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Redescription of *Aochetus gladiator* FAUST, 1893 and *Aochetus roseus* FAUST, 1897 (Coleoptera: Curculionidae)

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ABSTRACT. *Aochetus gladiator* FAUST, 1893 and *Aochetus roseus* FAUST, 1897 are redescribed. New diagnostic features and a key to species are given. Lectotype of *Aochetus gladiator* FAUST, 1893 is designated. Photographs of specimens, genitalia, and drawings of antennae and rostrum are included.

Key words: entomology, taxonomy, redescrptions, genitalia, key to species, Coleoptera, Curculionidae, Molytinae, *Aochetus*.

INTRODUCTION

Genus *Aochetus* FAUST, 1893 was proposed for *Aochetus gladiator* by FAUST (1893). The author gave a key to African genera of Ithyporini and highlighted the following features of the genus: prothorax without distinct pectoral canal, fore coxae strongly approximate one to another, all femora keeled, hind legs longer than fore legs and rostrum not curved. Subsequently, *Aochetus roseus* FAUST, 1897 was described distinguished by smaller body, curved rostrum and unicoloured scales. In the case of the former species no type specimen was designated, and in the original description of the latter one female was designated as the type.

The genus consists of two species and it is classified within Ithyporini in accordance with primary designation of FAUST (1893). However, systematic position of the tribe has changed and nowadays it is classified in the subfamily Molytinae (ALONSO-ZARAZAGA & LYAL 1999), in contrast to Coleopterorum Catalogus (JUNK & SCHENKLING 1936) where it had been placed in the subfamily Cryptorhynchinae. MORIMOTO (1978)

in his paper on Oriental genera of Cryptorhynchinae classified the genus within this subfamily and combined Ithyporini and some members of Sophrorhini into Ithyporini of new sense. According to KUSCHEL (1987), there is no distinct boundary between the subfamilies Cryptorhynchinae and Molytinae, and so detailed, comprehensive and comparative studies are required. Moreover, some Ithyporini genera were transferred by KUSCHEL (1987) to subfamilies Eirrhinae and Curculioninae, which puts into question the nature of known relationships among all the mentioned taxa. Only KUSCHEL considered features of male genitalia in his work, but mainly as diagnostic for species determination. Taxonomical studies on Ithyporini should be carried out to elucidate relationships between subfamilies Cryptorhynchinae and Molytinae; however, most taxa included in the tribe were described over 100 years ago and no studies on terminalia were published. Additionally, some features were established incorrectly or not specified and distinguishing particular taxa within the tribe is quite difficult. This paper reviews the present state of knowledge on the poorly known *Aochetus* species and gives new features that can be used to consider generic-, tribe- or subfamily-level relationships.

METHODS

The photographs were taken using a camera Nikon CoolPix connected to a Nikon SMZ1500 stereoscopic microscope. Layers were combined and final photograph was adjusted with graphic software. The measurements of specimens were taken using an ocular micrometer. Metric values are given in millimeters, mean values of all metric values and indices are presented in brackets.

The following abbreviations are used:

BL – body length (from base of rostrum to end of elytra)

R/P – rostrum/pronotum length ratio

PL/W – pronotal length/width ratio

EL/W – elytral length/width ratio

E/P – elytral/pronotal length ratio

T1/F1 – fore tibia/femur length ratio

T3/F3 – hind tibia/femur length ratio

F3/E – hind femur/elytra length ratio

Type labels are quoted literally, each separate in quotation marks. Type material is deposited in Senckenberg Naturhistorische Sammlungen, Dresden. Additional material from the Royal Museum for Central Africa, Tervuren was studied.

KEY TO SPECIES

1. Rostrum weakly curved (Figs 19, 21), mainly in apical part. Pronotal and elytral adherent scales small, oval or elongated. Elytral intervals 5-6 times wider than striae **gladiator** FAUST
- . Rostrum strongly curved (Fig. 23). Adherent scales on pronotum and elytra large, round. Elytral intervals at most three times wider than striae **roseus** FAUST

***Aochetus* FAUST, 1893**

Type species: *Aochetus gladiator* FAUST, 1893, by monotypy

***Aochetus gladiator* FAUST, 1893**

Aochetus gladiator FAUST, 1893: 234.

