Revision of the genus *Eodendrus* Belokobylskij
(Hymenoptera: Braconidae, Doryctinae)

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(Accepted 21 March 2005)

Abstract
A revision of the genus *Eodendrus* Belokobylskij, stat. nov. (type species *Dendrosotinus eous* Belokobylskij) is provided. Six new species are described and figured: *E. africanus* Belokobylskij, sp. nov. (S. Africa), *E. convergens* Belokobylskij, sp. nov. (Brunei), *E. elongatus* Belokobylskij and Long, sp. nov. (Vietnam), *E. flavus* Belokobylskij and Long, sp. nov. (Vietnam), *E. hoabinicus* Belokobylskij and Long, sp. nov. (Vietnam, Brunei), and *E. petiolatus* Belokobylskij and Chen, sp. nov. (China). Redescriptions of *E. eous* (Belokobylskij), comb. nov. (Russian Far East, Korea, Japan) and *E. conspicuus* (Granger), comb. nov. (Madagascar) are given. The lectotype of *Doryctes conspicuus* Granger is designated. A key to all species of the genus *Eodendrus* is presented. The composition of the subtribe Caenophanina (Doryctini) is discussed.

Keywords: Africa, Braconidae, Doryctinae, East Asia, Eodendrus, Hymenoptera, new species, redescription, revision

Introduction
The subgenus *Eodendrus* Belokobylskij was erected in *Dendrosotinus* Telenga for the Eastern Palaearctic species *D. eous* Belokobylskij, 1988 (Belokobylskij 1998) on the basis of its lateral and posteriorly convergent furrows on the second tergite, and elongate acrosternite of the first metasomal segment. Study of the tropical and subtropical fauna of the Old World showed that these diagnostic characters are stable, phylogenetically significant and shared by several other species besides the type species. It is reasonable to raise this subgenus to generic status.

Aside from the Eastern Palaearctic species, *E. eous*, five new species of this genus are described from the Oriental Region (South China, Vietnam, Brunei) and two from the Afrotropical Region (S. Africa and Madagascar) of which one is already described and one...
is new. One male collected in India [1 3, “Dehra Dun, U.P., J.C.M. Gardner, 11.IX.1929”, “Ex Mucuna imbricata”, “S.E’s. No 810, cage No 687”, “1075” (BMNH)] has been examined, but its determination without the female is problematic and therefore it is not being described here. *E. conspicuus* (Granger) was originally described from Madagascar in the genus *Doryctes* (Granger 1949) and later transferred into *Dendrosotinus* (Shenefelt and Marsh 1976). This genus is also known from Australia (males of an undescribed species in the collection of Adelaide University; unpublished data).

The hosts of this group are unknown, but because *Eodendrus* appear to be closely related to *Dendrosotinus*, they may parasitize larvae of xylophagous beetles from the families Bostrichidae, Cerambycidae, and Scolytidae which are hosts of *Dendrosotinus* (Shenefelt and Marsh 1976).

The subtribe Caenophanina from the tribe Doryctini has been treated as including four genera: *Caenophanes* Förster, *Dendrosotinus* Telenga, *Euscelinus* Westwood, and *Esterella* Pagliano and Scaramozzino (Belokobylskij 1992). The main diagnostic characters of this subtribe are the apically closed brachial cell, interstitial parallel vein, presence of a second radiomedial vein, usually postfurcal recurrent vein, male hind wing without stigma-like enlargement, rather short hind wing submedial cell, fifth and sixth metasomal tergites not enlarged, apical tergites without sculpture, the fourth and fifth tergites without distinct basal transverse furrows, and hind coxa often without basoventral tubercle. However, reexamination of these showed that one of the genera, *Euscelinus* Westwood, together with *Doryctophanus* Enderlein (which was included earlier in Spathiini: Belokobylskij 1992), *Sonanus* Belokobylskij and Konishi (recently described by Belokobylskij and Konishi 2001), and possibly *Esterella* Pagliano and Scaramozzino, 1990 [emendation for *Prolatus* Sharma and Gupta, not *Prolatus* Smith (Tenthredinidae)] (Sharma and Gupta 1985; Pagliano and Scaramozzino 1990) are related genera but belong to another group (perhaps a new subtribe) (S. A. Belokobylskij et al., in preparation) and not to Caenophanina. The main synapomorphic character of these latter genera is the presence of the row of several strong spines on the dorsal surface of the hind tibia—a unique morphological novelty in the subfamily Doryctinae. Therefore, only three genera are included in the Caenophanina in the present work: *Caenophanes* Foerster, *Dendrosotinus* Telenga, and *Eodendrus* Belokobylskij (stat. nov.).

