianum [sic!]: EHRET, 1990: 226.

Literature: WENCKER, 1864: 139; DESBROCHERS, 1891: 323, 1893: 81 (*viridicoeruleum, ragusae*), [1894]: 117, [1898]: 35, 1908: 97 (*subcrenulatum*); SCHILSKY, 1901: no.23, 1906b: XII; WAGNER [1915]: 29 (*catenulatum, rumaniacum*), 32 (*ragusae*); REITTER, 1916: 244; PEYERIMHOFF, 1920: 245, 1926: 381; SCHATZMAYR, 1925: 69; HUSTACHE, 1931: 40; NERESHEIMER & WAGNER, 1935: 164, 1942: 164; NORMAND, 1937: 236; BALFOUR-BROWNE, 1944b: 152; IHSSEN, 1954: 240; GYÖRFFY, 1956: 4; HOFFMANN, 1958: 1506; SMRECZYŃSKI, 1965: 46; HANSEN, 1965: 428; CHROLINSKY, 1965: 107; HORION, 1969: 43 (*rumaniacum*); TER-MINASSIAN, 1972: 799; KÖSTLIN, 1973: 84; ANGELOV, 1976: 66; STREJČEK, 1976: 120; DIECKMANN, 1977: 79; LOHSE, 1981: 154.

TYPE MATERIAL EXAMINED

***A. detritum* M. & R.** Holotype (f) from REY's coll. (Lyon) was on my request examined and compared with other *A. detritum* specimens from France and Poland by Dr. I. LÖBL. ***A. ragusae* Ev.** Neotype f: a)Sicilia, Palermo, 13.5.911, L.T., b)*A. stolidum* GERM. determ. SOLARI (MCR) (present designation). ***A. confluens* var. *crenulatum* DBR.** Lectotype: a)Sarepta, b)*subcrenulatum* var.? (coll. DESBROCHERS, MNHP) (present designation) [specimen with the head missing, staying in the collection under the name of "*A. confluens* v. *subcrenulatum*"]. ***A. catenulatum* WGN.** Lectotype m: a)Voltschicha, Gorbatovsk (in Russian), b)Vichegorod, G., Voltschicha, JACOBSON, 1.IV.94, c)*Ap. ruman.* sbsp. *catenulatum* m., WAGNER det., d)Type v. *Apion catenulatum* WGNR., M.K.Z. 5, 1915, e)m, f)Coll. WAGNER, g)In litteris ? 1956 det. KAMP, h)Sammlung G. FREY (ZSM) (present designation); paralectotypes: 2f, data as in the lectotype, coll. WAGNER (ZSM). ***A. catenulatum* var. *rumaniacum* WGN.** Lectotype f: a)Roumanie, Comana Vlasca, A. L. MONTANDON, b)*rumaniacum* m., WAGNER det., c)coll. LEONHARD (DEI) (present designation); paralectotypes: data as in the lectotype, 1m (DEI), 1m (MCM), 2f (coll. WAGNER, ZSM).

The type specimens of *A. viridicoeruleum* Ev. and *A. ragusae* Ev. have not been found. Both species were described by EVERTS from Sicily based on the specimens received from E. RAGUSA. DESBROCHERS was apparently the only coleopterist who later saw the types of both species. The type of *A. ragusae* was also examined by H. WAGNER, who considered it to be a synonym of *A. detritum* (WAGNER, [1915]). After obtaining the specimens DESBROCHERS published his letter to E. RAGUSA (in 1893), stating that *A. viridicoeruleum* was a synonym of, and *A. ragusae* was closely related to *A. detritum*. In the same letter he drew attention to a strong incongruence of EVERTS' description of *A. viridicoeruleum* with the type specimen (devoid of head) having pronotum and elytra dull black and finely pubescent, instead of metallic blue-green with distinct white piliform scales, as stated by EVERTS. The species was omitted from his monograph of the Palaearctic *Apionidae* (DESBROCHERS, [1894]), however, it was placed with the question mark in the subsequent catalogue (Desbrochers, [1897]). Both Everts and Desbrochers placed *A. viridicoeruleum* among the species presently classified in *Diplapion*, so it remains obscure why it was later regarded as a probable synonym of *A. brunnipes* Boh. by Winkler & Wagner (1930). While the synonymy of *A. viridicoeruleum* = *A. detritum* adopted here seems to be very likely, the status of *A. ragusae* is less certain and more confused. According to Desbrochers (1893) the type female was distinct from *A. detritum* in denser, broader and shorter scales on the body. Almost at the same time Desbrochers [1894] diagnosed it with *A. detritum* var. *squamiferum* [sic!] as having the scales on the body more elongate and the rostrum more distinctly curved - the characters clearly indicating *D. detritum* (!). On the other hand, the distinctly dilated rostrum base mentioned by him is characteristic of female *D. squamuliferum*. According to Desbrochers [1894], the holotype of *A. ragusae* was donated to him by E. Ragusa, it is, however, absent in his collection. As it is now impossible to state for certain to which species of *D. detritum* and *D. squamuliferum* (both occurring in Sicily) the type specimen of *A. ragusae* belonged, I have taken an arbitrary decision to designate the female of *D. detritum* from Palermo as the neotype of this nominal species, thus following Wagner's [1915] point of view on the synonymy.

The holotype of *A. subcrenulatum* Dbr. (1f from Morieres [France: Vaucluse], ex coll. Grilat) has not been found at MNHP. The species is treated here as a synonym of *D. detritum* based on the original description.

The full description of *A. catenulatum* Wagn. (Münchener Col. Zeitschr., IV), together with exact data of the type specimens, has been printed in few copies only and the name could be considered as a nomen nudum. However, Wagner (1910b) introduced the name while describing *A. catenulatum* var. *rumaniacum*, thus making it valid.

Description

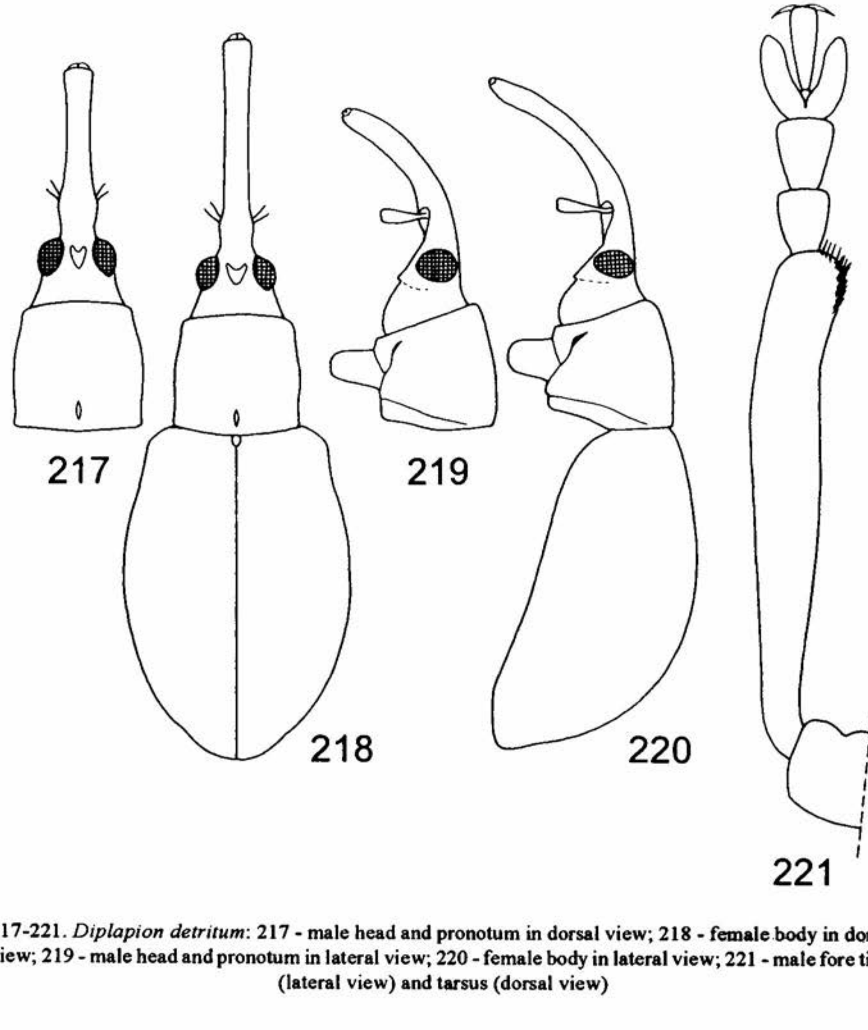
Length 1.59-2.68 mm. Body black, with variably distinct sheen, usually pronotum dull while the elytra weakly shining. Vestiture variably distinct, composed of white to greyish piliform scales as long as 0.7-1.2 elytral interval breadth.

Indices. ***rl/pl:*** m: 1.29-1.57 (M 1.37, SD 0.007, n 9)), f: 1.57-1.79 (M 1.67, SD 0.005, n 13); ***rl/msrw:*** m: 3.58-4.41 (M 4.06, SD 0.065, n 9), f: 5.09-6.67 (M 6.01, SD 0.245, n 12); ***scl/msrw:*** m: 0.94-1.13, f: 1.05-1.54 (M 1.36, SD 0.017, n 12); ***msrw/mtrw:*** 1.07-1.30; ***msrw/arw:*** m: 1.55-1.72, f: 1.20-1.40; ***msrw/minrw:*** 1.55-1.72, f: 1.20-1.56; ***msrw/eyl:*** m: 0.97-1.07 (M 1.00), f: 0.79-1.00 (M 0.89); ***brl/eyl:*** m: 0.77-0.96, f: 0.88-1.20; ***eyl/hl:*** 0.53-0.76; ***hl/hw:*** m: 0.70-0.95, f: 0.63-0.79; ***mpw/hw:*** 1.45-1.72; ***bpw/apw:*** 1.02-1.21; ***pl/mpw:*** 0.86-1.00; ***mew/mpw:*** m: 1.54-1.73, f: 1.70-1.82; ***el/pl:*** 2.62-3.08; ***el/mew:*** 1.47-1.80; ***mew/bew:*** m: 1.13-1.26, f: 1.24-1.35; ***bew/mpw:*** m: 1.29-1.41 (M 1.35, SD 0.002, n 9), f: 1.32-1.45 (M 1.38, SD 0.002, n 13); ***pft/msrw:*** m: 1.00-1.10, f: 1.14-1.38; ***ptbl/pl:*** 1.13-1.31; ***ptbl/ptbmw:*** 5.11-7.00; ***ptsl/ptbl:*** 0.53-0.65.

Rostrum thin, distinctly arched, diffusely and finely punctate; male mesorostrum clearly expanded, sometimes forming obtuse teeth, in female only slightly thickened; prorostrum most often weakly dilated apically, in both sexes at least in apical 1/3 smooth, strongly shining.

Antennae slender, inserted at basal 0.18-0.23 (at most 0.21 in female) of rostrum; segmental proportions strongly varying, length/width of the scape m: 2.8-3.0, f: 3.4-3.6, first funicular segment m: 1.4-1.6, f: 1.6-1.8, the remaining isodiametric to scarcely elongate in male, always longer than wide (up to 1.4×) in female; club similar in both sexes, 2.3-2.5 as long as broad.

Head broad; eyes small, usually strongly prominent, often somewhat eccentrical; frons mostly impunctate, with sulci very short, barely exceeding half eye diameter in length, broadly confluent and deepened; temples strongly divergent posterad; head

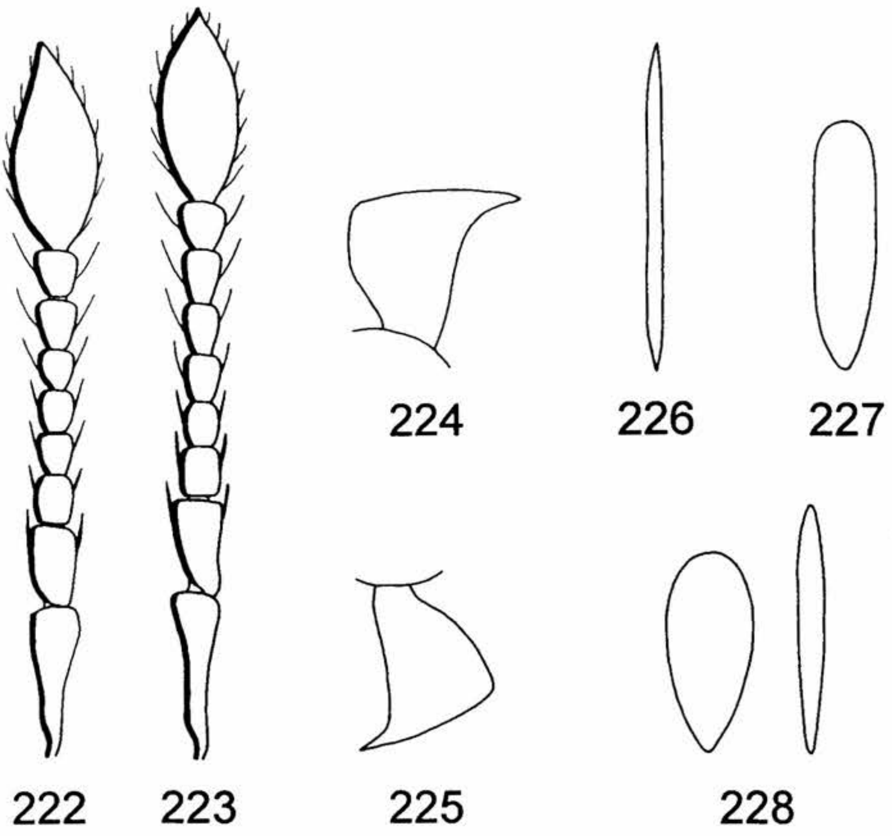


217-221. *Diplapion detritum*: 217 - male head and pronotum in dorsal view; 218 - female body in dorsal view; 219 - male head and pronotum in lateral view; 220 - female body in lateral view; 221 - male fore tibia (lateral view) and tarsus (dorsal view) in profile with a minute subocular tooth, ventrally flat between eyes.

Pronotum with thick walls, subquadrate or slightly rounded at sides; surface of the disc variably sculptured, always distinctly shagreened, with punctures most often minute, barely impressed and very sparse; in few specimens puncturation much coarser, with punctures well defined and about one diameter apart; prescutellar fovea minute and narrow, sometimes long; pleural line distinct.

Elytra variably shaped, broadest at, or slightly behind middle; intervals flat, sub-basally about 1.5×, in middle of the disc 2-2.5× wider than the striae, with strong, irregular microsculpture; striae coarse, distinctly punctured; specialized setae observed in few specimens.

Legs moderately long and slender; male protibiae slightly bent inwards apically; tarsi with second segment about 1.2× longer than wide; all male tarsi with the ventral spine conspicuous, as long as half basal tarsal segment height, distinctly exceeding the "sole" pubescence.

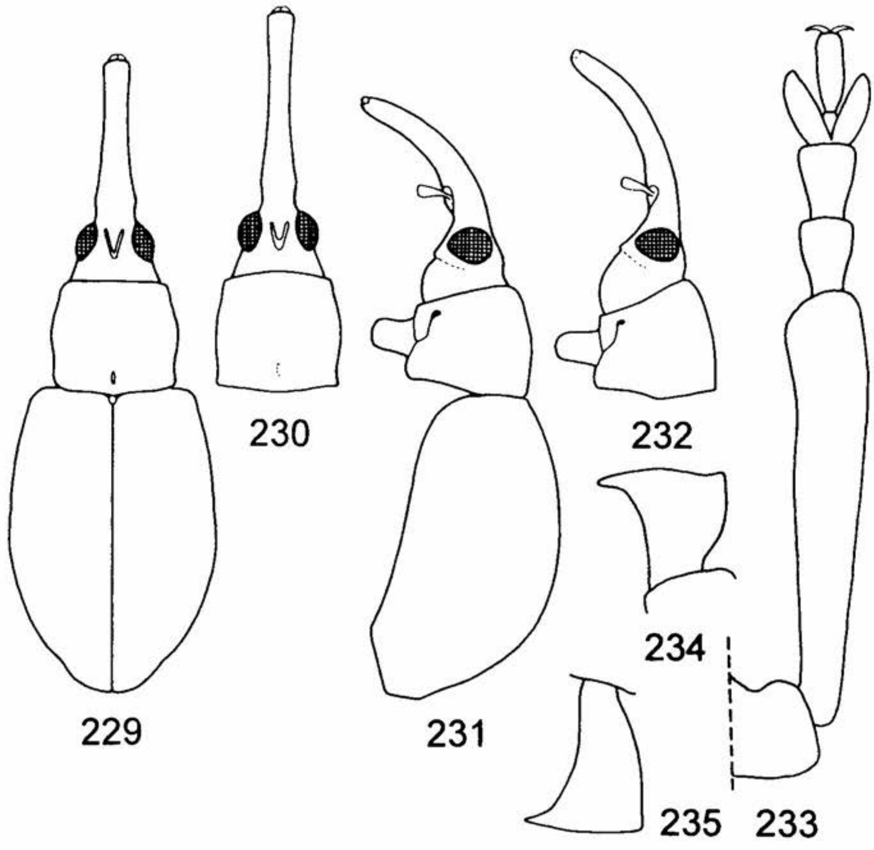


222-225. *Diplapion detritum*: 222 - male antenna; 223 - female antenna; 224 - male first protarsomere in profile; 225 - male first metatarsomere in profile. 226-228. Scale of body vestiture: 226 - *D. detritum*; 227 - *D. squamans*; 228 - *D. squamuliferum* (extreme forms)

Some brachypterous specimens observed.

Genital structures as in figs 238-242, not distinct from those in *D. squamuliferum*. Tegminal plate strongly elongate; parameroid lobes narrow, separate on about 3/4 length; macrochaetae 8-10 long, apical and 2-3 much shorter, subapical; fenestrae small, clearly depressed, their lower margins more or less extended towards the plate edges but never touching them; dorsal portion of ring very narrow; lateral fold scarcely visible on the parameroid lobes only; prostegium strongly projected backwards, covering the whole forked basal piece.

Median lobe of aedeagus narrow, pointed or narrowly rounded at apex, in profile slightly sinuate apically; internal sac with dense asperities in the orificial region.



229-235. *Diplapion squamuliferum*: 229 - male body in dorsal view; 230 - female head and pronotum in dorsal view; 231 - male body in lateral view; 232 - female head and pronotum in lateral view; 233 - male fore tibia (lateral view) and tarsus (dorsal view); 234 - male first protarsomere in profile; 235 - male first metatarsomere in profile

Spiculum gastrale very narrowly forked.

Biology. Adults were collected from *Anthemis tinctoria* L., *A. arvensis* L., *A. cotula* L., *A. mixta* L., *Matricaria chamomilla* L., *Tripleurospermum perforatum* (MÉRAT) WAGENITZ (= *T. inodorum* (L.) C.H. SCHULTZ) and *Chrysanthemum segetum* L. The larvae found only on *A. tinctoria* hitherto, feeding in flower heads, which is unique in the genus. North African records of PEYERIMHOFF (1920, 1926) of specimens collected from *Artemisia atlantica* COSS. DUR. and *A. herba-alba* ASSO are uncertain, possibly pertain to *D. squamuliferum*.

Distribution. Tunisia, Algeria, Morocco, Spain, Malta*, France (incl. Corsica), Italy (incl. Sicilia & Sardinia), San Marino*, Germany, Denmark, Poland, Ukraine, Moldova, Czech Rep., Slovakia, Rumania, Croatia, Serbia, Bosnia, Herzegovina, Montenegro, Macedonia, Bulgaria, Greece, Cyprus, Egypt*, Turkey, Azerbaijan, Georgia, Russia (southern European part, east to Dagestan).

It follows from Dr. DIECKMANN's notes that he saw *D. detritum* specimens from Iran (Kazerun, Exped. Mus. Prague). However, it is possible that they were actually *D. squamans*.

OTHER MATERIAL EXAMINED

ALGERIA: Bône [Annaba], 1m (det. as *ragusae* Ev.), coll. A. HOFFMANN (MNHP); Teniet-el-Had, 7 exs(MF).

AUSTRIA: Brünn - 1 ex. (IRB).

BOSNIA: Dervent [Derventa], 1f, leg. HILF (MNB).

BULGARIA: Trevna, 1 ex. (IZW); Varna, 1 ex. (MNB); Nessebar, 2 VII 1965, 6-22 IX 1965 - 5 exs, leg. T. PALM (MZL), IX 1975, 1m, leg. BILIŃSKI (PS); Sandanski, 2 VII 1979, 3m 1f (MM), 13 VI 1982, 1m, leg. S. KADLEC (KS); Burgas, V 1894, 3 exs, leg. FLACH (FSF), 4 exs (SMTD), 4 exs; Zitarovo, 3 exs - leg. Z. CMOLUCH (SS); Sofia, 7 VII 1953, 1 ex.; Sozopol, 3 VII 1969, 1 ex. - leg. A. WARCHAŁOWSKI; Primorsko, 1-11 VI 1968, 1m, leg. WALLIS (DEI); Arkutino, 9 VI 1979, 1f, leg. L. BOROWIEC (MW), 12 V 1985, 1m 1f, leg. KADLEC & VORISEK; Slancev Brjag, 1-10 VII 1983, 2f, leg. P. TYRNER (KS).

CROATIA: Dalmatia, 1 ex. (ZSM); Is. Arbe [Rab], 1m (HMNH); Is. Brion [Brionski Otoci], 1 ex. (SMTD); Istria: Salvore, 1 ex. (IZW), 18 V 1919, 3 exs (MCM), 25 V 1919, 2 exs, leg. A. SCHATZMAYR (SMTD); Pola [Pula], 1 ex. (SMTD); Slavonia: Ksupanje, 1m 1f, coll. v. HEYDEN; Spalato [Split], 1 ex., leg. HORVATH (HMNH), 28 VI 1946, 8 exs, 7 VIII 1947, 1 ex., leg. NOVAK (DEI, MCM); Mrkviste, 1276 m, 25 IX 1910, 1 ex. (SMTD).

CYPRUS: Kambos, 5 VII 1939, 1 ex. (NRS), 15 VII 1939, 3 exs; Stavros, 18-19 VII 1939, 1 ex.; Famagusta, 9-12 VII 1939, 1 ex. - leg. H. LINDBERG (ZMH).

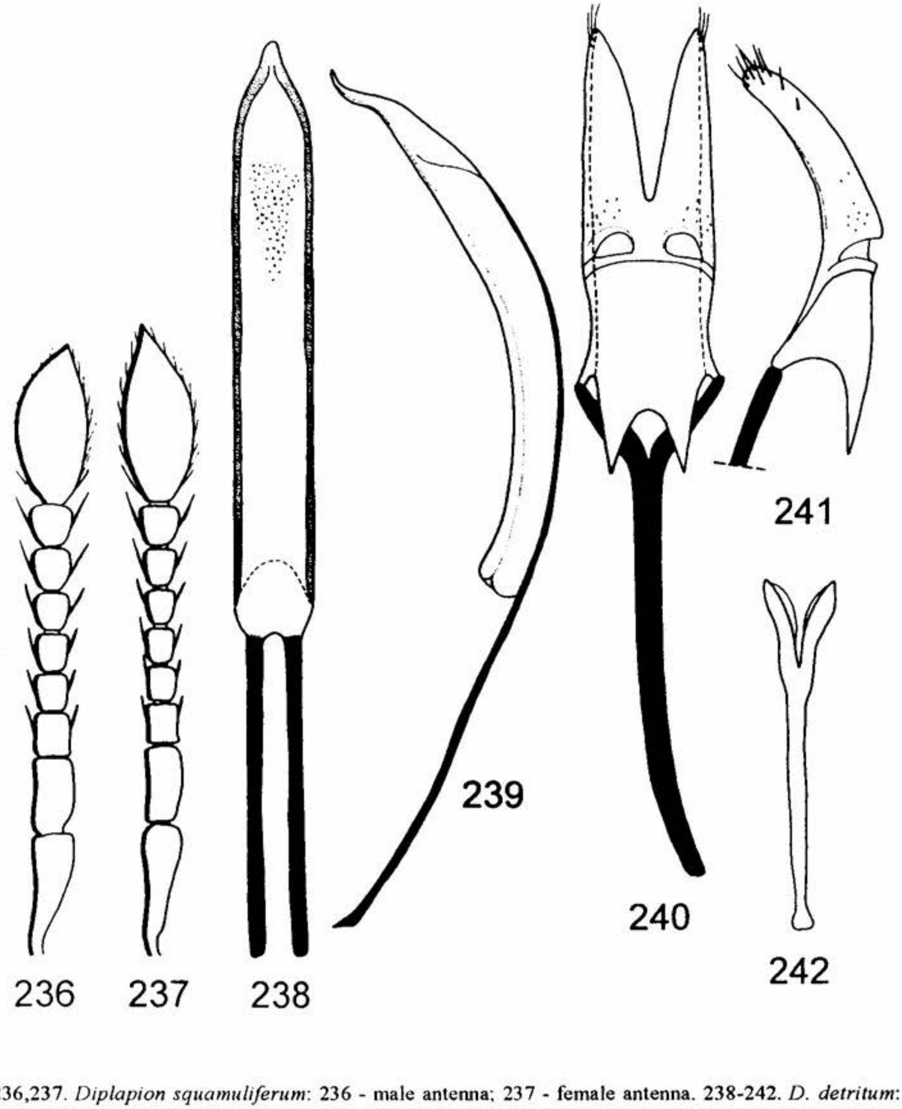
DENMARK: Fumnoller, 16 VIII 1947, 1f, leg. V. HANSEN (ZMH); O. Jylland: Mols Femmoler, 17-18 VIII 1963, 7 exs (HG).

EGYPT: Wadi El Ghedeirat, Nord Sinai, 24-25 V 1935, 1m, leg. ALFIERI (ZSM).

FRANCE: Corse: Bocognano, 1 ex. (DEI); Hautes Pyr.: Mauborguet; Loire

Atlant.: La Bernerie; Var: Fréjus; St Raphael; Bouches-du-Rhóne: Marseille; Gironde: Le Taillun; Loire Atlant.: Levillé; La Bernerie; Saône-et-Loire: Autun - 32 exs (IRB, MNHP, DEI, ZMH, SS, IRB, HMNH, MHNG).

GEORGIA: Kakhetiya: Lagodekhi, 5 V 1983, 1 ex., leg. V. Yanushev (VZ); Abkhasia: Sukhumi, 1m, leg. A. Riedel (SS); Pizunda [Picunda], 18-30 V 1970, 2m, leg. Ermisch (MNB).



236,237. *Diplapion squamuliferum*: 236 - male antenna; 237 - female antenna. 238-242. *D. detritum*: 238, 239 - median lobe of aedeagus, 238 - dorsal view, 239 - lateral view; 240 - tegmen, dorsal view; 241 - tegminal plate, lateral view; 242 - spiculum gastrale

GERMANY: Zehlendorf n. Berlin; Nauheim; Dagrnüs; Harz: Thale; Mark: Umg. Strausberg; Umg. Schwanenkrug - 19 exs (IZW, MNB, ITZA, NMW, SMTD).

GREECE: Attica, 1f (ZSM); Acarnaria, 1f, leg. KRÜPER (HMNH); Peloponnes: Kilinnis-Lutra (Pirgos), 23-30 VII 1981, 5 exs; Erimanthos, 2000-2300 m, 22 VII 1981, 1 ex. - leg, M. & G. OSELLA (GO); Kos: Ammos, 27 VIII-1 IX 1981, 2 exs, leg. T. PALM (MZL); Lesvos Is.: Mythilini [Mitilini], 1-15 IV 1930, 2 exs, leg. H. KULZER (ZSM); Corfu [Kérkira], 1f, leg. POLATSCHEK (NMW).

HERZEGOVINA: Mostar, 1m (SMNS), 1 ex. (ZSM).

HUNGARY: Budapest; Örkeny; Mons Pilis; Aquincum; Szaar; Szücs; Ujpest; Kis-Maros; Mons Csovanyos - 13 exs (MNB, KS, SMTD).

ITALY: Sicilia: Melilli; Messina; Palermo; Ficuzza; Rodi; Mistretta; M. Nebrodi - 25 exs (LM, MNHP, MNB, DEI, MCM, FSF, ZSM, MHNG, SMTD, FA); Sardinia: San Basilio; Cagliari - 3 exs (MCM, HMNH); Is. Lipari, 3 exs (LM); Is. Elba, 3 exs, leg. Paganetti (DEI, HMNH, SMTD); Is. Ischia: Epomeo, 1 ex. (FSF); Trentino-Alto Adige: Castelnuovo; Fruli-Venezia Giulia: Muzzana n. Udine; Abruzzi: Rocca di Cambio, 1400 m; Chieti, Francavilla; Gran Sasso, Fonte Cerreto, 1000 m; Umbria: Monti Sibillini, Pendici Sibilla; Puglia: Brindisi; Monte Gargano; Varano; Basilicata: Lago Pantano di Pignola; Campania: Salerno: Mte. Stella; Pioppi; Lazio: San Felice Circeo; Sabaudia - 28 exs (LM, GO, IRB, MNB, ZMH, DEI, MCM, SMNS, FSF, ZSM, FA).

MACEDONIA: Sar Planina, Popova Sapka, 25 VII 1937, 2f, leg. J. FODOR (HMNH).

MALTA: 3 exs, leg. D. CHAMPION (MNB).

MOLDOVA: Kolanka, "Tursuk. sad." Reserve, 12 VII 1984, 1 ex. (VK).

MONTENEGRO: Bar, 22 VIII 1968, 1f, leg. J. M. STUSAK (KS).

MOROCCO: Tanger, 1m, leg. OLCESE, coll. TOURNIER (MHNG).

POLAND: Nizina Wielkopolsko-Kujawska: Małków at Warta riv.; Nizina Mazowiecka (Mazovian Lowland): Zegrze, Skolimów; Puszcza Białowieska (Bialowieza Forest); Wyżyna Krakowsko-Wieluńska: Cracow; Wyżyna Małopolska: Miechów, Pińczów, Łódź, Modlica n. Łódź;Góry Świętokrzyskie Mts.; Roztocze: Kąty n. Zamość - 29 exs (IZW, SS, MW).

RUMANIA: Comana Vlasca, leg. A. L. MONTANDON, 1f (DEI), 1m 1f (HMNH), 1 ex. (SMTD); Timisoara, 24 VII 1972, 2m 1f (KS); Banat: N.-Bogsan, 3 exs (SMTD).

RUSSIA: Sarepta [Krasnoarmyeysk], 1 ex. (MNB), 2 exs (ITZA); Novorossiysk, VII 1910, 2m, leg. LGOCKI (ZMH, MCM); Dagestan: Derbent, 1f; Orenburg, 1f - coll. FAUST (SMTD); Kurskaya obl.: "Streleckaya step'" [Centralno-czernozemnyj gosud. zapovednik: between Sejm and Ps'ol rivers], 12 VI 1952, 1 ex.; Rostovskaya obl.: Kamensk. r-n: riv. Donec, o. Krivoy Rog, 23 VII 1951, 1 ex.; Gornaya, 30 V 1951, 2 exs; Kalitvenskaya, 14 VI 1950, 1 ex.; Krasnodarskiy Kr.: Ubinskaya, 17-19 VI 1953, 1 ex.; Dzhankhet, 18 IV 1957, 1 ex. - leg. K. ARNOLDI; Volgogradskaya obl.: Novodinekskiy, 4-9 VII 1974, 1 ex., leg. V. ZOLOTIKHIN (VZ).

SAN MARINO: 23 VI 1930, 1 ex., leg. TASSO, SCHATZMAYR & KOCH (MCM).

SERBIA: Fruska Gora, 1 ex. (IZW); Zemun, 1f; Beograd: Avala, 13 VII 1941, 1f, leg. KORMILEV (MHNG); Smederevska Palanka, 27 IX 1988, 2m 1f, leg. E. BARANIAK (PS).

SLOVAKIA: Šahy, 1f (KS).

SPAIN: Madrid, 1 ex. (IZW), 2 exs, leg. LAUFFER (MNB); Sevilla, 1f, leg. KRAATZ (DEI).

TUNISIA: Ain Draham, 1f, leg. BODEMEYER (SMTD).

TURKEY: Besika Bay [Beschik-Bai], 1 ex. (IZW), 2 exs, leg. D. CHAMPION (MNB); Trapezund [Trabzon], 1 ex., leg. W. EICHLER (IZW); Smyrna [Izmir], 2 exs (MNB), 1f (NMW); Angora [Ankara], 1895, 1 ex., leg. ESCHERICH (ZSM); Ankara: Baraj, 1-10 VI 1969, 1 ex., leg. SEIDENSTÜCKER (ZSM); Antalya, 29 IX 1989, 1m 1f; Adapazari, 17 IX 1989, 1f - leg. E. BARANIAK (PS); Efes, Meryemana, 1 VII 1973, 2 exs; vil. Bolu, Abant, 1000 m, 21 VI 1975, 1 ex. (GO); Abant Daglari, Boludag Geçidi, 720 m, 1 VI 1986, 1f, leg. KADLEC & VORISEK (KS); vil. Giresun: Bulancak, 17 VII 1975, 7 exs; Amasya dint., 4 VI 1969, 1 ex. - leg. M. & G. OSELLA (GO); Istanbul: Soguksu, Kizilkahamam, 26 V 1970, 1f; vil. Antalya: Alanya-Gazipasa, 8 V 1969, 1f - leg. W. WITTMER (NHMB); vil. Konya: Aksehir, 1900, 6 exs (det. as *detritum* v. *subsquamiferum* by SCHILSKY), leg. KORB (MNB), 26 V 1926, 1 ex., leg. H. KULZER (ZSM); vil. Isparta: Egridir, 1000-1600 m, 14-16 VI 1967, 1 ex., leg. A. RICHTER (ZSM); Kütahya, 17 VI 1973, 1f, leg. K. BERNHAUER (SMNS).

UKRAINE: Podolia: 17 exs (8 exs det. as *detritum* ssp. *catenulatum* by WAGNER) (SS); Zaleszczyki; Żeżawa; Wołczków - 5 exs (IZW); Bukovina: Czernowitz, 1 ex.; Stawczan, 1 ex. (SMTD); Voroshilovgradskaya obl.: Belovodsk. r-n: Derkul, 8 VI 1950, 1 VIII 1950, 7 VI 1952, 17 VI 1952 - 4 exs, leg. K. ARNOLDI (VZ).

Diplapion squamuliferum (DESBROCHERS, 1891)

(figs 228, 229-237, 256)

Apion detritum var. ? *squamuliferum* DESBROCHERS, 1891: 323.
Apion detritum var. *subsquamifer* [sic!]: DESBROCHERS, 1893: 81.
Apion detritum var. *subsquamiferum* [sic!]: DESBROCHERS, [1894]: 118.
Apion detritum var. *squamiferum* [sic!]: DESBROCHERS, [1894]: 118.
Apion (*Diplapion*) *subsquamiferum*: DIECKMANN, 1977: 79.
Apion stolidum: SCHATZMAYR, 1933: 170, nec DESBROCHERS, 1891.

Literature: NORMAND, 1937: 236 (*detritum subsquamiferum*); ALONSO-ZARAZAGA, 1991: 50.

TYPE MATERIAL EXAMINED

***A. detritum* var. *squamuliferum* DBR.** Lectotype f: a)Biskra, b)Ex Musaeo DESBROCHERS 1914 -staying as "v. *subsquamiferum*" in coll. DESBROCHERS (MNHP) (present designation); paralectotype f: a)Sicile, b)v. *subsquamiferum* m. f, c)Db 78, d)*detritum* v. *subsquamiferum* DSB., DESBROCH. (coll. v. HEYDEN, DEI).

Description

Length 1.90-2.41 mm. Scales of body vestiture at most 2/3 as long as the elytral intervals wide, strongly varying from piliform and hardly broader than those in *D. detritum* (Portugal & Madeira) to much shorter and distinctly oval, mostly 4× (exceptionally 2.5×) longer than broad (Northern Africa).

Indices. ***rl/pl:*** m: 1.40-1.52, f: 1.60-1.67; ***rl/msrw:*** m: 3.86-4.28, f: 4.74-5.16; ***scl/msrw:*** m: 0.86-0.94, f: 1.03-1.16; ***msrw/mtrw:*** 1.07-1.21; ***msrw/arw=msrw/minrw:*** 1.44-1.65; ***msrw/eyl:*** 0.97-1.07; ***brl/eyl:*** m: 0.64-0.83, f: 0.85-0.93; ***eyl/hl:*** 0.58-0.72; ***hl/hw:*** 0.69-0.84; ***mpw/hw:*** 1.46-1.65; ***bpw/apw:*** 1.09-1.18; ***pl/mpw:*** 0.86-1.00; ***mew/mpw:*** 1.66-1.79; ***el/pl:*** 2.79-3.29; ***el/mew:*** 1.53-1.67; ***mew/bew:*** 1.16-1.23; ***bew/mpw:*** 1.42-1.50; ***pft/msrw:*** 0.97-1.08; ***ptbl/pl:*** 1.07-1.30; ***ptbl/ptbmw:*** 5.06-6.00; ***ptsl/ptbl:*** 0.58-0.64.

Very similar to *D. detritum* and equally variable, except for the vestiture is distinct in the following characters:

Rostrum weaker curved, more strongly expanded and angled at antennal insertion in female; nearly entire prorostrum shiny.

Antennae inserted closer to the rostrum base (m: 0.17-0.20, f: 0.17-0.18); funicular segments more cylindrical, impressing the funicle as thicker.

Frons with the sulci strongly variable (fig. 256), more or less V-shaped, not or weakly broadened at basal junction, as long as 0.6-1 eye length.

Pronotum relatively smaller, with weaker walls, always rounded at sides; puncturation never coarse, mostly very superficial, fine and scattered.

Male protibiae less distinctly bent apically, often nearly straight.

Genital structures exactly as in *D. detritum* (figs 238-242).

Biological details scanty. Normand (1937) recorded the species from *Anthemis pedunculata* Desf. Alonso-Zarazaga (1991) observed beetles on *Dittrichia viscosa* (L.) W. Greuter (tribus *Inuleae*!).

Distribution. Libya, Tunisia, Algeria, Morocco, Spain, Portugal (incl. Madeira), Italy (Sicilia).

Remarks

Desbrochers' unconcern in using specific names resulted in a considerable confusion in the case of this species. Of the four different spellings used by him in subsequent or even the same papers, the name *subsquamiferum*, appearing also on Desbrochers' handwritten type labels, became commonly accepted. Alonso Zarazaga (1991) was the first, who resurrected the correct original spelling *squamuliferum*.

Geographical ranges of *D. detritum* and *D. squamuliferum* broadly overlap in Northern Africa, Iberian Peninsula and Sicily, but intermediate specimens have not been recognized. Although the shape of body scales is hardly distinct in the northernmost populations, the rostrum structure and the frontal sulci remain clearly different.

OTHER MATERIAL EXAMINED

ALGERIA: 1m 2f (IRB), 1m (ITZA), 1m (ZMH); Alger, 1m, coll. v. HEYDEN (ex coll. DESBROCHERS) (DEI); Batna, 1f, leg. PUTON (coll. DESBROCHERS, MNHP); Le Puits, 24 V 1899, 1f, leg. J. SURCOUF (IRB); Biskra, 10 II 1929, 1f, coll. A. SCHATZMAYR (MCM); Oran, 2 exs, coll. DESBROCHERS (MNHP).

LIBYA: "Tabochuse", 18 VII 1906, 1m; Tripoli, 15 VII 1906, 2f - leg. KLAPTON (MNB), 31 III 1926, 1m; Suani Ben Aden n. Tripoli, 15 III 1926, 1m - coll. A. SCHATZMAYR (MCM).

MOROCCO: Atlas mar.: Amizmiz, 24-26 V 1926, 1f, leg. LINDBERG (ZMH); Prov. Dujda, Jerada, 31 III 1965, 2m, leg. A. WARCHALOWSKI (DEI).

PORTUGAL: Madeira: Funchal, 18 III 1965, 5 exs; Caparica n. Lissabon, 10 IV 1965, 17 exs - leg. R. PINKER (ZSM); Faro, 2m, 1f, coll. A. SCHATZMAYR (MCM), 1f (HMNH); Evora, 1m, coll. B. SCHWARZER (FSF), 1f, coll. CSIKI (HMNH).

SPAIN: 1 ex. (ZSM); Andalusia: Chiélana, 1890, leg. KORB, 1m (FSF), 1m (IRB); Sierra Nevada, 1f (HMNH); Murcia: Algezares, 1894, 1f, leg. KORB (SMTD); Jaén, 2 exs (ZSM); Gerona: Lloret de Mar, 17 IX-6 X 1961, 1m; Málaga: Marbella, 10-30 IV 1960, 1f - leg. T. PALM (MZL); Pto. Marbella, Ojeñ, 900 m, 24 IX 1983, 1f, *Dittrichia viscosa*, leg. ALONSO-ZARAZAGA; La Freusanta, El Burgo, 600 m, 29 X 1982, 1 ex., leg. BASTAZO & VELA; La Candamia, Villobispo de les Regmios, 13 IV 1984, 1m, leg. O. MANSILLA (AZ); Almeria: Felix, Sierra de Gador, 1000 m, 18 V 1985, 2m 3f, leg. A. WARCHAŁOWSKI (LD); Avila: Sierra de Gredos, Piedralaves, 18 V 1934, 1f, leg. C. KOCH (MCM).

TUNISIA: Teboursouk, 1m (MHNG); Le Kef, 1f, leg. NORMAND (SMTD); Tunis, 30 III 1924, 1m 1f, leg. Hr.LINDBERG; Sbiba, 20 VIII 1962, 3m 5f, leg. LINNAVUORI (ZMH).

Diplapion squamans (DESBROCHERS, 1906)

(figs 227, 254)

Apion squamans DESBROCHERS, 1906: 89.

TYPE MATERIAL EXAMINED

Neotype m: a)Jericho, b)Ex Musaeo DESBROCHERS 1914 (coll. DESBROCHERS, MNHP) (present designation).

The type specimens from Asia Minor have not been recognized in DESBROCHERS collection, also the head label is missing there. However, a pair from the present Israel has been found there among several *D. detritum* specimens, closely fitting the original description, and the male is here designated as a neotype of *A. squamans*.

DESCRIPTION

Body 1.92-2.15 mm long, black, weakly shining, sparsely clothed with white, oval scales about 4× as long as broad.

Indices. ***rl/pl:*** m: 1.38-1.60 (M 1.50, SD 0.013, n 3), f: 1.50-1.70 (M 1.59, SD 0.010, n 3); ***rl/msrw:*** m: 4.16-4.64 (M 4.41, SD 0.058, n 3), f: 4.62-5.31 (M 4.89, SD 0.136, n 3); ***scl/msrw:*** m: 0.97-1.08, f: 1.04-1.21 (M 1.11, SD 0.008, n 3); ***msrw/arw=msrw/minrw:*** m: 1.44-1.67, f: 1.42-1.51; ***brl/eyl:*** 0.64-0.77; ***hl/hw:*** 0.72-0.82; ***mew/mpw:*** 1.69-1.82; ***el/mew:*** m: 1.56-1.61, f: 1.52-1.57; ***mew/bew:*** m: 1.17-1.22, f: 1.18-1.25; ***bew/mpw:*** m: 1.40-1.51 (M 1.45, SD 0.003, n 3), f: 1.38-1.50 (M 1.44, SD 0.004, n 3); ***pft/msrw:*** m: 0.97-1.12, f: 1.00-1.15. The remaining indices as in *D. detritum*.

Extremely similar to *D. detritum*, except for the very distinct scales on the body. Rostrum less sexually dimorphic, in male slightly longer, in female shorter and thicker than in *D. detritum*, but similarly curved. Antennae inserted closer to the rostrum base (m: 0.14-0.18, f: 0.15-0.18), scape in female only 3× longer than broad; distal funicular segments particularly in female less narrowed basad, somewhat subrectangular, resembling those of *D. squamuliferum*.

Genital structures and the remaining external characters, including the shape of frontal sulci and strongly thickened pronotal walls, as in *D. detritum*.

Biology unknown.

Distribution. Egypt*, Israel, Jordan*, Syria*, Armenia*.

REMARKS

The species stands somewhat between *D. detritum* and *D. squamuliferum* in respect of external morphology, being closer to the former in strongly curved rostrum, obsoletly dilated at antennal insertion in female, and the shape of sulci of the frons (though in both Egyptian specimens they are not very distinct from some specimens of *D. squamuliferum*), while resembling the latter in scales of the body and situation of the antennal insertion point. It is clearly of levantine-turanian origin and, though yet not found in Anatolia, apparently sympatric with *D. detritum* in Egypt and at least eastern coasts of Meditarranean, and adjoining *D. squamuliferum* in Libya or Egypt. Hypothetical origin and distribution tracks of all the species related to *D. detritum* are disscussed on p. 63.

OTHER MATERIAL EXAMINED

ARMENIA: Eczmiadzin, 9 IV 1916, 1f, leg. W. EICHLER (IZW).

EGYPT: Matruk, 21 III 33, 1m, leg. H. PRIESNER (NHMB).

ISRAEL: Haifa, 1f, leg. SAHLBERG (MNB); Haifa: Habonim (fascia costiera), IV 1982, 1f, leg. TEDESCHI (GO); Jericho [Ariha], 1f (coll. DESBROCHERS, MNHP), 1f, leg. SAHLBERG (MNB).

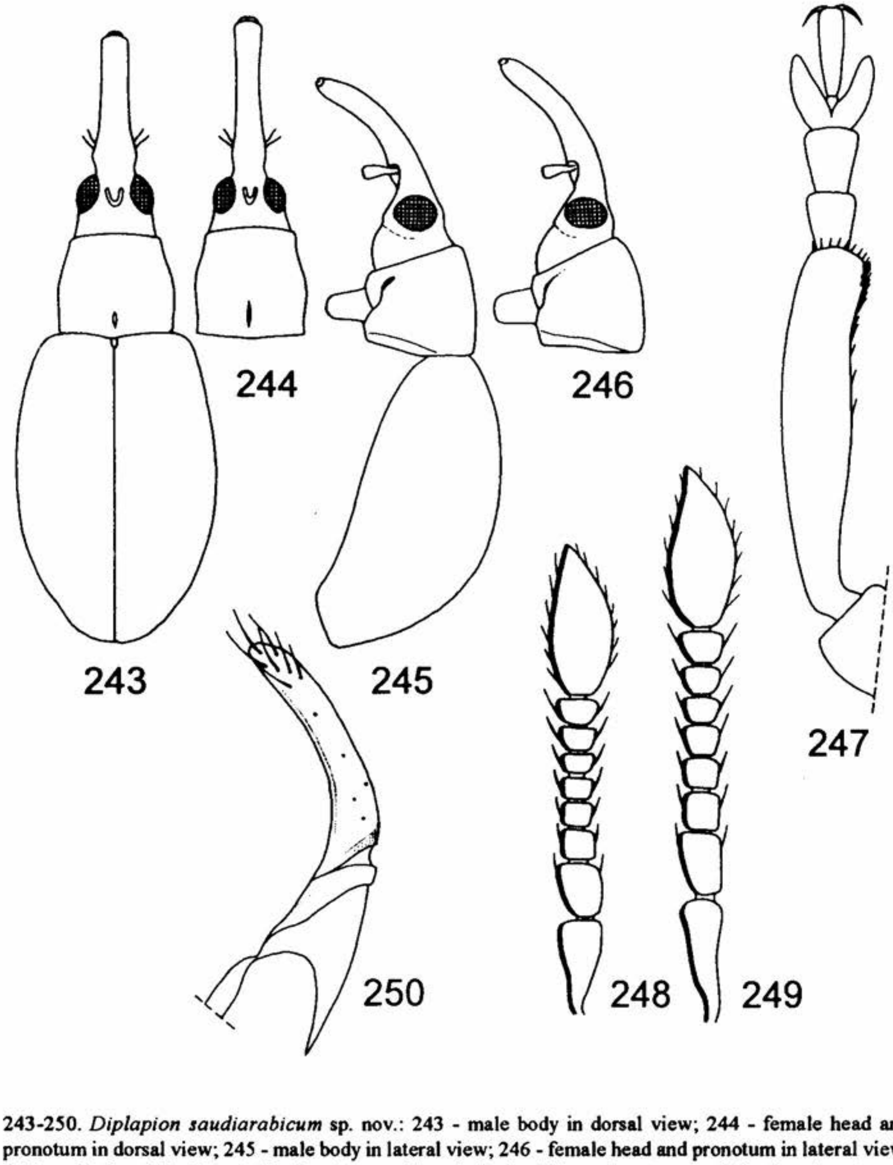
JORDAN: "Jordan", 1f, leg. SAHLBERG (MNB); Jordantal, Arda Road, 600 m, 8 III 1958, 1m, leg. J. KLAPPERICH (ZMUH).

SYRIA: 1f (det. as *detritum* by WAGNER, and as *squamans*? by DIECKMANN), coll. STIERLIN (DEI).

Diplapion saudiarabicum sp. nov.

(figs 243-250, 257)

Etymology. The name is derived from the country inhabited by the new species.



243-250. *Diplapion saudiarabicum* sp. nov.: 243 - male body in dorsal view; 244 - female head and pronotum in dorsal view; 245 - male body in lateral view; 246 - female head and pronotum in lateral view; 247 - male fore tibia (lateral view) and tarsus (dorsal view); 248 - male antenna; 249 - female antenna; 250 - tegminal plate, lateral view

Description

Body 1.96-2.28 mm long, entirely black. Pronotum weakly, elytra strongly shining. Vestiture very fine, composed of grey or darker, slightly opalescent hair-like scales.

Indices. ***rl/pl:*** m: 1.15-1.35, f: 1.38-1.53; ***rl/msrw:*** m: 3.08-3.86, f: 4.08-4.88; ***scl/msrw:*** m: 0.72-0.83, f: 0.90-1.03; ***msrw/mtrw:*** 1.08-1.19; ***msrw/arw=msrw/minrw:*** 1.31-1.56; ***msrw/eyl:*** 0.91-1.06; ***brl/eyl:*** m: 0.58-0.69, f: 0.69-0.80; ***eyl/hl:*** 0.65-0.81; ***hl/hw:*** 0.64-0.81; ***mpw/hw:*** m: 1.46-1.59 (M 1.54), f: 1.53-1.77 (M 1.62); ***bpw/apw:*** 1.09-1.18; ***pl/mpw:*** 0.86-1.04; ***mew/mpw:*** 1.63-1.79; ***el/pl:*** 2.74-3.10; ***el/mew:*** 1.55-1.67; ***mew/bew:*** 1.18-1.32; ***bew/mpw:*** 1.33-1.45; ***pft/msrw:*** m: 0.98-1.07, f: 1.07-1.13; ***ptbl/pl:*** 1.03-1.23; ***ptbl/ptbmw:*** m: 5.47-5.83 (M 5.65), f: 4.59-5.63 (M 5.10); ***ptsl/ptbl:*** 0.61-0.67.

Rostrum relatively thick, in the female similar to that of *D. stolidum*, uniformly and markedly curved; metarostrum often distinctly narrowing basad, with the base only weakly wider than the apex of rostrum; male mesorostrum distinctly expanded, often somewhat dentiform, in female at most obtusely broadened; prorostrum variably thick in females, narrowed in basal half, then cylindrical, seldom scarcely dilated apically; rostrum surface weakly shining, microreticulate and minutely punctate.

Antennae with strong scale-like microsculpture, very thick, inserted at basal 0.16-0.19 of rostrum; length/width of the scape m: 2.0-2.2, f: 2.5-3.0, first funicular segment m: 1.2-1.3, f: 1.3-1.4, the remaining segments evidently transverse, the last four in male 1.8-2.0, in female 1.5-2.0 as broad as long; club 1.9-2.3× longer than wide.

Eyes moderately prominent, regularly convex; frons impunctate, with sulci not longer than 2/3 eye diameter, clearly U-shaped, equally wide throughout; venter of the head flat to weakly gibbous between eyes, without a distinct subocular tooth in profile.

Pronotum predominantly parallel-sided in basal half, more or less distinctly narrowed anterad from the middle, with the walls not very thick; the disc closely microreticulate, with puncturation extremely fine and superficial; prescutellar fovea small and narrow; pleural line distinct.

Elytra longer than in the three previous species, uniformly oval and convex; intervals flat, at elytra base at least twice, in the middle 3× wider than the striae, weakly microsculptured; striae shallow, well edged, with punctures weakly impressed and the hair-like scales hardly visible; specialized setae present in few specimens.

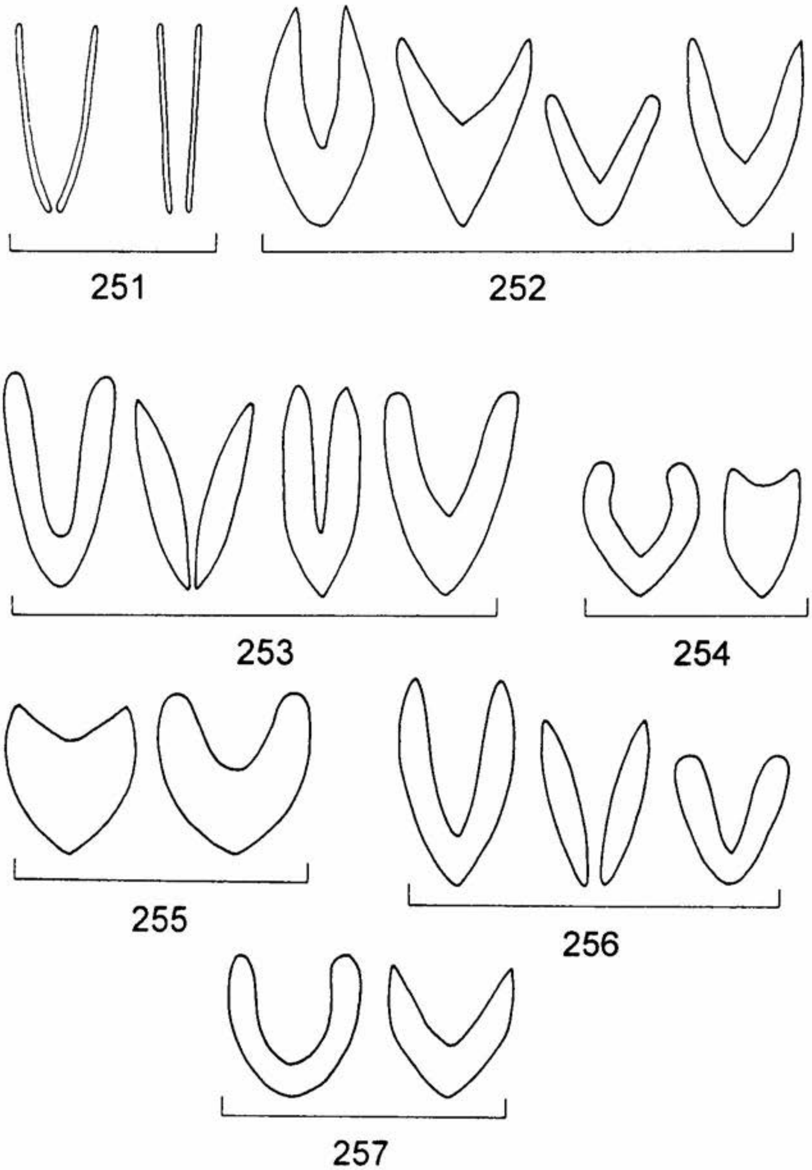
Legs slightly shorter and more robust than in *D. detritum* and *D. squamuliferum*; male protibiae scarcely bent inwards apically; tarsi slender, protarsus with the onychium exceeding third segment by 0.6-0.7 length; ventral spines of the male tarsi long and thin.

Wings of normal length, their muscles reduced.

Aedeagus similar as in *D. detritum*; parameroid lobes with the macrochaetae not differring in length, spread throughout apical quarter of each lobe; the outer corners of the fenestrae connected with the plate margins with a complete, fine suture.

Biology unknown.

Distribution. Saudi Arabia.



251-257. Sulci of the frons (variation): 251 - *Diplapion sareptanum*; 252 - *D. stolidum*; 253 - *D. confluens*; 254 - *D. squamans*; 255 - *D. detritum*; 256 - *D. squamuliferum*; 257 - *D. saudiarabicum* sp. nov.

TYPE MATERIAL.

Holotype m: a)Saudi Arabien, Asir, Al Sooda, 2000 m, 27.8.82, HEISS, b)pfl. 5 (GO).

Paratypes: data as in holotype, 5m 5f (GO), 2m 2f (MW); 1f: a)Arabie, Milling, b)nov. sp. (coll. TOURNIER, MNHP).

Genus *Ceratapion* SCHILSKY, 1901

Apion subgenus *Ceratapion* SCHILSKY, 1901: F. Type species: *Apion carduorum* KIRBY (original designation).

DESCRIPTION

Colouration the same in both sexes; body vestiture always distinct.

Mesorostrum more or less dilated, often distinctly dentiform; ventral side of the prorostrum with a median keel and a pair of narrow grooves; antennal scrobes reaching at most the middle of eyes, often distinctly shortened, with the septum never prolonged to the head underside.

Frons finely striolate, in some species striolae strong and less numerous (*C. rhopalorrhynchum*) or, more frequently, evanescent or concealed with dense puncturation; vertex predominantly punctate; temples with at least a double row of punctures behind the eyes; ventral side of the head behind antennal scrobes asperate (except in *C. kasbekianum* and *C. opacinum*), in profile without a subocular tooth (present in *C. robusticorne*).

Pronotal sides straight to weakly rounded; prescutellar fovea always distinct, inconspicuous; prosternum, except for the *C. cylindricolle* species group, as long as the postcoxal part of prothorax; margins of the procoxal cavities weakly thickened.

Elytra with humeral calli developed; distinctly elongate (often strongly so), weakly convex, scarcely elevated over the pronotum in side view.

Epimeral sutures of the mesosternum with a distinct row of scaliferous punctures. Metasternum at least 1.7× (1.5× in *Acanephodus*) longer than the mid coxae.

Male front and sometimes mid tibiae often modified; the male tarsi unarmed or, more frequently, the hind tarsi with a spine underneath basal segment.

Tegminal plate with the lateral fold variably developed, if present never modified in apical parts of the parameroid lobes; fenestrae always closed laterally, in some instances evanescent; prostegium weakly projecting backwards.

Median lobe of aedeagus with the dorsal plate inconnate, in side view well separated from the ventral one by a transparent membrane; internal sac without longitudinal rows or chains of denticles, sometimes with binate, serrate sclerites, mostly armed with numerous spines of variable length.

Biology. Host plants known in some 30% species, belonging to the tribes *Echinopeae, Carlineae* and *Cardueae* of the subfamily *Lactucoideae*. The larvae develop in rootstocks, stems or leaf midribs, not causing distinct galls.

Distribution. Palaearctic region (two species entering the Ethiopian region in Sudan, Ethiopia and in south of the Arabian Peninsula).

REMARKS

As it was already explained by ALONSO ZARAZAGA (1991), seven North- and Centralamerican species classified in the subgenus *Ceratapion* by KISSINGER (1968) belong in fact to the genus *Trichapion* WAGNER (in its broad sense) of the supertribus *Apionitae*. They all are unrelated to *Ceratapiini* in, among others, 3-segmented and inconnate antennal club, presence of the specialized setae on the 7th elytral interval, tarsal claws dentate, membranous apical lobes of the paramerae present, as well as in biological association to leguminose plants.

The genus *Ceratapion* comprises 51 species, arranged here in five subgenera. Separate keys to both subgenera and species are presented below. As the division into subgenera is based mainly on the genital characters, impractical in use, the key to species is collective.

KEY TO SUBGENERA

1. Tegminal fenestrae very small, depressed and double margined; prostegium pointed medially (figs 275, 291). Internal sac of aedeagus with a pair of fine plates in the orifice (figs 273, 293), without sclerites. Male tarsi unarmed. .... 2.

-. Tegminal fenestrae larger, simple and not depressed, sometimes more or less evanescent. Internal sac of aedeagus without plates in the orifice, often with sclerites. Basal segment of the male hind tarsus usually with a ventral spine. .... 3.

2. Tegminal lateral fold rudimentary or absent (figs 292, 296); prostegium with acute median projection, not incised (figs291, 295). Median lobe of aedeagus with margins of the orifice unarmed, without erect setae. First ventrite in male with a pointed median tubercle. .... *Clementiellus* ALONSO-Z.

-. Lateral fold distinct throughout both outer and inner sides of the parameroid lobes; prostegium incised on either side of the long median projection (figs 275, 276). Median lobe of aedeagus with margins of the orifice minutely toothed, subapically with erect setae, well visible in profile (figs 273, 274). First ventrite in male unarmed. .... *Acanephodus* ALONSO-Z.

3. Pronotal sides with a pleural line. Tegminal lateral fold long and removed from the plate outer edge (figs 307, 315), or sinuous and forming ventral flaps bearing spine-like processes (figs 348-359). Internal sac of aedeagus usually with conical sclerites. .... *Echinostroma* ALONSO-Z.

-. Pronotal sides without a pleural line. Tegminal lateral fold submargine the plate outer edge (figs 380, 398, 446, 602), often indistinct. Sclerites of the internal sac of aedeagus, if present, never conical.
.... 4.

4. Internal sac of aedeagus with sclerites in the median part. Ninth elytral stria joining both first and second stria apically.
.... *Ceratapion s. str.*

-. Internal sac of aedeagus without sclerites, or the sclerites situated in its basal part. Ninth elytral stria joining at most the second stria apically, only in C. opacinum the junction with first stria complete.
.... *Angustapion* subg. nov.

KEY TO *CERATAPION* SPECIES

1. Humeral calli absent, elytra uniformly oval.
.... genus *Protoceratapion* (p. 76)

-. Humeral calli present, sometimes weakly developed.
.... 2.

2. Frons strongly, bump-like raised (figs 450, 553).
.... 3.

-. Frons flat or depressed.
.... 4.

3. Eyes flat. A bump on the frons symmetrical, sub-trapeziform in profile (fig. 552, 553).
.... C. (*Angustapion*) *gibbiceps* (DBR.)

-. Eyes strongly prominent. Frons strongly elevated posterad (fig. 450, 451).
.... C. (*s. str.*) *gibbifrons* (HUST.)

4. Elytra with metallic green, blue, violet or brassy tinge.
.... 5.

-. Elytra testaceous, brown or black, without metallic tinge.
.... 27.

5. Rostrum distinctly dentate at antennal insertion (figs 283, 309, 325, 381-387).
.... 6.

-. Rostrum not distinctly dentiform at antennal insertion, at most angulate or obtusely dilated (figs 259, 278, 333, 338, 360, 373).
.... 22.

6. Mesorostrum monstrually enlarged, at least 2.2× wider than the rostrum apex and nearly as wide as the head (figs 299, 300). Frons concave, with 4 deep striolae.
.... C. (*Echinostroma*) *rhopalorrhynchum* (KHNZ.)

-. Dentiform processes of the mesorostrum smaller, usually much less than twice as wide as the rostrum apex. Frons with other sculpture.
.... 7.

7. Third tarsal segment very small, not wider than the second and at least twice as short as the onychium (fig. 311).
   .... C. (*Echinostroma*) *uniseriatum* (Fst.)
-. Third tarsal segment distinctly wider than the second, at most slightly shorter than the onychium.
   .... 8.
8. Frons flat.
   .... 9.
-. Frons concave.
   .... 20.
9. Vertex impunctate, glabrous or with fine longitudinal striolae. Elytral intervals in median parts at least 3× wider than the striae.
   .... 10.
-. Vertex distinctly punctate and/or longitudinally striolate. Elytral intervals in median parts about 2× wider than the striae.
   .... 12.
10. Rostrum strongly curved (fig. 319). Antennae very thick, with the scape and all funicular segments equally wide (fig. 322). Frons with numerous and distinct striolae on the whole width. Male protibiae expanded inwards apically (fig. 323).
   .... C. (*Echinostroma*) *dentirostre* (Gerst.)
-. Rostrum weakly curved (figs 285, 289). Antennae thinner, first funicular segment wider than the second (fig. 290). Frons punctate or at most with a pair of striolae. Apices of the male protibiae not modified, first ventrite with a small median tubercle.
   .... 11.
11. Punctures on the pronotal disc of 2-2.5 ommatidium size, less than their own diameter apart. Venter of the head in profile without a gular tooth (figs 284, 285).
   .... C. (*Clementiellus*) *orientale* (Gerst.)
-. Punctures on thr pronotal disc of at most single ommatidium size, 2-4 diameters apart. Venter of the head in profile with a small gular tooth (figs 288, 289).
   .... C. (*Clementiellus*) *robusticorne* (Dbr.)
12. Elytra with weak cupreous or brassy lustre.
   .... C. (*s. str.*) *calcaratum* (Woll.)
-. Elytra with green or blue metallic lustre.
   .... 13.
13. Fore protibia spatulate (fig. 336).
   .... C. (*Echinostroma*) *penetrans* (Germ.) (m)
-. Fore protibia not spatulate, at most with apical spine on its inner side.
   .... 14.
14. Transversely wrinkled parts of the temples and underside of the head punctate (fig. 281).
   .... C. (*Acanephodus*) *parens* (Dbr.)

-. Transversely wrinkled parts of the temples and venter of the head impunctate. .... 15.

15. First segment of the hind tarsi with a ventral spine - (males). .... 16.

-. First segment of the hind tarsi without a ventral spine - (females). .... 18.

16. Teeth of the mesorostrum acute, their anterior margins concave, almost perpendicular to the rostrum axis (fig. 382); rostrum 2.70-3.37× longer than mesorostrum width. Protibiae distinctly curved inwards apically, with a conspicuous mucro-like spine (fig. 392). .... *C.* (*s. str.*) *gibbirostre* (GYLL.) (m)

-. Teeth of the mesorostrum more obtuse, their anterior margins not distinctly concave, as oblique to the rostrum axis as the posterior ones. Rostrum usually more than 3.4× longer than mesorostrum width. Protibiae weakly curved inwards to nearly straight, the spine smaller. .... 17.

17. Apices of the protibiae very weakly curved inwards; the spine minute, not sticking out the apical tuft of setae (figs 390, 391). Tegminal plate 2.5-2.8× longer than their width at the fenestrae level (fig. 396). Median lobe of aedeagus as in fig. 395. .... *C.* (*s. str.*) *carduorum* (KBY.) (m)

-. Protibiae stronger curved inwards apically; the spine always sticking out of the apical tuft of setae (fig. 393). Paramerae 3.3-3.6× longer than their width at the fenestrae level (fig. 397). Median lobe of aedeagus as in fig. 394. .... *C.* (*s. str.*) *damryi* (DBR.) (m)

18. Teeth of the mesorostrum acute, their anterior margins concave, almost perpendicular to the rostrum axis (fig. 386); rostrum usually much less than 1.5× longer than the pronotum. Antennal club 2.1-2.7× longer than wide. .... *C.* (*s. str.*) *gibbirostre* (GYLL.) (f)

-. Teeth of the mesorostrum more obtuse, their anterior margins not distinctly concave, as oblique to the rostrum axis as the posterior ones; rostrum more than 1.5× longer than the pronotum. Antennal club 2.7-3.3× longer than wide. .... 19.

19. Rostrum 1.6-1.8× longer than the pronotum, 4.1-5.4 as long as mesorostrum width (fig. 387). Antennae inserted at basal 0.11-0.16 of rostrum. .... *C.* (*s. str.*) *damryi* (DBR.) (f)

-. Rostrum 1.4-1.6× longer than the pronotum, 3.5-4.2 as long as mesorostrum width (fig. 385). Antennae inserted at basal 0.17-0.22 of rostrum. .... *C.* (*s. str.*) *carduorum* (KBY.) (f)

20. The whole head venter coarsely punctate. .... *C.* (*Echinostroma*) *scalptum* (M. & R.)

-. Venter of the head finely, transversely wrinkled, in exceptional cases with minute punctures. .... 21.

21. Body length 1.7-2.1 mm. Pronotal punctures extremely shallow, weakly delimited. Inner side of the male protibiae with a low and sharp longitudinal ridge (fig. 528).
.... *C. (Angustapion) beckeri* (DBR.)
-. Body length 2.1-2.8 mm, usually more than 2.3 mm. Pronotal puncturation distinct and clearly delimited. Male protibiae spatulate (fig. 336).
.... 26.
22. Elytra with weak cupreous or brassy lustre. Frons and entire vertex with dense longitudinal striolae.
.... *C. (s. str.) calcaratum* (WOLL.)
-. Elytra with metallic blue or green lustre. The sculpture of frons and vertex different.
.... 23.
23. The whole glabrous and transversely wrinkled parts of temples and underside of head punctate. Rostrum weakly curved (figs 262, 281). Male legs without any sexual characters.
.... 24.
-. Glabrous and transversely wrinkled parts of temples and venter of head impunctate or with a few minute punctures only. Rostrum distinctly curved (fig. 340). Male protibia spatulate, basal segment of the male metatarsi with a ventral spine.
.... 25.
24. Metarostrum strongly constricted (figs 278, 279). Puncturation of anterior and posterior parts of the temples different, well separated (fig. 281). Punctures on the pronotal disc small, of double ommatidium size (fig. 270).
.... *C. (Acanephodus) parens* (DBR.)
-. Metarostrum weakly constricted (figs 258, 259). Puncturation of anterior and posterior parts of the temples more or less uniform, not distinctly separated (fig. 263). Pronotal puncturation coarser, punctures 2.5-5× ommatidium size (figs 266-269).
.... *C. (Acanephodus) onopordi* (KBY.)
25. Frons flat, striolae not exceeding posterior eye margin. Vertex closely punctate on its whole length. Ventral part of the head mostly with minute punctures at sides.
.... *C. (Echinostroma) penetrans* (GERM.)
-. Frons concave. Only the sides of vertex punctate, the middle smooth or logitudinally striolate. Venter of the head impunctate.
.... 26.
26. Antennae very thick, the scape and all funicular segments equally wide (figs 367, 368). Male: median lobe of aedeagus <6× longer than wide, narrowing and acute apically, internal sac with 10-12 conical sclerites grouped at base (fig. 346); tegminal plate 2.0-2.2× longer than wide, apices of the parameroid lobes on whole width with minute seta-like spines (fig. 358). Female: coxitae of the ovipositor oval, less than 5× longer than wide (fig. 370).

.... *C. (Echinostroma) curtii* (Wgn.)

-. Antennae thinner (figs 364-366), median funicular segments slightly narrower than the first one and the scape. Male: median lobe of aedeagus very long, about 7.5× longer than wide at base, apically rounded with small median projection, internal sac with 5-6 conical sclerites grouped in the median part (fig. 345); tegminal plate >2.5× longer than wide, apices of the parameroid lobes with longer and stronger seta-like spines along the inner margin only (fig.356). Female: coxitae of the ovipositor almost parallelsided, more than 6.5× longer than wide (fig. 369).

.... *C. (Echinostroma) basicorne* (Ill.)

27. Protibia sub-spatulate, apically flattened and slightly twisted. Basal segment of the protarsus flattened laterally (figs 430, 431) (males)

.... 28.

-. Protibiae and protarsi unmodified.

.... 31.

28. Rostrum barely dilated at antennal insertion (fig. 536). Distal segments of antennal funicle elongate, the club not concave at inner side (fig. 540).

.... *C. (Angustapion) kasbekianum* (Gerst.) (m)

-. Rostrum with distinct teeth at antennal insertion. Distal segments of antennal funicle transverse, inner side of the club basally concave.

.... 29.

29. Pronotum and elytra castaneous, legs testaceous. Apex of the median lobe of aedeagus narrowed and pointed; internal sac with 6 long and 2 short sclerites in the median part, arranged in two rows (figs 421, 423).

.... *C. (s. str.) kazakhstanicum* (T.-M.) (m)

-. Pronotum and elytra black, legs piceous brown. Penis apically narrowed, the apex parallel-sided and truncate; internal sac with 4 long and 2-4 smaller and not always present sclerites, forming a pair of clusters (figs 420, 422).

.... 30.

30. Fifth segment of the antennal funicle flattened at inner side, two distal ones concave, the sixth segment 1.3×, the seventh 1.4× wider than long (fig. 414).

.... *C. (s. str.) armatum* (Gerst.) (m)

-. Fifth segment of the antennal funicle convex at inner side, the sixth one 1.1× wider than long, flattened, the seventh 1.25× longer than wide, concave (fig. 415).

.... *C. (s. str.) dalmatinum* (Györ.) (m)

31. Antennal club as long as 6 (male) or 5 (female) distal funicular segments combined (figs 502-505).

.... 32.

-. Antennal club in both sexes not longer than 4 distal funicular segments combined.

.... 35.

32. Body length ca. 3 mm.
.... *C. (Angustapion) bokharanum* (GYÖR.)

-. Body length <2.5 mm.
.... 33.

33. Body ca. 2.4 mm long, entirely testaceous. Elytra relatively wide (fig. 513). Male metasternum with a long median keel (female unknown).
.... *C. (Angustapion) poggii* sp. nov. (m)

-. Body at most 2.1 mm long, dark castaneous to black. Elytra narrower (figs 494, 495, 498, 499). Male metasternum with a median tubercle.
.... 34.

34. Elytra black. Rostrum in male 3.67-4.60, in female 4.96-5.82 as long as mesorostrum width, barely expanded at antennal insertion in female. Head subconical (figs 494, 498).
.... *C. (Angustapion) cylindricolle* (GYLL.)

-. Elytra dark castaneous. Rostrum in male 3.09-3.61, in female 4.15-4.93 as long as mesorostrum width, at antennal insertion with small teeth similar in both sexes. Head subrectangular (figs 495, 499).
.... *C. (Angustapion) longiclava* (DBR.)

35. Rostrum with conspicuous, acute teeth at antennal insertion; if they are small and indistinct (*C. edentatum*, *C. fallaciosum*), then the antennae inserted in a distance less than 0.8 eye length.
.... 36.

-. Rostrum at most slightly angulate at antennal insertion; if forming small teeth, then antennae inserted at a distance of at least 0.9 eye length.
.... 46.

36. Frons distinctly concave. Pronotal puncturation usually evanescent.
.... *C. (Angustapion) beckeri* (DBR.)

-. Frons flat or only in front slightly concave. Pronotal puncturation distinct.
.... 37.

37. Body length more than 2.5 mm. Basal segment of the metatarsus with a ventral spine.
.... 49.

-. Body length less than 2.2 mm; if more, then basal segment of the metatarsus not ventrally spined.
.... 38.

38. Teeth of the mesorostrum very small (figs 690, 694). Sides of the prorostrum with a shallow groove in basal half.
.... 39.

-. Teeth of the mesorostrum conspicuous, triangular or with the anterior margin concave. The groove on the prorostrum sides absent.
.... 40.

39. Female: rostrum 1.4-1.5× longer than the pronotum; head subrectangular; pronotal sides rounded; elytra parallel-sided, dorsally flattened (figs 690, 691).
.... *C. edentatum* (DBR.)
-. Female: rostrum 1.7× longer than the pronotum; head subconical; pronotum cylindrical; elytra oval, uniformly convex (figs 694, 695).
.... *C. fallaciosum* (DBR.)
40. At least a half of the prorostrum covered with yellowish piliform scales.
.... *C. (Angustapion) klapperichi* sp. nov. (f)
-. Prorostrum bare or only at base with some few piliform scales.
.... 41.
41. First elytral stria not joining the 9th one apically. Teeth of the mesorostrum triangular, symmetrical, their anterior margins straight (fig. 475). Frons with striolae indistinct to completely vanishing.
.... 42.
-. First elytral stria joining the 9th one apically. Anterior margins of the mesorostrum teeth arched and concave. At least median part of the frons with striolae distinct, only in *C. kazakhstanicum* vanishing.
.... 43.
42. Pronotum and elytra testaceous to castaneous, only exceptionally completely black. Female rostrum 1.28-1.43 (M 1.38)× longer than the pronotum and 2.91-3.20 (M 3.06) as long as mesorostrum width, in both sexes distinctly curved (figs 477, 481). Pronotum in relation to elytra small (figs 475, 479), with thin walls, elytra/pronotum width ratio m: 1.64-1.67 (M 1.66), f: 1.78-1.90 (M 1.82). Elytra in female distinctly widened posterad.
.... *C. (Angustapion) decolor* (DBR.)
-. Pronotum and elytra consistently black. Female rostrum 1.44-1.71 (M 1.57)× longer than the pronotum and 3.39-4.10 (M 3.69) as long as mesorostrum width, in both sexes straighter (figs 478, 482). Pronotum proportionally larger (figs 476, 480), with thicker walls, elytra/pronotum width ratio m: 1.48-1.64 (M 1.57), f: 1.48-1.67 (M 1.59). Female elytra nearly parallel-sided.
.... *C. (Angustapion) austriacum* (WGN.)
43. Body length 2.3-3.0 mm, usually not less than 2.6 mm. Female metarostrum extremely short, mesorostrum teeth nearly adjoining the eyes (fig. 436). Piliform scales on the elytral intervals arranged in 2-3 confused rows.
.... *C. (s. str.) secundum* (T.-M.)
-. Body length 1.6-2.4 mm, usually less than 2.2 mm. Mesorostrum teeth well separated from the eyes (figs 405-407). Piliform scales on the elytral intervals arranged in a single row.
.... 44.
44. Elytra and pronotum castaneous. Striolae on the frons vanished. Intervals at base of the elytra 1.2-1.3×, in the middle 1.5× wider than the striae.
.... *C. (s. str.) kazakhstanicum* (T.-M.) (f)

-. Elytra and pronotum black, rarely (*C. armatum* from Armenia) piceous brown. Frons distinctly striolate. Intervals at base of the elytra as wide, in the middle at most 1.3× wider than the striae.
.... 45.

45. Anterior margins of the mesorostral teeth deeply indentate (fig. 410). Head broad, subrectangular, with the temples parallel. Elytral sides widening posterad (fig. 405).
.... *C.* (*s. str.*) *armatum* (GERST.) (f)

-. Anterior margins of the mesorostral teeth weakly indentate (fig. 409). Head narrower, subconical, temples slightly converging. Elytra almost parallel-sided (fig. 406).
.... *C.* (*s. str.*) *dalmatinum* (GYŐR.) (f)

46. Head with temples strongly convex (fig.460). Eyes strongly prominent, subconical. Pronotum distinctly transverse, its length/width ratio 0.77-0.88. Elytra 1.6-1.7× longer than wide, with prominent apical part. Body vestiture hardly visible.
.... *C.* (*Angustapion*) *opacinum* (FST.)

-. Temples not or slightly convex. Eyes less prominent, uniformly convex. Pronotum at least as long as wide, exceptionally slightly transverse. Elytra usually at least 1.8× longer than wide, their apex not so strongly prominent. Body vestiture distinct.
.... 47.

47. Antennae very thin, funicle with the first segment 2.1-2.5×, third and fourth more than 1.5× longer than wide (figs 541, 700).
.... 48.

-. Antennae thicker, first funicular segment at most 1.8×, third and fourth less than 1.3× longer than wide.
.... 49.

48. Body strongly elongate, elytral sides almost straight (fig. 537). Head subconical, 1.0-1.2× longer than wide.
.... *C.* (*Angustapion*) *kasbekianum* (GERST.) (f)

-. Body less elongate, elytral sides distinctly, uniformly rounded (fig. 698). Head distinctly transverse.
.... *C. bacanasicum* (BAJT.) (f)

49. Scales on the body lanceolate, at most 5× longer than wide (fig. 670).
.... *C.* (*Angustapion*) *boehmi* (WGN.)

-. Scales on the body piliform to narrowly lanceolate, at least 8× longer than wide.
.... 50.

50. Basal segment of the metatarsus with a ventral spine - males.
.... 51.

-. Basal segment of the metatarsus not ventrally spined - males.
.... 61.

51. Fore and mid tibiae with a small, mucro-like spine apically (figs 609, 610).
.... 52.

the middle of interocular area, in the species having mesorostral teeth conspicuous mostly shortened.

Pronotum with the pleural line visible and mostly distinct; prosternum slightly (0.8-0.9) shorter than the postcoxal part of prothorax.

Elytra clearly elongate, oval, broadest at middle or nearly so, distinctly rounded at sides; striae apically connected 1+2+9, 3+4, 5+6, 7+8, only in *C. rhopalorrhynchum* junction of the striae 1, 2, 9 interrupted; specialized setae present.

Episternal sutures of the mesosternum distinct, ending in small pits. Metasternum at least 1.8× longer than the mid coxae.

Male protibiae usually modified apically, spatulate, expanded inwards or bearing an inner spine; male metatarsus always with a ventral spine.

Tegminal plate connate to the forked basal piece, mostly with a pair of complete median carinae; parameroid lobes usually completely separate; macrochaetae long; lateral fold removed from the plate margin, in most species incurved and strenghtened above the fenestrae to form a pocket; ventral side of the parameroid lobes often with numerous, long, seta-like processes; dorsal portion of ring complete; prostegium slightly produced backwards, usually with stronger sclerotization in middle of the posterior margin.

Median lobe of aedeagus gently narrowed apically, produced into a small, mucro-like process at apex; internal sac entirely closed within the tube, with conical sclerites in basal or central parts and a pair of compact clusters of long spines in the orificial region, the structures absent in *C. rhopalorrhynchum* and *C. uniseriatum,* in which the sac is armed with only minute spines.

Biology. Host plants of the tribus *Cardueae* (*Asteraceae - Lactucoideae*).

Distribution. Western Palaearctic.

Ceratapion (*Echinostroma*) *rhopalorrhynchum* (Yablokov-Khnzorian, 1967)

(figs 299-308)

Apion (*Ceratapion*) *rhopalorrhynchum* Yablokov-Khnzorian, 1967: 88.

Literature: Ter-Minassian, 1972: 800; Bajtenov & Lodos, 1978: 146.

Type material examined

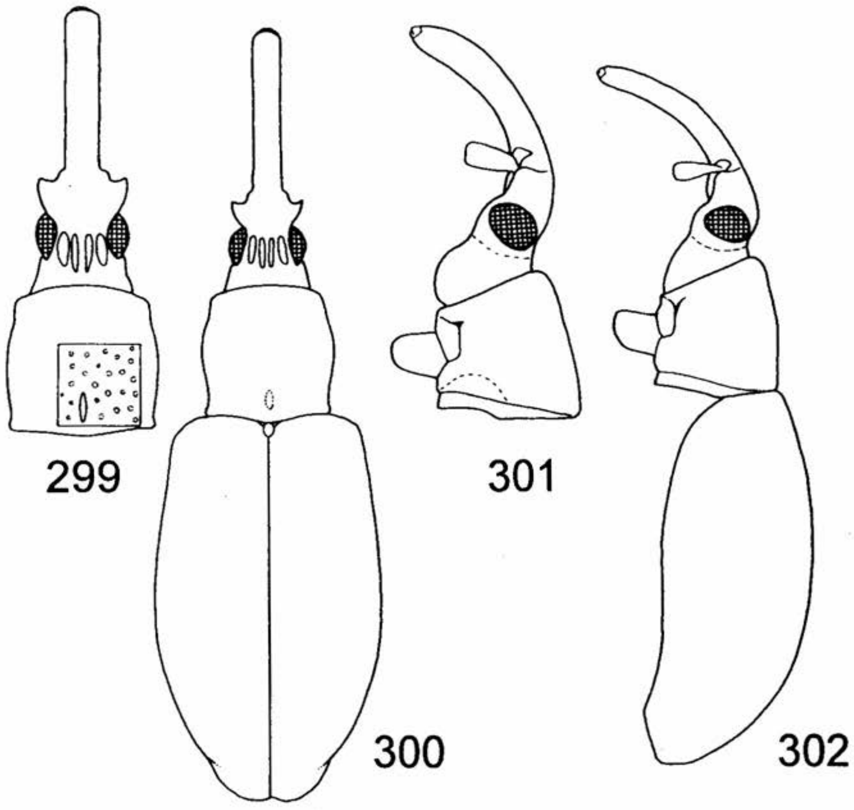
Paratype m: a)Erevan, Dzhreszh, ASSR, 25 V 52, b)paratype, c)*Apion rhopalorrhynchus* Kn., Khnzorian det. (SS).

Description

Body length 2.05-2.51 mm. Elytra with very weak, greenish metalic tinge; pronotum, antennae and legs brownish, but all the examined specimens were somewhat immature. Body vestiture sparse and very fine, hair-like scales grey, on the elytra shorter than 2/3 interval width and arranged in two confused rows on each interval; elytral striae with scales identical as those on the intervals.

Indices. ***rl/pl:*** m: 1.25, f: 1.28-1.33; ***rl/msrw:*** m: 2.33, f: 2.75-2.91; ***scl/msrw:*** 0.58-0.68; ***msrw/mtrw:*** 1.29-1.48; ***msrw/arw:*** m: 2.62, f: 2.20-2.26; ***msrw/minrw:*** m: 2.62, f: 2.32-2.39; ***msrw/eyl:*** m: 1.67, f: 1.38-1.43; ***brl/eyl:*** m: 0.68, f: 0.50-0.53; ***eyl/hl:*** m: 0.69, f: 0.79-0.84; ***hl/hw:*** m: 0.84, f: 0.72-0.75; ***mpw/hw:*** 1.70-1.76; ***bpw/apw:*** 1.02-1.09; ***pl/mpw:*** 1.03-1.04; ***mew/mpw:*** 1.66-1.74; ***el/pl:*** 2.69-2.83; ***el/mew:*** 1.67-1.70; ***mew/bew:*** 1.20-1.24; ***bew/mpw:*** m: 1.45, f: 1.34-1.39; ***pft/msrw:*** 0.56-0.60; ***ptbl/pl:*** m: 1.13, f: 1.05-1.08; ***ptbl/ptbmw:*** 5.63-6.25; ***ptsl/ptbl:*** 0.52-0.60.

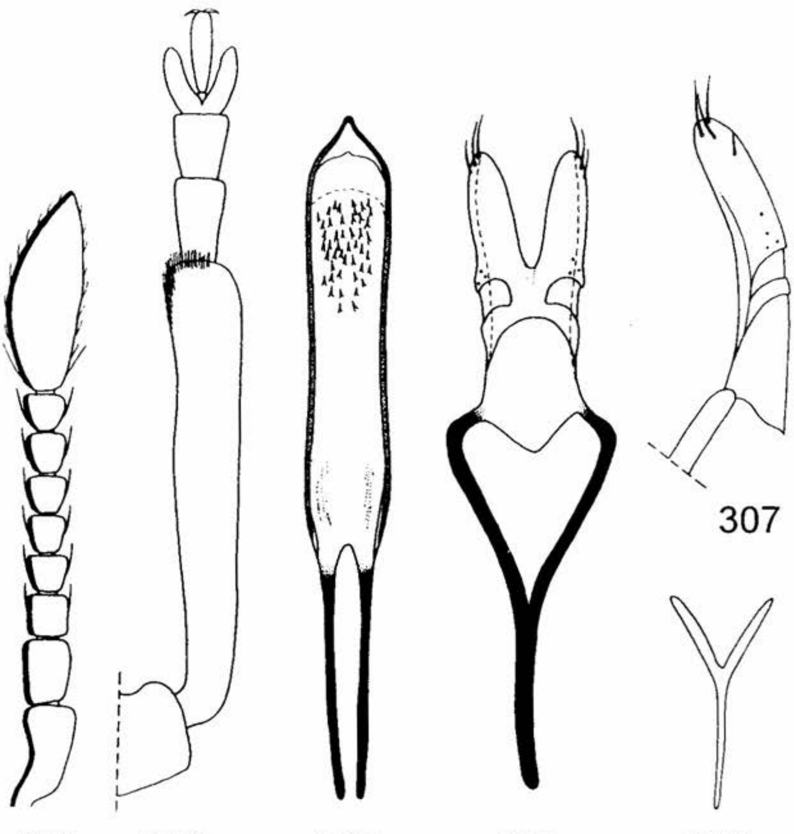
Rostrum strongly curved in either sex, distinctly raised over the head at base; mesorostrum monstrously toothed, in the male as broad as the head, in female only slightly narrower; prorostrum cylindrical, bare, in male completely dull, strongly microsculptured and closely, finely punctate throughout, in female distinctly shining, with only the basal half punctate; antennal scrobes ending in the middle of interocular area on the head underside.



299-302. *Ceratapion (Echinostroma) rhopalorrhynchum*: 299 - male head and pronotum in dorsal view; 300 - female body in dorsal view; 301 - male head and pronotum in lateral view; 302 - female body in lateral view

Antennae thick, thicker in male, distinctly scale-like microsculptured; the insertion point m: 0.17, f: 0.11-0.14; length/width of the scape 2.0-2.1, first funicular segment m: 1.15, f: 1.3-1.4, the remaining segments transverse (male) or isodiametric (female), seventh segment in male 1.3×, in female at most 1.1× wider than long, all of funicular segments weakly narrowing basad, equally wide; club large, as long as 5 distal segments of the funicle combined, 2.6-2.7× longer than broad; antennal pubescence fine and sparse, semi-recumbent, brown opalescent.

