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New records and two new species of Cardiophorine Elateridae from
Maharashtra, India
(Insecta: Coleoptera)

AMOL PATWARDHAN & R.P. ATHALYE

B.N. Bandodkar college of Science, Chendani, Thane 400602. Maharashtra, India; e-mail:
amolpatwardhan@gmail.com.

ABSTRACT. *Cardiophorus pellucidus* n. sp. and *Paracardiophorus tricolor* n. sp. are described from Maharashtra, India. Three species *Melanoxanthus anticus* CANDEZE, 1892, *Abelater sanguinicollis* SCHWARZ, 1902 and *Procraerus assamensis* SCHIMMEL, 2003 are for the first time reported from Maharashtra.

Key words: entomology, taxonomy, new species, new records, Coleoptera, Elateridae, India.

INTRODUCTION

In the west of Maharashtra lies Western Ghats which starts from northern boundary of the state and runs till end of the Indian peninsula. The Western Ghat is home to diverse habitats like dry deciduous forests, moist deciduous forests, tropical forests, high altitude grasslands and typical Shola forests which are unique to the mid and southern Western Ghat. The elaterid fauna of the Ghats is very diverse and is not properly studied. The eastern Maharashtra is a part of typical central Indian plateau and is occupied by large tracts of forests. Central Maharashtra has very low forest cover and most of land is brought under cultivation.

Geographically, the state is divided in three regions. The Konkan, a narrow strip of land between Western Ghats and Arabian Sea, the north Western Ghats and the Deccan plateau.

This paper reports records of elaterids from different regions of the state and two new species. The specimens are preserved in the collection of the senior author.

ABBREVIATIONS

CAT: Collection Amol Patwardhan, Thane.

LIST OF SPECIES

***Melanoxanthus anticus* CANDÈZE, 1892**

(fig. 1)

Locus typicus: Nagpore (= Nagpur) and Bengalen (=Bengal).

It was reported from the locations which had a status of the 'State' during colonial times. Now areas under Nagpur state are distributed in the states of Madhya Pradesh, Maharashtra and Chattisgarh. Eastern part of Bengal is separated as Bangladesh. Therefore the exact 'locus typicus' is unknown.

NEW RECORDS

India: Maharashtra: Chandrapur district: Kolsa, 5. VI. 2004, one female, leg. (on light) A. Patwardhan. India: Maharashtra: Raigad district: Supegaon, 24. VI. 2006, one spm., leg. (on light) A. Patwardhan.

COMMENTS

Both of the places, Kolsa and Supegaon are at least 700 km apart. Kolsa is in eastern Maharashtra while Supegaon is in Konkan, just few kilometers from the Arabian Sea. The habitats are forests, in Kolsa a dry deciduous, and moist deciduous in Supegaon.

***Abelater sanguinicollis* FLEUTIAUX, 1947**

(fig 2)

Locus typicus: Pondicherry (=Puducherry), Tamil Nadu.

NEW RECORDS

India: Maharashtra: Thane district: Sasupada, 26. VII. 2005, 1 male, leg. (on plant) A. Patwardhan. Same data for two females; India: Maharashtra: Thane district: Yeoor, 11. VI. 2004, one spm., leg. (on plant) A. Patwardhan.

***Procraerus assamensis* SCHIMMEL, 2003**

(fig 3)