TYPE MATERIAL

Lectotype, female (present designation): “Gabon Richter”; “gladiator Faust”; “Coll. J. Faust Ankauf 1900”; “Type” (Fig. 17). Paralectotypes, 2 ♂♂: same labels as lectotype.

Lectotype is designated from series of syntypes to preserve the stability of nomenclature by selecting one specimen as the sole, name-bearing type of the taxon.

ADDITIONAL MATERIAL STUDIED

♂: “MUSEE DU CONGO Luebo 25-VIII-1921 Dr H. Schoudteden”; “R. DET. L 934”; “*Aochetus gladiator* Fst.”. 1 ♀: “MUSEE DU CONGO Luebo 7-IX-1921 Dr H. Schoudteden”; “R. DET. 1724 J”; “*Aochetus gladiator* Fst.”. 1 ♀: “MUSEE DU CONGO Kasal: Ipamu 1922 P. Vanderijst”; “R. DET. 2329 J”; “*Aochetus gladiator* Fst. Hustache det.”. 1 ♂: “MUSEE DU CONGO Kasal: Ipamu 1922 P. Vanderijst”; “R. DET. 3250 D”; “*Aochetus gladiator* Fst. Male”. 1 ♂: “Kamerun Kraatz”; “Coll. J. Faust Ankauf 1900”. 1 ♀: “Kamerun Yaunde-Stat III.1895 Zenker S.”; “Coll. J. Faust Ankauf 1900”. 1 ♂: “Kamerun Dolodorf? (illegibly) Kraatz”; “Fst.”; “*Aochetus gladiator* Fst.”. 1 ♂: “Benito Congo Fra”; “Samml. K.F.Hartmann Ankauf 941.1”. 1 ♀: “Benito”; “Samml. K.F.Hartmann Ankauf 941.1”.