Head small; eyes distinctly and evenly convex; frons clearly depressed posteriorly, with four parallel sulci, the outer of which are more conspicuous; vertex short, shallowly punctate; puncturation of the temples somewhat varying in range, which is mostly half eye length; ventral interocular area convex, asperate and with some few scales posteriorly.



303-308. *Ceratapion (Echinostroma) rhopalorrhynchum*: 303 - female antenna; 304 - male fore tibia (lateral view) and tarsus (dorsal view); 305 - median lobe of aedeagus, dorsal view; 306 - tegmen, dorsal view; 307 - tegminal plate, lateral view; 308 - spiculum gastrale

Pronotum with very thick walls, slightly constricted near the base and the apex, weakly rounded at sides; disc flattened, even, microreticulate, finely and diffusely punctate, punctures very shallow, not larger than single ommatidium, about 2-3 diameters apart; prescutellar fovea in form of narrow furrow laying in shallow depression; pleural line very distinct, especially in its upper section.

Elytra weakly widened posterad, with well separated apical part, somewhat flattened on the disc; humeral calli strongly prominent; intervals slightly convex, as wide as the striae at elytra base, twice as wide in middle of the disc; striae shallow, not distinctly edged, with septae at least as long as punctures, stria 1 ending isolated apically.

Legs fairly slender, less so in the male; male protibia not modified, straight; protarsus 3.3-3.4× longer than wide, length/width of second segment 1.2, onychium exceeding third segment by 0.6 length; ventral spine of the male hind tarsus thin, half as long as the tarsal basal segment is high.

Wings of normal length.

Manubrium of the tegmen shorter than the forked basal piece; tegminal plate long, with longitudinal carinae present only near the median notch, without ventral seta-like processes; parameroid lobes nearly 4× longer than fenestrae, evenly rounded apically; macrochaetae 4, one of them distinctly shorter and removed posterad; fenestrae broadly separate, laterally closed by the lateral fold, which is running parallely to the plate margin and evanescent just before middle of the parameroid lobe length; prostegium wedge-like produced backwards, evenly sclerotized.

Median lobe of aedeagus with short apophyses; internal sac finely spinose only in the orificial region, sclerites absent.

Spiculum gastrale broadly forked, manubrium short.

Distribution. Armenia, Turkey* (Anatolia).

Remarks

The only examined male had genital structures not fully sclerotized, so some of them could have been incompletely developed.

Other material examined

TURKEY: Anatolia centr.: vil. Tunceli: Akpazar, 25 V 1988, 3f, leg. Barries & Cate (WS).

Ceratapion (Echinostroma) uniseriatum (Faust, 1885)
(figs 309-316)

Apion uniseriatum Faust, 1885: 185.
Apion sculpticolle Desbrochers, [1897]: 8.
Apion insculpticolle Desbrochers, 1902: 160.
Apion (Ceratapion) remaudierei Ad. Hoffmann, 1956: 248.

Literature: Desbrochers, [1894]: 106; Schilsky, 1901: no.13, 1906b: XVIII; Wagner, 1906b: 190; Bajtenov, 1974: 278; Alonso-Zarazaga, 1991b: 454.

TYPE MATERIAL EXAMINED

A. uniseriatum **FST.** Lectotype f, paralectotype f (coll. FAUST, SMTD). ***A. sculpticolle*** **DBR.** Holotype f (coll. DESBROCHERS, MNHP). ***A. insculpticolle*** **DBR.** Lectotype f (coll. DESBROCHERS, MNHP). ***A. remaudierei*** **HOFF.** Holotype m, paratype f (coll. AD. HOFFMANN, MNHP). For detailed description of type specimens, including the lectotypes designated, see ALONSO-ZARAZAGA (1991b).

DESCRIPTION

Body length m: 2.20-2.83, f: 2.28-3.23 mm. Vestiture sparse, on the elytral disc inconspicuous to completely reduced, the scales on the frons, pronotum and elytra base purely white and as long as the intervals at elytral base, on the remaining part of elytra thinner, greyish, sparingly and randomly distributed, scales in the elytral striae very fine and short, hardly visible or absent in the apical part of elytra. Legs fairly thickly clothed with pure white scales.

Indices. ***rl/pl:*** m: 1.30-1.48, f: [1.32?][1] 1.45-1.60; ***rl/msrw:*** m: 3.25-3.7, f: [3.1?] 3.69-4.40; ***scl/msrw:*** m: 0.60-0.79, f: 0.74-0.88; ***msrw/mtrw:*** 1.14-1.30; ***msrw/arw:*** m: 1.6-1.87, f: 1.42-1.9; ***msrw/minrw:*** m: 1.69-1.87, f: 1.55-1.79; ***msrw/eyl:*** 1.08-1.26; ***brl/eyl:*** m: 0.69-0.84, f: 0.80-0.97; ***eyl/hl:*** 0.57-0.71; ***hl/hw:*** [0.6-0.7] 0.75-0.86; ***mpw/hw:*** 1.30-1.48; ***bpw/apw:*** 0.98-1.10; ***pl/mpw:*** 1.08-1.2; ***mew/mpw:*** 2.04-2.25; ***el/pl:*** [2.55-2.89] m: 2.97-3.28, f: 2.91-3.05; ***el/mew:*** 1.48-1.70; ***mew/bew:*** 1.27-1.45; ***bew/mpw:*** 1.45-1.64; ***pft/msrw:*** 0.77-0.88; ***ptbl/pl:*** m: 1.21-1.31, f: 1.09-1.20; ***ptbl/ptbmw:*** 6.00-6.57; ***ptsl/ptbl:*** 0.50-0.58.

Rostrum strongly arched, not much longer in female; mesorostrum with a fine median furrow dorsally, the teeth large, somewhat obtuse, of equal size in either sex; prorostrum cylindrical, bare, its surface slightly shining, with small, elongate punctures nearly to the apex; antennal scrobes shorter than the cavities, not reaching the head venter.

Antennae very thick, strongly scale-like microsculptured, inserted at basal 0.16-0.21 of rostrum; length/width ratio of the scape 2.0-2.4 [1.5-1.8][1]; the funicle not widened distad, its first segment 1.1-1.5, second 1.0 as long as wide, the remaining ones clearly transverse; club distinctly pointed, 2.20-2.55× longer than wide, as long as 4, rarely 5, distal segments of the funicle combined; antennal pubescence composed of strong, brown setae replaced with piliform white scales on basal segments.

Head distinctly transverse; eyes small, evenly convex; frons flat, thickly striolate, impunctate; vertex glabrous, flat or weakly, transversely depressed; temples punctured on a distance of 0.25-0.30 of the eye length; underside of head between eyes gibbous, densely asperate.

Pronotum very narrow in relation to elytra, parallel-sided; puncturation very thick, coarse, somewhat centrifugal, punctures clearly elongate, interspaces convex,

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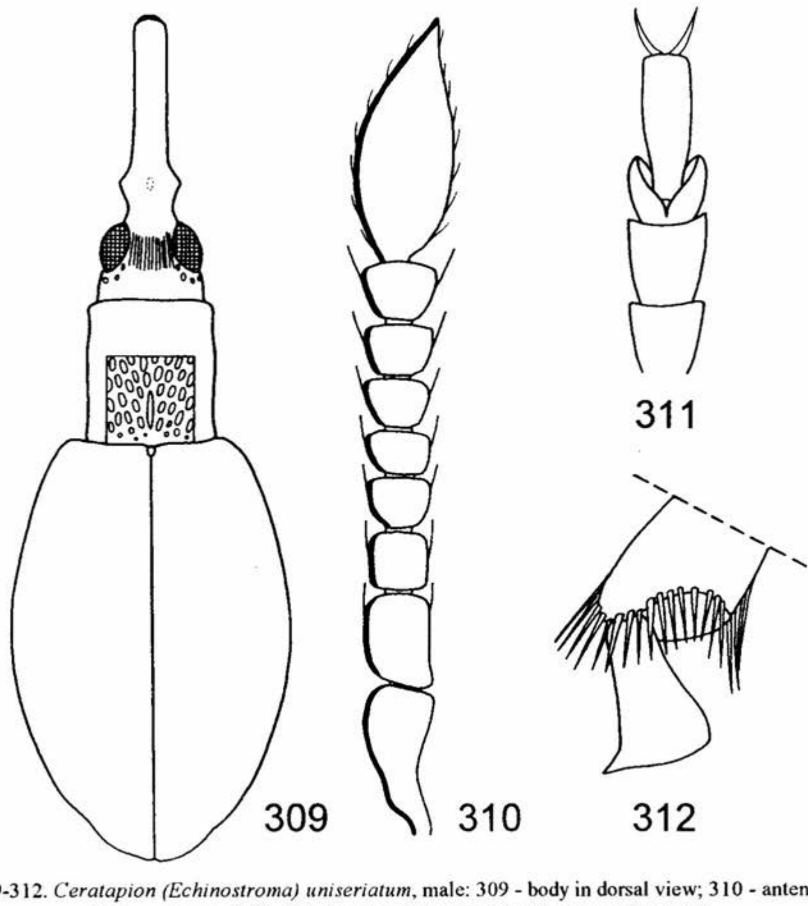
[1]Measurements reported by ALONSO-ZARAZAGA (1991b) are given in square parentheses when strongly different from mine.

strongly microsculptured; prescutellar fovea long, not wider than punctures; pleural line partly to entirely obscured by puncturation.

Elytra similarly shaped in both sexes, strongly widening posterad, broadest slightly behind middle, markedly convex; intervals flat, in median sections 4-5 times wider than the striae, thickly microreticulate and with microscopic punctures which are more distinct closer to the elytra base; striae well deepened, with punctures hardly visible; specialized setae retained in some few specimens.

Fifth ventrite distinctly punctured, convex (more strongly so in male).

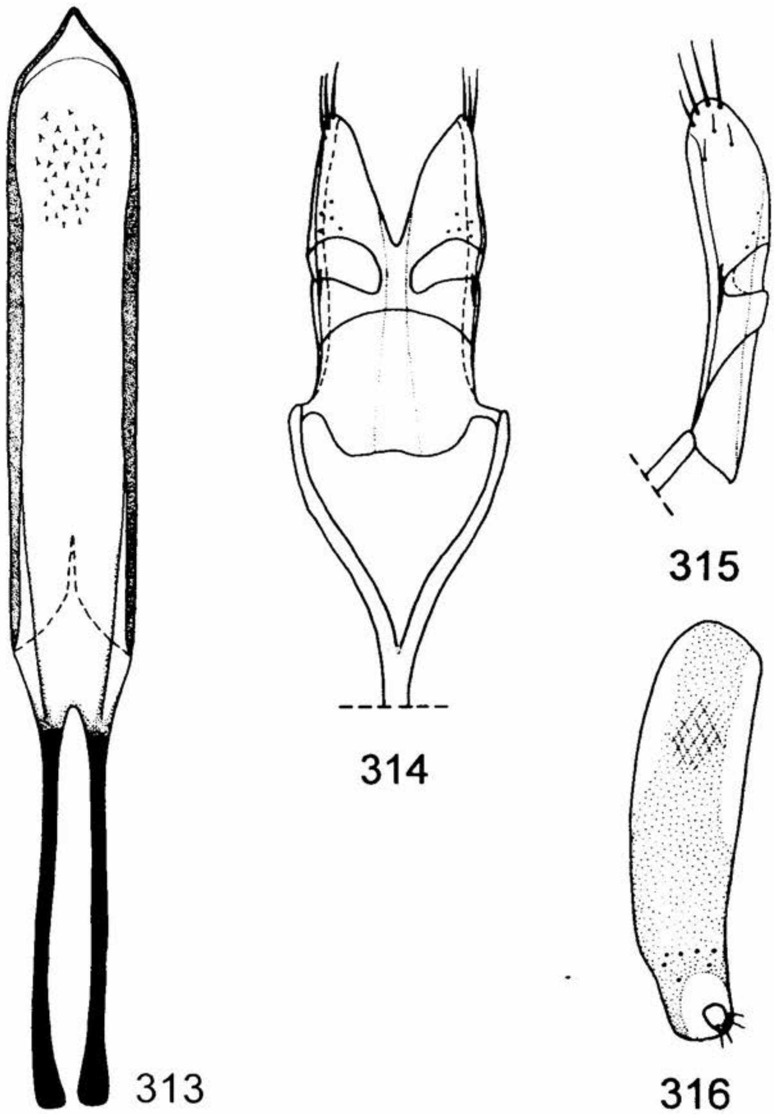
Femora poorly thickened medially; male tibiae without sexual characters, straight; protarsus 3.8-4.0× longer than wide; third segment very small and narrow, not wider than the second one; onychium stout, exceeding third segment by 1.6-1.7 length, clothed with fine brownish pubescence; the "sole" pubescence replaced with strong, brown setae; the spine of the basal segment of the male metatarsus small, hardly projecting over the ventral setosity.



309-312. *Ceratapion (Echinostroma) uniseriatum*, male: 309 - body in dorsal view; 310 - antenna; 311 - protarsus; 312 - tibial apex and the basal metatarsomere in profile

Wings normally long or shortened.

Tegminal plate short; median carinae complete but extremely fine, slightly divergent backwards; macrochaetae 5-7, one to three of them distinctly shorter and removed posterad of apical margin of the parameroid lobe; fenestrae conspicously



313-316. *Ceratapion (Echinostroma) uniseriatum*: 313 - median lobe of aedeagus, dorsal view; 314 - tegmen, dorsal view; 315 - tegminal plate, lateral view; 316 - coxite and stylus of the female ovipositor wider than long, separated by at least 1/3 breadth; lateral fold parallel to the plate margin, reaching nearly the apex of each parameroid lobe, ventral seta-like processes short and rudimentary, present as a few along the lateral fold and only near the outer corners of fenestrae, in some specimens completely vanishing; prostegium weakly projected behind apices of the forked basal piece, subtruncate.

Median lobe of aedeagus parallel-sided, abruptly narrowed and weakly pointed apically; apophyses distinctly shorter than the tubular part; internal sac with only minute and scattered spines in the orificial region.

Coxitae of the female ovipositor with a small, finely reticulate area in basal 1/3 length.

Biology unknown, in Uzbekistan collected from *Cousinia aurea* C. Winkl. by K. Arnoldi.

Distribution. Syria, Iran, Afghanistan, Turkmenistan, Uzbekistan, Tadzhikistan, Kirghistan, South-Eastern Kazakhstan.

Other material examined

AFGHANISTAN: env. Kabul, 1740 m, 21 VI 1952, 22 exs, leg. J. Klapperich, det. E. Voss (ZMUH, KMB); Kabul, Mt Cher Dervazéh, 1860 m, 20 IX 1957, 1f, 27 IX 1957, 2f; Kouh-Qorough n. Tang-Saidan, 200 km E Kabul, 1820 m, 31 V 1960, 1f; Kouh-Tcehel Mastan, 45 km w Herat, 1300 m, no. A1018, 7 VI 1962, 1m - leg. K. Lindberg (MZL).

IRAN: Schirwan: Atrak-Tal, 5 II 1963, 1m, leg. A. Warchałowski (LD); Fariman b. Mesched [Mashhad], 6 I 1966, 1m, leg. A. Warchałowski (SS).

KAZAKHSTAN: Aulie-Ata [Dzhambul], 1 ex. (det. as *rudicolle* Desbr.), coll. Schilsky (MNB), Dzhambul, 10 V 1970, 1m, leg. Skopin (LD); Tian-Shan, riv. Ugam, 28 VII 1973, 1f, leg. M. Bajtenov (ZMUH); Ugamskij khrebet: Sidtak, 1300 m, 5-10 V 1990, 1 ex. (VK).

TADZHIKISTAN: Karateg [Karateginskiy khrebet], 916 m, 1898, 1 ex.; Mts Karateghin [Zaalayskiy khrebet], Baldschuan [Bol'dzhuan, ca. 60 km ESE Dushanbe], 924 m, 1898, 1 ex. - leg. Hauser (NMW); Rangentau khreb., Fachrabat, 50 km S Dushanbe, 16 V 1964, 3 exs, leg. Lopatin (VK); Takob, S slopes of Hissarskiy khreb., 28 VI 1985, 2 exs (VK); Aruktau khrebet: s. Gandzhina, 20 IV 1991, 2m, leg. V. Grachev & D. Stscherbakov (VZ).

TURKMENISTAN: "Turcmenien", 1f, leg. Reitter & Leder (FSF).

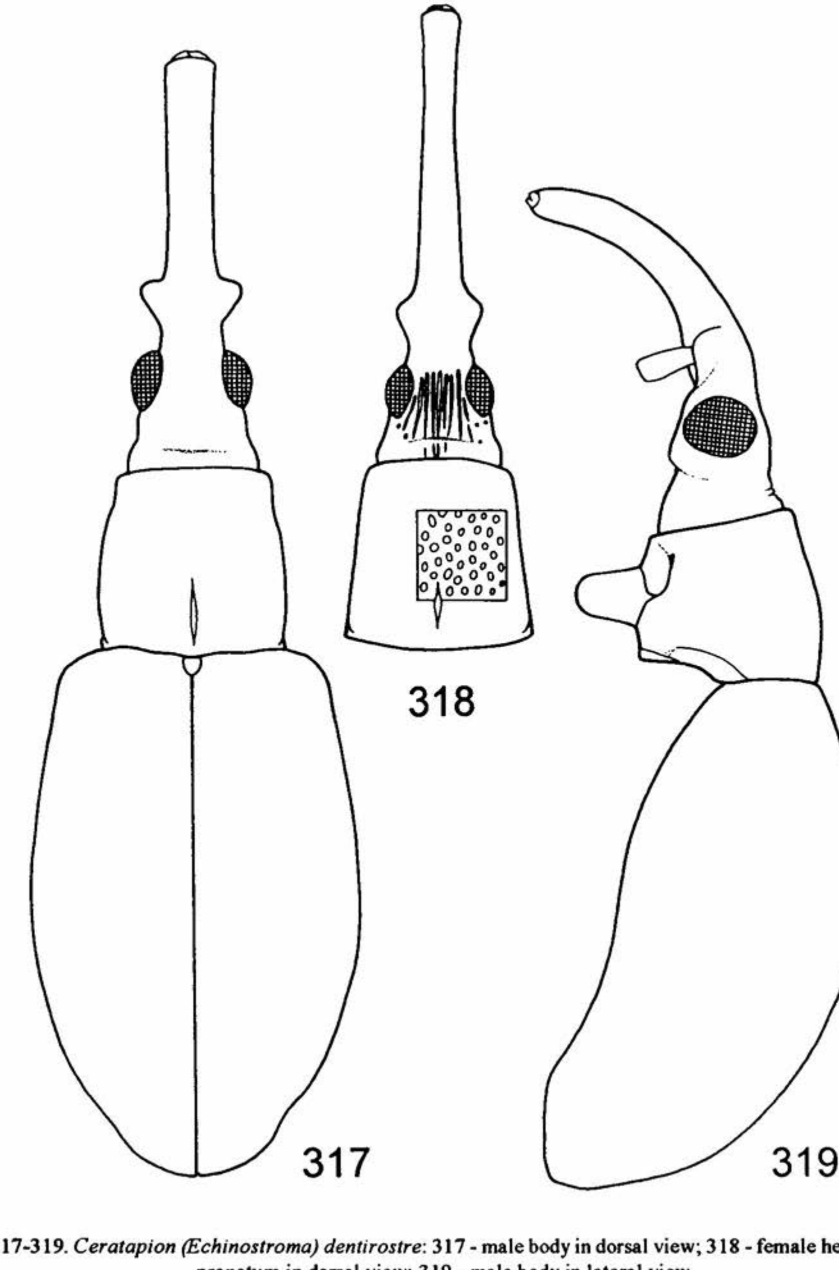
UZBEKISTAN: Samarkand, 1 ex. (det. as *rudicolle* Desbr.), coll. Schilsky (MNB); Surkhandarijskaya obl.: Ishkent n. Yakkabar, 23 IV 1942, 4m 6f, leg. K. Arnoldi (VZ).

Ceratapion (Echinostroma) dentirostre (Gerstaecker, 1854)

(figs 317-324)

Apion dentirostre Gerstaecker, 1854: 236.

Literature: WENCKER, 1864: 128; SCHILSKY, 1902: no.7, 1902b: 365, 1906b: XVIII; PEYERIMHOFF, [1912]: 312; KOCHER, 1961: 23; EHRET, 1990: 229; ALONSO-ZARAZAGA, 1991b: 458.



317-319. *Ceratapion (Echinostroma) dentirostre*: 317 - male body in dorsal view; 318 - female head and pronotum in dorsal view; 319 - male body in lateral view

TYPE MATERIAL EXAMINED

Holotype m (MNB), details given by ALONSO-ZARAZAGA (1991b).

DESCRIPTION

Body length 2.79-3.38 mm. Vestiture very fine, composed of hair-like, greyish, opalescent scales, in two rows on the elytral intervals, less than half as long as interval width, almost invisible in the elytral striae.

Indices. ***rl/pl:*** m: 1.46-1.59, f: 1.67-1.74; ***rl/msrw:*** 2.88-3.6, f: 3.7-4.2; ***scl/msrw:*** [0.62-0.70][1] m: 0.60, f: 0.74; ***msrw/mtrw:*** m: 1.68, f: 1.36; ***msrw/arw:*** 1.8-2.2; ***msrw/minrw:*** m: 2.19, f: 2.28; ***msrw/eyl:*** m: 1.56, f: 1.50; ***brl/eyl:*** m: 1.14, f: 1.22; ***eyl/hl:*** 0.56-0.61; ***hl/hw:*** 0.80-0.95; ***mpw/hw:*** m: 1.58, f: 1.70; ***bpw/apw:*** 1.14-1.26; ***pl/mpw:*** 1.00-1.11; ***mew/mpw:*** m: 1.76, f: 1.93; ***el/pl:*** [2.57-3.00] 2.93-2.96; ***el/mew:*** [1.39-1.62] m: 1.71, f: 1.57; ***mew/bew:*** m: 1.22, f: 1.33; ***bew/mpw:*** 1.44-1.53; ***pft/msrw:*** 0.69-0.72; ***ptbl/pl:*** m: 1.23, f: 1.16; ***ptbl/ptbmw:*** m: [5.4] 4.94, f: 6.40-6.6; ***ptsl/ptbl:*** m: 0.59, f: 0.50.

Rostrum strongly curved, shagreened to apical 1/5 or 1/6, shallowly punctate (more distinctly so in male); teeth of the mesorostrum very large, somewhat obtuse apically, in male with front margins nearly perpendicular to the rostrum axis, in female the teeth a little smaller, more oblique at anterior margins; prorostrum bare, parallel-sided (male) or slightly narrowed medially (female); antennal scrobes vanishing.

Antennae very stout, strongly scale-like microsculptured, inserted at basal m: 0.19-0.22, f: 0.15-0.16 of rostrum; length/width of the scape 1.9-2.1, first funicular segment 1.3-1.4, the remaining segments subquadrate, not becoming wider distad; club slightly shorter than 4 distal funicular segments together, in basal half with strong, dark setae, 2.5-2.7 [2.7-3.2][1] as long as broad; antennal pubescence sparse, brownish, barely protruding.

Head sub-conical; eyes larger and more convex in male; frons flat, with striolae distinct and often extending to the vertex; vertex with a deep transverse depression or sulcus separating the strongly elevated posterior part of head; puncturation of the vertex and the upper parts of temples, fine to completely absent; venter of head between eyes with large and flattened asperities, in profile strongly angulate beneath the eyes.

Pronotum distinctly narrowed anterad, straight or slightly arcuate at sides, with subapical constriction nearly absent; disc poorly convex, with the front margin not raised, punctures not larger than 2 ommatidia, 0.5-1 diameter apart, interspaces flat, weakly microreticulate and slightly shining; prescutellar fovea as narrow as punctures, often prolonged nearly to the middle of pronotum.

Elytra similar in both sexes, broadest at middle, strongly rounded and convex; intervals flat, in middle of elytra 3.5-4× wider than the striae; striae well impressed, with septae about twice as long as punctures.

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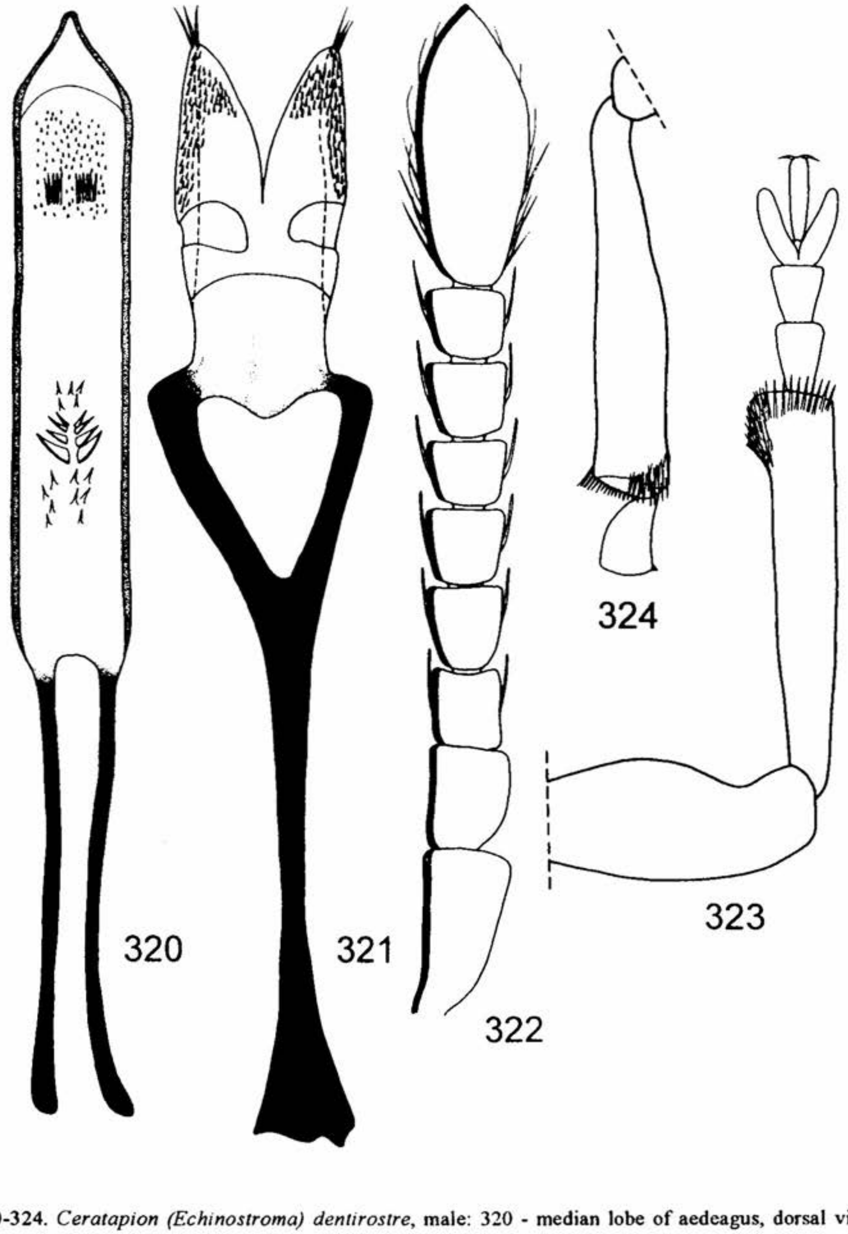
[1]Measurements reported by ALONSO-ZARAZAGA (1991b) are given in square parentheses when strongly different from mine.

Femora moderately thickened medially; male protibia broadly expanded inwards apically, bearing a minute, hardly visible spine; protarsi ca. 3× longer than wide; length/width of its first segment 1.3-1.4, second 1.0-1.1; onychium exceeding



320-324. *Ceratapion (Echinostroma) dentirostre*, male: 320 - median lobe of aedeagus, dorsal view (modified from Alonso Zarazaga, 1991b); 321 - tegmen, dorsal view; 322 - antenna; 323 - fore femur, tibia (lateral view) and tarsus (dorsal view); 324 - hind tibia and first metatarsomere (lateral view) third segment by less than half length; ventral spine of the male metatarsi extremely small and entirely covered by the "sole" pubescence.

Wings and their muscles well developed.

The forked basal piece of tegmen very stout; tegminal plate about twice as long as wide; macrochaetae 4, situated apically; ventral side of the parameroid lobes broadly and thickly covered with short spine-like processes; fenestrae widely separate; lateral fold slightly incurved, even; prostegium hardly projecting, more strongly sclerotized near the posterior margin.

Median lobe of aedeagus shaped as in the previous species; apophyses only slightly shorter than the tubular part; internal sac with a pair of clusters of long spines and dense, confused minute spines in the orificial region, basal half of the sac with 4-8 conical sclerites differing in size, arranged in more or less regular two rows and surrounded by several large spines.

Inner margin of each female coxite deeply excavate and strongly sclerotized. Spermatheca strongly varying in shape.

Bionomic details unknown, adults were collected on *Centaurea seridis* L. *v. auriculata* J. BALL. in coastal habitats.

Distribution. Northern Morocco, Southern Spain.

OTHER MATERIAL EXAMINED

MOROCCO: Tanger, 1f, leg. OLCESE, coll. TOURNIER (MHNG).

Ceratapion (Echinostroma) scalptum (MULSANT & REY, 1858)

Literature: WENCKER, 1864: 131; BEDEL, 1887: 364; DESBROCHERS, [1894]: 99, [1898]: 35; SCHILSKY, 1902: no.9, 1906b: XVII; WAGNER, 1906: 33; REITTER, 1916: 244; SCHATZMAYR, 1925: 89; HUSTACHE, 1931: 52; NORMAND, 1937: 236; HOFFMANN, 1958: 1517; KÖSTLIN, 1973: 90; ANGELOV, 1976: 73; DIECKMANN, 1977: 84; LOHSE, 1981: 157; EHRET, 1983: 135, 1990: 230; BAJTENOV, 1983: 60; BEHNE, 1989: 321; ALONSO-ZARAZAGA, 1991b: 463; KOROTYAEV et al., 1993: 841.

KEY TO SUBSPECIES

1. Frons weakly depressed. Antennae shorter and thicker; length/width of the scape 2.5-3.0, second funicular segment m: 1.4-1.7, f: 1.3-1.4. Size on average 2.60 mm.
 .... *C. (E.) scalptum scalptum* (M. & R.)

-. Frons deeply excavated. Antennae longer and thinner; length/width of the scape 3.0-3.4, second funicular segment m: 1.8-2.0, f: 1.5-1.9. Size on average 2.85 mm.
 .... *C. (E.) scalptum caviceps* (DBR.)

Ceratapion (*E.*) *scalptum scalptum* (Mulsant & Rey, 1858)

(figs 328, 330, 331, 347, 350, 351)

Apion scalptum Mulsant & Rey, 1858: 267.
Apion scalptum Mulsant & Rey, 1859: 9.

Type specimens not examined, they are probably preserved at the National History Museum in Lyon.

Description

Lenght 1.95-2.78 (on average 2.6) mm. Body vestiture distinct, white, sometimes opalescent, hair-like scales shorter than the elytral interval wide, arranged in two rows per interval on the elytra, scales in the striae sparsely distributed, slightly shorter than those on the intervals.

Indices. ***rl/pl:*** m: [1.21][1] 1.28-1.32, f: 1.25-1.39; ***rl/msrw:*** m: 3.2-3.6, f: 3.6-3.96 [4.2]; ***scl/msrw:*** m: 0.95-1.13 (M 1.07), f: 1.06-1.16 (M 1.10); ***msrw/mtrw:*** 1.12-1.21 (1.16); ***msrw/arw:*** m: 1.7-1.90, f: 1.5-1.8; ***msrw/minrw:*** 1.74-2.00; ***msrw/eyl:*** 1.00-1.19; ***brl/eyl:*** m: 0.85-1.02 (M 0.91), f: 0.69-0.85 (M 0.78); ***eyl/hl:*** 0.63-0.86; ***hl/hw:*** 0.59-0.83; ***mpw/hw:*** m: 1.39-1.51 (M 1.47), f: 1.49-1.58 (M 1.53); ***bpw/apw:*** 1.10-1.24; ***pl/mpw:*** 1.00-1.16; ***mew/mpw:*** 1.64-1.81; ***el/pl:*** [2.29-2.73] m: 2.69-2.82, f: 2.81-2.99; ***el/mew:*** 1.56-1.86 ; ***mew/bew:*** 1.15-1.28; ***bew/mpw:*** 1.36-1.47; ***pft/msrw:*** m: 0.69-0.76, f: 0.76-0.86; ***ptbl/pl:*** 1.00-1.11; ***ptbl/ptbmw:*** m: 4.07-4.86 [5.2], f: [5.2] 5.67-6.42; ***ptsl/ptbl:*** 0.50-0.58.

Rostrum distinctly arched; metarostrum in male clearly longer than in female, scarcely narrower and weakly separated from mesorostral teeth, thus making the whole basal part of rostrum much broader than the prorostrum; female mesorostral teeth smaller, well separate from the metarostrum posteriorly; prorostrum at least in apical half strongly shining, distinctly punctate basally, punctures evanescent apicad; antennal scrobes reaching half eye length on the head venter, obtusely edged laterally and well margined at posterior ends.

Antennal insertion at basal m: 0.21-0.26, f: 0.14-0.18 of rostrum; scape long and very thick, funicle slender, longer in male; length/width of the scape 2.5-3.0, first funicular segment 1.3-2.0, second m: 1.4-1.7, f: 1.3-1.4, third m: 1.7-1.9, f: 1.2-1.4, fourth m : 1.4-1.9, f: 1.1-1.3; fifth to seventh m: 1.2-1.5, f: 0.9-1.1; club 2.2-2.7× longer than wide, slightly more elongate in male; antennal pubescence long and strongly outstanding, brownish and opalescent; in male funicle especially on basal segments with very long, suberect ventral setae being distinctly longer than the respective funicular segment.

Head distinctly depressed in front, in profile to nearly the level of posterior eye margins only slightly higher than the rostrum base, then abruptly globose underneath; eyes slightly larger and less convex in male; posterior part of the frons

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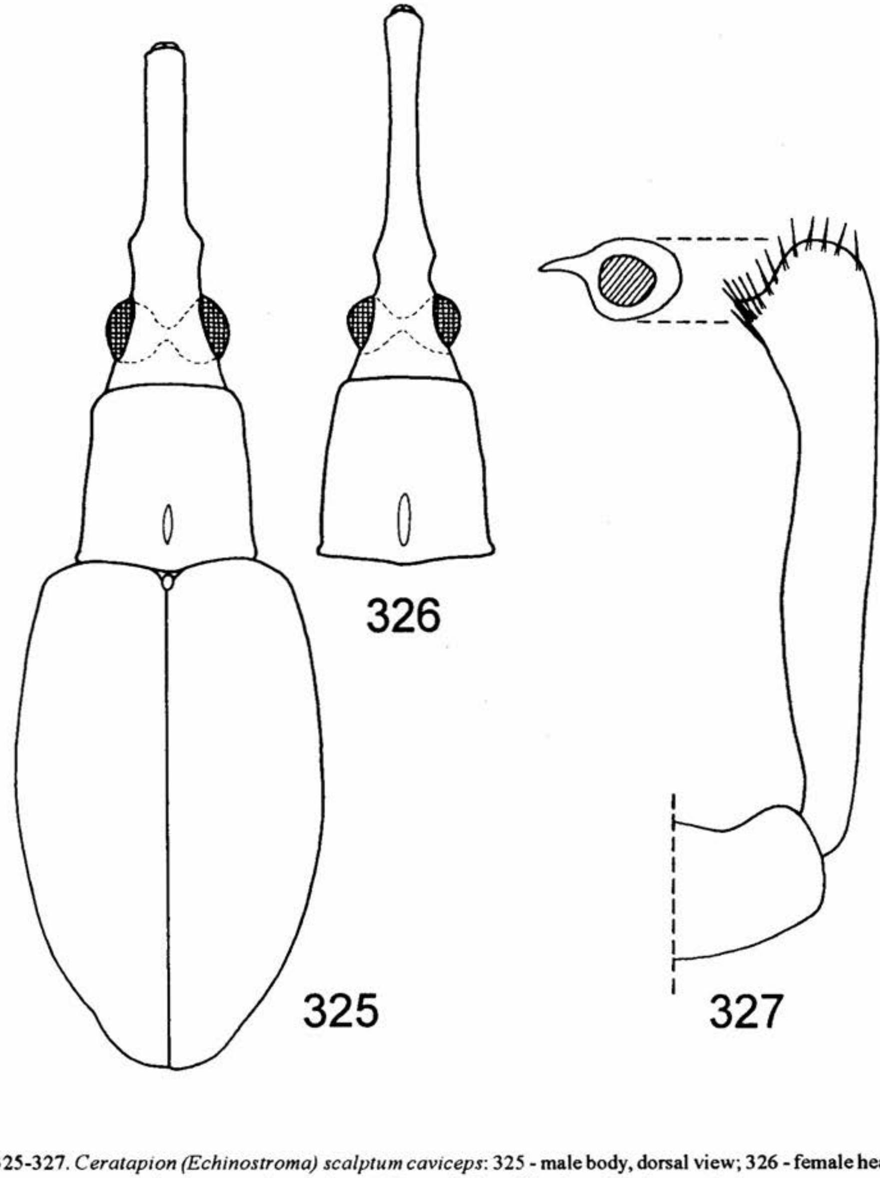
[1]Measurements reported by Alonso-Zarazaga (1991b) are given in square parentheses when strongly different from mine.

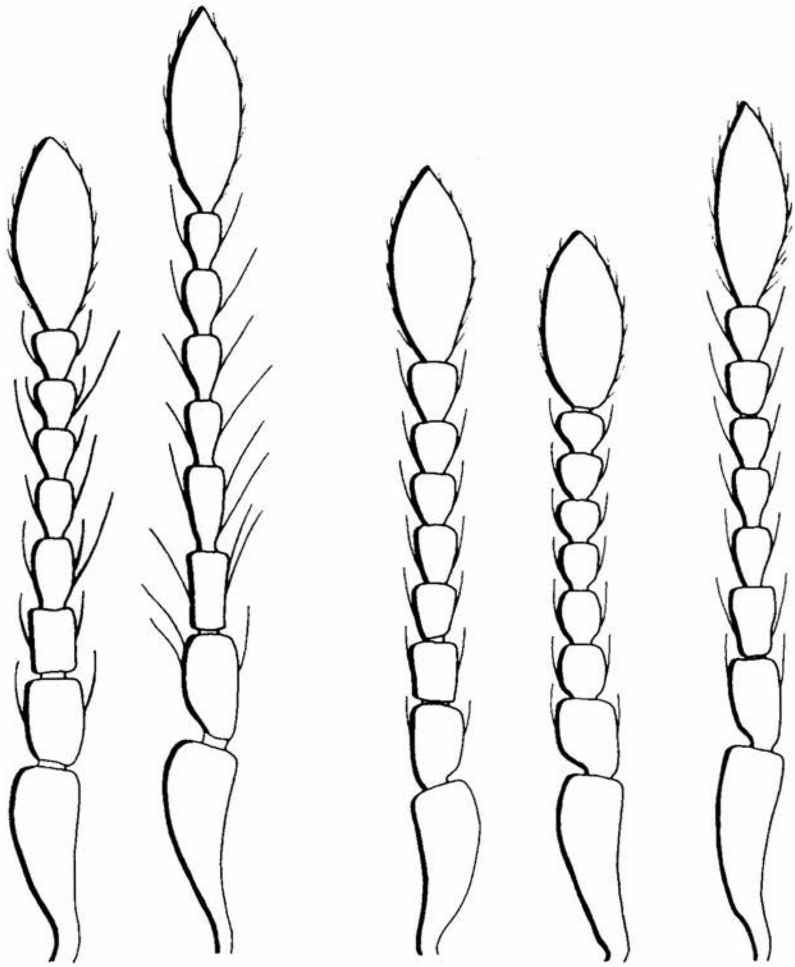
distinctly concave (more strongly so at sides than in middle), without striolae or sulci; vertex strongly raised posterad; the whole frons, vertex, temples and underside of head to the pronotum margin with thick and coarse puncturation; gular suture broad and deep.



325-327. *Ceratapion (Echinostroma) scalptum caviceps*: 325 - male body, dorsal view; 326 - female head and pronotum, dorsal view; 327 - male fore tibia, lateral and ventral view

Pronotum with very thick walls, weakly trapeziform; disc not convex, coarsely punctate, punctures deep, 4-6× ommatidium size, interspaces convex and shiny, weakly microreticulate, very narrow (0.15-0.25 puncture diameter); prescutellar fovea long and broad, often 1/3 pronotum length.

Elytra uniformly oval, gently convex; intervals flat to weakly raised, in middle of length 2-2.5× wider than the striae; striae strongly impressed, with septae twice as long as minute punctures.



328 329 330 331 332

328-332. Antenna: 328 - *Ceratapion (Echinostroma) scalptum scalptum*, male; 329 - *C. (E.) scalptum caviceps*, male; 330,331 - *C. (E.) scalptum scalptum*, female (variation); 332 - *C. (E.) scalptum caviceps*, female

Femora fairly slender; apices of male protibia strongly expanded inwards to form a somewhat hook-like process; tarsi slender, 2.8-3.2× longer than broad; first segment of the protarsus 1.5-1.6, second 1.1-1.2 as long as wide, onychium exceeding third segment by 0.4-0.5 length; male metatarsus with the ventral spine long and narrow, slightly longer than half of the basal segment of tarsus height.

Tegminal plate about 2× longer than wide; longitudinal carinae extremely fine, often incomplete on the prostegium; parameroid lobes notched to the fenestrae, their inner sides without both ventral and dorsal spines, outer sides broadly armed with long, ventral seta-like prosesses arranged as in figs 350, 351; macrochaetae 4-7, two or three of them longer, situated apically, the remaining 2-4 shorter and subapical; fenestrae distinctly transverse; lateral fold strongly incurved and pocket-like on the parameroid lobes, absent on the dorsal portion of ring; prostegium with minute, strongly sclerotized carina on the posterior margin.

Median lobe of aedeagus relatively broad (fig. 347); apophyses half as long as the tubular part; internal sac in the orificial region with numerous and fairly broad basally small spines and a pair of clusters of long spines, basal half with widely distributed conical or subconical sclerites, ca. 20 in number.

Biology. Oligophagous on plants of the tribus *Cardueae*. The larvae were found boring in the stems of *Silybum marianum* (L.) GAERTNER in Italy. Adults were observed on many species of the genera *Carduus* (*acanthoides* L., *pycnocephalus* L.), *Cirsium* (*arvense* (L.) SCOP., *dissectum* (L.) HILL, *vulgare* (SAVI) TEN.), *Cynara* (*scolymus* L., *cardunculus* L.), *Onopordum* (*acanthium* L., *illyricum* L.), *Galactites* (*tomentosa* MOENCH), *Carthamus* (*tinctorius* L.) and *Centaurea* (*calcitrapa* L., *solstitialis* L.).

Distribution. Tunisia, Algeria, Spain (incl. Baleares), Portugal, France (incl. Corsica), Italy (incl. Sicilia & Sardinia), Austria, Southern Germany, Croatia, Herzegovina, Montenegro, Ukraine* (Crimea).

The occurrence in Austria and Southern Germany should be confirmed by more recent findings, both records are nearly a hundred years old. Recorded also from Silesia (GERHARDT, 1910), which was certainly based on misidentification.

OTHER MATERIAL EXAMINED

AUSTRIA: Vindobona (Wien), 1f, leg. HOFFMANN (MHNG).

CROATIA: Split, 6 X 1929, 1f, leg. V. KODRIC (MHNG).

FRANCE: 1f (SS); Provence, 1 ex.; Ain: Plantay, 1 ex., coll. A. FAUVEL; Herault: La Boissiere, 1f, leg. H. LAVAGNE (IRB); Pyrénées Or.: Port Vendres, 1f, leg. L. PUEL; Himes, 1m 2f, leg. A. HUSTACHE; Aix en Provence, 1m 2f, leg. A. COMELLINI (MHNG).

ITALY: Sicilia: 2 exs (IRB, ZMC); Nicolosi, 1400 m, 1 VIII 1969, 4f (LM); Colle S. Rizzo (Messina), VII 1959, 1m; Mt Etna, Bosco d. Cubania, 28 VIII 1956, 5f, leg. GULLI; Feminina morta, 15 VI 1961, 2m, leg. M. MAGISTRETTI; Focisimato, 22 X 1985, 1m (GO); Sardinia: Pula, 6-12 VI 1973, 1f, leg. W. LIEBMANN (SMNS); Buccheri, 800 m, 21 VII 1969, 3m (LM); Is. S. Antioco, Funtenacanai, 13 V 1988, 1m (GO); Lazio: Roma, 2 exs (ZMC); S. Felice Circeo, 2 VI 1960, 1 ex., leg. W. LIEBMANN (SMNS); Puglia: S. Giovanni R., 700 m, 14 VIII 1970, 1f; Toscana: M. Amiata, 1000 m, 16 VIII 1983, 1f; Veneto: Verona, M. Pastello, VI 1954, 1f - leg. L. MAGNANO (LM); Rovigno [Rovigo], 1m, leg. A. SCHATZMAYR; Lombardia: Bellagarda [Bellaguarda], X 1922, 1f, leg. R. BÉRARD (MHNG); Calabria: La Sila, M. Paleparto, VIII 1962, 1f (GO); Molise: Mte Pagano, 1m, leg. PAGANETTI (SMNS).

SPAIN: Madrid, 1 ex., coll. LETHIERRY (IRB); Sierra Nevada, 21-24 VII 1926, 2 exs, leg. LINDBERG (ZMH).

TUNISIA: Le Kef, 1m, leg. NORMAND (IRB).

UKRAINE: Crimea: Sevastopol, X 1940, 1f, leg. K. ARNOLDI (VZ).

Ceratapion (E.) scalptum caviceps (DESBROCHERS, 1870)

(figs 325-327, 329, 332)

Apion caviceps DESBROCHERS, 1870: 201.
Apion pilicorne DESBROCHERS, [1875]: 26.
Apion scalptum var. *syriacum* WENCKER, nom. nudum ! (MARSEUL, 1863).

Literature: DESBROCHERS, [1894]: 99, [1897]: 11, 37; SCHNEIDER & LEDER, 1878: 49; SCHILSKY, 1901: no.17 (*pilicorne*), 1906b: XVII (*pilicorne*); BALFOUR-BROWNE, 1944b: 152 (*pilicorne*); TER-MINASSIAN, 1972: 800 (*pilicorne*); BAJTENOV, 1974: 278 (*pilicorne*);

TYPE MATERIAL EXAMINED

***A. caviceps* DBR.** Holotype f (coll. DESBROCHERS, MNHP). ***A. pilicorne* DBR.** Lectotype m, paralectotypes: 15 exs (1 ex. - coll. DESBROCHERS; 1 ex.: "Beyruth", 13 exs: "Lebanon" - all with "type" label in coll. LA BRULERIE) (MNHP). Lectotype designated and type specimens described in detail by ALONSO-ZARAZAGA (1991b).

DESCRIPTION

Lenght 2.68-2.91 (on average 2.85) mm. Legs predominantly brownish or clearly brown.

Indices. ***rl/pl:*** [1.21][1] 1.27-1.37, f: 1.32-1.43; ***rl/msrw:*** m: 3.41-3.85, f: 4.21-4.80; ***scl/msrw:*** 1.09-1.30 (M 1.21), f: 1.26-1.35 (M 1.29); ***msrw/mtrw:*** 1.05-1.18 (M 1.12); ***brl/eyl:*** m: 0.96-1.08 (M 1.00), f: 0.76-0.91 (M 0.85); ***mpw/hw:*** m: 1.47-1.56 (M 1.50), f: 1.52-1.62 (M 1.57); ***el/pl:*** [2.29-2.73] 2.73-2.94; ***el/mew:*** m: 1.76-1.84 (M 1.80), f: 1.69-1.76 (M 1.73); ***ptbl/ptbmw:*** m: 4.29-4.80 [5.2], f: [5.2-5.9] 6.50-7.29. The remaining indices as in the nominate subspecies.

Female rostrum longer than in *C. scalptum scalptum* (rl/msrw !). Antennae in both sexes longer and thinner, their insertion point m: 0.25-0.27, f: 0.15-0.18; length/width of the scape 3.0-3.4, first funicular segment 1.8-2.0, second m: 1.8-2.0, f: 1.5-1.9, third m: 1.8-2.1, f: 1.5-1.6, fourth m: 1.6-1.9, f: 1.4-1.6, fifth to seventh

[1] Measurements reported by ALONSO-ZARAZAGA (1991b) are given in square parentheses when strongly different from mine.

m: 1.5-1.6, f: 1.2, club 2.8-3.2; antennal pubescence especially long in male. Frons deeper excavated.

The remaining external characters and genital structures as in the nominate subspecies.

Biology. In Pakistan bred from the stems of *Carthamus oxyacantha* BIEB. ALONSO ZARAZAGA's (1991b) account on larval feeding in stems of *Carthamus lanatus* L. in Greece apparently refers to this subspecies.

Distribution. Israel, Lebanon, Syria, Turkey, Cyprus, Greece, Bulgaria, Iran, Afghanistan, Pakistan, Armenia, Azerbaijan, Georgia, Russia (Dagestan)?, Kazakhstan, Turkmenistan, Uzbekistan, Tadzhikistan, Kirghistan.

REMARKS

Both DIECKMANN (1977) and ALONSO-ZARAZAGA (1991b) considered the geographical variation of *C. scalptum* as clinal, and the form *caviceps (=pilicorne)* as not specifically or subspecifically distinct. I adopt an opposite view point, as the variation, though remarkable, seems to be distinctly incontinuous in the Balkans. A few specimens somewhat intermediate in the antennal characters and expression of frontal excavation were observed by me in Bulgaria and Greece, but all of them could be easily recognized as closer to *C. scalptum caviceps*. The specimens from both Western Turkey and the former Yugoslavia have in all the characters typical for the respective subspecies. Both the taxa show in south-eastern Europe the distribution pattern analogous to that of *Ceratapion o. onopordi* and *C. o. parviclava*.

OTHER MATERIAL EXAMINED

AFGHANISTAN (NE): Badakshan: Faizabad, Kokschatal, 1450 m, 7 VIII 1953, 1f, leg. J. KLAPPERICH (KMB).

ARMENIA: Chosrov, 5-15 VI 1987, 1f (VK).

AZERBAIJAN: Lenkoranskij raj.: Alekseevka, 6 VII 1975, 1m, leg. BELOV (VZ).

BULGARIA: Nessebar, VII 1961, 1m, leg. Beck (SS), 12 IX 1965, 1 m, leg. T. PALM (MZL); Tolbuchin, 17 VII 1957, 1 ex., leg. W. BAZYLUK (IZW).

CYPRUS: Limassol, 24 IV-15 V 1977, 2f, leg. R. KÖSTLIN (SMNS).

GEORGIA: Bekami, 16 VII 1983, 1f; Achaldaba-Kvisheti, 22 VII 1983, 1f - leg. LOPATIN (VK).

GREECE: 1 ex., leg. KRUEPER (NMW); Kos, Ammos, 27 VIII-1 IX 1981, 1 ex., leg. T. PALM (MZL).

IRAN: Khorassan, Kopet Dag Mts, 15 II 1963, 1f, leg. A. WARCHAŁOWSKI (DEI); Guilan: Chelavand/Astara, 38°19'N/48°51'E, 27 VI 1973, 17 exs; Lahidjan, 37°11'N/49°54'E, 5 VII 1973, 4 exs; Kermansah: Mahi Dasht, 34°14'N/46°42'E, 4 VIII 1973, 1f; Fars: Izad Khast, 31°31'N/52°09', 16 VIII 1973, 1m; Lorestan: Aligudarz, 33°21'N/49°48'E, 7 VIII 1973, 1m; Khorassan: Bodjnourd, 37°29'N/57°26', 26 VII 1974, 1m; Azerbaidjan: N Saghez, 36°23'N/46°12'E, 18 IX 1975, 1m 2f - leg. A. SENGLET (MHNG).

LEBANON: 4 exs (SS, MHNG, IRB); Beirut, 1878, 1 ex. (NMW); Ainab s. Beirut, 700 m, 13 V 1956, 29 IX 1959, 2f, leg. J. KLAPPERICH (ZMUH); Chouf, Deir el Kamar, 900 m, 27-30 V 1972, 1f, leg. BRIGNOLI; Dahr-el-Baidar, 1500 m, 25 VI 1971, 1f, leg. OSELLA (GO).

TADZHIKISTAN: "Ost-Buchara": Tschitschantau, 1898, 2 exs; Prov. Kul'ab: Ak-sou-Thal, 1898, 1 ex. - leg. HAUSER (NMW); Dushanbe, 800-1200 m, 4-14 IX 1983, 1m, leg. W. ARNOLD (DEI); Karateghinskiy Khr., Komarou riv., 7 VII 1975, 1f, leg. LOPATIN (VK).

TURKEY: vil. Ankara: Kalecik, 850 m, 10 VII 1972, 2m 4f; Kuçukkoyu, 29 VI 1973, 1f; Kayseri - Gomag istasyonu, 28 VIII 1977, 1m; Diyarbakir dint., 28 VI 1971, 1f; vil. Bolu: Abant, 1000 m, 21 VI 1975, 1f; Yozgat dint., 1300 m, 26 VI 1975, 1f; vil. Manisa, Boz dag, 1500 m, VII 1973, 1m; vil. Editne: Uzun Köpru, 22 VI 1973, 1f - leg. M. & G. OSELLA; Abent Bolu, 31 VII 1968, 1m, leg. J. KLAPPERICH (GO); Maras, 800 m, 1f, leg. MUCHE (SMTD).

UZBEKISTAN: Surchandarijskaya obl.: Ishkent n. Yakkabar, 27 X 1941, 1f, leg. K. ARNOLDI (VZ).

Ceratapion (*Echinostroma*) *penetrans* (GERMAR, 1817)

Literature: WENCKER, 1864: 134; FRAUENFELD, 1866: 965; BEDEL, 1887: 364; DESBROCHERS, 1891: 323, [1894]: 96, [1897]: 9 (*ovipenne*), 1908: 97; SCHILSKY, 1901: no.18, 1902b: 366, 1906b: XX; REITTER, 1916: 245; SCHATZMAYR, 1925: 85; HUSTACHE, 1931: 55; GYÖRFFY, 1956: 7; HOFFMANN, 1958: 1518; SCHERF, 1964: 118; SMRECZYŃSKI, 1965: 49; CHROLINSKY, 1965: 108; SOLODOVNIKOVA, 1969: 291; SOLODOVNIKOVA & TALITSKIY, 1972: 788; IOANNISIANI, 1972: 268; TER-MINASSIAN, 1972: 800; KÖSTLIN, 1973: 90; BAJTENOV, 1974: 278; ANGELOV, 1976: 75; DIECKMANN, 1977: 85; LOHSE, 1981: 156; EHRET, 1990: 230; ALONSO-ZARAZAGA, 1991b: 472; KOROTYAEV et al., 1993: 841.

KEY TO SUBSPECIES

1. Tegminal plate 1.7-2.0× longer than wide; inner margins of the parameroid lobes with few to several long spines often forming a cluster; outer side of each parameroid lobe with a variable number of long, dorsal spines not aggregated subapically (figs 348, 349).
 .... *C.* (*E.*) *penetrans penetrans* (GERM.)

-. Tegminal plate more than twice as long as wide; inner margins of the parameroid lobes without spines, the outer side with a distinct subapical aggregation of long, dorsal spines.
 .... 2.

2. Tegminal plate usually 2.3-2.6× longer than broad; subapical aggregation composed of 6-8 dorsal spines; the area covered with ventral seta-like processes is wider than half of the tegminal plate height as seen exactly in profile; macrochaetae longer (figs 352, 353).
 .... *C.* (*E.*) *penetrans caullei* (WCK.)

-. Tegminal plate more than 3× longer than broad; sides of the parameroid lobes with subapical aggregation of 10-20 long dorsal spines; the area covered with ventral seta-like processes is narrower than half of the tegminal plate height as seen exactly in profile; macrochaetae very short (figs 354, 355). .... *C.* (*E.*) *penetrans wanati* ALONSO-Z.

Ceratapion (*E.*) *penetrans penetrans* (GERMAR, 1817)

(figs 333, 334, 343, 348, 349)

Apion penetrans GERMAR, 1817: 244.
Apion ovipenne HOCHHUTH, 1851: 9, **syn. nov.**
Apion subconicicolle DESBROCHERS, 1870: 199.
Apion distans DESBROCHERS, 1889: XXXIII.
Apion subcinicicolle [sic!]: DESBROCHERS, 1908: 98.

Full data on the lectotypes designated and the remaining examined type specimens of *A. penetrans* GERM., *A. subconicicolle* DBR. and *A. distans* DBR. are given by ALONSO-ZARAZAGA (1991b). *Apion ovipenne* HOCHH. is here synonymised based on the original description

DESCRIPTION

Body length 1.87-3.14 mm. Legs and antennae often brownish. Vestiture very fine, especially on the elytra, hair like scales shorter than half elytral interval width, arranged in 1-2 rows per interval, scales in the striae not distinct from those on the intervals.

Indices. ***rl/pl:*** m: 1.21-1.43, f: 1.27-1.56; ***rl/msrw:*** m: [3.4-4.0][1] 3.86-4.40, f: [3.9-5.5] 4.44-5.18 (M 4.87); ***scl/msrw:*** m: 0.93-1.00, f: 1.06-1.29; ***msrw/mtrw:*** m: 1.12-1.22, f: 1.03-1.14; ***msrw/arw:*** 1.3-1.7, f: 1.2-1.5; ***msrw/minrw:*** 1.38-1.63; ***msrw/eyl:*** 1.03-1.14; ***brl/eyl:*** 0.72-0.97; ***eyl/hl:*** 0.57-0.70; ***hl/hw:*** m: 0.74-1.00, f: 0.68-0.88; ***mpw/hw:*** 1.43-1.81; ***bpw/apw:*** 1.02-1.23; ***pl/mpw:*** 0.97-1.17; ***mew/mpw:*** m: 1.54-1.70, f: 1.65-1.86; ***el/pl:*** [2.32-2.88] m: 2.51-2.88 (M 2.73), f: 2.77-3.10; ***el/mew:*** m: 1.72-1.86, f: 1.59-1.89; ***mew/bew:*** 1.18-1.35; ***bew/mpw:*** m: 1.25-1.35, f: 1.33-1.40; ***pft/msrw:*** m: 0.89-0.97 (M 0.93), f: 0.93-1.09; ***ptbl/pl:*** 0.99-1.17; ***ptbl/ptbmw:*** m: 3.68-4.28, f: 5.00-5.6; ***ptsl/ptbl:*** 0.53-0.61.

Rostrum more or less uniformly curved, more strongly so in female; mesorostrum distinctly dilated and often forming obtuse teeth in male, only slightly thickened in female; prorostrum bare, dull, superficially punctured; antennal scrobes reaching middle of the interocular area, with lateral edges evanescent.

Antennae variably thick, usually thinner in larger specimens, inserted at basal m: 0.17-0.23, f: 0.14-0.16 of rostrum; length/width of the scape 2.6-3.0, first funicular segment 1.5-2.0, second 1.1-1.5, the remaining segments variable, espe-

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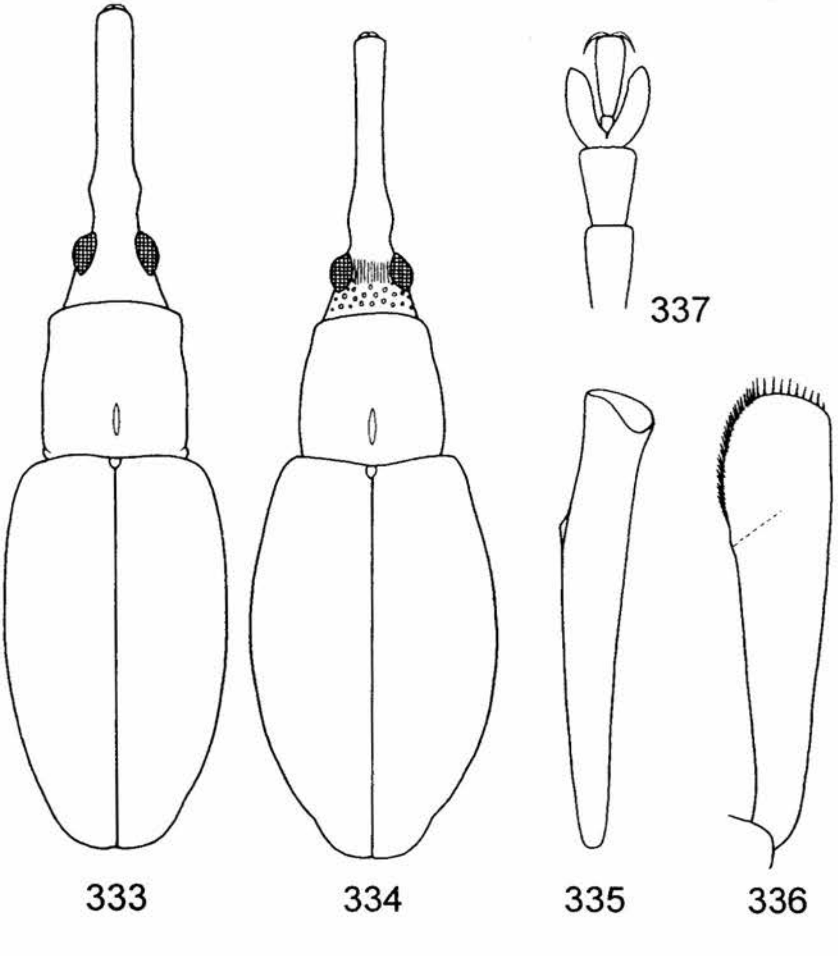
[1]Measurements reported by ALONSO-ZARAZAGA (1991b) are given in square parentheses when strongly different from mine.

cially in males, from distinctly transverse to elongate; club 2.5-3.0× longer than broad; antennal pubescence fine, semi-recumbent, on distal segments brownish.

Head and eyes strongly varying in shape; frons flat to slightly convex, shagreened, with striolae distinct, not exceeding the eyes posterad; vertex coarsely punctate throughout, elevated posteriorly; temples punctured on a distance of about 3/4 eye length; genae with few minute punctures; interocular area behind the antennal scrobes asperate or at least rugosely microsculptured, posterior part of the head venter with few conspicuous transverse wrinkles; gular suture slightly depressed.

Pronotum with thick walls, large in relation to the elytra, subquadrate to distinctly narrowing anterad; disc weakly convex, not raised at the front margin, puncturation coarse, irregular, punctures 2-3.5× ommatidium size, 0.2-0.5 diam-



333-337. *Ceratapion (Echinostroma) penetrans penetrans*: 333,334 - body in dorsal view, 333 - male, 334 - female; 335,336 - male protibia, 335 - outer edge, 336 - inner side; 337 - male protarsus eters apart, interspaces slightly convex, strongly scale-like microsculptured; prescutellar fovea not broader than punctures, usually of 1/5 pronotum length.

Elytra dull, variably shaped, mostly uniformly oval, wider in female; humeral calli weakly developed; intervals flat or weakly convex, at elytra base 1.1-1.2×, in middle 1.5-2.0× wider than the strongly impressed striae.

Legs robust; female protibia distinctly and gradually widened apicad; male protibia strongly spatulate and somewhat twisted apically, widest and with the inner edge clearly angled in apical 1/3; tarsi short, slightly broader in female; protarsus 2.6-3.2× longer than wide, with the basal segment weakly compressed and 1.4-1.6× longer than wide in male, 1.1-1.3× longer than wide in female, second protarsal segment 1.1-1.2 as long as broad in either sex, onychium exceeding third segment by 0.25-0.45 length.

Metathoracic wings shortened, often less than half as long as the elytra, but according to DIECKMANN (1977), macropterous specimens are occasionally found.

Tegminal plate 1.7-2.0× longer than wide; parameroid lobes separate to basal 1/3, dorsally with long spines which are not distinctly aggregated at sides subapically and usually form a cluster on the inner margin; the area covered with ventral seta-like processes wide, in profile taking more than half of the tegminal plate height; macrochaetae 3-4, long, all apical; fenestrae broadly separate; lateral fold distinctly incurved and strengthtened above the fenestrae, its basalmost section hardly visible; longitudinal carinae distinct, complete, meeting at the minute projection on the posterior margin of prostegium.

Median lobe of aedeagus 5.0-5.5× longer than wide (exc. apophyses), slightly narrowed sub-medially, arcuately tapering apically; apophyses as long as, or slightly shorter than half of the tube length; internal sac in basal part with 5-6 conical sclerites, apical half densely covered with minute spines, orifice with two clusters of spines.

Biology. According to the literature the larvae were found on a variety of cornflowers (*Centaurea rhenana* BOR., *C. cyanus* L., *C. jacea* L., *C. nigra* L., *C. diffusa* LAM., *C. scabiosa* L.) but the data may partly refer to the subspecies *caullei*. The larval site is not precisely known, various authors recorded larval development in rootstocks (HOFFMANN, 1958, SCHERF, 1964) or flower heads (WAGNER, 1941) - the latter seems to be much less likely. The species apparently has one generation a year, fresh adults emerge since the end of June till August. Beetles were met also on *Centaurea sadlerana* JANKA, *Carduus acanthoides* L., *Arctium lappa* L., *Carlina vulgaris* L., *Carthamus tinctorius* L.

Distribution. Italy, Switzerland (Tessin), Central & Eastern Germany, Denmark, Sweden, Estonia, Lithuania, Poland, Byelorussia, Ukraine, Czech Rep., Slovakia, Hungary, Rumania, Moldova, Austria, Slovenia, Croatia, Serbia, Bosnia, Herzegovina, Montenegro, Albania, Greece, Bulgaria, Turkey, Russia (southern and central areas of European part - east to Ural Mts. and Dagestan), Central Kazakhstan.

ALONSO-ZARAZAGA (1991b) reports two males from Oran (Algeria) - perhaps erroneously labelled, although an introduction can be also taken into account in that case. The record from Cyprus by KÖSTLIN (1985) was an error - the specimens are actually *C. scalptum* (ALONSO-ZARAZAGA, 1991b).

OTHER MATERIAL EXAMINED

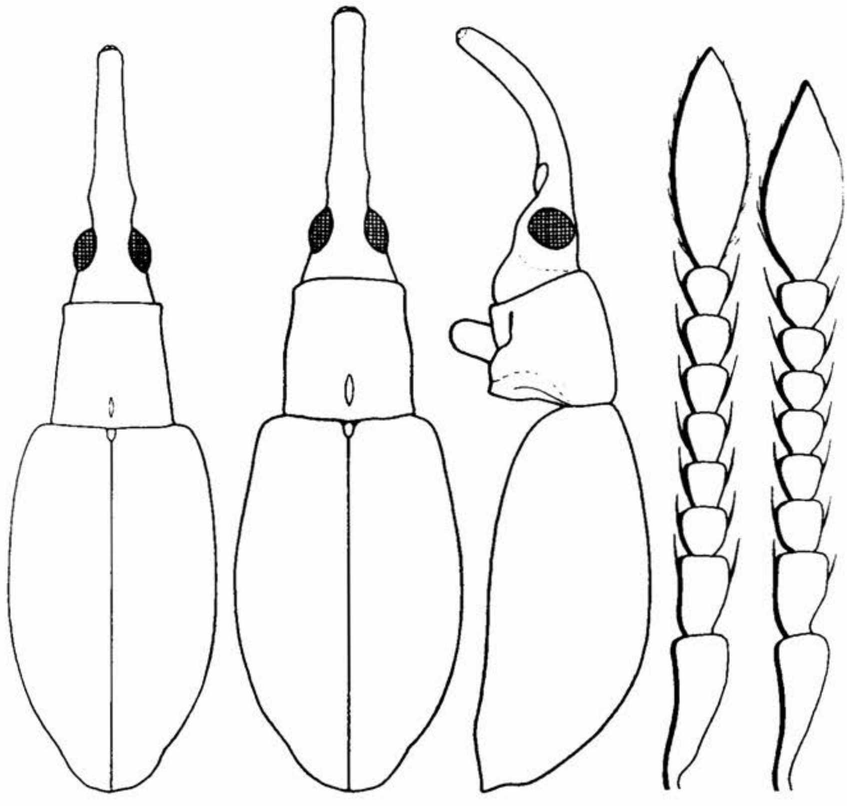
AUSTRIA: Wien, 6 exs (IRB, MHNG).

BULGARIA: Albene, 50 km N Varna, 28 VI 1985, 1m, leg. S. LUNDBERG (LD); Pirin: Predel, 11 VI 1976, 1f, leg. E. BARANIAK (PS); Sandanski, 2 VII 1979, 5 exs; Stara Planina: Partizanska-Jasenovo, 11 VI 1980, 1 ex. (MM); Zhitarovo, 1 ex.; Burgas, 1 ex. (SS).

CROATIA: Dalmatia, 1 ex. (IRB).

SERBIA: Pirot, 25 VI 1987, 1f, leg. E. BARANIAK (PS).

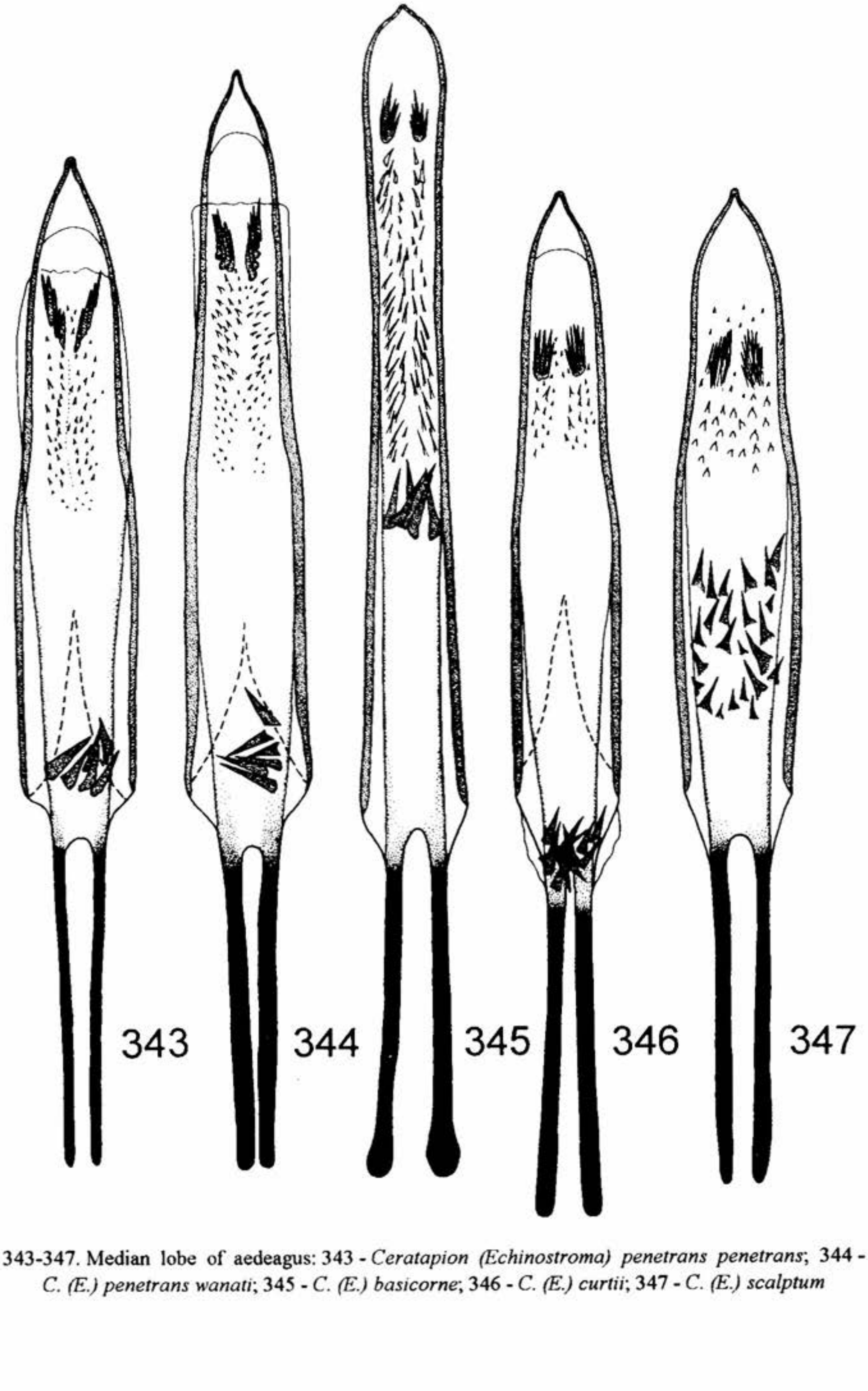
GERMANY: Thale, Harz, 6 exs (DEI); Thuringen: Freyburg, Unstr., 2m; Frankenhausen, 2m; Mark Brandenburg: Schlagsdorf b. Guben, 1m (LD).



338 339 340 341 342

338-342. *Ceratapion (Echinostroma) penetrans wanati*: 338-340 - body outline, 338 - male, dorsal view (Morocco: Atlas med.), 339 - female, dorsal view (Spain: Escorial), 340 - female, lateral view; 341 - male antenna; 342 - female antenna

GREECE: Tessalia, M. Pieria-Katafigion, 2000 m, 11 VII 1983, 2 ok; Drama, Falakro, 2100 m, 21 VII 1983, 1 ex.; Prespa Mikri Limni, 800 m, 4 VIII 1984, 3 exs - leg. M. & G. OSELLA (GO).



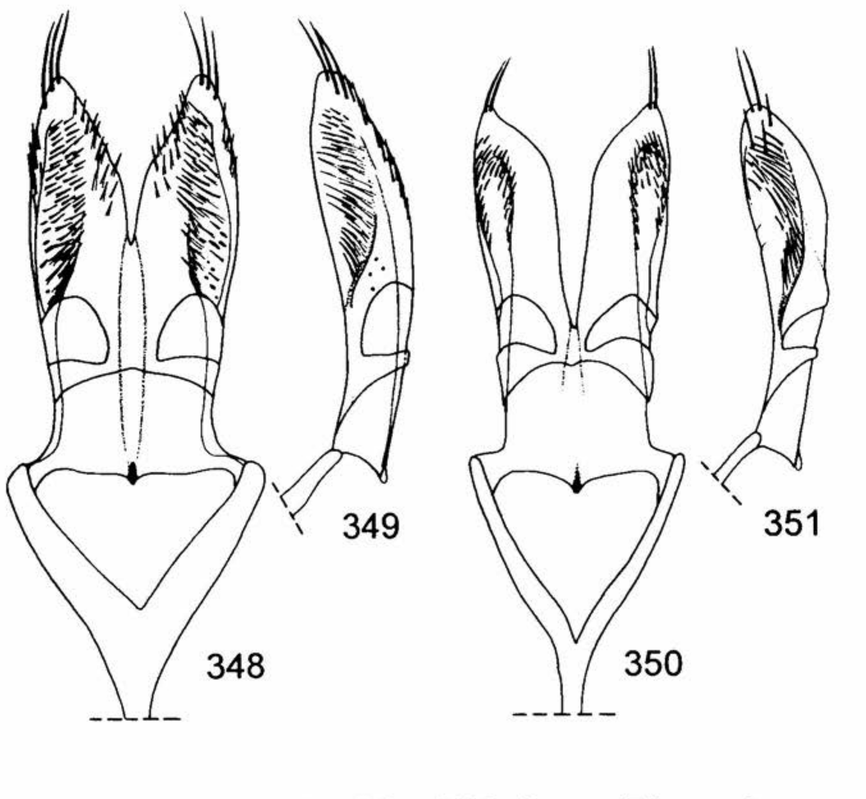
343-347. Median lobe of aedeagus: 343 - *Ceratapion (Echinostroma) penetrans penetrans*; 344 - *C. (E.) penetrans wanati*; 345 - *C. (E.) basicorne*; 346 - *C. (E.) curtii*; 347 - *C. (E.) scalptum*

HUNGARY: Kecksemet: Bugac; Orkeny; Debrecen; Budapest; Dömsöd, Apajpuszta - 9 exs (MZL, DEI, PS, SS).

ITALY: Colli Berici, Villa di Fasso, 3 exs (GO); Veneto: Verona, S. Michele; Venezia, Miza; Lombardia: Ostiglia; Cardinala; Liguria: Finale Ligure; Abruzzi: Appen. centr.: Gole F. Salinello; Piemonte: Leini; Basilicata: Lago Pantano di Pignola - 21 ex. (LM, GO, FA).

POLAND: Masurian Lake Region: Giżycko, Augustów; Nizina Wielkopolsko-Kujawska: Włocławek, Glinki n. Toruń; Nizina Mazowiecka (Mazovian Lowland): Warsaw vic., Rogóźno n. Łowicz; Puszcza Białowieska (Bialowieza Forest); Lower Silesia: Legnica, Ślęża Massif, Wołów; Wyżyna Małopolska: Skorocice, Skowronno n. Pińczów; Góry Świętokrzyskie Mts.: Szewna; Wyżyna Lubelska: Tarnogóra n. Izbica, Gródek n. Hrubieszów; Roztocze: Józefów Biłgorajski; Kotlina Sandomierska (Sandomierz Bassin): Sandomierz; Eastern Beskids: Przemyśl, Rokszyce; Bieszczady Mts. - 185 exs (IZW, SS, IRB, MW).

RUMANIA: Lipova n. Arad, 25 VII 1978, 1f, leg. A. KUŚKA (PS).



348-351. Tegminal plate in dorsal and lateral views: 348,349 - *Ceratapion (Echinostroma) penetrans penetrans*; 350,351 - *C. (E.) scalptum*

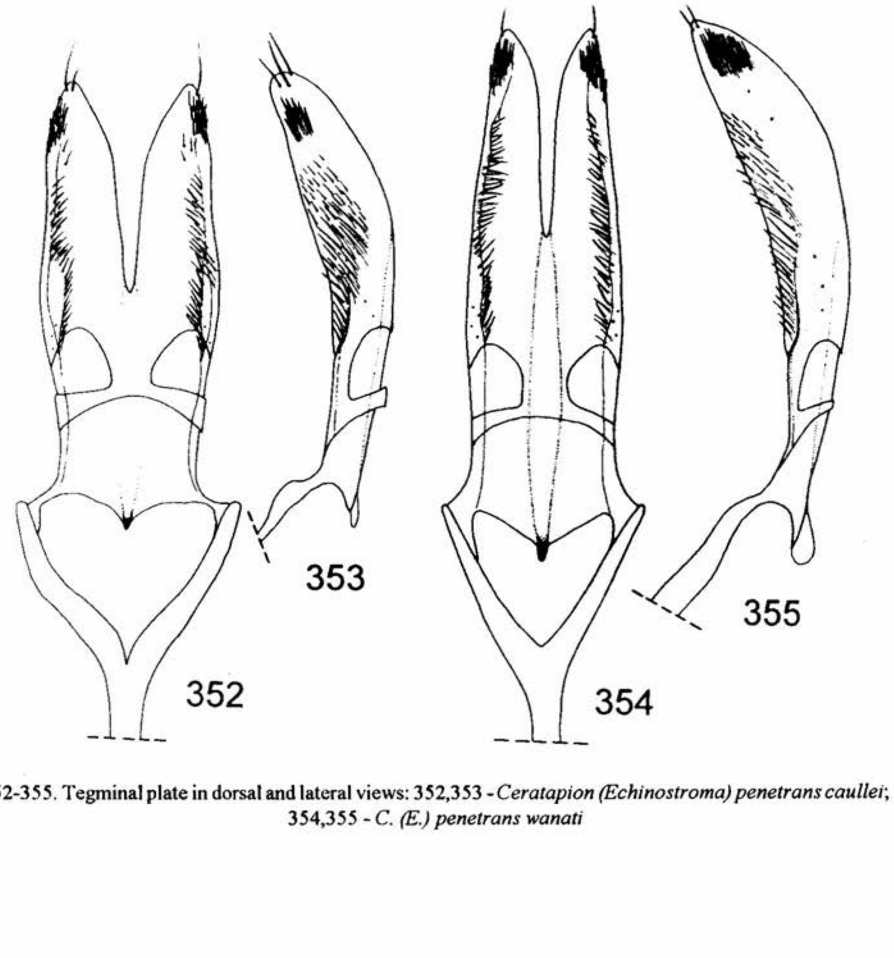
RUSSIA: Bashkirskaya ASSR: 5 km E Meleuz, 7 VII 1984, 1f, leg. O. TAEGER (LD); Rostovskaya obl.: Nizhne-Kunbryucheskaya, 24-29 V 1953, 4 exs; Kamenskiy r-n: Gornaya, 30 V 1951, 1 ex.; Abramovka, 29 VII 1950, 1 ex.; Glubokoye, 10 VIII 1950, 1 ex.; Belgorodskaya obl.: Shebekinskiy r-n: Mal. Mikhajlovka, 3 VII 1957, 5 exs; Krasnodarskiy Kr.: Erivanskaya, 4 X 1950, 4 exs, 23 VII 1951, 2 exs; Pshaf khrebet, 21 X 1955, 1 ex. - leg. K. ARNOLDI; Moskovskaya obl.: Dmitrovskiy r-n: Lugovaya, 17 VIII 1964, 4 exs, leg. A. KRESLAVSKIJ; St. Usadi, 3 VIII 1984, 1 ex., leg. V. GRACHEV (VZ).

SLOVENIA: Kocevje, 1 ex.; Morava, 1 ex., leg. V. KODRIC (MHNG).

SWITZERLAND: Kt. Tessin: Meride, 600 m, 23 X 1989, 1m, leg. C. BESUCHET (MHNG); Riva S. Vitale, V 1971, 1f (LD).

TURKEY: vil. Eskisehir: Çukurbisar, 1000 m, 12 VII 1972, 1m, leg. M. & G. OSELLA (GO).

UKRAINE: Bardyansk, 18 VII 1959, 2 exs, leg. V. GRACHEV (VZ), 22 VI 1962, 1 ex., 16 VI 1963, 1 ex., 21 IX 1973, 1 ex., leg. GULINOV (DEI); Voroshylovgr. obl.: Belovodskiy r-n: Derkul, 14 V 1953, 2 exs, leg. K. ARNOLDI (VZ); Podolia: 8 exs; Kasowa Góra, 1 ex.; Zaleszczyki, 2 exs (SS); Obiżowa, 1 ex., leg. M. KŁAPACZ (IZW).



352-355. Tegminal plate in dorsal and lateral views: 352,353 - *Ceratapion (Echinostroma) penetrans caullei*; 354,355 - *C. (E.) penetrans wanati*

Ceratapion (E.) penetrans caullei (WENCKER, 1858)
(figs 352, 353)

Apion Caullei WENCKER, 1858: XXI.

Literature: EHRET, 1983: 136; ALONSO-ZARAZAGA, 1991b.

TYPE MATERIAL EXAMINED

Lectotype m, paralectotype f (MNHP) - designated by ALONSO-ZARAZAGA (1991b).

DESCRIPTION

Externally not distinct from, and equally variable as, the nominate subspecies. The only important differences concern the structure of tegminal plate which is more elongate (length/width 2.0-2.6), has parameroid lobes separate to basal 1/4, not spinose at inner margins, bearing 6-8 long, dorsal spines concentrated subapically at sides and sometimes a few minute setae more centrally; macrochaetae 2-3, on average shorter than in the nominate form; the area covered with ventral seta-like processes of the same size but shifted outwards and seemingly narrower when the paramerae are viewed dorsally.

The remaining characters of paramerae and the median lobe identical as in *C. penetrans penetrans*. Females not distinguishable.

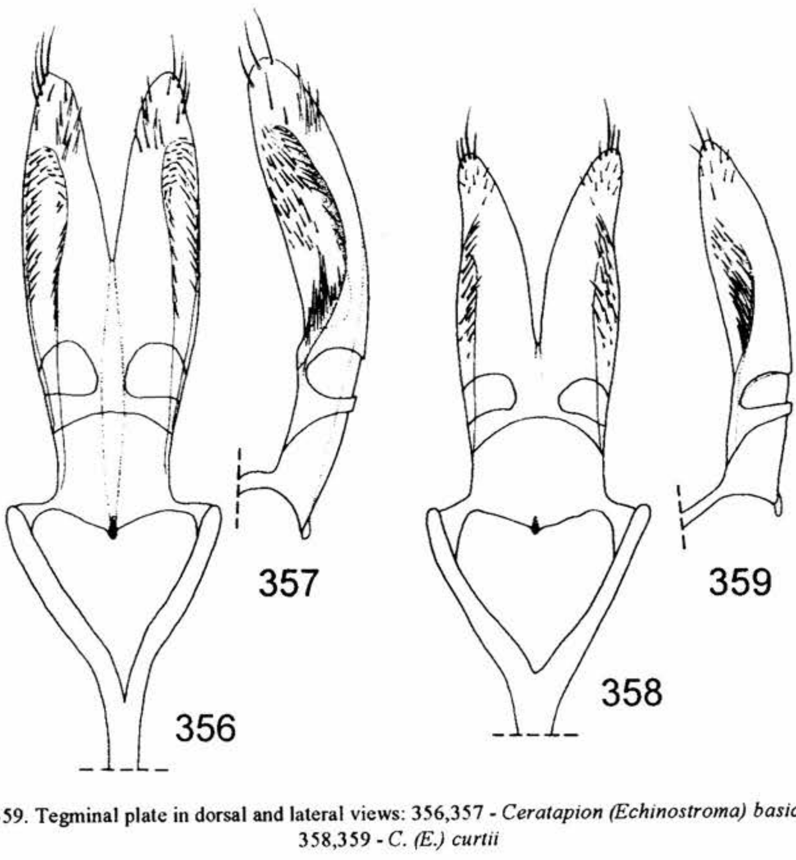
Biology. The records of HOFFMANN (1958), as well as those earlier of other French coleopterists, on the larval development of *C. penetrans* on *Centaurea jacea* L., *C. nigra* L. and *C. cyanus* L. apparently refer to the subspecies *caullei*. The same can be supposed in the case of Rhineland account of ZEBE (1963), who collected beetles exclusively on *C. jacea*.

Distribution. France, Belgium, Western Germany, North-Western Switzerland.

REMARKS

The form *caullei* described as a separate species, was later treated as a synonym or at most a variety of *C. penetrans* by most, if not all, of coleopterists. It was commonly diagnosed with the typical *penetrans* by weaker apical dilatation of the male protibiae and only ALONSO-ZARAZAGA (1991b) paid attention to allometric correlation of the width and twisting of the male protibia with the total body size, making the character diagnostically useless. The same author was the first who recognized the distinctness of the paramerae of both forms, not deciding however to reflect this in their taxonomical status because of the presence of intermediate specimens in Germany and south-eastern France. The latter had the arrangement of dorsal spines exactly like in the form *caullei*, but the tegminal plate shorter and resembling the form *penetrans* in the length/width ratio, while West German specimens showed "a progressive loss of the internal cluster of spines and an increase in the number of apicodorsal spines from East to West". It results from the material examined that the shape of tegminal plate is strongly variable throughout the range of the form *caullei*, while it is much less so in the nominate subspecies. It is not a strict rule, as stated by ALONSO ZARAZAGA (1991b), that the plate becomes more elongate towards south in Europe - I found some males from Belgium as having the longest tegminal plate, not very distinct from that in *C. p. wanati*.

It seems most likely that the separation of the forms *caullei* and *penetrans* took place before that of *caullei* and *wanati*, and the latter two had their common ancestor in the Iberian refuge. *C. penetrans* is not very stenotopic and able to exist under the very temperate climatic conditions, so the "pulsative" spreading of the Iberian population north- and north-eastwards during subsequent interglacials was very likely. Therefore, the ancestors of the form *caullei* might have probably survived isolated in the area of Southern France in one of latest glaciations in the Pleistocene. The presently adjoining ranges of the forms *caullei* and *penetrans* clearly result from their expansion in the Holocene. The occurrence of the intermediate specimens in Germany is apparently restricted to the narrow zone along the 10°E, though both forms are not restrained in their expansion by geographical barriers. Maintaining its distinctness may be caused by biological mechanisms preventing a free gene flow between the populations of both forms. The problem of biological isolation of the forms *caullei* and *penetrans* requires more thorough studies and cannot be solved



356-359. Tegminal plate in dorsal and lateral views: 356,357 - *Ceratapion (Echinostroma) basicorne*; 358,359 - *C. (E.) curtii* basing on exclusively museal materials. However, the distinctly incontinuous variation and very narrow area, in which intermediate specimens can be found, induced me to recognize both forms as separate subspecies.

OTHER MATERIAL EXAMINED

BELGIUM: Marche, 7 IX 1922, 7 exs; Baillonville, 8 IX 1923, 3 exs - coll. GÉRARD-SALME; Orval, 29 V 1933, 1 ex.; Hotton, 2 IX 1945, 1 ex. - leg. R. DE RUETTE; Blankenberghe, 28 VI 1920, 1 ex., leg. J. MULLER.