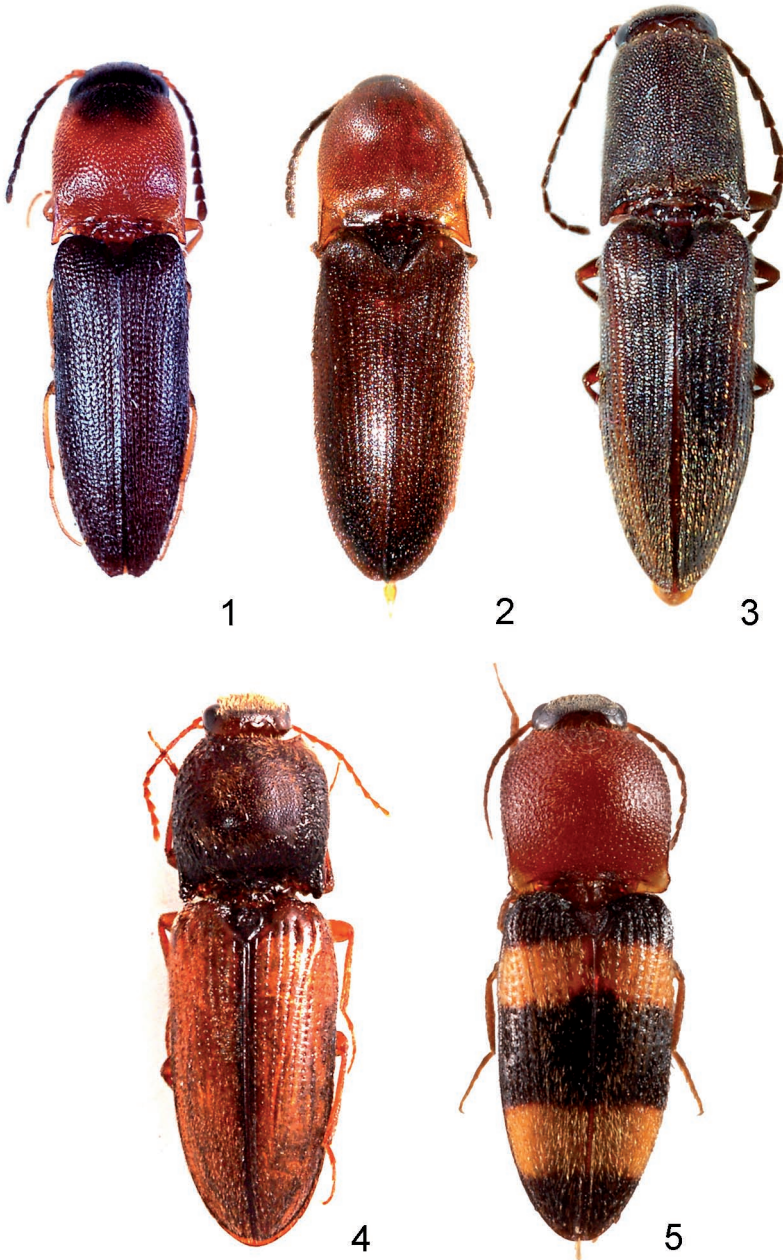
Locus typicus: Assam.

REMARKS

The species is reported from North Eastern India.

NEW RECORDS

India: Maharashtra: Raigad district: Supegaon, 24. VI. 2006, one spm., leg. (on light) A. Patwardhan.



1-5. Habitus: 1 – *Melanoxanthus anticus* CANDÈZE, 2 – *Abelater sanguinicollis* FLEUTIAUX, 3 – *Procrærus assamensis* SCHIMMEL, 4 – *Cardiophorus pellucidus* n. sp., 5 – *Paracardiophorus tricolor* n. sp. (not in scale)

DESCRIPTION OF NEW SPECIES

***Cardiophorus pellucidus* n. sp.**

(figs 4, 6)

DERIVATIO NOMINIS

The species' name refers to transparent elytra.

LOCUS TYPICUS

India: Maharashtra: Thane District: Thane.

TYPE MATERIAL

Holotypus female.: India: Maharashtra: Thane District: Thane, 7. XII. 2007, leg. (in light) A. Patwardhan (CAT). Paratypus male, India: Orissa: Kandrapara District: Chandbeli, 24.X.2005, leg. (in light) A. Patwardhan; one specimen Madhya Pradesh: Seoni District: Turia, 17.IV.2007, leg. (in light) A. Patwardhan.

DESCRIPTION

Holotype Female Length 7.5 mm and breadth 2.3 mm. Paratype male length 6 mm and breadth 1.9 mm. Head black. Frons flat, vertical with complete frontal carina. Anterior margin of frontal carina projecting slightly. Frontoclypeal region strongly declivous to the base of the labrum. Mandibles simple.



6. *Cardiophorus pellucidus* n. sp.: male genitalia

Antennae brown, not reaching the posterior projection (probably female). Vestiture starts on the third antennomere. Second antennomere smallest. Third subequal to the fourth. Antennomere breadth reduces from third to tenth. Eleventh antennomere subequal to the tenth, slightly constricted near apex.

Pronotum black. Pubescence brown. Punctuation double. Anterior pronotal margin arcuate. Anterior angles projecting slightly, not covering eyes. Lateral margin narrowing in anterior quarter, without sublateral carina. Posterior projection flat, rounded apex. Posterior margin with sublateral incision midway between posterior projection and prescutal notch. Prescutal notch broadly 'M' shaped.

Elytra yellow, transparent. Anterior margin rounded with distinctly projecting anterior angles. Sutural line black. Sutures striate-punctate. Punctuation in the striae round, deep, separated by less than one to one diameter. Elytral apex rounded.

Scutellum black, moderately declivous anteriorly. Discal punctuation small, shallow. Anterior margin with very distinct notch. Apex pointed.

Prosternum almost flat, anteriorly produced to form distinct chin piece. Pronotosternal sutures slightly open in the anterior; double, parallel. Prosternum not marginate along hypomeral boarder and procoxae. Prosternal projection broad with rounded apex; posterior to procoxae slightly longer than the procoxal diameter; bicarinate; carinae widen and continue anteriorly for more than the twice diameter of the procoxae.