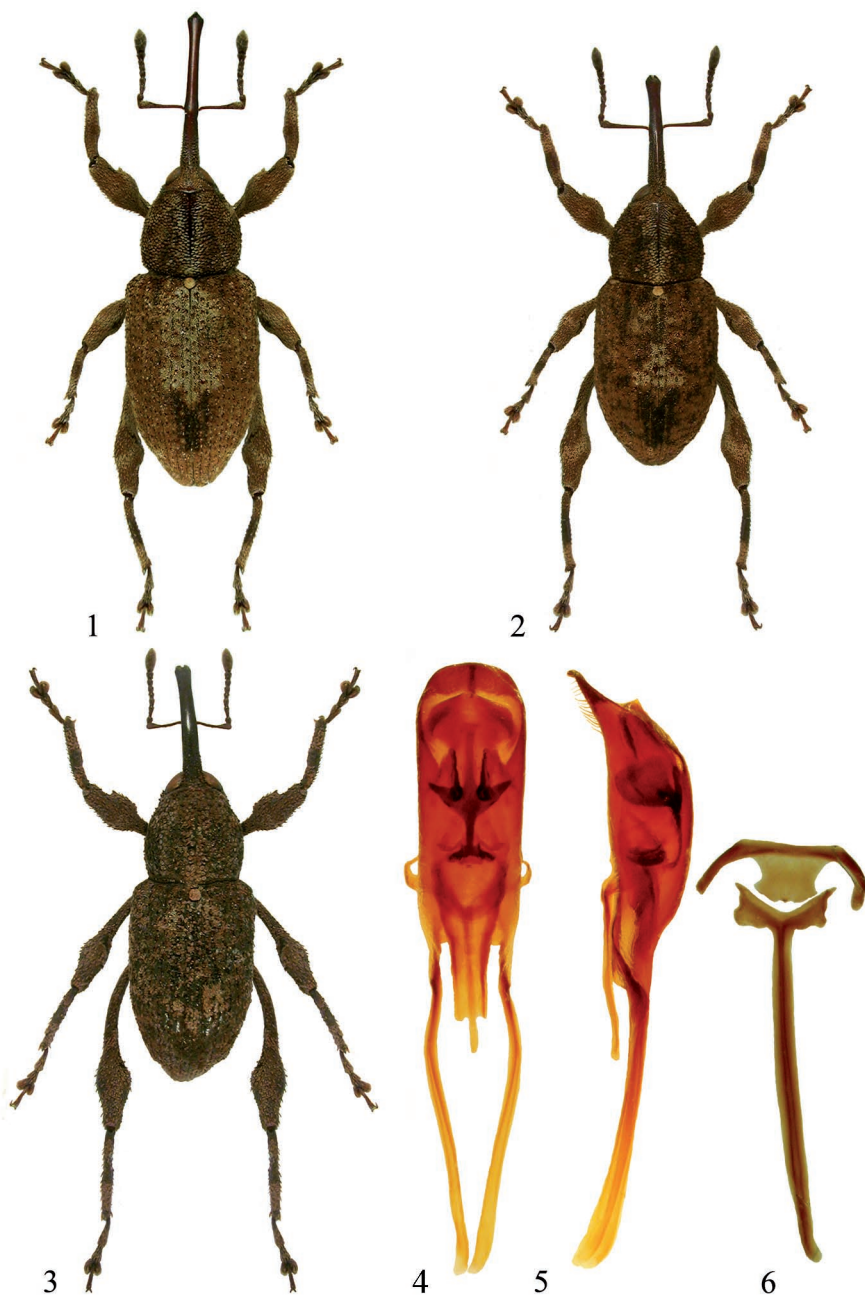
REDESCRIPTION

Female (Fig. 1)

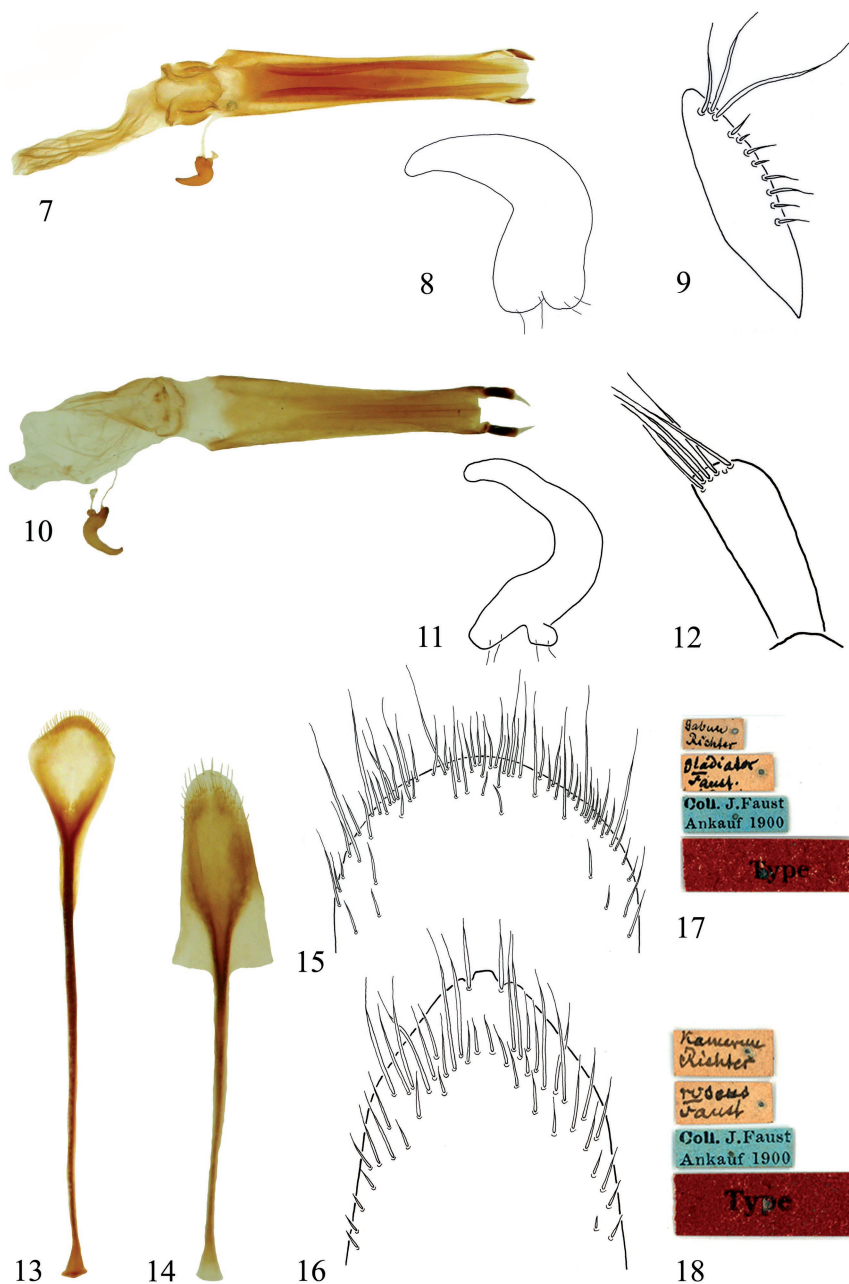
Measurements. BL: 6.7-8.4 (7.77); R/P: 1.46-1.78 (1.6); PL/W: 0.86-0.96 (0.9); EL/W: 1.55-1.67 (1.61); E/P: 2.16-2.5 (2.38); T1/F1: 0.78-0.87 (0.81); T3/F3: 0.65-0.69 (0.66); F3/E: 0.64-0.76 (0.71).