FRANCE: Hyeres, 1 ex., coll. KRAATZ (DEI); Paris, coll. DEJEAN; Haute Marné: St Michel, VIII 1914; Oise: Monchy, St Eloi; Marne: Germaine, 7 VIII 1927, Vrigny, 19 VII 1929; Saone-et Loire: Macon; Loiret: Montargis, 9 VIII 1932; Htes Pyr.: Tarbes; Calvados: bois de Troarn, Mouen, Puy de Dome; Seine-Maritime: Rouen, Coteaux; Eure: Plainville; Var: Toulon; Jura: Dole; Ardennes: Signy, 19 VII 1936; Seine-Atl.: Dieppe - 50 exs (IRB); Allier: Brout-Vernet, 1 ex. (IRB); Foret de St. Gilbert pr. Brout-Vernet, 1 ex. (ZMH); Gironde: Cadaujac pr. Bordeaux, 2 exs; Haute Saone: Vesoul, 2 exs (MHNG).

GERMANY: Rheinpfalz, 1 ex.; Deidesheim [Vogesen], 5 exs - leg. EPPELSHEIM (DEI); Berlin [error?], 1m, coll. J. GILLET (IRB).

SWITZERLAND: Kt. Freiburg, Mt. Vully, VIII 1972, 5 exs, leg. LINDER (DEI, LD).

Ceratapion (*E.*) *penetrans wanati* ALONSO-ZARAZAGA, 1993, stat. nov.

(figs 335-342, 344, 354, 355)

Ceratapion (*Echinostroma*) *wanati* ALONSO-ZARAZAGA, 1993: 123.

TYPE MATERIAL EXAMINED

Paratypes: 1m - Morocco: Atlas Med., Ras-el-Ma, 24-29 VI 1926, leg. H. LINDBERG (ZMH); 1f - Spain: Escorial, leg. LAUFFER (labelled as paratype of never described *A. escorialense* n. sp. by WAGNER) (MNB).

DESCRIPTION

Body length 2.41-2.83 mm.

Indices. ***rl/pl:*** m: [1.23-1.36][1] 1.38-1.53 (M 1.43), f: 1.34-1.55; ***rl/msrw:*** m: [3.40] 3.74-3.98, f: 4.08-4.76 (M 4.52); ***scl/msrw:*** m: 0.85-1.06, f: 1.00-1.18; ***msrw/eyl:*** m: 1.06-1.20, f: 0.94-1.07; ***brl/eyl:*** m: 0.80-0.93, f: 0.75-0.80; ***el/pl:*** m: [2.59-2.80] 2.87-3.17 (M 3.04), f: 2.71-3.08; ***bew/mpw:*** m: 1.36-1.46, f: 1.38-1.39; ***pft/msrw:*** m: 0.82-0.93 (M 0.86), f: 0.94-1.03. Other indices as in both remaining subspecies.

Extremely close to both *C. p. penetrans* and *C. p. caullei*, but most specimens show some external differences. Male prorostrum is more gradually narrowed

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[1]Measurements reported by ALONSO-ZARAZAGA (1991b) are given in square parentheses when strongly different from mine.

apicad, making mesorostral teeth unclearly separated in front and the whole rostrum somewhat subulate; the female rostrum is, on an average, shorter, with the antennae inserted at basal 0.16-0.18; head is usually slightly narrower and pronotum, especially male, relatively smaller (el/pl !, bew/mpw !), having thinner walls and the microsculpture weaker developed, thus making the disc shiny; male protibia are often less expanded (fig. 336). The above differences are well expressed and more or less constant in the Maroccan specimens, becoming much more variable in Spain. However, the only Algerian male is not externally distinct from the typical form.

Tegminal plate more than 3× longer than wide; parameroid lobes 2.5-2.8× longer than the prostegium, notched on hardly more than half length, on inner margins with spines wanting, at sides with a distinct subapical cluster of 10-20 spines; the area covered by seta-like ventral processes narrow, taking less than half plate height in profile; macrochaetae 1-2, very short; the median projection of the prostegium margin strongly raised, well visible in lateral view. Alonso-Zarazaga (1991b, 1993) reports the presence of dense, minute spines evenly covering median areas of the parameroid lobes, but I have not observed the character in any of the six examined males. Probably the spines appear sporadically - the case similar as in *Taphrotopium sulcifrons*.

Median lobe of aedeagus more than 6 times longer than wide; armature of the internal sac similar as in the nominate form.

Biology unknown.

Distribution. Algeria*, Morocco, Spain.

Hustache's (1931) record on *C. penetrans* in Portugal apparently concerns this subspecies.

Remarks

For the supposed origin see remarks under the previous form. The form *wanati* is very close to *C. p. caullei*, in which specimens having equally long tegminal plate and short macrochaetae have been found. Due to unknown biology, supposed origin and strong variation of both external characters and the paramerae, giving the form *wanati* taxonomical status higher than that of *caullei*, is not satisfactorily supported in my opinion, and they are both treated here as subspecies of *C. penetrans*.

Other material examined

ALGERIA: Biskra, 1m, coll. Bettinger (IRB).

MOROCCO: Atlas Med., Ifrane, 20 VIII 1963, 3m, leg. A. Warchałowski (LD).

SPAIN: Andalusia, 1f, coll. Kraatz (MNB); Teruel: Tavalambre, 1900 m, 10 VIII 1987, 1m 1f (GO).

Ceratapion (Echinostroma) basicorne **(Illiger, 1807)**

(figs 345, 356, 357, 360-362, 364-366, 369, 371)

Apion basicorne Illiger, 1807: 307.
Apion subdentirostre Desbrochers, [1875]: 27.

Apion simillimum DESBROCHERS, 1891b: 83.
Apion simillimum DESBROCHERS, 1891c: LVII.
Apion Caullei v. *subcavifrons* DESBROCHERS, [1894]: 87.
Apion spathula DESBROCHERS, [1894]: 98.
Apion atripenne DESBROCHERS, 1902: 159.
Apion tauricum DESBROCHERS, 1902: 159.
Apion alliariae: HERBST, 1797: 104 et auctt., nec LINNAEUS, 1758.
Apion Caullei v. *subcaviceps* [sic!]: DESBROCHERS, [1894]: 97.
Apion spathifer [sic!]: DESBROCHERS, 1908: 98.
Apion distans: auctt., nec DESBROCHERS, 1889.
Apion brevicorne MEGERLE: DEJEAN, 1821, nom. nudum!
Apion intermedium REY: DESBROCHERS, [1894], nom. nudum!

Literature: SCHILSKY, 1901: no.19 (*distans*), 1906b: XX (*distans*); DESBROCHERS, 1904: 108 (*subcaviceps*), 1908: 98 (*subcaviceps*); REITTER, 1916: 245 (*distans*); SCHATZMAYR, 1925: 83 (*alliariae*); HUSTACHE, 1931: 54 (*subcaviceps*); GYÖRFFY, 1956: 7 (*alliariae*); HOFFMANN, 1958: 1518 (*alliariae*); SMRECZYŃSKI, 1965: 49 (*alliariae*); IOANNISIANI, 1972: 268 (*distans*); KÖSTLIN, 1973: 91 (*alliariae*); ANGELOV, 1976: 74 (*alliariae*); DIECKMANN, 1977: 85 (*alliariae*); LOHSE, 1981: 156 (*alliariae*); TEMPÈRE & PÉRICART, 1989: 344; EHRET, 1990: 230; ALONSO-ZARAZAGA, 1991b: 478; KOROTYAEV et al., 1993: 841.

Detailed description of the type specimens, including lectotypes designated, of all listed nominal species was given by ALONSO-ZARAZAGA (1991b).

DESCRIPTION

Length 2.09-2.77 mm. Legs and antennae always dark to piceous brown. Body vesiture more conspicuous than in *C. penetrans*, white piliform scales not less than 2/3 as long as elytral interval width.

Indices. ***rl/pl:*** m: 1.43-1.57, f: 1.46-1.71; ***rl/msrw:*** m: 3.5-4.2, f: 4.2-4.8; ***scl/msrw:*** 0.79-1.03; ***msrw/mtrw:*** m: 1.19-1.30, f: 1.12-1.20; ***msrw/arw:*** m: [1.4][1] 1.60-1.77, f: 1.42-1.64; ***msrw/minrw:*** 1.59-1.89; ***msrw/eyl:*** 0.87-1.25; ***brl/eyl:*** 0.69-0.85; ***eyl/hl:*** 0.54-0.69; ***hl/hw:*** 0.71-0.91; ***mpw/hw:*** 1.40-1.71; ***bpw/apw:*** 1.10-1.28; ***pl/mpw:*** 0.95-1.11; ***mew/mpw:*** m: 1.61-1.66, f: 1.73-1.81; ***el/pl:*** [2.55-2.98] 2.93-3.14; ***el/mew:*** m: 1.78-1.88, f: 1.65-1.80; ***mew/bew:*** m: 1.18-1.22, f: 1.21-1.25; ***bew/mpw:*** m: 1.32-1.39, f: 1.39-1.47; ***pft/msrw:*** m: 0.75-0.79, f: 0.81-0.90; ***ptbl/pl:*** 1.11-1.22; ***ptbl/ptbmw:*** m: [3.9] 4.23-4.92, f: [5.0] 5.30-6.36.; ***ptsl/ptbl:*** 0.53-0.58.

Female mesorostrum dilated and forming small and obtuse teeth, nearly as strong as those in male; prorostrum in female usually thinner and more strongly contracted medially than in *C. penetrans*.

Antennae strongly variable but never so thick and long as in the next species, inserted at m: 0.17-0.19, f: 0.13-0.16 from the rostrum base, in male exceeding the apex of rostrum with 7th funicular segment, when the antenna is set forward along

[1]Measurements reported by ALONSO-ZARAZAGA (1991b) are given in square parentheses when strongly different from mine.

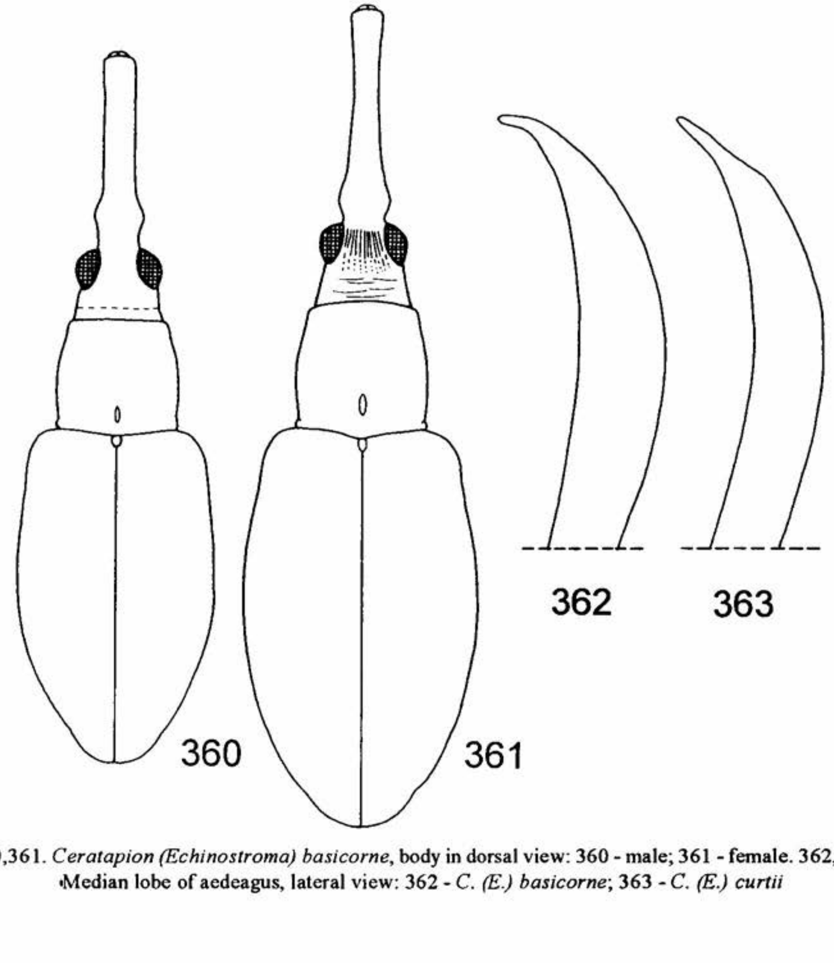
rostrum; length/width of the scape 2.2-2.8, first funicular segment 1.3-1.8, club 2.2-2.8, funicular segments 2-7 slightly transverse to weakly elongated, narrower that the scape and pedicel; antennal pubescense moderately thick, weakly protruding, on last two segments of the funicle brownish.

Eyes variable in size, distinctly convex; frons clearly concave, shiny, with striolae not exceeding the eyes posterad; vertex weakly elevated backwards, with 1-2 transverse sulci and some more wrinkles, anteriorly glabrous or with few fine punctures, only exceptionally coarser punctate; genae impunctate.

Pronotum small in relation to elytra, cylindrical to slightly trapeziform, with the sides straight, rarely (females) weakly arched; the interspaces of pronotal punctures nearly flat, depending on the microsculpture dull to distinctly shining.

Elytra with humeral calli always distinct and prominent; intervals at elytral base 1.5, in middle 2.0-2.5 as wide as the striae.

Tibiae less robust than in *C. penetrans*, male protibia weaker expanded apically (as in fig. 336); basal segment of the male protarsus more strongly compressed.

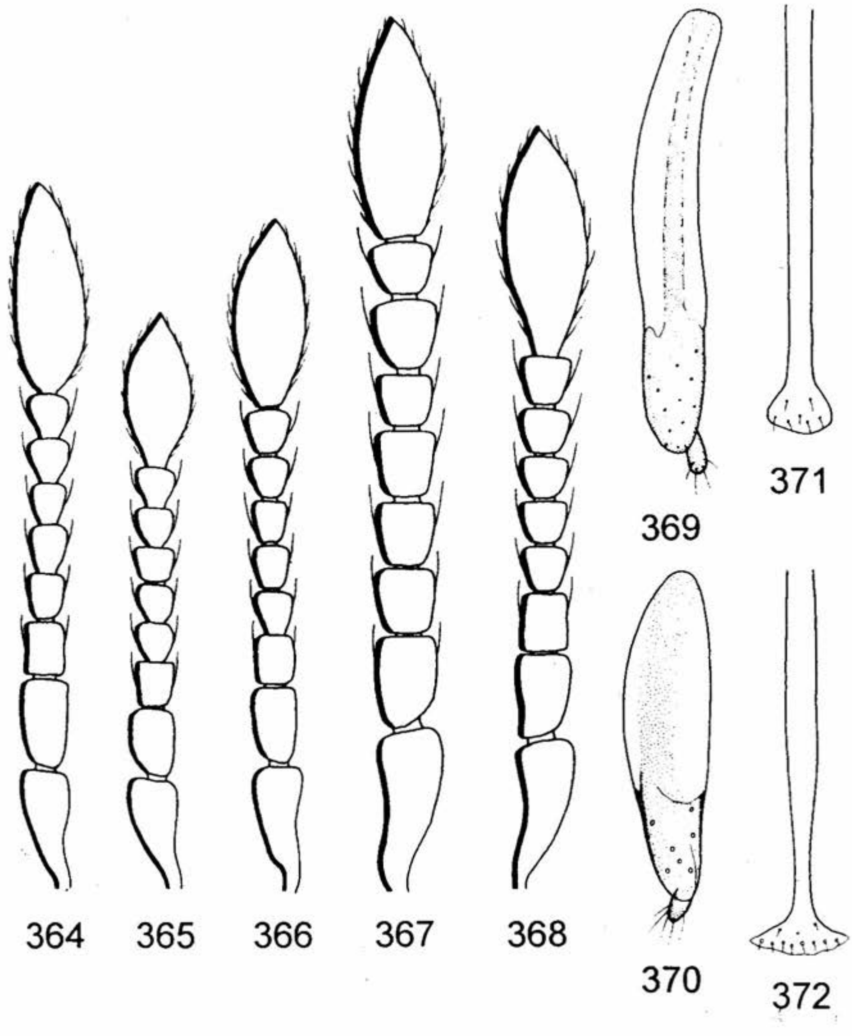


360,361. *Ceratapion (Echinostroma) basicorne*, body in dorsal view: 360 - male; 361 - female. 362,363. Median lobe of aedeagus, lateral view: 362 - *C. (E.) basicorne*; 363 - *C. (E.) curtii*

Wings always normally long.

The remaining external characters as in *C. penetrans*.

Tegminal plate more than 2.5× longer than broad; parameroid lobes separate on slightly more than half length, with few strong and long dorsal spines near the inner margin subapically and with no dorsal spines at sides; macrochaetae 5-7, a part of them shorter and subapical; the area covered with ventral seta-like processes large, taking about 2/3 plate height in profile. Other tegminal characters as in *C. penetrans*.



364-368. Antenna: 364 - ***Ceratapion (Echinostroma) basicorne*****, male (Armenia); 365 -** ***C. (E.) basicorne*****, male (Macedonia); 366 -** ***C. (E.) basicorne*****, female (Macedonia); 367 -** ***C. (E.) curtii*****, male (Sardinia); 368 -** ***C. (E.) curtii*****, female (Hvar I.). 369,370. Coxite and stylus of the female ovipositor: 369 -** ***C. (E.) basicorne*****; 370 -** ***C. (E.) curtii*****. 371,372. Spiculum ventrale (distal part): 371 -** ***C. (E.) basicorne*****, 372 -** ***C. (E.) curtii***

Median lobe of aedeagus longer and narrower than in other *Echinostroma* species, about 7.5× longer than wide at base, distinctly, gradually contracted from middle to apical 1/3, broadly rounded and with minute mucro-like process apically; apophyses shorter than half of the tubular part; internal sac besides the pair of tufts of spines with long spines throughout apical half, conical sclerites 5-6, situated in sub-median, not basal part of the sac.

Ovipositor with the coxitae narrow, almost parallel-sided, 6.8-7.4× longer than wide, each with a strongly sclerotized and well separated bar throughout the proximal part (fig. 369). Spiculum ventrale weakly dilated apically, with at most 5 setae along the apical margin (fig. 371). Shape and pattern of the spermatheca strongly variable, the mentioned by Alonso-Zarazaga (1991b) reticulation of the apex of cornu often wanting.

Biology. Associated with some cornflowers, mainly *Centaurea cyanus* L. and *C. solstitialis* L. Beetles collected also on *C. calcitrapa* L., *C. virgata* Lam., *C. scabiosa* L., *C. jacea* L., as well as on *Onopordum tauricum* Willd., *Carduus pycnocephalus* L., *C. tenuiflorus* Curtis, *Arctium lappa* L. I collected numerous specimens in E Poland (Tarnogóra, Lublin Upland) on *Centaurea rhenana* Bor., together with *C. p. penetrans*. Many details on laboratory breeding of the species, and among others on the survival rates of the larvae on different host plants, were provided by Clement et al. (1989). The larvae start their feeding in the leaf midrib, then boring galleries into the lower stem or rootstock. After the results of Clement et al. (l.c.) some earlier accounts on larval development of *C. basicorne* in the inflorescences of *Centaurea cyanus* (Neresheimer & Wagner, 1939; Wagner, 1941) seem to be incredible.

Distribution. Spain, France, Belgium*, Italy (incl. Sicilia), Switzerland, Germany, Denmark, Sweden, Poland, Ukraine, Czech Rep., Slovakia, Austria, Hungary, Rumania, Croatia, Bosnia, Herzegovina, Albania, Bulgaria, Greece, Cyprus, Turkey, Iran, Lebanon, Israel, Azerbaijan, Nakhichevan Rep., Armenia, Georgia, Russia (Karelia, Volga river surroundings, Dagestan).

Occurrence in Morocco and Algeria (Hoffmann, 1958) should be confirmed.

Other material examined

ARMENIA: Chosrov, 4-15 VI 1987, 2 ex., 30 VI 1989, lex (VK); Noemberyan. r-n, Shavarshavan, 15 VI 1974, 1 ex. (VZ).

BELGIUM: Woluwe, St. Lambert, 14 IX 1880, 1 ex., leg. A. de Borre (IRB).

BULGARIA: Zlatni pjasaci n. Varna, 1-21 VIII 1970, 1 ex., leg. T. Palm (MZL); Varna, 5 exs; Zitarovo, 1 ex. - leg. Z. Cmoluch (SS).

FRANCE: Paris, 2 exs; Marne: Ay, 1 ex.; Herault: St Guilhem, 1 ex. (IRB); Camargue, 1 ex., leg. L. Puel; Isére: Saint Vallier, 2 exs, leg. Toumayeff (MHNG); Cote d'Or: Ste Colombe, 14 X 1917, 2 exs (SS); Calvados, 2 exs (IRB).

GERMANY: Franken, 1 ex. (SMNS).

IRAN: Esfahan: Eskandari, 32°42'N/50°26'E, 8 VIII 1973, 1f; Azerbaidjan: Maragheh, 37°24'N/46°16'E, 4 VI 1975, 1f - leg. A. Senglet (MHNG).

ITALY: Calabria: Aspromonte, Portella Zagaria, 27 V 1971, 1 ex., leg. G. BARTOLI; Lombardia: Bellaguarda, X 1922, 1 ex., leg. R. BÉRARD (MHNG); Umbria: Perugia, VII 1948, 1 ex. leg. C. MANCINI; Trentino-Alto Adige: V. Venosta Lasa, Coste, 1000-1300 m, 28 VIII 1968, 11 ex., leg. L. TAMANINI; Puglia: S. Giovanni R., 700 m, 14 VIII 1970, 1 ex. (LM); Basilicata: Potenza: Topo Vuturo, 1700 m, 21 VI 1988, 1m (MR); Lago Pantano di Pignola, 770 m, 10 V 1991, 1 ex. (FA).

LEBANON: Dahr-el-Baidar, 25 VI 1971, 1500 m, 1 ex. (GO).

POLAND: Nizina Wielkopolsko-Kujawska: Ministrówka, Kępno; Nizina Mazowiecka (Mazovian Lowland): Podkowa Leśna, Dembe Wielkie; Puszcza Białowieska (Bialowieza Forest); Wyżyna Krakowsko-Wieluńska: Cracow; Wyżyna Małopolska: Jędrzejów, Skowronno n. Pińczów; Wyżyna Lubelska: Tarnogóra; Western Beskids: Rożnów; Eastern Beskids: Przemyśl - 34 exs (IZW, SS, PS, MW).

SPAIN: Madrid, 1 ex., coll. KIRSCH (SMTD).

TURKEY: Diyarbakir dint., 28 VI 1971, 1 ex.; vil. Kars: Sarikamis, 2000 m, 4 VII 1971, 1 ex.; Amasya dint.: Turhal, 6 VI 1969, 1 ex. - leg. G. OSELLA; vil. Ankara: Kalecik, 850 m, 10 VII 1972, 2 exs, leg. M. & G. OSELLA; vil. Antakya: Yayladagi, 26 VI 1971, 1 ex., leg. BRIGNOLI (GO).

Ceratapion (*Echinostroma*) *curtii* (WAGNER, 1920)

(figs 346, 358, 359, 363, 367, 368, 370, 372)

Apion (*Ceratapion*) *Curtii* WAGNER, 1920: 196.

Literature: SCHATZMAYR, 1925: 82; ALONSO-ZARAZAGA, 1991b: 486.

TYPE MATERIAL EXAMINED

Lectotype m: a)Sicilia: Nicolosi, b)*Ap. Curtii* m., Cotypus m, WAGNER det. [handwritten in red ink] (coll. A. HOFFMANN, MNHP) (present designation); paralectotypes: 1f: data as in the lectotype (SS), 2m 1f: Sicilia, Madonie, coll. H. WAGNER (ZSM).

DESCRIPTION

Body length 2.37-2.75 mm. Colouration and body vestiture as in the previous species.

Indices. ***rl/pl:*** m: 1.43-1.59, f: 1.50-1.80; ***rl/msrw:*** 3.6-4.2, f: 4.4-4.80; ***scl/msrw:*** 0.87-1.05; ***msrw/mtrw:*** 1.14-1.24; ***msrw/arw:*** 1.3-1.7; ***msrw/minrw:*** 1.58-1.78; ***msrw/eyl:*** 1.08-1.15; ***brl/eyl:*** m: 0.84-0.93, f: 0.68-0.87; ***eyl/hl:*** m: 0.63-0.70, f: 0.56-0.63; ***hl/hw:*** 0.78-0.89; ***mpw/hw:*** 1.48-1.65; ***bpw/apw:*** 1.11-1.27; ***pl/mpw:*** 0.98-1.11; ***mew/mpw:*** m: 1.57-1.64, f: 1.68-1.78; ***el/pl:*** 2.71-3.23; ***el/mew:*** m: 1.72-1.88, f: 1.63-1.80; ***mew/bew:*** m: 1.18-1.19, f: 1.20-1.25; ***bew/mpw:*** m: 1.33-1.38, f:

1.38-1.48; ***pft/msrw:*** m: 0.71-0.76, f: 0.74-0.86; ***ptbl/pl:*** 1.10-1.33; ***ptbl/ptbmw:*** m: [3.5-3.6][1] 3.97-4.19, f: 5.4-5.82; ***ptsl/ptbl:*** 0.54-0.55.

Very similar to *C. basicorne* in the external characters, which sometimes nearly overlap with the variation range of the latter, but clearly distinct in genital structures of both male and female.

Antennae very thick, especially in male; all funicular segments equally wide and as wide as the scape, weaker narrowing basad as in *C. basicorne*; insertion point m: 0.20-0.22, f: 0.13-0.17; rostrum apex does not exceed the 5th funicular segment when antennae are set forward along rostrum; proportions of the scape, funicular segments and the club not clearly distinct from those in *C. basicorne*; antennal pubescence brownish on most of funicular segments.

The remaining external characters as in *C. basicorne*, equally variable.

Tegminal plate 2.0-2.2× longer than wide; parameroid lobes separate to nearly their bases, slightly outcurved apically, with whole subapical parts dorsally armed with confused short setae or spines; macrochaetae 4-5, differing in length; the area covered with ventral seta-like processes narrow, taking less than half plate height in profile; fenestrae transverse, broadly separate; longitudinal carinae often incomplete.

The shape of median lobe of aedeagus similar as in *C. penetrans*, length/width < 6, profile as in fig. 363; apophyses longer than half of the tube; internal sac slightly produced behind the tubular part, with sparse short spines only near the orifice and 10-12 conical sclerites in the extreme basal part.

Coxitae of the ovipositor short and suboval, 3.8-4.9× longer than wide, the proximal bar of stronger sclerotization obscured (fig. 370). Spiculum ventrale strongly expanded apically, with at least 8 setae along the apical margin (fig. 372). The shape and sculpture of the spermatheca variable and useless for diagnosis.

Biology unknown.

Distribution. Southern France* (vic. of Marseille), Italy (Sicilia, Sardinia*), Croatia* (Hvar I.), Greece (Crete).

The locality in Croatian Mossor Mts. (Schatzmayr, 1925) has been questioned by Alonso-Zarazaga (1991b).

Other material examined

CROATIA: Ins. Hvar: Hvar, 19 VII 1957, 3f, leg. R. Bielawski (IZW).

FRANCE: "A. M., St Barnabé, 17 VII 38, a la lumiére", 1m, coll. Ochs (MHNG) [A. M. means Alpes Maritimes, but village Saint-Barnabé (43°18'N/5°25'E) is in fact in the Bouches-du-Rhône district, near Marseille].

ITALY: Sardinia: Ferla Pantalica, 500 m, 30 VII 1969, 5f; Buccheri, 800 m, 21 VII 1969 (LM); Sicilia: Messina, Colle S. Rizzo, VII 1959, 1f (GO).

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[1]Measurements reported by Alonso-Zarazaga (1991b) are given in square parentheses when strongly different from mine.

Subgenus *Ceratapion s. str.*

DESCRIPTION

Mesorostrum distinctly toothed, only in *C. calcaratum* the teeth obsolete.

Antennae moderately thick, in some species modified in males.

Frons striolate, in *C. gibbifrons* with rows of semiconfluent punctures; vertex and temples broadly punctate; antennal scrobes very short or wanting, only in *C. calcaratum* and *C. carduorum* prolonged to the head venter.

Pronotal sides without a pleural line, punctured throughout; prosternum as long as the postcoxal part of prothorax.

Elytral striae connected 1+2+9, 3+4, 5+6, 7+8 apically; intervals flat; specialized setae present in *C. calcaratum* and species closely related to *C. carduorum*, wanting in the rest.

Episternal sutures of the mesosternum rarely visible, not ending in pits if so. Metasternum at least 1.8× longer than the mid coxae.

Male protibia usually modified apically, metatarsus in most species with a ventral spine.

Paramerae with lateral fold long, very close to outer margin of each parameroid lobe; macrochaetae variably long; fenestrae mostly well delimited; dorsal portion of ring complete; prostegium not distinctly projecting backwards, broadly rounded or subtruncate; in the *C. armatum* species group tegminal plate strongly modified: parameroid lobes divided into few finger-like processes, lateral fold and fenestrae vanishing.

Internal sac with a pair of serrate sclerites in middle part, rarely with a single such sclerite or a pair of long serrate tapes, in the *C. armatum* species group sclerites modified.

Biology. Host plants of the tribus *Cardueae*.

Distribution. Palaearctic region.

Ceratapion (*s. str.*) *calcaratum* (WOLLASTON, 1864)

(figs 373-380)

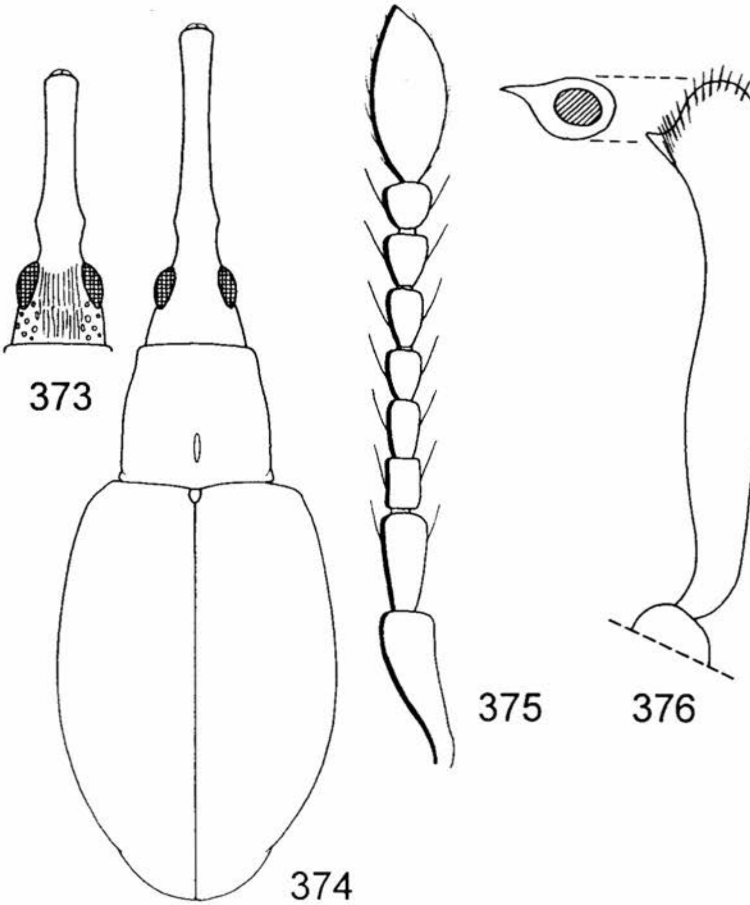
Apion calcaratum WOLLASTON, 1864: 310.

Literature: LINDBERG H. & H., 1958: 18; KÖSTLIN, 1985: 71; ALONSO-ZARAZAGA, 1991b: 430.

Lectotype (coll. WOLLASTON, BMNH) designated and described by ALONSO-ZARAZAGA (1991b).

DESCRIPTION

Length 2.20-2.87 mm. Body entirely black, elytra with more or less distinct brassy or coppery lustre. Vestiture very fine, recumbent, greyish, arranged in two rows on the elytral intervals, the hair-like scales shorter than the interval width, scales in the striae half as long as those on the intervals, distinctly separated.



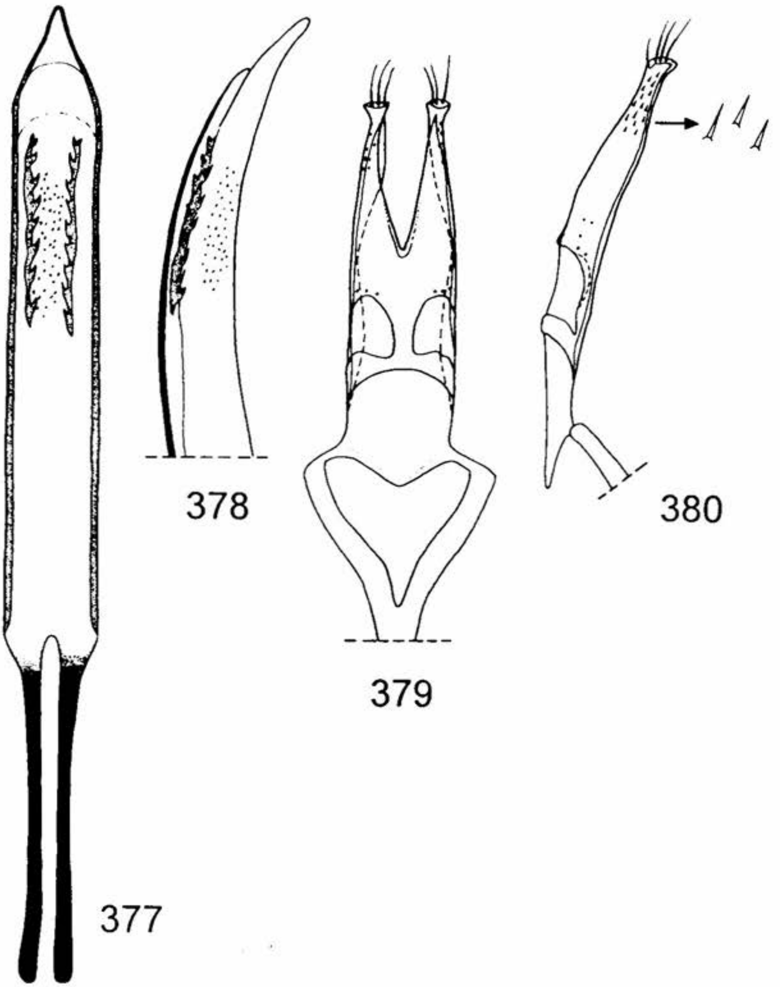
373-376. *Ceratapion* (*s. str.*) *calcaratum*: 373 - male head, dorsal view; 374 - female body, dorsal view; 375 - male antenna; 376 - male protibia in lateral and ventral views

Indices. ***rl/pl:*** m: 1.37-1.50, f: 1.51-1.64; ***rl/msrw:*** m: 3.9-4.2, f: 4.85-5.3; ***scl/msrw:*** m: 0.88-1.0, f: 1.03-1.2; ***msrw/mtrw:*** m: 1.13-1.21, f: 1.03-1.11; ***msrw/arw:*** m: 1.37-1.46, f: 1.2-1.35; ***msrw/minrw:*** m: 1.50-1.62, f: 1.41-1.56; ***msrw/eyl:*** m: 0.99-1.09, f: 0.86-1.00; ***brl/eyl:*** 0.78-1.12; ***eyl/hl:*** 0.53-0.63; ***hl/hw:*** 0.85-0.95; ***mpw/hw:*** m: 1.47-1.60, f: 1.55-1.80; ***bpw/apw:*** 1.14-1.26; ***pl/mpw:*** 0.92-1.04; ***mew/mpw:*** m: 1.80-1.90, f: 1.82-1.98; ***el/pl:*** [2.82-2.90][1] 2.90-3.24; ***el/mew:*** m: 1.54-

[1]Measurements reported by Alonso-Zarazaga (1991b) are given in square parentheses when strongly different from mine.

1.62, f: 1.47-1.56; ***mew/bew:*** 1.20-1.30; ***bew/mpw:*** 1.45-1.57; ***pft/msrw:*** 0.85-1.01; ***ptbl/pl:*** 1.19-1.30; ***ptbl/ptbmw:*** m: [4.0] 4.50-5.39 (M 4.68), f: [6.7] 6.82-7.88; ***ptsl/ptbl:*** 0.46-0.55.

Rostrum markedly and evenly curved, in male dull, shalowly and closely punctate to the apex, in female less distinctly puctate, in apical 1/3 polished; mesorostral teeth inconspicuous; prorostrum bare, in male weakly, in female distinctly constricted medially, in both sexes in basal half with a shallow lateral groove; antennal scrobes reaching middle of the eyes on the head venter.



377-380. *Ceratapion* (*s. str.*) *calcaratum*: 377,378 - median lobe of aedeagus, 377 - dorsal view, 378 - lateral view; 379 - tegmen, dorsal view; 380 - tegminal plate, lateral view (dorsal spines enlarged)

Antennae very thin, inserted at basal m: 0.20-0.23, f: 0.17-0.22 of rostrum; length/width of the scape m: 2.7-2.9, f: 3.0-3.3, first funicular segment 2.0-2.2, the second 1.5-1.8, the remaining all longer than wide (in the male seventh sometimes isodiametric), club 2.3-2.6; antennal pubescence fine, opalescent, somewhat brownish.

Head sub-conical; eyes small, moderately prominent; frons flat, with striolae distinct, prolonged to the end of the vertex; vertex with transverse depression; temples not very shorter than the eyes, punctate on a distance much longer than half eye diameter; interocular area weakly convex, asperate posteriorly.

Pronotum distinctly narrowed apicad, with sides straight or weakly arcuate, subapical constriction indistinct; disc flat to barely convex, its puncturation very dense, punctures 2-2.5× ommatidium size, about 1/3 diameter apart, interspaces convex, distinctly microsculptured; prescutellar fovea long and narrow.

Elytra broad and distinctly convex, markedly rounded at sides, with humeral calli prominent; intervals at elytra base only slightly wider than the striae, in the middle 1.5-2 times so, the 3rd interval with a small patch of condensed scales at base; striae well impressed.

Legs fairly slender; inner margin of the male protibia sinuous, the apex strongly expanded inwards to form a slightly upturned hook; protarsus 2.9-3.1× longer than wide, length/width ratio of its first segment 1.6 [1.75][1], the second 1.2-1.3 [1.3-1.5], onychium exceeding third segment by 0.4-0.5 length; male metatarsus with a sharp ventral spine which is half as long as the basal segment of metatarsus high.

Metathoracic wings normally developed.

Tegminal plate strongly elongate; parameroid lobes notched to basal 1/3, their apices rolled and truncate, with 3-4 long macrochaetae, subapical parts of the lobes with evenly distributed short and thin spines; lateral fold distinct and complete along outer margins of the plate, often present also near the median notch; fenestrae large and well bordered; prostegium rounded or weakly angulate at the posterior margin.

Median lobe of aedeagus parallel-sided, distinctly tapering at apex; apophyses slightly longer than half of the tubular part; internal sac with minute spines and a pair of long, tape-like sclerites composed of 10-15 connate denticles in the orificial region, basal half of the sac unarmed.

Biology unknown. Wollaston recorded the species from *Carduus* sp., the numerous specimens collected by Colonnelli also came from an unidentified *Carduus* sp.

Distribution. Canary Is. (Tenerife, Gran Canaria, Hierro).

Other material examined

CANARY IS.: Tenerife: Teno, Foresta de Los Silos, 800 m, 13 II 1983, 1m 1f (LD), 1f (MW), 8m 5f (IZR), 850-950 m, 5 III 1984, 2m 4f, 15 III 1984, 2m 5f, leg. E. Colonnelli (IZR); Teno, Monte del Agua, 800-1000 m, 24 III 1985, 1m 5f,

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[1]Measurements reported by Alonso-Zarazaga (1991b) are given in square parentheses when strongly different from mine.

leg. M. BIONDI; dint. Orotava, 500 m, 6 II 1983, 1f, leg. E. COLONNELLI; Gran Canaria: Cruz de Tejada, 1400 m, 27 III 1985, 1f, leg. M. BIONDI (IZR).

Ceratapion (*s. str.*) *carduorum* (Kirby, 1808)

(figs 381, 385, 388, 390, 391)

Apion carduorum KIRBY, 1808: 72.
Apion galactidis WENCKER, 1858: XXII.
Apion carduorum var. *meridianum* WENCKER, 1864: 130.
Apion (*Ceratapion*) *magyaricum* GYÖRFFY, 1923: 93.
Apion (*Ceratapion*) *carduorum* var. *Ferdinandi* SCHATZMAYR, 1925: 96.
Apion lacertense TOTTENHAM, 1941: 14.
Apion galactitis: PERRIS, 1863 et auctt. (unjustif. emend.).
Apion dentirostre: auctt., nec GERSTAECKER, 1854.
Apion (*Ceratapion*) *apenninum* F. SOLARI: SCHATZMAYR, 1925, nom. nudum!

Literature: ALONSO-ZARAZAGA, 1986: 201, 1991b: 442; TEMPÈRE & PÉRICART, 1989: 343; KÖSTLIN, 1990: 90; MORRIS, 1990: 48 (*lacertense*); EHRET, 1990: 228.

Descriptions of the type specimens of all listed nominal taxa, as well as of designated lectotypes and the neotype of *A. carduorum* var. *meridianum* WCK. can be found in ALONSO-ZARAZAGA (1991b).

DESCRIPTION

Length 2.31-3.30 (on an average m: 2.7, f: 3.0) mm. Body black, pronotum slightly, elytra distinctly metallic blue or green, in South European specimens tibiae and tarsi sometimes brown. Body vestiture extermely fine in the specimens from north and central Europe, becoming longer and denser in the Mediterranean region, especially in Greece; hair-like scales white or greyish, on the elytra in two rows per interval, as long as at most 2/3 interval width, in the striae slightly shorter.

Indices. ***rl/pl:*** m: 1.30-1.50, f: [1.37-1.58][1] 1.45-1.73; ***rl/msrw:*** m: [3.0] 3.38-3.68, f: 3.5-4.2; ***scl/msrw:*** 0.69-0.90; ***msrw/mtrw:*** 1.24-1.39; ***msrw/arw:*** m: 1.47-1.58, f: 1.52-1.64; ***msrw/minrw:*** m: 1.54-1.70, f: 1.64-1.92; ***msrw/eyl:*** 1.05-1.24; ***brl/eyl:*** 0.72-0.97; ***eyl/hl:*** 0.58-0.69; ***hl/hw:*** 0.70-0.92; ***mpw/hw:*** m: 1.44-1.53, f: 1.48-1.63; ***bpw/apw:*** 1.14-1.27; ***pl/mpw:*** 0.81-1.07; ***mew/mpw:*** 1.70-1.94; ***el/pl:*** [2.61-3.25] m: 3.05-3.18, f: 2.97-3.60; ***el/mew:*** 1.48-1.80; ***mew/bew:*** 1.15-1.27; ***bew/mpw:*** 1.43-1.56; ***pft/msrw:*** 0.74-0.87; ***ptbl/pl:*** m: 1.10-1.26 (M 1.19), f: 1.16-1.35 (M 1.27); ***ptbl/ptbmw:*** [7] m: 5.09-6.23, f: 5.86-7.53; ***ptsl/ptbl:*** 0.50-0.60.

Rostrum moderately curved; mesorostral teeth large, with anterior margins straight or only barely concave and at the same angle to the rostrum axis as the posterior ones; prorostrum cylindrical or weakly dilated apically, bare, punctate, shining in apical 1/3 in female, basally with the lateral groove extremely shallow or absent; antennal scrobes reaching 0.3-0.5 interocular area.

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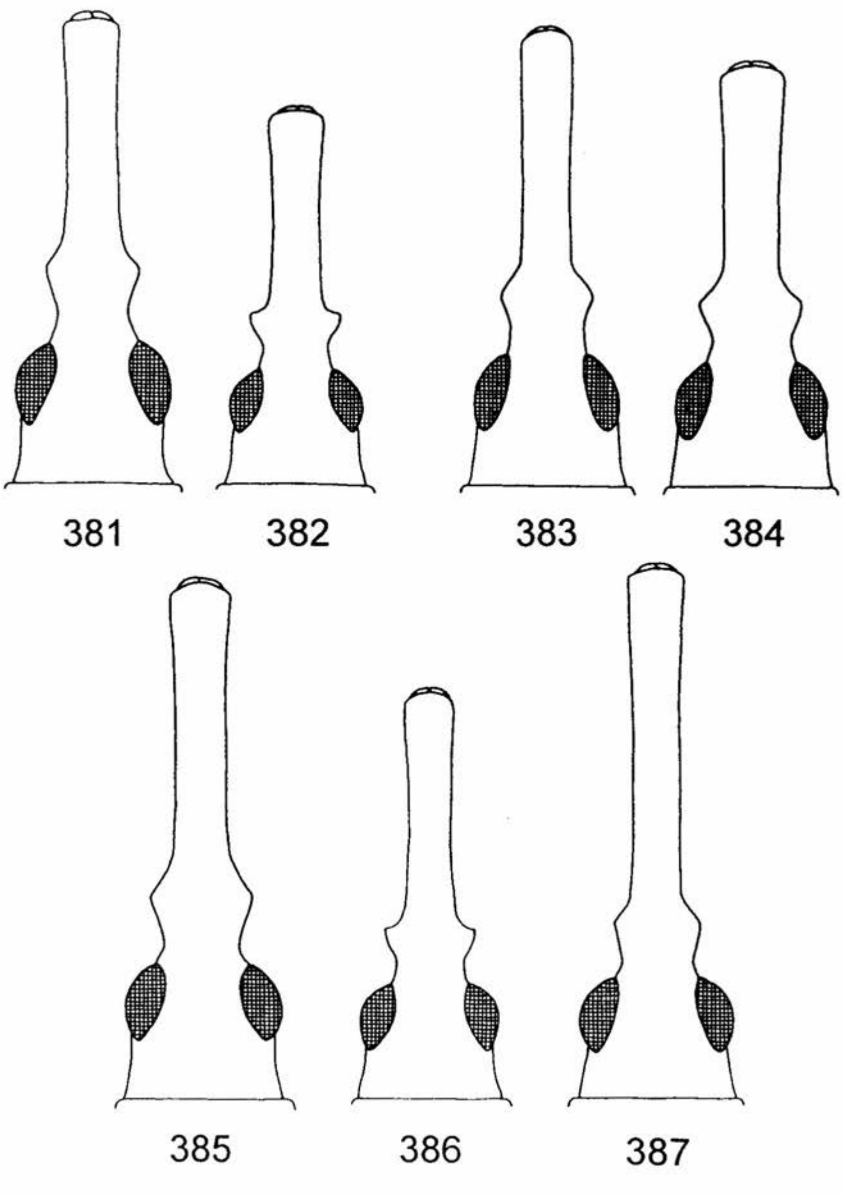
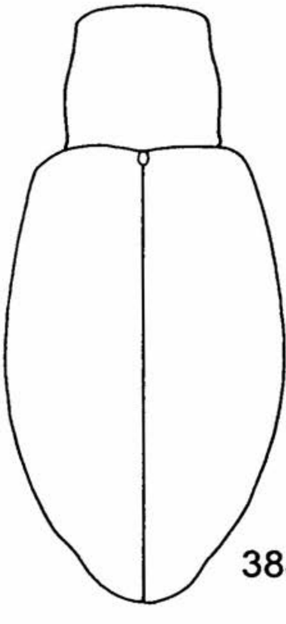
[1]Measurements reported by ALONSO-ZARAZAGA (1991b) are given in square parentheses when strongly different from mine.



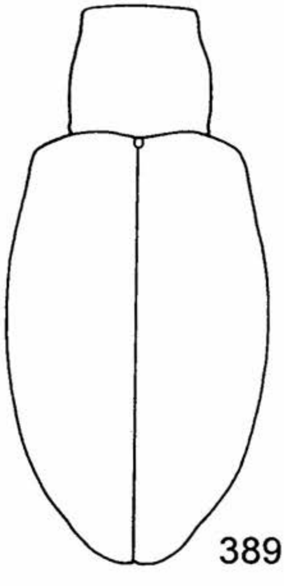
381-387. Head outline: 381-384 - male, 381 - *Ceratapion* (*s. str.*) *carduorum*, 382 - *C.* (*s. str.*) *gibbirostre*, 383,384 - *C.* (*s. str.*) *damryi* (variation); 385-387 - female, 385 - *C.* (*s. str.*) *carduorum*, 386 - *C.* (*s. str.*) *gibbirostre*, 387 - *C.* (*s. str.*) *damryi*

Antennae fairly slender, inserted at basal m: 0.18-0.23 (M 0.20), f: 0.17-0.22 (M 0.18) of rostrum; length/width of the scape m: 2.2-2.4, f: 2.5-2.8, first segment of the funicle 1.6-2.0, second to sixth 1.1-1.4, seventh isodiametric; club 2.6-3.3× longer than broad; antennal pubescence semi-recumbent, opalescent.

Head sub-rectangular; eyes distinctly, regularly convex, variable in size; frons flat or barely concave in front, with striolae prolonged to the end of vertex; temples punctured on a distance not longer than half eye diameter; interocular area convex and asperate.



388



389

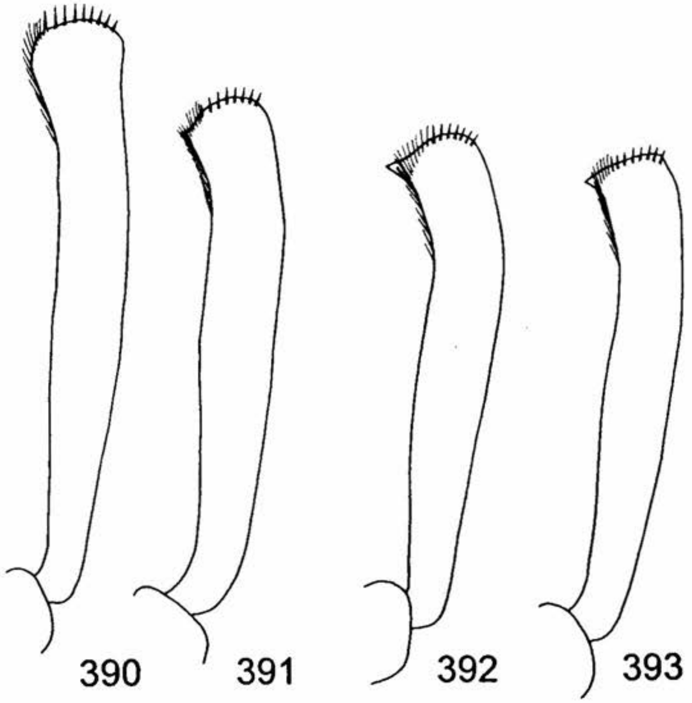
388,389. Male pronotum and elytra: 388 - *Ceratapion* (*s. str.*) *carduorum*; 389 - *C.* (*s. str.*) *damryi*

Pronotal sides weakly rounded to nearly straight, slightly constricted subapically; the disc poorly convex, with punctures of 2-3× ommatidium size, separated by half diameter on an average, the interspaces weakly convex, microreticulate; prescutellar fovea slightly wider than single puncture, usually reaching basal 1/3 pronotum.

Elytra varying in shape, uniformly convex, narrower and longer than in the previous species, with the humeri distinct; intervals 2.0-2.5× wider than the striae in middle of elytra; striae well deepened and edged.

Male protibia weakly bent or only slightly dilated inwards apically, without a mucro-like inner spine or with the spine very small and hardly protruding from the apical cluster of brownish setae; tarsi variable in proportions, length/width of the

2nd segment of protarsus 1.2-1.4 [1.4-1.6][1]; onychium exceeding third segment by 0.40-0.45 length; male metatarsus with the spine as long as 0.3-0.5 basal segment height.



390-393. Male protibia, lateral view: 390 - *Ceratapion* (*s. str.*) *carduorum* (England); 391 - *C.* (*s. str.*) *carduorum* (Greece); 392 - *C.* (*s. str.*) *gibbirostre*; 393 - *C.* (*s. str.*) *damryi*

Wings of normal length, but their muscles predominantly reduced.

Tegminal plate 2.5-2.8× longer than wide at the fenestrae level; parameroid lobes completely separate, slightly outcurved apically; macrochaetae 3-5, apical; lateral fold often prolonged to inner margins of the parameroid lobes; fenestrae clearly margined, broadly separate; prostegium not projecting backwards, subtruncate, often with a pair of very weakly marked longitudinal carinae.

Median lobe of aedeagus 6.0-6.5× longer than wide, weakly constricted in apical 1/3, broadly rounded and mucronate at apex; apophyses half as long as the tube; internal sac with relatively long spines throughout, slightly condensed subapically and basally and partly arranged in confused rows, the median sclerite single, of irregular and variable shape, with stronger sclerotization and a double row of denticles at one side.

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[1]Measurements reported by Alonso-Zarazaga (1991b) are given in square parentheses when strongly different from those of mine.

Biological data scanty and uncertain, as partly referring to the next species. The larvae observed in rootstock and leaf midribs of *Onopordum acanthium* L. but the host spectrum is certainly wider. Adults have been collected also on *Cirsium arvense* (L.) SCOP., *C. vulgare* (SAVI) TEN., *Carduus pycnocephalus* L. and *Onopordum illyricum* L., which are potential host plants.

Distribution. Tunisia, Algeria, Morocco, Spain, Portugal*, France (incl. Corsica), Italy (incl. Sicilia* & Sardinia), England, Ireland, Belgium*, Denmark*, Sweden (Gotland), Germany, Poland*, Slovakia, Hungary, Slovenia*, Croatia, Bosnia, Herzegovina, Macedonia, Greece, Bulgaria*, Turkey*, Syria, Armenia, Russia* (Krasnodarskiy Kr.) [an asterisk indicates countries, from which the species was not recorded by ALONSO-ZARAZAGA (1991b)].

Records of *C. carduorum* in Norway and Baltic countries (SILFVERBERG, 1979), in Byelorussia (IOANNISIANI, 1972), Moldova (SOLODOVNIKOVA & TALITSKIY, 1972), Georgia (TER-MINASSIAN, 1972), Afghanistan (HOFFMANN, 1962) and in Asian territory of Russia - in the South of Krasnoyarsk Reg. (FAUST, 1890) and in Amur Reg. (EGOROV, 1977) should be probably referred to *C. gibbirostre*.

REMARKS

Most of the 19th and 20th cc. literature data on *C. carduorum* refer in fact to *C. gibbirostre,* the distinctness of which has been recently confirmed by ALONSO-ZARAZAGA (1991b), or to *C. damryi*. The true *C. carduorum*, though widespread in Western Palaearctic, is rare and local in most countries.

OTHER MATERIAL EXAMINED

BELGIUM: Blankenbergen, 18 VI 1920, 1f, leg. F. GUILLEAUME; Vieuxville, 16 VIII 1934, 1f, leg. J. DEPRÉ (IRB).

BULGARIA: Damianica, 1f, leg. Z. CMOLUCH (SS); Achtopol, 13-21 VII 1984, 1f, leg. U. ARNOLD (LD).

CROATIA: Mosor, 1 VII 1953, 1f, leg. NOVAK (MHNG).

DENMARK: 1f, coll. SCHIODTE (ZMC).

ENGLAND: Essex, Benfleet, 24 VIII 1986, 2m; Somerset, Shapwick Heath, 6 VI 1982, 1f (MR).

FRANCE: Corse: L'Ile Rousse, 27 V 1936, 1f, coll. BETTINGER (IRB); Onessa, V 1960, 1m 4f, coll. J. OCHS; Sartene, 28 V 1971, 3f, leg. A. SENGLET (MHNG); Htes Pyr., Tarbes, 6 IV 1853, 1m, coll. PANDELLÉ (IRB); Reims, 1m, coll. TOURNIER (MHNG); Paris, 1f, coll. DEJEAN; Manche: Barfleur, 1f; Ravins des falaises de Jobourg, VI 1865, 1f - coll. A. FAUVEL; Marne: Basancourt, 2f, Igny le Fard, 2f - coll. BETTINGER; Herault: La Gardiole, 1f, leg. H. LAVAGNE (IRB); Alpes Marit.: Guillaumes, 4 VIII 1959, 1f (MHNG).

GREECE: Salonique [Thessaloniki], Ayos Vassilios, 13 V 1968, 1m 1f, leg. A. SENGLET (MHNG).

IRELAND: Mallow, 23 VI 1932, 1f, leg. Har. LINDBERG (ZMH).

ITALY: Sicilia: Malabolte, 1200 m, 14 IX 1981, 1f; Madonie, Mte S. Salvatore, 30 V 1985, 1f; P. Battaglia, 3 VII 1970, 1f; Sardinia: Mti Limbara, 1100 m, 10 IX 1987, 2f; Gr. Sasso, Assergi, 24 VI 1930, 1f (GO); Calabria, 1m 1f, coll. MADON; Abruzzes, L'Aquila, torr. Raio, 650 m, 19 VI 1952, 2m 1f, leg. G. FAGEL (IRB); Gargano Foresta, Umbra, 3-13 VIII 1970, 1m; FG S. Giovanni R., 700 m, 14 VIII 1970, 1f.; P. a Bolognola, Umbr. March., Mti Sibillini, VIII 1955 - leg. L. MAGNANO; Mass. Pollino, Colloreto, VI 1951, 2m 1f; Gargano, V 1950, 1m 2f - leg. S. RUFFO (LM).

POLAND: Bieszczady Mts.: Zatwarnica, 27 VII 1974, 2f, leg. L. BOROWIEC (MW).

PORTUGAL: Luso, V 1959, 1f, leg. G. FAGEL (IRB).

RUSSIA: Krasnodarskij Kr., Ubinskaya, 17-19 VI 1983, 1m 2f, leg. K. ARNOLDI (VZ).

SLOVENIA: Novo Mesto, 1f, leg. V. KODRIC (MHNG).

SWEDEN: 1f, coll. DEJEAN (IRB).

TURKEY: Anatolia, 1888, 1f, leg. C. DELAGRANGE (IRB); Antalya vil., Elmali, 28 VII 1985, 1m, leg. N. LODOS (JF).

Ceratapion (*s. str.*) *gibbirostre* (GYLLENHAL, 1813)

(figs 382, 386, 392, 395, 396, 398)

Apion gibbirostre GYLLENHAL, 1813: 52.
Curculio cyaneus DEGEER, 1775: 252, nec LINNAEUS, 1758.
Apion tumidum STEPHENS, 1835: 420.
Apion russicum DESBROCHERS, 1870: 179.
Apion conforme DESBROCHERS, 1875: 27.
Apion (*Ceratapion*) *carduorum* v. *Kenedii* BOKOR, 1923: 96.
Apion carduorum: auctt., nec KIRBY, 1808.
Apion intermedium FROEHLICH: DEJEAN, 1821, nom. nudum!

Literature: DIECKMANN, 1977: 86 (*carduorum*); TEMPÈRE & PÉRICART, 1989: 344; KÖSTLIN, 1990: 89; MORRIS, 1990: 48 (*carduorum*); EHRET, 1990: 228; ALONSO-ZARAZAGA, 1991b: 434; KOROTYAEV et al., 1993: 841.

Full descriptions of designated lectotypes and the remaining types of all the nominal taxa listed above are given by ALONSO-ZARAZAGA (1991b).

DESCRIPTION

Body length 2.04-2.95 (on an average m: 2.5, f: 2.7) mm. Colouration as in the previous species, elytra nearly always with green tinge. Body vestiture strongly variable, composed of white piliform scales distinctly increasing in length and number in the Mediterranean specimens.

Indices. ***rl/pl:*** m: 1.21-1.45, f: [1.26][1] 1.37-1.54; ***rl/msrw:*** m: [2.7] 2.98-3.37, f: 2.8-3.9; ***scl/msrw:*** m: [0.60-0.66] 0.64-0.76, f: 0.58-0.70 [0.75]; ***msrw/mtrw:*** m: 1.19-1.35 (M 1.26], f: 1.24-1.43 (M 1.34); ***msrw/arw:*** m: [1.4-1.9] 1.50-1.70 (M 1.57), f: [1.4-2.0] 1.62-1.82 (M 1.70); ***msrw/minrw:*** m: 1.55-1.75, f: 1.72-2.04; ***msrw/eyl:*** m: 1.11-1.33 (M 1.20), f: 1.20-1.42 (M 1.28); ***brl/eyl:*** 0.61-0.89; ***eyl/hl:*** m: 0.58-0.64, f: 0.60-0.69; ***hl/hw:*** [0.73-0.88] m: 0.75-0.86, f: 0.69-0.80; ***mpw/hw:*** 1.34-1.60; ***bpw/apw:*** 1.13-1.32; ***pl/mpw:*** 0.86-1.06; ***mew/mpw:*** m: 1.74-1.82, f: 1.83-1.96; ***el/pl:*** [2.67-3.24] 3.00-3.47; ***el/mew:*** 1.45-1.76; ***mew/bew:*** m: 1.22-1.27, f: 1.25-1.36; ***bew/mpw:*** 1.41-1.51; ***pft/msrw:*** 0.71-0.84; ***ptbl/pl:*** 1.13-1.22; ***ptbl/ptbmw:*** m: 4.45-5.41, f: 6.05-6.60; ***ptsl/ptbl:*** 0.52-0.61.

The species with most characters strongly variable, for a long time not distinguished from or misinterpreted as *C. carduorum*, distinct from the latter especially in the shape of rostrum, antennae and male protibia.

Rostrum shorter (rl/msrw !); mesorostral teeth more acute, with anterior margins more or less distinctly concave and forming with the rostrum an angle distinctly larger than the posterior ones; antennal scrobes wanting, the whole interocular area asperate.

Antennal insertion at basal [0.18-0.25][1] m: 0.18-0.21, f: 0.15-0.20 of rostrum; length/width of the scape m: 1.8-2.0, f: 2.1-2.4, club 2.1-2.7; proportions of the funicular segments variable.

Male protibia distinctly bent inwards apically, with the mucro-like spine conspicuous, clearly projecting over the brownish setae of tibial apex.

Aedeagus similar as in *C. carduorum*.

Variation has been described in detail by ALONSO-ZARAZAGA (1991b).

Biology. The larvae develop in roots, rootstocks and stems of *Carduus nutans* L., *C. pycnocephalus* L., *C. tenuiflorus* CURTIS, *C. acanthoides* L., *Cirsium arvense* (L.) SCOP., *C. eriophorum* (L.) SCOP. Beetles were collected on many other plants of the genera *Carduus* (*bourgeanus* BOISS. & REUT., *crispus* L.), *Cirsium* (*dissectum* (L.) HILL, *tuberosum* (L.) ALL., *vulgare* (SAVI) TEN.), *Centaurea* (*diffusa* LAM., *jacea* L., *napifolia* L., *solstitialis* L.), *Galactites* (*tomentosa* MOENCH), *Onopordum* (*illyricum* L.), *Picnomon* (*acarna* (L.) CASS.) and *Silybum* (*marianum* (L.) GAERTNER. An eurytopic species, inhabiting both humid and very dry habitats.

Distribution. Tunisia, Morocco, Algeria, Spain, Portugal, Malta, France (incl. Corsica), Belgium, The Netherlands, England, Wales, Scotland, Ireland, Italy (incl. Sicilia & Sardinia), Switzerland, Germany, Denmark, Sweden, Finland, Latvia, Poland, Ukraine, Czech Rep., Slovakia, Austria, Hungary, Rumania, Moldova, Slovenia, Croatia, Serbia, Bosnia, Herzegovina, Montenegro, Macedonia, Bulgaria, Greece, Cyprus, Turkey, Lebanon, Syria, Egypt, Iran*, Armenia*, Azerbaijan*, Georgia, Russia (north to Karelia, east to the meridian 93°), Kazakhstan [an asterisk indicates countries, from which the species was not recorded by ALONSO-ZARAZAGA (1991b)].

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[1]Measurements reported by ALONSO-ZARAZAGA (1991b) are given in square parentheses when strongly different from mine.

Remarks

By far the widest distributed and commonnest species of the *C. carduorum* species group, to which the great majority of older accounts should be referred (see also remarks under the previous species).

Other material examined

ALGERIA: Kabylie: Bou Berak, 4 exs, leg. L. Puel (MHNG); Guelma, Djebel Mahovna, 1 V 1979, 1 ex., leg. Doguet (GO); Yakouren, 700-850 m, 9 VI 1952, 3 exs; Bouzarca, 350 m, 29 V 1953, 1 ex., leg. G. Fagel; Djebel Ouarsensis, 1897, 2 exs; Ben Yacoub, VIII 1895, 1 ex., 1899, 1 ex. - coll. Vauloger; Medea, 1 ex., leg. Madon (IRB); Setif, Djebel Babor, 1900 m, 1 VI 1986, 1 ex., leg. G. Sama; Annaba, 21 V 1970, 1 ex., leg. Doguet (GO).

ARMENIA: Noenberyan. r-n: Shavarshavan, 14 VI 1974, 3 exs (VZ).

AUSTRIA: Korneuburg; Ulrichskirchen - 5 exs (LM).

AZERBAIJAN: Kura Plain, Gobustan, Beyugdash Hill, 150 m, 21-23 V 1985, 1 ex. (MK); 90 km N Baku, 19 VI 1984, 3 exs, leg. Bezbarma (GO).

BELGIUM: Marche; Blankenbergen; De Panne - 12 exs (IRB).

BULGARIA: Pirin: Treta Reka, 1800 m, 22 VI 1981, 1 ex., leg. M. Košťál (MR); Damjanica, 6 exs (SS); Rhodope: Narecenska Bani, 26 V 1978, 2 exs (MM); Zlatni pjasaci n. Varna, 1-21 VIII 1970, 1 ok, leg. T. Palm (MZL).

CROATIA: Dalmatia, 2 exs (FSF).

CZECH REP.: Usti n. Labem; Bilina; Vyssi Brod; Moravia: Brno - 5 exs (PS, LM).

EGYPT: 1m, leg. Melly (MHNG).

ENGLAND: Essex: Benfleet; Mucking; Grays; Cambs: Lalham Bridges; Marholm; Suffolk: Brandon; Kent: Lullingstone; Hampshire: Basingstoke; Dorset: Lyme Regis; Norfolk: Snettisham; Norhants: Collyweston: Kings Cliffe - 35 exs (MR).

FRANCE: Corse: Aleria; L'Ile Rousse; Costa - 6 exs (IRB, GO); Vaucluse: Murs; Avignon; Mt Ventoux; Ain: Prévessins; Herault: Merifrons; Béziers; Lattes; La Boissiere; Bouches du Rh.: Aix-en-Provence; Isére: Saint Vallier; Hautes Pyr.: Tarbes; Morbihan: Quiberon; Var: Toulon; La Sainte Baume; Cher; Hyeres; Saint Raphael; Calvados; Marne: Vrigny; Bazancourt; Germaine; Bergeres-les-Vertus; Boult-sur-Suippe; Gironde: Arcachon; Indre: Levroux; Ardennes: L'Ecaille; Loiret: Orleans; Seine-et-Marne: Fontainebleau; Morbihan: Quiberon; Jura: Dóle; Pyr. Atlant.: Cette; Alpes Marit.: Nice; Aisne; Tarn: Castres; Saone-et-Loire: Macon; Savoie; Vendee: L'Herbaudierre; Val de Marne: Valenton; Oise; Yvelines: Poissy; Alpes de Haute Provence: Digne - 128 exs (MR, MHNG, IRB).

GREECE: Crete: 1 ex. (SMNS); Kritsa, Aghios Nikolaos, V 1975, 7 exs; Kos: Bellecite, 29 VIII 1981, 2 exs - leg. T. Palm (MZL); Corfu [Kérkira]: 2 exs, leg. Paganetti; Kephallenia [Kefalinia], 1 ex. (ITZA); Kérkira, V 1964, 3 exs, leg. T. Palm (MZL); Kassiopi, V 1981, 1 ex., leg. P. S. Hyman (MR); Peloponnes: Olympia, Elis, 1 ex., leg. T. Palm (MZL); Killinis-Lutra (Pirgos), 23-30 VII 1981, 1 ex. (GO); Mts Taygetos, 950-1800 m, 15-19 V 1990, 1 ex., ZMC Exped. (ZMC); Mt Parnasós, 1 ex. (SMNS); Salonique [Thessaloniki], Ayos Vassillos, 13 V 1968, 3 exs, leg. A. Senglet (MHNG); Akrovouni: Pangeo (Kavala), 1200-1800 m, 12 VII 1983, 11 ex.; Tessalia: M. Pieria-Katafigion, 2000 m, 11 VII 1983, 2 exs (GO).

IRAN: Hamedan: Ganznameh/Hamedan, 34°44'N/48°30'E, 2250 m, 4 VII 1974, 1 ex.; Tehran: Firuzkuh, 35°41'N/52°46'E, 23 VII 1973, 1 ex.; Mazanderan: Chorteh, 36°46'E/50°35'E, 1600 m, 8 VII 1973, 2 exs - leg. A. Senglet (MHNG).

ITALY: Sicilia: M. Nebrodi, L. Quattrocchi; Ficuzza; Madonie, Isnello; Messina; Pachino; Etna; Le Madonie; Feria Pantalica; Buccheri; Is. Marettima - 23 exs (MHNG, SMNS, GO, LM, FA); Sardinia: S. Teresa; Serra Secca; S. Giorgio; Alghero; Is. Vacca; San Basilio; Aristano; S. Kaddelena; Is. San Antioco, Calalunga; Is. Asinara, Cala Reale; M. Limbara, 1100 m; Calangianus - 89 exs (MZL, GO, SMNS, FSF, LM); Is. Salina: Semaforo, 1 ex.(GO); Is. Vulcano, 10 exs; Is. Lipari, 6 exs (LM); Trentino-Alto Adige: V. Venosta Naturno, 900 m; V. Venosta Cicardes; V. Silandro, Covellano; V. Venosta Laces, S. Martino, 1000-1700 m; V. Venosta Lasa, Coste, 1000-1300 m; Bolzano, Tubre; Pejo Fontanino di Celentino; Calabria: Aspromonte, Portella Zagaria, Podargoni; Sila Camigliatello; Mte Pollino; Eufemia; Antonimina; Liguria: Alasio; San Remo; Lombardia: Bellaguarda; Puglia: Lecce, S. Cataldo; Gargano Foresta, Umbra; Foggia, S. Giovanni Rotondo; Isole Tremiti, S. Nicola; Basilicata: Nova Siri; Lago Pantano di Pignola; M. Vulture; Campania: Bagnoli Irp.; Umbria: M. Poro di Nicotera; Perugia; Marche: Camerino; Abruzzi: Chieti; Gran Sasso, Campo Impertore-Campo Pericali, 2000 m; Avezzano; L'Aquila; S. Panfio d'Ocre; M.gna di Campli - 68 exs (MCG, MHNG, GO, FSF, SMNS, ITZA, IRB, LM, FA).

LEBANON: Zghorta, Ehden, 1450 m, 4 VI 1972, 1 ex., leg. Brignoli (GO).

MOROCCO: Ifrane, 1 VI 1989, 2 exs; Ifrane-El Hajeb, 2 VI 1989, 1 ex.; El Kbab, Ichkern Pass, 27 V 1989, 3 exs - leg. L. Buchholz (PS); Atlas med.: Ras-el-Ma, 24-29 VI 1926, 1 ex., leg. Lindberg (ZMH).

The NETHERLANDS: Scheveningen, 13 exs (IRB).

POLAND: Teschen [Cieszyn], 1 ex. (ITZA); Baltic Coast: Koszalin, Ustka, Dębina n. Słupsk; Masurian Lake Region: Giżycko; Nizina Mazowiecka (Mazovian Lowland): Warsaw, Pyry, Wilanów, Bielany, Dembe Wielkie, Podkowa Leśna, Morysinek, Rembertów, Piaseczno, Rogów n. Koluszki; Puszcza Białowieska (Bialowieza Forest); Lower Silesia: Oława, Kamieniec Wrocławski, Ząbkowice Śl.; Wyżyna Krakowsko-Wieluńska: Cracow, Ojców; Wyżyna Małopolska: Łódź, Inowłódz, Grabowiec Reserve; Góry Świętokrzyskie Mts.: Chełmowa Mt.; Roztocze: Kąty n. Zamość, Dziewcza Góra n. Niedzieliska; Bieszczady Mts.: Łubne, Tworylne - 132 exs (IZW, SS, MW).

PORTUGAL: Faro, Foia Peak, 900 m, 19 VI 1980, 1 ex. (MR).

RUMANIA: Herculane, 22 IX-10 X 1970, 1 ex., leg. T. Palm (MZL); Cluj, 13 V 1968, 1 ex., leg. A. Comellini (MHNG); Constanta, 1 ex. (IRB); Piescany, 23 VII 1978, 1 ex., leg. A. Kuśka (PS); Vall. Duberlad [Birlad], 2 exs (IRB).

RUSSIA: Sarepta [Krasnoarmeysk], 4 exs (MHNG, SMTD, IRB); Belgorodsk. obl.: Shebekinsk. r-n: Mal. Mikhajlovka, 3 VII 1957, 2 exs; Rostovsk. obl.: Kamensk. r-n: Abramovka, 29 VII 1950, 5 exs; r. Donec, Krivoy Rog, 30 VII 1950, 1 ex. - leg. K. ARNOLDI; S Bashkiriya: 30 km WSW Kumertau, 22 VIII 1980, 1 ex., leg. A. RASNITSYN & STSCHERBAKOV; Uralskaya obl.: Dzhanybek, 20 VI 1984, 3 exs, leg. K. MIKHAJLOV (VZ).

SERBIA: Zemun, 5 VI 1941, 1 ex.; Blagojevkan, 5 V 1910, 1 ex. - leg. V. KODRIC (MHNG); Smederevska Palanka, 27 IX 1988, 1 ex., leg. E. BARANIAK (PS).

SPAIN: Baleares: Mallorca, Palma, IV 1957, 2 exs, leg. T. PALM (MZL); Ca'n Bastilla, 4 XII 1986, 1 ex. (MR); Ibiza: San Antonio, 6 VI 1966, 1 ex., leg. T. PALM (MZL); Málaga: Marbella, IV 1960, 1 ex., leg. T. PALM (MZL); Velez, 4 exs; Caceres: Guadalupe, 1 ex. ; Córdoba, 1 ex. (IRB); Barcelona: Valldoreix, VIII 1958, 1 ex.; Huelva: Los Antillas, 21 V 1957, 2 exs; Sierra de Guadarrama: Puerto Navacerrada, Ventorello, VIII 1957, 1 ex. - leg. M. GONZALEZ (MHNG); Granada: Sierra Nevada, 1 ex. leg. ESCALERA (FSF), 2200 m, 11 ex., leg. B. MALKIN (IZW); León: Ponferrada, 1 ex., leg. PAGANETTI (SMNS); Teruel, 30 V 1978, 1 ex., leg. G. SAMA; Huesca: Santo Domingo, 4 VII 1979 (GO).

SWEDEN: 5 exs (IRB).

TUNISIA: 1 ex.; Tunis, 1 ex. (IRB); Sousse, 17-29 V 1969, 1 ex., leg. T. PALM (MZL); Oasis Gafsa, 1 ex. (MHNG); 25 km SE Ain Draham, 10-16 V 1988, 1 ex., ZMC Exped. (ZMC); Hammamet-plage, 3-17 VI 1973, 1 ex., leg. M. C. & G. KRUSEMAN (ITZA); Bizerte, 15 V 1983, 5 exs (LM).

TURKEY: Gerede, 22 VI 1975, 2 exs (GO); vil. Malatya: Eskimalatya, 29 VI 1968, 3 exs, leg. V. Sbordoni; vil. Adana: Nurdagi Geçidi, 1150 m, 27 VI 1971, 1 ex., leg. BRIGNOLI; vil. Ankara: Kalecik, 850 m, 10 VII 1972, 1 ex., leg. M. & G. OSELLA (GO); Akbés [Ekbes], 1891, 1 ex., leg. DELAGRANGE (IRB).

UKRAINE: Podolia: Zaleszczyki; Żeżawa; Wołczków; Holikraly; Dobrowlany; Pieczarna - 51 ex. (IZW); Voroshilovgr. obl.: Belovodsk. r-n: Derkul, 1 VIII 1950, 7 exs, leg. K. ARNOLDI (VZ).

Ceratapion (*s. str.*) *damryi* (DESBROCHERS, 1894)

(figs 383, 384, 387, 389, 393, 394, 397)

Apion Damryi DESBROCHERS, [1894]: 111.
Apion (*Ceratapion*) *gridellii* F. SOLARI, 1940: 70.

Literature: SCHILSKY, 1902: no.8; SCHATZMAYR, 1925: 92; HUSTACHE, 1931: 47; MELIS, 1941; NORMAND, 1949: 97; HOFFMANN, 1958: 1514 (*carduorum damryi*); KÖSTLIN, 1973: 94 (*carduorum damryi*), 1985: 71, 1990: 90; ALONSO-ZARAZAGA, 1986: 201, 1991b: 446; TEMPÈRE & PÉRICART, 1989: 343; EHRET, 1990: 228.

Lectotype of *A. damryi* DBR. was designated and described by ALONSO-ZARAZAGA (1986); data on the holotype of *A. gridellii* SOL. are given by ALONSO-ZARAZAGA (1991b).

DESCRIPTION

Length 2.18-3.10 mm. Body colouration and vestiture as in the previous two species.

Indices. ***rl/pl:*** m: 1.34-1.55, f: [1.53][1] 1.61-1.82; ***rl/msrw:*** m: 3.17-3.84, f: 4.1-5.4; ***scl/msrw:*** m: 0.65-0.82, f: 0.82-1.05; ***msrw/mtrw:*** m: 1.24-1.44, f: 1.14-1.24; ***msrw/arw:*** m: [1.5-2.0] 1.67-1.80, f: [1.5-1.8] 1.50-1.65; ***msrw/minrw:*** m: 1.72-1.89 (M 1.80), f: 1.52-1.80 (M 1.68); ***msrw/eyl:*** m: 1.11-1.24 (M 1.17), f: 1.03-1.16 (M 1.09); ***brl/eyl:*** 0.60-0.86; ***eyl/hl:*** 0.62-0.74; ***hl/hw:*** 0.67-0.86; ***mpw/hw:*** m: 1.41-1.58 (M 1.50), f: 1.50-1.73 (M 1.57); ***bpw/apw:*** 1.13-1.30; ***pl/mpw:*** 0.90-1.08; ***mew/mpw:*** m: 1.76-1.83, f: 1.79-2.00; ***el/pl:*** m: 3.00-3.26, f: 3.19-3.42; ***el/mew:*** m: 1.67-1.77, f: 1.58-1.69; ***mew/bew:*** m: 1.20-1.27, f: 1.27-1.36; ***bew/mpw:*** 1.41-1.51; ***pft/msrw:*** m: 0.83-0.95 (M 0.89), f: 0.90-0.99 (M 0.93); ***ptbl/pl:*** 1.08-1.25; ***ptbl/ptbmw:*** m: 4.59-5.44 [5.5-6.0], f: 6.00-7.13; ***ptsl/ptbl:*** 0.54-0.62.

Rostrum varying in length, in female usually much longer than in the two related species (rl/pl !, rl/msrw !); mesorostral teeth shaped as in *C. carduorum*, symmetrical, much smaller in female.

Antennal insertion at basal m: 0.16-0.21, f: 0.11-0.16 of rostrum; proportions and variation of particular segments as in *C. carduorum*.

Pronotum in relation to elytra small, particularly in larger specimens, distinctly rounded at sides in male.

Femora distinctly swollen; male protibia clearly incurved apically, usually less distinctly so as in *C. gibbirostre*, with the inner mucro-like spine clearly projecting over the brownish setae of the protibial apex, on an average smaller than that in *C. gibbirostre*.

Tegminal plate 3.3-3.6× longer than wide at the fenestrae level.

Median lobe of aedeagus 7.2-8.0× longer than maximally broad, distinctly constricted at about apical 1/3, less clearly rounded at apex; median sclerite of the internal sac more elongate, evenly sclerotized.

The remaining characters as in *C. carduorum* and *C. gibbirostre*.

Biology. Associated, probably exclusively, with species of the genus *Cynara*. A well known pest of the artichoke *Cynara scolymus* L., collected also on *C. carduncculus* L. and, apparently accidentally, on *Centaurea solstitialis* L. The larva and life cycle were described in detail by MELIS (1941). The larvae feed in leaf midribs, petioles and/or stems.

Distribution. Tunisia, Algeria, Morocco, Spain (incl. Baleares), Portugal, France (incl. Corsica), Italy (incl. Sicilia & Sardinia), Austria, Slovenia, Croatia, Herzegovina, Montenegro, Bulgaria, Rumania, Greece, Turkey, Libya.

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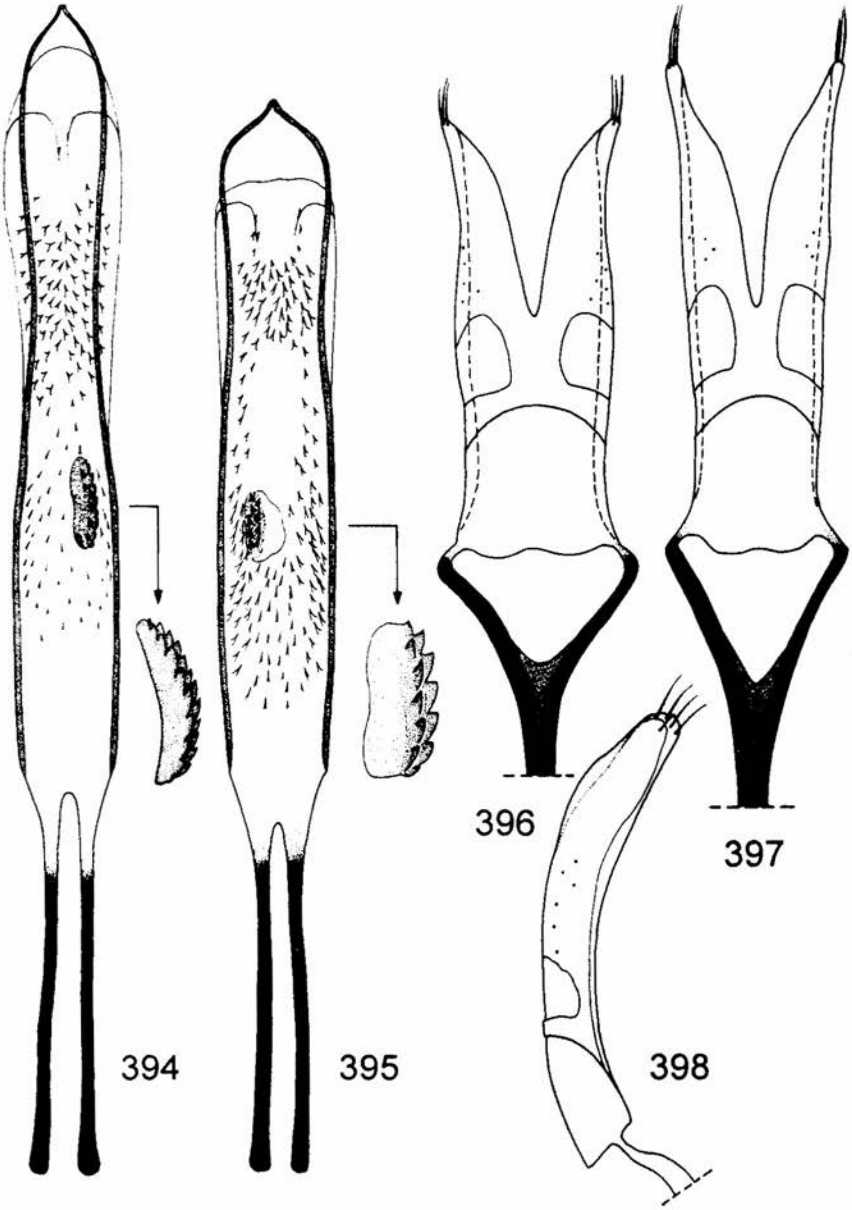
[1]Measurements reported by ALONSO-ZARAZAGA (1991b) are given in square parentheses when strongly different from mine.

Alonso-Zarazaga (1991b) mentions also one specimen from Silesia (Poland?) and two specimens from Saxonia (Germany) - both records doubtful, although accidental introduction with garden plants could have been possible. Also the



394,395. Median lobe of aedeagus (median sclerite enlarged): 394 - *Ceratapion* (*s. str.*) *damryi*; 395 - *C.* (*s. str.*) *gibbirostre*. 396-398. Tegminal plate: 396 - *C.* (*s. str.*) *gibbirostre*, dorsal view; 397 - *C.* (*s. str.*) *damryi*, dorsal view; 398 - *C.* (*s. str.*) *gibbirostre*, lateral view accounts from Austria and Rumania were based on single, old specimens and need to be confirmed by subsequent findings.

OTHER MATERIAL EXAMINED

ALGERIA: 1f, leg. J. BOSSION (LM); Guelma, Djebel Mahovna, 1 V 1979, 2m, Fedjoudi, 12 VI 1979, 1m - leg. DOGUET (GO); Bône [Annaba], 1f (MNB).

AUSTRIA: "Autriche", 1f, coll. DEJEAN (IRB).

FRANCE: Corse: 5 exs; Aleria, 6 exs (MHNG, IRB); Bonifaccio, 1f (IRB); Etang de Biguglia n. Furiani, 16 IV 1927, 1 ex. (SS); Gard: Nimes, 1911, 2m 1f, coll. PUEL (IRB); Alpes marit.: 1 ex.; Nice, 2 exs, leg. TOUMAYEFF (MHNG); Carnolés, X 1942, 1f, 15 VII 1945, 1f; Roguebrume-cap-Martin, 26 III 1952, 2f - leg. P. GAURET (IRB); Var: Hyeres, 2f, coll. TOURNIER; Toulon, 4 exs (MHNG, IRB); La Londe n. Hyeres, 18 V 1930, 20 exs (SS); La Seyne, 1f (MNB); Allier: Brout Vernet, 4 exs (IRB); Vichy, 1 ex.; Lot.-et Gar.: Port Ste Marie, 6 VI 1974, 3 exs, leg. A. COMELLINI; Bouches du Rh.: Marseile, 1 ex.; Aix-en-Provence, 2 exs; Vaucluse: Avignon, 1m, leg. LETHIERRY; Haute Vienne: Limoges, 1 ex., leg. J. TARDIEU (MHNG); Calvados, 2 exs; Tarn: Castres, 1 ex.; Herault: Lattes, Palavas, 3 ok; Béziers, 1 ex.; Charente Marit.: Ile de Ré, 4 exs; Bas. Alpes: Riez, 1 ex.; Vendée: St. Germain de Princay, 2 exs; Pyr. or., 3 exs; Htes Pyr.: Tarbes, 5 exs (IRB).

GREECE: Crete: 1 ex. (ZMC); Omalos, 18 VIII 1906, 1m, leg. BIRÓ (SS); Corfu [Kérkira]: 1 ex. (IRB); Ropa Tal, 21 VII 1989, 1m 3f (WS); Valianiti, V 1964, 1 ex., leg. T. PALM (MZL); Peloponnes: Olympia, 26-29 IV 1957, 1 ex., leg. E. JANSSENS (IRB).

ITALY: Sicilia: Caltagirone, 600 m, 19 VII 1969, 1f (LM); Messina, 1 XI 42, 2f (SMNS); Abruzzi: Chieti dint., 4 VIII 1949, 1m, leg. L. Magnano; Puglia: Brindisi, 17 I 1941, 1f, leg. TAMANINI (LM); Toscana: 3 exs (MHNG); Firenze, Cascine, VI 1939, 1m, leg. A. MARTELLI; Umbria: Perugia, VII 1948, 1m 1f, leg. C. MANCINI (LM); Veneto: Soave, IX 1934, 1m 2f, leg. S. RUFFO (LM); Venezia, Malamocco, VI 1938, 1m, leg. BURLINI; Laguna Veneta, Serasmo, 11 IV 1968, 1f, leg. GODENIGO (GO); Friuli-Venezia Giulia: Trieste, 6 exs (SS); Fiume, 1f NMW); Marche: Ancona: Mte Conero, 1m 2f, leg. PAGANETTI (NMW, MHNG); Lazio: Roma, Rio Fiume, 25 V 1986, 1f (MR); Calabria: Maida, 28 V 1971, 1f, 2 VII 1972, 1m - leg. BARTOLI (MCG); Basilicata: Lucania: Lido di Metaponto, V 1966, 6 exs, leg. G. DELACASSA (MCG); Policoro, 19 VI 1977, 1m, leg. F. ANGELLINI (SMNS); Potenza: Topo Vuturo, 1700 m, 21 VI 1988, 1f (MR); Liguria: 1 ex. (IRB); Genova, 3 exs, leg. A. DODERO (MHNG).

PORTUGAL: Faro, 1m (MHNG).

SPAIN: Is de Baleares: Mallorca 1f; Madrid, 2m, coll. CHEVROLAT (IRB); Badajoz, 1f, leg. UHAGON (MNB).

TUNISIA: Teboursouk, 1m 1f (GO); Ain Draham, 16-18 VIII 1962, 1 ex., leg. LINNAVUORI (ZMH).