Mesosternum distinct from metasternum. Posterior portion vertical. Mesosternal cavity very broad, not reaching the middle of the mesocoxae. Mesocoxal cavity margin formed by mesosternum and mesepisternum only.

Metasternum with anterior margin carinate. Metaventral discripen distinct along the entire length.

Metacoxal plate rounded in the middle. Posterior angle broad.

Legs light brown. Tibiae slender with dense pubescence on the outer side and without row of spines. Apically spiniform setae and two brown, pointed, slender tibial spurs. Tarsomeres without any modification ventrally and with spiniform setae apically. Metatarsi distinctly shorter than the metatibia. Claws dented with pointed and slender blades.

Male genitalia as in the figure (fig 6).

DIFFERENTIAL DIAGNOSIS

The species appears close to *Cardiophorus hedenborgii* CANDÈZE 1860. But *C. pellucidus* n.sp. has uniform transparent elytra while the previous has bands on the elytra. Type of *C. hedenborgii* CANDÈZE 1860 is preserved in the Swedish Museum of Natural History, Stockholm.

DISTRIBUTION

India: Maharashtra: Konkan. Madhya Pradesh, Orissa.

REMARKS

In Orissa it was collected from the area where the inland forests and mangroves forest merge.

***Paracardiophorus tricolor* n. sp.**

(fig 5)

DERIVATIO NOMINIS

The name refers to three distinct colors on the integument of the body.

LOCUS TYPICUS

India: Maharashtra: Ratnagiri District: Anjerla. India: Maharashtra: Sindhudurga District: Sawantwadi.

TYPE MATERIAL

Holotypus female (CAT), India: Maharashtra: Ratnagiri District; Anjerla, 9.VII.2003, leg., A. Patwardhan. Paratypus one female. (CAT) India: Maharashtra: Sindhudurga District: Sawantwadi, 12.XI.2006, leg., (on light) A. Patwardhan.

DESCRIPTION

Length 6 mm breadth 1.5 mm. Head black. Frons flat raised above eyes, complete frontal carina, carina oblique with distinct anterior angles. Frontoclypeal region strongly declivous to the base of the labrum. Labrum simple, slightly convex anteriorly. Mandibles dentate.

Antennae reddish brown, not reaching the apex of the pronotal projection. First three antennomeres lighter. Second smallest, cup shaped. Third longer and broader than the fourth. Eleventh antennomere longer than the tenth, lighter in the distal half.

Pronotum red, convex, declivous anteriorly, strongly declivous posteriorly in the posterior third. Pubescence dense creamy. Punctuation double. Anterior margin slightly arcuate with distinct anterior angles, covering less than quarter of an eye. Lateral margins convex. Lateral carina deflexed reaching middle of the pronotum. Sublateral carina not reaching middle of the pronotum.

Scutellum cordate, strongly declivous anteriorly, boarder black and deep red discally. Depressed in the middle. Apex blunt.

Elytra black with two broad, transverse yellow bands. Anterior margin straight with distinct anterior angles. Striate –punctuate, punctures separated by less than one to equal to one diameter. Interstriae slightly convex. Elytral apex rounded.

Prosternum deep orange red, gently declivous anteriorly with distinct chin piece. Pronotosternal sutures double, closed, slightly widened anteriorly. Prosternum not marginate along inner border of hypomera, marginate along procoxae, margins continue to apex of the prosternal projection. Prosternal process posterior to procoxae equal to the procoxal diameter, apex broadly rounded.

Mesosternum posteriorly indistinct from metasternum. Mesosternal cavity broad with rounded apex, not reaching middle of mesocoxae. Mesocoxal cavity formed by mesosternum and metasternum only.

Metasternum black, anteriorly fused with mesosternum. Metaventral discriemen indistinct.

Metacoxal plates conical in the middle. Posterior angles broad.

Legs brown. Tibiae narrow at the base, outer margin with a row of cream colored spines. Whitish spiniform setae and two light brown tibial spurs. Tarsomeres without modification ventrally and with spiniform setae apically. Metatarsi distinctly shorter than the metatibia. Claws simple light brown with uniformly curved blades.

Male unknown.

DIFFERENTIAL DIAGNOSIS

Paracardiophorus spadiceous CANDÈZE, 1893 was recorded from Belgaon in Karnataka state and *P. minutus* FLEUTIAUX, 1933 was recorded from Assam. Both species are dark brown in color. The former one without any coloration while the later one with the yellow patch near anterior margin of the elytra. *P. tricolor* n. sp. is distinctly different in color pattern.

DISTRIBUTION

India: Maharashtra: Ratnagiri District and Sindhudurga District.

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