Integument under scales dark brown, general coloration brownish. Rostrum and antennae dark brown. Pronotum covered with adherent brown scales, in the middle of disc slightly paler than laterally. Scutellum cream-colored. Elytra brownish, their anterior part with wide spot of grey scales reaching end of third interval each side and dark, arrow-shaped spot located behind the middle of elytra. Underside of body covered with pale grayish-brown scaling. Legs with one distinctly darker band before the middle of tibiae.

Head densely punctate, covered with pale brown, elongated scales, integument visible between scales. Head width behind eyes around $2.7 \times$ wider than width of rostrum at base. Eyes viewed from above slightly convex, with few erected scales located near their upper margin. Eye diameter nearly $1.3 \times$ wider than width of rostrum at base.



1-6. *Aochetus gladiator* FAUST: 1 – female, dorsal view; 2 – male, dorsal view; 4 – aedeagus with tegmen, dorsal view; 5 – aedeagus with tegmen, lateral view; 6 – male sternite VIII and IX; *Aochetus roseus* FAUST: 3 – female, dorsal view



Rostrum in dorsal view slightly narrowed toward base of antennae, in apical part distinctly widened, at antennal insertion slightly thickened. In lateral view (Fig. 19) almost straight at basal part and slightly curved near the level of antennal base, distinctly higher in basal part than in apical. Puncturation in basal part dense and deep, from the level of antennal insertion poor and sparse. Distance between the punctures in apical part of rostrum equal to four diameters of punctures. Basal part of rostrum with distinct longitudinal, smooth line. Microsculpture not visible, rostrum shiny. Upper side without grooves or costae. Antennae inserted in the premedian part of rostrum. Antennal scrobes shallow, placed partly under the rostrum, strongly curved and widened apically.