Ceratapion (*s. str.*) *armatum* (GERSTAECKER, 1854)

(figs 399, 402, 405, 410, 412, 414, 417, 420, 422, 424, 430-433)

Apion armatum GERSTAECKER, 1854: 237.
Apion barnevillei WENCKER, 1864: 133.

Literature: BEDEL, 1887: 364; DESBROCHERS, [1894]: 112; SCHILSKY, 1901: no.12, 1906b: XV; REITTER, 1916: 244; WAGNER, 1918: 44; SAINTE-CLAIRE DEVILLE, 1924: 124; SCHATZMAYR, 1925: 74; HUSTACHE, 1931: 47; GYŐRFFY, 1956: 10; HOFFMANN, 1958: 1514; ZEBE, 1963: 116, 1972: 170; SMRECZYŃSKI, 1965: 48; HANSEN, 1965: 431; KÖSTLIN, 1973: 95, 1985: 72, 1990: 90; DIECKMANN, 1977: 86; LOHSE, 1981: 155; EHRET, 1983: 139, 1990: 230; STEKLOVA, 1983: 614; TEMPÈRE & PÉRICART, 1989: 344; MORRIS, 1990: 48; MATUSEVICH, 1991: 184; ALONSO-ZARAZAGA, 1991b: 468; KOROTYAEV et al., 1993: 841.

Lectotypes of *A. armatum* (MNB) and *A. barnevillei* (MNHP) have been designated by ALONSO-ZARAZAGA (1991b).

DESCRIPTION

Length m: 1.66-2.18, f: 2.09-2.43 mm. Body dull black, only in the Armenian specimens piceous brown; legs and antennae obscurely brown or testaceous, femora often blackened in parts. Vestiture fine, grey to white-grey, arranged in one row per interval on the elytra, the hair-like scales as long as the interval broad, scales in the striae as long as those on the intervals in anterior part of the elytra, becoming distinctly shorter backwards.

Indices. ***rl/pl:*** m: 1.13-1.32, f: 1.30-1.40; ***rl/msrw:*** [2.3][1] 2.45-2.73 [3.1], f: [2.6] 2.70-3.07 [3.2]; ***scl/msrw:*** [0.5-0.7] 0.67-0.82; ***msrw/mtrw:*** 1.18-1.38; ***msrw/arw:*** [1.6-2.0] m: 1.79-1.89, f: 1.65-1.91; ***msrw/minrw:*** 1.83-2.14; ***msrw/eyl:*** 1.22-1.45; ***brl/eyl:*** m: 0.65-0.91, f: 0.59-0.67; ***eyl/hl:*** 0.52-0.62; ***hl/hw:*** [0.70-0.95] m: 0.83-0.96, f: 0.80-0.88; ***mpw/hw:*** m: 1.30-1.42, f: 1.38-1.43; ***bpw/apw:*** 1.04-1.14; ***pl/mpw:*** 0.93-1.07; ***mew/mpw:*** m: 1.58-1.70, f: 1.73-1.92; ***el/pl:*** [2.88] 3.00-3.34; ***el/mew:*** [1.79-2.00] m: 1.89-2.03, f: 1.80-1.85; ***mew/bew:*** m: 1.13-1.22, f: 1.20-1.30; ***bew/mpw:*** m: 1.37-1.43, f: 1.41-1.48; ***pft/msrw:*** 0.64-0.71; ***ptbl/pl:*** 1.06-1.16; ***ptbl/ptbmw:*** m: [5.5] 5.56-6.64, f: 5.88-7.00 [7.3]; ***ptsl/ptbl:*** 0.61-0.70.

Rostrum moderately and evenly curved, with the metarostrum distinctly longer in male; male mesorostral teeth with anterior margins straight, making the teeth uniformly triangular, in female fore margins of the teeth distinctly concave and deeply indentate; prorostrum cylindrical (male) or slightly dilated apically (female), bare, in female in apical 1/3 shining, the remainder with strong scale-like microsculpture and obsolete punctures only at base; sides of rostrum without longitudinal grooves; antennal scrobes very short, absent on underside of the head.

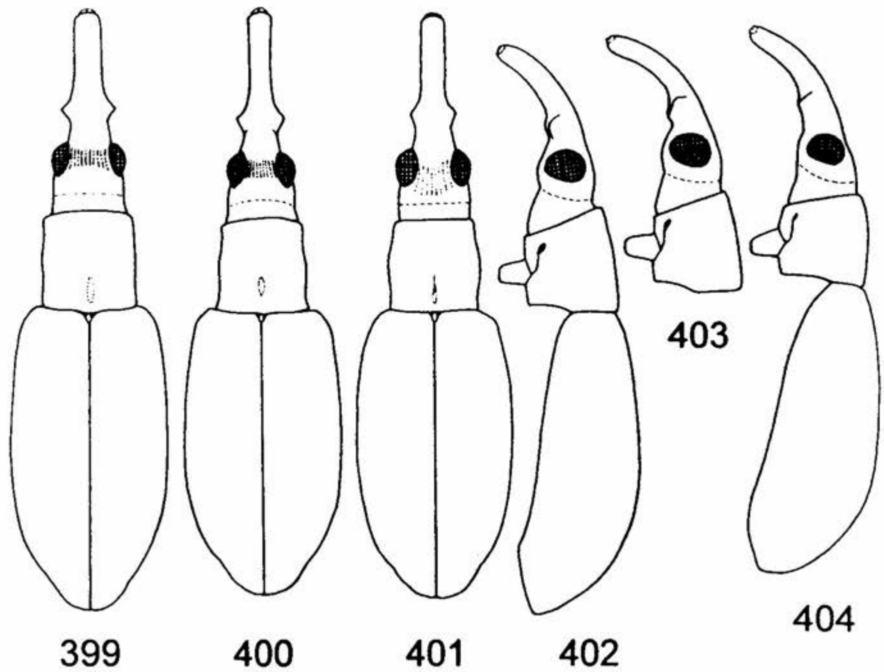
Antennae sexually dimorphic, inserted at basal m: 0.21-0.24, f: 0.16-0.18 [0.20-0.21][1] of rostrum; lenght/width ratio of the scape [2.0-2.3] m: 2.2-2.5, f: 2.5-2.9,

[1]Measurements reported by ALONSO-ZARAZAGA (1991b) are given in square parentheses when strongly different from mine.

first funicular segment [1.2-1.5] 1.4-1.7, second m: 1.8-2.0, f: 1.4-1.6, third m: 1.4-1.5, f: 1.2; in female segments 4, 5 slightly elongate, the remaining as long as wide, not modified; in male fourth segment distinctly elongate, fifth isodiametric, flattened at inner side, segments 6 and 7 much wider than long (sixth 1.3×, seventh 1.4×), distinctly concave at inner side; club in male 1.8-2.1 as long as broad, strongly concave in basal half at inner side, female club not modified, suboval 2.2-2.5× longer than wide; antennal pubescence fine and sparse, brownish opalescent, weakly protruding.

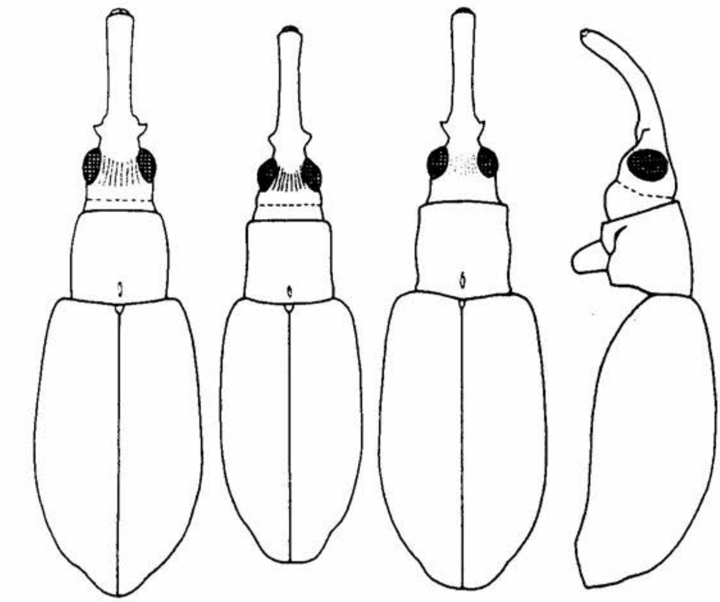
Head sub-rectangular; eyes small, strongly prominent; frons flat or scarcely depressed in front, distinctly striolate; vertex nearly flat, punctured backwards on a distance of about half eye length (like on temples); temples parallel, flat or, as usual, weakly convex; interocular area gibbous, asperate throughout.

Pronotum cylindrical, not constricted subapically nor sub-basally, with the walls thin and sides straight or occasionally (females) slightly arched; disc not convex, shallowly and irregularly punctured, the punctures 2-3× ommatidium size, 0.3-1 diameter apart, the interspaces flat or barely elevated, with strong scale-like microsculpture; prescutellar fovea weakly impressed, variable.

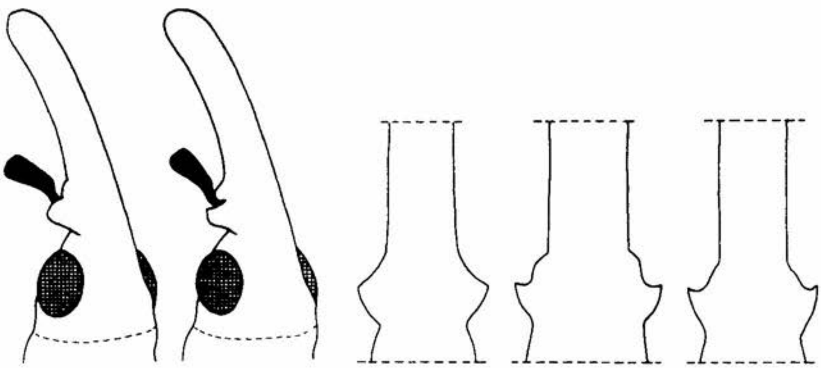


399-404. Male body outline: 399-401 - dorsal view, 399 - *Ceratapion (s. str.) armatum*, 400 - *C. (s. str.) dalmatinum*, 401 - *C. (s. str.) kazakhstanicum*; 402-404 - lateral view, 402 - *Ceratapion (s. str.) armatum*, 403 - *C. (s. str.) dalmatinum* (head and pronotum), 404 - *C. (s. str.) kazakhstanicum*

Elytra flattened on the disc, in male parallel-sided, in female weakly widening, broadest far behind middle; humeral calli prominent; intervals at elytral base as wide as, or slightly narrower than the striae, in the middle of elytra up to 1.3× wider than the striae; striae shallow, not distinctly edged, with punctures large, quadrate or elongate, deep, septae hardly depressed; specialized setae not observed.



405 406 407 408



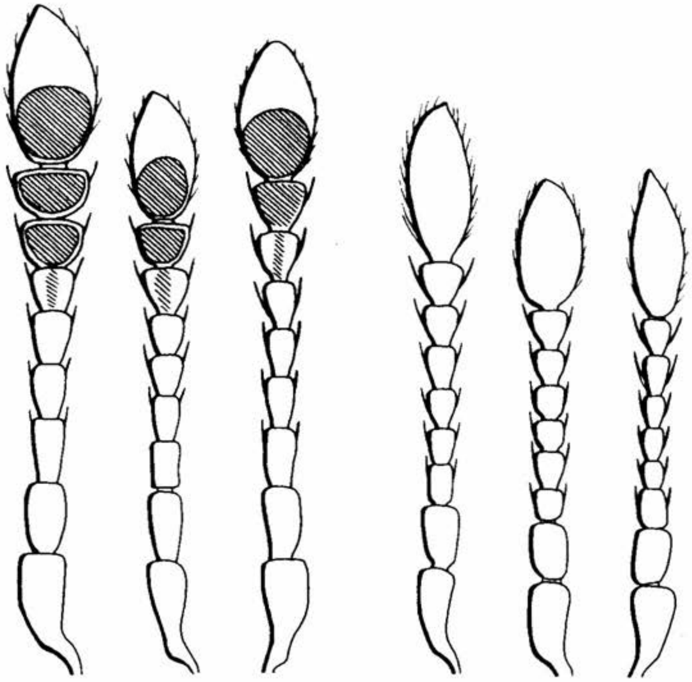
409 410 411 412 413

405-408. Female body outline: 405 - *Ceratapion (s. str.) armatum*, dorsal view; 406 - *C. (s. str.) dalmatinum*, dorsal view; 407,408 - *C. (s. str.) kazakhstanicum*, 407 - dorsal view, 408 - lateral view. 409,410. Female head and rostrum in latero-dorsal view: 409 - *C. (s. str.) dalmatinum*; 410 - *C. (s. str.) armatum*. 411-413. Female mesorostral teeth in dorsal view: 411 - *C. (s. str.) dalmatinum*; 412 - *C. (s. str.) armatum*; 413 - *C. (s. str.) kazakhstanicum*

Legs slender; male protibia flattened and twisted but not distinctly broadened apically; male mid tibia often finely denticulate on inner surface; protarsus in male 3.3-3.6, in female 3.0-3.2 as long as wide; length/width of the first segment m: 2.0-2.2, f: 1.6-1.8 (strongly compressed in the male), second 1.25-1.40 (more strongly narrowing basad in the male); onychium exceeding third segment by 0.6-0.8 length; male metatarsus with a ventral spine as long as 0.5-0.7 basal segment height; length/width ratio of the first female metatarsomere 1.7-1.8, the second 1.5, onychium of the female metatarsus exceeding third segment by about 0.7-0.8 length.

Wings and their muscles well developed.

Tegminal plate strongly modified; parameroid lobes separate to basal 1/3 length, their apical parts divided into few finger-like processes, the outermost of them bearing 4-6 short macrochaetae, the two inner processes very narrow and acute; sensillae invisible; fenestrae very large, obscurely margined, confluent; dorsal portion of ring complete; prostegium without longitudinal carinae, bluntly produced backwards.



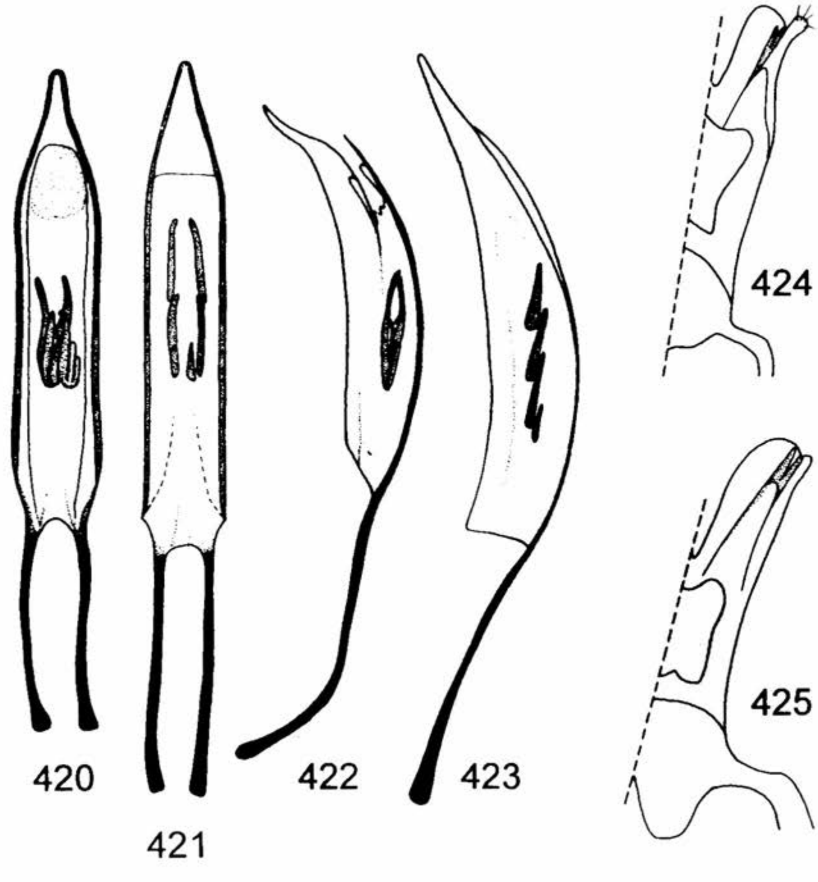
414 415 416 417 418 419

414-419. Antenna, inner side: 414 - *Ceratapion* (*s. str.*) *armatum*, male; 415 - *C.* (*s. str.*) *dalmatinum*, male; 416 - *C.* (*s. str.*) *kazakhstanicum*, male; 417 - *C.* (*s. str.*) *armatum*, female; 418 - *C.* (*s. str.*) *dalmatinum*, female; 419 - *C.* (*s. str.*) *kazakhstanicum*, female

Median lobe of aedeagus parallel-sided, apically narrowed and produced into parallel-sided, subtruncate tip, in profile somewhat sinuate apically; apophyses of 0.5-0.7 tube length; internal sac without spines, in median part with a pair of hardly separated clusters of glabrous sclerites (up to 8), which are strongly different in length and often, the longest, more or less distinctly bent apically.

Spiculum gastrale with manubrium not longer than the forked part, the latter partly membranous.

Biology. Beetles collected on *Centaurea scabiosa* L., *C. pectinata* L., *C. amara* L., *Echinops ritro* L., *Carlina vulgaris* L., but most often on *Centaurea jacea* L. and *C. nigra* L. Larval habits unknown.



420-423. Median lobe of aedeagus: 420 - *Ceratapion* (*s. str.*) *armatum*, dorsal view; 421 - *C.* (*s. str.*) *kazakhstanicum*, dorsal view; 422 - *C.* (*s. str.*) *armatum*, lateral view; 423 - *C.* (*s. str.*) *kazakhstanicum*, lateral view. 424,425. Tegminal plate in latero-dorsal view: 424 - *C.* (*s. str.*) *armatum*; 425 - *C.* (*s. str.*) *kazakhstanicum*

Distribution. France, Belgium, England, Italy, Switzerland, Germany, Denmark, Sweden, Baltic countries, Poland, Byelorussia, Czech Rep. (Moravia), Slovakia, Austria, Hungary, Rumania, Russia (Dagestan), Armenia*.

Recorded also from Croatia and Herzegovina (WAGNER, 1904, DIECKMANN, 1977, ALONSO-ZARAZAGA, 1991b), what may refer, as well as some Italian data, to *C. dalmatinum*.

REMARKS

C. armatum was placed in the subgenus *Echinostroma* by ALONSO-ZARAZAGA (1991b), which seems debatable after a detailed analysis of the characters. There are no grounds for considering the finger-like processes of the paramerae as homologous with the ventral seta-like processes of parameroid lobes in the subgenus *Echinostroma*. Other characters of *C. armatum*, such as the presence of transverse sulcus on the vertex, ventral flaps of the tegmen, basal sclerites of the internal sac, ramus of the spermatheca developed or spatulate protibia and compressed basal segment of protarsus in male, all used as synapomorphies supporting particular lineages of the subgenus *Echinostroma* by ALONSO-ZARAZAGA (l.c.), are homoplasious or even illusoric in *C. armatum*. The three species composing the *C. armatum* species group share most characters with *C. secundum* and *C. gibbifrons* (see disscussion on p. 56) and they are placed here in the subgenus *Ceratapion s. str.*

OTHER MATERIAL EXAMINED

ARMENIA: Chosrov, 1500 m alt., 1 VI 1987, 2f (VK).

AUSTRIA: Kainbürg, IV 1903, 1f, leg. ZOUFAL (ZSM).

BELGIUM: Baillonville pr. Namur, 8 IX 1923, 1m, coll. GÉRARD-SALME (IRB).

DENMARK: Silistria, 14 VIII 1917, 5 exs, leg. V. HANSEN (NMW); Marselisborg n. Aarhus, 1915, 1m 1f, leg. V. HANSEN, coll. H. WAGNER (ZSM); Aarhus, 28 VIII 1918, 1m (IZW); SV. Sjaelland, Klinteby Klint, 21 VIII 1960, 3m 3f, leg. H. GØNGET (HG, MW)).

FRANCE: Isère: Entre-2-Guiers, 23 IX 1922, 1m, 16 X 1926, 1f, 26 X 1926, 1f, 16 IX 1927, 1m - leg. V. PLANET (IRB, SS); Saone-et-Loire: Autun, 1f, leg. A. FAUVEL (IRB).

GERMANY: 1m, coll. CHEVROLAT (IRB); Rheinland: Seibersbach, 27 VII 63, 1m, leg. ZEBE (SMNS).

POLAND: Niepolomicka Forest: Szarów, 58 exs (SS).

SLOVAKIA: Starina n. Starčin, 14 VIII 1982, 1f (RB).

SWEDEN: Sml. Pataholm, 13 VI 1990, 2f (EP).

SWITZERLAND: Geneve: Peney, La London, 1f, coll. TOURNIER; Graubunden: Ilanz, 13 VII 1967, 1f; St. Gallen: Altenrhein, 21 II 1959, 1f - coll. A. SPALTI (MHNG).

Ceratapion (*s. str.*) *dalmatinum* (Győrffy, 1923)

(figs 400, 403, 406, 409, 411, 415, 418)

Apion (*Ceratapion*) *dalmatinum* Győrffy, 1923: 92.

Type material examined

Holotype f: Dalmatia: Insel Arbe (HMNH).

Description

Body length 1.94-2.17 mm. Colouration as in *C. armatum*, vestiture more distinct, white.

Indices. ***rl/pl:*** m: 1.37, f: 1.33-1.55; ***rl/msrw:*** m: 2.98, f: 2.91-3.15; ***scl/msrw:*** m: 0.81, f: 0.70-0.74; ***msrw/mtrw:*** m: 1.35, f: 1.41-1.50; ***msrw/arw:*** m: 1.89, f: 1.83-2.00; ***msrw/minrw:*** m: 2.00, f: 2.01-2.16; ***msrw/eyl:*** m: 1.20, f: 1.38-1.52; ***brl/eyl:*** m: 0.96, f: 0.71-0.83; ***eyl/hl:*** m: 0.63, f: 0.48-0.61; ***hl/hw:*** m: 0.92, f: 0.80-0.98; ***mpw/hw:*** m: 1.35, f: 1.39-1.43; ***bpw/apw:*** m: 1.10, f: 1.07-1.12; ***pl/mpw:*** m: 1.11, f: 0.93-1.11; ***mew/mpw:*** m: 1.77, f: 1.58-1.74; ***el/pl:*** m: 3.02, f: 3.02-3.29; ***el/mew:*** m: 1.90, f: 1.91-1.93; ***mew/bew:*** m: 1.20, f: 1.15-1.17; ***bew/mpw:*** m: 1.48, f: 1.38-1.49; ***pft/msrw:*** m: 0.64, f: 0.62-0.69; ***ptbl/pl:*** m: 1.10, f: 1.00-1.15; ***ptbl/ptbmw:*** m: 6.62, f: 5.53-6.29; ***ptsl/ptbl:*** m: 0.84, f: 0.60-0.66.

The species known from only a few specimens and not certainly distinct from *C. armatum*. The examined specimens differ from the latter in some details of antennae, rostrum, head and elytra.

Antennal insertion at basal 0.27, f: 0.18-0.19 part of rostrum; the segments in female less elongate, more distinct from those of male in proportions; length/width of the scape m: 2.7, f: 2.2-2.4, first funicular segment m: 1.9, f: 1.4-1.6, second m: 1.6, f: 1.0-1.2, third m: 1.6, f: 1.1-1.3, the remaining in female not distinct from those in *C. armatum*, in male fifth normally convex at inner side, sixth flattened, seventh concave, its width/length ratio 1.25; club in male as in *C. armatum*, in female shorter, 2.0-2.3× longer than broad.

Mesorostral teeth less distinctly indentate in female (fig. 409), their anterior margins less concave (distinctly less so in the holotype, as in fig. 411, more strongly indentate in the remaining females).

Head in both sexes narrower, somewhat sub-conical (figs 400, 406).

Elytra in female barely widened posterad (el/mew !); specialized setae found in one female.

The remaining characters, including those of male and female genitalia, identical as in *C. armatum*.

Biology unknown.

Distribution. Croatia (Rab I.), Italy*.

Other material examined

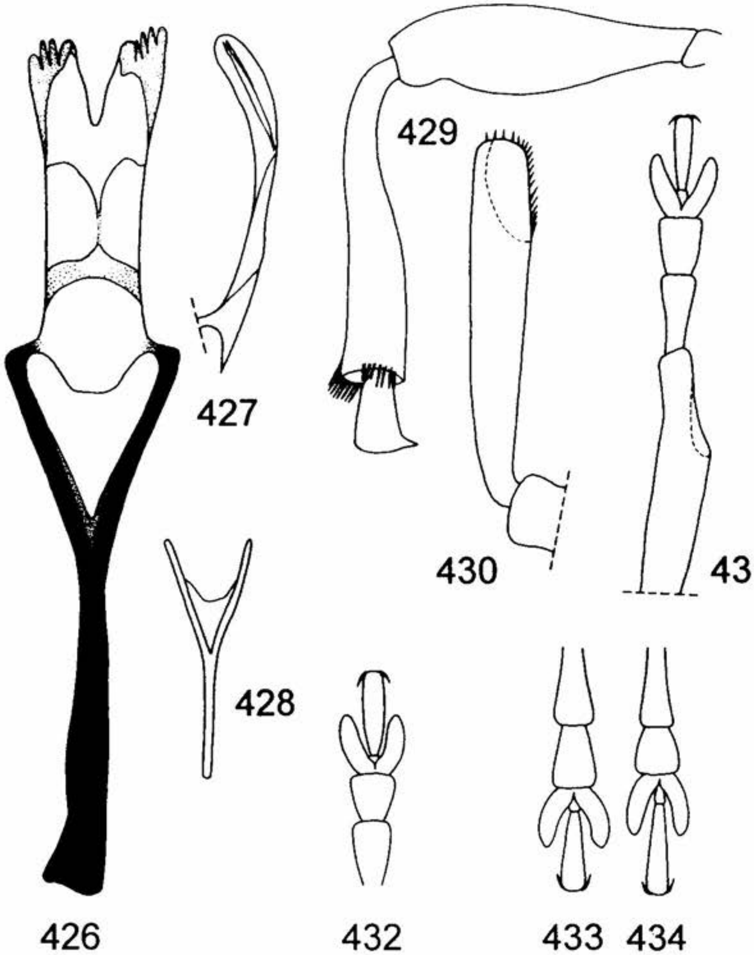
CROATIA: Is. Arbe [Rab], 1f, coll. Penecke (SMTD).

ITALY: Piemonte: Langhe: Pezzolo V. U., 540 m, 20 VIII 1970, 1m, leg. M. ZUNINO (GO); Basilicata: Potenza: San Costantino Albanese, 20 VI 1988, 1f (MR).

Ceratapion (*s. str.*) *kazakhstanicum* (TER-MINASSIAN, 1969)

(figs 401, 404, 407, 408, 413, 416, 419, 421, 423, 425, 426-429, 434)

Apion (*Ceratapion*) *kazakhstanicum* TER-MINASSIAN, 1969: 634.



426-429. *Ceratapion* (*s. str.*) *kazakhstanicum*: 426 - tegmen, dorsal view; 427 - tegminal plate, lateral view; 428 - spiculum gastrale; 429 - male hind femur, tibia and first metatarsomere (lateral view). 430,431. *C.* (*s. str.*) *armatum*, male: 430 - protibia, inner side; 431 - protibia (distal part of outer edge) and protarsus (dorsal view). 432. *C.* (*s. str.*) *armatum*, female protarsus in dorsal view. 433,434. Female metatarsus in dorsal view: 433 - *C.* (*s. str.*) *armatum*; 434 - *C.* (*s. str.*) *kazakstanicum*

Type material examined

Paratype m: Kazakhstan: Celinogradskaya obl., steppe North of the lake Zharkol, 12 VII 1958, leg. L. Arnoldi.

Description

Body length 2.05-2.10 mm. Derm testaceous to dark brown; legs and antennae reddish or testaceous. Body vestiture pure white.

Indices. ***rl/pl:*** m: 1.38, f: 1.40; ***rl/msrw:*** m: 2.81, f: 3.39; ***scl/msrw:*** m: 0.76, f: 0.64; ***msrw/mtrw:*** m: 1.32, f: 1.38; ***msrw/arw:*** m: 2.06, f: 1.74; ***msrw/minrw:*** m: 2.06, f: 1.83; ***msrw/eyl:*** m: 1.23, f: 1.27; ***brl/eyl:*** m: 0.91, f: 0.68; ***eyl/hl:*** 0.58-0.60; ***hl/hw:*** m: 0.93, f: 0.77; ***mpw/hw:*** 1.26-1.31; ***bpw/apw:*** 1.05-1.10; ***pl/mpw:*** 1.07-1.09; ***mew/mpw:*** 1.75-1.78; ***el/pl:*** 3.12-3.15; ***el/mew:*** 1.90-1.92; ***mew/bew:*** m: 1.24, f: 1.19; ***bew/mpw:*** m: 1.41, f: 1.50; ***pft/msrw:*** 0.65-0.67; ***ptbl/pl:*** m: 1.22, f: 1.13 ***ptbl/ptbmw:*** m: 5.98, f: 6.92; ***ptsl/ptbl:*** f: 0.58.

Rostrum in both sexes very similar to that in *C. armatum*, female mesorostrum as in fig. 413, prorostrum slightly thinner and more strongly curved.

Antennal funicle thinner, in female its distal segments slightly elongate, in male fourth and fifth segments 1.5× broader than long, sixth and seventh flattened, not distinctly concave at inner side, at most 1.1× broader than long; club in male as in *C. armatum*, in female longer, 2.8 as long as broad, more acute.

Frons in male with striolae obscure, in the female striolae wanting.

Elytra in the male slightly rounded at sides, with humeral calli weakly prominent; intervals wider than in the previous species, at elytra base 1.2-1.3×, in the middle 1.5× wider than the striae; striae with sharp edges, septae distinctly depressed, narrow.

Legs more slender than in *C. armatum*; fore and mid tibiae with similar modifications in male; the spine on male metatarsus shorter than half basal segment height; length/width of the first segment of female metatarsus 2.2, second 1.1, onychium (female metatarsus) exceeding third segment by whole length.

The remaining external characters as in *C. armatum*.

Tegminal plate similar as in *C. armatum*, slightly more elongate, with the macrochaetae absent.

Median lobe of aedeagus regularly triangular at apex, without a separate parallel-sided tip, in profile weakly curved, gradually narrowing and straight apically; internal sac with three pairs of long and one pair of much shorter sclerites, all arranged in two rows and not forming clusters.

Biology unknown.

Distribution. Georgia*, Kazakhstan.

Other material examined

GEORGIA: Tbilisi, 1f (KS).

Ceratapion (*s. str.*) *secundum* (Ter-Minassian, 1975)

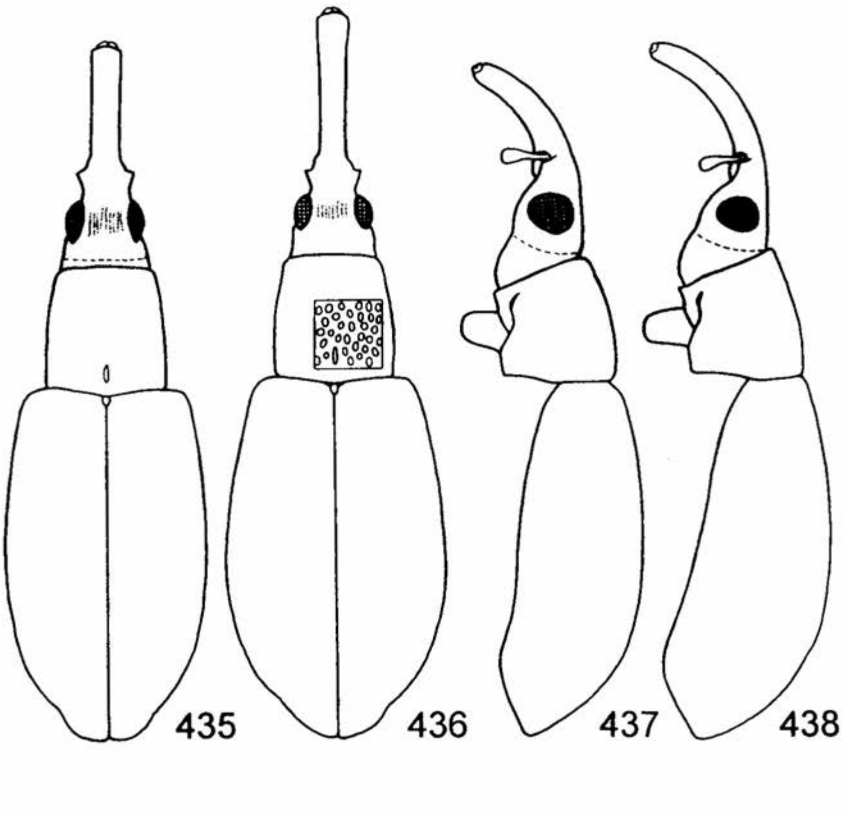
(figs 435-447)

Apion (*Ceratapion*) *secundum* Ter-Minassian, 1975: 252.
Apion (*Ceratapion*) *dentirostis* [sic!] Ter-Minassian, 1972b: 241, nec Gerstaecker, 1854.
Apion dentirostris [sic!]: Ter-Minassian, 1975: 252.

Literature: Alonso-Zarazaga, 1991b: 424.

Type material examined

***A. secundum* T.-M.** Paratypes: Mongolia: Chentej aimak: 10 km S Kerulen, 1000 m, 30 VII 1965, 1f; Cojbalsan aimak: Chamardavaa ul, 600 m, 13 VIII 1965, 2m; Cojbalsan, 700 m, 17 VIII 1965, 1f; 15 km N Somon Galuut, 850 m, 17 VIII 1965, 2m 2f - Exp. Dr. Z. Kaszab (HMNH).



435-438. *Ceratapion* (*s. str.*) *secundum*, **body outline: 435 - male, dorsal view; 436 - female, dorsal view; 437 - male, lateral view; 438 - female, lateral view**

Description

Length 2.30-3.00 mm. Body castaneous to piceous brown, never completely black, tibiae reddish brown. Vestiture distinct, white to greyish, recumbent, the hair-like scales as long as, or slightly shorter than width of the elytral intervals, on the elytra arranged in two, sometimes three confused rows, the scales in the striae only slightly thinner.

Indices. ***rl/pl:*** m: 1.21-1.22, f: 1.35-1.45; ***rl/msrw:*** m: 2.73-2.94, f: 3.51-3.65; ***scl/msrw:*** m: 0.84-0.90, f: 0.93-1.02; ***msrw/mtrw:*** m: 1.16-1.25 (M 1.21), f: 1.12-1.21 (M 1.15); ***msrw/arw:*** m: 1.71-1.79 (M 1.76), f: 1.59-1.73 (M 1.66); ***msrw/minrw:*** m: 1.78-1.92 (M 1.83), f: 1.87-2.09 (M 1.94); ***msrw/eyl:*** 1.26-1.39; ***brl/eyl:*** m: 0.59-0.80 (M 0.68), f: 0.51-0.68 (M 0.61); ***eyl/hl:*** 0.58-0.68; ***hl/hw:*** m: 0.83-0.85, f: 0.72-0.80; ***mpw/hw:*** 1.36-1.55; ***bpw/apw:*** 1.14-1.22; ***pl/mpw:*** 1.06-1.19; ***mew/mpw:*** 1.67-1.96; ***el/pl:*** m: 2.79-2.90, f: 2.90-3.10; ***el/mew:*** 1.67-1.93; ***mew/bew:*** m: 1.22-1.28, f: 1.29-1.35; ***bew/mpw:*** 1.37-1.53; ***pft/msrw:*** 0.76-0.91; ***ptbl/pl:*** 0.95-1.05; ***ptbl/ptbmw:*** 5.05-5.80; ***ptsl/ptbl:*** 0.61-0.67.

Rostrum distinctly arched, dull nearly to the apex, with the surface somewhat rugose due to very strong scale-like microsculpture and dense, shallow puncturation; metarostrum strongly shortened; mesorostral teeth distinct, acute, smaller in female, their anterior margins slightly oblique in male, perpendicular to the rostrum in female; prorostrum cylindrical or weakly dilated apicad; antennal scrobes vanishing.

Antennal insertion at basal m: 0.16-0.20, f: 0.11-0.14 of rostrum; length/width of the scape m: 2.5, f: 2.7-2.8, first funicular segment 1.5, second 1.0-1.2, the remaining isodiametric or slightly transverse; club 2.4-2.9× longer than broad, at inner side in male bare and slightly concave.

Head subrectangular; eyes in female very small, in male sligthly larger, weakly protruding from the head outline; frons and vertex even, dull, closely punctate and asperate, striolae hardly visible only in middle part of the frons; venter of head between eyes distinctly convex; the head dorsally and ventrally and the rostrum base sparsely clothed with short, piliform scales.

Pronotum subcylindrical or weakly narrowing forward, without distinct constrictions; punctures on the disc round, 2-2.5× ommatidium size, almost adjoining, the interspaces barely convex, strongly microsculptured; prescutellar fovea a little narrower and 2-5× longer than single puncture.

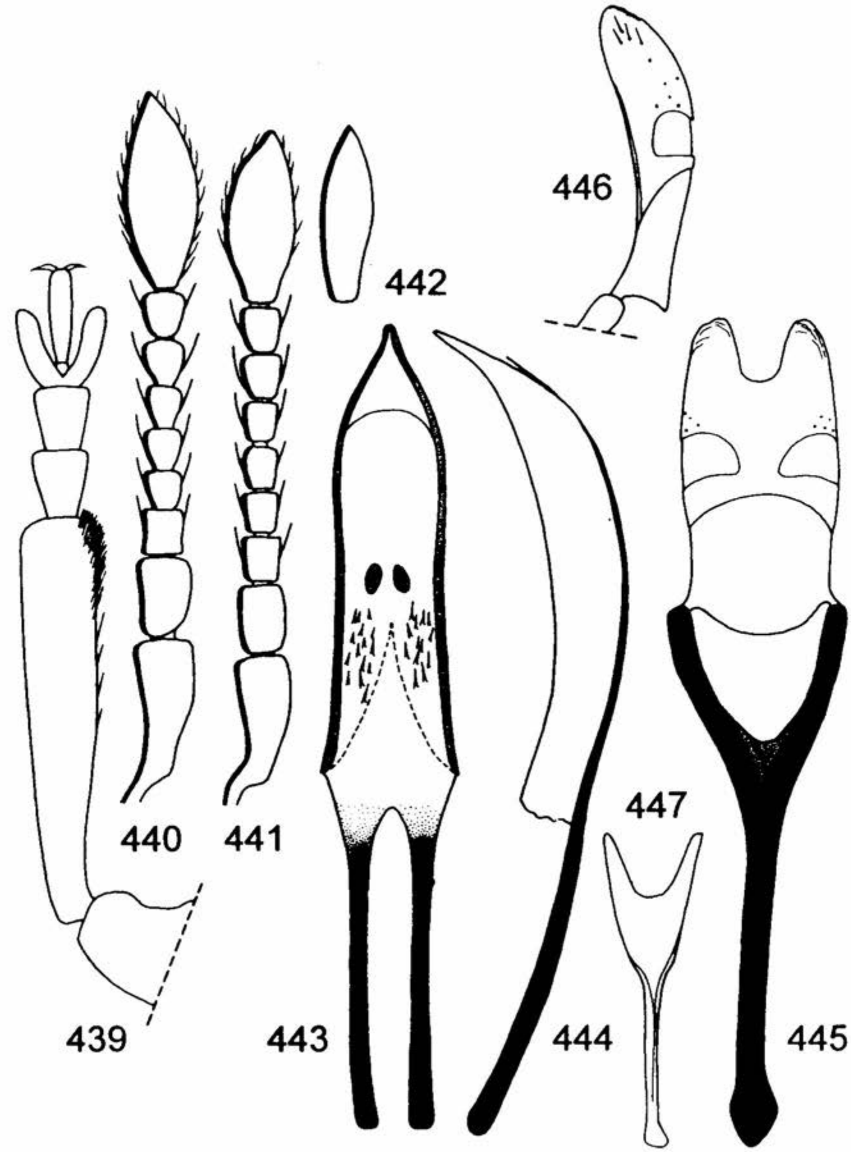
Elytra distinctly elongate, in male nearly parallel-sided in front half, in female widening backwards but nearly straight at sides in anterior half, widest behind middle, in both sexes poorly convex; intervals in middle of the disc at most 1.2-1.3× broader than the striae, finely punctate; striae deep, first and second distinctly outcurved apically; specialized setae absent.

Metasternum 1.8-2× longer than the mid coxae.

Legs relatively short, in male without secondary sexual characters; femora robust; protarsi 2.6-2.8× longer than wide, with second segment 1.15-1.20 as long as wide, onychium exceeding third segment by about half length.

Both the wings and their muscles normally developed.

Tegminal plate short, evenly sclerotized; parameroid lobes separate to about mid length, the notch broadly rounded, apices of the lobes finely wrinkled;



439-447. *Ceratapion* (*s. str.*) ***secundum***: 439 - male fore tibia (lateral view) and tarsus (dorsal view); 440 - female antenna; 441 - male antenna; 442 - male antennal club in profile; 443,444 - median lobe of aedeagus, 443 - dorsal view, 444 - lateral view; 445 - tegmen, dorsal view; 446 - tegminal plate, lateral view; 447 - spiculum gastrale macrochaetae 3-4, short, subapical; fenestrae clearly bordered, fairly broadly separate, laterally closed far from the plate margin; lateral fold reaching about half the parameroid lobe length, extremely narrow; prostegium broadly rounded posteriorly.

Median lobe of aedeagus short and broad, strongly narrowed and pointed apically; internal sac with a pair of small, oval sclerites, each bearing a few denticles, in median part and some short spines beneath, the orificial region unarmed.

Spiculum gastrale with manubrium slightly longer than the forked part, the latter somewhat spatulate.

Biology unknown.

Distribution. Eastern Turkey*, Southern Russia* (Kurskaya obl., Chitinskaya obl.), Mongolia.

REMARKS

The specimens from Anatolia are distinct in their small body size, but fully accordant in other characters.

OTHER MATERIAL EXAMINED

MONGOLIA: Selengin. aim.: Shamor, 6-8 VIII 1982, 2m 2f, leg. K. MICHAJLOV; Khubsugul. aim.: 30 km E Ukh-Ula, 25 VII 1972, 1m 4f; Arkhangaj. aim.: Tevshrulekh, 17 VIII 1974, 1f, 21 VIII 1974, 1m (VZ).

RUSSIA: Transbaikal.: Chitinskaya obl.: Kuenga river, Shev'ya, 29 VII-21 VIII 1977, 5m 7f, leg. V. ZHERICHIN; Kurskaya obl.: "Streleckaya step'" [Centralno-czernozemnyj gosud. zapovednik: between river Sejm and Ps'ol], 12 VI 1952, 1f, leg. K. ARNOLDI (VZ).

TURKEY: E Anatolia: vil. Van: Baskale, 8 VIII 1977, 1m 1f, leg. N. LODOS (JF).

***Ceratapion* (*s. str.*) *gibbifrons* (HUSTACHE, 1932)**

(figs 448-459)

Apion (Ceratapion) gibbifrons HUSTACHE, 1932: 136.
Apion (Ceratapion) cystocephalus BAJTENOV & LODOS, 1978: 146.

Literature: ALONSO-ZARAZAGA, 1983b; BAJTENOV & LODOS, 1983: 96 (*cystocephalus*).

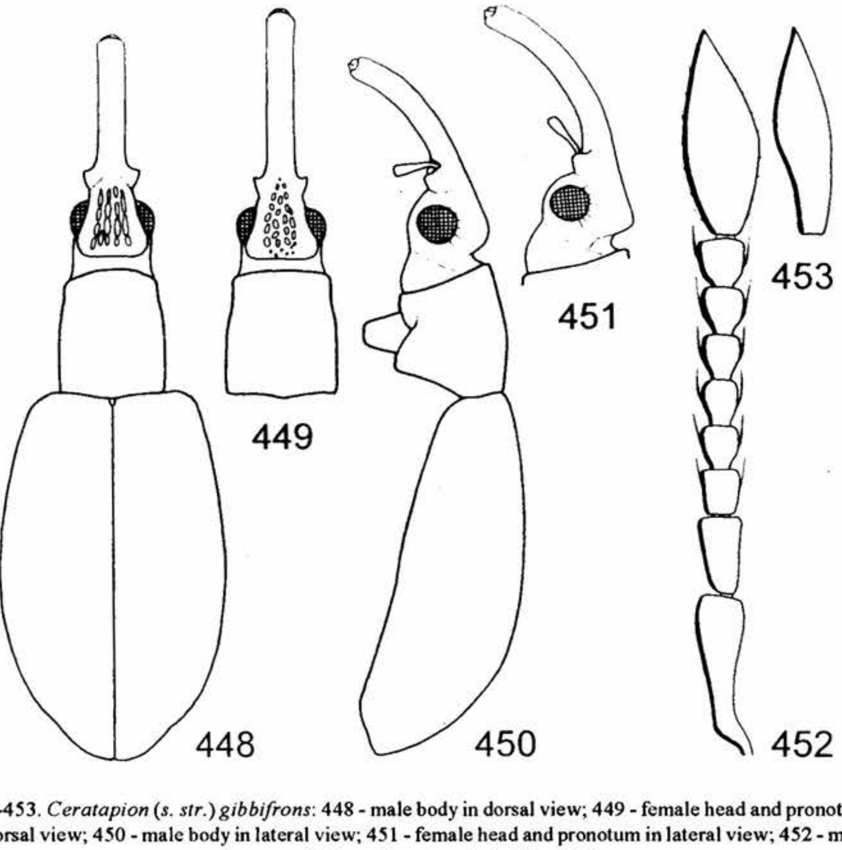
The description of *A. gibbifrons* was based on three specimens from Jahlé (Lebanon), missing in HUSTACHE's collection at MNHP. *A. cystocephalus* BAJT. & LOD. described from Adiyaman (Turkey) was synonymised with *C. gibbifrons* by ALONSO-ZARAZAGA (1983b).

DESCRIPTION

Length 2.56-2.76 mm. Body brown or castaneous, with the rostrum and elytra often slightly lighter; antennae brownish, legs testaceous or yellowish-red. Vestiture thick, composed of white, piliform scales, somewhat semi-recumbent on the pronotum, on the elytral intervals confused, adpressed, as long as, or slightly longer than, width of the interval, scales in the striae half as long and thinner.

Indices. ***rl/pl:*** m: 1.24-1.44, f: 1.42-1.48; ***rl/msrw:*** m: 2.85-3.56, f: 3.50-3.80; ***scl/msrw:*** m: 0.87-1.05, f: 0.95-1.12; ***msrw/mtrw:*** m: 1.18-1.35, f: 1.13-1.17; ***msrw/arw:*** 1.74-2.00; ***msrw/minrw:*** 1.82-2.15; ***msrw/eyl:*** 1.21-1.44; ***brl/eyl:*** 0.48-0.62; ***eyl/hl:*** m: 0.53-0.57, f: 0.60-0.61; ***hl/hw:*** m: 0.85-0.92, f: 0.69-0.77; ***mpw/hw:*** 1.33-1.39; ***bpw/apw:*** 1.15-1.17; ***pl/mpw:*** 1.09-1.22; ***mew/mpw:*** 1.91-2.17; ***el/pl:*** 2.83-3.19; ***el/mew:*** 1.67-1.78; ***mew/bew:*** 1.29-1.35; ***bew/mpw:*** 1.41-1.61; ***pft/msrw:*** 0.70-0.80; ***ptbl/pl:*** 1.04-1.19; ***ptbl/ptbmw:*** 6.11-6.33; ***ptsl/ptbl:*** 0.60-0.65.

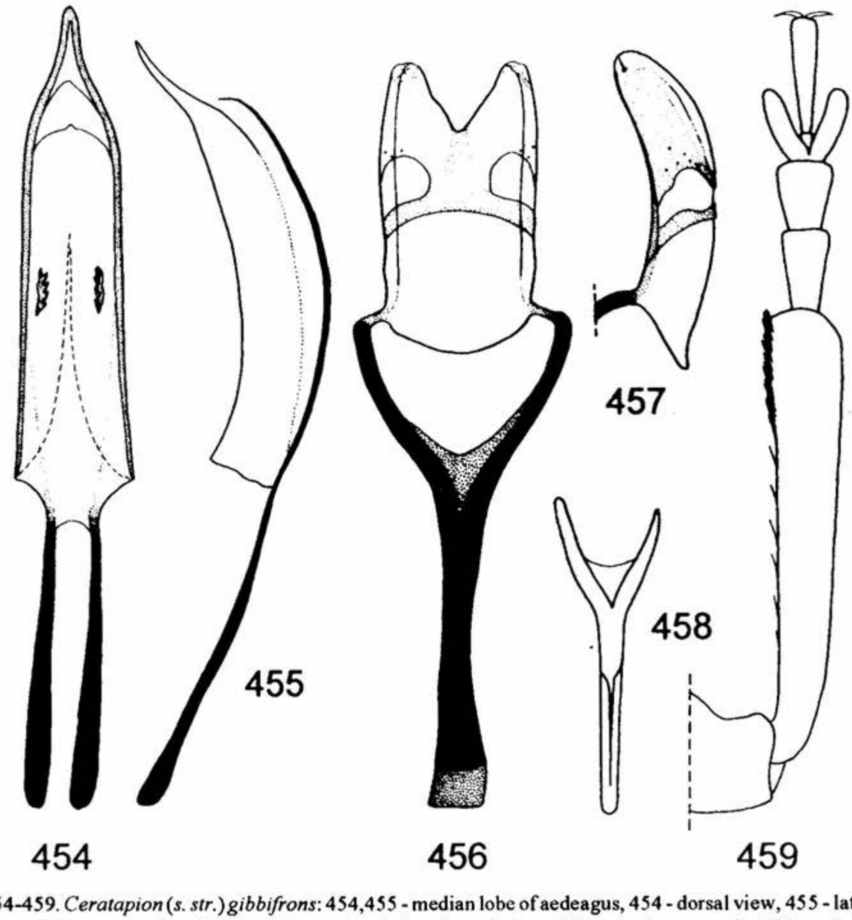
Rostrum fairly thin, strongly curved, finely and densely punctate nearly to the apex, clothed with scales up to middle (male) or basal quarter (female) of the prorostrum; mesorostral teeth large, pointed, their anterior margins nearly straight and perpendicular to the rostrum axis in male, distinctly concave in female; prorostrum cylindrical in male, in female gently contracted medially; antennal scrobes wanting.



448-453. *Ceratapion (s. str.) gibbifrons*: 448 - male body in dorsal view; 449 - female head and pronotum in dorsal view; 450 - male body in lateral view; 451 - female head and pronotum in lateral view; 452 - male antenna; 453 - male antennal club in profile

Antennae slender, inserted at 0.11-0.15 rostrum from base, except for the club similar in both sexes, the scape more than 3×, first funicular segment nearly 2×, the remaining slightly longer than wide; club 2.5-2.8× longer than wide, in male slightly concave basally at inner side; antennal pubescence hardly protruding.

Head subquadrate; eyes very small, strongly convex and prominent, situated close to the bottom of the head as seen in side view, bounded with piliform scales which are much longer and radially directed above the eye; frons being an extension of the rostrum base, elevated above the eye with nearly the total its diameter, at the end bevelled and falling almost vertically to the strongly depressed vertex, at the rising sides glabrous and strongly polished, in the flat median part coarsely punctate and scaliferous, with punctures isolated or confluent to form chains or sulci; vertex and upper parts of the temples coarsely punctate and uneven; venter of the head between eyes distinctly convex and densely covered with piliform scales.



454-459. *Ceratapion (s. str.) gibbifrons*: 454,455 - median lobe of aedeagus, 454 - dorsal view, 455 - lateral view; 456 - tegmen, dorsal view; 457 - tegminal plate, lateral view; 458 - spiculum gastrale; 459 - male fore tibia (lateral view) and tarsus (dorsal view)

Pronotum with sides subparallel or weakly narrowing anterad, very thickly punctate, punctures slightly transversely-oval, 3× ommatidium size, interspaces strongly raised, smooth and shiny; prescutellar fovea invisible; intercoxal process of the prosternum strongly depressed.

Elytra widest distinctly behind middle, flattened on the dorsum; intervals densely and confusedly punctate, weakly shining, in middle of the elytra 1.5× wider than the striae; striae shallow; specialized setae absent.

The base of intercoxal process of the mesosternum with a tuft of erect scales. Metasternum more than twice as long as the mid coxae.

Legs slender, thickly clothed with scales, without secondary sexual characters in either sex; protarsus 3.3-3.5× longer than broad, length/width of its second segment 1.3, onychium exceeding third segment by more than whole length.

Metathoracic wings and their muscles well developed.

The extreme end of tegminal manubrium poorly sclerotized; parameroid lobes broadly separate on more than half length, apically rounded and finely wrinkled; macrochaeta single, short, subapical; fenestrae well delimited, very broadly separate, laterally closed just near the outer margin of the plate; dorsal portion of ring and the area between the fenestrae with sclerotization somewhat stronger than the remainder; lateral fold well visible in only its basal section, evanescent apicad; prostegium broadly rounded posteriorly, evenly sclerotized.

Median lobe of aedeagus short and broad, apically produced into a long mucro; internal sac unarmed, except for a pair of small, serrate sclerites in the middle.

Spiculum gastrale slightly asymmetrical.

Biology unknown.

Distribution. Lebanon, Syria*, Turkey, Iran*.

Other material examined

IRAN: Lorestan: Ma'amulan, 33°20'N/47°54'E, 6 VIII 1973, 1m 2f; Bakhtiyari: Dimeh, 32°29'N/50°16'E, 8 VIII 1973, 1m 1f - leg. A. Senglet (MHNG).

SYRIA: Soneïda, V 1932, 1m 1f, coll. A. Hoffmann (MNHP), IV-V 1932, 1f (MF).

Subgenus *Angustapion* nov.

Etymology. From Latin *angustus* - narrow, combined with *Apion*. The name reflect strongly elongate body in most species. Gender neuter.

Type species: *Apion akbesianum* Desbrochers.

Description

Rostrum, except *C. beckeri*, and *C. decolor* and *C. cylindricolle* species groups, without distinct teeth above antennal insertion.

Frons finely striolate, rarely the striolae obscure or concealed by dense, minute puncturation.

Pronotal sides without a pleural line; prosternum nearly as long as the postcoxal part of prothorax, only in the *C. cylindricolle* species group distinctly shorter.

Elytra usually strongly elongate; the 9th stria shortened apically, not joining the 1st and often the 2nd (exception: *C. opacinum*); specialized setae nearly always present.

Episternal sutures of the mesosternum absent, only in *C. opacinum* visible. Metasternum at least twice (in *C. opacinum* 1.7-1.8) as long as the mesocoxae.

Male tibiae unarmed or the fore and mid ones with small inner spine at the apex, exceptionally the protibiae slightly expanded inwards (*C. beckeri*) or spatulate (*C. kasbekianum*); male metatarsus with a ventral spine, only in the *C. decolor* species group unarmed.

Tegminal plate with the parameroid lobes short and broad; macrochaetae in *C. beckeri* and the *C. cylindricolle* species group long, in the remaining species very short; fenestrae usually weakly delimited, tending to get obscured; lateral fold very close to the outer margin of the plate, not modified, in some species obscure to completely vanishing.

Internal sac often distinctly projecting behind the tubular part of the median lobe; sclerites, if present, are crescentic and serrate, even (2, in one case 8), always in basal part of the sac.

Biology. Foodplants of the tribes *Echinopeae, Carlineae* and *Cardueae* (*Asteraceae - Lactucoideae*).

Distribution. Palaearctic region.

Ceratapion (*Angustapion*) *opacinum* (Faust, 1887)

(figs 460-472)

Apion opacinum Faust, 1887: 179.

Literature: Desbrochers, [1895-96]: 122; Schilsky, 1906: no.47, 1906b: LXXIX; Wagner, 1906b: 189, 1908b: 104.

Type material examined

Lectotype f: a)Wladiwostok, Christoph, b)*opacinum* Faust, c)golden square, d)type (coll. Faust, SMTD) (present designation); paralectotypes: data as in the lectotype, 1f (SMTD), 1m (Coll. Wagner, ZSM).

Description

Length 2.00-2.19 mm. Body black, strongly shagreened; legs and antennae brown, femora usually darker. Vestiture hardly visible, composed of extremely fine, dark, hair-like scales, not longer than half elytral interval width; sometimes additional few longer, white, piliform scales present on the pronotum and elytra at base.

Indices. ***rl/pl:*** m: 1.45-1.54, f: 1.68-2.00; ***rl/msrw:*** m: 3.79-4.14, f: 4.80-5.45; ***scl/msrw:*** m: 0.83-0.97, f: 1.00-1.11; ***msrw/mtrw:*** 1.04-1.11; ***msrw/arw:*** m: 1.30-

-. Fore and mid tibiae unarmed.
.... 56.

52. Tibiae short and broad, protibia (incl. the spine) 3.7-4.0, metatibia 3.3-3.7 as long as wide (figs 637, 638).
.... 53.

-. Tibiae more slender, protibia (incl. the spine) mostly <4.2, metatibia 4.0-5.3 as long as wide.
.... 54.

53. Internal sac of aedeagus with a pair of large, serrate sclerites at base; the part projected outwards with about 20 conspicuous spines (figs 641, 642).
.... *C.* (*Angustapion*) *akbesianum* (DBR.) (m)

-. Internal sac of aedeagus without sclerites, with numerous minute spines throughout.
.... *C.* (*Angustapion*) *sejugum* (DBR.) (m)

54. Antennae thin (fig. 622), their insertion point separated from the head by 1.16-1.33 eye length; all funicular segments elongate, second 1.10-1.45×, third 1.3-1.4× longer than wide. The projected basal part of the internal sac of aedeagus thickly covered with minute, bi- or tricuspid scales (fig. 625).
.... *C.* (*Angustapion*) *transsylvanicum* (SCHIL.) (m)

-. Antennae thicker (figs 607, 640), their insertion point separated from the head by 0.87-1.19 eye length; 2nd to 7th funicular segments not longer than wide. Internal sac of aedeagus without scales.
.... 55.

55. Rostrum 1.33-1.52× longer than the pronotum and 3.59-3.85 as long as mesorostrum width, distinctly dilated and often with obtuse teeth at antennal insertion (fig. 603). Antennal club 1.75-1.90× longer than wide. Eyes small. Body vestiture completely adpressed. Internal sac of aedeagus bare (fig. 612).
.... *C.* (*Angustapion*) *macrorrhynchum* (EPP.) (m)

-. Rostrum 1.46-1.62× longer than the pronotum and 4.02-4.63 as long as mesorostrum width, weakly dilated at antennal insertion (fig. 635). Antennal club 2.2-2.6× longer than wide. Eyes larger. Body vestiture often semi-recumbent and arcuate. Internal sac of aedeagus densely covered with minute spines (fig. 652).
.... *C.* (*Angustapion*) *fremuthi* sp. nov. (m)

56. Elytra distinctly widened backwards, widest behind middle (fig. 677). Pronotum 1.65-1.80× wider than the narrow head. Internal sac of aedeagus without any structures (fig. 686).
.... *C.* (*Angustapion*) *aegyptiacum* (DBR.) (m)

-. Elytra parallel-sided or slightly widened backwards. Head broader, pronotum/head width ratio 1.35-1.65. Internal sac of aedeagus spinose and/or with sclerites.
.... 57.

57. Antennae slender, all funicular segments elongate, the two distal 1.2-1.4× longer than wide (fig. 568). Ventral spine of the metatarsus conspicuous, nearly

as high as the remaining part of metatarsal basal segment (fig.570). Internal sac of aedeagus with a pair of large sclerites (fig. 571).
.... *C. (Angustapion) mundum* (B.-BR.) (m)
-. Antennae thicker, distal funicular segments not longer than wide. Ventral spine of the metatarsus shorter than half of the basal metatarsal segment height. Internal sac of aedeagus without sclerites.
.... 58.
58. Body length 2.45-2.65 mm. Pronotum and elytra black. Elytra parallel-sided (fig. 575). Parameroid lobes separate to half length, apically acute (fig. 583). Apex of the median lobe of aedeagus long and narrow (figs 584, 585).
.... *C. (Angustapion) peninsulae* WANAT (m)
-. Body length 2.50-3.40 mm, usually more than 2.75 mm. Pronotum and elytra dark to piceous brown. Elytral sides rounded. Parameroid lobes shallowly separate, apically rounded. Apical mucro of the median lobe of aedeagus shorter (figs 599, 652).
.... 59.
59. Antennae very thick (fig. 594); the seventh funicular segment 1.2-1.3× wider than long; club 1.75-1.90× longer than wide.
.... *C. (Angustapion) lancirostre* (CHEVR.) (m)
-. Antennae thinner (figs 595, 660); the seventh funicular segment 1.0-1.2 as wide as long; club 2.2-2.6× longer than wide.
.... 60.
60. Second segment of the antennal funicle 1.15-1.20× longer than wide (North-Western Africa).
.... *C. (Angustapion) sefrense* (DBR.) (m)
-. Second segment of the antennal funicle 0.8 as long as wide (Northern India).
.... *C. (Angustapion) nalderae* (MARSH.) (m)
61. Head narrow, pronotum/head width ratio 1.65-1.80. Elytra widest far behind middle (fig. 678). Pronotum with strongly rounded sides and subapical constriction distinct.
.... 62.
-. Head broader, pronotum/head width ratio 1.35-1.65. Elytra widest at or just behind middle. Pronotum weakly rounded and constricted subapically.
.... 63.
62. Antennae thicker; length/width ratios of the scape 2.8-3.0, club 2.0-2.3; funicular segments 5th to 7th isodiametric or slightly transverse (fig. 683). Tibiae and tarsi only slightly lighter than the rest of body; protarsus 3.2-3.4 as long as wide, its first segment 1.4-1.5× longer than wide, the second isodiametric (fig. 685).
....*C. (Angustapion) aegyptiacum* (DBR.) (f)
-. Antennae thinner; length/width ratios of the scape 3.3, fifth to seventh funicular segments 1.2, club 2.55 (fig. 682). Tibiae and tarsi distinctly lighter than the rest

of body; protarsus 3.8 as long as wide, its first segment 1.8×, second 1.4× longer than wide (fig. 684).
.... *C.* (*Angustapion*) *libicum* sp. nov. (f)

63. Metatibia 4.3-4.4× longer than wide. Rostrum 1.45-1.60× longer than the pronotum. Pronotal sides strongly, arcuately convergent from base to front margin (fig. 647). Antennae as in fig. 649.
.... *C.* (*Angustapion*) *sejugum* (DBR.) (f)
.... *C.* (*Angustapion*) *akbesianum* (DBR.) (f)

-. Metatibia 4.5-5.5× longer than wide. Rostrum 1.6-2.1× longer than the pronotum (in *C. perlongum* 1.5-1.6×). Pronotal sides less convergent anterad.
.... 64.

64. Antennae very thin (figs 623, 624), all funicular segments elongate.
.... 65.

-. Antennae thicker, at least the distal funicular segments not longer than wide.
.... 66.

65. Pronotum relatively small, with thin walls, constricted subapically (figs 563, 564). Protibia at least 7× longer than wide (Ethiopia, Sudan).
.... *C.* (*Angustapion*) *mundum* (B.-BR.) (f)

-. Pronotum larger, with thick walls, subapically not or obscurely constricted (fig. 619). Protibia at most 6.3× longer than wide (Central-Eastern Europe).
.... *C.* (*Angustapion*) *transsylvanicum* (SCHIL.) (f)

66. Body length 2.60-2.65 mm. Rostrum 4.33-4.45× longer than mesorostrum width. Elytra almost parallel-sided (fig. 577).
.... *C.* (*Angustapion*) *peninsulae* WANAT (f)

-. Body usually longer than 2.8 mm. Rostrum more than 4.6× longer than mesorostrum width. Elytra distinctly rounded on sides.
.... 67.

67. Species from North-Western Africa & South-Western Europe.
.... 68.

-. Species from Eastern Europe & Asia Minor.
.... 69.

68. Antennae very thick (figs 596, 597); second funicular segment 0.95-1.05, club 1.5-1.8 (exceptionally 2.0) as long as wide; seventh funicular segment usually 1.2-1.3× wider than long.
.... *C.* (*Angustapion*) *lancirostre* (CHEVR.) (f)

-. Antennae thinner (fig. 598); second funicular segment 1.15-1.20, club 2.2-2.3 as long as wide; seventh funicular segment at most 1.1× wider than long.
.... *C.* (*Angustapion*) *sefrense* (DBR.) (f)

69. Antennal club 1.75-1.90× longer than wide; distal segments of the funicle distinctly wider than the median ones, strongly narrowing basad (fig. 608).
.... *C.* (*Angustapion*) *macrorrhynchum* (EPP.) (f)

-. Antennal club 2.2-2.6× longer than wide; the funicle barely widened distad, last segments weakly narrowing basad (figs 631, 632).
.... 70.

70. Pronotum with thick walls; interspaces between the pronotal punctures flat, disc surface even. Humeral calli weakly developed; elytra uniformly oval (fig. 629). Vestiture of the elytra completely adpressed, piliform scales 0.6-0.8 as long as the interval width.
.... *C.* (*Angustapion*) *perlongum* (FST.) (f)

-. Pronotum with thinner walls; interspaces between the pronotal punctures raised, disc surface more or less rough. Humeral calli prominent; elytra slightly pyriform, widest behind middle (as in fig. 612). Body vestiture often weakly arcuately raised and more conspicuous, piliform scales mostly as long as the elytral interval width.
.... *C.* (*Angustapion*) *fremuthi* sp. nov. (f)

[Males of *C. edentatum*, *C. bokharanum*, *C. klapperichi* sp. nov. and *C. libicum* sp. nov., as well as females of *C. nalderae* and *C. poggii* sp. nov. have not been described yet. Also the male of *C. fallaciosum* superficially described by WAGNER (1906) and the male of *C. bacanasicum* unknown to me have not been included into the above key.]

Subgenus *Acanephodus* ALONSO-ZARAZAGA, 1991, n. stat.

Genus *Acanephodus* ALONSO-ZARAZAGA, 1991: 46. Type species: *Apion onopordi* KIRBY (by original designation).

DESCRIPTION

Rostrum obtusely dilated at antennal insertion

Striolae on the frons obscured by coarse puncturation; vertex and temples punctured throughout; antennal scrobes not shortened, reaching half eye length on the head underside.

Pronotum with the pleural line distinct; prosternum as long as the postcoxal part of prothorax.

Elytra relatively short and broad, with specialized setae present; striae joined 1+2+9, 3+4, 5+6, 7+8 apically.

Episternal sutures of the mesosternum visible, not ending in pits. Metasternum about 1.5× longer than the mid coxae, with the intermesocoxal process strongly raised. Fifth ventrite distinctly gibbous in male, deeply and closely punctured in either sex.

Legs moderately robust, lacking sexual characters in male.

Tegminal plate articulated with the forked basal piece; parameroid lobes short and broad; macrochaetae long; lateral fold very distinct, complete and clearly removed from the plate outer margin, entering inner side of the parameroid lobes; fenestrae very small, broadly separate, depressed and double margined; dorsal portion of ring broad; posterior margin of the prostegium indentate on either side of the long median projection

Median lobe of aedeagus with short, erect setae subapically and small teeth or spines at sides and above the orifice (clearly seen in profile); ventral plate broadly membranous; internal sac not produced behind the tube, with a pair of fine plates in the orifice, broadly clothed with dense, minute spines, without sclerites.

Biology. The species associated with plants of many genera of the tribes *Cardueae* and *Carlineae*.

Distribution. Palaearctic region.

Ceratapion (*Acanephodus*) *onopordi* (KIRBY, 1808)

Literature: WALTON, 1844: 453; PERRIS, 1863: 454; WENCKER, 1864: 138; BEDEL, 1887: 363; DESBROCHERS, [1894]: 91, [1897]: 9 (*rugipenne*), 1908: 98 (*hipponense*); SCHILSKY, 1901: no.16, 1906b: XIX; URBAN, 1913: 177; REITTER, 1916: 244; WAGNER, 1918: 12; SCHATZMAYR, 1925: 86; HUSTACHE, 1931: 57; NORMAND, 1937: 236; GYÖRFFY, 1956: 6; HOFFMANN, 1958: 1520; ANGELOV, 1959: 137, 1976: 76; SCHERF, 1964: 117; SMRECZYŃSKI, 1965: 49; SOLODOVNIKOVA, 1969: 291; SOLODOVNIKOVA & TALITSKIY, 1972: 788; IOANNISIANI, 1972: 267; TER-MINASSIAN, 1972: 799; KÖSTLIN, 1973: 87, 1985: 66; BAJTENOV, 1974: 278, 1983: 60; DIECKMANN, 1977: 84; LOHSE, 1981: 156; EHRET, 1983: 134, 1990: 228; MORRIS, 1990: 47.

Strong variability of the species resulted in many forms described, being often recognized as distinct subspecies or species by different authors. A comprehensive analysis of a very huge material coming from the whole geographical range of the species has revealed, that in the case of only one form subspecific status is satisfactorily grounded.

KEY TO SUBSPECIES

1. Frons not depressed, in side view projecting above the upper eye margin (figs 262, 263); vertex weakly elevated posteriorly. Punctures on the pronotal disc 2.5-4.0, exceptionally 4.5× ommatidium size (figs 266-268).
   .... *C.* (*A.*) *onopordi onopordi* (KBY.)

-. Frons more or less distinctly depressed, in profile at the level of, or underneath the upper eye margin (fig. 264); vertex strongly elevated posterad. Punctures on the pronotal disc 4-5× ommatidium size (fig. 269).
   .... *C.* (*A.*) *onopordi parviclava* (DBR.)

Ceratapion (*Acanephodus*) *onopordi onopordi* (KIRBY, 1808)

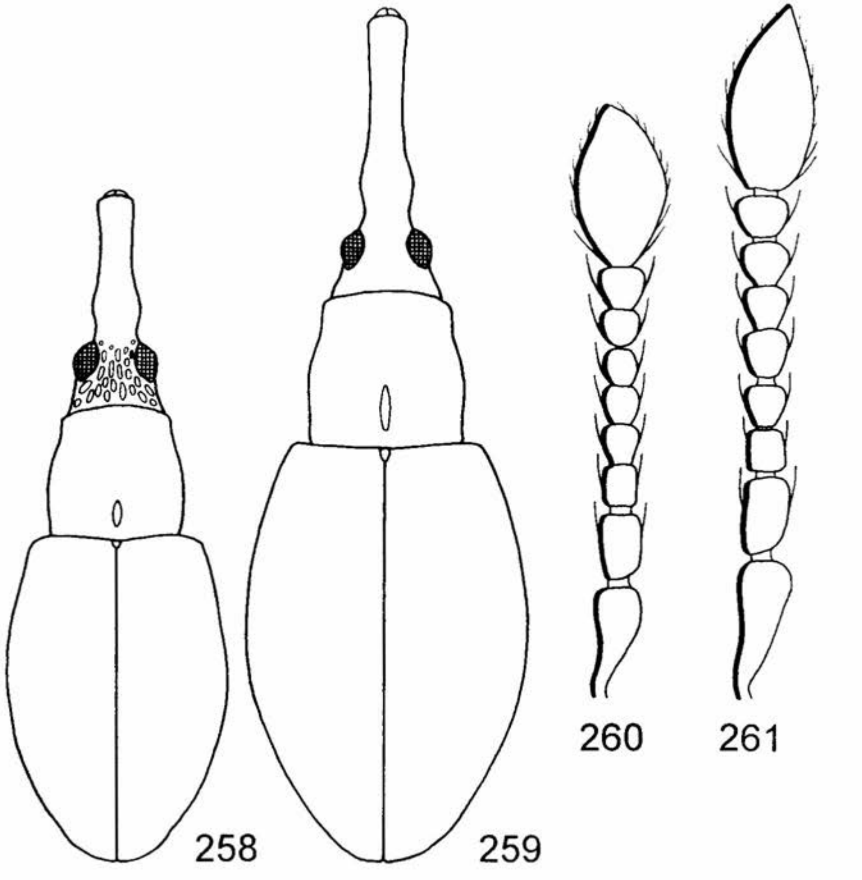
(figs 258-263, 265-268, 271-277)

Apion onopordi KIRBY, 1808: 71.
Apion penetrans var. *rugicolle* STEPHENS, 1831: 175.
Apion rugipenne HOCHHUTH, 1851: 11, **syn. nov.**
Apion frater DESBROCHERS, 1870: 200, **syn. nov.**

Apion hipponense DESBROCHERS, [1894]: 102, **syn. nov.**
Apion (Ceratapion) jablokovkhnzoriani BAJTENOV, 1982: 69, **syn. nov.**
Apion (Ceratapion) onopordi ab. *carycinopus* WAGNER, 1918: 14.
Apion onopordi ab. *carcynopus* [sic!]: HUSTACHE, 1931: 57.

TYPE MATERIAL EXAMINED

A. frater **DBR.** Lectotype m: a)mf Sarepta, b)type, c)Ex Musaeo DESBROCHERS 1914 (coll. DESBROCHERS, MNHP) (present designation); paralectotypes: 1m 1f: labels b), c) as in the lectotype (the female belongs to *Ceratapion penetrans* GERM.) (coll. DESBROCHERS, MNHP); 1f: a)Sarepta, b)150, c)*frater* m. Sarepta, d)Db 53 (NRS). ***A. hipponense*** **DBR.** Lectotype f: a)Bône [Annaba], b)m?, c)Ex Musaeo DESBROCHERS 1914 (coll. DESBROCHERS, MNHP) (present designation). ***Apion***



258-261. *Ceratapion (Acanephodus) onopordi onopordi*: 258,259 - body in dorsal view, 258 - male, 259 - female; 260 - male antenna; 261 - female antenna

***(Ceratapion) onopordi* ab. *carycinopus* Wagn.** Lectotype m: a)Caspi-Meer, GEB. Liryk, LEDER-REITTER, b)Type v. *Apion* ab. *carycinopus* WGNR., Col. Rundsch. 1916, c)m, d)Coll. WAGNER (coll. G. FREY, ZSM) (present designation). ***A. onopordi* KBY.** Lectotype m (the specimen on right side) and paralectotype m mounted on the same card and labelled a)54, b)148, c)Kirby, d)Hololectotypus (right), des. ALONSO-ZARAZAGA, e)Paralectotypus (left) (coll. KIRBY, BMNH) (present designation). - letter information of M. A. ALONSO-ZARAZAGA.

Type specimens of *A. rugipenne* HOCHH. (Tauria, leg. MOTSCHULSKY) and *A. jablokovkhnzoriani* BAJT. (1m -Armenia: Kaphan, 20 VI 1952, leg. S. M. YABLOKOV-KHNZORIAN) have not been examined. Their present synonymization with *A. o. onopordi* KBY. is based on original descriptions. *A. penetrans* var. *rugicolle* STEPH. was synonymized with *A. onopordi* by WALTON (1844).

DESCRIPTION

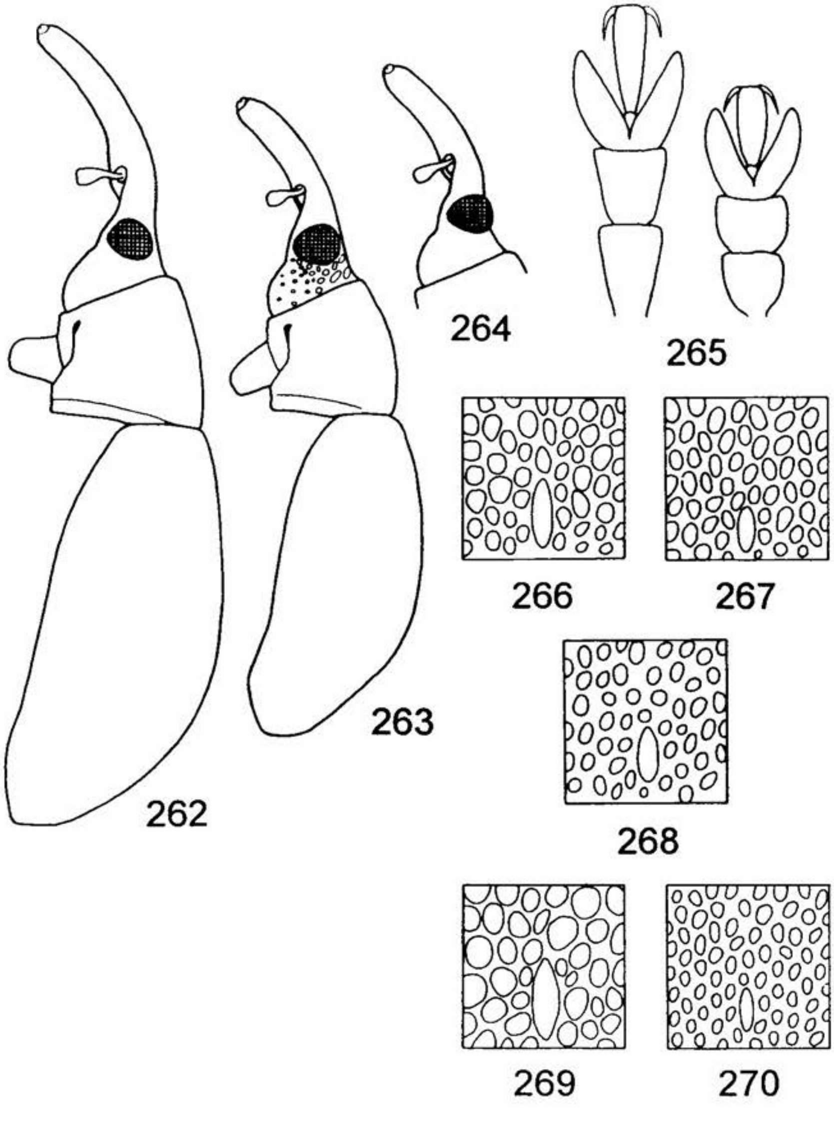
Length 1.69-3.12 mm. Body black, elytra with metallic green, seldom bluish tinge; legs and antennae black, rarely blackish-brown, in south of Europe sometimes brown. Vestiture easily abraded, in North and Central Europe mostly very fine and sparse, greyish and opalescent, in the Mediterranean region more distinct and denser, the scales usually broader, piliform, pure white.

Indices. ***rl/pl:*** m: 1.05-1.35, f: 1.21-1.45; ***rl/msrw:*** 2.94-3.98 (M 3.31), f: 3.72-4.52 (M 4.05); ***scl/msrw:*** m: 0.68-1.00 (M 0.78), f: 0.71-1.00 (M 0.87); ***msrw/mtrw:*** 1.06-1.29 (M 1.15); ***msrw/arw:*** 1.17-1.50; ***msrw/minrw:*** 1.31-1.63; ***msrw/eyl:*** 1.03-1.35; ***brl/eyl:*** m: 0.73-1.17 (M 0.96), f: 0.80-1.20 (M 1.02); ***eyl/hl:*** 0.50-0.67; ***hl/hw:*** 0.74-0.95; ***mpw/hw:*** 1.40-1.84; ***bpw/apw:*** 1.02-1.20; ***pl/mpw:*** 0.94-1.14; ***mew/mpw:*** m: 1.58-1.94, f: 1.76-2.03; ***el/pl:*** 2.41-3.00; ***el/mew:*** 1.49-1.73; ***mew/bew:*** m: 1.10-1.33, f: 1.16-1.38; ***bew/mpw:*** 1.27-1.56 (M 1.42); ***pft/msrw:*** m: 0.90-1.05 (M 0.98), f: 0.90-1.09 (M 1.00); ***ptbl/pl:*** m: 1.02-1.21, f: 0.96-1.14; ***ptbl/ptbmw:*** 5.15-6.63; ***ptsl/ptbl:*** 0.53-0.64.

Rostrum weakly curved, densely microreticulate and distinctly, though finely, punctate throughout; mesorostral dilatation broadly rounded, rarely slightly angled; metarostrum at narrowest point slightly narrower than the mesorostrum and distinctly (on average 1.25×) wider than minimum width of the prorostrum at its submedian constriction.

Antennal insertion at basal m: 0.20-0.28 (M 0.24), f: 0.20-0.25 (M 0.22) of rostrum; scape m: 2.2-2.5, f: 2.5-2.7, first funicular segment 1.4-1.6 as long as broad, the second segment slightly elongate, next isodiametric, the seventh always slightly transverse; club 1.8-2.2× longer than wide; antennal pubescence fine, weakly protruding.

Head subconical; eyes mostly markedly prominent, regularly arched; frons, vertex and temples continuously and coarsely punctured, the punctures elongate; venter of the head between eyes flat to scarcely gibbous, in profile without a trace of subocular tooth, the posterior, transversely wrinkled part diffusely punctate throughout, the punctures round, as large as 1-2 ommatidia, often scaliferous; gular suture distinct, in form of a row of partly confluent punctures.



262-264. Body in lateral view: 262 - *Ceratapion (Acanephodus) onopordi onopordi*, female; 263 - *C. (A.) onopordi onopordi*, male; 264 - *C. (A.) onopordi parviclava*, male head. 265. *C. (A.) onopordi onopordi*, variation of protarsus. 266-270. Puncturation of pronotal disc: 266 - *C. (A.) onopordi onopordi*, typical form, 267 - *C. (A.) onopordi onopordi*, the form "*frater*" (Dagestan), 268 - *C. (A.) onopordi onopordi*, the form "*hipponense*" (Algeria), 269 - *C. (A.) onopordi parviclava*, 270 - *C. (A.) parens*

Pronotum strongly varying in size, thickness of the walls and the disc convexity and sculpture, straight to distinctly rounded at sides; puncturation coarse (figs 266-268), largest punctures 2.5-4.5× ommatidium size, interspaces distinctly convex, usually less than half puncture diameter, clearly microreticulate; prescutellar fovea large and deep, mostly much wider than single puncture, as long as about 1/5 pronotum.

Elytra relatively broad, strongly rounded at sides, flattened anteriorly; intervals flat to slightly convex, sub-basally 1.5-2.5×, in the middle 3-3.5× wider than the striae, with double, seldom single, row of minute and superficial punctures; striae well impressed.

Legs robust; femora distinctly swollen medially; tibiae straight; tarsi strongly varying in length and proportions (fig. 265), in smaller specimens usually short and broad.

Tegminal plate with 2-4 moderately long macrochaetae; sensillae on the parameroid lobes numerous (10-15), bearing microscopic setae; lateral fold often interrupted on apices of parameroid lobes; dorsal portion of ring much broader than the fenestrae, often weaker sclerotized in middle, sometimes abruptly so, with posterior margin slightly indentate medially; ventral membrane of the paramerae usually with a pair of fine, darker lines running from the inner corner of fenestra to the incision of prostegium on either side; median projection of the prostegium with a darker median area.

Median lobe of aedeagus relatively wide, gradually narrowed apicad, the apex broad and truncate, in profile abruptly bent subapically and slightly upturned at apex; dorsal plate truncate; internal sac with numerous spines somewhat different in length and partly arranged in multiple, confused rows.

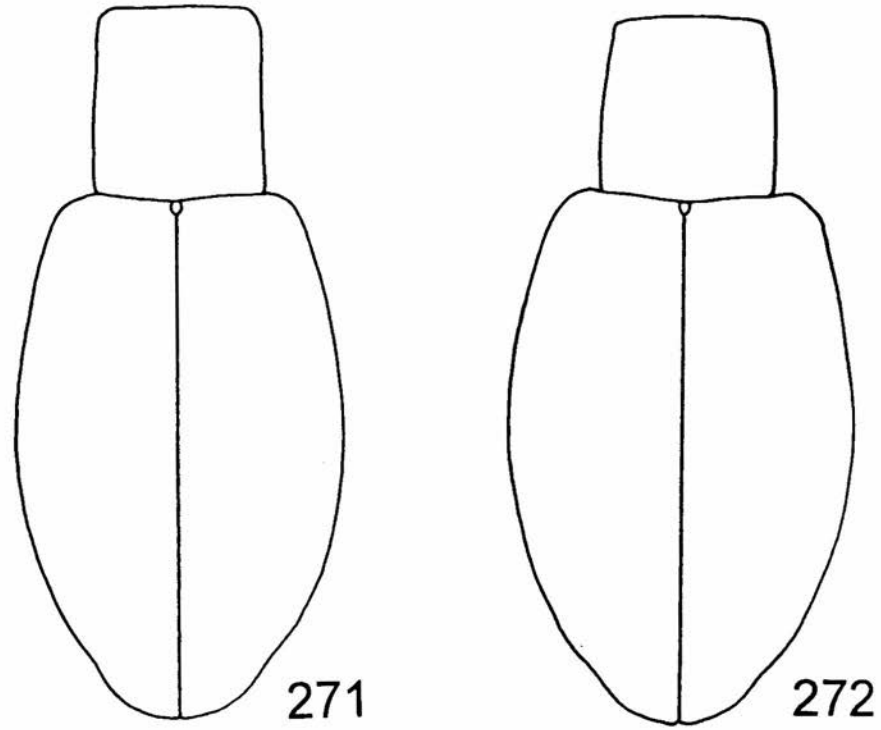
Spiculum gastrale with the forked part nearly as long as the manubrium.

VARIATION

The typical form, decidedly predominant in Europe from the Pyrenees to the south of the European part of Russia and Ukraine, is characterized by a relatively large pronotum, especially in males (**el/pl** m: 2.41-2.80, M 2.56, f: 2.66-2.89, M 2.74), of thick walls, distinctly rounded and coarsely punctate (the largest punctures 3.5-4.5× ommatidium size). Wings in specimens from the northern and central Europe are usually shortened to various extent, only in some few individuals they are of normal length, the wing muscles being always reduced. In southern Europe the percentage of specimens with normally developed wings increases considerably, but normally developed muscles were found only in few individuals from Macedonia and Bulgaria (of 18 specimens examined from Skopje 16 had wings of normal length, but only one of them had normally developed muscles).

The form *frater* predominant in the eastern part of the range has a more shiny pronotum, on an average smaller relative to elytra (**el/pl** m: 2.54-2.83, M 2.68, f: 2.65-3.00, M 2.83), of straight or poorly rounded sides, finer punctate (punctures 3-3.5× ommatidium size) and less uneven surface, thicker body vestiture, composed of white scales, on elytral intervals often arranged in a single, fairly regular row; and somewhat slimmer legs. Most specimens of this form have wings of normal length, and the percentage of individuals able to fly is much higher than in the typical form. Normally developed wing muscles were found among others in both specimens from the Ussuri region, which seems somewhat strange since in other groups of *Apionidae* as a rule individuals from the eastern Palaearctic have shortened wings or at least reduced wing muscles. The form is found mainly in the nortern Anatolia, the Caucasus, in Iran and the former Central Asian republics of the USSR, but specimens intermediate relative to the typical forms are found in most of the territory of Turkey, in Greece, Macedonia, Bulgaria, the Caucasus, in the entire area of the south of European part of Russia, and even in the south-eastern Kazakhstan (a larger series from Dzhambul comprised the form *frater* and the typical form in roughly equal proportion).

In most specimens from north-eastern Africa (form *hipponense*) pronotum is finely punctate (punctures 2.5-3× ommatidium size), the interspaces are very shiny and poorly raised, pronotum sides are weakly rounded or straight, elytra being rather short and broad (**el/mew** 1.49-1.58, M 1.53). Besides this form, in Tunisia (Sfax)



271,272. *Ceratapion (Acanephodus) onopordi onopordi*, pronotum and elytra in dorsal view: 271 - the Iberian form (Palencia), 272 - the form "*frater*" (Dagestan) and Algeria (Djurdjura) individuals are found that do not differ from the typical European form, and distinctly intermediate individuals. In my opinion it is very likely that the isolated north African population was, in a not very remote past, "supplied" with introduced individuals from southern Europe, and because of the lack of reproductive isolation the characters got mixed.

The last, poorly distinct geographic form *C. onopordi onopordi* occurs in the Iberian Peninsula. With respect to the punture size it very much resembles the form *hipponense*; the punctures are however arranged closer, the surface of pronotum is less shiny and more uneven, and elytra are more elongate (**el/mew** 1.51-1.73, M 1.62; **el/pl** 2.91-2.86, M 2.73). The distribution of this form in Spain requires a more detailed study; its typical representatives were found in the south and in the northern provinces Orense, León, Palencia and Teruel, but 4 specimens from Zarauz (MZL), situated close to the western Pyrenees, do not differ from the typical form. The Iberian form displays intermediate characters between the form *hipponense* and the European form, and probably originated as a result of gradual interbreeding of both those forms during the postglacial period. Maintaining its morphological distinctness in relation to both parental forms can be explained by a relatively low mobility of individuals (all the specimens examined were brachypterous) and the presence of geographic barriers on both ends of the distribution range (Pyrenees, Gibraltar) preventing a free gene flow between the populations of parental forms.