The terms for wing venation are used as defined by Belokobylskij and Tobias (1998). The following abbreviations are used: POL, postocular line; OOL, ocular–ocellar line; Od, maximum diameter of lateral ocellus; BCIK, Biodiversity and Conservation Institute (Silmaeri, S. Korea); BMNH, The Natural History Museum (London, UK); IEBR, Institute of Ecology and Biological Resources (Hanoi, Vietnam); NIAES, National Institute of Agro-Environmental Sciences (Tsukuba, Japan); MNHN, Museum National d’Histoire Naturelle (Paris, France); ZJUH, Zhejiang University (Hangzhou, China); ZISP, Zoological Institute, Russian Academy of Sciences (St Petersburg, Russia).

**Systematic part**

**Genus Eodendrus** Belokobylskij, 1998, stat. nov.

*Type species.* *Dendrosotinus eous* Belokobylskij, 1988.

*Description*

Head subcubical, its width 1.3–1.6 × median length. Vertex distinctly convex. Ocelli arranged in triangle with base 1.3–1.5 × its sides. Frons weakly concave and without
median keel. Eyes glabrous or sparsely and very shortly setose. Occipital carina strong, not
interrupted dorsally, usually obliterated ventrally for a short distance before reaching
hypostomal carina. Malar suture absent. Clypeal suture complete. Hypoclypeal depression
rather small and round. Postgenal bridge wide. Maxillary palpi six-segmented, labial palpi
four-segmented; third segment of labial palpi not shortened. Scapus wide and rather short,
without apical lobe. First flagellar segment weakly curved outside, usually not longer than
second segment.

Mesosoma not depressed. Anterior pronotal lobe distinct and curved upwards. Pronotal
keel absent or finely developed submedially. Propleural lobe distinct and wide. Mesonotum
rather highly and usually almost perpendicularly raised above pronotum. Median lobe of
mesonotum without anterolateral corners, distinctly protruding forward. Notauli rather wide,
deep in anterior half, shallow or almost absent in posterior half. Prescutellar
depression rather long and sculptured. Scuto-scutellar suture distinct. Scutellum weakly
convex, with more or less distinct lateral carinae. Metanotum often with a short and usually
pointed median tooth. Subalar depression shallow and wide. Mesopleural pit rather shallow
and elongate. Sternauli rather deep, long, almost straight, running along entire length of
lower part of mesopleura. Prepectal carina distinct and complete. Postpectal carina absent.
Metapleural flange rather short and usually narrow. Propodeum without marginate areas;
lateral tubercles and propodeal bridge absent.

Wings. Pterostigma of fore wing wide. Radial vein arising from or slightly behind middle of
pterostigma. Radial cell not shortened. Both radiomedial veins present. Recurrent vein
postfurcal. Nervulus distinctly postfurcal. Discoidal cell petiolate. Parallel vein
interstitial. Brachial cell closed. Transverse anal veins absent. Hind wing with three
hamuli. Nervellus present. Submedial cell short. First abscissa of mediocubital vein 0.5–
0.7 × second abscissa. Recurrent vein present, strongly oblique toward base of wing.
Medial cell rather wide. Radial vein arising from costal vein. Radial cell weakly narrowed
toward apex, without additional transverse vein. Hind wing of male without stigma-like
enlargement.

Legs. Fore and middle tibiae with sparse thick spines arranged in single row. Hind coxa
rather large, usually without basoventral tooth. All femora without distinct dorsal
protuberances. Hind femur distinctly thickened, elongate-oval. Hind tibia thickened,
with five to seven spines on outer distal margin. Hind tibial spurs short.

Metasoma. First tergite subpetiolate or petiolate, more or less wide or rather narrow.
Acrosternite (coarsely sclerotized and separated anterior part of sternite) in female (0.35)
0.4–0.6 × and in male 0.25–0.3 × as long as first tergite, its apical margin situated distinctly
behind (female) or at level (male) of spiracles. Dorsorse of first tergite distinct; basolateral
lobes absent. Spiralacular tubercles usually long and directed partly downwards, situated
near basal 0.25–0.3 of tergite. Dorsal carinae present in basal 0.25–0.3. Second suture
distinct, sometimes almost effaced medially, usually weakly laterally curved. Second tergite
with more or less distinct, almost straight or curved, more or less strongly posteriorly
convergent longitudinal furrows. Second and third tergites with separate laterotergites.
Ovipositor usually a little shorter than body. Apex of ovipositor with two small dorsal nodes
and finely serrate ventrally.