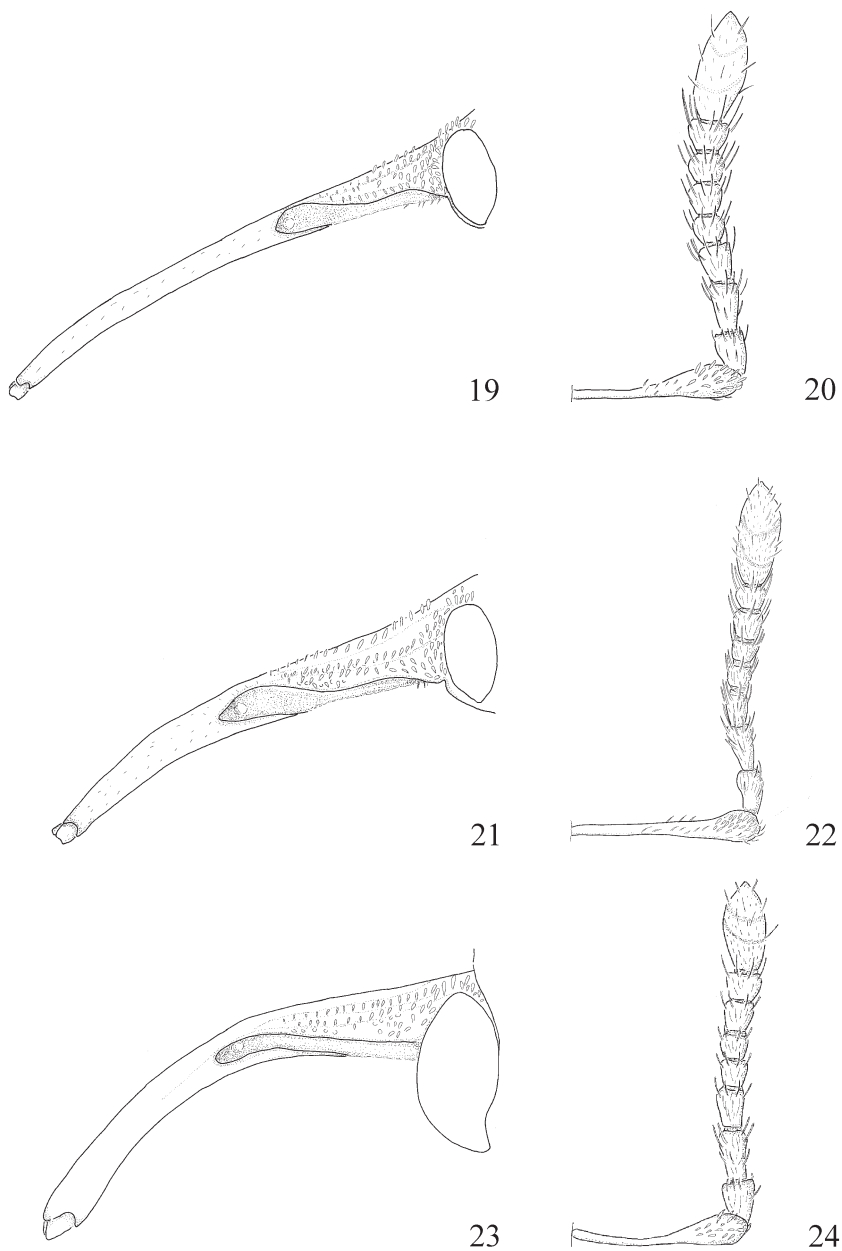
Antennae quite stout, flagellum composed of seven segments, scape as long as five basal antennomeres combined (Fig. 20). First three segments of flagellum distinctly longer than their width at apex, pedicel clavate, other segments almost spherical. Club slightly elongated, longer than last three antennomeres of flagellum combined, sutures sinuated. Scape with dense scaling at apex, setae on flagellum distinctly protruding, most of them as long as third antennomere, club with very short, pale yellow setae.

Pronotum trapezoidal, widest near base, lateral beads strongly rounded, distinctly narrower than elytra, in lateral view slightly convex. Anterior margin of pronotum not raised, arcuated. In the middle part of pronotal disc slightly raised longitudinal keel. Base of pronotum slightly arcuated toward scutellum. Scales oval to elongated, nearly parallel to pronotal base.