Biology well known. The species has decidedly the widest spectrum of host plants of all the members of *Ceratapiini*; it was found on numerous species of the genera *Arctium, Carduus, Cirsium, Centaurea, Onopordum, Cnicus*, in both dry and humid habitats. The larvae bore galleries in the woody, external part of the rootstock and the lower section of the stem. In Central Europe generations are not distinctly separated, imagines occurring from early spring till late autumn and, according to DIECKMANN (1977), for most of the year egg-containing females are met. Probably, like in *Taphrotopium sulcifrons* at least in a part of the populations two generations per year occur. The occurrence of two generations per year on *Carduus acanthoides* L. in Bulgaria was confirmed by ANGELOV (1959).

Distribution. Tunisia, Algeria, whole Europe & Great Britain (in Scandinavia only in the South), Central & Northern Turkey, Iran, Armenia, Azerbaijan, Georgia, Kazakhstan, Uzbekistan, Turkmenistan, Kirghistan, Russia (European part north to Karelia, east to Amur & Ussuri, northern range border in Siberia unknown).

OTHER MATERIAL EXAMINED

Caucasus: 4 exs (HMNH, MNB, IZW).

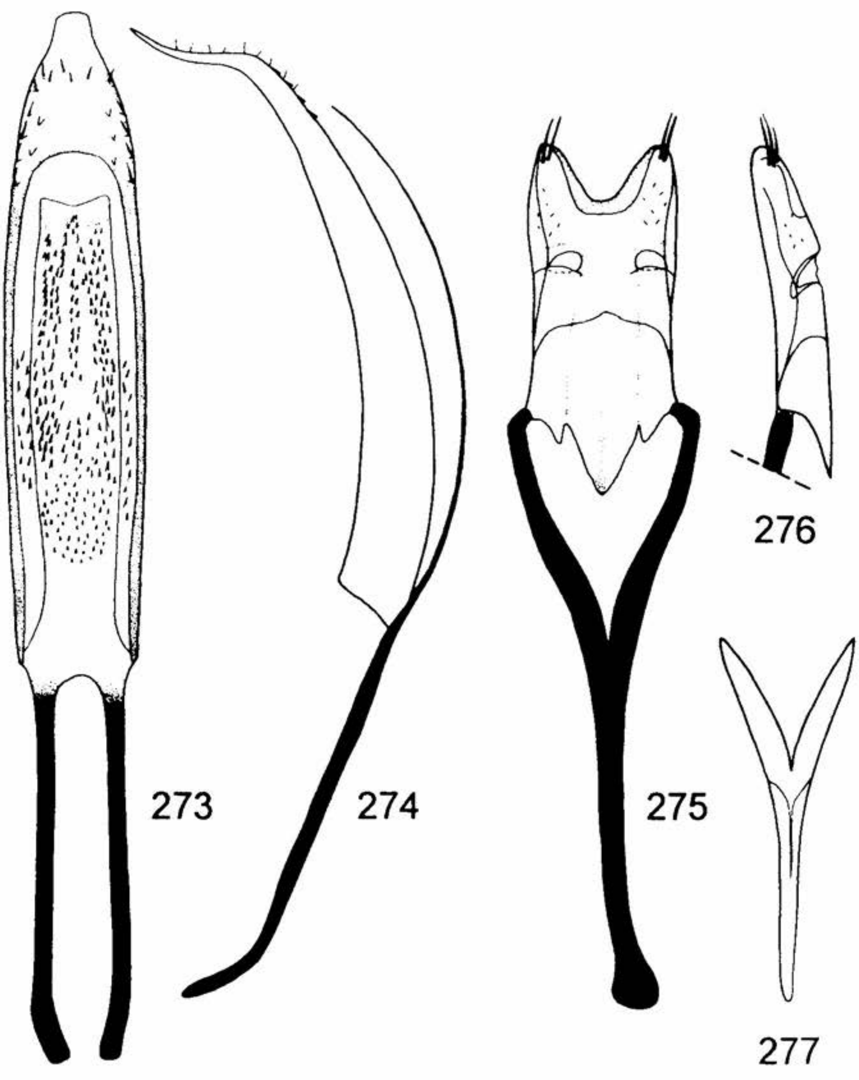
ALBANIA: Ipek, 1 ex., leg. CSIKI (HMNH).

ALGERIA: Constantine, 1f, leg. HÉNON; Saint Charles, Clouet des Pesruches a Medjez-Amar, 1f, coll. DESBROCHERS (MNHP); Tarfaia, 1f; Philippeville, 1f - leg. A. THERY (FSF); Djurdjura, Tikjda, 1650 m, 19 V 1976, 1f, leg. CONSTANTIN (SMNS); Distr. Bejaia, Tichy, 200 m, 17 III 1987, 1m, leg. A. WARCHAŁOWSKI (MW).

ARMENIA: Delizsan [Dilizhan], 1893, 1 ex., leg. HORVATH (HMNH).

AUSTRIA: Neusiedlersee; Klosterneuburg; Ulrichskirchen; Wien; Eichkogel; Neudorf; Presseggen; Tullnerbach; Türkenschanze; Mödling; Prossnitz; S Tirol: Travicnolotal; Innsbruck; Illmitz; Sachsenburg; Apetlon; Piesting; St. Johann b. Hohenburg; Graz - 55 exs (FSF, LM, IZW, ZMUH, ITZA, MZL, MHNG, MCM).

AZERBAIJAN: Aras Valley, 1 ex., leg. Leder & Reitter (FSF); Lachinskij r-n: Gorchu, 24 V 1974, 1 ex. (VZ); Zarat, 90 km N Baku, 17 VI 1984, 6 exs, leg. E. Jendek (JF).



273-277. *Ceratapion (Acanephodus) onopordi onopordi*: 273,274 - median lobe of aedeagus, 273 - dorsal view, 274 - lateral view; 275 - tegmen, dorsal view; 276 - tegminal plate, lateral view; 277 - spiculum gastrale

BELGIUM: Floriffoux; St Martin; Marche; Wemmel; Velaine; Berg; Brüssel; Eppegem; Moorsel; Virten Rabais; Benderbelle; Embourg; Esneux; Loen; Bauche; Hoesselt; Vliermael-Roodt - 43 exs (LM, IRB).

BOSNIA: Lukavica, 17 VIII 1930, 1 ex., leg. J. FODOR (HMNH); Curevo, 450 m, 2 VII 1911, 1 ex.; Igman-Plandiste, 1050 m, 11 VII 1911, 1 ex. - leg. SCHUMACHER; Sarajevo, 5 exs, leg. APFELBECK (MNB, DEI); Ilidza, 1 ex., leg. U. SAHLBERG (ZMH), 14-31 VII 1937, 1 ex., leg. J. FODOR (HMNH); Bjelasnica Planina, 2 exs (DEI).

BULGARIA: Osogovo, 1 ex.; Rila, 1 ex. - leg. BIRÓ; Lozen, 800 m, 10 VII 1982, 1 ex., leg. DRASKOVITS; Plovdiv, 27 V 1977, 1 ex., leg. L. ZOMBORI (HMNH); Chasekijata, 1 VII 1983, 22 exs (RB); Slencev Brjag, 1-10 VII 1983, 2 exs, leg. P. TYRNER; Primorsko, 13 V 1985, 2 exs; Struma val.: Damjanica, 6 V 1985, 1 ex.; Kresna, 7 VII 1984, 1 ex. - leg. KADLEC & VORISEK (KS); Rhodope: Kardzhali, 1 V 1959, 1 ex., leg. R. BIELAWSKI (IZW); Zlatni pjasaci n. Varna, 1-21 VIII 1970, 1 ex.; Nessebar, 23 IX 1965, 11 ex. - leg. T. PALM (MZL); Szabla, 6 VI 1978, 1 ex., leg. L. BOROWIEC; Trojan, 19 VIII 1978, 2 exs; Sandanski, 21 VI 1976, 1 ex. - leg. D. TARNAWSKI (MW); Samokov, 3 exs, leg. Hilf; Isiklar [Gara Samuil], 26 VI 1909, 1 ex., leg. RAMBOUSEK (DEI).

CROATIA: Dalmatia, 4 exs (FSF); Biokovo Pl., 1 ex., leg. P. MEYER; Mons Veliki, 911 m, 14 IV 1910, 1 ex., leg. MEUSEL (SMTD); Uskoken, Stojdraga, 1 ex.; Sveto Brdo, Velebit, 16 VI 1925, 1 ex. - leg. V. KODRIC; Sissek, 2 exs, leg. T. v. WANKA (MHNG); Stirovaca, 1102 m, 14 VI 1910, 1 ex., leg. MEUSEL (IZW); Gr. Capella, 1 ex., leg. E. REITTER (DEI).

CZECH REP.: Bilina; Usti n. Labem; Stroupec n. Zatec; Chloumek; Dlouha; Plana u Mar. Lazni; Zlatnik n. Most; Velky Tisy; Litomerice; Polerady; Hamr; Lutice; Trabice; Libnoves; Moravia: Brno; Rajhrad n. Brno; Ladwa - 45 exs (FSF, LM, KS, PS, DEI).

ENGLAND: Freckenham; Tayvallick; Wedholme Flow n. Wigton; Hallsenna Moor n. Seascale - 4 exs (HMNH, AZ).

FINLAND: Aland [Ahvenanmaa] Is.: Finström, Balsböle; Sottunga; Runsala Is.; Lojo [Lohja]; Karis [Karjaa] - 7 exs (ZMH).

FRANCE: 5 exs; Vosges, 1 ex. (MHNG); Corse: Ajaccio; Follelli - 4 exs (MNB, SMTD, DEI); Paris; Gard: Nimes; Aude: St Michel de Cuxa; Marne: Champigny; Sillery; Boult sur Suippe; Oise: Laigneville; Viaduc de Chantilly; Compiegne; Moselle: Metz; Ille-et-Vilaine: Liffré; Pyr. or.: Prats-de-Mollo; B-Pyr.: Saint Jean-de-Luz; Seine-et-Oise: Sannois; Saclas; Chaville; Lardy; Seine: Gennevilliers; Seine-et-Marne: Fontainebleau; Hte Marne: St Michel; Htes Pyr.: Tarbes; Indre: Levroux; Calvados: Isigny; Merville; Caen; Allier: Filustere; Loiret: Montargis; Orléans; Gien; Essonne: Juvisy-sur orge; Isère: Uriage; Tarn: Castres; Aisne; Savoie; Jura: Dole; Yvelines: Etang della Tour, Foret Rambouillet; Hauts-de-Seine: Choville; Val-de-Marne: Vitry; Meuse: Nixeville; Var; Saone-et-Loire: Macon; Vaucluse: Orange; Mt Ventoux; Nord: Lille; Riaz; Manche: Barfleur; Hte Vienne; Alp. marit.: Caussols; Thiers; Mt Mondole, 2000-2300 m; Lot-et-Gar: Port. Ste Marie; Hte Savoie: Saléve; La Muraz; Ain: Pougny - 118 exs (IRB, FSF, HMNH, ZMUH, SMTD, MHNG, IZW, MCM, LM).

GEORGIA: Tbilisi, 10 exs, leg. König (SMTD, MNB), VI 1957, 1 ex., leg. Dlabola (JF); Martkopi [Martkobi], 1 ex., leg. Leder & Reitter (MNB).

GERMANY: Kalkberge n. Rüdersdorf; Finkenkrug n. Berlin; Leipzig; Mergentheim; Bayern: Veilnbach; Münster A. St.; Aachen; Wedel n. Pinneberg - 28 exs (IZW, ZMUH, ITZA, MHNG).

GREECE: 7 exs (ITZA); Pisoderion (Maced.), 28 VI 1982, 3 exs; Epiro, Smolikas, 1100 m, 12 VII 1983, 2 exs; Lago, Prespa-Mikrolimni, 800 m, 4 VII 1984, 2 exs; Mt Timfi, 2300 m, 10 VII 1983, 1 ex. - leg. G. Osella; Tessalia, M. Pieria-Katafigion, 2000 m, 11 VII 1983, 1 ex.; Tymphristo, 2000 m, 8 VII 1982, 3 exs - leg. M. & G. Osella (GO); Parnassos, 1 ex., leg. Paganetti (DEI), 2000-2200 m, 10 VII 1982, 3 exs, leg. M. & G. Osella (GO); Kefalinia, 1 ex., leg. Woerz (SMTD); Peloponnes: Taygetos, 900-1500 m, 19 V 1976, 2 exs, leg. Köstlin (SMNS); Monemvasia, 15 IV 1978, 1 ex., leg. J. Papp (HMNH); Zante [Zakinthos Is.], 1 ex. (HMNH); Bidonna, 9 VI 1971, 1 ex. leg. J. E. Nawrin; Mt Timfristos, 4 km E Karpinisi, loc. 24, 11 VI 1982, 1 ex., leg. R. Danielsson (MZL).

HERZEGOVINA: 1 ex., leg. Hensch (MNB); Konjica, 1 ex. (HMNH); Vran Planina, 1 ex., leg. O. Leonhard (DEI).

HUNGARY: Ujpest; Vac; Budaorsz; Örkeny; Mecsek hegység; Pécsvarad; Budapest; Batorliget; Farmos; Maros-Vécs - 15 exs (IZW, PS, KS, DEI).

IRAN: Astrabad [Mazanderan: Gorgan], 4 exs (FSF, MNB, MNHP); Guilan: Lahidjan, 37°11'N/49°54'E, 5 VII 1973, 1 ex.; Mazanderan: Chorteh, 1600 m, 36°46'N/50°35'E, 8 VII 1973, 2 exs - leg. A. Senglet (MHNG).

ITALY: Sicilia: Messina; Caronia; Mte S. Salvadore; Sortino; Piano Zucchi; M. Nebrodi - 14 exs (GO, FA, ZMC); Friuli-Venezia Giulia: Cavazzo, 900 m; Forni di Sopra; Tagliamento; Trentino-Alto Adige: Trento; V. Venosta, S. Martino, 650-1700 m, Maragnano, Silandro, Lasa, Coste, Spondigna; V. Gindicarie, Ponte Arche, Storo; Lombardia: Val Camonica; Lago di Como, Mte Bispino; Senago; Bergamo; Cunardo; Ostiglia, Cardinala; Veneto: Asiago; Roana; Legnago, Fiume Tartaro; Verona, Busatello, Cazzano Tr., Toricelle, Campo Fontana; Monte Baldo, Ferrara, Ime, Bocca Naveno, S. Valentino; Emilia-Romagna: Colle di Corignano; Forli, Montebello; Antea s. Pellegrino; Abruzzi: Castel di Sangro; Mte Sirente, 1300 m; Mte Spaccato, 1500 m; Aquila, Val di Corte, 1400 m; Lago S. Sisto; Valle Susa, Caudove; Teramo, Canevine; Fonte Romana; App. centr., Mte Foltrone, 800 m; Toscana: L'Ucellina, San Rabano; Piemonte: Alpes Cottiennes, Mt Albergian; Leini; Pozzolengo; Mondonio; Campania: Mti Picentini, Vallepiana; Calabria: Mte Pollino, 1200-1500 m; Aspromonte, S. Eufemia; Orsomerso; Basilicata: Rifreddo; Lago Pantano di Pignola; Abriola; Molise: Matese, Mte Gallinole; Terranova di Pollino; Marche: S. Agata Feltria; San Leo; Lazio: Roma, Monti della Tolfa; Camerata Nuova - 151 ex. (GO, FA, FSF, ZMC, DEI, MHNG, MZL, NRS, MCM, LM).

KAZAKHSTAN: Syr-Daria, Aulie-Ata [Dzhambul], 14 exs (SMTD, HMNH, DEI, IZW); Wernyj [Alma-Ata], 2 exs (SMTD); Zailijskij Alatau, Medeo, 30 km S Alma-Ata, 2300-3000 m, 7 VII 1981, 2 exs, leg. K. Majer (KS).

KIRGHISTAN: Frunze, 2 V 1943, 2 exs, leg. K. Arnoldi; 10 km S Talas, 27 VI 1963, 1 ex., leg. G. Dlusskij (VZ); Alexander-Gbge [Kirgizskij khrebet]: Tokmak, 1 ex., leg. J. Sahlberg (ZMH).

MACEDONIA: Dojran, 150-500 m, 1 ex., leg. Papp & Horvatovich; Mt Kajmakcalan, 18 VII 1936, 1 ex.; Sar Planina: Ljuboten, 4-18 VII 1935, 1 ex.; Ohrid, Azandzuro, 8-11 VII 1936, 1 ex.; Skopje, VII 1937, 18 exs - leg. J. Fodor (HMNH).

MOLDOVA: Dubossary, 26 V 1965, 1 ex.; Suvorovsk. r-n: Purkary, 28 V 1965, 3 exs - leg. V. Yanushev (VZ); Lozova, 20 V 1974, 2 exs, leg. Ostafichuk (GO); Serbotesti-Vaslu, 3 exs, leg. A. L. Montandon (SMTD, DEI).

MONTENEGRO: Gorica, 2 VIII 1973, 2 exs, leg. O. K. Hebestreit (SMNS); Hercegnovi, 1 ex., leg. V. Benes (KS).

The NETHERLANDS: Amsterdam, 23 VIII 1951, 1 ex., leg. H. & H. Lindberg (ZMH).

POLAND: Baltic Coast: Koszalin, Gdańsk vic.; Pomerania Lake Region: Bielinek at Odra riv., Tleń; Masurian Lake Region: Giżycko, Puszcza Piska - Szeroki Bór; Nizina Wielkopolsko-Kujawska: Włocławek, Małków at Warta riv.; Nizina Mazowiecka (Mazovian Lowland): Warsaw vic., Rogów n. Koluszki; Puszcza Białowieska (Bialowieza Forest); Lower Silesia: Wrocław, Oława, Ząbkowice Śl., Środa Śl.; Upper Silesia: Cieszyn; Wyżyna Krakowsko-Wieluńska: Cracow, Ojców; Wyżyna Małopolska: Łódź, Inowłódz, Chotel Czerwony, Skorocice, Skotniki, Pińczów; Góry Świętokrzyskie Mts.; Wyżyna Lubelska: Tarnogóra n. Izbica, Gródek n. Hrubieszów; Roztocze: Józefów Biłgorajski, Zamość, Kąty n. Zamość, Biała Góra n. Tomaszów Lub., Zwierzyniec, Radecznica; Western Sudetes: Podlesie n. Nowa Ruda; Eastern Sudetes: Żelazno; Eastern Beskids: Rokszyce, Przemyśl - 550 exs (IZW, SS, ZMUH, MW).

PORTUGAL: Guarda, 10 exs, coll. v. Heyden (DEI).

RUMANIA: "Siebenburgen", 6 exs (FSF); Herkulesbad [Herculane], 1 ex. (SMTD), 4-22 V 1970, 5 exs, leg. T. Palm (MZL); Timisoara, 24 VII 1972, 1 ex. (KS); Piescany, 23 VII 1978, 3 exs, leg. A. Kuška (PS); Cheile Tutzii, 9 X 1960, 1 ex., leg. A. Comellini (MHNG); Craiova, 23 V 1940, 3 exs, leg. W. Eichler (IZW); Bucarest, 21 V 1939, 1 ex., leg. H. & H. Lindberg (ZMH).

RUSSIA: Ussuri: Spasskaja, 20 IX 1917, 2f, leg. Y. Wourentaus (ZMH, publ. Bajtenov, 1983); Sankt Petersb. obl.: Kronstadt (FSF); Rostovskaya obl.: Dyabino, 45 km E Kamensk, 14 VI 1950, 1 ex.; Kamenskiy r-n: Grachevaya Balka, 15 V 1950, 2 exs, 12 VI 1950, 3 exs; Gornaya, 18 V 1950, 1 ex. - leg. K. Arnoldi; Moskovskaya obl.: Zvenigorod, VI 1967, 1 ex.; Narofominsk. r-n: Bulatova Polyana, 14 VII 1964, 2 exs - leg. A. Ponomarenko; St. Leninskaya, Karstovyj kar., 15 IV 1984, 1 ex., leg. V. Grachev; Belgorodskaya obl.: Shebekinsk. r-n: Mal. Mikhajlovka, 3 VII 1957, 1 ex., leg. K. Arnoldi; Sverdlovskaya obl.: Polniki, 20 km NNE Bilimbaj, 15 IX 1979, 1 ex., leg. D. Stscherbakov; Orenburgskaya obl.: Donguz riv., Donguzskaya-Perovka, 5 VI 1989, 1 ex.; Bashkirskaya ASSR: 30 km WSW Kumertau, 16 VIII 1980, 1 ex., leg. A. Rasnitsyn & D. Stscherbakov; Krasnodarskij Kr.:

Ubinskaya, 14-16 IX 1954, 1 ex.; Pshaf khrebet, 21 X 1955, 1 ex. - leg. K. ARNOLDI; Seversk. r-n: Ubinskoe lesn., 29 VII 1975, 1 ex., leg. BELOV; Kurskaya obl.: Oktyabrskij r-n: 27 V 1986, 1 ex., leg. PEN'KOVSKIJ; Streletskaya step', 21 V 1963, 1 ex., leg. V. KOVALEV, 12 VI 1966, 1 ex., leg. K. ARNOLDI (VZ); Sarepta [Krasnoarmeysk], 4 exs (DEI, MNB, MHNG); Samara [Kuybyshev], 2 exs (SMTD); Astrachan', 2 exs, leg. JAKOVLEV (SMTD); Dagestanskaya ASSR: Derbent, 1 ex., leg. FAUST (HMNH).

SCOTLAND: 1 ex. (SMTD).

SERBIA: Zemun, 1 VI 1941, 1 ex., 12 X 1942, 4 exs; Belgrad, Topcider, 22 VI 1941, 5 exs; Avala, 23 IV 1942, 2 exs - leg. V. KODRIC (MHNG); Smederevska Palanka, 27 IX 1988, 4 exs, 10 X 1989, 2 exs; Krnjevo, 19 VII 1986, 1 ex.; Vojvodina: Backa Topola, 29 IX 1988, 1 ex. - leg. E. BARANIAK (PS).

SLOVAKIA: Bystr; Maly Hores; Kostolawy n. Tribec; Stürovo; Kamenny Most- 5 exs (ZMUH, KS).

SLOVENIA: Laibach [Lubljana], 1 ex. (ZMH), 3 exs, leg. GRABOWSKI; Postojna Wiese, 16 VIII 1958, 1 ex., leg. ENDRÖDY-YOUNGA (HMNH); Kalobje, 1 ex.; Turjak, 1 ex.; Morava, 1 ex.; Kocevje, 2 exs; Draga, 26 V 1936, 1 ex. - leg. V. KODRIC; Maribor, 19 VII 1928, 1 ex. (MHNG); Veldes [Bled], 1 ex.; Cirknitz [Cirknica], 1 ex. (ZMC).

SPAIN: Fuente de Picos de Europa, 1000 m, 1 ex., leg. B. MALKIN; San Sebastian: Zarauz, 19 VI-2 VII 1960, 4 exs, leg. T. PALM (MZL); Huesca: Aratores - Collado de Magdalena, 3 VII 1986, 1 ex.; Barcelona: Besas, 1 XII 1952, 1 ex., leg. M. GONZALES (MHNG); Teruel: Albarracin, 1000 m, 10 VIII 1987, 1 ex. (GO), 30 V 1974, 1f, leg. A. COMELLINI; Entre Alcala de la Selva et Gudar, 1400 m, 22 V 1960, 1f, leg. C. BESUCHET (MHNG); Murcia: Sas de Segura, El Pardal, VI 1903, 1m, leg. ESCALERA (MNB); Palencia, leg. PAGANETTI, 4m 5f (SMTD, ITZA, FSF, HMNH), 1m 5f (DEI), 2m (HMNH); León: Veguelina de Orbigo, 5 VI 1983, 1m (AZ); Orense: Carril forestal Soportujar, 1700 m, 29 VI 1983, 3m 3f (AZ); Granada: Sierra Nevada, La Cortichuela, 1f (AZ); Puerto de la Ragua, 1650 m, 13 V 1960, 1 ex., leg. C. BESUCHET (MHNG).

SWEDEN: Sk.: Alabodarna; Arlöv; Bohus: Strömstad; Öl.: Kalkstad; Färjestaden; Hossmo, B. Kalmar - 8 exs (MZL, DEI, ZMH).

SWITZERLAND: Locarno; Basselland: Pfeffingen, 400 m; Tessin: Calsano n. Lugano; Ct. Zürich: Katzensee - 4 exs (ITZA, ZMH, DEI).

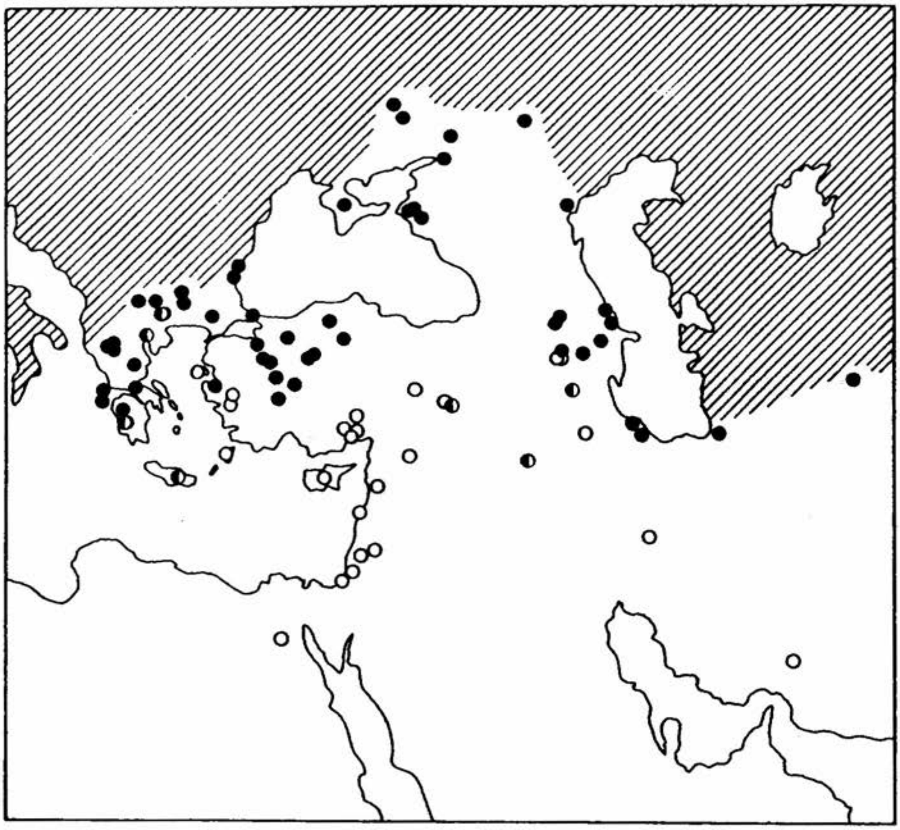
TUNISIA: Äin Draham, 1m, leg. B. v. BODEMEYER (SMTD); Sfax, 1910, 6 exs, leg. NORMAND (IRB).

TURKEY: vil. Bolu: Abant Gölu, 31 VII 1966, 2 exs, leg. J. KLAPPERICH (GO), 1400-1600 m, 18 VII 1971, 1 ex., 3 VII 1972, 2 exs; Ilgaz geç., 6 VII 1972, 3 exs; vil. Bilecik: Bilecik, 500 m, 14 VII 1972, 2 exs - leg. M. & G. OSELLA (GO); vil. Edirne: Kesan, 5 VII 1987, 2 exs, leg. E. BARANIAK (PS); Eskisehir, IV 1934, 1 ex.; Isparta, V 1934, 1 ex. - leg. NEUBERT (MCM); Ak-Chéhir [NW vil. Konya: Aksehir], 1 ex. (MCM); Istanbul prov.: Sariyer, 16 V 1969, 2 exs, leg. W. GROSS; vil. Isparta: Egridir, 1000-1600 m, 14-16 VI 1967, 1 ex., leg. A. RICHTER; Constantinopol

[Istanbul], 1 ex. (ZSM); Ankara, V 1937, 17 exs, leg. VASVARI; Istanbul prov.: Halkali, 28 IV 1925, 1 ex., leg BIRÓ (HMNH); vil. Eskisehir: Mahmudiye, 8 VII 1979, 2 exs; vil. Ankara: Elmadag, 4 V 1979, 1 ex.; vil. Corum: Eavat, 6 VIII 1979, 1 ex. - leg. N. LODOS (JF); Afyonkarahisar, V 1934, 1 ex. (MCM); Smyrna [Izmir], 2 exs (MNB, DEI).

TURKMENISTAN: Repetek, 1 ex. (DEI).

UKRAINE: Crimea: 1 ex. (NRS), Sevastopol, 2 exs (SMTD); Voroshilovgr. obl.: Belovods. r-n: Derkul, 8 VI 1950, 1 ex., leg. K. ARNOLDI (VZ); Podolia: Majerówka; Dźwinogród; Torskie; Kołodróbka; Krzywcze; Mielnica; Zaleszczyki; Obiżowa; Wołczków; Żeżawa; Babińce; Dupliska; Lesieczniki; Pieczarna; Dobrowlany; Truskawiec - 199 exs (IZW).



Map 8. Distribution of *Ceratapion onopordi onopordi* (solid circles), *C. o. parviclava* (hollow circles) and localities of intermediate specimens (black-and white circles) in Western Mediterranean region (continuous range of *C. o. onopordi* indicated with oblique hatching)

Ceratapion onopordi parviclava (Desbrochers, 1897)
(figs 264, 269)

Apion parviclava Desbrochers, [1897]: 8.
Apion chenocephalum Desbrochers, 1902: 160, **syn. nov.**
Apion cavatum Desbrochers, 1906: 89, **syn. nov.**
Apion (Ceratapion) quadricostatum Schilsky, 1906: no.8, **syn. nov.**

Literature: Schilsky, 1906b: XIX (*4-costatum*); Wagner, 1918: 21 (*chenocephalum*); Köstlin, 1985: 70 (*chenocephalum*).

Type material examined

A. parviclava **Dbr.** Lectotype m: a)Ht. Syrie, Akbés, b)m, c)Ex Musaeo Desbrochers 1914 (coll. Desbrochers, MNHP) (present designation). ***A. chenocephalum*** **Dbr.** Lectotype f: a)Syrien, Haifa, Reitter, b)Ex Musaeo Desbrochers 1914 (coll. Desbrochers, MNHP) (present designation). *A. cavatum* Dbr. Lectotype f: a)*cavatum* m. As. min. f, b)Ex Musaeo Desbrochers 1914 (coll. Desbrochers, MNHP) (present designation); paralectotype f labelled "*cavatum*" (coll. Desbrochers, MNHP). Lectotype, paralectotype as well as 1f without any label and 2m labelled "*cavatum* v.?", have been placed in Desbrochers coll. under the head label "*indistinctum* Motsch.". ***A. quadricostatum*** **Schil.** Lectotype f: Sarona, leg. J. Sahlb. (MNB) (present designation); paralectotypes: 1m: Galilea, Vall. Kison, U. Sahlb.; 1f: Conv. Lebanon, J. Sahlb.; 1f: Beiruth, J. Sahlb.; 1m: Haifa, J. Sahlb.; 1f: Haifa, U. Sahlb. (MNB).

Description

Body length 2.26-2.79 mm.

Indices. ***rl/msrw:*** m: 2.86-3.20 (M 2.99), f: 3.64-3.89 (M 3.74); ***scl/msrw:*** m: 0.58-0.63 (M 0.61), f: 0.70-0.81 (M 0.77); ***brl/eyl:*** m: 0.70-0.83 (M 0.76), f: 0.78-1.10 (M 0.95); ***bew/mpw:*** 1.40-1.68 (M 1.50); ***pft/msrw:*** m: 0.84-0.93 (M 0.88), f: 0.94-1.01 (M 0.97). The remaining indices as in the nominate subspecies.

Distinct from the nominate subspecies in clearly concave frons, the lowest point of which lies conspicously beneath the rostrum base and slightly below or at most at the level of the eye upper margin. The remaining differences are as follows:

Body clothed with slightly broader, always pure white, piliform scales. Mesorostrum usually stronger expanded. Antennae inserted closer to the head (m: 0.19-0.23, M 0.21; f: 0.17-0.22, M 0.19). Pronotum with the walls very thick, mostly straight at sides; puncturation very coarse, the largest punctures 4-5× ommatidium size, interspaces more strongly shining, often with the microsculpture nearly vanishing in middle of the disc. Elytra more strongly shining. Legs, in particular the tarsi, less robust.

Wings and their muscles normally developed. Aedeagus identical with the nominate subspecies.

Biological details unknown.

Distribution. Egypt, Israel, Jordan, Lebanon, Syria, Turkey (Southern Anatolia), Armenia, Cyprus, Greece (Rhodos, Lesvos).

REMARKS

Intermediate specimens have been found in southern Bulgaria, throughout Greece, Central Anatolia, in Iraq and the Caucasus (map 8). They are characterized by a weaker depressed frons, pronotum slightly rounded at sides and less coarsely punctured, and a finer body vestiture. All the examined specimens had metathoracic wings and their muscles well developed.

OTHER MATERIAL EXAMINED

Caucasus: 1m, coll. O. SCHNEIDER (MNB).

EGYPT: 1 ex., coll. REITTER (HMNH).

ARMENIA: Eriwan, 1898, 1m, leg. KORB (MNB); Gakh-Guekhard, 30 km E Erevan, 1500 m, No. 129, 29 V 1980, 1m, leg. J. PAPP (HMNH).

CYPRUS: 2 exs (SMTD); Limassol; Aylos Hilarion; Perivolia; Athalassa; Paphos; Kyrenia; Stavrovouni; Kythrea - 7 VI-22 VII 1939, 24 exs, leg. HD. LINDBERG (ZMH, NRS).

GREECE: Rhodos Is., 1f (MCM), 9 V 1970, 1f, leg. ENGELMAN (KS); Lesvos Is.: Mytiléne [Mitilini], 4 exs (MF).

IRAN: E, Deh Bakri, 1700-1750 m, 30 IV-3 V 1973, 1f, Exp. N. Mus. Prague (JF); Esfahan: Nowghan, 33°11'N/50°04'E, 22 VI 1974, 1f; Azerbaidjan: N Saghez, 36°23'N/46°12'E, 18 IX 1975, 2m 1f - leg. A. SENGLET (MHNG).

ISRAEL: Haifa, 2 exs, coll. REITTER (HMNH), 1 ex. (ITZA); Tiberias, II 1941, 2f, 20 II 1941, 1m, 23 IV 1941, 1m 1f, leg. W. EICHLER (IZW); Jerusalem, XII 1968, 1f, leg. A. HIRSON (MR); Galilea: Monfort, IV 1982, 3 exs, leg. TEDESCHI (GO); Gafad, 500 m, 30 V 1973, 1m, leg. I. LÖBL (MHNG); Vall. Kison, 1 ex., leg. U. SAHLBERG (ZMH); Kadonie n. Tulkarem, 200 m, 8 VII 1958, 1 ex., leg. J. KLAPPERICH (HMNH).

JORDAN: "Pälästina", 1f (SMTD); Wadi Sir n. Amman, 600 m, 13 VII 1959, 1 ex. - leg. J. KLAPPERICH (HMNH).

LEBANON: Beyruth, 1 ex., coll. F. KESSEL (IZW).

SYRIA: 3 exs (NRS); Aleppo [Halab], 3 exs (FSF, IZW); W Hama, Ghab, S Gisras-Sagar, 22 III 1979, 1f (DEI); Krak des Chevaliers, 25 VI 1971, 2 exs (GO).

TURKEY: Tarsus, 1f, leg. J. SAHLBERG (SMTD); Cesme, 80 km W Izmir, 9 X 1969, 1f; SW Anatolia: Kusadasi n. Aydin, 22 VII 1971, 1m 1f - leg. N. LODOS (LD); Adana, 4m, coll. C. BOSCH (FSF); vil. Adana: Adana, 2 V 1967, 1f; Karaisali, 29 IV 1967, 1f - leg. W. WITTMER (MHNG); Nurdagi Geçidi, 1150 m, 27 VI 1971, 2 exs; vil. Malatya: Eskimalatya, 29 VI 1968, 1 ex., leg. P. BRIGNOLI (GO); Anatolia: Gyaur dag or., 17 VIII 1947, 1m, Exp. N. Mus. Prague (KS); Diyarbakir, 3 VI 1977, 2 exs, 15 VII 1977, 1 ex., leg. N. LODOS (JF).

Intermediate *onopordi/parviclava* specimens:

Caucasus: 1f, coll. B. SCHWARZER (FSF).

BULGARIA: Pirin: Razlog, 14 VII 1976, 1f, leg. M. SOSZYŃSKI (MW).

IRAQ: Shaglawa, 18 IV 1961, 1m, leg. AD. RIEDEL (IZW).

GREECE: Kreta: Iraklion, 1m, leg. JANCZYK (NMW); Peloponnes: Taygetos, 900-1500 m, 19 V 1976, 1f, leg. KÖSTLIN (SMNS); Saloniki [Thessaloniki], 1 ex. (ITZA), 10 IV 1922, 1 ex., leg. W. LIEBMANN (DEI).

NAKHICHEVAN REP.: Ordubad, 4 exs, coll. O. LEONHARD (DEI).

TURKEY: Diyarbakir, 6-7 VII 1937, 1m, leg. VASVARI (HMNH).

Ceratapion (Acanephodus) parens (DESBROCHERS, 1870)

(figs 270, 278-281)

Apion parens DESBROCHERS, 1870b: 161.
Apion rectipes DESBROCHERS, 1891b: 83.
Apion rectipes DESBROCHERS, 1891c: LVI.

Literature: DESBROCHERS, 1891: 323, [1894]: 102, [1897]: 11, [1898]: 35 (*rectipes*), 1908: 98; SCHILSKY, 1902: no.5, 1906b: XXI, CXVI; WAGNER, 1918: 19; NORMAND, 1949: 97.

TYPE MATERIAL EXAMINED

A. parens **DBR.** Lectotype f: a)Cintra, b)368, c)WAGNER vid. (coll. v. HEYDEN, DEI) (present designation). ***A. rectipes*** **DBR.** Lectotype m: a)Tanger, b)*rectipes* m, n. sp., c)m, d)Ex Musaeo DESBROCHERS 1914, e)[label illegible] (coll. DESBROCHERS, MNHP) (present designation) [in the original description "Mauritania tingitana" is stated as terra typica, only in 1894 DESBROCHERS explained that he had meant Tanger].

DESCRIPTION

Lenght m: 2.32-2.49 mm, f: 2.58-2.70 mm. Derm coloured as in *C. onopordi*; tibiae always brownish.

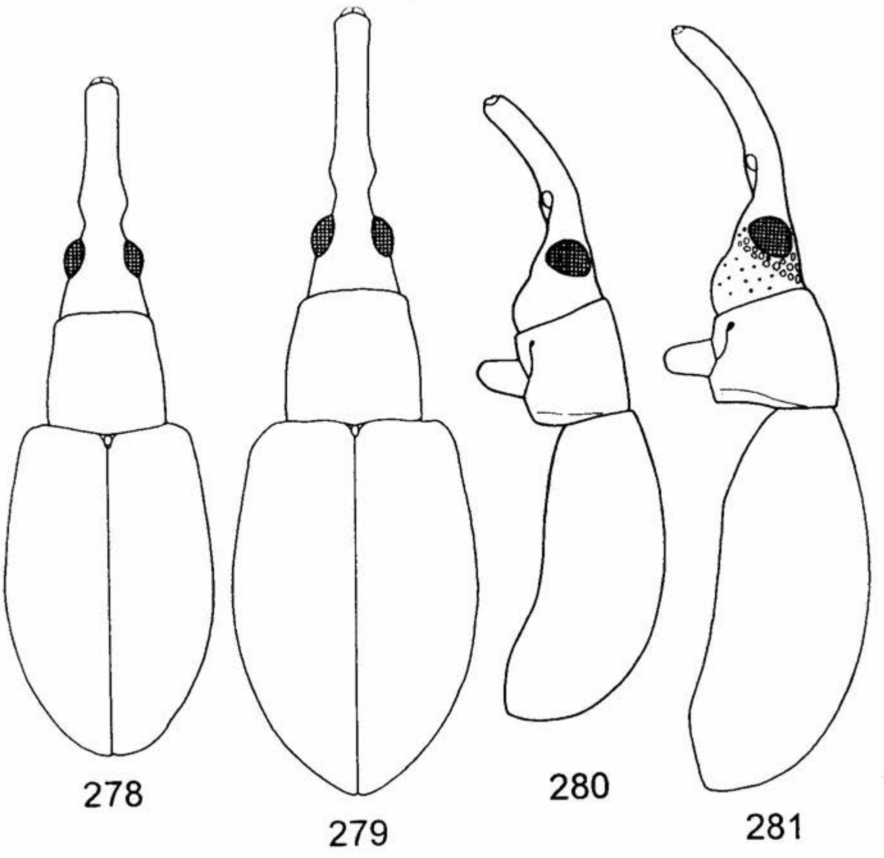
Indices. ***rl/pl:*** m: 1.28-1.39, f: 1.48-1.56; ***rl/msrw:*** m: 3.12-3.61, f: 4.02-4.32; ***scl/msrw:*** m: 0.62-0.77 (M 0.69), f: 0.70-0.87 (M 0.79); ***msrw/mtrw:*** 1.22-1.37 (M 1.29); ***msrw/arw:*** m: 1.48-1.56, f: 1.34-1.42; ***msrw/minrw:*** m: 1.60-1.67, f: 1.50-1.61; ***msrw/eyl:*** 1.03-1.21; ***brl/eyl:*** m: 0.87-0.94 (M 0.92), f: 0.89-1.08 (M 1.02); ***eyl/hl:*** 0.53-0.63; ***hl/hw:*** 0.87-1.00; ***mpw/hw:*** 1.50-1.60; ***bpw/apw:*** 1.09-1.15; ***pl/mpw:*** 1.00-1.07; ***mew/mpw:*** m: 1.76-1.87, f: 1.90-2.03; ***el/pl:*** m: 2.58-2.90 (M 2.79), f: 2.88-3.03 (M 2.96); ***el/mew:*** 1.52-1.65; ***mew/bew:*** m: 1.22-1.27, f: 1.26-1.33; ***bew/mpw:*** 1.41-1.54; ***pft/msrw:*** m: 0.87-0.92, f: 0.92-1.00; ***ptbl/pl:*** 0.99-1.11; ***ptbl/ptbmw:*** 5.15-5.50; ***ptsl/ptbl:*** 0.55-0.62. Antennal insertion m: 0.23-0.24, f: 0.20-0.23.

Extremely similar to *C. onopordi*, especially to its North African form "*hipponense*", but much less variable and distinct in the characters listed below.

Body vestiture closer, piliform scales slightly longer and broader, pure white. Head and pronotum more strongly shining.

Rostrum more distinctly sexually dimorphic in length, with the surface more closely punctate and slightly rugose; mesorostrum distinctly angled, mostly forming small teeth; metarostrum stronger constricted, at narrowest point markedly thinner than the mesorostrum and only slightly wider than the prorostrum.

Head more elongate; eyes less prominent; frons flat, with striolae at least in part visible and not concealed by puncturation; vertex very weakly elevated posterad, more finely punctate, with punctures of at most 1.5 ommatidium size; temples punctate throughout but puncturation becomes abruptly finer and sparser not far behind the posterior margin of the eye (ca. 1/3 eye diameter).



278-281. *Ceratapion (Acanephodus) parens*, body outline: 278 - male, dorsal view; 279 - female, dorsal view; 280 - male, lateral view; 281 - female, lateral view

Pronotum with thinner walls, relatively smaller and distinctly narrowing anterad, straight or weakly arched at sides, without a trace of subapical constriction; puncturation of the disc dense and fine, punctures about 2× ommatidium size, less than half diameter apart, their interspaces nearly flat and shiny.

Elytral intervals always flat.

Legs less robust.

In the remaining characters, including those of male and female genitalia, not distinct from *C. onopordi*.

Biology unknown.

Distribution. Tunisia, Algeria, Morocco, Southern & Central Spain, Portugal.

Other material examined

ALGERIA: Bône [Annaba], 1f (NRS); Philippeville, 1f, leg. Thery (MNHP); Teniet el Had, 1893, 1f, coll. Reitter (HMNH).

MOROCCO: 2 exs (MHNG, DEI); Tanger, 5 exs, coll. A. Hoffmann (MNHP), 4 exs, leg. Olcese (MHNG), 1 ex., coll. v. Heyden (DEI), 15 VII 1926, 1m, leg. Lindberg (ZMH), 27 V 1935, 1m 1f, leg. R. & C. Koch (MCM); Mogador, 1m 1f, coll. Reitter (HMNH).

PORTUGAL: Faro, VI 1910, leg. A. Schatzmayr, 1m 1f (MCM), 2f (DEI).

SPAIN: Andalusia, 1901, 1f, coll. Sabel (FSF); 1 ex., coll. C. Müller (ZSM); Jaén: Estrella, 1m 1f [labelled "Estrella, type" !] (coll. Desbrochers, MNHP); Cadiz: San Roque, IV 1966, 1m (HG); Jimena, 25-29 V 1992, 4m 4f, leg. A. Warchałowski (MW); 80 km SE Tarifa, 10 m alt., 19 VII 1993, 2m 1f (WS); Málaga: Laguna Archidona, 800 m, 3 IX 1981, 1m 2f, leg. Bastazo & Vela; Nacimiento de la Villa, 4 VIII 1983, 1f, leg. Alonso-Zarazaga (AZ); 60 km W Sierra Bermeja, 1000 m alt., 21 VII 1993, 2m 1f (WS).

Subgenus *Clementiellus* Alonso-Zarazaga, 1991

Acanephodus subgenus *Clementiellus* Alonso-Zarazaga, 1991: 46. Type species: *Apion robusticorne* Desbrochers (by original designation).

Description

Rostrum with large, triangular teeth at antennal insertion.

Frons coarsely punctate, the punctures often elongate and sometimes partly confluent to form short sulci; vertex smooth, impunctate; temples behind eyes with a single row of punctures in upper part, underneath the row becoming double to triple, posterior part of the temples impunctate; antennal scrobes hardly longer than the antennal cavities which are large and elongate, the scrobes reaching half eye length on the head underside.

Pronotum with the pleural line weakly distinct, sometimes incomplete, pronotal sides never punctate behind the line; prosternum about 0.8 as long as the postcoxal part of prothorax.

Elytra relatively broad, oval in outline, without the specialized setae; striae very narrow, apically connected 1+2+9, 3+4, 5+6, 7+8.

Episternal sutures of the mesosternum invisible. Metasternum 1.7-1.8× longer than the mid coxae. First ventrite with a small, conical median tubercle in the male.

Legs robust, without sexual characters in male.

Tegminal plate with the parameroid lobes very short and broadly rounded; macrochaetae moderately long; fenestrae very small, broadly separate, "double", with the inner margin much finer and clearly circular; lateral fold vanishing, traces of it sometimes obscurely indicated in basal and/or apical part of the paramerae; prostegium produced into moderately long, usually acute median process.

Median lobe of aedeagus narrowed and pointed apically; internal sac not exceeding the tubular part of the lobe, with a pair of extremely fine, rectangular plates in the orifice, throughout 3/4 length with dense, minute spines partly arranged in multiple rows, without sclerites.

Biology poorly known, one of the two species apparently associated with plants of the genus *Centaurea*.

Distribution. Mediterranean Region.

Ceratapion (*Clementiellus*) *orientale* (Gerstaecker, 1854)

(figs 282-285, 291, 292, 298)

Apion orientale Gerstaecker, 1854: 237.
Apion Henschi Reitter, 1901: 226.
Apion (*Ceratapion*) *similans* Schilsky, 1901: no.21.

Literature: Wencker, 1864: 128; Schilsky, 1906: no.12, 1906b: XVII; Wagner, 1910b: 940, 1918: 22; Schatzmayr, 1925: 87; Györffy, 1956: 7; Angelov, 1976: 77; Dieckmann, 1977: 84; Lohse, 1981: 156; Behne, 1989: 321; Korotyaev et al., 1993: 841.

Type material examined

A. orientale Gerst. Holotype m: a)35041, b)Smyrna, Helfer (MNB). ***A. henschi*** Reitt. Holotype m: a)Herzegovina, Domanovic, A. Hensch (HMNH). ***A. similans*** Schil. Lectotype m and paralectotype f: Anatolia, Konia, 1899, Korb (coll. C. Müller, ZSM) (present designation).

There is a male in the collection of Schilsky (MNB) labelled a)Ung. Zara, Müller, b)Type, and not being a type of *A. similans*.

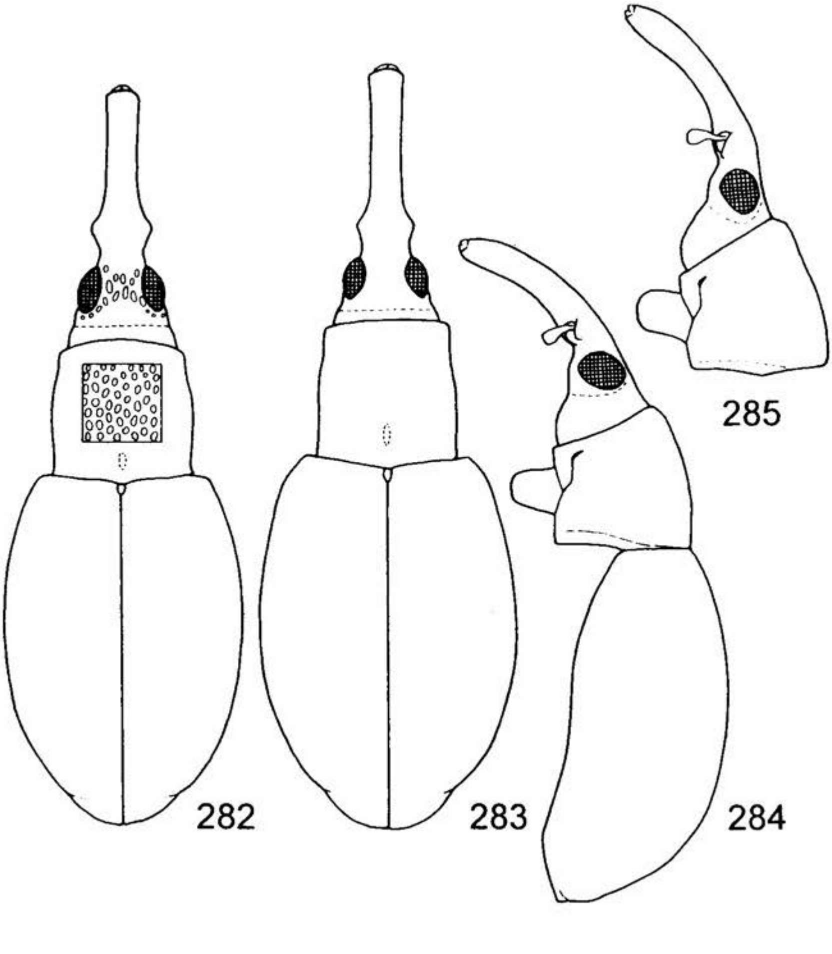
Description

Length 2.15-2.95 mm. Body black, rather dull, the elytra with bluish or greenish metallic tinge. Vestiture fine, composed of white to greyish hair-like scales not longer than 2/3 elytral interval width.

Indices. ***rl/pl:*** m: 1.14-1.26 (M 1.20), f: 1.20-1.36 (M 1.27); ***rl/msrw:*** m: 2.80-3.20, f: 3.40-3.64; ***scl/msrw:*** m: 0.56-0.68, f: 0.67-0.75; ***msrw/mtrw:*** 1.16-1.31;

msrw/arw: m: 1.63-1.79, f: 1.55-1.67; ***msrw/minrw:*** 1.68-1.96; ***msrw/eyl:*** 1.22-1.38; ***brl/eyl:*** 0.64-0.85; ***eyl/hl:*** 0.55-0.68; ***hl/hw:*** 0.72-0.94; ***mpw/hw:*** 1.47-1.73; ***bpw/apw:*** 1.00-1.12; ***pl/mpw:*** 1.00-1.14; ***mew/mpw:*** 1.63-1.88; ***el/pl:*** 2.39-2.64; ***el/mew:*** 1.49-1.67; ***mew/bew:*** 1.16-1.30; ***bew/mpw:*** 1.35-1.53; ***pft/msrw:*** 0.79-0.91; ***ptbl/pl:*** 0.94-1.04; ***ptbl/ptbmw:*** 5.36-6.10; ***ptsl/ptbl:*** 0.55-0.67.

Rostrum only slightly differing in sexes, weakly curved, poorly microsculptured, distinctly and fairly thickly punctate from base to apex, the punctures of nearly an ommatidium size, slightly more conspicuous in male.



282-285. *Ceratapion (Clementiellus) orientale*, body outline: 282 - male, dorsal view; 283 - female, dorsal view; 284 - male, lateral view; 285 - female head and pronotum, lateral view

Antennae fairly thick, with distinct scale-like microsculpture, inserted at basal m: 0.17-0.22 (M 0.20), f: 0.14-0.19 (M 0.17) of rostrum; scape about twice, first segment of the funicle 1.5, the second 1-1.2 as long as wide, the remaining segments clearly transverse; club 1.8-2.0× longer than wide; antennal pubescence brownish, weakly protruding.

Head weakly broadened basad; frons flat, occasionally slightly concave, with some few punctures along eye margins, in middle with elongate punctures often confluent to form 3-4 unclear and very short sulci, in the posterior part smooth; eyes weakly prominent; venter of the head between eyes weakly gibbous, in profile without a subocular tooth.

Pronotum sub-cylindrical, obscurely constricted sub-basally and subapically, with the walls very thick; puncturation dense and fairly coarse, punctures oval, of a size 2-2.5 ommatidium, less than one diameter apart, interspaces flat, microreticulate; prescutellar fovea varying in size, mostly of about 3 puncture length.

Elytral intervals flat, at the base of elytra 3-4×, on the disc 5× wider than the striae; striae poorly impressed, sparingly punctate, apical sections of the striae 1, 2 and 9 slightly broadened.

Tarsi short, first segment of the protarsus slightly elongate, the second isodiametric, onychium at most 1.2× longer than third segment.

Paramerae with 4-5 macrochaetae not arranged in row; fenestrae with inner corners distinctly extended downwards to nearly breaking the dorsal portion of ring; posterior projection of prostegium well isolated, short, narrow and acute.

Median lobe of aedeagus produced into a narrow, pointed process apically; the shape and arrangement of the internal sac spines strongly variable (fig. 298).

Spiculum gastrale thick, the forked part short and weaker sclerotized than the manubrium.

Biology. Beetles were collected on *Centaurea rhenana* Bor. in Austria and Hungary.

Distribution. Italy (Trieste), Slovakia, Austria, Hungary, Rumania, Ukraine (Crimea), Russia (Dagestan), Croatia, Herzegovina, Bulgaria, Greece*, Turkey, Syria, Iran?, Caucasus?

Occurrence of *C. orientale* in the Caucasus and Iran, as mentioned by Wagner (1910, 1912) in the world catalogue, was not confirmed either in the later catalogue of Palaearctic *Apioninae* (Winkler & Wagner, 1932) or by any of subsequent authors.

Other material examined

AUSTRIA: Karnten: Steinfeld, 3 exs (SS); Burgenland: Parndorf, 1 ex., leg. Wingelmüller (NMW); Zurndorf/Heide, Parndorf. Platte, 30 III 1968, 1 ex., leg. C. Holzschuh (LD).

BULGARIA: Warna, 1 ex.; Asenovgrad, 1 ex. (SS), 20 V 1961, 1 ex., leg. P. Angelov (LD); Nessebar, 22 VI 1965, 1 ex., leg. T. Palm (MZL); Ravoa n. Nessebar, 15 VIII 1986, 1 ex.; Malezenska Plan. n. Sandanski, 19 VI 1983, 1 ex.

(RB); Sandanski, Struma valley, 24 VI 1979, 1 ex., 2 VII 1979, 1 ex. (MM); Slancev Brjag, 10 VII 1983, 1 ex., leg. P. TYRNER; Melnik, 2 VIII 1971, 1 ex., leg. J. M. STUSAK (KS).

CROATIA: Dalmatia, 1 ex., coll. DEJEAN (IRB).

GREECE: Pelopon., 3 exs (FSF).

HERZEGOVINA: Mostar, 1 ex., leg. v. DOMBROWSKY (ZSM), 4 exs, leg. GRABOWSKI (HMNH); Jablanica, 2 exs (HMNH); Tebinje, 1903, 1 ex., leg. O. LEONHARD (DEI).

HUNGARY: Neusiedlersee, 1 ex., coll. GABRIEL (FSF); Budapest, 2 exs (SS).

ITALY: Trieste, Dunino, 16-21 V 1933, 4 exs, 10 V 1936, 1 ex., leg. A. SCHATZMAYR (MCM).

TURKEY: Akion, 1 ex. (ZSM); vil. Bolu: Abant, 1000 m, 21 VI 1975, 6 exs (GO).

UKRAINE: Crimea: Stancja Belbs', 15 V 1914, 1 ex., leg. PLIGINSKI (HMNH).

Ceratapion (*Clementiellus*) *robusticorne* (DESBROCHERS, 1866)

(figs 286-290, 293-297)

Apion robusticorne DESBROCHERS, 1866: 44.
Apion insolitum DESBROCHERS, 1870: 196.
Œpion [sic!] *bipartitum* DESBROCHERS, 1902: 160.

Literature: DESBROCHERS, 1867: 217, 1884: 161, 1891: 323, [1894]: 105, [1898]: 35, 1908: 96; SCHILSKY, 1901: no.20, 1906b: XVI; WAGNER, 1918: 26; SCHATZMAYR, 1925: 88; NORMAND, 1937: 236.

TYPE MATERIAL EXAMINED

A. robusticorne **DBR.** Lectotype f: a)Algerie, type, b)Ex Musaeo DESBROCHERS 1914 (coll. DESBROCHERS, MNHP) (present designation); paralectotype m: a)a.*robusticorne* Alg. m., b)29 Db (NRS). ***A. bipartitum*** **DBR.** Lectotype m: a)Mayo Fuente, b)Ex Musaeo DESBROCHERS 1914 (coll. DESBROCHERS, MNHP) (present designation); paralectotype m (same data) (MNHP). ***A. insolitum*** **Dbr.** Holotype f: a)*insolitum* type mihi, b)Ex Musaeo DESBROCHERS 1914 (coll. DESBROCHERS, MNHP).

DESCRIPTION

Length 2.28-2.70 mm. Body colouration and vestiture as in *C. orientale*; sheen, especially on the pronotum, much stronger.

Indices. ***rl/pl:*** m: 1.09-1.27, f: 1.37-1.54; ***rl/msrw:*** m: 2.82-3.28, f: 3.77-4.11; ***scl/msrw:*** m: 0.55-0.63, f: 0.62-0.78; ***msrw/mtrw:*** m: 1.27-1.31, f: 1.18-1.24; ***msrw/arw:*** m: 1.56-1.68, f: 1.37-1.50; ***msrw/minrw:*** m: 1.75-1.91, f: 1.58-1.77; ***msrw/eyl:*** m: 1.26-1.40 (M 1.33), f: 1.18-1.31 (M 1.23); ***brl/eyl:*** m: 0.70-0.91 (M 0.75), f: 0.80-1.00 (M 0.88); ***eyl/hl:*** 0.50-0.62; ***hl/hw:*** 0.81-1.00; ***mpw/hw:*** m: 1.48-1.55 (M 1.50), f: 1.53-1.60 (M 1.57); ***bpw/apw:*** 1.03-1.13; ***pl/mpw:*** 1.03-1.16; ***mew/mpw:***

m: 1.79-1.97, f: 1.91-2.06; ***el/pl:*** m: 2.29-2.50, f: 2.52-2.69; ***el/mew:*** 1.38-1.54; ***mew/bew:*** 1.26-1.39; ***bew/mpw:*** 1.37-1.52; ***pft/msrw:*** m: 0.81-0.88, f: 0.90-0.98; ***ptbl/pl:*** 0.92-1.07; ***ptbl/ptbmw:*** 5.09-5.45; ***ptsl/ptbl:*** 0.54-0.63.

The species differs from *C. orientale* in the following characters:

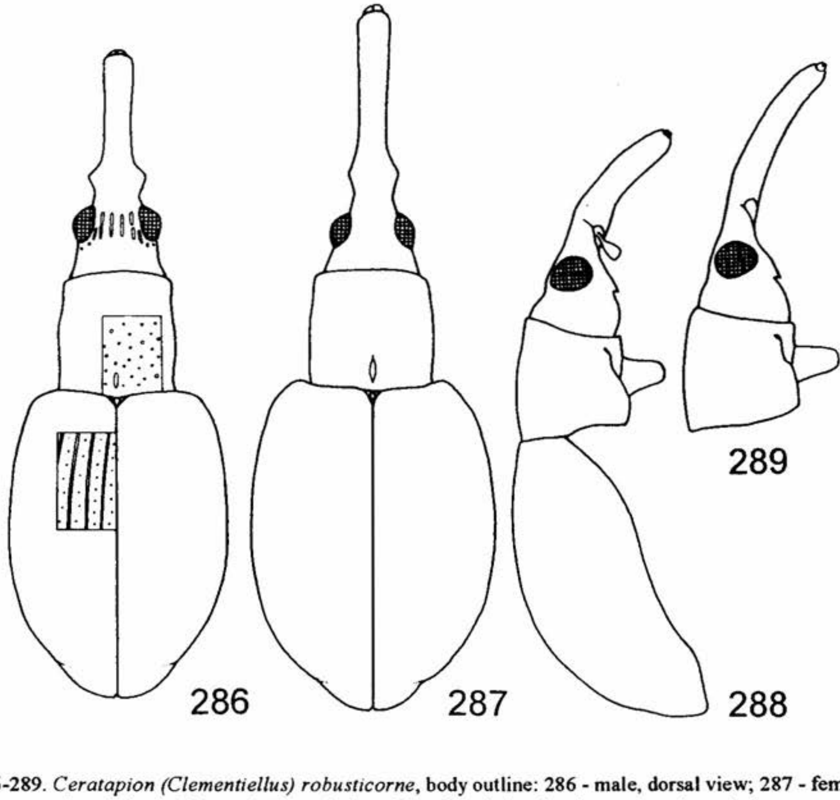
Rostrum distinctly shorter in male than in female, finer punctate (punctures twice as smaller than ommatidium). Frons with sulci more distinct, the two median always present. Punctures on the pronotal disc much smaller, of about ommatidium size or even less, 2-4 diameters apart. Elytra shorter and more strongly widened; striae slightly coarser, the first, second and ninth usually not broadened apically.

Parameroid macrochaetae 3, arranged in row, shorter than in *C. orientale*; inner ends of the fenestrae rounded, with only the lower margin slightly prolonged downwards; dorsal portion of ring not distincly narrowed and never interrupted medially; posterior projection of the prostegium longer, broadly triangular.

Median lobe of aedeagus shaped as in *C. orientale*; spines in the internal sac minute, weakly varying in shape.

Biology unknown.

Distribution. Tunisia, Algeria, Morocco, Spain, Malta, Italy (Sicilia).



286-289. *Ceratapion (Clementiellus) robusticorne*, body outline: 286 - male, dorsal view; 287 - female, dorsal view; 288 - male, lateral view; 289 - female head and pronotum, lateral view

Other material examined

ALGERIA: Teniet-el-Had, 3m 7f (MNHP, SMTD, SS, NRS, DEI, ITZA); Setif, 1100 m, 24 III 1986, 1 ex., leg. A. Warchałowski (DEI).

ITALY: Sicilia: 1f (MNB); Palermo, 1f (SMTD); Puglia: Circummarpiccolo (TA), 31 X 1976, 1m, leg. Montemurro (GO).

MALTA: 1m, leg. Champion (MNB).

MOROCCO: Marrakech, 21-23 V 1926, 2m; Atlas mar., Rerata, 29 V-15 VI 1926, 1m - leg. Lindberg (ZMH); Atlas Med., Ifrane, VI 1963, 1 ex., leg. A. Cobos (AZ).

SPAIN: Sierra Nevada, 12-24 VII 1926, 2m 1f, leg. Lindberg (ZMC, ZMH); Granada: El Chescon, 25 VI 1980, 1f (AZ); Cadiz: Algeciras, 1m, coll. Reitter (HMNH); Ciudad Real: Pozuelo de Calatrava, 1f, coll. C. Bosch (FSF); Pozuelo Fuente [? Madrid: Pozuelo], 1 ex., coll. Daniel (ZSM); Madrid, 1m, coll. Bettinger (IRB).

TUNISIA: Teboursouk, 1f, coll. Desbrochers (MNHP).

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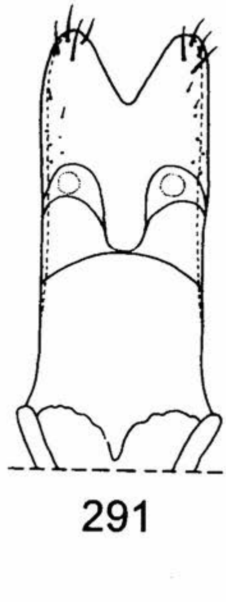

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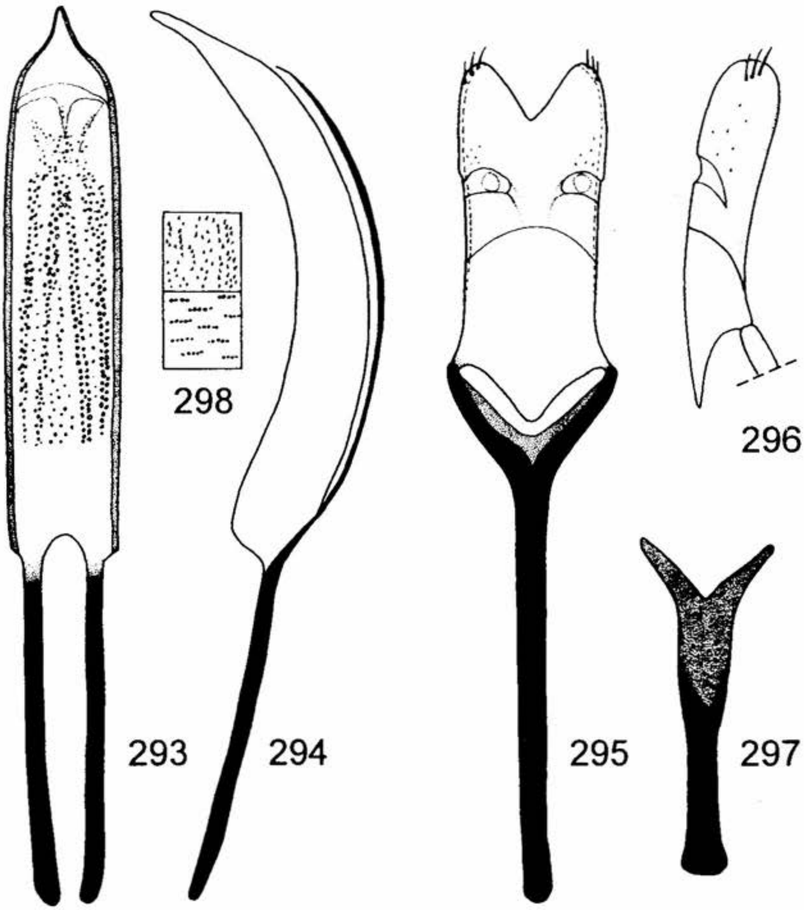
290. *Ceratapion (Clementiellus) robusticorne*, antenna. 291,292 - *C. (C.) orientale*, tegminal plate: 291 - dorsal view; 292 - lateral view



293-297. *Ceratapion (Clementiellus) robusticorne*: 293,294 - median lobe of aedeagus, 293 - dorsal view, 294 - lateral view; 295 - tegmen, dorsal view; 296 - tegminal plate, lateral view; 297 - spiculum gastrale. 298. Variation of the internal sac armature in *C. (C.) orientale*

Subgenus *Echinostroma* Alonso-Zarazaga, 1991

Ceratapion subgenus *Echinostroma* Alonso-Zarazaga, 1991b: 450. Type species: *Apion penetrans* Germar (by original designation).

Description

Body black, elytra always with green, blue or violet metallic lustre. Body vestiture adpressed.

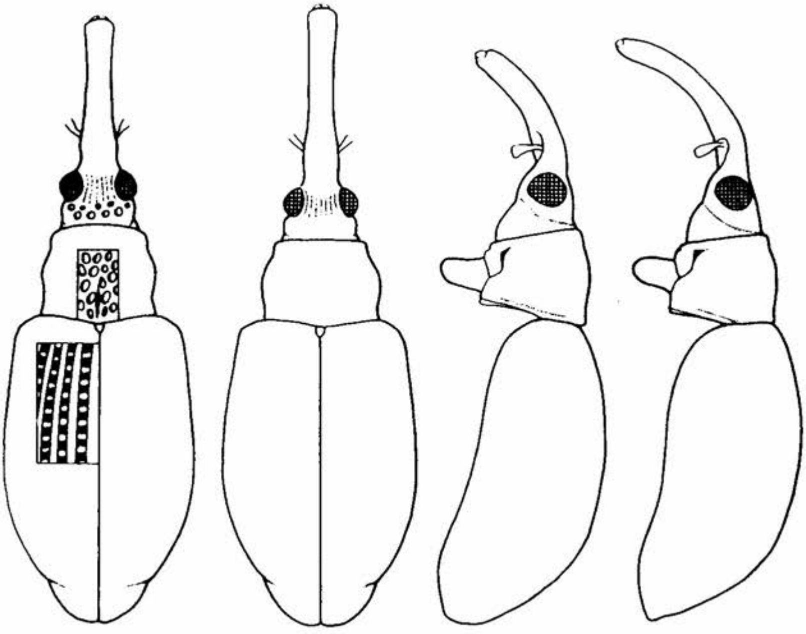
Rostrum usually with distinct teeth at antennal insertion.

Frons striolate, only in *C. scalptum* coarsely punctate; vertex smooth or punctate; temples punctate on a variable distance behind the eyes; antennal scrobes reaching

1.36, f: 1.17-1.23; ***msrw/minrw:*** m: 1.48-1.50, f: 1.29-1.35; ***msrw/eyl:*** 1.00-1.07; ***brl/eyl:*** 0.80-0.99; ***eyl/hl:*** m: 0.60-0.61, f: 0.54-0.58; ***hl/hw:*** m: 0.77-0.83, f: 0.83-0.86; ***mpw/hw:*** m: 1.49-1.60, f: 1.60-1.66; ***bpw/apw:*** 1.10-1.21; ***pl/mpw:*** 0.77-0.88; ***mew/mpw:*** 1.62-1.75; ***el/pl:*** 3.24-3.50; ***el/mew:*** m: 1.65-1.71, f: 1.59-1.63; ***mew/bew:*** m: 1.15-1.19, f: 1.19-1.31; ***bew/mpw:*** m: 1.43-1.46, f: 1.32-1.43; ***pft/msrw:*** m: 0.87-0.93, f: 0.93-1.00; ***ptbl/pl:*** m: 1.25-1.30, f: 1.38-1.47; ***ptbl/ptbmw:*** 5.68-6.38; ***ptsl/ptbl:*** 0.59-0.62.

Rostrum fairly stout, strongly curved, usually more strongly so between the antennal insertion and the middle than in apical half, weakly shining in apical 0.15-0.20, remainder with very dense scale-like microsculpture and extremely fine puncturation; mesorostrum weakly, obtusely dilated in both sexes; prorostrum narrowed medially; antennal scrobes short and very shallow, evanescent just before the head.

Antennae thin, inserted at m: 0.20-0.24, f: 0.15-0.19 from the rostrum base; length/width of the scape m: 2.8-3.0, f: 3.2-3.4, first funicular segment m: 1.3-1.4, f: 1.5, the remaining segments similar in both sexes, varying in proportions, usually segments 2-4 distinctly elongate, 5-7 nearly as long as broad; club closely pubescent,



460 461 462 463

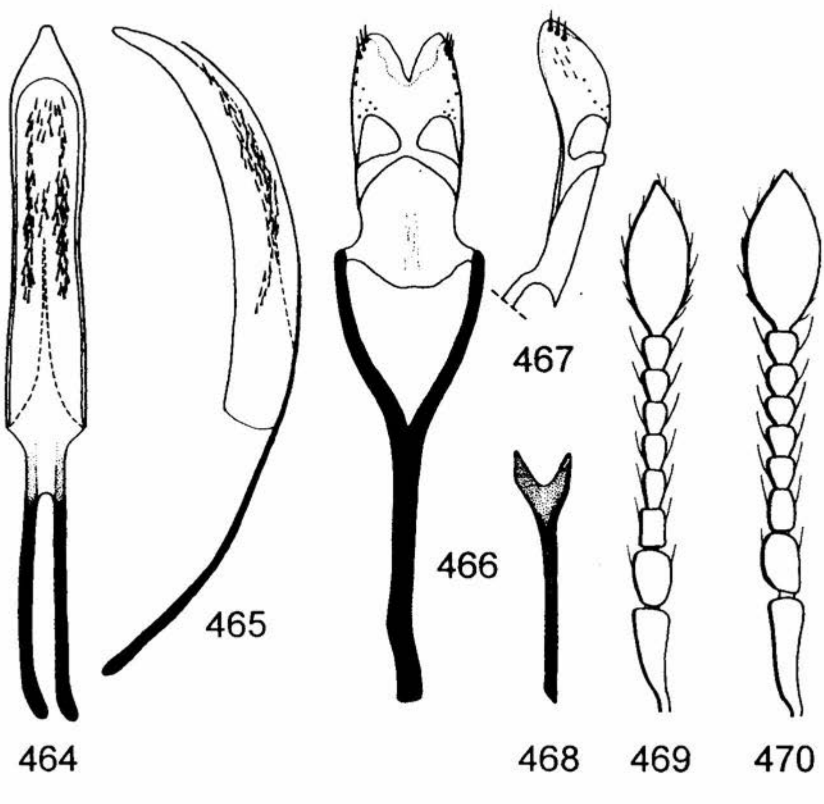
460-463. *Ceratapion (Angustapion) opacinum*, body outline: 460 - male, dorsal view; 461 - female, dorsal view; 462 - male, lateral view; 463 - female, lateral view

2.0-2.4× longer than broad; funicular pubescence fine, opalescent and weakly outstanding.

Eyes small, strongly and eccentrically convex; frons flat, distinctly striolate; vertex and temples obscurely punctured, the punctures evanescent at about half eye diameter behind; temples strongly convex; interocular area weakly convex, with some few asperities near the eye margins.

Pronotum strongly transverse, distinctly rounded at sides; puncturation very coarse, punctures, on an average, of 3× ommatidium size, funnelled and microreticulate, often almost adjoining, the interspaces with strong scale-like microsculpture, raised and so making the pronotum surface distinctly uneven; prescutellar fovea narrower than punctures, occasionally vanished.

Elytra relatively short, with well separated apical part and strongly prominent humeral calli; intervals slightly convex, roughly microsculptured, basally 1.0-1.2, in middle sections up to 1.5 as broad as the striae, the two intervals closest to the suture



464-470. *Ceratapion (Angustapion) opacinum*: 464,465 - median lobe of aedeagus, 464 - dorsal view, 465 - lateral view; 466 - tegmen, dorsal view; 467 - tegminal plate, lateral view; 468 - spiculum gastrale; 469 - male antenna; 470 - female antenna usually slightly broader than others; striae deep, coarsely punctate, visibly bare, apical connection 1+2+9 clear; specialized setae absent.

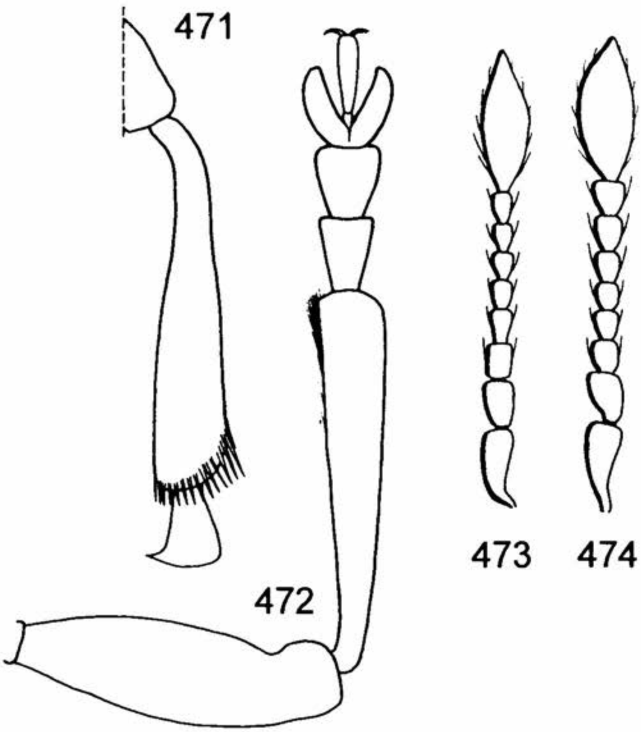
Mesepisternal sutures hardly but visible. Fifth ventrite impunctate, with strong scale-like microsculpture.

Legs slender; male protibiae straight, unmodified; first two segments of the protarsus longer than wide, onychium slim, exceeding third segment by 0.4 length; male metatarsus with a fairly long and narrow ventral spine.

Wings of normal length.

Tegminal plate with the parameroid lobes broad, rounded, narrowly separate on half length, at inner sides fine and membranous, latero-dorsally with some extremely fine microchaetae; macrochaetae 3, short and stout, making an oblique row; lateral fold evanescent on the parameroid lobes; fenestrae relatively large, distinctly margined and well separate; dorsal portion of ring complete, narrow; prostegium with few extremely fine longitudinal wrinkles medially, broadly rounded posteriorly.

Median lobe of aedeagus shaped as in figs 464, 465; basal parts of the apophyses connected with the membrane; internal sac entirely enclosed within the tubular part, throughout apical 2/3 with moderately long spines arranged in confused rows.



471,472. *Ceratapion (Angustapion) opacinum*, male: 471 - hind tibia and first metatarsomere (lateral view); 472 - fore femur, tibia (lateral view) and tarsus (dorsal view). 473, 474. Female antenna: 473 - *C. (A.) decolor*; 474 - *C. (A.) austriacum*

Spiculum gastrale with the forked part very short and somewhat spatulate.
Biology unknown.
Distribution. Russian Far East, North Korea*, Japan* (Kioto).

REMARKS

The species is distinct from other members of the subgenus *Angustapion* in having the striae 1, 2, 9 fully connected at the apex of elytra, specialized setae wanting, mesepisternal sutures visible and both the elytra and the metasternum relatively shorter, as well as in the presence of supposed microchaetae on the tegminal parameroid lobes (see discussion on p. 57).

OTHER MATERIAL EXAMINED

JAPAN: Kioto, 5m (det. as *A. praecarium* FST.), coll. AD. HOFFMANN (MNHP), 2m 1f, coll. H. WAGNER (ZSM).

NORTH KOREA: Myohyang Mts, 7 VIII 1959, 1f, leg. B. PISARSKI & J. PRÓSZYŃSKI (IZW).

RUSSIA: Vladivostok distr., Shkotovskij r-n, Maychinskoe U., 18 V 1929, 1f, leg. F. LUKIYANOVICH (ZIS); Khabarovsk Prov., SE Boitsovo, 12 km NE Bikin, 250-350 m, 26 V - 4 VI 1990, 1f, leg. W. SCHAWALLER (SMNS).

Ceratapion (Angustapion) decolor (DESBROCHERS, 1875)

(figs 473, 475, 477, 479, 481, 488)

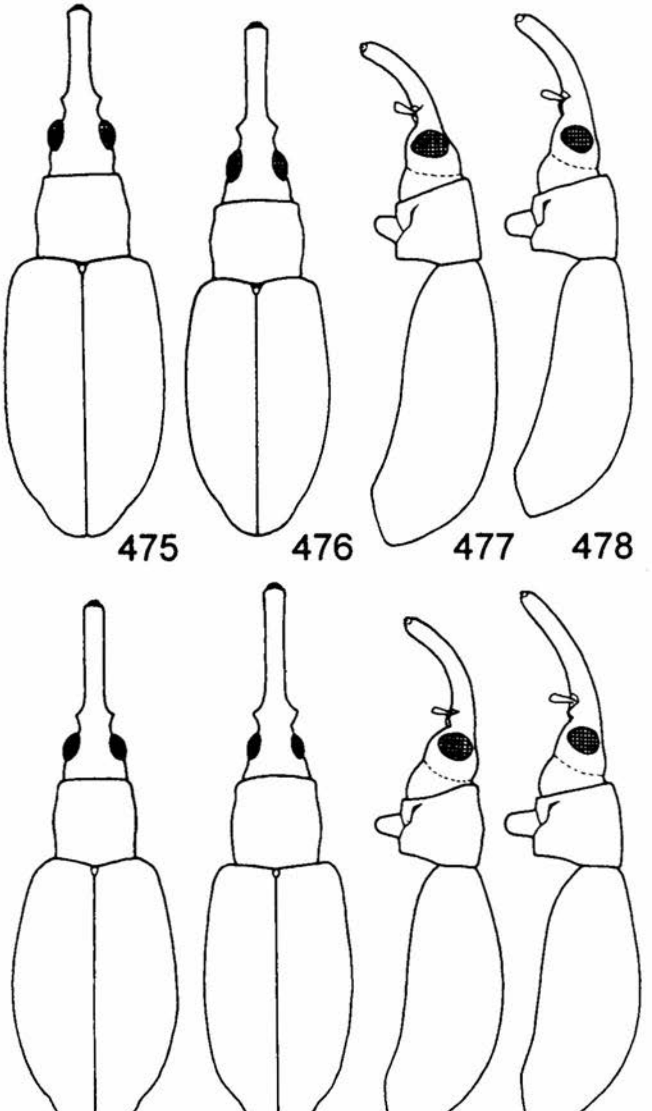
Apion decolor DESBROCHERS, [1875]: 27.
Apion decolor var. *brevithorax* DESBROCHERS, [1897]: 12.
Ceratapion (Ceratapion) parcior VOSS, 1964: 387; 1965: 333, **syn. nov.**
Apion (Ceratapion) efratense BAJTENOV & LODOS, 1978: 147, **syn. nov.**
Apion gibbiceps: WAGNER, 1918: 51, nec DESBROCHERS, 1894.

Literature: DESBROCHERS, [1894]: 113; SCHILSKY, 1901: no.15, 1906b: XV; WAGNER, 1918: 53; ANGELOV, 1976: 71.

TYPE MATERIAL EXAMINED

***A. decolor* DBR.** Lectotype m: a)*decolor* DESB. m, Syria, DESBROCH., b)red square (coll. v. HEYDEN, DEI) (present designation); paralectotypes: 1f - labels as in the lectotype (DEI); 1m - a)*A. decolor* m., Syrie, b)Db 30 (NRS); 1m 2f - a)Syrie, b)Ex Musaeo DESBROCHERS 1914 (coll. DESBROCHERS, MNHP); 23 exs - Syrie: Beyruth (19 exs), Damas (2 exs), Jericho (2 exs) (coll. LA BRULERIE, MNHP). ***C. parcior* VOSS.** Paratypes: 1m 1f - Jordantal, Arda Road, 700 m, 9 V 1958, leg. J. KLAPPERICH (m: ZMUCH, f: HMNH) (both specimens with paratype labels although only one specimen from Arda Road is mentioned in original description).

Holotypes of *A. decolor* var. *brevithorax* DBR. (Caucasus) and *A. efratense* BAJT. & LOD. (Turkey: Gaziantep, Efrat) were not available for study. The former was



475-482. Body outline: 475-478 - male, 475 - *Ceratapion (Angustapion) decolor*, dorsal view, 476 - *C. (A.) austriacum*, dorsal view, 477 - *C. (A.) decolor*, lateral view, 478 - *C. (A.) austriacum*, lateral view; 479-482 - female, 479 - *C. (A.) decolor*, dorsal view, 480 - *C. (A.) austriacum*, dorsal view, 481 - *C. (A.) decolor*, lateral view, 482 - *C. (A.) austriacum*, lateral view examined and described by WAGNER (1918, p. 34), and, according to this author, it came from F. SOLARI's collection. Synonymisation of *A. efratense* is based on its original description

DESCRIPTION

Length m: 1.71-1.98 mm, f: 1.90-2.25 mm. Body colouration showing apparently clinal variation; derm in the specimens from north of the range (Caucasus, south-eastern Europe, France) piceous brown to black, in Asia Minor becoming lighter towards the south and in the specimens from Jordan and Egypt is constantly reddish or testaceous. In southern Anatolia and Syria both dark brown and clearly reddish specimens have been found - males usually lighter than females. In dark coloured specimens the rostrum, head and pronotum are usually slightly lighter than the elytra. Legs and antennae concolorous or the latter slightly darker, testaceous, rarely (a male from Kars, NE Turkey) piceous brown. Body vestiture distinct, especially in the specimens from the south, adpressed to semi-recumbent, confused, piliform scales white or yellowish, mostly little longer than elytral interval width, scales in the striae at least 1/3 shorter than those on the intervals.

Indices. ***rl/pl:*** m: 1.22-1.41 (M 1.30), f: 1.28-1.43 (M 1.38); ***rl/msrw:*** m: 2.63-3.15 (M 2.89), f: 2.91-3.20 (M 3.06); ***scl/msrw:*** 0.55-0.67; ***msrw/mtrw:*** 1.21-1.39; ***msrw/arw:*** m: 1.69-1.87, f: 1.79-2.06; ***msrw/minrw:*** m: 1.69-1.87, f: 1.88-2.12; ***msrw/eyl:*** 1.22-1.48; ***brl/eyl:*** 0.53-0.71; ***eyl/hl:*** m: 0.55-0.57, f: 0.59-0.63; ***hl/hw:*** 0.74-0.90; ***mpw/hw:*** 1.38-1.51; ***bpw/apw:*** 1.03-1.21; ***pl/mpw:*** 0.96-1.06; ***mew/mpw:*** m: 1.64-1.67 (M 1.66), f: 1.78-1.90 (M 1.82); ***el/pl:*** 2.96-3.33; ***el/mew:*** m: 1.81-1.94 (M 1.87), f: 1.67-1.82 (M 1.76); ***mew/bew:*** m: 1.20-1.24, f: 1.22-1.29; ***bew/mpw:*** m: 1.35-1.40, f: 1.42-1.51; ***pft/msrw:*** 0.67-0.76; ***ptbl/pl:*** 0.98-1.16; ***ptbl/ptbmw:*** 5.31-6.57; ***ptsl/ptbl:*** m: 0.61-0.70, f: 0.59-0.63.

Rostrum relatively short, distinctly and regularly arched, impunctate, densely scale-like microsculptured; metarostrum extremely short; mesorostral teeth large, acute, with anterior margins oblique and not distinctly concave; prorostrum cylindrical or (females) scarcely dilated apically; rostrum base (as head) clothed with scales, prorostrum at most with some few minute piliform scales in basal 1/3; antennal scrobes wanting.

Antennae inserted at m: 0.15-0.18, f: 0.13-0.16 from the rostrum base; length/width of the scape 2.0-2.3, first funicular segment 1.2-1.5, club 2.3-2.9; distal segments variable, as long as wide to distinctly elongate; antennal pubescence weakly protruding.

Head transverse, sub-rectangular; eyes regularly convex; frons scarcely depressed, roughly microsculptured and minutely punctate, with the striolae rarely visible; vertex shallowly punctate throughout; temples straight or slightly arcuate, punctured on a distance equal or weakly exceeding half eye diameter; interocular area distinctly gibbous, asperate, medially bare.

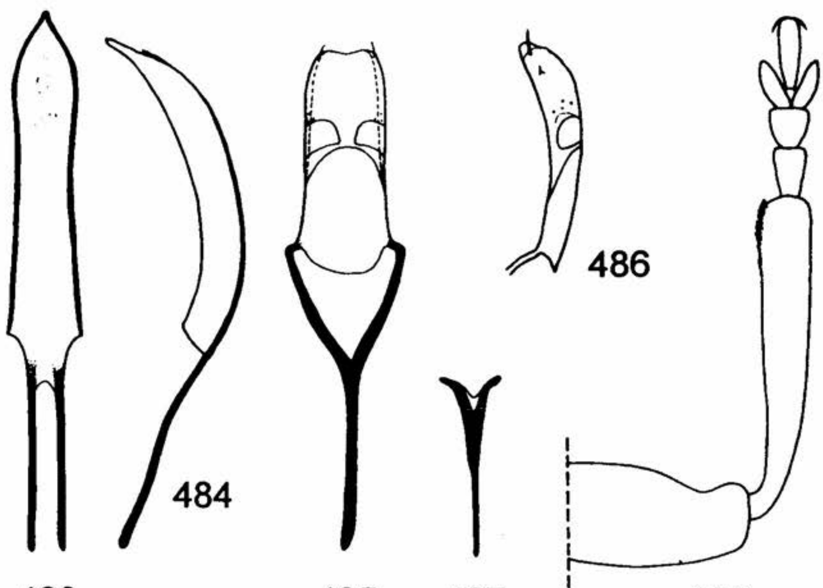
Pronotum with thin walls, more or less distinctly constricted subapically and sub-basally, its sides rounded in middle; puncturation dense, the punctures not larger than double ommatidium, less than half diameter apart, interspaces convex, with strong scale-like microsculpture; prescutellar fovea forming minute depression.