Distribution. East Palaearctic, Oriental, Afrotropical and Australian Regions.
Diagnosis

This genus is similar to Dendrosotinus Telenga (distributed in the Palaeartic, Oriental and Afrotropical Regions) but differs in having the acrosternite of the first tergite of the female distinctly elongate and the second metasomal tergite with lateral and posteriorly convergent longitudinal furrows.

A key to species of the genus Eodendrus Belokobylskij

1. Brachial cell widened medially and closed apically almost at level of recurrent vein (Figure 5). Hind coxa with small basoventral tubercle (Figure 7). First tergite high (lateral view) (Figure 10). Larger, body length 7.0 mm. South Africa

   – Brachial cell not or weakly widened medially and usually closed apically distinctly before level of recurrent vein (Figures 25, 46, 48, 59, 70, 81) (except E. conspicuus: Figure 15). Hind coxa without basoventral tubercle (Figures 17, 28, 37, 50, 61, 72, 83). First tergite usually not high (lateral view) (Figures 30, 42, 75, 86). Smaller, body length 2.4–5.7.

   E. africanus sp. nov.

2. Length of mesosoma 2.4–2.5 × height. Mesoscutum weakly and roundly raised above pronotum (Figure 36). Second and third metasomal tergites widely yellow laterally and brown to reddish brown medially. Body length 3.9–4.2 mm. (Male.)

   – Length of mesosoma 2.0–2.2 × height. Mesoscutum highly and almost perpendicularly raised above pronotum (Figure 51). Second and third metasomal tergites medially and laterally brown, light reddish brown or brownish yellow

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3. First tergite with small spiracular tubercles (Figures 20, 54); acrosternite of female 0.35–0.4 × as long as tergite (Figure 19). Length of first tergite 1.4–1.6 × its apical width. Lateral depressions of second tergite at most weakly convergent (Figures 20, 54)

   – First tergite with long spiracular tubercles which are directed somewhat downwards (Figures 31, 65, 76, 87); acrosternite of female 0.45–0.6 × as long as tergite. Length of first tergite 1.6–2.3 × its apical width. Lateral depressions of second tergite distinctly convergent (Figures 31, 65, 76, 87)

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4. Second abscissa of radial vein 0.5–0.6 × third abscissa (Figure 48). Brachial cell apically closed distinctly before recurrent vein (Figure 48). Length of second tergite 1.1–1.15 × its basal width (Figure 54). Body dark reddish brown. Antenna 28–31-segmented. Smaller, body length 3.0–3.4 mm. Russia (south of Far East), Japan, Korea

   – Second abscissa of radial vein 0.7 × third abscissa (Figure 15). Brachial cell apically closed almost at level of recurrent vein (Figure 15). Length of second tergite 0.8–0.9 × its basal width (Figure 20). Body usually light brown with dark spots. Antennae 39-segmented. Larger, body length 4.1–5.7 mm. Madagascar

   E. eous (Belokobylskij)

   – Second abscissa of radial vein 0.7 × third abscissa (Figure 15). Brachial cell apically closed almost at level of recurrent vein (Figure 15). Length of second tergite 0.8–0.9 × its basal width (Figure 20). Body usually light brown with dark spots. Antennae 39-segmented. Larger, body length 4.1–5.7 mm.

   E. conspicuus (Granger)

5. Length of first tergite 2.3 × its apical width. Length of second tergite 1.6 × its basal width (Figure 87). Eyes sparsely, shortly setose. Body length 4.2 mm. China (Guangxi)