Scutellum rounded, densely covered with adherent scales. Elytra widest in one thirds length from base, from mid-length distinctly narrowed to apex, in lateral view clearly and evenly vaulted. Shoulders prominent. Apices of elytra joined together, slightly incurved near suture. Elytron with eleven very slightly raised intervals, $5-6 \times$ broader than striae, intervals with single rows of shiny tubercles visible between dense scaling, each tubercle with one semi-erect scale. Punctures in rows strongly isolated from intervals, with one scale at the bottom. Adherent scales on elytra longer than wide, oblique to suture.

Underside of body covered with scales that are similar on entire prothorax but vary on mesoventrite, metaventrite and abdomen where wider, rounded scales are represented in middle parts of sternites. Fore coxae close to each other. Anterior part of prosternum with rudimentary pectoral canal, not marked by a distinct ridge.

Legs moderately slender. Fore and hind femora nearly $2.5 \times$ wider than width of rostrum at base. All femora with two black, shiny and very slightly raised keels, one on external and one on internal side. Teeth on fore and mid femora very small, as high as $1/6$ of femur maximum width, on hind femora bigger, with posterior margin curved. Fore and mid tibiae arched near base and apex, hind tibiae broader and more curved near base. All tibiae apart from adherent scales with numerous erect, narrow scales. Setae on apical, widened area of tibiae yellow, mucro dark brown. Tarsi slender and long, especially tarsi of middle legs. First tarsomere of hind tarsi as long as claw-bearing segment, third tarsomere with deep incision, bilobed, almost two times shorter than claw-bearing segment. All tarsi with adherent and erected scales, the latter piliform. Dense brush of setae on ventral side of third tarsomere pale yellow.



19-24. *Aochetus gladiator* FAUST: 19 – female rostrum, lateral view; 20 – female antenna; 21 – male rostrum, lateral view; 22 – male antenna; *Aochetus roseus* FAUST: 23 – female rostrum, lateral view; female antenna

Ovipositor (Fig. 7) very long, constricted in middle part. Stylus tapering, subapically with a few long setae, laterally with much shorter ordered setae (Fig. 9). Spermatheca (Fig. 8) robust, with almost right internal angle. Spiculum ventrale (Fig. 13) with very long apodeme and rhomboidal base, rounded at apex (Fig. 15).

Male (Fig. 2)

Measurements. BL: 7.3-8.4 (7.7); R/P: 1.11-1.41 (1.31); PL/W: 0.86-0.92 (0.89); EL/W: 1.51-1.63 (1.55); E/P: 2.09-2.36 (2.25); T1/F1: 0.77-0.88 (0.82); T3/F3: 0.61-0.75 (0.68); F3/E: 0.7-0.84 (0.76).

Rostrum distinctly shorter, less shiny, puncturation of its base stronger, in lateral view (Fig. 21) more curved in distal part, thicker than in female. Antennae like in fig. 22.

Aedeagus (Fig. 4) broad, with distinct, conical internal sclerite. In lateral view (Fig. 5) well vaulted, with setae near apex, on ventral side. Sternites VIII and IX shaped as in fig. 6.

VARIABILITY

Pale and dark spot on elytra can be reduced to half width of third interval or paler scales mixed with darker, making pattern indistinct.

DISTRIBUTION

Gabon, Cameroon, Democratic Republic of the Congo.

Aochetus roseus FAUST, 1897

Aochetus roseus FAUST, 1897: 75.

TYPE MATERIAL

Holotype, female: "Kamerun Richter"; "roseus Faust"; "Coll. J. Faust Ankauf 1900"; "Type" (Fig. 18).

REDESCRIPTION

Female (Fig. 3)

Measurements. BL: 8.3; R/P: 1.12; PL/W: 0.96; EL/W: 1.64; E/P: 2.16; T1/F1: 0.75; T3/F3: 0.65; F3/E: 0.57.

Integument under scales black, general coloration dark brown. Rostrum and antennae black, except dark brown club. Pronotum covered with adherent brown scales, without distinct bands. Scutellum pale brown. Elytra with mixed pale to dark brown scales, without any distinct color patterns except hardly visible, darkened spot before the declining apical part. Underside of body and legs covered with grayish-brown scaling. Tibiae with very slightly darkened band before mid-length.