Elytra variably shaped, especially due to the humeral calli strongly to poorly protruding, distinctly broader than the pronotum in either sex, in male usually parallel-sided, in female rounded and gently convex, broadest just behind middle; intervals flat to weakly raised, 1.2-1.5× wider than the striae; striae shallow, with the septae of square punctures hardly depressed; specialized setae present.

Legs not very slender, without secondary sexual modifications in male; second segment of the protarsus isodiametric, onychium exceeding third segment by 0.6-0.8 length.

Wings always normally long, their muscles in the specimens from Syria, Jordan and Egypt well developed, in those from Turkey and Bulgaria usually reduced.

Tegmen with manubrium scarcely longer than the forked basal piece; tegminal plate variable, poorly sclerotized, with apical emargination shallow to obsolete; apices of the parameroid lobes abruptly narrowed and somewhat separate to form a blunt mucro; macrochaetae 2, one of them longer, apical, second clearly subapical; fenestrae evidently margined but hardly visible because of weak sclerotization of the whole plate, usually large and sub-confluent, rarely smaller and then more distinctly



483-487. *Ceratapion (Angustapion) austriacum*: 483,484 - median lobe of aedeagus, 483 - dorsal view, 484 - lateral view; 485 - tegmen, dorsal view; 486 - tegminal plate, lateral view; 487 - spiculum gastrale. 488. *C. (A.) decolor*, male fore tibia (lateral view) and tarsus (dorsal view) separate; dorsal portion of ring very narrow, complete or variably broken medially; lateral fold completely vanished; prostegium subtruncate or broadly rounded at the posterior margin.

Median lobe of aedeagus slightly constricted medially, apically narrowed and produced into short mucro; apophyses short, with bases connected with broad membrane; internal sac not projecting beyond the tube, unarmed.

Spiculum gastrale sub-spatulate, with the arms of the fork weakly separated and connected with a membrane.

Biology unknown.

Distribution. France*, Slovenia, Croatia, Rumania, Bulgaria, Greece, Turkey, Iran, Azerbaijan (Nakhichevan Rep.), Armenia, Lebanon, Syria, Jordan, Israel, Egypt.

REMARKS

The specimens from Western France are distinct in the black body, with the tibiae, tarsi and antennae piceous brown (as in *C. austriacum*). Furthermore, the anterior margins of mesorostral teeth are nearly perpendicular to rostrum in all the three examined specimens and the only male has tegminal plate with the parameroid lobes separate on half length, lateral fold visible, but vestigial and the subapical macrochaeta not shorter than the apical one; the apex of median lobe of aedeagus more obtuse. The locality in Western France is clearly outside the continuous range of *C. decolor* in the Mediterranean region, so the listed morphological differences may be of taxonomical importance, but await verification based on larger series of the specimens.

OTHER MATERIAL EXAMINED

Krivosije, 1m, leg. PAGANETTI, coll. H. WAGNER (ZSM).

ARMENIA: Chosrov, 1500 m alt., 1-3 VI 1987, 2 exs (VK).

BULGARIA: Rodope Mts., Asenovgrad, 22 V 1978, 1f (MM).

EGYPT: Faggala, 1m (HMNH).

FRANCE: Lot-et-Garonne: Paulhiac, Battage, 15 VIII 1991, 1m 2f, leg. J. PELLETIER (JE).

GREECE: Attica, 1m, leg. KRÜPER, coll. H. WAGNER (ZSM).

IRAN: E Elburz, Eyn Varzan, 2000 m, Loc. no. 83, 2-3 VIII 1970, 1f, Exp. Mus. Nat. Praha (JF).

ISRAEL: Kaiffa [Haifa], 1m 1f (HMNH).

LEBANON: Beirut, 2m 1f (NMW).

NAKHICHEVAN REP.: Ordubad, 1f, coll. A. HOFFMANN (MNHP), 1913, leg. KULZER, 4f (det. as *C. gibbiceps* DBR. by WAGNER) (ZSM).

RUMANIA: Comana Vlasca, 1f, leg. Montandon, coll. H. WAGNER (ZSM).

RUSSIA: Kurskaya obl.: Centralnoczernozemnyj gosudarstvennyj zapovednik: "Streleckaya step'" [between Sejm and Ps'ol rivers], 28 VIII 1963, 1m 1f, leg. K. ARNOLDI (VZ).

SLOVENIA: Car.: Mezelj, 1f, leg. V. KODRIC (MHNG).

SYRIA: 5m 2f (DEI, MNB, FSF, HMNH); Aleppo [Halab], 1f (HMNH).

TURKEY: Besika Bay [Beschik-Bai], 1m (MNB); distr. Kayseri: Pinarban, 12 VIII 1979, 1m 1f; distr. Neysehir: Avanos, 16 VIII 1979, 1m; distr. Konya: Hadim, 27 IV 1979, 1f - leg. N. LODOS (JF); Kars Prov.: Arastal, w. Kagizman, 2 VIII 1983, 1m, leg. W. SCHACHT (LD).

Ceratapion (Angustapion) austriacum (WAGNER, 1904)

(figs 474, 476, 478, 480, 482-487)

Apion (Ceratapion) austriacum WAGNER, 1904: 374.
Apion senex WAGNER, 1904: 374 (unavailable name, ICZN 1985, Art. 11e).

Literature: SCHILSKY, 1906: no.2, 1906b: XV; WAGNER, 1908b: 106, 1918: 55 (*decolor austriacum*); REITTER, 1916: 244; SAINTE-CLAIRE DEVILLE, 1924: 124; NERESHEIMER & WAGNER, 1929: 252; SCHATZMAYR, 1925: 75; HUSTACHE, 1931: 49 (*decolor*); HORION, 1935: 342; GYÖRFFY, 1956: 9; SMRECZYŃSKI, 1965: 49; HLISNIKOVSKY, 1965: 200; DIECKMANN, 1967: 55, 1977: 87; SOLODOVNIKOVA & TALITSKIY, 1972: 788; KÖSTLIN, 1973: 95, 1985: 72; LOHSE, 1981: 155; SCHERLER, 1982: 385; EHRET, 1990: 227.

TYPE MATERIAL EXAMINED

Lectotype f: a)Austr. inf., Mödling, Juli, 136B; b)Type v. *Apion austriacum* WGNR. M.K.Z.2 1904-06; c)Coll. WAGNER; d)m (coll. G. FREY, ZSM) (present designation); paralectotypes: Austria: Mödling, leg. MOCZARSKI, CURTI, WAGNER - 40 exs (DEI, NRS, IRB, ZSM).

DESCRIPTION

Length m: 1.42-1.92 mm, f: 1.71-2.17 mm. Body always dull black; femora at least in middle black, tibiae, tarsi and antennae black to obscurely brown. Vestiture finer than in *C. decolor*, mostly arranged in a single, fairly regular row on the elytral intervals.

Indices. ***rl/pl:*** m: 1.23-1.47 (M 1.36), f: 1.44-1.71 (M 1.57); ***rl/msrw:*** m: 2.68-3.31 (M 2.98), f: 3.39-4.10 (M 3.69); ***scl/msrw:*** 0.58-0.75; ***msrw/mtrw:*** 1.14-1.38; ***msrw/arw:*** 1.65-1.89; ***msrw/minrw:*** 1.71-2.00; ***msrw/eyl:*** m: 1.24-1.41, f: 1.33-1.60; ***brl/eyl:*** m: 0.56-0.73, f: 0.75-0.80; ***eyl/hl:*** 0.52-0.63; ***hl/hw:*** 0.74-0.88; ***mpw/hw:*** m: 1.41-1.53, f: 1.51-1.60; ***bpw/apw:*** 1.07-1.20; ***pl/mpw:*** 0.90-1.02; ***mew/mpw:*** m: 1.48-1.64 (M 1.57), f: 1.48-1.67 (M 1.59); ***el/pl:*** 2.92-3.23; ***el/mew:*** m: 1.76-1.94 (M 1.85), f: 1.79-1.95 (M 1.87); ***mew/bew:*** 1.16-1.28; ***bew/mpw:*** 1.24-1.38; ***pft/msrw:*** 0.58-0.72; ***ptbl/pl:*** 0.96-1.16; ***ptbl/ptbmw:*** 4.73-6.33; ***ptsl/ptbl:*** m: 0.62-0.69, f: 0.58-0.63.

Extremely similar to *C. decolor*, and even treated as a subspecies by WAGNER (1918), but except for the body colouration it shows some constant, though inconspicuous, differences in the external morphology.

Rostrum, especially of female, longer and straighter (rl/pl !, rl/msrw !); head somewhat sub-conical; pronotum in relation to elytra broader (mew/mpw !), with thicker walls; elytra in female longer and less widening backwards (el/mew !), dorsally less convex, hardly distinct from those in male.

Wings never shortened, their muscles reduced in all the examined specimens from Poland and Hungary.

Genital structures as in *C. decolor*.

Biology. Apparently monophagous on *Centaurea scabiosa* L. The larvae develop since May till end of July, feeding in reddish mines in the midribs of lower and median leaves.

Distribution. France*, Belgium*, Switzerland, Germany, Denmark*, Baltic countries?, Austria, Hungary, Czech Rep., Slovakia, Poland, Ukraine (Podolia), Rumania (Transsylvania), Moldova.

Recorded also from Corsica (WAGNER, 1918), where it should not be expected and was apparently confused with *C. decolor* or *C. dalmatinum*. The occurrence of *C. austriacum* in the Baltic countries (SILFVERBERG, 1979) is not quite certain, though possible at least in Lithuania, as it has been recently discovered in north-eastern Poland (KNUTELSKI, 1987). Earlier accounts from France (HUSTACHE, 1915; PLANET, 1917) referred to *C. longiclava* (HUSTACHE, 1928).

REMARKS

The diagnostic characters are more evident in the specimens from Poland and northern Germany, than in those from the remainder of the range.

OTHER MATERIAL EXAMINED

AUSTRIA: 2 exs (HMNH, IZW); Bisamberg, 20 exs (DEI, IZW, NMW, FSF, HMNH); Mödling, 41 ex. (DEI, IZW, FSF, ZMC, NMW, ZMH, MHNG, ITZA, NRS); Eichkogel, 3 exs (NMW), 10 VII 1921, 5 exs, leg. E. MOCZARSKI (MCM); Wien, 18 exs, (DEI, MCM, LM, ZMH, MHNG, ITZA, HMNH, SS); Vorarlberg: Bregenz a. Bodensee, 2 exs, leg. A. J. MÜLLER (NMW).

BELGIUM: [S], Wellin, 3 exs, 17 IX 33, 7 exs, 10 IX 36, 3 exs - coll. J. MULLER, L. FRENNET, ROELOFS (IRB).

CZECH REP.: Dlouha, 10 VIII 1983, 8 exs (KS).

DENMARK: Sønderby Klint, 20 IX 1992, 1m 1f (EP).

FRANCE: Marne: Ay, IX 1925, 1m, coll. BETTINGER (IRB); Oise: Monchy, 2m (det. as *armatum* GERST.), coll. PEYERIMHOFF (MNHP), St Eloy, 7 X, 1m, coll. DONGÉ (IRB).

GERMANY: Mark Brandenburg: 20 exs (SS); Eberswalde, 4 exs (JF); Oderberg, 13 exs (DEI, ZMUH, SMNS, FSF); Pimpinellenberg, 13 exs, leg. L. DIECKMANN;

Rügen Is.: Zicker, 4 VIII 1975, 1 f, leg. RIETZCH; Fehmarn Is.: Wulfen, 18 VIII 1978, 2 exs (DEI); Rheinland: Wöllendorf, 1 ex., leg. ZELLICH (FSF).

HERZEGOVINA: Jablanica, 1901, 1f, coll. LEONHARD (DEI).

HUNGARY: Budapest, Szép-vlgy, 9-16 VII 1922-23, 5 exs, leg. GYÖRFFY (IZW, HMNH, SS); Goiss, 1 ex., leg. A. WINKLER (FSF).

POLAND: Nizina Wielkopolsko-Kujawska: Wielka Wieś n. Burzenin; Upper Silesia: Mokre n. Cieszyn; Wyżyna Krakowsko-Wieluńska: Cracow; Wyżyna Małopolska: Chotel Czerwony, Skorocice, Grabowiec Reserve; Wyżyna Lubelska: Tarnogóra n. Izbica; Roztocze: Józefów Biłgorajski, Kąty n. Zamość, Biała Góra n. Tomaszów Lub., Dziewcza Góra n. Niedzieliska; Eastern Beskids: Przemyśl - 61 ex. (IZW, SS, AK, MW).

SLOVAKIA: Nitra, Zobor, 26 VI 1982, 1f, leg. L. DIECKMANN (DEI).

SWITZERLAND: Tessin: Besazio, 18 VII 1980, 2 exs, leg. P. SCHERLER (DEI); Mte S. Giorgio, 900-1000 m, 20 VII 1990, 1m, leg. C. BESUCHET (MHNG).

UKRAINE: Podolia: Łysa Góra n. Złoczów, 1 ex., leg. M. KŁAPACZ (IZW); Kasowa Góra, 1 ex. (SS).

Ceratapion (*Angustapion*) *klapperichi* sp. nov.

(figs 489-493)

Ceratapion (*Ceratapion*) *austriacum* (?): VOSS, 1964: 387.

Etymology. I have the pleasure to name this species after the late J. KLAPPERICH, the outstanding beetle collector, who discovered this species and provided some European museums with rich and very interesting beetle material from Asia and Asia Minor.

DESCRIPTION

Length 2.39-2.47 mm. Rostrum, head, pronotum and elytra piceous brown; antennae dark brown; legs entirely reddish. Body vestiture thick, yellowish; piliform scales semi-recumbent, in 2-3 confused rows on the elytral intervals, slightly longer than interval width; scales in the elytral striae half as long and thinner than those on the intervals.

Male unknown.

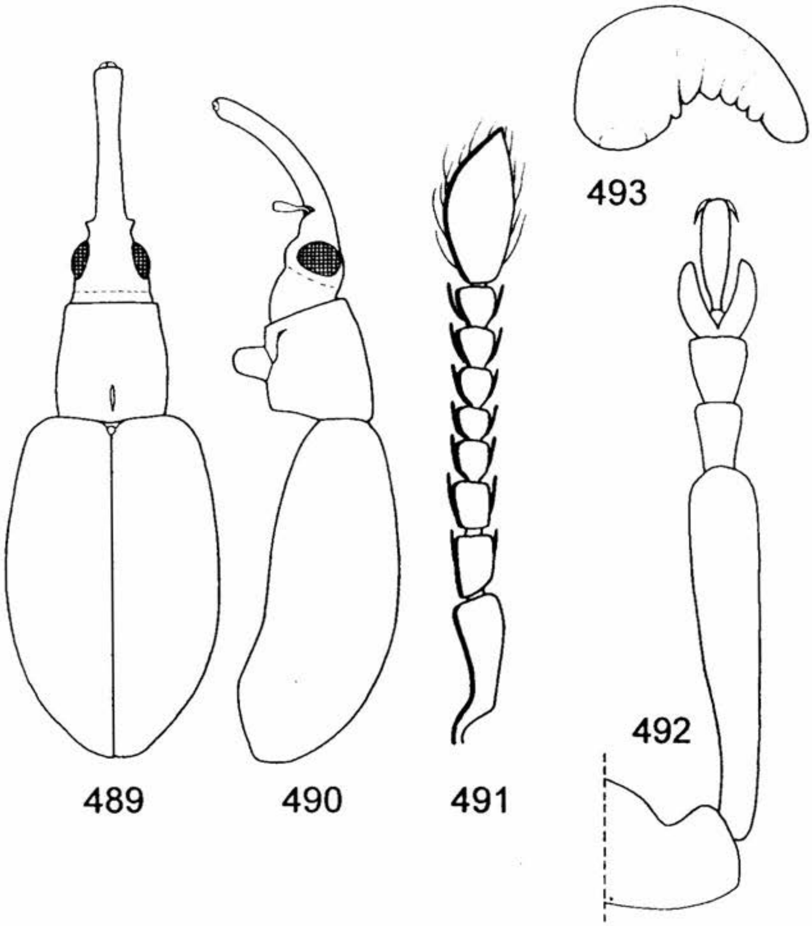
Indices (f). ***rl/pl:*** 1.39-1.53; ***rl/msrw:*** 3.44-3.57; ***scl/msrw:*** 0.90; ***msrw/mtrw:*** 1.21-1.22; ***msrw/arw:*** 1.74-1.77; ***msrw/minrw:*** 2.04-2.17; ***msrw/eyl:*** 1.33-1.34; ***brl/eyl:*** 0.55-0.59; ***eyl/hl:*** 0.60-0.63; ***hl/hw:*** 0.79-0.83; ***mpw/hw:*** 1.52-1.55; ***bpw/apw:*** 1.14-1.25; ***pl/mpw:*** 1.04-1.07; ***mew/mpw:*** 1.82-1.83; ***el/pl:*** 2.87-3.05; ***el/mew:*** 1.68-1.74; ***mew/bew:*** 1.22-1.32; ***bew/mpw:*** 1.38-1.49; ***pft/msrw:*** 0.74-0.78; ***ptbl/pl:*** 0.97-0.99; ***ptbl/ptbmw:*** 5.29-5.33; ***ptsl/ptbl:*** 0.60-0.63.

Rostrum strongly curved, in basal 2/3 length clothed with piliform scales; both meta- and mesorostrum very short, the latter forming distinct, acute teeth, whose anterior margins are sub-perpendicular to the rostrum; prorostrum clearly dilated apically, minutely and shallowly punctate throughout, at least in apical 1/4 shiny; antennal scrobes wanting.

Antennae inserted at basal 0.11-0.13 rostrum, not very slender; scape 3.0, first funicular segment 1.5-1.6, second 1.3-1.4, club 2.3-2.4 as long as broad, distal funicular segments scarcely elongate; antennal pubescence white, hardly protruding.

Shape of head and eyes, as well as the frons sculpture, as in *C. decolor*; both the vertex and temples narrower punctate, on a distance not longer than 1/3 eye diameter; vertex with an obscure transverse depression.

Pronotum sub-trapeziform; disc flat, finely and densely punctate, punctures smaller than double ommatidium, on average less than half diameter apart, interspaces



489-493. *Ceratapion (Angustapion) klapperichi* sp. nov., female: 489 - body in dorsal view; 490 - body in lateral view; 491 - antenna; 492 - fore tibia (lateral view) and tarsus (dorsal view); 493 - spermatheca flat, microreticulate, slightly shining; prescutellar fovea not wider nor deeper than punctures, 0.15-0.20 total pronotum length.

Elytra much wider than the pronotum, weakly broadened backwards; intervals flat, confusedly punctate, near the elytra base only slightly, in middle distinctly, 1.5-1.7× wider than the striae; striae strongly impressed, with clear edges and septae much narrower than the punctures; specialized setae not observed.

Legs fairly short; protarsus 3.3× longer than broad, its first segment 1.2-1.3 as long as broad, second scarcely elongate, onychium exceeding third segment by 0.6-0.7 length.

Metathoracic wings of normal length.

Spermatheca shaped as in fig. 493.

Biology unknown.

Distribution. Jordan.

TYPE MATERIAL

Holotype f: a)O. Jordan, J. KLAPPERICH, b)Jordantal, Arda Road, c)700 m, 10.5.1957, d)von *Quercus sp.*, e)*Ceratapion austriacum* WGNR. (det. E. VOSS), f)E. Voss ded. Eing. Nr 7-71 (ZMUH).

Paratype f: O. Jordan, Zerkatal b. Romana, 400 m, 26 IV 1958, leg. J. KLAPPERICH (MW).

REMARKS

According to VOSS (1964) there were further three specimens collected by J. KLAPPERICH in Arda Road and Homer, Nord Amman (700 m, 23 V 1959), and probably belonging to this species. At least one of them was a male, having all the tarsi uniform and unarmed. The place, where these specimens are preserved, remains unknown, although they should have been retained in KLAPPERICH's collection. Some doubts on the conspecificity of those specimens mentioned by VOSS with *C. klapperichi* described above arise, because of their entirely black legs.

The species is here placed in the subgenus *Angustapion* and as a member of the *C. decolor* species group basing mainly on the elytral striae 1 and 9 disconnected apically and the similar head structure. Some other characters, like the shape of mesorostral teeth and the pronotum, as well as the absence of the specialized setae, are shared by *C. secundum* and *C gibbifrons* of the subgenus *Ceratapion* s. str. Until the male of *C. klapperichi* is not known, taxonomic position of the species remains somewhat unclear.

Ceratapion (Angustapion) cylindricolle (GYLLENHAL, 1839)

(figs 494, 496, 498, 500, 502, 504, 506-510)

Apion cylindricolle GYLLENHAL, 1839: 380.
Apion Montandoni DESBROCHERS, [1897]: 13.
Apion (Ceratapion) longiceps SCHILSKY, 1906: no.5.
Apion Kabeskianum [sic!]: DESBROCHERS, [1895-96]: 135, nec GERSTAECKER, 1854.

Literature: WENCKER, 1864: 178; SCHILSKY, 1906b: XIV (*longiceps*); WAGNER, 1906: 23, 1910b: 946 (*Montandoni*), 1918: 58; HUSTACHE, 1928: 61, 1931: 50; GYÖRFFY, 1956: 9; HOFFMANN, 1958: 1516; ANGELOV, 1976: 72; BEHNE, 1989: 321; EHRET, 1990: 227; KOROTYAEV et al., 1993: 841.

TYPE MATERIAL EXAMINED

A. cylindricolle **GYLL.** Lectotype f: a)Tauria, STEVEN, b)Typus (NRS) (present designation); paralectotype f: a)Taurus merid., STEVEN, b)Paratypus, c)65, d)61 (NRS). ***A. montandoni*** **DBR.** Holotype f: a)Valachia Comana, b)f, c)Ex Musaeo DESBROCHERS 1914 (coll. DESBROCHERS, MNHP). ***A. longiceps*** **SCHIL.** Holotype m: a)Caucasus, Dagestan, E. KOENIG, b)*longiceps** SCHILS., c)m, d)Typus (MNB).

DESCRIPTION

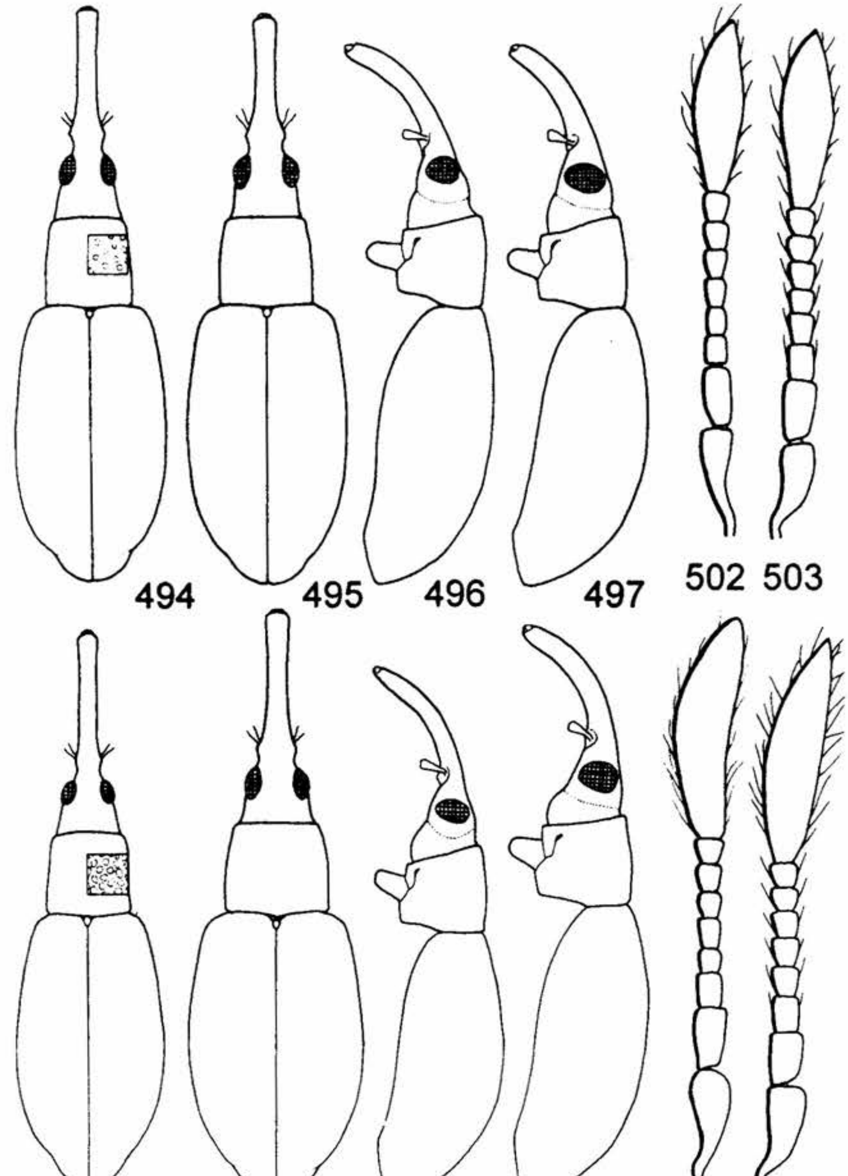
Body length 1.52-2.09 mm. Head, pronotum and elytra black; rostrum often piceous brown; antennae dark to blackish brown; legs brown to dark brown, with the tibiae usually lighter. Body vestiture distinct, composed of long, white, not fully adpressed piliform scales, on the elytra similar in striae and on intervals, as long as, or slightly longer than interval width, originally arranged in one more or less regular row on each interval, but easily confused.

Indices. ***rl/pl:*** m: 1.55-1.66 (M 1.60), f: 1.63-1.82 (M 1.74); ***rl/msrw:*** m: 3.67-4.60, f: 4.96-5.82; ***scl/msrw:*** m: 0.77-1.04 (M 0.91), f: 0.96-1.24 (M 1.13); ***msrw/mtrw:*** m: 1.09-1.29, f: 1.05-1.15; ***msrw/arw:*** m: 1.44-1.71, f: 1.24-1.33; ***msrw/minrw:*** m: 1.44-1.81 (M 1.63), f: 1.38-1.53 (M 1.44); ***msrw/eyl:*** m: 1.14-1.24, f: 0.92-1.05; ***brl/eyl:*** 0.73-0.93; ***eyl/hl:*** m: 0.45-0.48, f: 0.48-0.55; ***hl/hw:*** 0.89-1.11 (M 1.01); ***mpw/hw:*** m: 1.38-1.49, f: 1.52-1.60; ***bpw/apw:*** 1.03-1.18; ***pl/mpw:*** 0.93-1.05; ***mew/mpw:*** 1.68-2.00; ***el/pl:*** 3.08-3.40; ***el/mew:*** 1.54-1.92; ***mew/bew:*** 1.17-1.36; ***bew/mpw:*** 1.32-1.50; ***pft/msrw:*** m: 0.77-0.96, f: 0.91-1.09; ***ptbl/pl:*** 1.09-1.19; ***ptbl/ptbmw:*** 5.38-6.91; ***ptsl/ptbl:*** m: 0.59-0.65, f: 0.64-0.69.

Rostrum weakly curved; metarostrum very short, distinctly broader than the prorostrum; metarostrum forming small triangular teeth, very small and indistinct in female, more conspicuous in male; prorostrum cylindrical or slightly dilated apically, bare, without a distinct puncturation, in male dull and scale-like microsculptured to the apex, in female in apical 1/3 shiny; antennal scrobes with raised lateral edges reaching middle of the interocular area.

Antennae fairly slender, inserted at basal m: 0.16-0.21, f: 0.13-0.16 of rostrum; length/width of the scape m: 2.5-2.8, f: 3.1-3.4, first funicular segment m: 1.6-1.8 (in minute specimens even 1.4), f: 1.8-2.0, segments 2-6 elongate or at least as long as wide; club in male 3.6-3.8× longer than wide and clearly longer than 6 distal funicular segments combined, distinctly arched and somewhat obtuse at apex; club in female 3.0-3.2× longer than wide, as long as 5-6 distal funicular segments combined, fusiform and barely asymmetrical; antennal pubescence fine, short and weakly protruding.

Head sub-conical, usually longer than wide across the eyes; eyes small and

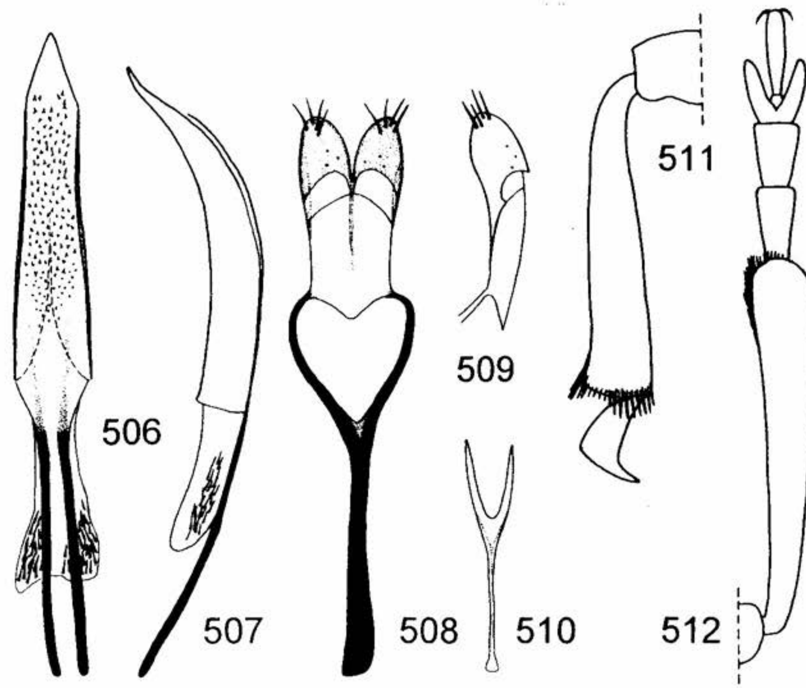


494-501. Body outline: 494-497 - male, 494 - *Ceratapion (Angustapion) cylindricolle*, dorsal view, 495 - *C. (A.) longiclava*, dorsal view, 496 - *C. (A.) cylindricolle*, lateral view, 497 - *C. (A.) longiclava*, lateral view; 498-501 - female, 498 - *C. (A.) cylindricolle*, dorsal view, 499 - *C. (A.) longiclava*, dorsal view, 500 - *C. (A.) cylindricolle*, lateral view, 501 - *C. (A.) longiclava*, lateral view. 502, 503. Female antenna: 502 - *C. (A.) cylindricolle*; 503 - *C. (A.) longiclava*. 504,505. Male antenna: 504 - *C. (A.) cylindricolle*; 505 - *C. (A.) longiclava* weakly protruding from the head outline; frons flat or barely convex, with striolae obscured; vertex with strong microsculpture and fine puncturation throughout; temples as long as, or longer than the eyes, with puncturation extending far beyond the eyes; interocular area nearly flat, in posterior half with strong scale-like microsculpture and without asperities, with hair-like scales close to the eyes.

Pronotum sub-cylindrical; disc almost flat, variably punctate, usually the punctures shallow and funnelled, slightly larger than 2 ommatidia, 0.5-1 diameter apart, the interspaces, usually also the punctures, closely scale-like microsculptured, poorly convex; prescutellar fovea obsolete; prosternum half as long as the postcoxal part of prothorax.

Elytra narrow, widened backwards in either sex, widest behind middle; intervals slightly convex, in middle of the disc about twice as broad as the striae, with the microsculpture clearly irregular; striae weakly impressed, with the edges not very distinct and the punctures minute; specialized setae usually present.

Metasternum in male with a small, bicuspid median tubercle.



506-510. *Ceratapion (Angustapion) cylindricolle*: 506,507 - median lobe of aedeagus, 506 - dorsal view, 507 - lateral view; 508 - tegmen, dorsal view; 509 - tegminal plate, lateral view; 510 - spiculum gastrale. 511,512. *C. (A.) longiclava*, male: 511 - hind tibia and first metatarsomere (lateral view); 512 - fore tibia (lateral view) and tarsus (dorsal view)

Legs slender; protarsus about 4× longer than wide, with first segment 1.7-1.9×, second 1.30-1.35× longer than wide, onychium exceeding third segment by 0.7-0.8 length; in male protibia very slightly curved and expanded inwards apically and the metatarsus with a conspicuous ventral spine.

Wings normally long, their muscles usually well developed, but in one of the eight examined specimens reduced.

Parameroid lobes short, broadly and uniformly rounded, completely separate; macrochaetae 4, long, apical; fenestrae broad, transverse, well separated from the parameroid lobes, nearly confluent medially; dorsal portion of ring and lateral fold completely vanished; prostegium with a pair of very close median carinae exceeding half of its length posterad, sligthly produced beyond the plate base.

Median lobe of aedeagus weakly sclerotized, slightly narrowed from base to apical 1/5, then abruptly so to the pointed apex; internal sac projecting beyond the tube to some half of the apophyses length, with two elongate clusters of moderately long spines herein, throughout the tube with fairly sparse, minute spines.

Spiculum gastrale with manubrium hardly longer than the narrow forked part.

Biology. Associated, probably exclusively, with *Xeranthemum cylĭndraceum* Sibth. & Sm. (= *X. foetidum* auct., non Moench). Larval habits unknown.

Distribution. France, Italy (Calabria), Hungary, Slovakia, Rumania, Serbia, Bulgaria, Turkey, Georgia, Russia (subcaucasian areas, Dagestan), Ukraine (Crimea).

Remarks

The specimens from Hungary and Slovakia are distinct in large body size, very dark antennae and legs, conspicuous, pure white piliform scales on the pronotum and elytra, and especially long rostrum in either sex.

Other material examined

Caucasus, 1 ex. (HMNH).

BULGARIA: Ivanski n. Schumen, 15-30 VII 1969, 1 ex., leg. Wallis (LD); Varna vic., 2 exs (SS); Marica flum., Harmanli, 10 V 1985, 1 ex., leg. Kadlec & Vorisek (KS); Nessebar, 12 IX 1965, 2 exs, leg. T. Palm (MZL); Lozenec n. Achtopol, 3 VII 1986, 1 ex., leg. Karas (JF).

FRANCE: Gironde: 6 exs, coll. A. Hoffmann (MNHP), Haux, IX 1936, 14 exs, leg. G. Tempère (LD, SS, MNHP, MHNG); Castres, 9 exs(MNHP, SS, NMW); Lot.: Vayrac, IX 1935, 3 exs, leg. G. Tempère (SS); Reims, 1 ex. (MHNG).

HUNGARY: Simontornya, 25 X 1927, 1 ex., leg. v. Pilrich (FSF).

ITALY: Calabria: Cosenza, Timp. Salomone (M. Pollino), 1200 m, 20 VI 1988, 1f (MR); Basilicata: Lago Pantano di Pignola, 770 m, 29 V 1991, 1f (FA).

RUMANIA: Comana Vlasca, 36 exs, leg. Montandon (LD, DEI, HMNH, SMTD, NMW, ZMH, JF, IRB, FSF).

RUSSIA: Krasnodarskij Kr.: Ubinskaya, 17-19 VI 1953, 1 ex., leg. K. Arnoldi (VZ).

SERBIA: Kopaonik, 1911, 1 ex., leg. JANKOVIC (LD); Prosecnik, 7 VIII 1986, 1f; Knjazevac, 14 IX 1989, 1 ex. - leg. E. BARANIAK (PS).

SLOVAKIA: Marcelova, 12 km ENE Komarno, 31 VIII 1985, 2 exs, leg. J. CUNEV (LD, KS).

TURKEY: K. Maras, Goksun, 14 VIII 1979, 1 ex. (JF); Esme, Izmit, 8 X 1989, 1 ex., leg. E. BARANIAK (PS).

Ceratapion (Angustapion) longiclava (DESBROCHERS, 1897)

(figs 495, 497, 499, 501, 503, 505, 511, 512)

Apion longiclava DESBROCHERS, [1897]: 12.
Apion (Ceratapion) clavatum SCHILSKY, 1906: no.3, **syn. nov.**
Apion fallaciosum: auctt., nec DESBROCHERS, 1892.

Literature: SCHILSKY, 1906: no.4 (*fallaciosum*), 1906b: XV (*fallaciosum*); WAGNER, 1918: 61 (*fallaciosum*); HUSTACHE, 1931: 51 (*fallaciosum*); NORMAND, 1937: 237 (*fallaciosum*); HOFFMANN, 1958: 1516 (*fallaciosum*); KÖSTLIN, 1985: 72 (*fallaciosum*); EHRET, 1990: 227 (*fallaciosum*).

TYPE MATERIAL EXAMINED

A. longiclava **DBR.** Lectotype f: a)Pozuelo, b)Ex Musaeo DESBROCHERS 1914 (coll. DESBROCHERS, MNHP) (present designation). ***A. clavatum*** **SCHIL.** Lectotype m: a)Hispan. LAUFFER, b)Typus, c)*clavatum** SCHILS. (MNB) (present designation); paralectotype m: data as in the lectotype (MNB).

DESCRIPTION

Length 1.77-2.09 mm. Pronotum and elytra brown, the remaining body parts coloured as in *C. cylindricolle*. The specimens from higher localities in Italy often with pronotum and elytra nearly to completely black, and legs and antennae darker than usually.

Indices. ***rl/pl:*** m: 1.41-1.58 (M 1.52), f: 1.63-1.77 (M 1.73); ***rl/msrw:*** m: 3.09-3.61, f: 4.15-4.93; ***scl/msrw:*** m: 0.66-0.90 (M 0.77), f: 0.85-1.08 (M 0.95); ***msrw/mtrw:*** m: 1.15-1.36, f: 1.08-1.15; ***msrw/arw:*** m: 1.63-1.78, f: 1.25-1.58; ***msrw/minrw:*** m: 1.63-1.88 (M 1.78), f: 1.39-1.67 (M 1.53); ***msrw/eyl:*** m: 1.19-1.27, f: 0.96-1.17; ***brl/eyl:*** 0.62-0.68; ***eyl/hl:*** 0.55-0.59; ***hl/hw:*** 0.84-0.96 (M 0.88); ***mpw/hw:*** 1.35-1.60; ***bpw/apw:*** 1.07-1.19; ***pl/mpw:*** 0.90-1.00; ***mew/mpw:*** 1.72-1.83; ***el/pl:*** m: 3.02-3.14, f: 3.16-3.33; ***el/mew:*** 1.66-1.79; ***mew/bew:*** 1.21-1.32; ***bew/mpw:*** m: 1.34-1.39, f: 1.36-1.48; ***pft/msrw:*** m: 0.70-0.77, f: 0.77-1.04; ***ptbl/pl:*** 1.13-1.24; ***ptbl/ptbmw:*** 6.07-7.66; ***ptsl/ptbl:*** 0.57-0.66.

Very similar to *C. cylindricolle*, except for the lighter derm differing in larger body size; slightly shorter rostrum in male (rl/pl !, rl/msrw !), larger mesorostral teeth in female (rl/msrw !); shorter and thicker antennae (length/width of the scape m: 2.2-2.4, f: 2.6-2.8, first funicular segment m: 1.5-1.6, f: 1.6-1.8, at least the distal segments wider than long), inserted closer to the head in female (0.14-0.18) and with the club less distinctly curved and often more acute in male; head subrectangular, with the eyes larger and the temples shorter than eye diameter; pronotum more coarsely punctate and humeral calli more prominent.

The remaining characters, including the male sexual modifications and the structure of genitalia, similar as in *C. cylindricolle*.

Biology. Beetles notoriously collected on *Xeranthemum inapertum* (L.) MILLER, being apparently the exclusive foodplant. Larva unknown.

Distribution. Tunisia, Algeria, Morocco, Spain, Southern France, Italy.

REMARKS

C. cylindricolle and *C. longiclava* are sympatric in Italy and southern France, and, though possible to distinguish, the diagnostic characters are less evident there.

OTHER MATERIAL EXAMINED

ALGERIA: 2m (NRS, HMNH); T. el Had, 1f, leg. KORB (MNB); Ben Yakoub, 1895, 4m, IX 1899, 1f, coll. VAULOGER (IRB); Alger, 1m, coll. H. WAGNER (ex coll. DESBROCHERS, labelled by WAGNER as "Co-Type" of *Apion fallaciosum* DBR.); Mecheria, V 1896, 2 exs, leg. A. CHOBAUT; Djebel Amour, Sidi Bouzid, 1f, leg. VAULOGER, coll. H. WAGNER (ZSM); Boulid, 3 exs; Sebdou, 1m (SS); Ras Chergui, 1m, leg. HÉNON (MNHP).

FRANCE: Htes Alpes: Guillestre, 2 exs, coll. H. WAGNER (ZSM), leg. V. PLANET, 28 VII 1916, 5 exs (IRB, SS), 5 VIII 1918, 7 exs (FSF, IRB), 5 VIII 1919, 8 exs (SS, KS); Mt Dauphin, 28 VII 1916, 2 exs (IRB, MNHP); Les Vigneaux, 27 VII 1956, 2 exs, leg. G. TEMPÈRE (LD); Pégomas n. Cannes, 1 ex., coll. A. HOFFMANN (MNHP).

ITALY: Lazio: Riofraddo, 1m, leg. Raffray (MCR); Abruzzo: Gr. Sasso, Mte S. Franco, 1500-1650 m, VIII 1989, 1m (LM), 1650 m, 8 VIII 1989, 1f (GO), 1400 m, 6 VII 1990, 1m 4f (MR).

MOROCCO: El Mers, 1f, leg. THERY (HMNH).

SPAIN: 1m; Madrid, 1f - leg. LAUFFER (MNB); Madrid: Pozuelo, 1 ex., coll. BETTINGER (IRB); Mayo Fuente, 1m, coll. DESBROCHERS (MNHP), 1 m, coll. H. WAGNER (ZSM); Sierra Nevada, 21-24 VII 1926, 1m 3f, leg. LINDBERG (ZMH); La Candamia, Villaobispo de los Rugueras, 7 X 1983, 1f, 28 VIII 1984, 1m, leg. O. MANSILLA (AZ).

Ceratapion (Angustapion) poggii, sp. nov.

(figs 513-522)

Etymology. Named after Dr. Roberto POGGI, the coleopterist, curator of the beetle collection at the "G. Doria" Museum in Genoa.

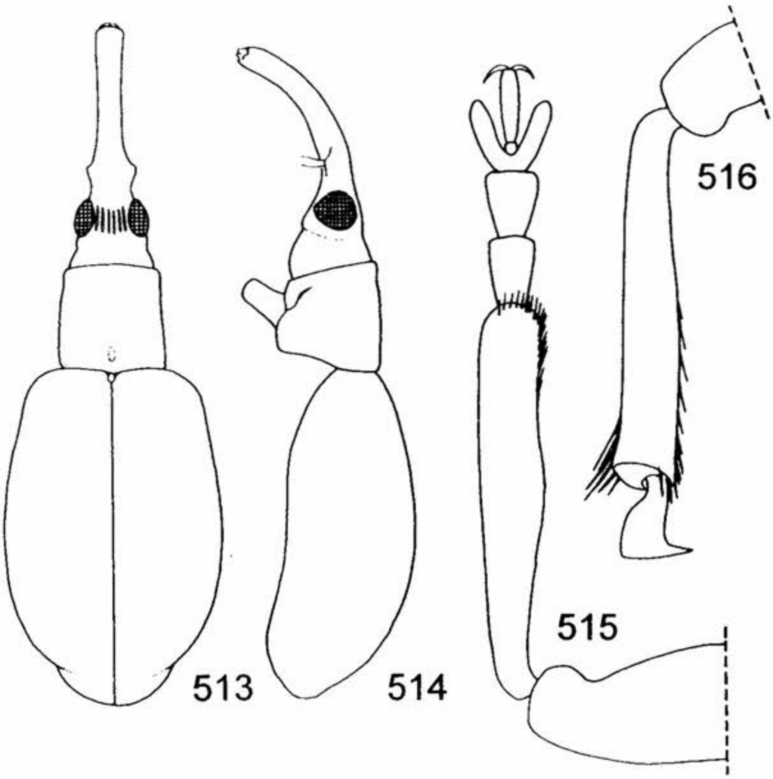
DESCRIPTION

Body length 2.40 mm. All body parts testaceous, weakly shiny. Vestiture fine, composed of greyish piliform scales arranged in two irregular rows on the elytral intervals and much shorter than interval width; scales in the elytral striae similar to those on the intervals, separated each from other.

Indices (m). ***rl/pl:*** 1.63; ***rl/msrw:*** 3.85; ***scl/msrw:*** 0.85; ***msrw/mtrw:*** 1.17; ***msrw/arw:*** 1.66; ***msrw/minrw:*** 1.79; ***msrw/eyl:*** 1.16; ***brl/eyl:*** 0.78; ***eyl/hl:*** 0.66; ***hl/hw:*** 0.81; ***mpw/hw:*** 1.49; ***bpw/apw:*** 1.18; ***pl/mpw:*** 0.98; ***mew/mpw:*** 2.00; ***el/pl:*** 3.19; ***el/mew:*** 1.56; ***mew/bew:*** 1.29; ***bew/mpw:*** 1.55; ***pft/msrw:*** 0.83; ***ptbl/pl:*** 1.16; ***ptbl/ptbmw:*** 6.41; ***ptsl/ptbl:*** 0.60.

Rostrum strongly curved; metarostrum very short; mesorostrum forming small but distinct teeth above antennal insertion; prorostrum subcylindrical, with the apical part slightly widened, bare, both on the dorsum and sides strongly microsculptured and densely, somewhat rugosely punctate to the apex.

Antennae inserted at basal 0.18 of rostrum, finely setose; funicular segments cylindrical, compact, equally wide, second isodiametric, third to seventh slightly transverse, the 1st segment twice as long as the 2nd and 2/3 as long as the scape; club 3.2× longer than wide, slightly shorter than 6 distal funicular segments combined.

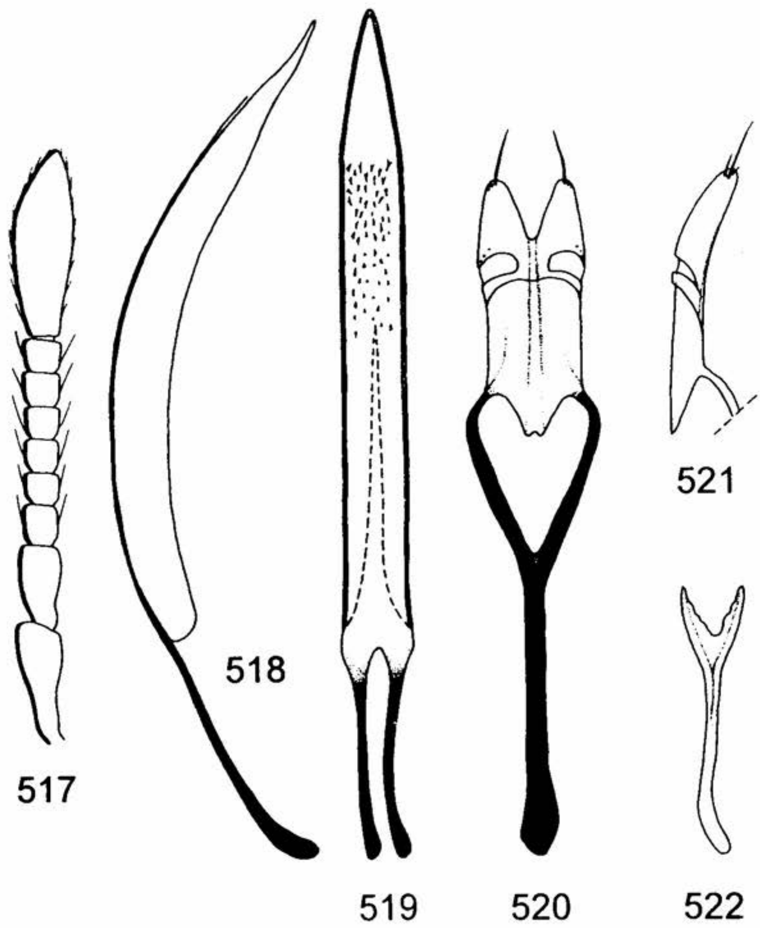


513-516. *Ceratapion (Angustapion) poggii* sp. nov., male: 513 - body in dorsal view; 514 - body in lateral view; 515 - fore tibia (lateral view) and tarsus (dorsal view); 516 - hind tibia and first metatarsomere (lateral view)

Head moderately wide, subrectangular; eyes uniformly, moderately convex; frons as wide as the metarostrum at narrowest point, slightly depressed in front, with 6 fine striolae not exceeding posterior eye margin; vertex minutely punctate only in the front part; temples weakly diverging posterad, rugosely punctate on a distance of about 1/3 eye diameter; underside of the head convex, asperate.

Pronotum subcylindrical, with relatively thin walls; disc flat, closely punctate, punctures of 3× ommatidium size, less than half diameter apart, their interspaces flat, microreticulate; prescutellar fovea inconspicuous, shallow; prosternum half as long as the postcoxal part of prothorax.

Scutellum minute, rounded.



517-522. *Ceratapion (Angustapion) poggii* sp. nov., male: 517 - antenna; 518,519 - median lobe of aedeagus, 518 - lateral view, 519 - dorsal view; 520 - tegmen, dorsal view; 521 - tegminal plate, lateral view; 522 - spiculum gastrale

Elytra broader than those in the related species, distinctly widened backwards, widest slightly behind middle, weakly and uniformly convex, with well separated apical part; intervals barely convex, in middle sections twice as broad as the striae, with distinct microreticulation and minute punctures; striae weakly edged, septae only slightly depressed; stria 1 not joining 2 + 9 apically; specialized setae absent.

Metasternum with long median keel. Ventrites 1, 2 microreticulate, with punctures smaller than those on the pronotal disc, at least one diameter apart.

Legs slender; femora weakly swollen; protarsus 3× longer than wide, its first segment 1.5×, second 1.2× longer than wide; onychium exceeding third segment by 0.45 length; basal segment of the metatarsus with conspicuous ventral spine.

Tegminal plate 2.3× longer than wide; parameroid lobes separate on 3/4 length, with apices narrowly rounded, each bearing one long and two much shorter macrochetae; fenestrae well bordered, strongly transverse, broadly separate, laterally acutely closed with the lower margin extended nearly to the plate margin; lateral fold sub-basal, obsolete; dorsal portion of ring complete, narrower than the fenestrae; prostegium distinctly projected backwards, apically slightly bicuspid, with a pair of extremely fine longitudinal carinae prolonged to the parameroid lobe notch.

Median lobe of aedeagus very narrow, about 10× longer than wide, parallelsided, with the apex narrowed and acute, in profile barely upturned; apophyses less than half as long as the tubular part; internal sac not projecting backwards, with minute spines in apical 2/5 length only, the remaining part of the sac unarmed.

Spiculum gastrale with manubrium more than twice as long as the forked part, the latter partly membranous.

Distribution. Libya (Cyrenaica).

TYPE MATERIAL

Holotype m: a)Bengazi, dint., 19.., V. Zanon, b)Mus. Civ. Genova, c)*Apion* (subg. *Ceratapion*) n. sp., determ. SOLARI (MCG).

Ceratapion (Angustapion) bokharanum GYÖRFFY, 1923

Apion (Ceratapion) bokharanum GYÖRFFY, 1923: 91.

The species is known from a single female from Buchara (Uzbekistan), coming from REITTER's collection (HMNH). The holotype was not available for study.

The relatively exact original description allows to place this species in the *C. cylindricolle* species group, especially because of the elongate antennal club, as long as 5 distal funicular segments together. It is distinct from other members of the group in body size larger (length 3 mm), rostrum cylindrical, longer than the head and pronotum together and strongly curved, frons convex, pronotum coarsely punctate and elytra oval, broadest in middle.

Of other characters listed in the original description the following are most illustrative: derm dark brown; legs and antennae testaceous; striolae on the frons present; antennae slender, with the scape not much longer than the first funicular segment and all the segments elongate (second twice, third 1.5 as long as wide); pronotum isodiametric, sligthly narrowing anterad and with weakly rounded sides, pronotal punctures less than one diameter apart, interspaces raised and shagreened; elytra twice as long as broad, with intervals not much broader than the striae and the latter distinctly catenulate-punctate; legs long and slender, tarsi with onychium narrow, as long as the first two tarsal segments combined.

Biology unknown.

Distribution. Uzbekistan (Buchara).

Ceratapion (*Angustapion*) *beckeri* (DESBROCHERS, 1875)

(figs 523-535)

Apion beckeri DESBROCHERS, [1875]: 27.
Apion biseriatum DESBROCHERS, [1875]: 26.
Apion sublaevithorax DESBROCHERS, [1894]: 107.
Apion angulirostre SCHILSKY, 1901: no.14.
Apion laevithorax [sic!]: SCHILSKY, 1906b: XIV, nec GYLLENHAL, 1833.
Apion (*Ceratap.*) *Bekeri* [sic!]: WAGNER, 1910b: 945.

Literature: DESBROCHERS, [1894]: 112; SCHILSKY, 1906b: XIV (*angulirostre*); WAGNER, 1918: 48; SCHATZMAYR, 1925: 75; VOSS, 1959c: 75; KÖSTLIN, 1973: 95; ANGELOV, 1976: 70; BAJTENOV, 1983: 60; BEHNE, 1989: 321; ALONSO-ZARAZAGA, 1991b: 413; KOROTYAEV et al., 1993: 841.

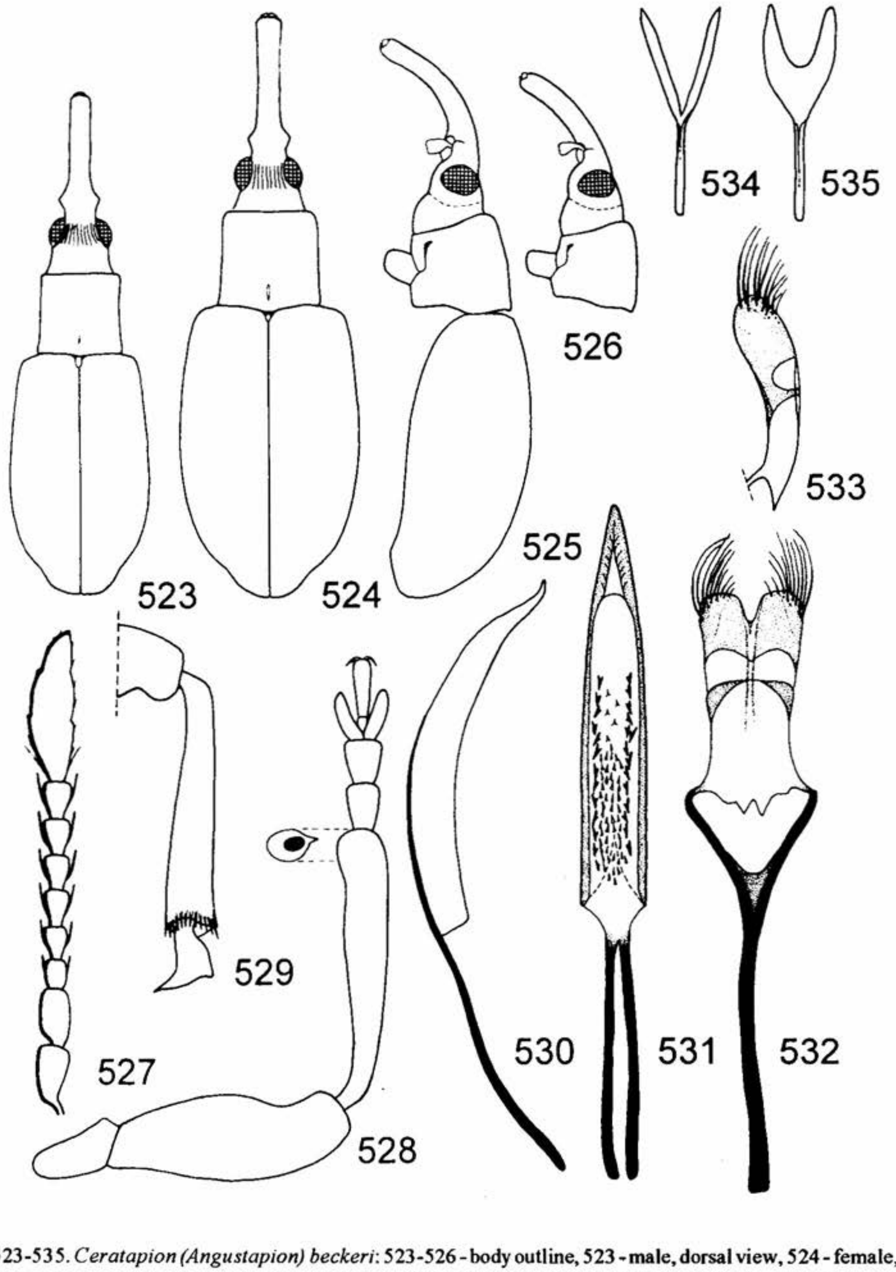
TYPE MATERIAL EXAMINED

A. beckeri **DBR.** Lectotype m: a)Sarepta, b)type decrit., c)Ex Musaeo DESBROCHERS 1914 (MNHP) (present designation). ***A. angulirostre*** **SCHIL.** Lectotype f: a)Buchara, STAUDGR., b)*angulirostre* i.l. RTT. (MNB) (present designation); paralectotypes: 5f, data as in the lectotype (MNB). ***A. biseriatum*** **DBR.** Lectotype m (Lebanon, coll. DESBROCHERS, MNHP) (designation by ALONSO-ZARAZAGA, 1991b). ***A. sublaevithorax*** **DBR.** Holototype m (Armenia, Caucasus, coll. DESBROCHERS, MNHP) (detaily described by ALONSO-ZARAZAGA, 1991b).

DESCRIPTION

Length 1.52-2.11 mm. Body black, elytra with very weak green, metallic tinge; antennae obscure testaceous to nearly black; legs reddish to dark brown. Vestiture fairly thick; piliform scales white to greyish, on the elytra similar on the intervals and in the striae, adpressed, arranged in two confused rows per interval, as long as the interval wide.

Indices. ***rl/pl:*** m: 1.28-1.44, f: 1.38-1.48; ***rl/msrw:*** m: 2.81-3.20, f: 3.26-3.56; ***scl/msrw:*** m: 0.56-0.72, f: 0.63-0.77; ***msrw/mtrw:*** m: 1.17-1.35, f: 1.11-1.23; ***msrw/arw:*** m: 1.68-1.95 (M 1.83), f: 1.59-1.83 (M 1.67); ***msrw/minrw:*** m: 1.74-2.06 (M



523-535. *Ceratapion (Angustapion) beckeri*: 523-526 - body outline, 523 - male, dorsal view, 524 - female, dorsal view, 525 - female, lateral view, 526 - male head and pronotum, lateral view; 527 - male antenna; 528 - male fore leg (tibia in lateral and ventral views, tarsus in dorsal view); 529 - male hind tibia and first metatarsomere (lateral view); 530,531 - median lobe of aedeagus, 530 - lateral view, 531 - dorsal view; 532 - tegmen, dorsal view; 533 - tegminal plate, lateral view; 534,535 - spiculum gastrale (variation)

1.87), f: 1.69-1.83 (M 1.75); ***msrw/eyl:*** 1.11-1.33; ***brl/eyl:*** 0.55-0.68; ***eyl/hl:*** 0.54-0.71; ***hl/hw:*** 0.74-0.92; ***mpw/hw:*** m: 1.30-1.40, f: 1.42-1.51; ***bpw/apw:*** 1.07-1.16; ***pl/mpw:*** 0.93-1.04; ***mew/mpw:*** m: 1.60-1.70, f: 1.74-1.88; ***el/pl:*** m: 2.79-3.12 (M 2.96), f: 2.93-3.24 (M 3.10); ***el/mew:*** m: 1.69-1.87, f: 1.58-1.71; ***mew/bew:*** m: 1.15-1.17, f: 1.21-1.26; ***bew/mpw:*** 1.40-1.49; ***pft/msrw:*** 0.69-0.79; ***ptbl/pl:*** 1.04-1.23; ***ptbl/ptbmw:*** 5.25-6.92; ***ptsl/ptbl:*** 0.53-0.59.

Rostrum in male weakly, in female distinctly curved; metarsostrum rudimentary; mesorostral teeth large and acute, uniformly triangular; prorostrum cylindrical, bare, impunctate, with strong scale-like microsculpture to nearly the apex; antennal scrobes hardly impressed, reaching half eye length on the head venter.

Antennal insertion m: 0.16-0.20, f: 0.14-0.15 from the rostrum base; scape short and broad, 2.0-2.2× longer than wide; funicle slender, length/width of the first segment 1.8-2.0, the remaining slightly elongate; club 2.8-3.5× longer than wide, slightly longer than 4 distal segments of the funicle together; antennal pubescence white, weakly outstanding.

Head and rostrum base clothed with scales; eyes strongly convex; frons depressed, with dense striolae on whole breadth; vertex thickly punctured throughout; temples punctured on a distance longer than half eye diameter; interocular area gibbous, with small asperities in posterior part.

Pronotum cylindrical, quadrate, with fairly thick walls; disc hardly convex, glabrous and distinctly microreticulate, with puncturation obsolete (in exceptional cases distinct and coarse); prescutellar fovea minute, sometimes completely vanishing.

Elytra not strongly elongate, weakly convex, in male parallel-sided, in female slightly rounded at sides; intervals flat, in middle part of the elytra 1.7-2.0× broader than the striae; striae with distinct edges, fairly shallow; specialized setae rarely present.

Legs slender; male protibia slightly expanded inwards apically to form raised longitudinal edge; protarsus with first segment 1.3-1.4, second 1.10-1.15 as long as wide, onychium exceeding third segment by 0.6-0.7 length; trochanters of the fore and mid legs in male with a short, blunt spine; ventral spine of the male metatarsus conspicuous.

Wings normally developed, their muscles occasionally reduced.

Tegminal plate with a pair of distinct median carinae running from the parameroid lobes notch and crossing both the fenestrae and dorsal portion of ring, evanescent in the middle of prostegium; parameroid lobes short and broadly rounded apically, shallowly separate on less than half length; macrochaetae peculiar, very long and numerous, distinctly arched inwards; fenestrae well margined, broadly confluent, with lateral margins semicircular and well separated from the outer margin of the plate; dorsal portion of ring very narrow, broken in middle; lateral fold very short and indistinct; prostegium with the posterior margin somewhat irregular, mostly bicuspid.

Median lobe of aedeagus narrow, tapering and pointed at apex, with some fine, oblique wrinkles subapically; apophyses connate basally; internal sac not projecting beyond the tubular part of the lobe, in basal 3/4 with dense spines, the outer larger and dilated basally, seemingly forming regular rows as seen from the dorsum, but not so regular if the median lobe is seen in profile.

Spiculum gastrale strongly varying in shape (figs 534, 535), with short manubrium.

Biology. Host plants unknown. OSELLA collected adults abundantly on *Lavatera arborea* L. (*Malvaceae* !), but larval development on this plant seems dubious.

Distribution. Italy, Hungary, Rumania, Macedonia, Bulgaria, Turkey, Lebanon, Iran, Afghanistan, Georgia*, Armenia, Azerbaijan, Uzbekistan, Turkmenistan, Tadzhikistan (Karateghin Mts.), Russia (Volga river surroundings, Dagestan).

OTHER MATERIAL EXAMINED

ARMENIA: 1 ex., leg. LEDER & REITTER (HMNH).

AZERBAIJAN: Araxes, VI 1910, 1 ex., leg. VESELY (HMNH); Nabran, 1-3 VII 1983, 1 ex., leg. K. ABSOLON (JF).

BULGARIA: Daskotna, 3 exs, leg. Z. CMOLUCH (SS); Ivanski, 15-30 VII 1969, 6 exs, leg. WALLIS (LD); Pirin Mts, Kresna Kresna, 15 VI 1987, 1 ex., leg KARAS (JF).

GEORGIA: Bakuriani, 1700-2500 m alt., 14 VII 1983, 1m, leg. LOPATIN (VK).

HUNGARY: Mtes Budenses, 1920, 1 ex., coll. P. MEYER (SMTD).

IRAN: Schirwan: Atrek-Tal, 5 II 1963; Khorassan: Fariman, 19 XII 1965; Kopet Dag Mts, 15 II 1963; Lorestan: Burujird, X 1970 - 7 exs, leg. A. WARCHALOWSKI (DEI, LD, SS); Lorestan: Azna, 33°28'N/49°22'E, 23 VI 1974; Esfahan: Nowghan, 33°14'N/49°59'E, 7 VIII 1973; Azerbajdjan: Bostanabad, 37°48'N/46°51'E, 25 VI 1973; Hamedan: Asadabad, 34°51'N/48°12'E, 2 VII 1974, Bakhtiyari: Dimeh, 32°29'N/50°16'E, 8 VIII 1973; Khorassan: E Badranlu, 37°31'N/57°08'E, 18 VII 1975; Zavi, 36°52'N/59°53'E, 22 VII 1974; Bodjnour, 37°29'N/57°26'E, 20 VIII 1975; Mazanderan: Garmab, 37°43'N/56°18'E, 18 VII 1975 - 10 exs, leg. A. SENGLET (MHNG); 48 km N Masiri, 2230 m, loc. no. 238, 12 VI 1973, 1 ex.; Kalat, loc. no. 373, 1 ex. - Exp. Nat. Mus. Praha (JF).

ITALY: Molise: Mte Pagano, 1 ex., leg. PAGANETTI (SMNS); Abruzzi: Majella-Piso, S. Leonardo, 1100-1200 m, 16 VIII 1975, 1 ex. (LM); Gr. Sasso -Ag., Mte S. Franco, 1650 m, 22 VII 1989, 6 exs (GO), 8 VIII 1989, 36 exs, all from *Lavatera arborea* (GO, LM), 1400 m, 6 VII 1990, 5 exs (MR); Lazio: Rieti: Mte Giano n. Vallemare, 1200 m, 10 VII 1990, 7 exs (MR); Veneto: Mte Baldo, Valdritta, 19 VIII 1975, 1 ex. (GO).

RUMANIA: Comana Vlasca, 11 ex., leg. MONTANDON (HMNH, DEI, ZSM, FSF, SS).

TURKEY: Mordhia, Omerli, 12 VI 1912, 1 ex. (MF); Prov. Adyaiman, Berut Dagi, 1600 m, 1 VI 1983, 1 ex., leg. W. SCHACHT (LD); Bingol, 1125 m, 20 VI 1986, 1 ex., leg. KADLEC & VORISEK; Edirne, 8-13 VI 1947, 1 ex., Exp. Nat. Mus. Praha

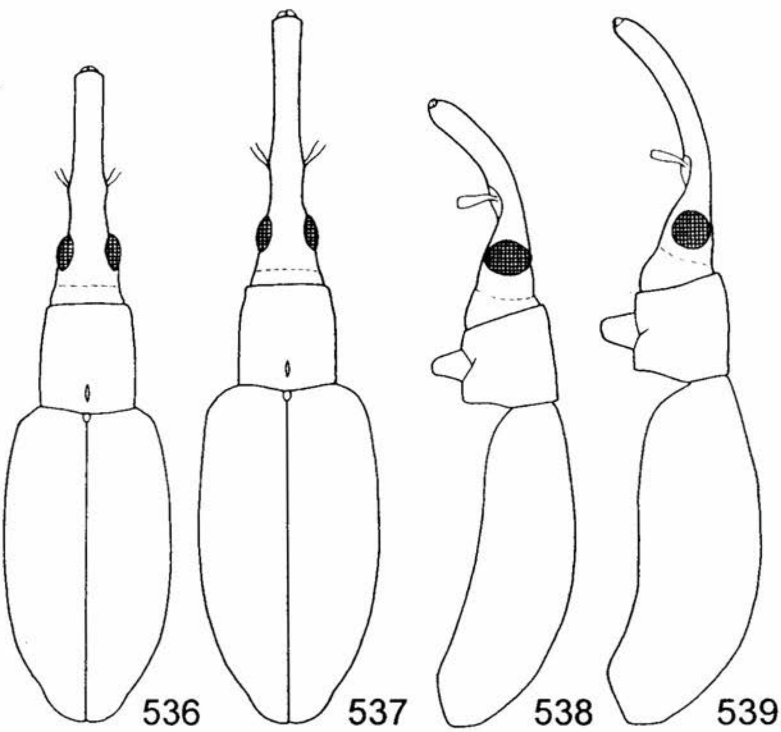
(KS); vil. Gtmtshane, Bayburt, 1200 m, 1 VII 1975, 2 exs (GO); Erzurum, Askale, 17 VII 1982; Kayseri, Pinarban, 12-19 VIII 1979; Gaziantep, Somak, 16 VII 1984; distr. Nevsehir, Trgtp, 15 VIII 1979, Gtlsehir, 15 VIII 1979, Avanos, 16 VIII 1979, Hacibektas, 26 VI 1980; Btnyan, 12 VIII 1979; distr. Giresun, Sebir K. W., 22 VII 1978 - 12 exs - leg. N. LODOS (JF); Mardin, 12 VI 1972, 2 exs, leg. N. LODOS; Prov. Kars, Arastal, W Kagizman, 2 VIII 1983, 2 exs, leg. W. SCHACHT (LD).

TURKMENISTAN: 2 exs, coll. A. HOFFMANN (MNHP); Krasnovodsk, 1 ex., leg. AHNGER (ZMH); Kopetdag Mts, Tersakan, 40 km W Kara-Kala, 200 m, 9 V 1989, 2 exs (MK).

UZBEKISTAN: Buchara, 3 exs, coll. v. HEYDEN (DEI), Madon (IRB); Hissar Mts, 5 km E Kaltakul n. Yakkabag, 1700 m, 5 VI 1987, 1 ex. (MK).

Ceratapion (Angustapion) kasbekianum (GERSTAECKER, 1854)
(figs 536-549)

Apion Kasbekianum GERSTAECKER, 1854: 238.
Apion angustissimum DESBROCHERS, 1889: XXXV.

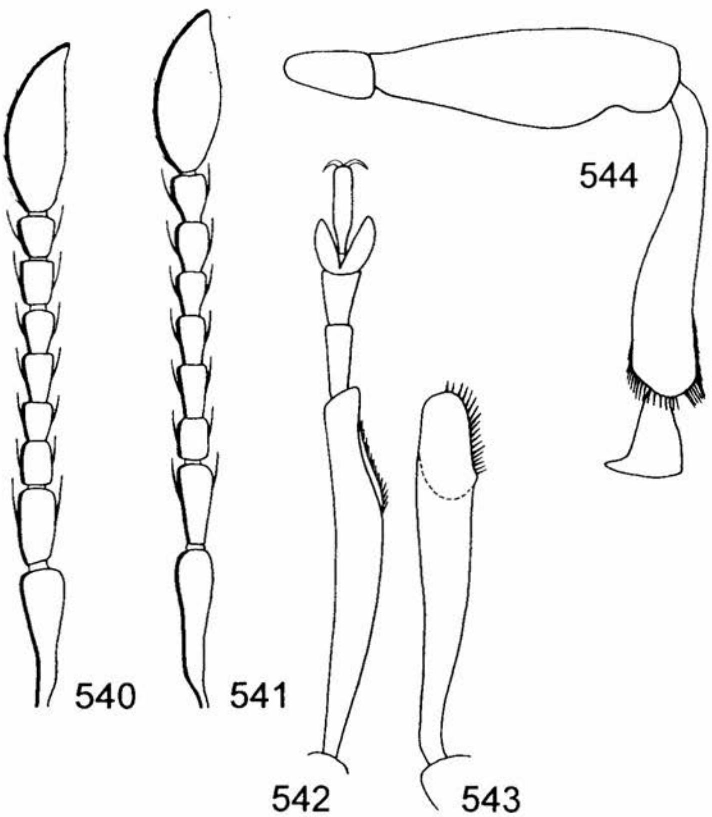


536-539. *Ceratapion (Angustapion) kasbekianum*, body outline: 536 - male, dorsal view; 537 - female, dorsal view; 538 - male, lateral view; 539 - female, lateral view

Literature: WENCKER, 1864: 189; DESBROCHERS, [1895-96]: 5 (*angustissimum*); SCHILSKY, 1902: no.10 (*angustissimum*), 1906: no.11, 1906b: XXI; WAGNER, 1918: 58.

TYPE MATERIAL EXAMINED

***A. kasbekianum* GERST.** Holotype f: a)35055, b)Typus, c)*Kasbekianum* (KOL.), GERST.*, Caucas. KOLEN. (MNB). ***A. angustissimum* DBR.** Lectotype f: a)Kaukas, Leder, b)*angustissimum* DESBR. (DESBROCH.), c)Db 54 (coll. v. HEYDEN, DEI) (present designation); paralectotypes: data as in the lectotype, 1f (coll. v. HEYDEN, DEI), 1m 2f (coll. DESBROCHERS, MNHP).

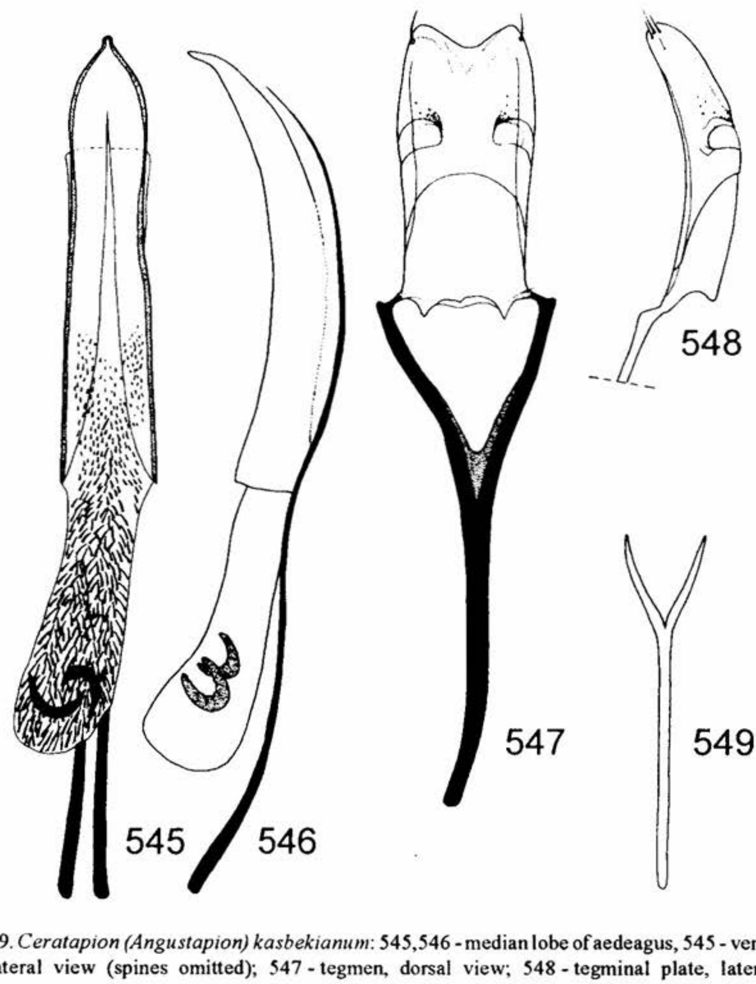


540-544. *Ceratapion (Angustapion) kasbekianum*: 540 - male antenna; 541 - female antenna; 542 - male fore tibia (outer edge) and tarsus (dorsal view); 543 - male protibia, inner side; 544 - male hind trochanter, femur, tibia and first metatarsomere (lateral view)

DESCRIPTION

Body length 2.15-2.55 mm. Pronotum and elytra dull, piceous brown to black; rostrum and head mostly brown; antennae and legs testaceous to reddish-brown. Body vestiture distinct, composed of weakly arcuately erect, white to cream, piliform scales, on the elytra longer than the interval breadth and arranged in a single, fairly regular row on each interval; scales in the striae much finer and less than half as long as those on the intervals.

Indices. ***rl/pl:*** m: 1.67-1.77, f: 1.80-2.13; ***rl/msrw:*** m: 3.97-4.37, f: 5.03-6.28; ***scl/msrw:*** 1.14-1.48; ***msrw/mtrw:*** m: 1.11-1.15, f: 1.04-1.13; ***msrw/arw:*** m: 1.26-1.42, f: 1.17-1.26; ***msrw/minrw:*** 1.29-1.42; ***msrw/eyl:*** m: 0.97-1.09, f: 0.90-0.96; ***brl/eyl:*** m: 1.28-1.43, f: 1.10-1.19; ***eyl/hl:*** m: 0.56-0.60, f: 0.50-0.57; ***hl/hw:*** 1.00-



545-549. *Ceratapion (Angustapion) kasbekianum*: 545,546 - median lobe of aedeagus, 545 - ventral view, 546 - lateral view (spines omitted); 547 - tegmen, dorsal view; 548 - tegminal plate, lateral view; 549 - spiculum gastrale

1.19; ***mpw/hw:*** 1.60-1.86; ***bpw/apw:*** 1.05-1.18; ***pl/mpw:*** 1.04-1.20; ***mew/mpw:*** m: 1.56-1.58, f: 1.59-1.76; ***el/pl:*** 3.43-3.75; ***el/mew:*** 1.91-2.05; ***mew/bew:*** m: 1.23-1.27, f: 1.26-1.35; ***bew/mpw:*** 1.17-1.40; ***pft/msrw:*** m: 0.76-0.83 (M 0.79), f: 0.79-1.00 (M 0.89); ***ptbl/pl:*** 1.21-1.38; ***ptbl/ptbmw:*** m: 5.47-5.81, f: 7.00-7.43; ***ptsl/ptbl:*** m: 0.62-0.67, f: 0.53-0.60.

Rostrum curved to variable extent, except for the obsolete dilatation of the mesorostrum cylindrical, strongly scale-like microsculptured throughout, finely pubescent nearly to the apex; antennal scrobes evanescent on the head underside.

Antennae long and thin, distinctly microsculptured, inserted far from the head, at basal m: 0.27-0.32, f: 0.19-0.24 of rostrum; length/width of the scape m: 3.0-3.5, f: > 4, first funicular segment 2.0-2.2, club 2.2-2.9, all segments of the funicle elongate; antennal pubescence whitish, nearly adpressed.

Head elongate, in male sub-rectangular, in female somewhat sub-conical; eyes poorly convex; frons strongly microsculptured, with the striolae mostly obscured; both vertex and temples punctured on a distance not shorter than half eye diameter; interocular area nearly flat, with some few piliform scales and without distinct asperities.

Pronotum cylindrical, its puncturation irregular and variable, punctures of 2-3× ommatidium size, funnelled, microreticulate at their bottoms, the interspaces raised, with strong scale-like microsculpture; prescutellar fovea fine.

Elytra clearly elongate, parallel-sided, in male flattened, in female weakly convex; intervals flat, at the elytra base slightly narrower than, in middle up to 1.2× broader than the striae, strongly and irregularly microsculptured; striae not evidently edged, with the punctures large, square or rectangular and the septae weakly depressed, narrower than the punctures; specialized setae present.

Legs very slender; male protibia flattened and twisted apically, similar as in the *C. armatum* species group, hind tibia clearly sinuous; tarsi very narrow in either sex, first protarsal segment more than twice as long as wide, in female slightly, in male distinctly compressed; onychium exceeding third segment by whole length; ventral spine of the male metatarsus conspicuous.

Metathoracic wings normally long.

Tegminal manubrium relatively short; the plate shallowly emarginate and finely wrinkled apically; macrochaetae short, 1-3 apical, 1 subapical; fenestrae small, depressed, broadly separate; dorsal portion of ring broad, not distinctly separated from the plate fusion with the basal piece; lateral fold long; prostegium not produced backwards, with two small, acute widely separate projections.

Ventral plate of the median lobe of aedeagus split and membranous from base to nearly the apex; internal sac projecting to apical 1/3 of the apophyses, with dense, long and narrow spines and a pair of large, crescentic and not distinctly serrate sclerites herein, the part of the sac enclosed within the tube with much smaller spines, evanescent at basal 1/3 tube length.

Spiculum gastrale strongly elongate.

Biology. According to Wagner (1918) the beetles were collected on leaves of *Echinops radiata*.

Distribution. Georgia, Armenia, Azerbaijan (Nakhichevan Rep.).

OTHER MATERIAL EXAMINED

Caucasus, 2m 7f, (FSF, HMNH, MNB, SMTD, NRS).

ARMENIA: 1f, coll. FAUST (SMTD); Suchoj Fontan, 1910, 45 exs, leg. H. KULZER (LD, DEI, SMTD, ZSM); Gehard, 15 VI 1987, 1m 5f, leg. KADLEC & VORISEK (KS), 12 VII 1990, 1f, leg. A. JADWISZCZAK & A. POKOJOWCZYK (AJ).

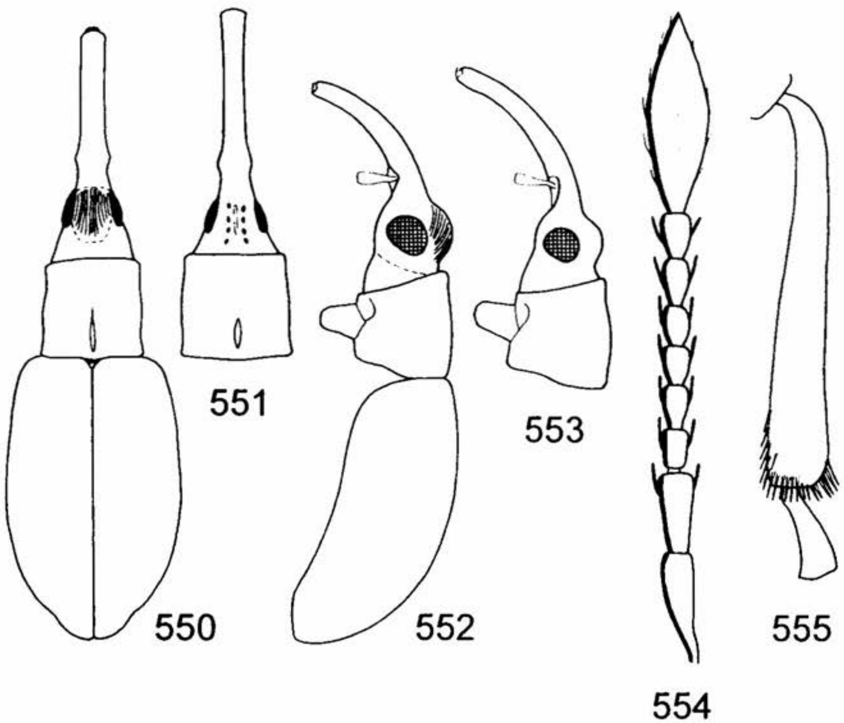
GEORGIA: Kasbek, 3f, leg. KOLENATI, (HMNH, MNB, ZMH); Tiflis (Tbilisi), 1f, leg. E. KÖNIG (MNB).

NAKHICHEVAN REP.: Ordubad, 2f (ZSM).

Ceratapion (*Angustapion*) *gibbiceps* (DESBROCHERS, 1894)

(figs 550-561)

Apion gibbiceps DESBROCHERS, [1894]: 91.



550-555. *Ceratapion (Angustapion) gibbiceps*: 550 - male body (holotype), dorsal view; 551 - female head and pronotum, dorsal view; 552 - male body, lateral view; 553 - female head and pronotum, lateral view; 554 - male antenna; 555 - male hind tibia and first metatarsomere (lateral view)

Literature: SCHILSKY, 1906b: XIX; BAJTENOV & LODOS, 1978: 146.

TYPE MATERIAL EXAMINED

Holotype m: a)Perse, b)Ex Musaeo DESBROCHERS 1914 (coll. DESBROCHERS, MNHP).

DESCRIPTION

Length m: 1.86-2.15 mm, f: 2.36 mm. Body castaneous, tibiae slightly lighter. Vestiture not very thick; piliform scales pure white, on the elytra in 1-2 confused rows per interval, as long as interval width; scales in the striae 2/3 as long as those on the intervals.

Indices. ***rl/pl:*** m: 1.52-1.54, f: 1.74; ***rl/msrw:*** m: 4.41-4.64, f: 6.27; ***scl/msrw:*** m: 0.92-0.97, f: 1.17; ***msrw/mtrw:*** 1.09-1.26; ***msrw/arw=msrw/minrw:*** m: 1.41-1.53, f: 1.33; ***msrw/eyl:*** 0.86-1.00; ***brl/eyl:*** m: 0.69-0.88, f: 0.97; ***eyl/hl:*** 0.54-0.61; ***hl/hw:*** m: 1.12-1.20, f: 1.02; ***mpw/hw:*** m: 1.68-1.78, f: 1.84; ***bpw/apw:*** 1.07-1.09; ***pl/mpw:*** 1.04-1.07; ***mew/mpw:*** m: 1.63-1.72, f: 1.89; ***el/pl:*** m: 2.88-2.91, f: 3.22; ***el/mew:*** 1.74-1.91; ***mew/bew:*** 1.22-1.26; ***bew/mpw:*** m: 1.30-1.36, f: 1.55; ***pft/msrw:*** m: 0.90-0.96, f: 1.17; ***ptbl/pl:*** 1.23-1.30; ***ptbl/ptbmw:*** m: 6.50-7.20, f: 6.24; ***ptsl/ptbl:*** m: 0.65-0.66, f: 0.59.

Rostrum strongly arched, thin, in male dull and impunctate, in female shiny, with sparse and fine punctures; mesorostrum forming minute, triangular teeth; prorostrum cylindrical; antennal cavities distinctly elongate, the scrobes obsolete.

Antennae very thin, similar in both sexes, inserted at basal 0.17-0.20 of rostrum; length/width of the scape >3, first funicular segment 2.5, seventh 1.4-1.5; club about 3× longer than wide; antennal pubescence hardly protruding.

Head conical; eyes flat, slightly larger in male; frons tubercular, sub-trapeziform in profile, with some few scales, thickly striolate in male, with elongate punctures and single median sulcus in the only examined female; vertex smooth; temples punctate on a distance of 0.25-0.30 eye diameter; interocular area weakly convex, scale-like microsculptured, not asperate, with some few scales along eye margins.

Pronotum quadrate; disc flattened, rough, with strong scale-like microsculpture also within the punctures which are shallow, funnelled, not larger than 3 ommatidia, close to each other; prescutellar fovea long and narrow; prosternum slightly shorter than the postcoxal part of prothorax.

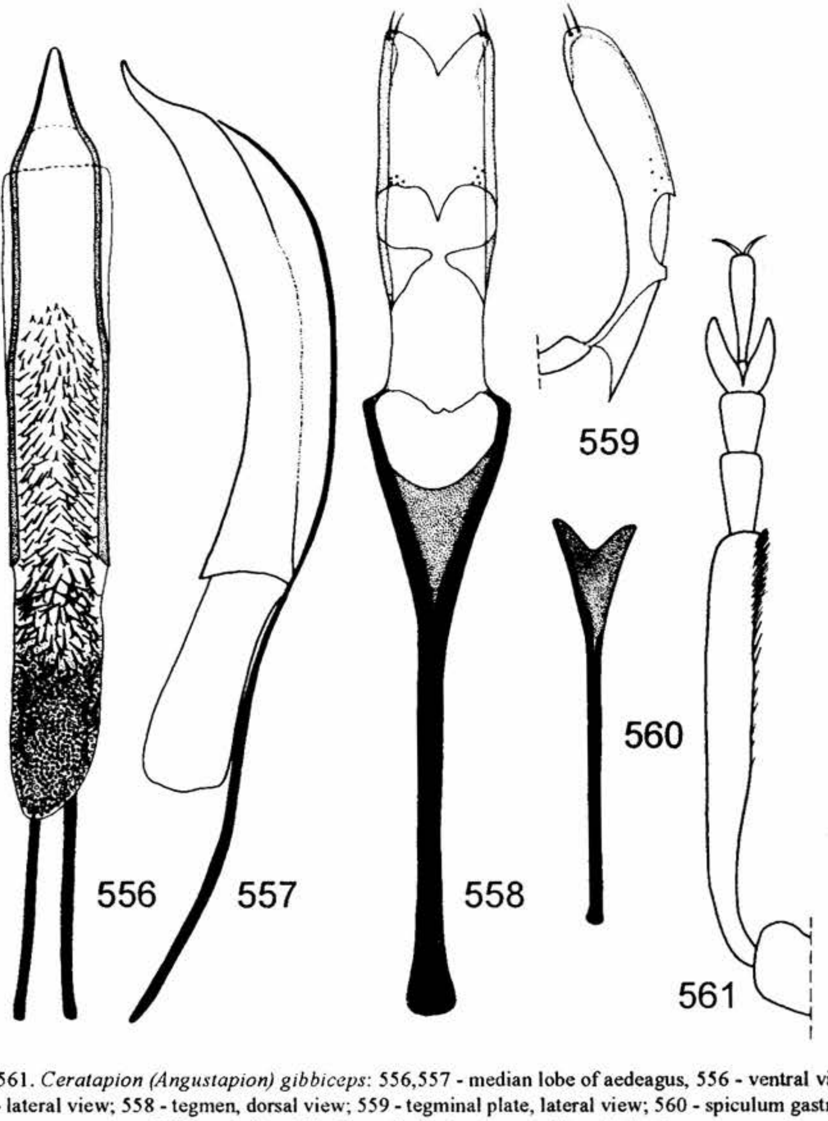
Elytra weakly dilated backwards, widest just behind middle; intervals poorly convex, on the disc scarcely wider than the striae, with microsculpture irregular and composed chiefly of transverse wrinkles; elytral suture slightly raised in apical half; striae very shallow, with the punctures large, becoming distinctly smaller apicad, and the septae scarcely depressed.

Legs long and very slender; protarsus 4.2-4.4× longer than wide, its first segment 1.8 as long as wide; male tibiae without secondary sexual modifications, tarsi unarmed, basal segment of the male metatarsus angled ventrally.

Wings of normal length.

Tegminal plate strongly elongate, shallowly incised apically; macrochaetae 2, short, apical; fenestrae clearly margined, confluent, laterally rounded; dorsal portion of ring broken in the middle, laterally not separated from the plate fusion with the basal piece; lateral fold wanting; prostegium hardly projecting backwards, unclearly bicuspid at the posterior margin.

Median lobe of aedeagus as in figs 556, 557; internal sac projecting to middle of the apophyses; the prominent part with 8 very small, serrate sclerites, in distal 2/3 with very dense round asperities and short spines marginally, proximal 1/3 with very long spines; the part of the sac enclosed within the tube thickly covered with spines throughout the basal half, the spines becoming finer apicad.



556-561. *Ceratapion (Angustapion) gibbiceps*: 556,557 - median lobe of aedeagus, 556 - ventral view; 557 - lateral view; 558 - tegmen, dorsal view; 559 - tegminal plate, lateral view; 560 - spiculum gastrale; 561 - male fore tibia (lateral view) and tarsus (dorsal view)

Spiculum gastrale long, sub-spatulate.
Biology unknown.
Distribution. Iran.

REMARKS

The description of *C. gibbiceps* by WAGNER (1918) concerns in fact *C. decolor*.

OTHER MATERIAL EXAMINED

IRAN: Esfahan: Nowghan, 33°14'N/49°59'E, 7 VIII 1973, 1m 1f, leg. A. SENGLET (MHNG).

Ceratapion (Angustapion) mundum (BALFOUR-BROWNE, 1942)

(figs 562-574)

Apion (Ceratapion) mundum BALFOUR-BROWNE, 1942: 822.

TYPE MATERIAL EXAMINED

Holotype f: Abyssinia, Mt. Chillalo, forest, circa 9000 ft., 14 XI 1926 (BMNH).

DESCRIPTION

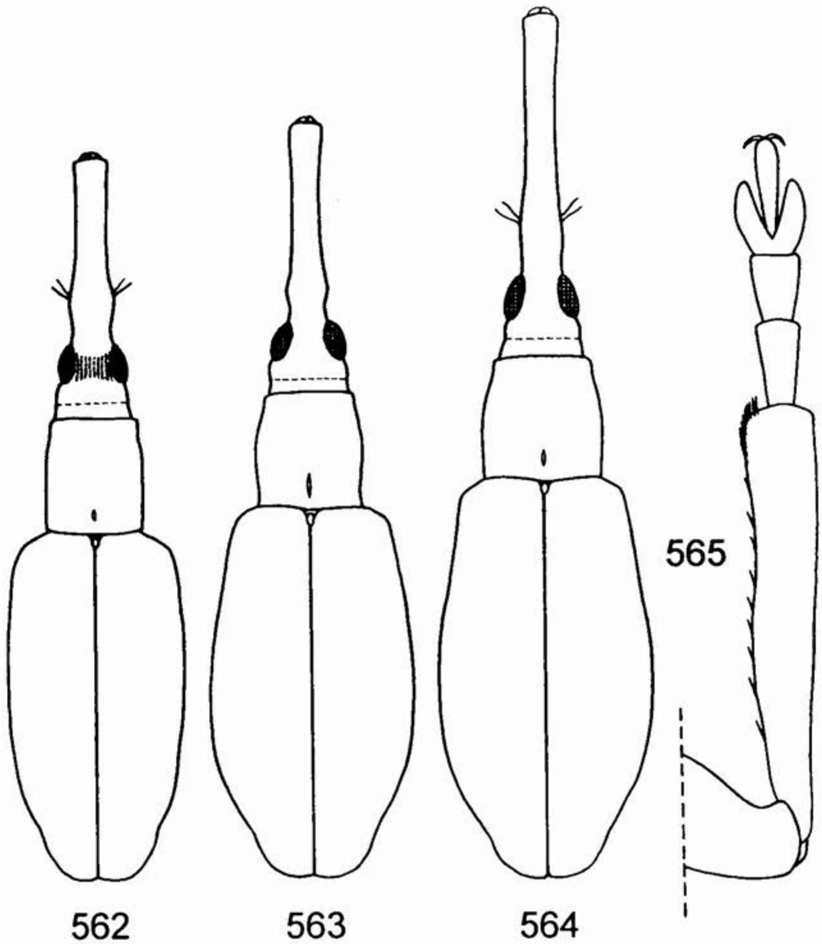
Length 2.56-2.91 mm. Body black, weakly shiny; tibiae, tarsi and antennae piceous brown. Vestiture very fine, hair-like scales greyish or brownish, opalescent, usually scarcely raised and arcuate, in single row on the elytral intervals, in the striae visible only under high magnification.

Indices. ***rl/pl:*** m: 1.57-1.62, f: 1.65-2.17; ***rl/msrw:*** m: 4.21-4.48, f: 4.89-5.94; ***scl/msrw:*** m: 1.06-1.12, f: 1.17-1.43; ***msrw/mtrw:*** m: 1.18-1.22, f: 1.09-1.12; ***msrw/arw:*** 1.33-1.48; ***msrw/minrw:*** 1.44-1.48; ***msrw/eyl:*** 0.97-1.00; ***brl/eyl:*** m: 0.99, f: 1.05-1.39; ***eyl/hl:*** 0.52-0.63; ***hl/hw:*** 0.90-1.10; ***mpw/hw:*** 1.36-1.57; ***bpw/apw:*** 1.12-1.21; ***pl/mpw:*** m: 1.15, f: 1.00-1.12; ***mew/mpw:*** m: 1.71-1.77, f: 1.77-1.94; ***el/pl:*** m: 3.00-3.10, f: 3.19-3.50; ***el/mew:*** m: 1.96-2.09 (M 2.02), f: 1.84-2.02 (M 1.94); ***mew/bew:*** m: 1.12-1.14, f: 1.24-1.32; ***bew/mpw:*** m: 1.50-1.58. f: 1.37-1.50; ***pft/msrw:*** m: 0.72-0.80, f: 0.80-0.90; ***ptbl/pl:*** 1.12-1.18; ***ptbl/ptbmw:*** m: 6.46-6.68, f: 7.19-7.43; ***ptsl/ptbl:*** 0.59-0.60.

Rostrum distinctly arched, uniformly so in female, more strongly in apical than basal part in male, strongly scale-like microsculptured and finely pubescent nearly to the apex in both sexes, strongly varying in length in female; mesorostrum very weakly and obtusely dilated; prorostrum cylindrical, impunctate, with glabrous and shining apex; antennal scrobes evanescent before the eyes.

Antennae fairly thick in male, slightly thinner but, except for the scape, of similar segmental proportions in female; insertion at m: 0.24-0.26, f: 0.21-0.22 from the rostrum base; length/width of the scape m: 2.8-3.0, f: 3.6-3.9, first funicular segment 1.5-1.6, club 2.5-2.6; funicular segments 2-7 always elongate and reversely conical in male, in female rather sub-cylindrical or slightly rounded at sides, depending on the rostrum length as long as, or longer than wide; antennal pubescence fairly dense and moderately outstanding, on distal part of the funicle brownish.

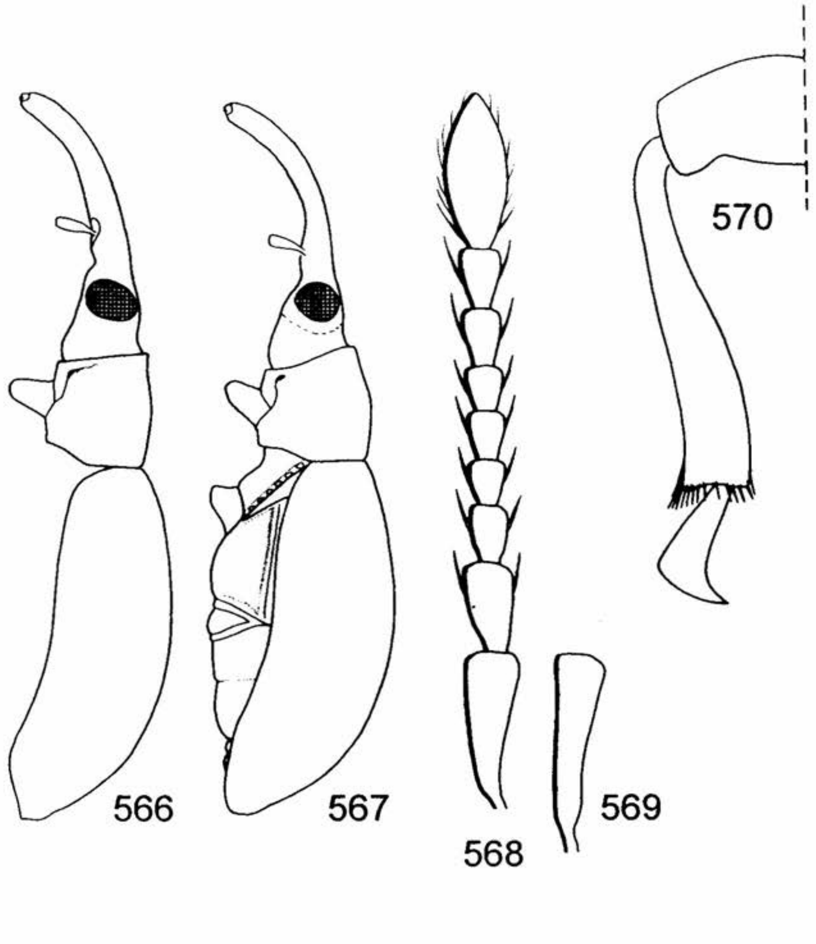
Head variable in shape, eyes relatively large, weakly convex; frons scarcely depressed, coarsely microsculptured and minutely punctate, with the striolae obsolete to completely vanishing; vertex and temples on a distance of 1/3 eye length with the sculpture as on the frons, posteriorly glabrous; vertex with transverse depression; temples close behind the eyes convex; interocular area nearly flat, without distinct asperities.



562-565. *Ceratapion (Angustapion) mundum*: 562-564 - body outline, dorsal view, 562 - male (Sudan), 563 - female (Ethiopia), 564 - female (Sudan); 565 - male fore tibia (lateral view) and tarsus (dorsal view)

Pronotum variable, sub-cylindrical to weakly rounded at sides and distinctly narrowing in apical half; disc surface rough, with thick scale-like microsculpture both in the punctures and their interspaces, punctures dense, very shallow, funnelled and not distinctly margined, not larger than double ommatidium; prescutellar fovea narrow, variably long.

Elytra parallel-sided in male, weakly dilated and widest distinctly behind middle in female, weakly and evenly convex; intervals scarcely raised, near the base of the elytra as wide as the striae, in middle 1.3-1.4× wider; striae sharply edged, with septae weakly depressed and longer than half of the puncture.

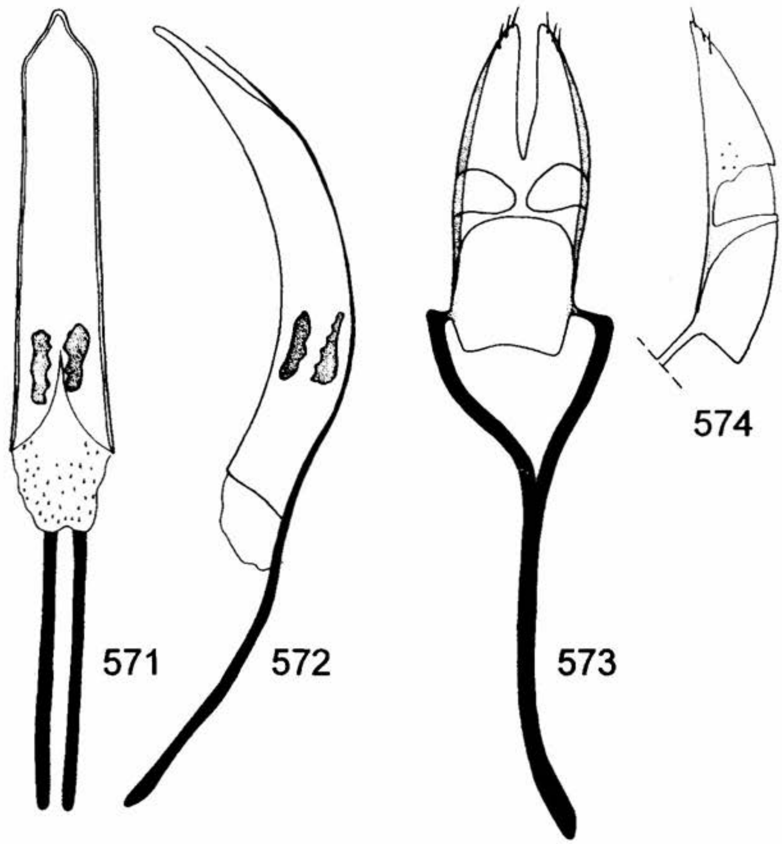


566-570. *Ceratapion (Angustapion) mundum*: 566,567 - body outline, lateral view, 566 - male (Sudan), 567 - female (holotype); 568 - male antenna; 569 - female antennal scape; 570 - male hind tibia and first metatarsomere (lateral view)

Legs very slender; femora weakly thickened medially; male tibiae without apical spines, the hind one sinuous; protarsus 3.7-4.0× longer than broad, with the basal segment nearly twice as long as broad and the onychium exceeding third segment by 0.5-0.6 length; ventral spine of the male metatarsus very long, almost as long as basal segment height.

Wings and their muscles well developed.

Tegminal parameroid lobes narrowly and almost completely separate, distinctly narrowing and acute apically; macrochaetae 3, short, forming a row; fenestrae with distinct margins, narrowly separate, with lateral enclosure adjoining the plate margin; dorsal portion of ring very narrow; lateral fold obsolete; prostegium distinctly produced backwards, subtruncate.



571-574. *Ceratapion (Angustapion) mundum*: 571,572 - median lobe of aedeagus, 571 - dorsal view, 572 - lateral view (spines omitted); 573 - tegmen, dorsal view; 574 - tegminal plate, lateral view

Median lobe of aedeagus with apical mucro short and blunt; apophyses shorter than tubular part of the lobe; internal sac weakly projecting beyond the tube, with a sub-basal pair of large, serrate sclerites, very irregular in shape , the projecting part armed with scattered, minute spines.

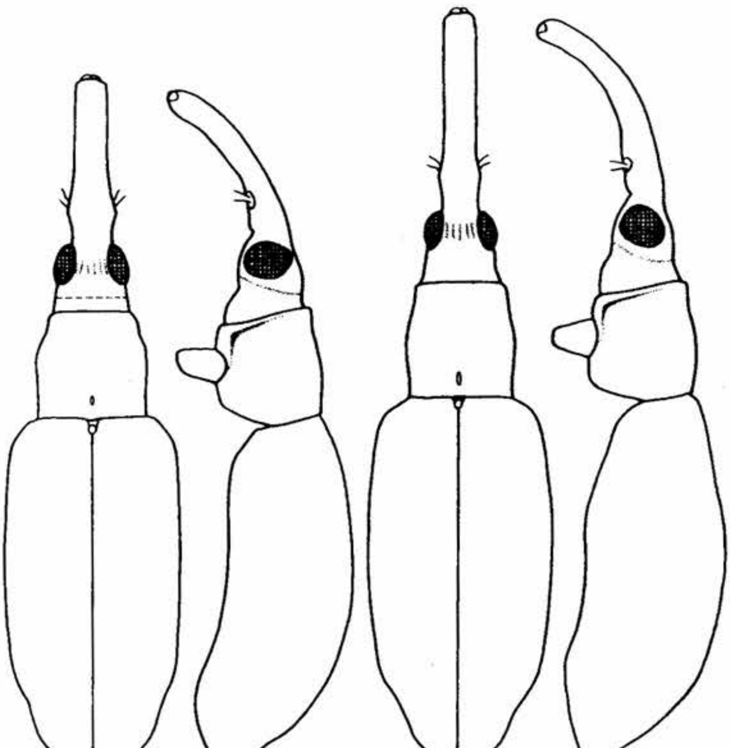
Biology unknown.

Distribution. Ethiopia, Sudan*.

OTHER MATERIAL EXAMINED

ETHIOPIA: Addis Abeba, Mt Wachacha, I 1971, 1f, leg. R. O. S. CLARKE (MRAC); Omo Valley, 12 VI 1963, 1f; Mussolini Pass, 1 VI 1963, 1m 2f - leg. LINNAVUORI (ZMH).

SUDAN: Equatoria: Imatong Mts, Kateri-Gilo, 18 III 1963, 1m 1f, leg. LINNAVUORI (ZMH).



575-578. *Ceratapion (Angustapion) peninsulae*, body outline: 575 - male, dorsal view; 576 - male, lateral view; 577 - female, dorsal view; 578 - female, lateral view

Ceratapion (Angustapion) peninsulae Wanat, 1990
(figs 575-586)

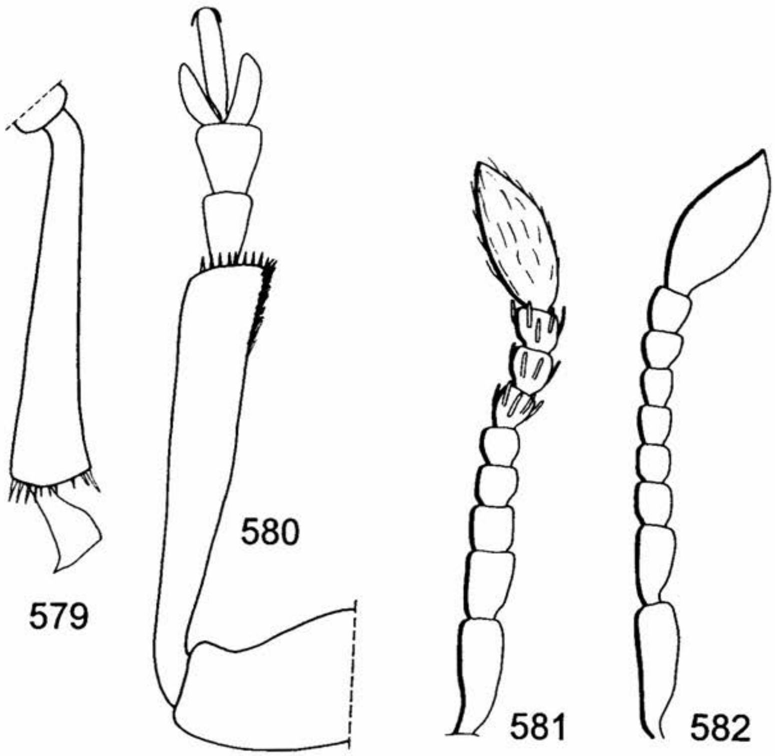
Ceratapion peninsulae Wanat, 1990: 66.

Type material examined

Holotype m: YEMEN: Jebel Jelal, above Nakil Isla, 9600-10000 ft., 8 III 1938, B. M. Expedition to S.W. Arabia, H. Scott & E. B. Britton (B.M. 1938-246) (BMNH); paratypes: Jebel Masnah, S.W. of Ma'bar, ca. 8400 ft., 9 III 1938, H. Scott & E. B. Britton, 2f (BMNH), 1f (MNHW).

Description

Length m: 2.45 mm, f: 2.63-2.65 mm. Body almost black, dull; legs and antennae dark testaceous. Vestiture more distict than in *C. mundum*, white, composed of broader, somewhat lanceolate scales completely adpressed; scales in the striae well visible, 1/3 shorter than those on the intervals.

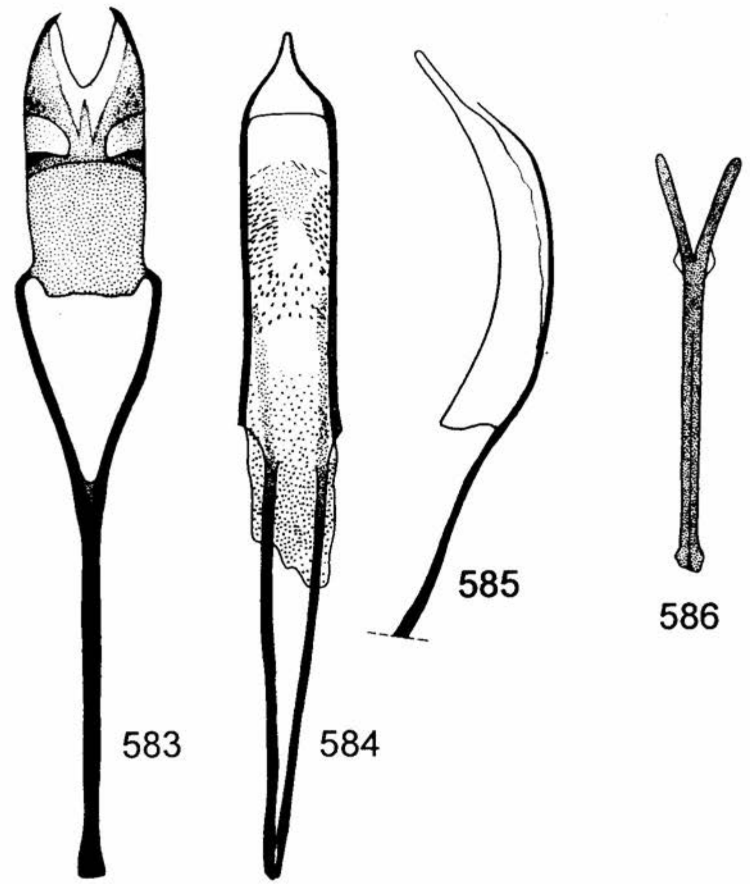


579-582. *Ceratapion (Angustapion) peninsulae*: 579 - male hind tibia and first metatarsomere (lateral view); 580 - male fore tibia (lateral view) and tarsus (dorsal view); 581 - male antenna (scales of proximal segments omitted); 582 - female antenna (scales omitted)

Indices. ***rl/pl:*** m: 1.52, f: 1.68-1.73; ***rl/msrw:*** m: 3.28, f: 4.33-4.45; ***scl/msrw:*** m: 0.72, f: 1.04-1.14; ***msrw/mtrw:*** m: 1.25, f: 1.14-1.18; ***msrw/arw:*** m: 1.54, f: 1.46-1.50; ***msrw/minrw:*** 1.54-1.56; ***msrw/eyl:*** m: 1.21, f: 1.00-1.06; ***brl/eyl:*** 0.94-0.97; ***eyl/hl:*** 0.52-0.61; ***hl/hw:*** m: 0.89, f: 0.98-1.00; ***mpw/hw:*** 1.44-1.52; ***bpw/apw:*** m: 1.19, f: 1.12-1.14; ***pl/mpw:*** m: 0.98, f: 1.02-1.04; ***mew/mpw:*** m: 1.58, f: 1.72-1.78; ***el/pl:*** 3.10-3.39; ***el/mew:*** m: 2.11, f: 1.84-2.00; ***mew/bew:*** 1.14-1.18; ***bew/mpw:*** m: 1.38, f: 1.47-1.56; ***pft/msrw:*** m: 0.82, f: 0.90-0.95; ***ptbl/pl:*** 1.25-1.30; ***ptbl/ptbmw:*** m: 5.50, f: 6.11-6.36; ***ptsl/ptbl:*** 0.57-0.59.

In external morphology similar to *C. mundum*, the differences are listed below.

Rostrum shorter and, especially in female, thicker; greater part of the female prorostrum bare.

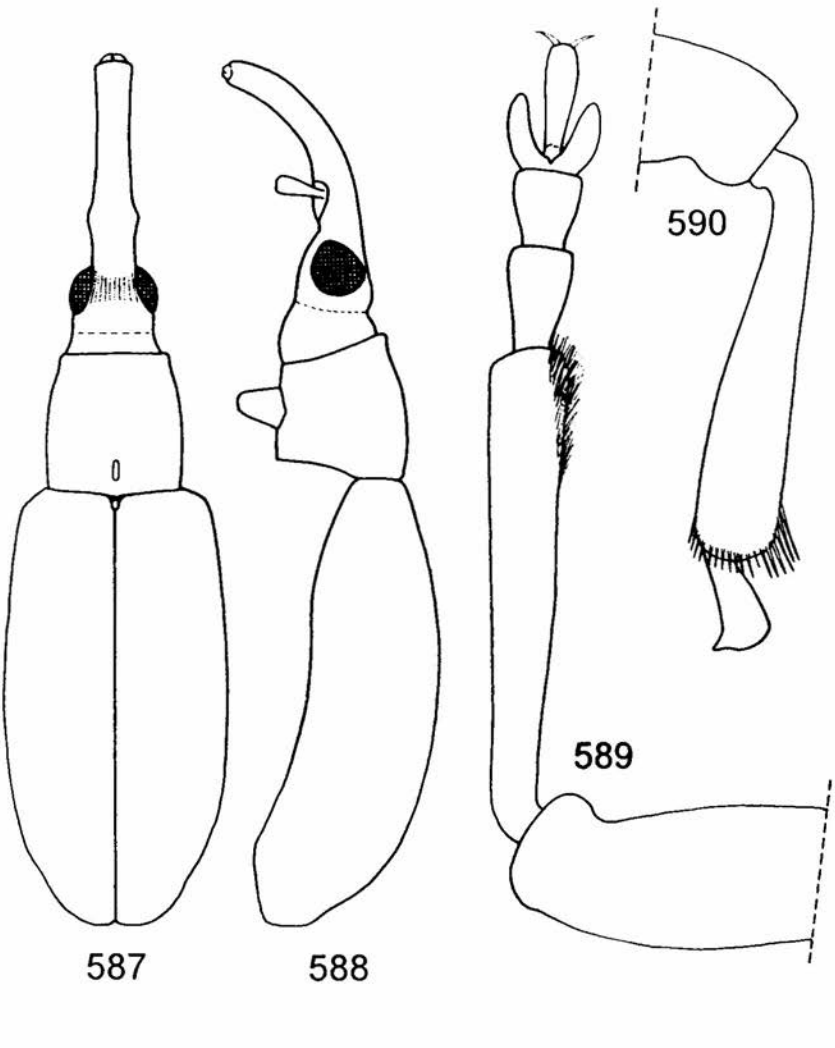


583-586. *Ceratapion (Angustapion) peninsulae*: 583 - tegmen, dorsal view; 584,585 - median lobe of aedeagus, 584 - dorsal view, 585 - lateral view; 586 - spiculum gastrale

Antennae distinctly shorter, clothed with recumbent, white, piliform scales similar to those on the femora, only on the last two funicular segments thinner and darker, resembling those in the previous species; length/width of the scape m: 2.5, f: 3.0-3.1, first funicular segment m: 1.4, f: 1.8-2.0, the remaining nearly cylindrical, equally wide, never elongate.

Frons with a few short striolae which are fine but clearly visible.

Pronotum with subapical constriction more distinct.



587-590. *Ceratapion (Angustapion) lancirostre*, male: 587 - body in dorsal view; 588 - body in lateral view; 589 - fore tibia (lateral view) and tarsus (dorsal view); 590 - hind tibia and first metatarsomere (lateral view)

Elytra narrower, with sides completely straight in male, weakly rounded in female, widest in middle; intervals in the middle of elytra only scarcely wider than the striae.

Legs shorter and more robust; male hind tibia straight; protarsus 3.2× longer than wide, with its basal segment 1.4-1.5 long as long as wide; ventral spine of the male metatarsus minute, shorter than half of basal segment height.

Tegminal parameroid lobes more broadly separate, on about half length; macrochaeta single, very short; fenestrae more distinctly separate.

Median lobe of aedeagus shorter, with the apical mucro longer and pointed; apophyses longer than the tubular part; internal sac without sclerites, with dense, minute spines throughout.

Spiculum gastrale as in fig. 586.

Biology unknown.

Distribution. Yemen.

Ceratapion (Angustapion) lancirostre (CHEVROLAT, 1859)

(figs 587-594, 596, 597, 599-601)

Apion lancirostre CHEVROLAT, 1859: 385.
Apion lanciferum DESBROCHERS, [1897]: 9 (ujustif. emend.).
Apion lancifernum [sic!]: DESBROCHERS, [1898]: 35.
Apion lanceolatum [sic!]: DESBROCHERS, [1898]: 35.

Literature: WENCKER, 1864: 133; DESBROCHERS, [1894]: 92; SCHILSKY, 1902: no.2 (*lanciferum*), 1906b: XXII (*lanciferum*); WAGNER, 1908: 310, 1911: 56; SCHATZMAYR, 1933: 171; NORMAND, 1937: 237; KOCHER, 1961: 24; KÖSTLIN, 1973: 96.

TYPE MATERIAL EXAMINED

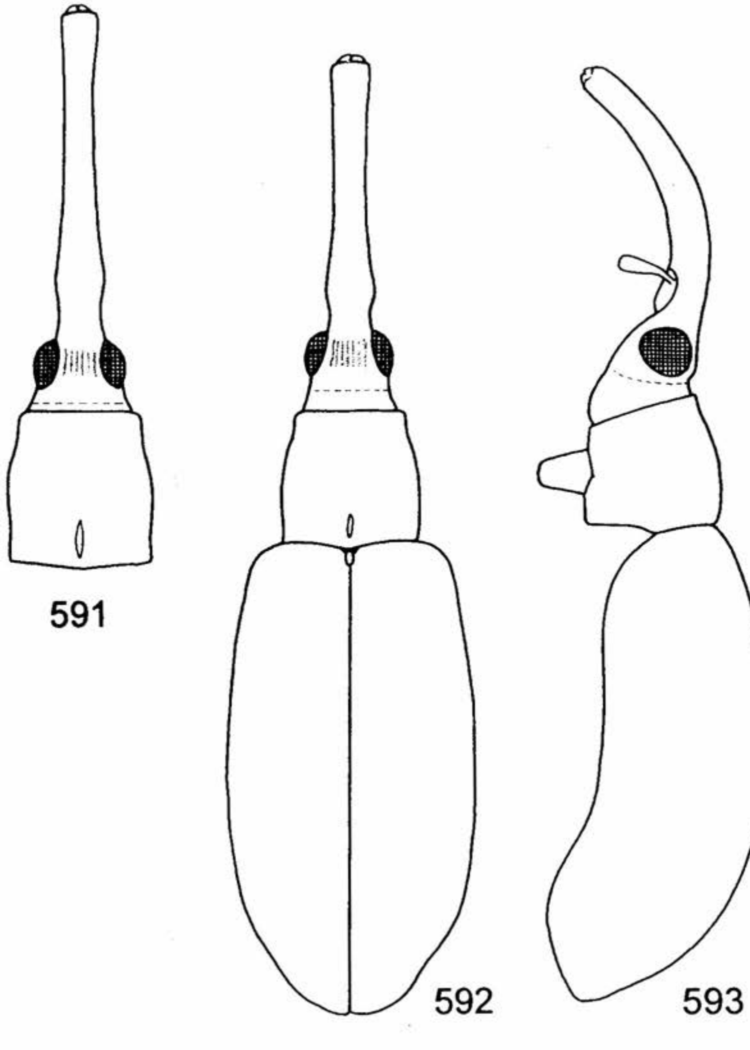
Holotype f: a)white square, b)green square, c)blue square, d)typus, e)*Apion lancirostre* CHV. Rev. Mag. Zool. 1859, 385, f, WENCK. mon. 1, 133, 22, Algiria, Alger, POUPILLIER, *Echinops spinosus* (NRS). There are two additional females in CHEVROLAT's collection, one with the label illegible, the second labelled a)*lancirostre* CHV., Alger (handwritting of DESBROCHERS), both incorrectly labelled as paratypes.

DESCRIPTION

Length 2.76-3.65 mm. Derm dark to piceous brown, rarely black; antennae coloured as the rostrum or scarcely lighter; legs dark brown, with the tibiae slightly lighter. Body vestiture fine, white, grey or somewhat testaceous, slightly opalescent; hair-like scales recumbent to arcuately raised, shorter than the elytral intervals wide, in 2-3 confused rows per interval; scales in the striae distinctly shorter than those on the intervals.

Indices. ***rl/pl:*** m: 1.45-1.56, f: 1.68-2.08; ***rl/msrw:*** m: 3.48-4.27, f: 4.89-6.48; ***scl/msrw:*** m: 0.86-1.12, f: 1.06-1.45; ***msrw/mtrw:*** m: 1.20-1.29, f: 1.06-1.18; ***msrw/***

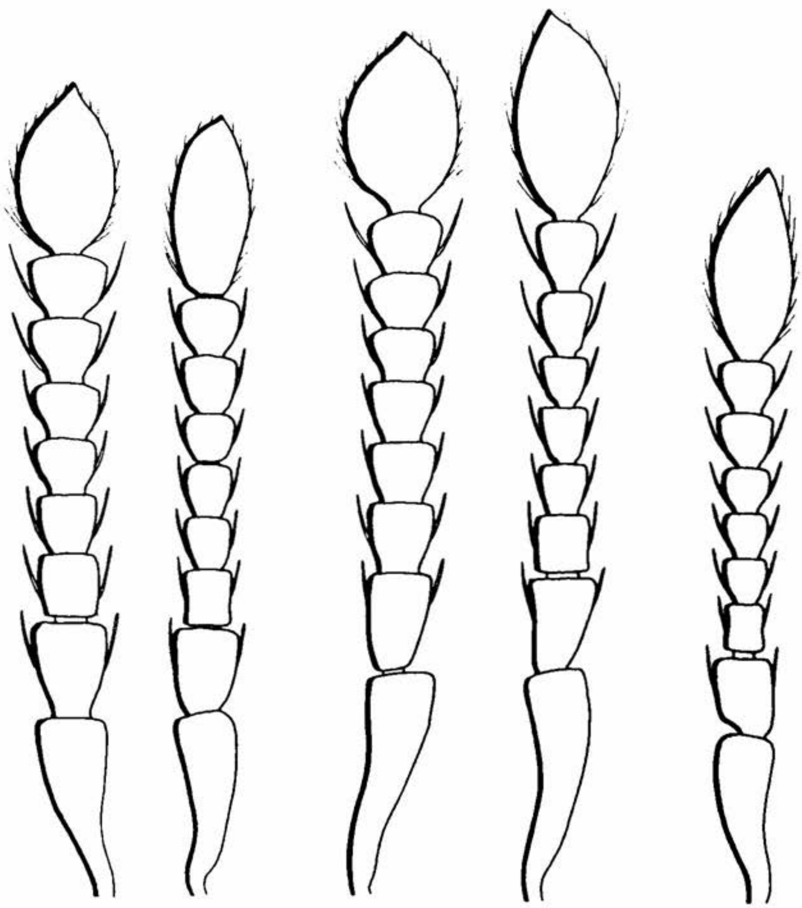
arw: m: 1.45-1.58, f: 1.28-1.35; ***msrw/minrw:*** 1.41-1.67; ***msrw/eyl:*** m: 1.11-1.17, f: 1.00-1.05; ***brl/eyl:*** m: 0.88-1.04, f: 0.96-1.20; ***eyl/hl:*** 0.56-0.70; ***hl/hw:*** 0.78-1.00; ***mpw/hw:*** 1.49-1.69; ***bpw/apw:*** 1.14-1.23; ***pl/mpw:*** 0.99-1.14; ***mew/mpw:*** m: 1.64-1.73, f: 1.70-1.80; ***el/pl:*** 3.00-3.45; ***el/mew:*** 1.87-2.02; ***mew/bew:*** m: 1.22-1.30 (M 1.26), f: 1.26-1.34 (M 1.29); ***bew/mpw:*** 1.32-1.39; ***pft/msrw:*** m: 0.82-0.87, f: 0.88-1.03; ***ptbl/pl:*** 0.98-1.15; ***ptbl/ptbmw:*** m: 5.00-5.57 (M 5.29), f: 5.33-6.09 (M 5.71); ***ptsl/ptbl:*** 0.56-0.65.



591-593. *Ceratapion (Angustapion) lancirostre*, **female body outline: 591 - head and pronotum in dorsal view (holotype); 592 - dorsal view (Alger); 593 - lateral view (Alger)**

Rostrum strongly, uniformly curved, in both sexes with distinct microsculpture and dense, shallow puncturation nearly to the apex, finely pubescent throughout (more distinctly so in male), strongly variable in length in females; mesorostrum often forming small obtuse teeth in male, at most obtusely expanded in female; prorostrum weakly dilated apically, with only the extreme apex shining; antennal cavities very large, elongate, edges of the scrobes reaching half eye length, but posterior parts of the scrobes distinctly asperate, as so the rest of the interocular area.

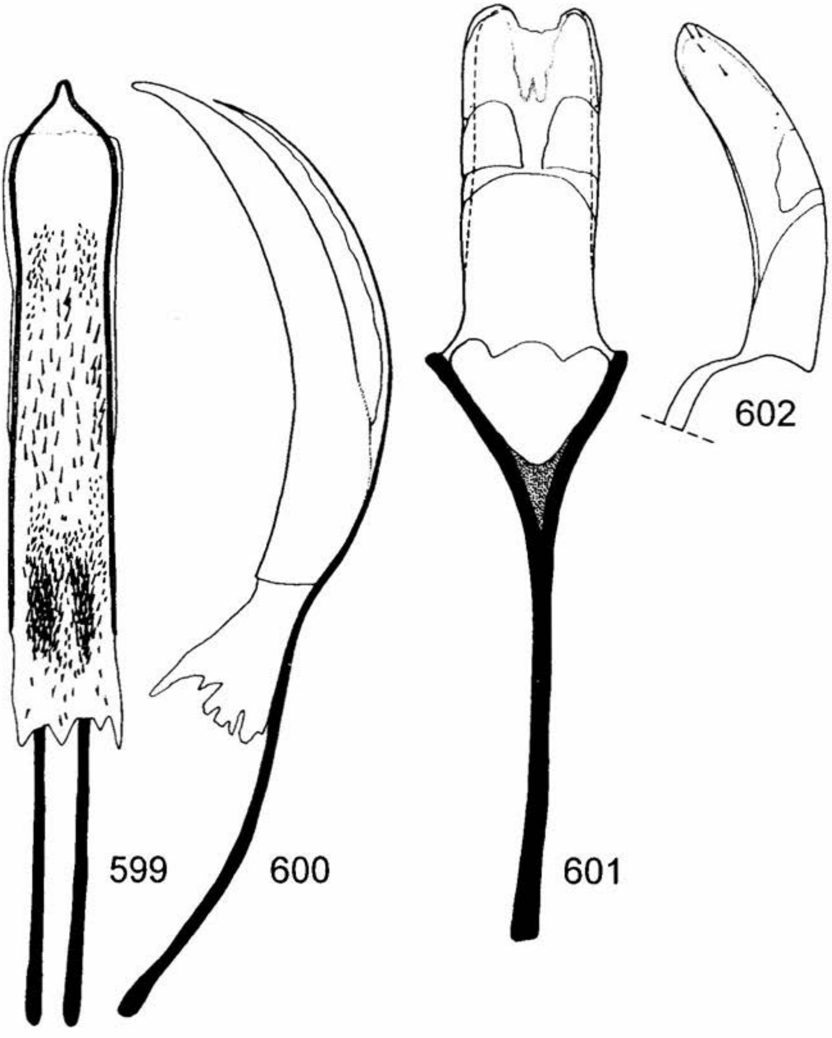
Antennae variably thick but usually very strongly so, in female proportions chiefly depending on the rostrum length; insertion at m: 0.18-0.26 (M 0.21), f: 0.18-



594 595 596 597 598

594-598. Antenna: 594 - *Ceratapion (Angustapion) lancirostre*, male; 595 - *C. (A.) sefrense*, male; 596 - *C. (A.) lancirostre*, female from Le Kef (thickest), 597 - *C. (A.) lancirostre*, holotype (thinnest), 598 - *C. (A.) sefrense*, female

0.21 (M 0.19) from the rostrum base; length/width of the scape m: 2.7-2.9, f: 3.1-3.6, first funicular segment 1.2-1.5, second 0.95-1.05, the remaining predominantly distinctly transverse, last one 1.2-1.3× wider than long, but in females with the rostrum especially long slightly elongate, last one isodiametric; club very short and broad, usually not very more than 1.5×, exceptionally up to 2×, longer than wide; antennal pubescence thick, yellowish-testaceous, semi-recumbent.



599-601. *Ceratapion (Angustapion) lancirostre*: 599,600 - median lobe of aedeagus, 599 - dorsal view, 600 - lateral view; 601 - tegmen, dorsal view. 602. *C. (A.) sefrense*, tegminal plate in lateral view

Head of fairly variable shape, mostly sub-rectangular; eyes more or less distinctly convex, large; frons scarcely depressed in front, with distinct striolae throughout or nearly so, separated from the vertex by a distinct transverse depression; vertex narrowly punctate close to the frons, remainder smooth and bare, weakly shining; temples punctured just near the eye margin in upper parts, the puncturation expanding beneath, the smooth posterior part of the temple well separated; interocular area gibbous, with asperities only along the eyes.

Pronotum with subapical constriction distinct, more or less distinctly rounded at sides; disc convex, with front margin slightly raised; puncturation very dense, punctures of 2× ommatidium size, variably deepened, interspaces flat to convex, with microsculpture variably developed, usually with a weak sheen; prescutellar fovea narrow and deep, as long as 3-4 punctures.

Elytra weakly convex, almost parallel-sided in male, weakly rounded at sides in female, widest at or slightly behind middle; humeral calli weakly prominent; intervals flat, in median sections 1.2-1.8× broader than the striae, dull or shiny; striae well impressed, with sharp edges.

Legs fairly short, variably thick; femora in female weakly, in male clearly robust, especially the fore ones; male tibiae unarmed; protibia shorter and weakly dilated apicad in male, with brown apical setae longer and more numerous than in female; metatibiae slightly sinuous in male, straight in female, their length/width ratio 4.6-5.0 in both sexes; protarsus 3.1-3.4× longer than wide, first segment 1.4-1.5 as long as wide, onychium exceeding third segment by about 0.7 length; ventral spine of the male metatarsus not longer than half of basal segment height.

Metathoracic wings normally long, their muscles mostly reduced.

Tegmen with manubrium distinctly sinuous in profile; tegminal plate shallowly emarginate apically; parameroid lobes with apices broadly rouded, completely transparent and usually with fine irregular borders of the stronger lateral sclerotization at the connate inner margins; macrochaetae 3-4, minute, subapical; fenestrae variably developed, sometimes hardly visible; dorsal portion of ring narrow, occasionally incomplete; lateral fold long, extremely fine; prostegium not exceeding the fusion with the basal piece posterad, usually with a pair of obscure projections.

Median lobe of aedeagus as in figs 599, 600; apophyses as long as the tubular part; internal sac weakly projecting to basal 1/3 apophyses, throughout with dense spines differing in length and forming two thicker aggregations between the apophyse bases.

Biology unclear. The holotype and the specimens from Le Kef (IRB, MNHP) were collected on *Echinops spinosus* L. NORMAND (1937) reports *E. bovei* BOIS. as the foodplant, but it may refer to *C. sefrense*, as both species have been frequently misidentified.

Distribution. Tunisia, Algeria, Morocco, France*.

Apparently erroneously recorded from Mauritania by WINKLER & WAGNER (1932) - they probably meant NW African countries in general. WAGNER (1911) listed the species from Egypt, which seems to be doubtful. The occurrence in France requires confirmation, as the specimens were collected on the turn of the 19th century. *Echinops spinosus* has been found in Europe only on Sicily, but a few other species of this genus occur in France.

REMARKS

The holotype has unusually long rostrum and slender antennae, thus being the rare case, when the type specimen is the most "atypical" representative of the species.

OTHER MATERIAL EXAMINED

La Margnia, 1m, coll. L. PANDELLÉ (IRB).

ALGERIA: 6 exs (MNHP, SMTD, IRB); Feriana, 1 ex., coll. DESBROCHERS; Pr. de Oran, 3 exs, coll. SÉDILLOT, 5 exs, coll. Ad. HOFFMANN (MNHP), 3m (MF); Constantine, 1f, J. SAHLBERG (ZMH), 1f (det. as *sejugum* DBR.), coll. SCHILSKY (MNB); Gouraya, 6m (DEI, HMNH, NMW); Gouertouse [Guertoufa n. Tiaret], 1m, leg. BONNAIRE (SMTD); Kabylie, 1f, coll. MADON (IRB); Bône [Annaba], 8 exs (MNHP, DEI, HMNH, IRB, ZSM); Setif, 1100 m, 24 III 1986, 1f, leg. A. WARCHAŁOWSKI (DEI).

FRANCE: "Gallia", 3m 1f, REITTER (MNB, SS, IZW); Bass. Alpes [Alpes de Haute Provence], 1m, REITTER (SS).

MOROCCO: Atlas med., Azrou, 24 VI-2 VII 1926, 1m 1f, leg. LINDBERG (ZMH).

TUNISIA: 1f (SMTD); Le Kef, 12m 9f, leg. NORMAND (MNHP, DEI, HMNH, SMNS, IRB, FSF), 1914, 1m 1f, ex coll. WINKLER (ZSM); Teboursouk, 1m 1f, leg. SICARD, 1900, 1m, leg. CHOBAUT (ZSM).

Ceratapion (Angustapion) sefrense (DESBROCHERS, 1897)

(figs 595, 598, 602)

Apion sefrense DESBROCHERS, [1897]: 10.
Apion angustius DESBROCHERS, [1898]: 35, **syn. nov.**
Apion lancirostre: PEYERIMHOFF, 1926: 381, nec CHEVROLAT, 1859.

Literature: DESBROCHERS, [1898]: 35, [1900-01]: 78 (*angustius*); WAGNER, 1911: 54; NORMAND, 1949: 97.

TYPE MATERIAL EXAMINED

***A. sefrense* DBR.** Lectotype m: a)Ras Chergui, HÉNON, b)Ex Musaeo DESBROCHERS 1914 (coll. DESBROCHERS, MNHP) (present designation); paralectotypes: Ain-Sefra, leg. HÉNON, 1f (NRS), 2f (MNHP). ***A. angustius* DBR.** Lectotype m: a)Alg. Lagouat, b)m, c)Ex Musaeo DESBROCHERS 1914 (coll. DESBROCHERS, MNHP) (present designation).

DESCRIPTION

Body length 2.51-3.33 mm.

Indices. ***rl/pl:*** m: 1.49-1.62, f: 1.72-1.88; ***rl/msrw:*** m: 3.79-4.04, f: 4.68-5.71; ***scl/msrw:*** m: 0.86-1.00, f: 1.07-1.29; ***msrw/mtrw:*** m: 1.08-1.29 (M 1.21), f: 1.05-1.13 (M 1.11); ***msrw/arw:*** m: 1.43-1.58, f: 1.27-1.44; ***msrw/minrw:*** 1.40-1.67; ***msrw/eyl:*** m: 1.05-1.18 (M 1.12), f: 0.97-1.08 (M 1.00); ***brl/eyl:*** 0.86-1.13; ***eyl/hl:*** 0.61-0.67; ***hl/hw:*** m: 0.93-0.96, f: 0.85-0.92; ***mpw/hw:*** 1.50-1.62; ***bpw/apw:*** 1.11-1.25; ***pl/mpw:*** 0.97-1.10; ***mew/mpw:*** 1.60-1.83; ***el/pl:*** m: 3.08-3.44 (M 3.30), f: 3.22-3.63 (M 3.40); ***el/mew:*** 1.90-2.12; ***mew/bew:*** 1.14-1.32; ***bew/mpw:*** 1.32-1.47; ***pft/msrw:*** 0.75-0.95; ***ptbl/pl:*** 0.99-1.17; ***ptbl/ptbmw:*** 5.35-6.48; ***ptsl/ptbl:*** 0.52-0.64.

Extremely similar to *C. lancirostre* and distinct almost only in the structure of antennae, much less variable than in the previous species. Antennae are thinner, with second funicular segment 1.15-1.20× longer than wide, segments 3-6 as long as wide, seventh scarcely transverse, club 2.2-2.3× longer than wide, and the pubescence nearly adpressed.

Moreover, the hair-like scales of the body are slightly broader, cream-white, never opalescent, male femora and tibiae less robust and the aggregations of spines in basal part of the internal sac less distinct. The remaining characters exactly like in *C. lancirostre*.

Biology unknown, PEYERIMHOFF collected beetles from *Echinops bovei* BOIS.

Distribution. Tunisia, Algeria.

OTHER MATERIAL EXAMINED

ALGERIA: Ain-Sefra, 8 V 1923, 3m, leg. A. CHOBAUT (MNHP, MF); Bône [Annaba], 1m, leg. LEPRIEUR; Teniet-el-H., 1f; Ain-Rousa el Akrat Djelfa, 20 X 1922, 1f; Brahim pr. Mostaganem, 10-12 VI 1926, 6m 6f, "sur *Echinops Bovei*" - leg. PEYERIMHOFF; Ain-Bouta, 1m, leg. H. TONDU (MNHP); Bou Saada, 3-4 V 1987, 6m 11f (JS), 1m, leg. V. KUBAN (KS).

TUNISIA: Meknassy, 14 VII 1927, 1f, leg. C. DUMONT (MNHP).

***Ceratapion (Angustapion) macrorrhynchum* (EPPELSHEIM, 1888)**

(figs 603-617, 651)

Apion macrorrhynchum EPPELSHEIM, 1888: 381.
Apion (Ceratapion) perlongum: auctt., nec FAUST, 1891.

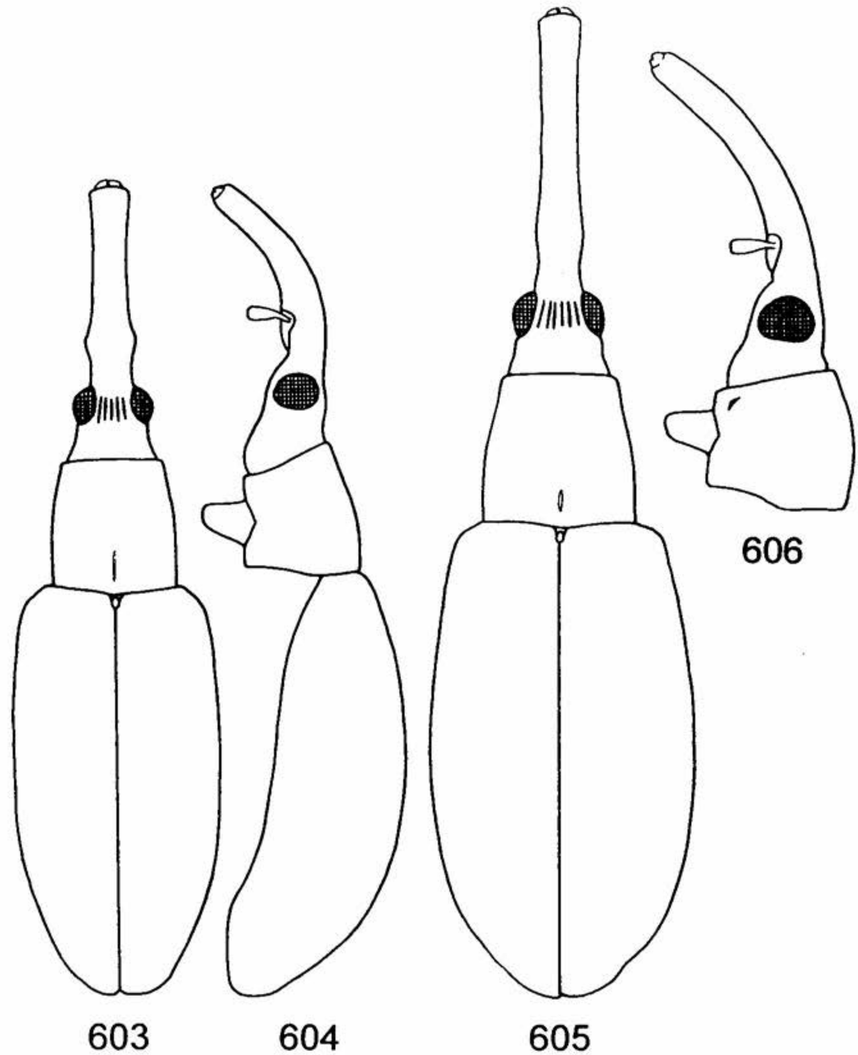
Literature: DESBROCHERS, [1894]: 93; SCHILSKY, 1906: no.9, 1906b: XXI; WAGNER, 1908b: 104, 1911: 55; BAJTENOV & MIHAJLOVA, 1980; BEHNE, 1989: 321; WANAT & KUŚKA, 1991: 70.

Type material examined

Holotype f: a)Südl. Sporaden, Nikaria, v. Oertzen, b)1 (red), c)50 (green), d)C. Epplsh. Steind. d., e)*macrorrhynchum* Epp., f)f, g)Typus, h)No. 647 (NMW).

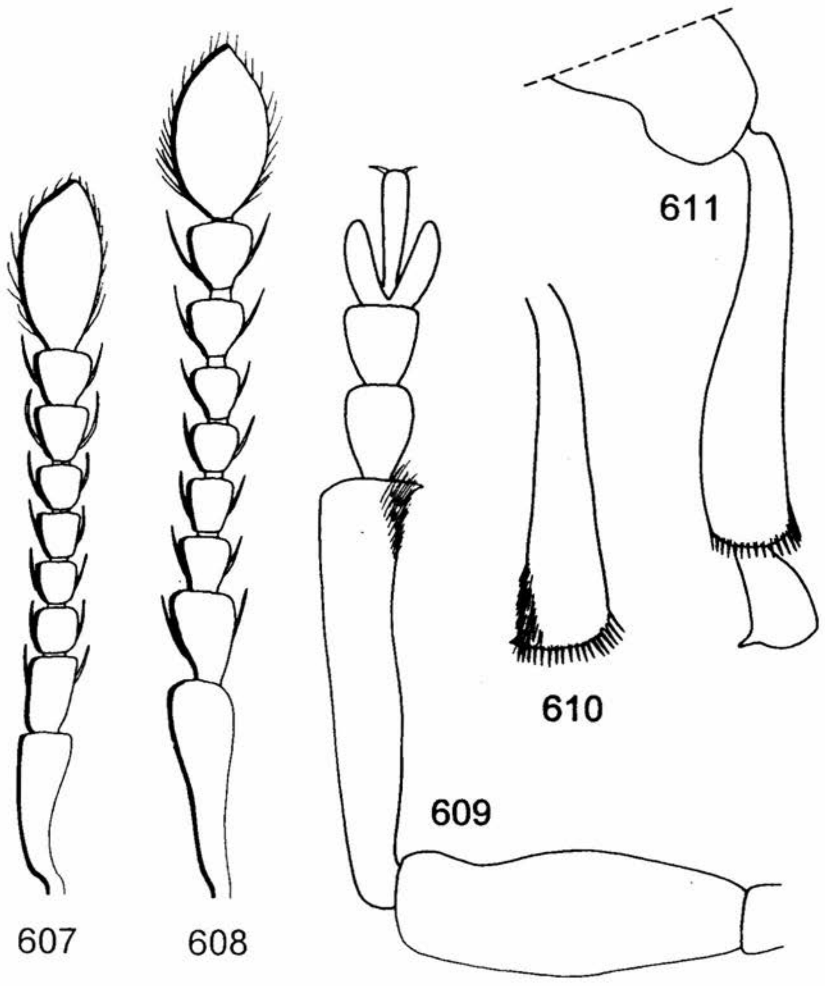
Description

Body length 2.60-3.27 mm. Colouration dark brown, as in *C. lancirostre*. Vestiture completely recumbent; hair-like scales fine, greyish, as long as 0.6-0.8 elytral interval width.



603-606. *Ceratapion (Angustapion) macrorrhynchum*, body outline: 603 - male, dorsal view; 604 - male, lateral view; 605 - female (holotype), dorsal view; 606 - female head and pronotum, lateral view

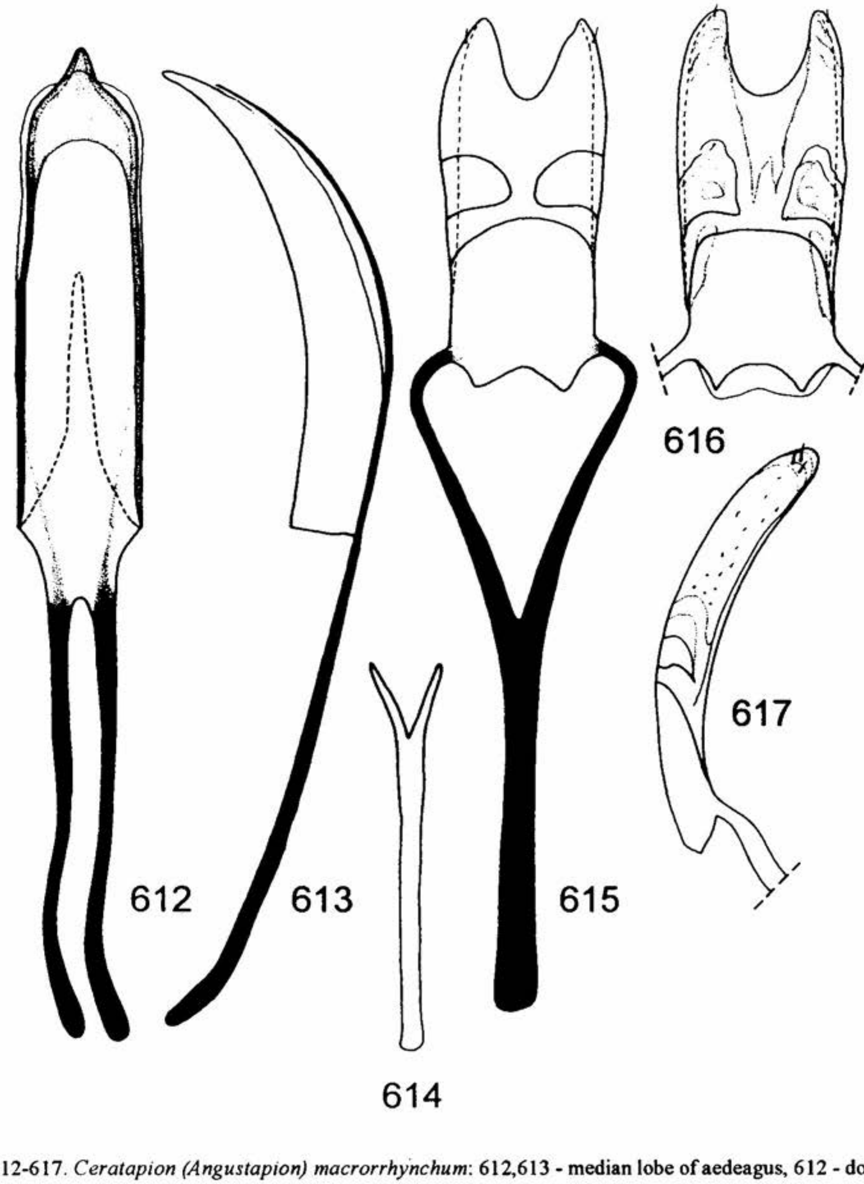
Indices. ***rl/pl:*** m: 1.33-1.52, f: 1.61-1.70; ***rl/msrw:*** m: 3.59-3.85, f: 4.62-5.58; ***scl/msrw:*** m: 0.95-1.09; ***msrw/mtrw:*** m: 1.13-1.29, f: 1.10-1.18; ***msrw/arw:*** m: 1.43-1.57, f: 1.19-1.38; ***msrw/minrw:*** m: 1.43-1.71, f: 1.32-1.50; ***msrw/eyl:*** m: 1.11-1.26, f: 0.94-1.09; ***brl/eyl:*** m: 1.01-1.19 (M 1.12), f: 0.91-1.14 (M 1.01); ***eyl/hl:*** 0.60-0.72; ***hl/hw:*** 0.74-0.89; ***mpw/hw:*** m: 1.41-1.53, f: 1.55-1.76; ***bpw/apw:*** 1.13-1.30; ***pl/mpw:*** 1.03-1.19; ***mew/mpw:*** 1.61-1.81; ***el/pl:*** 3.00-3.25; ***el/mew:*** m: 1.97-2.08 (M 2.01), f: 1.87-2.00 (M 1.95); ***mew/bew:*** 1.17-1.23; ***bew/mpw:*** m: 1.40-1.47, f: 1.34-1.43; ***pft/msrw:*** m: 0.80-0.93, f: 0.94-1.08; ***ptbl/pl:*** 0.89-1.04; ***ptbl/ptbmw:*** m: 3.88-4.50, f: 4.92-5.60; ***ptsl/ptbl:*** 0.64-0.70.



607-611. *Ceratapion (Angustapion) macrorrhynchum*: 607 - male antenna; 608 - female antenna; 609 - male fore femur, tibia (lateral view) and tarsus (dorsal view); 610 - male mid tibia; 611 - male hind tibia and first metatarsomere (lateral view)

Mesorostrum forming small, obtuse teeth in male, scarcely dilated in female; prorostrum visibly bare, weakly dilated apically.

Antennae fairly stout, in male exceeding rostrum apex with combined length of the club and the last funicular segment; insertion at basal m: 0.24-0.26, f: 0.19-0.20



612-617. *Ceratapion (Angustapion) macrorrhynchum*: 612,613 - median lobe of aedeagus, 612 - dorsal view, 613 - lateral view; 614 - spiculum gastrale; 615,616 - tegmen in dorsal view, showing extreme variation of the tegminal plate; 617 - tegminal plate, lateral view of rostrum; length/width of the scape m: 2.9-3.0, f: 3.2-3.4, first funicular segment 1.3-1.5, club 1.75-1.90; funicular segments 2-7 as long as wide, the distal ones distinctly narrowing basad, often pedunculate; antennal pubescence brownish, moderately protruding.

Eyes fairly small, prominent; frons flat, not separated from the vertex by transverse depression, with striolae more or less distinct; vertex obsoletly punctate in front, gently elevated posterad; temples in male distinctly longer than the eye, punctured on a distance of 0.20-0.25 eye length, the punctured area equally wide throughout the temple height, not distinctly separated from the smooth posterior part.

Pronotum in male slightly, in female more strongly narrowed apically, in basal half usually parallel-sided, with thin walls and subapical constriction obsolete or absent; disc weakly convex, with the front margin even; punctures dense, shallow, not strongly larger than single ommatidium, interspaces flat to slightly raised, thickly scale-like microsculptured.

Elytra with humeral calli well developed; intervals on the disc 1.8-2.5× broader than the striae.

Female femora distinctly thickened medially, as in male; length/width of hind tibiae m: 4.00-4.61 (M 4.27), f: 4.52-5.10 (M 4.77); protarsus 3.1-3.3× longer than broad, first segment 1.3-1.4, second 1.0-1.1 as long as broad, onychium exceeding third segment by 0.5-0.6 length; male pro- and mesotibiae armed with a small mucro-like spine apically, metatibiae sinuous; ventral spine of the male metatarsus variable in size, as long as, or shorter than, half basal segment height.

Other external characters as described in *C. lancirostre*.

Tegminal manubrium weakly arched in profile; tegminal plate 2.1-2.3× longer than broad, strongly variable (figs 615, 616); parameroid lobes broadly separate on half length, at sides with numerous, round or elongate sensillae throughout, at apices usually with some extremely fine, transverse wrinkles; macrochaetae 3, close to each other, subapical; fenestrae strongly variable, usually with upper margins less evident, sometimes multiplied and concentric; dorsal portion of ring narrow, never broken; lateral fold long; prostegium hardly projecting backwards, more or less distinctly bicuspid.

Median lobe of aedeagus short; apophyses longer than the tubular part, connate basally; internal sac unarmed, not projecting.

Spiculum gastrale with manubrium more than 4× longer than the forked part.

Spermatheca in females from Greece and Bulgaria with the cornu nearly as wide as the corpus and obtuse at apex (fig. 651), but in the female from Urgöp (central Anatolia) the cornu is distinctly longer, narrower and more acute, as in fig. 650.

Biology unknown.

Distribution. Macedonia, Bulgaria, Greece, Western Turkey.

Records from Podolia (Ukraine) refer to *C. transsylvanicum*, and those from Crimea probably to *C. perlongum*. Wagner's (1911) data on the occurrence of this species in Algeria and Tunisia are certainly incorrect and the presence of *C. macrorrhynchum* in Syria and Caucasus has never been satisfactorily confirmed.

The status of the only female from Central Turkey (vil. Nevsehir: Urgöp, 2 X 1969, 1f, leg. N. Lodos, JF) remains uncertain. It resembles *C. macrorrhynchum* in rostrum length, antennal structure, presence of striolae on the frons and the length/width ratio of hind tibiae (4.55), but has the spermatheca identical as in *C. sejugum*.

Other material examined

BULGARIA: Liaskovo, leg. Z. Cmoluch, 1m (SS) - publ. Smreczyński & Cmoluch (1961) as *Apion perlongum* Fst.; Sandanski, dolina Strumy, 4 VII 1979, 1m (MM) - publ. Wanat & Kuśka (1991); Pirin pl., 1f; Sandanski, V 1972, 1 ex.- leg. R. Vesely; Slancev Brjag n. Nessebar, 7 V 1985, 1m, leg. B. Jaeger - publ. Behne, 1989 (LD).

GREECE: Morea, Cumani, 1m, leg. Brenske (FSF); Corfu: Pantokrator, 1m, leg. U. Sahlb (MNB); Peloponnes, 1f, coll. Hartmann (SMTD); Taygetos, 1898, 1m, coll. H. Wagner (ZSM).

MACEDONIA: Gevgelija n. Vardar, 20-21 V 1980, 1f, leg. F. Hieke (LD).

TURKEY: Besika Bay [Beschik-Bai], 1m, leg. D. Champion (MNB).

Ceratapion (Angustapion) transsylvanicum (Schilsky, 1906)

(figs 618, 619, 621-628)

Apion (Ceratapion) transsylvanicum Schilsky, 1906: no.10.
Apion (Ceratapion) macrorrhynchum: Smreczyński, 1965: 47, nec Eppelsheim, 1888.

Literature: Schilsky, 1906b: XXI; Wagner, 1911: 53.

Holotype was apparently lost together with the great part of H. Wagner's collection before the World War II (S. Smreczyński, in letter to L. Dieckmann).

Description

Length 2.55-3.29 mm. Body piceous brown, legs and antennae evenly dark brown. Body vestiture and sculpture as in *C. macrorrhynchum*.

Indices. ***rl/pl:*** m: 1.40-1.53, f: 1.63-1.92; ***rl/msrw:*** m: 4.00-4.51, f: 5.16-6.15; ***scl/msrw:*** m: 1.00-1.13, f: 1.19-1.41; ***msrw/mtrw:*** 1.09-1.21; ***msrw/arw:*** m: 1.31-1.46 (M 1.39), f: 1.23-1.38 (M 1.29); ***msrw/minrw:*** 1.28-1.57; ***msrw/eyl:*** m: 1.11-1.21, f: 0.97-1.13; ***brl/eyl:*** m: 1.16-1.33 (M 1.24), f: 0.84-1.40 (M 1.14); ***eyl/hl:*** 0.62-0.74; ***hl/hw:*** 0.67-0.85; ***mpw/hw:*** 1.44-1.74; ***bpw/apw:*** 1.10-1.26; ***pl/mpw:*** 1.01-1.15; ***mew/mpw:*** 1.56-1.75; ***el/pl:*** 2.73-3.19; ***el/mew:*** 1.82-2.04; ***mew/bew:*** 1.20-1.29; ***bew/mpw:*** 1.27-1.43; ***pft/msrw:*** 0.86-1.08; ***ptbl/pl:*** 0.94-1.07; ***ptbl/ptbmw:*** m: 4.38-5.00, f: 5.58-6.21; ***ptsl/ptbl:*** 0.59-0.69.

Rostrum longer than in the previous species (rl/pl !, rl/msrw !), more evidently pubescent; male mesorostrum less distinctly expanded, similar as in female; prorostrum cylindrical, seldom scarcely dilated apically in female.

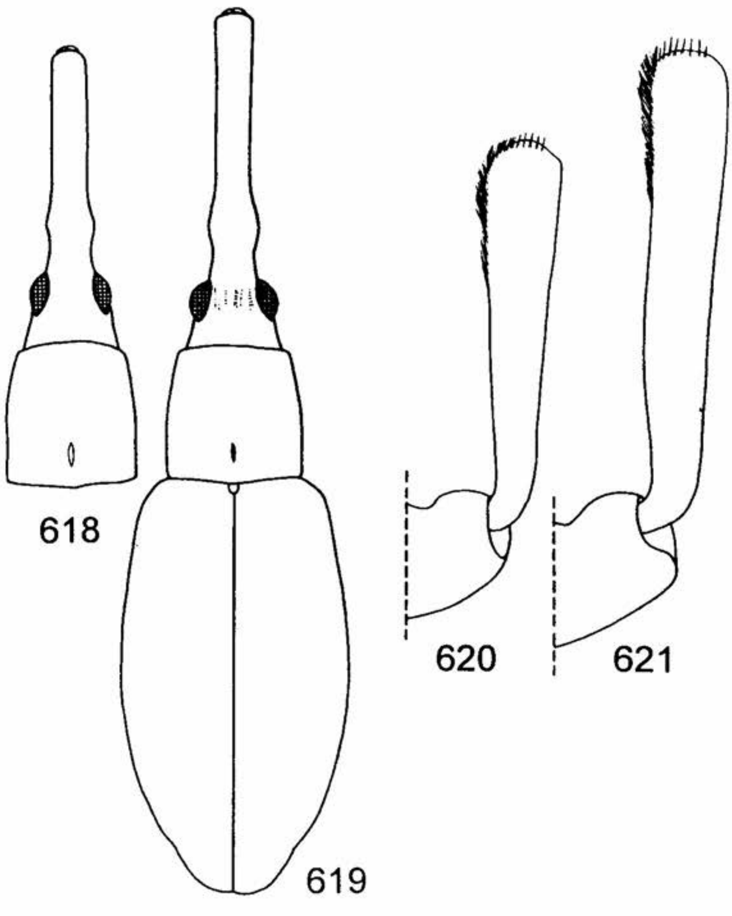
Antennae are the thinnest in the *C. macrorrhynchum* species group, inserted at basal m: 0.24-0.26, f: 0.16-0.22 of rostrum, in male further from head (brl/eyl !)

than in the previous species; length/width of the scape m: 3.0-3.4, f: 3.2-4.3 (scl/msrw !), first segment of the funicle 1.4-1.8, second 1.10-1.45, third 1.3-1.4, the remaining elongate, seventh 1.1 as long as wide and distinctly wider than segments 2-4; club 2.05-2.45× longer than wide; antennal pubescence fine and opalescent, more or less distinctly protruding.

Head shorter than in *C. macrorrhynchum*, somewhat sub-conical; male eyes larger, less prominent, as long as, or longer than the temples.

Pronotum with thick walls, in relation to elytra large, cylindrical or slightly rounded at sides; disc roughly punctate.

Elytra oval, with humeral prominences obsolete; intervals of variable breadth, 1.2-1.8× broader than the striae.



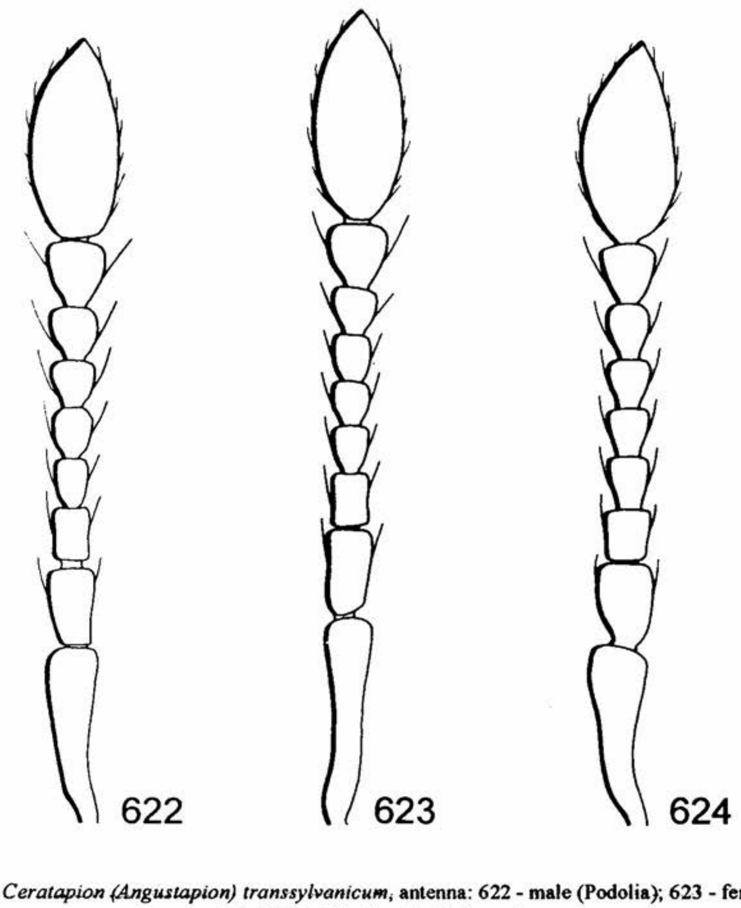
618,619. *Ceratapion (Angustapion) transsylvanicum*, body outline in dorsal view: 618 - male (head and pronotum); 619 - female. 620,621. Female protibia: 620 - *C. (A.) perlongum*; 621 - *C. (A.) transsylvanicum*

Femora robust, especially in male; tibiae and tarsi slightly slimmer than in *C. macrorrhynchum* (ptbl/ptbmw !); length/width of the hind tibia m: 4.47-5.10, f: 4.75-5.45; protarsus more than 3.5× longer than broad, with first segment about 1.5 as long as broad; male fore and mid tibiae with apical spines as in *C. macrorrhynchum*.

Wings normally long or shortened to about half elytron length, their muscles always reduced.

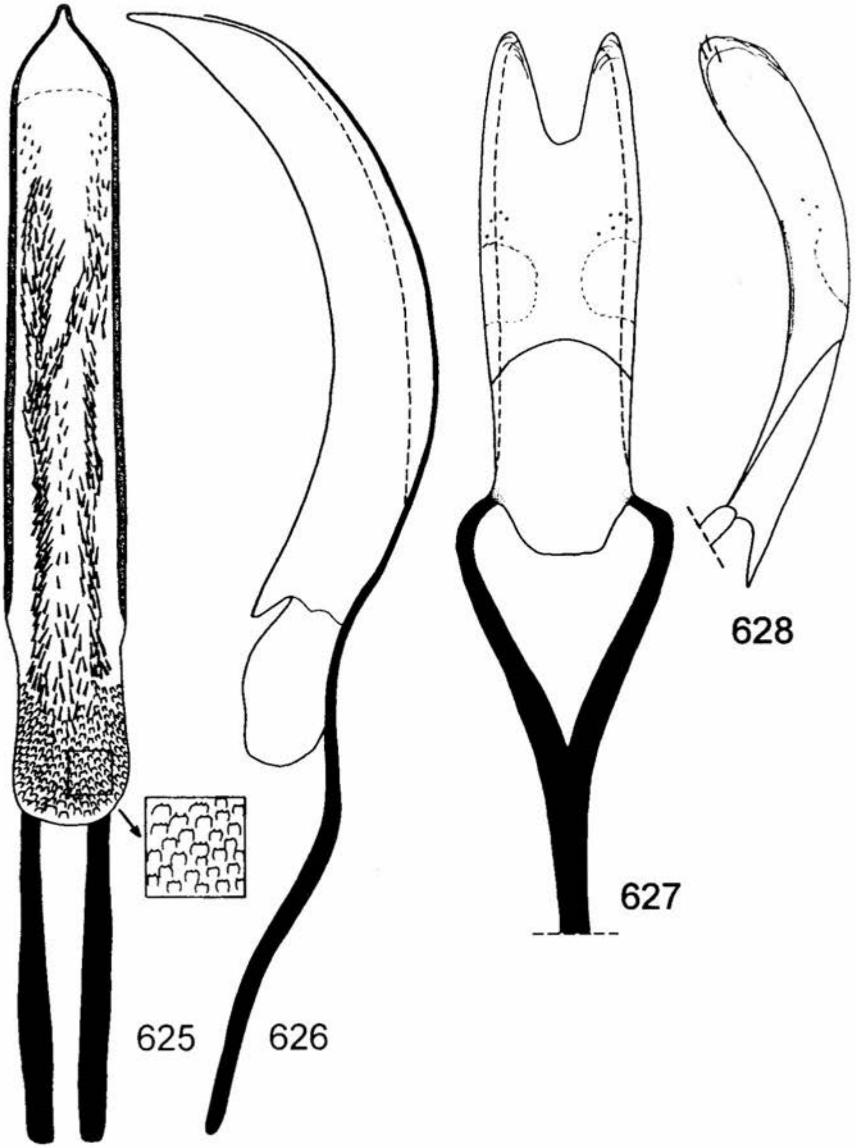
The remaining external characters as in *C. macrorrhynchum*.

Tegminal plate strongly elongate, more than 3× longer than broad, with sensillae present only in basal parts of the parameroid lobes; fenestrae hardly visible, with margins partly evanescent, clearly rounded and broadly separate; lateral fold obsolete to completely vanishing; prostegium distinctly projecting backwards, truncate.



622-624. *Ceratapion (Angustapion) transsylvanicum*, antenna: 622 - male (Podolia); 623 - female (Podolia); 624 - female (Budapest)

Median lobe of aedeagus longer than in *C. macrorrhynchum*; apophyses shorter than the tubular part, sinuous as seen in profile; internal sac projecting to basal 1/3 apophyses, the external part densely clothed with minute, sub-quadrate, bi- or



625-628. *Ceratapion (Angustapion) transsylvanicum*: 625,626 - median lobe of aedeagus, 625 - ventral view (the scales enlarged), 626 - lateral view; 627 - tegmen, dorsal view; 628 - tegminal plate, lateral view tricuspid scales, the remaining part of the sac with numerous, fairly long spines, partly condensed into 2-3 confused rows.

Spermatheca as in fig. 650.

Biology. In Ukraine collected exclusively on *Echinops sphaerocephalus* L. Larval habits unknown.

Distribution. Hungary, Rumania, Ukraine (Podolia).

REMARKS

In the Podolian population antennae are especially slender and always close to the maxima of the given ratios of antennal segments. In the two females from Hungary and Rumania the antennae are slightly but evidently thicker.

OTHER MATERIAL EXAMINED

HUNGARY: Budapest, 1f, leg. ZOPPA (MCM).

RUMANIA: Siebenburgen: M-Vasarhely [Maros Vasarhely, presently Tirgu Mures], 1f (SMTD).

UKRAINE: Podolia: Obiżowa n. Zaleszczyki, 8 VII 1913, 1 ex.; Pieczarna, 1 VIII 1932, 24 exs; Lesieczniki, 19 VII 1932, 6 exs - leg. S. TENENBAUM (IZW).

Ceratapion (Angustapion) perlongum (FAUST, 1891)

(figs 620, 629-632)

Apion perlongum FAUST, 1891: 410.

Literature: DESBROCHERS, [1894]: 95; SCHILSKY, 1902: no.4, 1906b: XXI; WAGNER, 1906b: 189; BAJTENOV, 1974: 278.

TYPE MATERIAL EXAMINED

Holotype f: a)Sarepta, BECKER, b)golden square, c)*perlongum* FAUST, d)Type (coll. FAUST, SMTD).

DESCRIPTION

Body length 2.55-2.70 mm.

Male unknown.

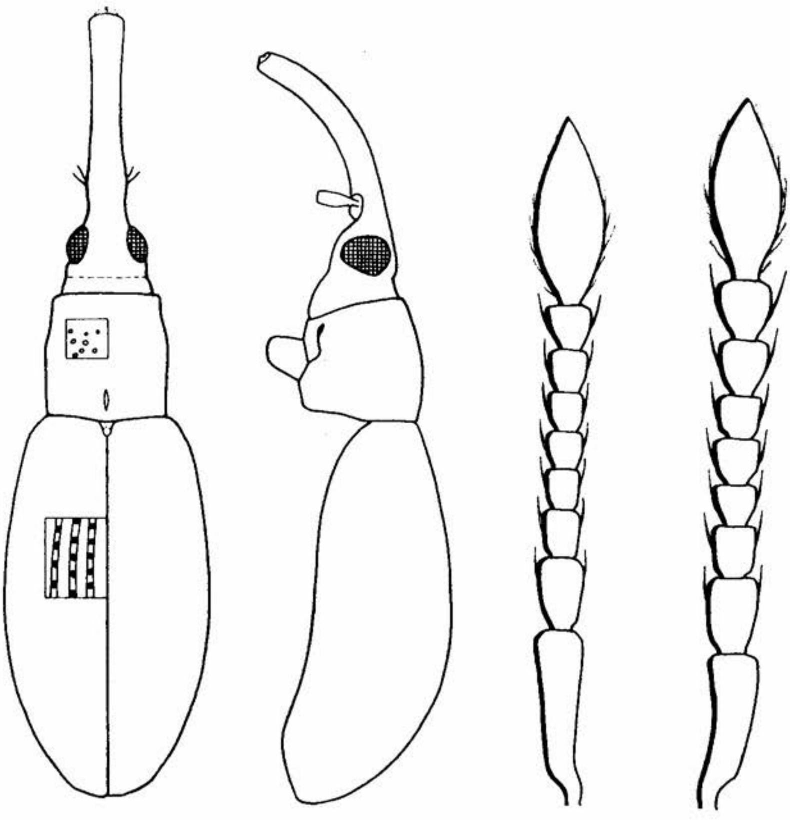
Indices (f). ***rl/pl:*** 1.50-1.61; ***rl/msrw:*** 4.65-5.47; ***scl/msrw:*** 1.21-1.29; ***msrw/mtrw:*** 1.07-1.14; ***msrw/arw:*** 1.24-1.27; ***msrw/minrw:*** 1.48-1.57; ***msrw/eyl:*** 0.97-1.03; ***brl/eyl:*** 0.85-1.20; ***eyl/hl:*** 0.57-0.59; ***hl/hw:*** 0.89-0.92; ***mpw/hw:*** 1.55-1.57; ***bpw/apw:*** 1.13-1.20; ***pl/mpw:*** 1.08-1.10; ***mew/mpw:*** 1.69-1.70; ***el/pl:*** 2.81-2.94; ***el/mew:*** 1.80-1.90; ***mew/bew:*** 1.25-1.27; ***bew/mpw:*** 1.33-1.36; ***pft/msrw:*** 1.00-1.13; ***ptbl/pl:*** 0.94-0.98; ***ptbl/ptbmw:*** 4.80-5.15; ***ptsl/ptbl:*** 0.66-0.67.

Little known species, very close to *C. transsylvanicum* and distinct in only a few characters.

Rostrum shorter (rl/pl !) and, especially the prorostrum, thinner, at narrowest point 0.60-0.64 as broad as the profemur (0.73-0.76 so in *C. transsylvanicum*); prorostrum clearly contracted medially, bare, impunctate, with strong scale-like microsculpture.

Antennae in the Rumanian specimen distinctly shorter and stouter, in the holotype more slender, in both with the funicle only scarcely widening distad; length/width of the scape 3.0-3.6, first funicular segment 1.40-1.45, second 1.1-1.2, third 0.90-1.15, the remaining not longer than wide.

Pronotal puncturation sparser than in *C. transsylvanicum*, punctures clearly isolated, in the Rumanian specimen of 2× ommatidium size and half diameter apart, in the holotype smaller and more scattered; interspaces of the punctures flat, microreticulate; surface of the disc even.



629 630 631 632

629-632. *Ceratapion (Angustapion) perlongum*, female: 629,630 - body outline (holotype), 629 - dorsal view, 630 - lateral view; 631,632 - antenna, 631 - holotype, 632 - specimen from Rumania

Legs, especially the tibiae and tarsi, shorter (ptbl/ptbmw !); length/width of the hind tibia 4.5-4.8; protarsus 3.0-3.2× longer than wide.

Humeral prominences as weak as those in *C. transsylvanicum*.

Wings of normal length (holotype) or shortened.

Spermatheca with the shape of cornu intermediate between those showed in figs. 650, 651.

Biology unknown.

Distribution. Russia (Volga riv. surroundings), Western Kazakhstan?, Ukraine (Crimea)?, Rumania*.

Records from Bulgaria refer to *C. macrorrhynchum* (WANAT & KUŚKA, 1991).

REMARKS

Distinctness of this species should be confirmed after examination of larger material, and especially of the male genitalia. Apparently the record of BAJTENOV & MIHAJLOVA (1980) on *Apion macrorrhynchum* in Crimea should be referred to the above species. BAJTENOV's (1974) note on the occurrence of *C. perlongum* in Kazakhstan could easily concern another species of the *C. macrorrhynchum* group.

OTHER MATERIAL EXAMINED

RUMANIA: Herculane [Baile Herculane], 4-22 V 1970, 1f, leg. T. PALM (MZL).

Ceratapion (Angustapion) akbesianum (DESBROCHERS, 1897)

(figs 633, 634, 637-639, 641-643, 645)

Apion akbesianum DESBROCHERS, [1897]: 10.

Literature: WAGNER, 1911: 54.

TYPE MATERIAL EXAMINED

Lectotype m: a)Akbes, b)m, c)Ex Musaeo DESBROCHERS 1914 (MNHP) (present designation); paralectotype f: data as in the lectotype (MNHP).

DESCRIPTION

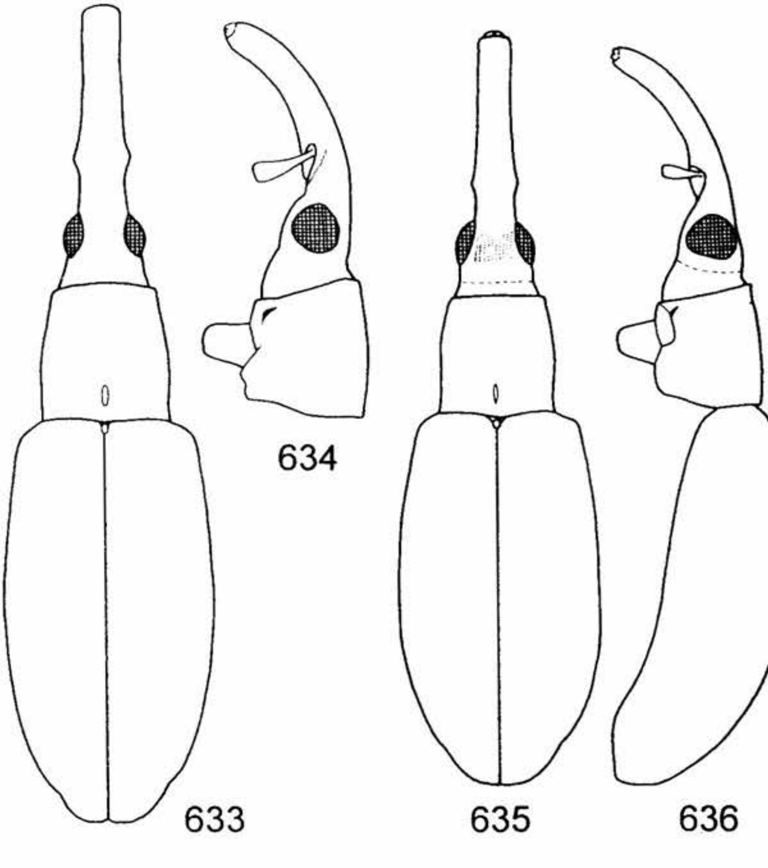
Body length (2.29) 2.85-3.02 mm.

Indices. ***rl/pl:*** m: 1.34-1.41, f: 1.45; ***rl/msrw:*** m: 3.89-4.00, f: 4.57; ***scl/msrw:*** m: 1.00-1.05, f: 1.07; ***msrw/mtrw:*** 1.08-1.18; ***msrw/arw:*** m: 1.35-1.38, f: 1.17; ***msrw/minrw:*** m: 1.35-1.43, f: 1.33; ***msrw/eyl:*** m: 1.08-1.11, f: 1.00; ***brl/eyl:*** m: 1.18-1.21, f: 0.91; ***eyl/hl:*** 0.61-0.73; ***hl/hw:*** m: 0.84-0.91, f: 0.82; ***mpw/hw:*** 1.51-1.70; ***bpw/apw:*** 1.20-1.27; ***pl/mpw:*** m: 1.11-1.15, f: 1.04; ***mew/mpw:*** m: 1.56-1.65, f: 1.70; ***el/pl:*** m: 2.93-2.99, f: 3.09; ***el/mew:*** m: 2.05-2.12, f: 1.89; ***mew/bew:*** 1.20-1.23; ***bew/mpw:*** m: 1.30-1.36, f: 1.38; ***pft/msrw:*** m: 0.97-1.02, f: 1.00; ***ptbl/pl:*** 0.88-0.93; ***ptbl/ptbmw:*** m: 3.92-4.00, f: 5.50; ***ptsl/ptbl:*** 0.68-0.78.