Head densely punctate, covered with brown, rounded scales. Body surface hardly visible between scales. Erected scales forming one row near upper margin of eyes. Head behind eyes almost 3 times as wide as rostrum at base. Eyes viewed from above slightly convex, eye diameter nearly $1.4 \times$ wider than width of rostrum at base.

Rostrum in dorsal view subparallel, only slightly widened at base and in apical part, in lateral view very strongly and evenly curved (Fig. 23), higher in basal part than in apical. Basal part with dense but not very deep puncturation, punctures tend to form rows, longitudinal, smooth line distinct. From the level of antennal insertion to apex punctures sparse and hardly visible, in apical part nearly five own diameter apart. Rostrum very shiny, without microsculpture, its upper side without grooves or costae. Antennae inserted before the middle of rostrum. Scrobes shallow, placed partly under the rostrum, curved and deepened in apical part, not widened as in former species.

General shape of antennae (Fig. 24) almost similar as in *A. gladiator*, scape as long as five basal antennomeres combined, distinctly arched. Third segment of flagellum less robust as in former species, segments 4-6 not spherical. Sixth antennomere slightly longer than its width in opposite to *A. gladiator*. Club oval, shorter than combined segments 5-7 of flagellum, sutures sinuated. Scape with sparser scaling at apex, setae on flagellum distinctly protruding, most of them as long as fifth antennomere, setation on club similar to former species.

Pronotum widest near 1/3 of length from base, narrower than elytra but less than in *A. gladiator*, in lateral view moderately convex; lateral beads strongly rounded, in anterior part slightly tapered. Anterior margin of pronotum not raised, slightly arched. Keel in the middle part slightly raised and dull. Elongated, erected scales visible between adherent scales, mostly in anterior part and in the middle of disc. Base of pronotum slightly arcuated toward scutellum, distinctly emarginated on each side. Scales rounded, large, completely covering punctures.

Scutellum rounded, densely covered with adherent scales. Elytra almost parallel from shoulders to middle of length, then distinctly narrowed to apex, in lateral view distinctly convex, flattened anteriorly. Shoulders indistinct, oblique to pronotal base. Each elytron with eleven well raised intervals, at most three times broader than rows of punctures. Adherent scales large, rounded. Intervals with single rows of shiny tubercles, each bearing one hardly or not raised scale in anterior part of elytra. Punctures in rows large, oval. Apices of elytra joined together, distinctly narrower than in *A. gladiator*.

Underside of body covered with oval scales that are similar on whole thorax, only slightly varying on abdominal sternites where minimally broader scales are represented in their middle parts. Fore coxae built similarly to the former species. Anterior part of prothorax with rudimentary pectoral canal that is more deepened and marked by slight ridge. Last visible ventrite with long, hair-like setae.

Legs very slender. Fore and hind femora nearly $2.5 \times$ wider than rostrum at base. All femora toothed and with two shiny, moderately raised keels, similar like in *A. gladiator*. Tooth height/maximum femur width ratio similar as in former species, tooth triangular, with straight posterior margin. Fore and mid tibiae built as in *A. gladiator* FAUST, hind tibiae not broader than other two pairs, more curved apically. All tibiae except adherent scales with numerous distinctly erected, narrow scales. Setae on apical, widened area of tibiae dark yellow, mucro black. Tarsi slender and long, first tarsomere of hind tarsi longer than claw-bearing segment. All tarsi with adherent and erected scales, the latter piliform. Third tarsomere with deep incision, bilobed, nearly

two times shorter than claw-bearing segment. Dense brush of setae on ventral side of third tarsomere pale yellow, rarely darkened.

Ovipositor (Fig. 10) long, distinctly narrowed in apical part. Stylus truncate, with long, apical setae only (Fig. 12). Spermatheca (Fig. 11) slender, with blunt internal angle. Spiculum ventrale (Fig. 14) with long apodeme and oval base, posterior margin (Fig. 16) developed into small process limited by a pair of incisions, each bearing one seta.

Male unknown.

DISTRIBUTION.

Cameroon.

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