Extremely similar to *C. macrorrhynchum* in external morphology, the differences concern the structure of rostrum and legs, head sculpture and, to a lesser extent, the antennae.

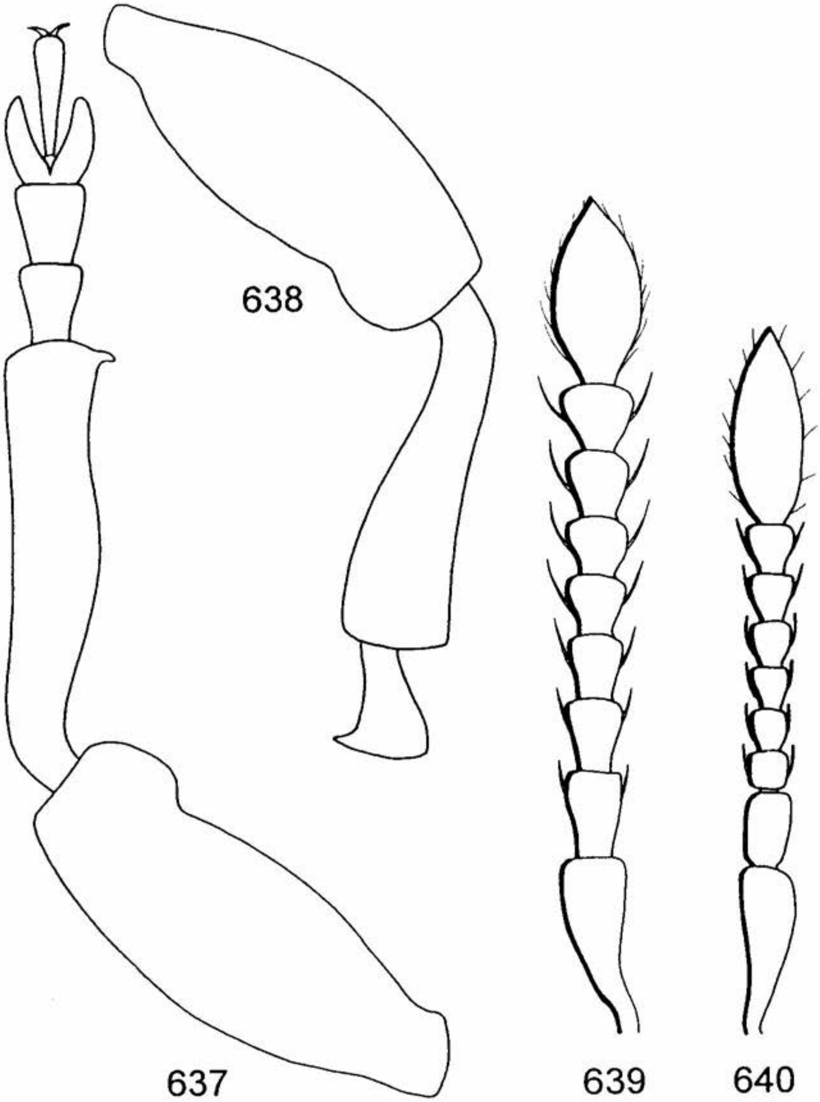
Male: prorostrum thicker (msrw/minrw !), cylindrical or slightly tapering; mesorostral teeth less distinct; antennae slightly longer, exceeding rostrum apex with combined length of the club and the last two funicular segments, inserted at basal 0.27-0.28 of rostrum, second and third segments of the funicle distinctly elongate, all the segments strongly narrowing basad, clearly pedunculate; frons, vertex and temples smooth, impunctate nor striolate; femora and tibiae very thick, pro- and mesotibiae with an apical spine, protibia strongly sinuous at inner margin, length/width of the metatibia 3.31-3.63.

Colouration, vestiture, body sculpture and other external characters as in *C. macrorrhynchum*.



633-636. Male body outline: 633,634 - *Ceratapion (Angustapion) akbesianum*, 633 - dorsal view, 634 - head and pronotum in lateral view; 635,636 - *C. (A.) fremuthi* sp. nov., 635 - dorsal view, 636 - lateral view

Tegminal plate 2.9× longer than wide; parameroid lobes separate up to apical 1/3, at sides throughout basal 2/3 with some setiform sensillae; macrochaetae 3, apical and close to each other; fenestrae finely but clearly margined, very broadly separate; dorsal portion of ring very narrow but complete; lateral fold visible only near the fenestrae; prostegium weakly projecting, truncate.

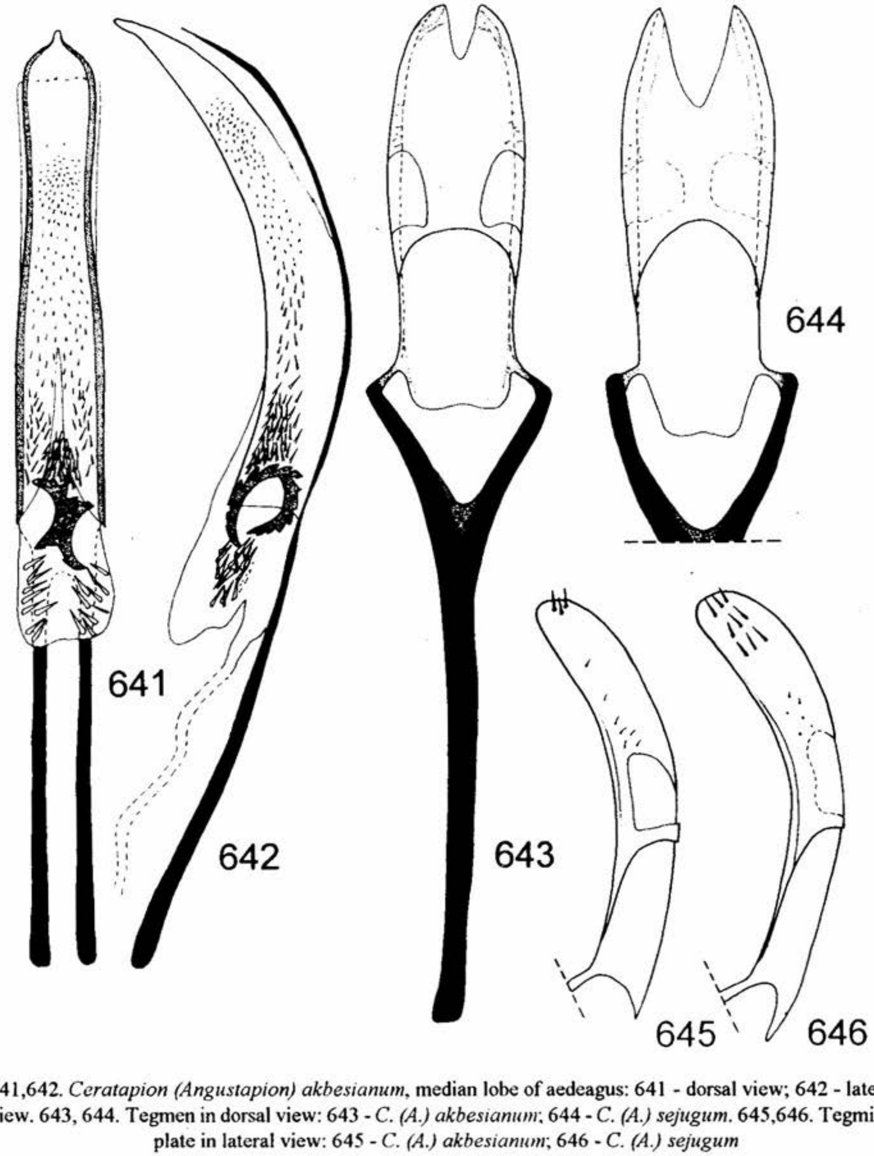


637,638. *Ceratapion (Angustapion) akbesianum*, **male: 637 - fore femur, tibia (lateral view) and tarsus (dorsal view); 638 - hind femur, tibia and first metatarsomere (lateral view). 639,640. Male antenna: 639 -** *C. (A.) akbesianum*; **640 -** *C. (A.) fremuthi* **sp. nov.**

Median lobe of aedeagus weakly constricted in apical 1/3; apophyses as long as the tube; internal sac projecting to 1/4 apophyses, at the base of tubular part with a pair of large, coarsely serrate, crescentic sclerites, in the produced part with some 10 very long and stout spines at each side, inside the tube with numerous small spines, becoming longer basad and forming a cluster just above the sclerites.

Biology unknown.

Distribution. Turkey (Southern Anatolia: Ekbes).



641,642. *Ceratapion (Angustapion) akbesianum*, median lobe of aedeagus: 641 - dorsal view; 642 - lateral view. 643, 644. Tegmen in dorsal view: 643 - *C. (A.) akbesianum*; 644 - *C. (A.) sejugum*. 645,646. Tegminal plate in lateral view: 645 - *C. (A.) akbesianum*; 646 - *C. (A.) sejugum*

REMARKS

The only examined female supposedly belonging to this species was an atypical, dwarf specimen, not allowing distinction from the related species of the *C. macrorrhynchum* group.

OTHER MATERIAL EXAMINED

TURKEY: Ekbes, 1896, 1m, coll. L. BEDEL (MNHP).

Ceratapion (Angustapion) sejugum (DESBROCHERS, 1893)

(figs 644, 646-650)

Apion sejugum DESBROCHERS, [1893]b: 10.
Apion sejugum DESBROCHERS, [1894]: 94.
Apion sejungum [sic!]: DESBROCHERS, [1897]: 37.

Literature: SCHILSKY, 1902: no.3, 1906b: XXII; WAGNER, 1908b: 104.

TYPE MATERIAL EXAMINED

Lectotype f: a)Syrie, b)Saragöl, VALENTINE 1890, c)*sejugum* m., f, d)*macrorhynchum* EPP., e)Ex Musaeo DESBROCHERS 1914 (coll. DESBROCHERS, MNHP) (present designation).

Both descriptions of the same specimens gave different body size (!). It clearly results from the original description that DESBROCHERS had at his disposal two females. One of them was from Syria and came from his own collection. The second one was received from v. HEYDEN and came from the Frankfurt Museum materials collected in Saragöl in the Caucasus (I could not find this locality, but according to SCHILSKY the name referred to "Karagöl-See" in Central Anatolia) by M. VALENTIN. The latter female is missing at both FSF and v. HEYDEN's collection (DEI), but it was the one described by SCHILSKY (1902). Thus, the origin of the lectotype is not fully clear and it can be only supposed that it comes from Syria.

DESCRIPTION

Body length 3.05-3.10 mm.

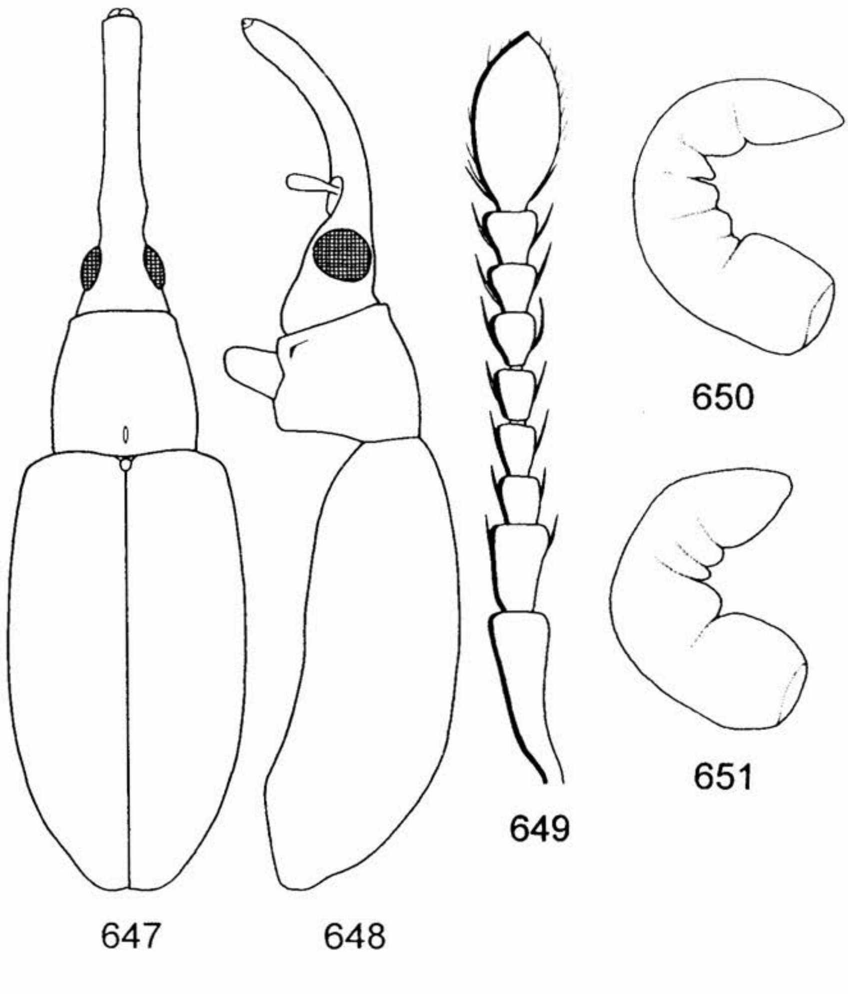
Indices. ***rl/pl:*** m: 1.38, f: 1.53-1.60; ***rl/msrw:*** m: 4.14, f: 4.89-5.11; ***scl/msrw:*** m: 1.05, f: 1.16-1.22; ***msrw/mtrw:*** m: 1.14, f: 1.09-1.17; ***msrw/arw:*** m: 1.32, f: 1.23-1.24; ***msrw/minrw:*** m: 1.37, f: 1.29-1.39; ***msrw/eyl:*** m: 1.02, f: 0.97-1.06; ***brl/eyl:*** m: 1.12, f: 0.95-0.96; ***eyl/hl:*** m: 0.65, f: 0.69-0.70; ***hl/hw:*** m: 0.89, f: 0.77-0.79; ***mpw/hw:*** m: 1.60, f: 1.67-1.74; ***bpw/apw:*** 1.30-1.35; ***pl/mpw:*** 1.03-1.10; ***mew/mpw:*** m: 1.57, f: 1.63-1.71; ***el/pl:*** m: 2.94, f: 3.14-3.19; ***el/mew:*** m: 2.05, f: 1.92-1.98; ***mew/bew:*** m: 1.17, f: 1.17-1.28; ***bew/mpw:*** m: 1.34, f: 1.34-1.40; ***pft/msrw:*** m: 1.02, f: 1.08-1.11; ***ptbl/pl:*** m: 0.81, f: 0.90-0.93; ***ptbl/ptbmw:*** m: 3.74, f: 4.73-5.24; ***ptsl/ptbl:*** m: 0.72, f: 0.65-0.69.

The male, supposedly also the female, cannot be distinguished from *C. akbesianum* based on external characters.

The female is distinct from the female of *C. macrorrhynchum* only in shorter rostrum (rl/pl !), shorter and broader tibiae (ptbl/ptbmw !, length/breadth of the metatibia 4.32-4.41) and slightly broader at base, more trapeziform pronotum.

Spermatheca as in fig. 650.

Male genitalia evidently distinct from those in *C. akbesianum* and much more similar to those in the next species.



647-649. *Ceratapion (Angustapion) sejugum*, female: 647 - body in dorsal view; 648 - body in lateral view; 649 - antenna. 650,651. Spermatheca: 650 - *C. (A.) sejugum*; 651 - *C. (A.) macrorrhynchum*

The notch of the parameroid lobes exceeding half length; sensillae present only in basal parts of the lobes; macrochaetae 5-9, arranged in 2-3 regular, transverse rows; fenestrae obsolete; lateral fold evident, reaching middle of the parameroid lobes; prostegium strongly prominent backwards.

Median lobe of aedeagus not distinct in shape from that in *C. akbesianum*; internal sac projecting to about the middle of the apophyses, throughout with dense, almost uniform, small spines, arranged exactly like in *C. fremuthi* sp. nov. (fig. 652).

Biology unknown.

Distribution. Turkey (Southern Anatolia), Caucasus?

Record from Algeria (Schilsky, 1902) certainly refers to another species of this group.

Other material examined

"Hte Syrie", 1m, leg. Delagrange, coll. H. Wagner (labelled as "Co-Type v. *Ap. akbesianum*") (ZSM).

TURKEY: Ekbes, 1m, coll. A. Hoffmann (MNHP); Anatolia centr., 30 km E Bingöl, 1200 m, 20 VI 1972, 1f, leg. C. Holzschuh (LD).

***Ceratapion (Angustapion) fremuthi* sp. nov.**

(figs 635, 636, 652-657)

Ceratapion (Ceratapion) nalderae: Voss, 1959b: 1, nec Marshall, 1938.
Apion (Ceratapion) macrorrhynchum: Hoffmann, 1962: 663, nec Eppelsheim, 1888.

Etymology. Named after Ing. Jan Fremuth, the eminent Czech weevil specialist, who first recognized this species.

Description

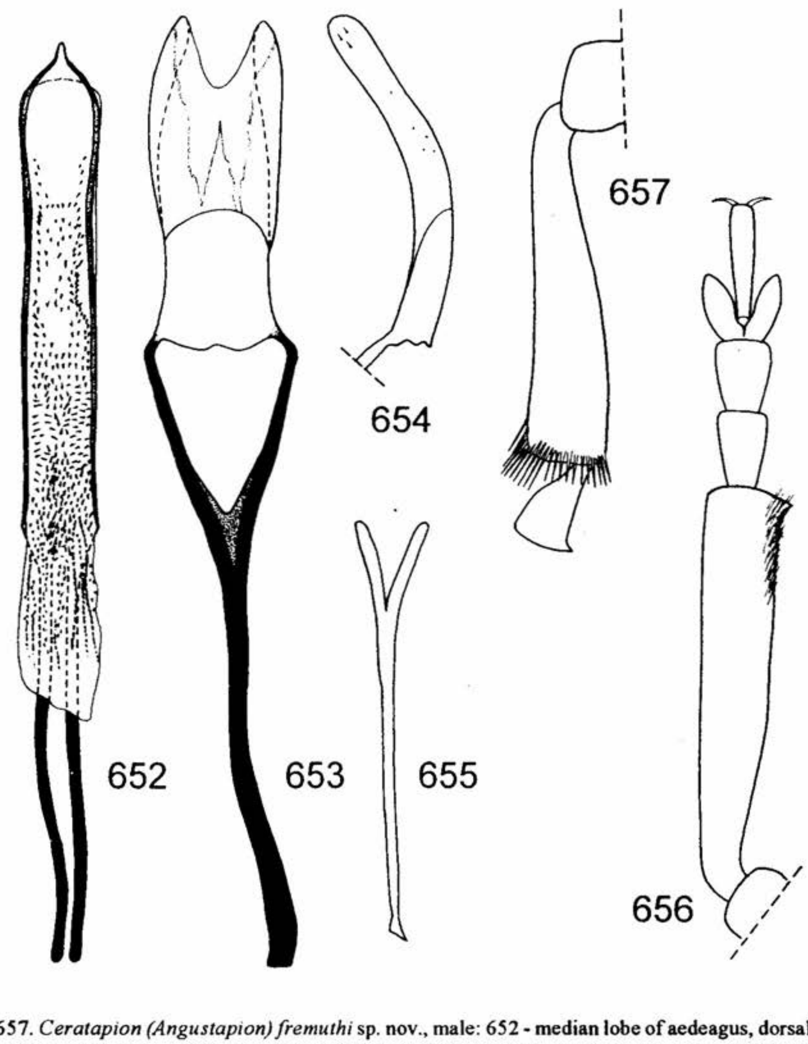
Length 2.57-3.17 mm. Body colouration reddish-brown to piceous-brown, lighter in specimens from the south of the range; antennae of the rostrum colour; legs reddish to brown, in dark specimens distinctly lighter, especially the tibiae and tarsi, than the rest of body. Body vestiture variable, in specimens from southern Iran and southern Anatolia (including holotype) much more conspicuous and composed of slightly arcuately raised piliform scales as long as interval width on the elytra, in the north of the range the scales shorter and finer, hardly raised, not very distict from those in the five previously described species.

Indices. ***rl/pl:*** m: 1.46-1.62, f: 1.59-1.82; ***rl/msrw:*** m: 4.02-4.63, f: 4.70-5.79; ***scl/msrw:*** m: 0.92-1.19, f: 1.14-1.43; ***msrw/mtrw:*** 1.10-1.24; ***msrw/arw:*** m: 1.37-1.63, f: 1.27-1.48; ***msrw/minrw:*** 1.37-1.63; ***msrw/eyl:*** 0.92-1.11; ***brl/eyl:*** 0.87-1.17; ***eyl/hl:*** 0.57-0.72; ***hl/hw:*** 0.81-0.98; ***mpw/hw:*** 1.46-1.78; ***bpw/apw:*** 1.15-1.26; ***pl/mpw:*** 1.01-1.17; ***mew/mpw:*** 1.66-1.82; ***el/pl:*** 2.97-3.44; ***el/mew:*** m: 2.01-2.09, f:

1.94-2.02; ***mew/bew:*** 1.18-1.26; ***bew/mpw:*** 1.36-1.47; ***pft/msrw:*** 0.86-1.03; ***ptbl/pl:*** 0.97-1.09; ***ptbl/ptbmw:*** 5.25-6.58; ***ptsl/ptbl:*** 0.60-0.68.

Rostrum relatively thin; male mesorostrum as in female weakly and obtusely dilated; prorostrum cylindrical in male, weakly constricted medially in female, with puncturation and pubescence distinct.

Antennae variable in proportions, thinner than in *C. macrorrhynchum*, often strongly so; insertion at m: 0.22-0.24, f: 0.17-0.21 from the rostrum base; length/width of the scape m: 2.8-3.0, f: 3.2-3.4, first funicular segment 1.5-1.6, the



652-657. *Ceratapion (Angustapion) fremuthi* sp. nov., male: 652 - median lobe of aedeagus, dorsal view; 653 - tegmen, dorsal view; 654 - tegminal plate, lateral view; 655 - spiculum gastrale; 656 - fore tibia (lateral view) and tarsus (dorsal view); 657 - hind tibia and first metatarsomere (lateral view) remaining more or less isodiametric, weakly narrowing basad; club clearly elongate, 2.2-2.6× longer than broad; antennal pubescence white to cream, weakly protruding.

Head relatively narrow; eyes large, weakly and evenly convex, of the same size in both sexes; frons distinctly striolate; sculpture of the vertex and temples, as well as the remaining head characters, as in *C. macrorrhynchum*.

Pronotum with thin walls, cylindrical to somewhat trapeziform, in some females slightly rounded at sides, with subapical constriction very weak; disc poorly convex, with the front margin slightly raised, punctured as in *C. macrorrhynchum*, interspaces nearly flat, with strong scale-like microsculpture.

Elytra with humeral prominences evident, shaped and sculptured as in *C. macrorrhynchum*.

Legs slender; femora weakly thickened, similar in both sexes; length/width of the hind tibia 4.63-5.36; protarsus 3.6-3.8× longer than wide, its second segment 1.25-1.30 as long as wide, onychium exceeding third segment by whole length; male fore and mid tibiae armed with minute apical spine, the hind one nearly straight; ventral spine of the male metatarsus minute, shorter than 1/3 basal tarsal segment height.

Tegminal plate 2.4-3.0× longer than wide, apically emarginate to 1/4 length, in profile equally wide throuhgout; macrochaetae 3, extremely short and fine, subapical; fenestrae and lateral fold completely vanishing, the dorsal plate often with very fine, irregular lines bordering areas of stronger sclerotization; prostegium truncate or slightly emarginate in the middle, variably projecting backwards.

Median lobe of aedeagus shaped as in fig. 652; internal sac projecting to half apophyses length, on the whole length with dense, confused, minute spines.

Biology unknown.

Distribution. Turkey (Anatolia), Iran, Azerbaijan.

Type material

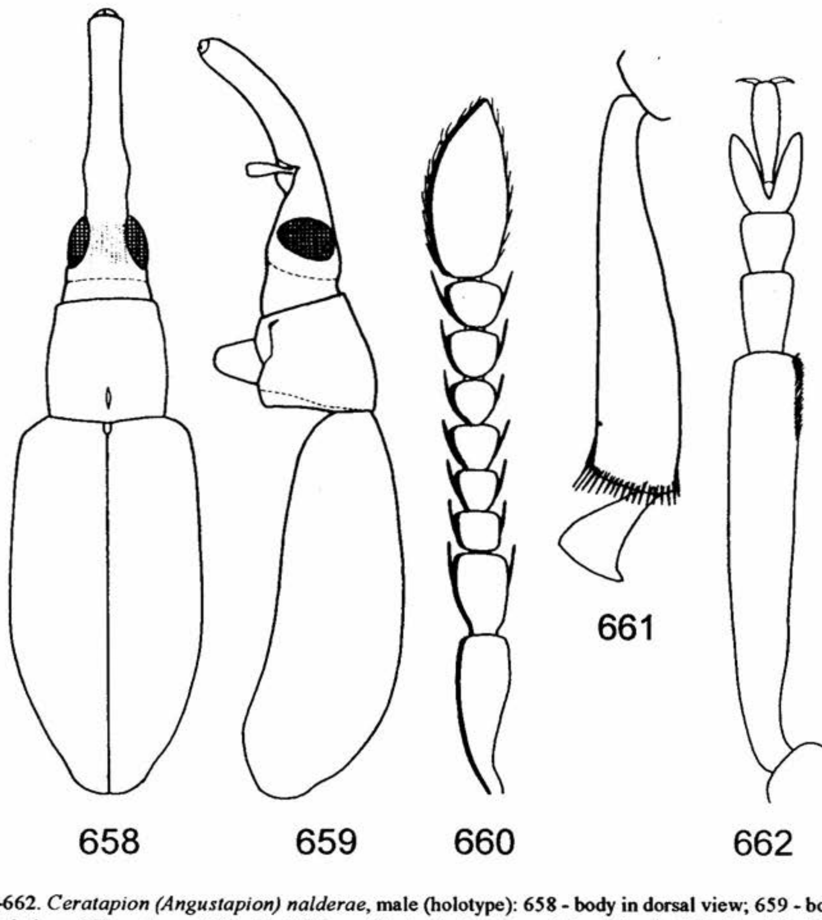
Holotype m: a)SE IRAN: 9 km S Espakeh, 10.4.1973, b)Loc. no. 155, Exp. Nat. Mus. Praha, c)*Ap.* sp. aff. *macrorrhynchum*, Fremuth det. 1980 (NMP).

Paratypes (11m 17f): data as in holotype, 2m 1f (NMP), 1m 1f (MNHW), 1m 1f (JF); N IRAN: Tehran-Evin, 1700 m, Loc. no. 260, 26 VI-2 VII 1973, 1f (NMP), 1f (MNHW), 2f (JF); 8 km NE Ziaran, 2400 m, Loc. no. 400, 10-16 VII 1977, 1f (JF); E Elburz, Eyn Varzan, 2000 m, Loc. no. 83, 2-3 VIII 1970, 1m 1f (JF), 1m 1f (MNHW); NW IRAN: 20 km SE Marand, Loc. no. 266, 5-6 VII 1973, 1f (NMP) - all collected by members of the Prague Nat. Museum expedition to Iran; IRAN: Belouchistan: Iranshar, 800 m, 11-21 V 1954, leg. W. Richter & F. Schäuffele, 1m (SMNS) - det. by Voss as *C. nalderae* (publ. in 1959); Belouchistan: Khash, 1800 m, 28 V 1955, ad lucem, leg. G. Remaudière, 1m - det. as *A. macrorrhynchum* (coll. A. Hoffmann, MNHP); Tehran: Avadj, 35°38'N/49°13'E, 27 VII 1973, leg. A. Senglet, 1f (MHNG); "Akbés, Hte Syrie" [Turkey: Ekbes], 1m - det. by A. Hoffmann as *A. macrorrhynchum* Epp.= *A. sejugum* Dbr. (MF); [Tehran]-Evin, 20.8.1972, Sabz.", 1f (MF); N TURKEY: vil. Gümüşane, vic. of Torul, 1100 m, 19

VI 1994, 2m 3f, leg. A. WARCHAŁOWSKI (MW); "Caucasus, Araxesthal, LEDER & REITTER", 1f (coll. B. SCHWARZER, FSF); "Ordubad, 13 Klzr., 1f (coll. G. FREY, ZSM).

REMARKS

The species varies in most external characters to a much greater extent than other species of the group. Besides the mentioned darker body and less conspicuous vestiture, the specimens from the northern areas, of higher altitude, are, on an average, larger and have a longer rostrum, particularly in females. Apart from the type material listed above I examined one male (Azerbaidjan: Achsu n. Baku, 15 VI 1983, leg. B. MALEC, coll. KS) clearly differing in the shorter rostrum and more robust antennae and legs, particularly femora. Although all these specimens share in details the structure of the genitalia (but not the shape of the tegminal plate, being more elongate in the northern populations) it cannot be decidedly excluded that they



658 659 660 661 662

658-662. *Ceratapion (Angustapion) nalderae*, male (holotype): 658 - body in dorsal view; 659 - body in lateral view; 660 - antenna; 661 - hind tibia and first metatarsomere (lateral view); 662 - fore tibia (lateral view) and tarsus (dorsal view) represent a complex of species. The question will remain unsolved as long as both the material and bionomic data are so scanty.

Ceratapion (Angustapion) nalderae (MARSHALL, 1938)

(figs 658-662)

Apion nalderae MARSHALL, 1938: 167.

TYPE MATERIAL EXAMINED

Lectotype m: a)Simla Hills: Naldera, 6500 ft., Koti State, bred from a green thistle (J. C. M. GARDNER), b)Holotype (BMNH) (present designation); paralectotype m: a)as in the lectotype, b)Paratype (BMNH). Remaining paralectotypes (5m, BMNH) not examined.

DESCRIPTION

Length 2.75 mm.

Female unknown.

Indices (lectotype m). ***rl/pl:*** 1.61; ***rl/msrw:*** 4.21; ***scl/msrw:*** 1.05; ***msrw/mtrw:*** 1.19; ***msrw/arw:*** 1.36; ***msrw/minrw:*** 1.52; ***msrw/eyl:*** 1.36; ***brl/eyl:*** 1.49; ***eyl/hl:*** 0.42; ***hl/hw:*** 1.05; ***mpw/hw:*** 1.50; ***bpw/apw:*** 1.13; ***pl/mpw:*** 1.03; ***mew/mpw:*** 1.60; ***el/pl:*** 3.19; ***el/mew:*** 2.06; ***mew/bew:*** 1.14; ***bew/mpw:*** 1.40; ***ptbl/pl:*** 1.06; ***ptbl/ptbmw:*** 5.83; ***ptsl/ptbl:*** 0.65.

The species is known only from the type series of teneral and more or less deformed males. Only the specimen labelled as "Holotype" and designated here as the lectotype retained its "natural" shape, so being measured and dissected by me.

In the respect of external appearance extremely similar to *C. fremuthi*, but clearly distinct from it, as well as from most East Mediterranean species of the *C. macrorrhynchum* group, in the absence of apical spines of fore and mid tibiae. Moreover, the eyes are slightly larger, the antennal funicle thicker (length/width of first segment 1.4, second 0.8, remaining slightly transverse), and the tarsi shorter (protarsus with second segment 1.1× longer than wide and onychium exceeding third segment by 0.7 length) than in *C. fremuthi*.

Genital characters unclear because of insufficient sclerotization of the whole aedeagus; size and arrangement of spines within the internal sac apparently identical as in *C. fremuthi*.

Biology unknown. The specimens were bred from an unidentified "green thistle".

Distribution. Northern India (Himachal Pradesh).

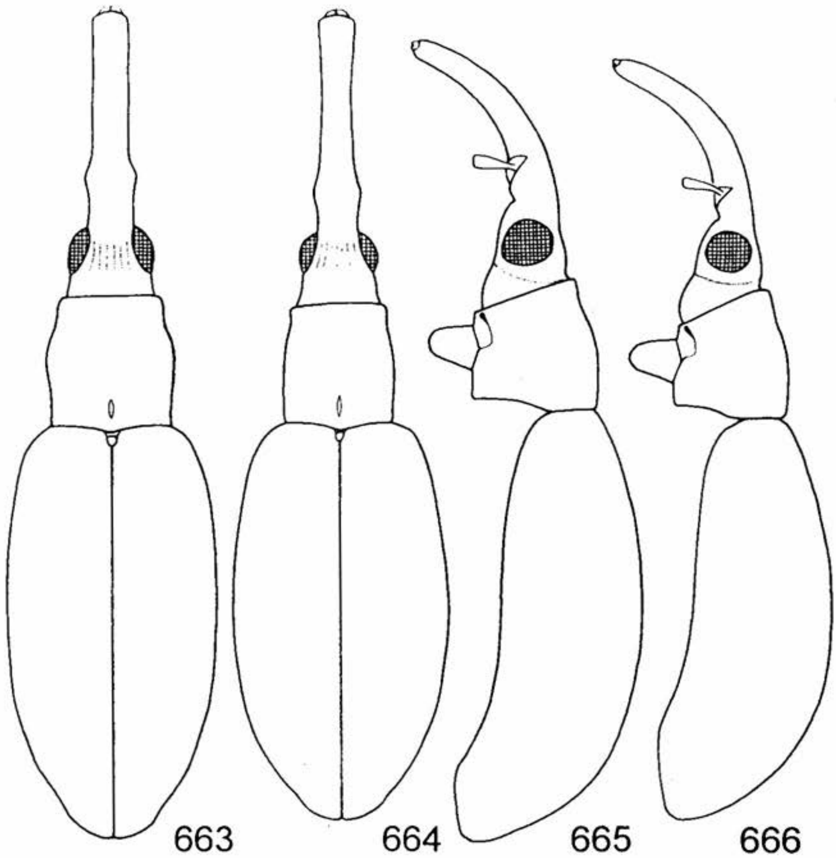
Ceratapion (Angustapion) boehmi (WAGNER, 1911)
(figs 663-676)

Apion (Ceratapion) Boehmi WAGNER, 1911: 48.

Lectotype m: a)Helouan b. Kairo, Aeg., ex coll. BÖHM, b)Type v. *Apion Boehmi* WGNR., Soc. Ent. d'Eg. (1911), c)m, d)Coll. WAGNER, e)Sammlung G. FREY (ZSM) (present designation).

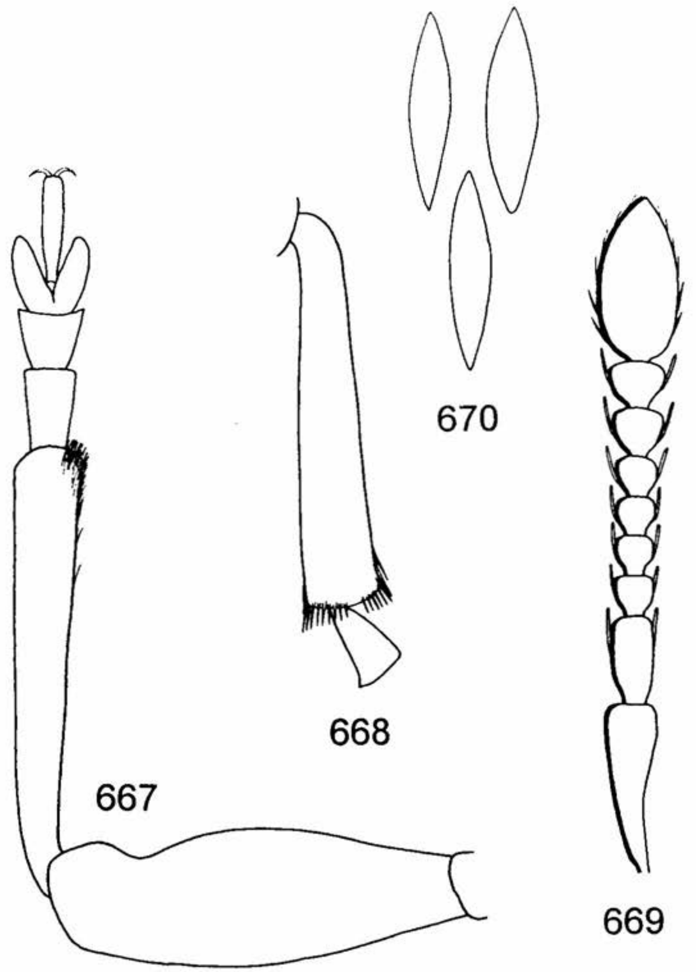
DESCRIPTION

Length 2.53-3.12 mm. Derm entirely dark to blackish brown, on the tibiae slightly lighter. Scales of the body much broader than in other related species, lanceolate, at most 5× longer than wide (fig. 670), slightly raised, white to yellow-



663-666. *Ceratapion (Angustapion) boehmi*, body outline: 663 - male, dorsal view; 664 - female, dorsal view; 665 - male, lateral view; 666 - female, lateral view ish, arranged in two confused rows on the elytra intervals, as long as interval breadth; scales in the striae 2/3 as long as those on the intervals.

Indices. ***rl/pl:*** m: 1.49, f: 1.57-1.66; ***rl/msrw:*** m: 4.35, f: 4.75-5.16; ***scl/msrw:*** m: 1.08, f: 1.12-1.17; ***msrw/mtrw:*** m: 1.18, f: 1.07-1.13; ***msrw/arw:*** m: 1.60, f: 1.31-1.44; ***msrw/minrw:*** m: 1.65, f: 1.44-1.57; ***msrw/eyl:*** m: 1.03, f: 0.91-0.95; ***brl/eyl:*** m: 1.18, f: 0.94-1.05; ***eyl/hl:*** 0.61-0.68; ***hl/hw:*** 0.83-0.95; ***mpw/hw:*** 1.44-1.65; ***bpw/apw:*** 1.08-1.19; ***pl/mpw:*** m: 1.15, f: 1.06-1.10; ***mew/mpw:*** 1.72-1.82; ***el/pl:*** 2.97-3.30; ***el/mew:*** m: 2.04, f: 1.87-1.94; ***mew/bew:*** m: 1.23, f: 1.25-1.33; ***bew/***



667-670. *Ceratapion (Angustapion) boehmi*, male: 667 - fore femur, tibia (lateral view) and tarsus (dorsal view); 668 - hind tibia and first metatarsomere (lateral view); 669 - antenna; 670 - scales of elytra vestiture

mpw: 1.37-1.42; ***pft/msrw:*** m: 0.85, f: 0.93-0.97; ***ptbl/pl:*** 1.04-1.10; ***ptbl/ptbmw:*** m: 6.21, f: 5.26-6.00; ***ptsl/ptbl:*** 0.60-0.64.

Rostrum distinctly arched, of nearly the same shape and length in both sexes (female with prorostrum slightly longer and thinner, weakly dilated apically); mesorostrum forming very small and obtuse teeth; prorostrum thickly and shallowly punctate to the apex, at least in apical 1/3 without scales.

Antennae fairly slender, identical in both sexes, clothed with white (basally) and yellowish-testaceous (distally) scales, inserted at basal m: 0.26, f: 0.21-0.22 part of rostrum; lenght/width of the scape 2.9-3.2, first funicular segment 1.8-2.0, second 0.9-1.1, club1.9-2.1; funicular segments 2-5 isodiametric, the last two slightly transverse.

Head relatively narrow, densely clothed with scales; eyes moderately strongly and evenly convex, slightly larger in male; frons slightly depressed in front, puncate, with striolae indistinct and present only in the middle; vertex with a transverse depression, as temples punctate on a distance of 0.20-0.25 eye length; interocular area convex, asperate, bare in the middle.

Pronotum more or less distinctly arched at sides, markedly constricted subapically; disc convex, with the front margin elevated, rough, densely and irregularly punctured, punctures of a size up to 1.5 ommatidium, interspaces clearly raised, with strong scale-like microsculpture and minute, shining asperities; prescutellar fovea small, usually deep.

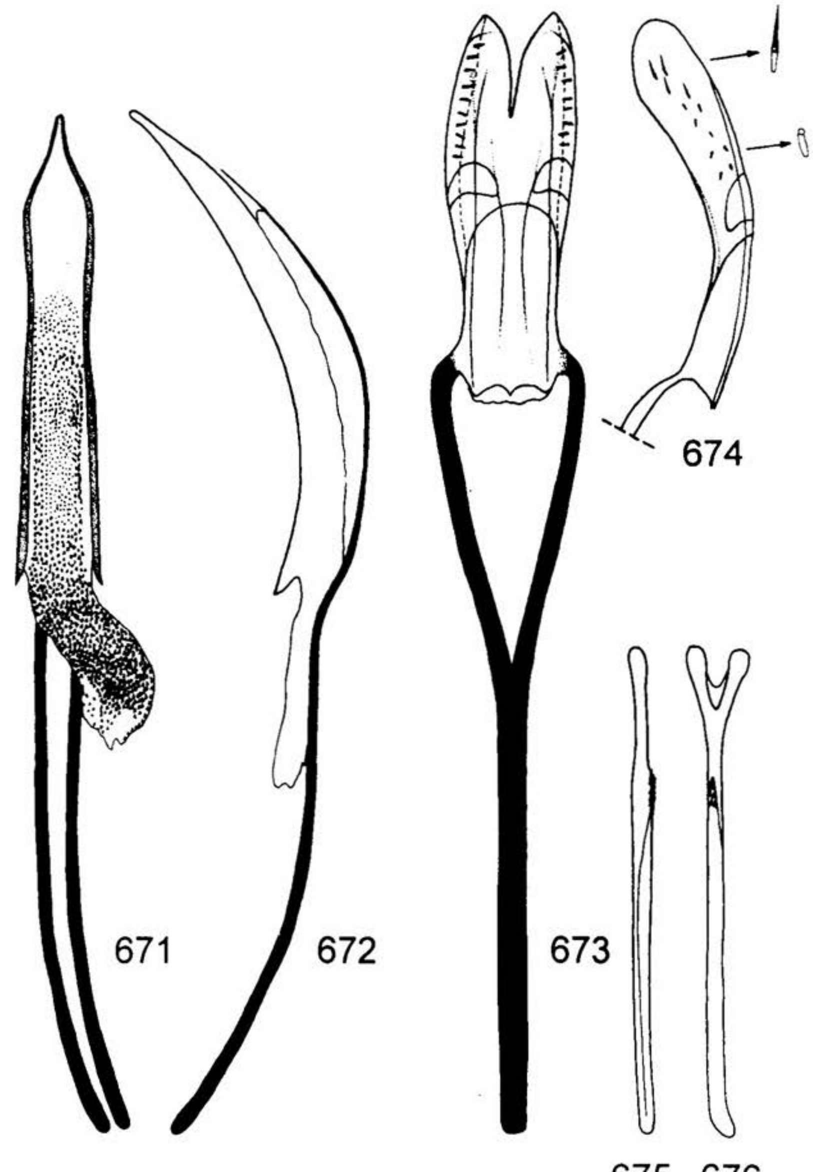
Elytra uniformly oval in either sex, distinctly convex, with humeral calli weakly prominent; intervals flat to, especially the outer, slightly convex, coarsely microsculptured and dull, at the elytra base narrower than, in middle 1.0-1.2 as wide as the striae; first interval of the left elytron evidently broader than others; striae weakly depressed, coarsely punctured.

Legs slender; length/width of the hind tibia 5.1-5.5; protarsus 3.3-3.5× longer than wide at the third segment which is relatively small and narrow, onychium exceeding third segment by 0.6-0.8 length; male tibiae unarmed, the hind ones straight; ventral spine of the male metatarsus obsolete.

Metathoracic wings well developed.

Tegmen very long and narrow; tegminal plate about 3× longer than wide; parameroid lobes narrowly separate, the notch slightly exceeding their mid length; macrochaetae 3-4, attached far basad from apex of the lobe, both their bases and the sensillae produced ventrally to form fine seta-like processes directed perpendicularly to the plate axis (as clearly seen in dorsal view); fenestrae small, well bordered and widely separate; dorsal portion of ring complete; lateral fold obsolete; prostegium hardly produced backwards, tricuspid at posterior margin, with two pairs of long carinae, the inner running to inner corners of the fenestrae, the outer crossing fenestrae and evanescent in apical halves of the parameroid lobes.

Median lobe of aedeagus shaped as in figs 671, 672; apophyses very long, much longer than the tubular part; internal sac distinctly projecting beyond the tube, densely and uniformly covered with very short spines.



671-676. *Ceratapion (Angustapion) boehmi*: 671,672 - median lobe of aedeagus, 671 - ventral view, 672 - lateral view; 673 - tegmen, dorsal view; 674 - tegminal plate, lateral view (sensillar setae and ventral extentions enlarged); 675,676 - spiculum gastrale, 675 - lateral view, 676 - ventral view

Spiculum gastrale with manubrium about 7× longer than the forked part, bearing a cluster of minute spines just below the fork.

Biology unknown.

Distribution. Egypt.

OTHER MATERIAL EXAMINED

EGYPT: 5 exs, ex coll. H. WAGNER (MCM, HMNH, ZSM), 1 ex. (MF); Kair, 1 ex., coll. BETTINGER (IRB); Maadi Mai, 7 exs, coll. DESBROCHERS, HOFFMANN (MNHP).

Ceratapion (Angustapion) aegyptiacum (DESBROCHERS, 1870)

(figs 677-681, 683, 685-689)

Apion aegyptiacum DESBROCHERS, 1870: 201.

Literature: DESBROCHERS, [1894]: 93; SCHILSKY, 1902: no.1, 1906b: XXII; WAGNER, 1911: 53.

TYPE MATERIAL EXAMINED

Lectotype m: a)Egyptus, KIRSCH (SMTD) (present designation); paralectotypes: 2m 2f: data as in the lectotype (SMTD); 2m: a)Egypte, b)type, c)Ex Musaeo DESBROCHERS 1914 (MNHP).

DESCRIPTION

Length 2.45-3.25 mm. Body dark brown to almost black; tibiae and tarsi lighter, reddish-brown. Vestiture adpressed or scarcely arcuately raised, composed of cream, piliform to very narrowly lanceolate scales at least 8× longer than wide and slightly shorter than interval width on the elytra.

Indices. ***rl/pl:*** m: 1.32-1.61, f: 1.54-1.88; ***rl/msrw:*** m: 3.81-4.28, f: 4.71-5.06; ***scl/msrw:*** m: 0.80-0.83, f: 1.00-1.08; ***msrw/mtrw:*** 1.11-1.21; ***msrw/arw:*** m: 1.54-1.64, f: 1.42-1.50; ***msrw/minrw:*** 1.54-1.71; ***msrw/eyl:*** m: 1.08-1.21, f: 1.00-1.04; ***brl/eyl:*** m: 0.99-1.02, f: 0.71-0.95; ***eyl/hl:*** 0.57-0.66; ***hl/hw:*** 0.86-0.95; ***mpw/hw:*** 1.65-1.80; ***bpw/apw:*** 1.15-1.25; ***pl/mpw:*** 0.91-1.12; ***mew/mpw:*** 1.69-1.88; ***el/pl:*** 3.03-3.56; ***el/mew:*** m: 1.85-2.03, f: 1.74-1.93; ***mew/bew:*** 1.14-1.29; ***bew/mpw:*** 1.33-1.61; ***pft/msrw:*** 0.79-0.97; ***ptbl/pl:*** 0.98-1.12; ***ptbl/ptbmw:*** 5.68-7.29; ***ptsl/ptbl:*** 0.53-0.59.

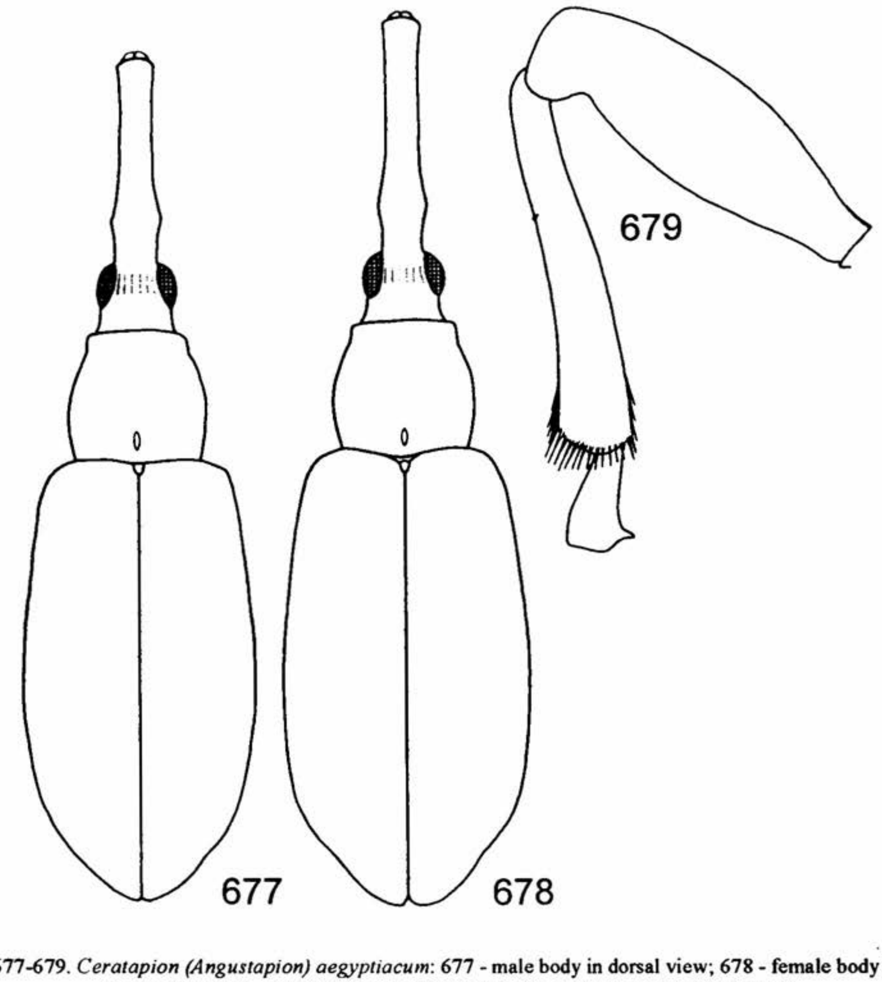
Length, shape and sculpture of the rostrum similar as in *C. boehmi*; in male mesorostral teeth usually more acute and the prorostrum slightly dilated apically; prorostrum distinctly pubescent nearly to the apex, in male with hair-like scales only scarcely shorter than those on the rostrum base.

Antennae similar in both sexes, inserted at basal m: 0.16-0.23 (M 0.20) f: 0.15-0.20 (M 0.18) of rostrum; length/width of the scape 2.8-3.0, first segment of the funicle 1.5-1.7, second 1.1-1.2; median segments isodiametric, the last two slightly transverse; club 2.0-2.3× longer than broad; antennal pubescence clearly brownish.

Head very narrow (mpw/hw !); eyes of similar size in either sex, regularly convex; frons slightly depressed, with the striolae distinct.

Pronotum distinctly rounded at sides, with subapical constriction evident; punctures on the disc 1.5-2× ommatidium size, interspaces weakly convex, microreticulate, without asperities.

Elytra of similar shape in both sexes, distinctly widening backwards, widest far behind middle; humeral prominences conspicuous; intervals weakly convex, near the base of elytra at least 1.5×, in middle up to 2× wider than the striae, not very strongly microsculptured and weakly shining; first interval scarcely wider than others.

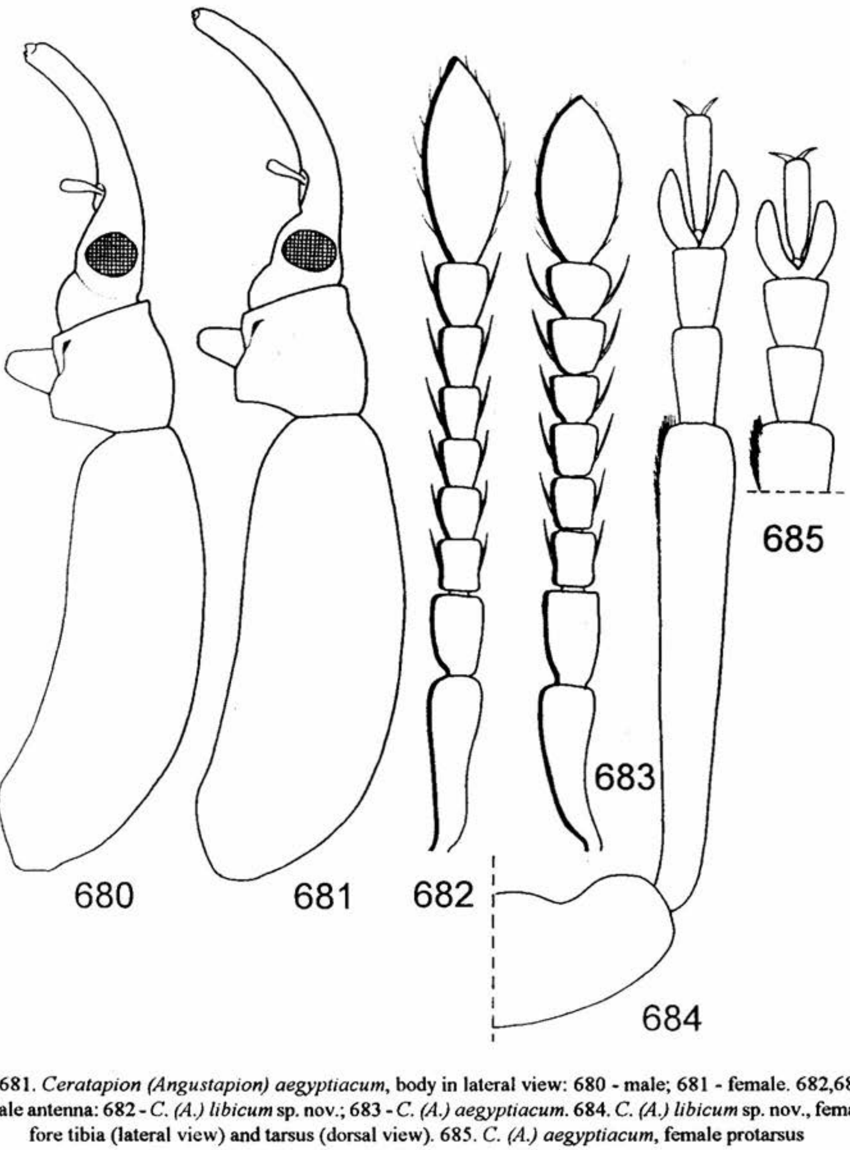


677-679. *Ceratapion (Angustapion) aegyptiacum*: 677 - male body in dorsal view; 678 - female body in dorsal view; 679 - male hind femur, tibia and first metatarsomere (lateral view)

Legs slender; length/width of the hind tibia 5.0-5.7; protarsus 3.2-3.5× longer than wide (slightly slimmer in male), its basal segment 1.4-1.5, second 1.0 as long as wide, onychium exceeding third segment by 0.4-0.6 length; male tibiae without an apical spine; ventral spine of the male metatarsus more conspicuous than in *C. boehmi*, based subapically.

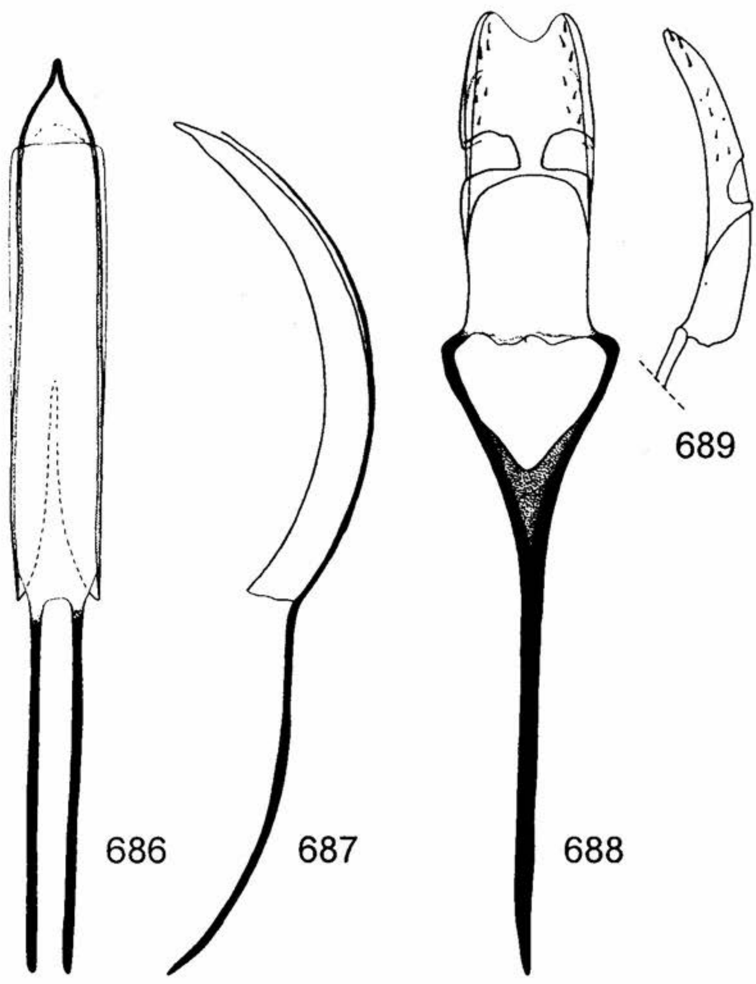
Wings of normal length.

Remaining external characters as in *C. boehmi*.



680,681. *Ceratapion (Angustapion) aegyptiacum*, body in lateral view: 680 - male; 681 - female. 682,683. Female antenna: 682 - *C. (A.) libicum* sp. nov.; 683 - *C. (A.) aegyptiacum*. 684. *C. (A.) libicum* sp. nov., female fore tibia (lateral view) and tarsus (dorsal view). 685. *C. (A.) aegyptiacum*, female protarsus

Tegminal plate very shallowly emarginate apically; parameroid lobes in side view narrowing apicad, at sides with some few minutely setose sensillae throughout basal half; macrochaetae 2-4, subapical, arranged in confused longitudinal row; fenestrae of moderate size, fairly narrowly separate, evidently margined; dorsal portion of ring very narrow; lateral fold wanting; prostegium not projecting beyond the plate base, with the posterior margin randomly wrinkled; longitudinal carinae absent.



686-689. *Ceratapion (Angustapion) aegyptiacum*: 686,687 - median lobe of aedeagus, 686 - dorsal view, 687 - lateral view; 688 - tegmen, dorsal view; 689 - tegminal plate, lateral view

Median lobe of aedeagus longer than that in *C. boehmi*, with apical mucro shorter; apophyses evidently shorter than the tubular part; internal sac fully enclosed within the tube, without any structures.

Spiculum gastrale with manubrium 5-6 times longer than the fork, not spined.

Biology unknown.

Distribution. Egypt.

DESBROCHERS [1898] record on collecting this species in Tunisia (Teboursouk) by NORMAND seem to be dubious and referring rather to another species of the *C. macrorrhynchum* group.

OTHER MATERIAL EXAMINED

EGYPT: 25 exs - coll. FUCHS (SMTD), SCHNEIDER (SMTD, MNB), LEONHARD, V. HEYDEN (DEI), HAUSER, EPPELSHEIM (NMW), DESBROCHERS (MNHP, NRS), KIESENWETTER (ZSM); Aleksandria, 1 ex., leg. GOTTWALD (LD), 1 ex. (FSF), 1901, 2m 1f, leg. BÖHM, coll. H. WAGNER (ZSM); Kair, 1 ex., leg. BÖHM (HMNH); Kamle, 2 exs, coll. V. HEYDEN (DEI), 3 exs, coll. TOURNIER (MHNG).

***Ceratapion* (*Angustapion*) *libicum* sp. nov.**

(figs 682, 684)

Apion macrorrhynchus [sic!]: SCHATZMAYR, 1933: 171.

Etymology. Derived from the name of the host country of the species.

DESCRIPTION

Body length 3.00 mm.

Male unknown.

Indices (f). ***rl/pl:*** 1.65; ***rl/msrw:*** 5.27; ***scl/msrw:*** 1.26; ***msrw/mtrw:*** 1.10; ***msrw/arw:*** 1.42; ***msrw/minrw:*** 1.48; ***msrw/eyl:*** 0.94; ***brl/eyl:*** 0.89; ***eyl/hl:*** 0.62; ***hl/hw:*** 0.92; ***mpw/hw:*** 1.70; ***bpw/apw:*** 1.25; ***pl/mpw:*** 1.01; ***mew/mpw:*** 1.84; ***el/pl:*** 3.29; ***el/mew:*** 1.82; ***mew/bew:*** 1.31; ***bew/mpw:*** 1.40; ***pft/msrw:*** 0.97; ***ptbl/pl:*** 1.10; ***ptbl/ptbmw:*** 6.67; ***ptsl/ptbl:*** 0.65.

Extremely similar to *C. aegyptiacum*, it can be diagnosed with the following differences:

Tibiae and tarsi distinctly lighter than the remainder of body; antennae more slender, length/width ratio of the scape 3.3, club 2.55, fifth to seventh funicular segments 1.2, antennal pubescence more adpressed, sparser, white-greyish instead of brownish; tarsi slimmer, protarsus 3.8× longer than broad, with first segment 1.8, second 1.4 as long as broad and the onychium exceeding third segment by 2/3 length.

Remaining characters, including the spermatheca, not exceeding the variation range of *C. aegyptiacum*.

Biology unknown.
Distribution. Northern Libya.

TYPE MATERIAL

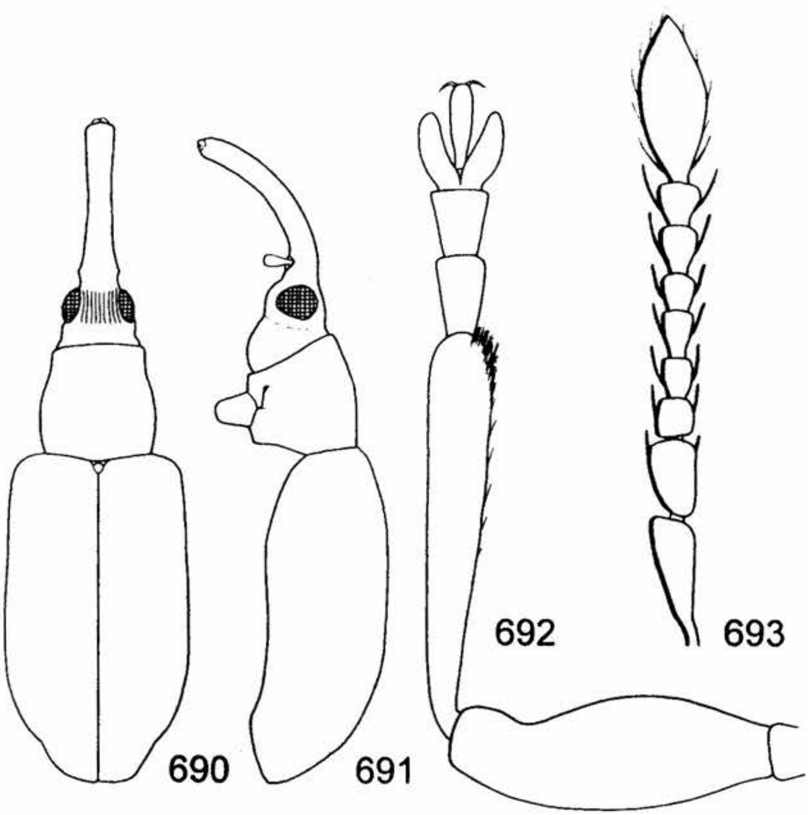
Holotype f: a)Suani Ben Aden, Trip., 15.3.26, SCHATZMAYR, b)*A.* (*C.*) *macrorrhynchum* EPP. (coll. A. SCHATZMAYR, MCM).

SPECIES OF UNCERTAIN SUBGENERIC MEMBERSHIP:

Ceratapion edentatum (DESBROCHERS, 1891)

(figs 690-693)

Apion edentatum DESBROCHERS, 1891b: 83.
Apion edentatum DESBROCHERS, 1891c: LVI.
Apion edentatum DESBROCHERS, [1894]: 104.



690-693. *Ceratapion edentatum*, female: 690 - body in dorsal view; 691 - body in lateral view; 692 - fore femur, tibia (lateral view) and tarsus (dorsal view); 693 - antenna

Literature: DESBROCHERS, [1898]: 35; SCHILSKY, 1906: no.6, 1906b: XX.

TYPE MATERIAL EXAMINED

Lectotype f: a)Bône [Annaba], b)f, c)35 Db, d)*edentatum* m., e)syntypus (coll. v. HEYDEN, DEI) (present designation); paralectotype f: a)Bône, b)f, c)Ex Musaeo DESBROCHERS 1914 (coll. DESBROCHERS, MNHP).

In the first, original description the species was recorded from "Bône" (now Annaba) and only the specimens from there have been considered by me as the type ones (in 1894 DESBROCHERS mentioned it also from Philippeville).

DESCRIPTION

Length 2.32-2.50 mm. Body dull black; tibiae and tarsi occasionally piceous brown. Vestiture distinct, composed of pure white, piliform scales, somewhat arcuate and semi-recumbent on the elytral intervals.

Male unknown.

Indices (f). ***rl/pl:*** 1.41-1.52; ***rl/msrw:*** 4.10-4.46; ***scl/msrw:*** 0.86-1.07; ***msrw/mtrw:*** 1.03-1.15; ***msrw/arw:*** 1.47-1.68; ***msrw/minrw:*** 1.53-1.68; ***msrw/eyl:*** 1.03-1.07; ***brl/eyl:*** 0.63-0.77; ***eyl/hl:*** 0.61-0.66; ***hl/hw:*** 0.76-0.86; ***mpw/hw:*** 1.49-1.70; ***bpw/apw:*** 1.12-1.18; ***pl/mpw:*** 0.92-1.04; ***mew/mpw:*** 1.62-1.73; ***el/pl:*** 2.88-3.19; ***el/mew:*** 1.75-1.81; ***mew/bew:*** 1.19-1.25; ***bew/mpw:*** 1.30-1.41; ***pft/msrw:*** 0.84-0.97; ***ptbl/pl:*** 1.09-1.16; ***ptbl/ptbmw:*** 5.90-6.39; ***ptsl/ptbl:*** 0.60-0.63.

Rostrum distinctly, uniformly arched, impunctate, with very strong scale-like microsculpture; mesorostrum forming very small and indistinct, acuminate teeth; prorostrum cylindrical or scarcely contracted medially, in apical 1/4 shining, at sides from base to 0.3-0.4 length with shallow but clearly visible longitudinal groove; antennal scrobes ending in middle of the interocular area.

Antennae inserted close to the head (0.14-0.17), thin, with weakly protruding pubescence; scape about 3, first funicular segment 1.5 as long as wide, the remaining slightly elongate; club as long as 3.5-4 distal funicular segments combined, 2.4-2.6× longer than wide.

Head clearly transverse, sub-rectangular or very weakly broadening posterad, fairly densely clothed with scales; eyes small, moderately convex; frons flat, with numerous and distinct striolae; vertex and temples punctate on a distance of about half eye length; interocular area evidently gibbous, beyond the antennal scrobes with irregular, transverse asperities.

Pronotum usually distinctly arcuate at sides, without a pleural line but sometimes irregularly wrinkled along posterior margin; puncturation very thick, punctures of double ommatidium size, almost adjoining, interspaces strongly microsculptured, more or less distinctly raised and making the disc surface clearly rough - the impression is still more pronounced due to slightly raised pronotal scales; prescutellar fovea not wider than the punctures, variably long; prosternum and the postcoxal part of prothorax equally long.

Elytra elongate, in basal 2/3 parallel-sided or scarcely widening, flattened dorsally; intervals slightly convex, 1.5-1.8× wider than the striae, strongly and irregularly microsculptured; striae shallow, with the edges often unclear, apical junction 1+2+9 evident; specialized setae not observed.

Mesepisternal sutures invisible. Metasternum twice as long as the mid coxae, with the intermesocoxal process weakly prominent.

Legs slender; protarsus with first segment 1.8, second 1.1-1.2 as long as broad, onychium exceeding third segment by 0.35-0.45 length.

Wings and their muscles normally developed.

Biology unknown.

Distribution. Algeria.

REMARKS

Subgeneric placement of the species is not possible as long as the male remains unknown. Presence of the lateral groove on the rostrum, like in *C. calcaratum*, small but pointed mesorostral teeth, as well as the apical connection of the elytral striae may indicate its appurtenance to the subgenus *Ceratapion s. str.*

OTHER MATERIAL EXAMINED

ALGERIA: Philippeville, 1f, coll. DESBROCHERS (MNHP); Constantine, 1f, coll. H. WAGNER (ZSM); Djebel Edough, Ain Barbar, 7 IV 1969, 2f, leg. DOGUET (GO); Bejaja distr., Tichy, leg. A. WARCHALOWSKI, 50 m alt., 17 IV 1986, 1f (DEI), 200 m alt., 17 III 1987, 3f (MNHW).

Ceratapion fallaciosum (DESBROCHERS, 1892)

(figs 694-697)

Apion fallaciosum DESBROCHERS, 1892: 107.

Literature: DESBROCHERS, [1894]: 113, [1897]: 38, [1898]: 35; WAGNER, 1906: 26. All other literature accounts refer to *C. longiclava* DBR.

TYPE MATERIAL EXAMINED

Neotype f: a)Mécheria, b)f, c)Ex Musaeo DESBROCHERS 1914 (coll. DESBROCHERS, MNHP) (present designation).

The species has been reported from Algeria in general in the original description and was then known to DESBROCHERS only from the female(s?). In the later monograph [1894] the author clearly confirmed his unawareness of the exact locus typicus. I found two inconspecific specimens staying under the name *fallaciosum* in DESBROCHERS collection, both bearing a label "Mécheria" and therefore not being the type specimens. One of them is a male of *C. longiclava* described later, the second is a female whose characters well agree with the original description of *C. fallaciosum*. Among the material examined by me only the specimen preserved at NRS, labelled

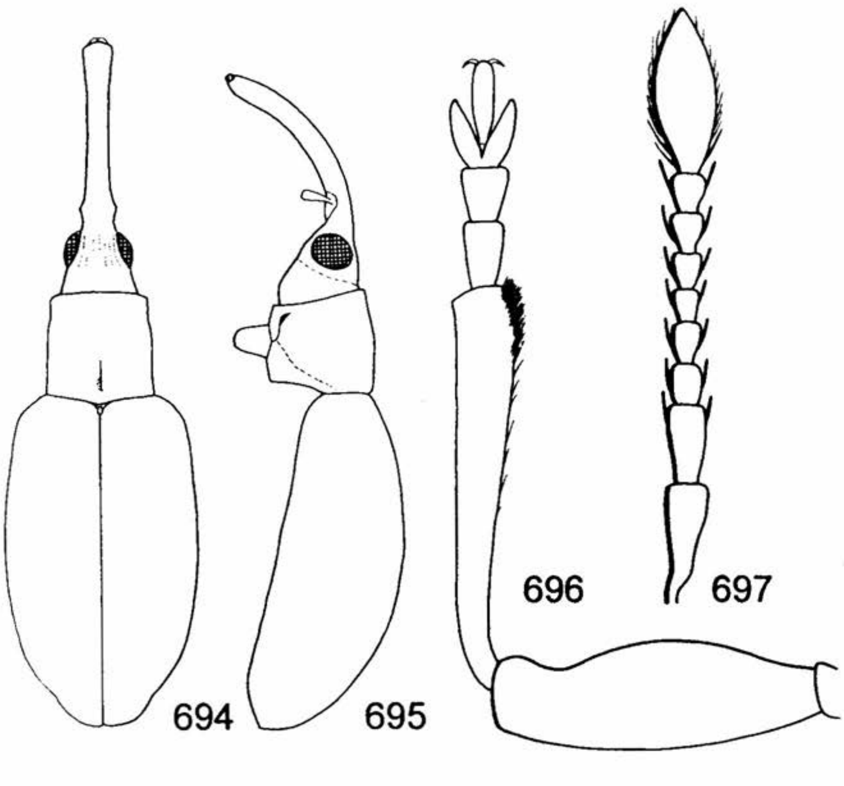
"*A. fallaciosum* m. Algérie" and apparently obtained from DESBROCHERS could be considered as a type. However, it is a male of *C. longiclava* and its peculiar sexual character have not been mentioned in the original Description *C. fallaciosum* was for a long time incorrectly treated as a senior synonym of *C. longiclava*, so designation of the female from Mécheria as the neotype became necessary to maintain the name in agreement with DESBROCHERS' intention. The specimen was probably collected by DE VAULOGER, as mentioned by DESBROCHERS [1898].

DESCRIPTION

Length 2.38 mm. Body dull black; legs and antennae uniformly brown, lighter than those in the previous species. Vestiture identical as in *C. edentatum*.

Male not available in the collections.

Indices (f). ***rl/pl:*** 1.71; ***rl/msrw:*** 5.30; ***scl/msrw:*** 1.03; ***msrw/mtrw:*** 1.12; ***msrw/arw:*** 1.26; ***msrw/minrw:*** 1.65; ***msrw/eyl:*** 1.00; ***brl/eyl:*** 0.77; ***eyl/hl:*** 0.58; ***hl/hw:***



694-697. *Ceratapion fallaciosum*, female (neotype): 694 - body in dorsal view; 695 - body in lateral view; 696 - fore femur, tibia (lateral view) and tarsus (dorsal view); 697 - antenna

0.93; ***mpw/hw:*** 1.63; ***bpw/apw:*** 1.12; ***pl/mpw:*** 1.02; ***mew/mpw:*** 1.75; ***el/pl:*** 3.14; ***el/mew:*** 1.83; ***mew/bew:*** 1.20; ***bew/mpw:*** 1.45; ***pft/msrw:*** 0.93; ***ptbl/pl:*** 1.12; ***ptbl/ptbmw:*** 5.88; ***ptsl/ptbl:*** 0.56.

Rostrum longer and thinner than that in *C. edentatum*; mesorostral teeth less evident; prorostrum stronger constricted, with lateral groove bounded above and below with fine longitudinal carinae and exceeding middle of the prorostrum.

First funicular segment nearly twice as long as wide.

Head clearly sub-conical; eyes weakly convex; frons slightly concave; temples rugosely punctate on a distance of about 1/4 eye length; interocular area flat, with some few asperities in its posterior part.

Pronotum sub-quadrate, straight at sides and with subapical constriction obsolete; punctures dense but very shallow, hardly delimited; prescutellar fovea very fine, long and laying in a shallow depression of the disc; pleural line invisible, pronotal sides broadly impunctate along the posterior margin.

Elytra weakly, uniformly convex, slightly rounded at sides, broadest at about middle.

Remaining characters as in *C. edentatum*, to which it is apparently very closely related.

According to WAGNER (1906) the male differs from the female in a shorter rostrum (as long as the head and pronotum combined), less distinctly curved and slightly narrowing apicad, with larger teeth at antennal insertion, the two most distal antennal segments slightly transverse, a shorter and more asymmetrical club and modified legs - hind tibiae thickened and sharply edged in basal 1/3 and the basal segment of hind tarsi hooked.

Biology unknown.

Distribution. Algeria (Mecheria, Geryville?).

REMARKS

WAGNER (1906) gives detailed description of a few specimens received from Ch. ZURCHER, among them the two males collected in Geryville (Algeria) and recognized by him as *A. fallaciosum*. The characters listed by him, among others the distinct lateral groove on the rostrum, elytra "massig stark gewölbt" and weakly rounded at sides, together with the shape of the male hind tibiae unique among *Ceratapiini*, allow us to suppose that he had at hand the true *C. fallaciosum*. It remains obscure why he ignored this description in the later revision (WAGNER, 1918: 61) considering *A. fallaciosum* to be synonymous with *A. longiclava*, though quoting the 1906 paper in references.

***Ceratapion bacanasicum* (BAJTENOV, 1973)**

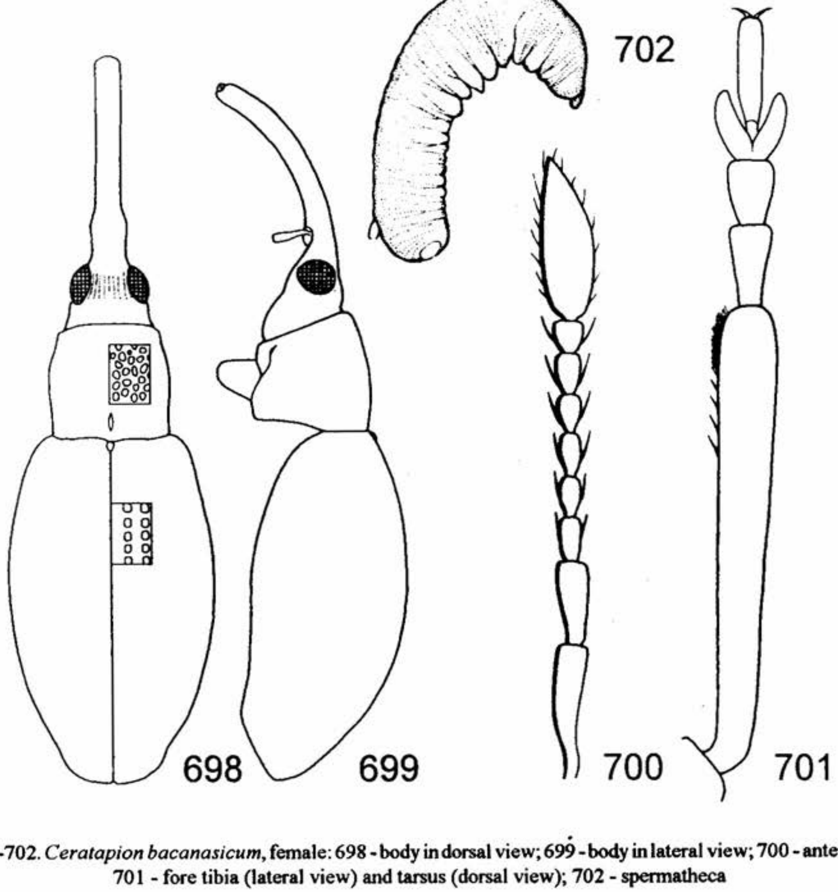
(figs 698-702)

Apion (Ceratapion) bacanasicum BAJTENOV, 1973: 61
Apion bakanasicum [sic!]: BAJTENOV, 1974: 278.

Type material not examined. The species was described from South-Eastern Kazakhstan basing on two males and two females collected on 15 V 1972 in Bakanas, at the river Ili. The only female kindly loaned to me by Dr. B. A. Korotyaev has been finally assigned to this species following his opinion. The original description, though rather inadequate, agrees in most details with characters of the specimen examined by me, especially in the body shape, colouration and sculpture. Some doubts, most of all concerning antennal proportions, could not be cleared up, as the originally described characters are predominantly those of the male.

Description

Length 2.5 mm. Derm dark brown, dull; legs testaceous, antennae slightly darker. Body vestiture in the only available specimen almost completely abraded, the few retained scales piliform, pure white.



698-702. *Ceratapion bacanasicum*, female: 698 - body in dorsal view; 699 - body in lateral view; 700 - antenna; 701 - fore tibia (lateral view) and tarsus (dorsal view); 702 - spermatheca

Indices (f). ***rl/pl:*** 1.72; ***rl/msrw:*** 5.68; ***scl/msrw:*** 1.03; ***msrw/mtrw:*** 1.07; ***msrw/arw:*** 1.32; ***msrw/minrw:*** 1.38; ***msrw/eyl:*** 0.91; ***brl/eyl:*** 0.90; ***eyl/hl:*** 0.60; ***hl/hw:*** 0.88; ***mpw/hw:*** 1.60; ***bpw/apw:*** 1.14; ***pl/mpw:*** 1.00; ***mew/mpw:*** 1.70; ***el/pl:*** 3.03; ***el/mew:*** 1.78; ***mew/bew:*** 1.24; ***bew/mpw:*** 1.37; ***pft/msrw:*** 0.97; ***ptbl/pl:*** 1.20; ***ptbl/ptbmw:*** 8.21; ***ptsl/ptbl:*** 0.62.

Female:

Rostrum long, weakly and evenly curved, impunctate, clearly scale-like microsculptured, in apical 1/4 shining; meta- and mesorostrum almost equally broad, weakly expanded; prorostrum cylindrical.

Antennae very thin, with the scale-like microsculpture scarce, inserted at basal 0.17 of rostrum; length/width of the scape 4, first funicular segment 2.5, the last slightly, the remaining at least 1.5× longer than wide; club 3.2 as long as wide; antennal pubescence moderately protruding.

Head strongly transverse; frons flat, finely striolate; vertex and temples somewhat rugose, not clearly punctate; underside of head between eyes flat, bare, strongly scale-like microsculptured, not asperate.

Pronotum gently convex, distinctly rounded at sides, coarsely punctate; punctures varying in size, of 3× ommatidium size on average, less than half diameter apart, interspaces slightly convex, microreticulate; prescutellar fovea fine, narrower than punctures, strongly elongate; pronotal sides with the pleural line wanting, punctured throughout; prosternum 0.8 as long as the postcoxal part of prothorax.

Elytra strongly rounded at sides, clearly oval, markedly and uniformly convex; intervals flat, near the elytra base twice, in middle 2.5-3× wider than the striae, shagreened; striae not deepened nor edged, forming rows of square punctures with the septae not depressed; striae 1, 2, 9 joined and slightly broadened apically; specialized setae present.

Episternal sutures of the mesosternum visible, not ending in pits; mesepimeral sutures very narrow, without punctures. Intermesocoxal process of the metasternum slightly raised.

Legs long and very slender; length(width) ratio of protarsal segments 9.5(5.5):8.5(6):9.5(9): 14.5(3.5).

Spermatheca characteristic, having corpus and cornu equally thick (fig. 702).

According to Bajtenov (1973) the male has body 2.0-2.1 mm long, rostrum not longer than the head and pronotum combined, antennal scape twice as long as broad, mid tibiae apparently shorter than the fore and hind ones, hind tibiae slightly curved and basal segment of the metatarsus without a ventral spine.

Biology unknown.

Distribution. South-Eastern Kazakhstan.

Remarks

Most characters, in particular weak and obtuse mesorostral dilatation, non-asperate interocular area of the head, absence of the pleural line and presence of the specialized setae indicate that the species belongs to the subgenus *Angustapion*, but the elytral striae 1, 2, 9 are fully connected apically.

MATERIAL EXAMINED

KAZAKHSTAN: Karzhantau Mts.[ca. 80 km NE of Tashkent], 1.VIII.38, 1f (ZIS).

SPECIES INCERTAE SEDIS

Apion (Ceratapion) proximum GYÖRFFY, 1923

Apion (Ceratapion) proximum GYÖRFFY, 1923: 92.

The relatively exact original description suggests that the species is a probable senior synonym of *C. secundum* (T.-M.) or *C. kazakhstanicum* (T.-M.). Described as single female from Buchara (Uzbekistan). The holotype, preserved at HMNH, has been unavailable for study.

Apion (Ceratapion) brevitibia BAJTENOV, 1977

Apion (Ceratapion) brevitibia BAJTENOV, 1977: 16.

Described from Mardin in southern Anatolia, certainly belongs to the *C. macrorrhynchum* species group, being apparently a synonym of *C. akbesianum* (DBR.) or *C. sejugum* (DBR.). Both species differ only in the armature of the internal sac of aedeagus, not described by BAJTENOV.

Apion (Ceratapion) nurense BAJTENOV, 1977

Apion (Ceratapion) nurense BAJTENOV, 1977: 16.

Description was based on a single female found in Central Kazakhstan (Celinogradskaya obl., at the river Nura near Tengiz Lake) and characterized, among others, by the small body (length 2.1 mm), testaceous with yellowish-red legs; antennae thick, with funicular segments 2-7 transverse and bearing short club; rostrum weakly dilated at antennal insertion; pronotum cylindrical, elongate and coarsely punctate; elytra distinctly elongate; tibiae short and strongly broadened apicad. It was compared by BAJTENOV to *C. kasbekianum* (GERST.).

TAXA ERRONEOUSLY CLASSIFIED IN *CERATAPIINI*

Subgenus *Aceratapion* VOSS, 1969

Ceratapion subgenus *Aceratapion* VOSS, 1969: 55. Type species: *Ceratapion kabulense* VOSS, 1969 (by original designation).

A monotypic subgenus, being in fact a synonym of the genus *Catapion* SCHILSKY (**syn. nov.**). The paratype of *Ceratapion kabulense* VOSS, examined by me and labelled: a)Afghanistan, Umgeb. Kabul, leg. J. KLAPPERICH, b)3610, c)*Ceratapion kabulense* m., d)Paratypus and preserved at MNB, is actually *Catapion gemulum* FAUST.

Apion rufipenne GYLLENHAL, 1839

Apion rufipenne GYLLENHAL, 1839: 397.

South and Central American species, described from Columbia (Cartaghena) and belonging to the genus *Trichapion* WAGNER in broad sense (KISSINGER, 1959; 1968). WAGNER (1908: 302) erroneously placed it in *Ceratapion*.

Apion indistinctum MOTSCHULSKY, 1849

Apion indistinctum MOTSCHULSKY, 1849: 144.

In the original description compared to *Apion carduorum*, and apparently on that basis placed in the subgenus *Ceratapion* by WINKLER & WAGNER (1932). A synonym of *Apion* (*s. lato*) *pisi* FABRICIUS, 1801 (ALONSO-ZARAZAGA 1991b).

Apion rudicolle HOCHHUTH, 1851

Apion rudicolle HOCHHUTH, 1851: 12.

Forgotten and completely unknown species, classified in the subgenus *Ceratapion* by WINKLER & WAGNER (1932). However, some characters listed in the relatively exact original description clearly indicate that it cannot belong to the tribe *Ceratapiini*. The combination of the "fadenförmig" (cylindrical) rostrum, antennae inserted close to the middle of rostrum, thin at base and broadening distad, and the frons excavate, with a longitudinal keel separating the depression into two parts, excludes any known species of *Ceratapiini* and generally any member of the tribe. Only *Ceratapion scalptum* has the frons somewhat resembling that described in *A. rudicolle*, but the clearly sub-basal insertion of the antennae, strongly expanded rostrum base and strong swelling of the antennal scape exclude this species. HOCHHUTH compares *A. rudicolle* to *A. columbinum*, *A. vorax* and *A. spencii*, and the characters described rather confirm its close relationships to the species grouped in the *Eutrichapion* group in broad sense (particularly to the genus *Cyanapion* BOKOR in ALONSO-ZARAZAGA, 1991). The type specimens of *A. rudicolle* have been apparently lost, so the name is here treated as a nomen dubium.

Apion kolenatii KOLENATI, 1858

Apion kolenatii KOLENATI, 1858: 151.

Classified by some authors in the subgenus *Omphalapion*, turned out to be a synonym of *Metapion oculare* (GYLLENHAL) (WANAT, 1992).

Apion schneideri TOURNIER, 1878

Apion Schneideri TOURNIER, 1878: 50.

A forgotten species, listed in the catalogue of Palaearctic *Apioninae* (WINKLER & WAGNER, 1932) as species dubium, but TER-MINASSIAN (1972) places it (with a question mark) in the subgenus *Ceratapion*. In the original description TOURNIER compared it with *A. cylindricolle* GYLL., though slender antennae inserted far from the rostrum base, combined with the other listed characters, makes the supposed relationships with *Ceratapiini* very uncertain. While examining MNHP collections I found in that of TOURNIER the type specimen of *A. schneideri*, labelled a)Tiflis, b)nov. sp., c)A. n. sp. Kaukas, d)small black square, and being here designated as the lectotype. The species belongs to the genus *Catapion* SCHIL. and is a senior synonym of *C. koenigi* (DBR.) **(syn. nov.)**.

Apion helveticum DESBROCHERS, 1906

Apion helveticum DESBROCHERS, 1906: 88.

Since WAGNER (1909) the species was treated as a synonym of *Apion laevigatum* (PAYK.), though some characters listed in the original description (i.e. total size, black and elongate body, obsolete prescutellar fovea) are clearly outstanding. The examined holotype of *A. helveticum*, labelled: a)Suisse, b)*helveticum* FR. 07 m., c) Ex Musaeo DESBROCHERS 1914 (coll. DESBROCHERS, MNHP) is in fact a dwarf specimen of *Ischnopterapion loti* (KIRBY) **(syn. nov.)**.

Apion nonveilleri HOFFMANN, 1953

Apion (Ceratapion) nonveilleri HOFFMANN, 1953: 194.

A synonym of *Alocentron curvirostre* (GYLLENHAL) (ALONSO-ZARAZAGA, 1991b).

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