   – Length of first tergite 1.6–1.7 × its apical width. Length of second tergite 1.0–1.3 × its basal width (Figures 31, 65, 76). Eyes glabrous
6. Transverse diameter of eye 1.4 × as long as temple (dorsal view) (Figure 56). Second radiomedial cell 3.4 × as long as its maximum width (Figure 59). Vertex almost smooth medially. Third tergite almost entirely smooth, very finely coriaceous laterally (Figure 65). Scapus 1.25 × as long as its maximum width. Body length 2.4 mm. Vietnam . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . E. flavus sp. nov. – Transverse diameter of eye twice as long as temple (dorsal view) (Figures 22, 67). Second radiomedial cell 2.8–3.0 × as long as its maximum width (Figures 25, 70). Vertex distinctly and densely granulate, partly with dense and fine transverse striation. Third tergite more or less distinctly striate in mediobasal 0.25, densely granulate basolaterally, coriaceous for most part, smooth medioapically (Figures 31, 76) . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 7

7. Lateral furrows of second tergite shallow, not carinate along interior margin, less distinctly posteriorly convergent; basal width of middle area 1.8–2.2 × its apical width (Figure 76). POL 1.4–1.6 × Od and 0.5–0.6 × OOL (Figure 67). Dorsal hairs of hind tibia short, 0.5–0.8 × as long as apical width of tibia (Figure 74). Scutellum distinctly granulate. Body length 3.0–3.3 mm. Vietnam, Brunei . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . E. hoabinicus sp. nov. – Lateral furrows of second tergite deep, distinctly carinate along interior margin, strongly posteriorly convergent; basal width of middle area 3.0 × its apical width (Figure 31). POL 2 × Od and 0.8 × OOL (Figure 22). Dorsal hairs of hind tibia long, 0.8–1.3 × as long as apical width of tibia (Figure 27). Scutellum finely granulate-coriaceous. Body length 3.2 mm. Brunei . . . E. convergens sp. nov.

_Eodendrus africanus_ Belokobylskij, sp. nov. (Figures 1–11)

_Type material_

Holotype: female, “S. Africa, R.E. Turner. Brit. Mus. 1923-547.”, “Port St. John, Pondoland, Oct. 1923” (BMNH).

_Description_

_Female._ Body length 7.0 mm; fore wing length 4.6 mm.

Head width 1.4 × its median length. Head behind eyes (dorsal view) convex in anterior half, strongly and almost linearly narrowed in posterior half; transverse diameter of eye 1.6 × as long as temple (Figure 2). Ocelli medium-sized, in triangle with base 1.35 × its sides. POL 1.6 × Od, 0.5 × OOL. Eye sparsely and shortly setose, 1.25 × as high as broad. Malar space height 0.5 × height of eye, equal to basal width of mandible (Figure 3). Face width 1.1 × height of eye and 1.2 × height of face and clypeus combined. Clypeus with distinct lower flange. Clypeal suture complete. Hypoclypeal depression small and round, its width about 0.5 × distance from edge of depression to eye, 0.3 × width of face (Figure 1). Hypostomal flange narrow. Antennae (Figure 4) slender, filiform, more than 40-segmented (apical segments missing). Scapus about 1.5 × as long as its maximum width. First flagellar segment weakly curved outside, not flattened, 4.2 × as long as its apical width, 0.75 × as long as second segment. Subapical segments about 3 × as long as their width.
Mesosoma. Length twice its height. Mesoscutum rather highly and almost perpendicularly raised above pronotum. Pronotal keel indistinct. Median lobe of mesoscutum with wide and shallow median longitudinal depression. Notauli deep in anterior half, shallow in posterior half, wide, coarsely crenulate with granulation. Prescutellar depression deep, wide, with median carina, coarsely rugose, \( 0.3 \times \) as long as almost flat scutellum. Subalar

Figures 1–11. *Eodendrus africanus* sp. nov. (1) Head, frontal view. (2) Head, dorsal view. (3) Head, lateral view. (4) Basal six segments of antenna. (5) Fore wing. (6) Hind wing. (7) Hind coxa. (8) Hind tibia. (9) Hind femur. (10) First tergite, lateral view. (11) Metasoma, dorsal view.
depression shallow, wide, rugose-areolate. Sternauli rather deep, narrow, straight, finely rugose-coriaceous, connected with prepectal carina anteriorly, running along almost entire length of lower part of mesopleura. Metapleural flange distinct, wide, rounded apically.

Wings. Fore wing (Figure 5) 3.7× as long as its maximum width. Radial vein arising shortly after middle of pterostigma. Metacarpus 1.1× as long as pterostigma. Second radial abscissa almost 4.0× first abscissa, 0.7× the straight third abscissa, 1.5× first radiomedial vein. Second radiomedial cell 3× as long as its maximum width, 1.5× as long as brachial cell. First abscissa of medial vein weakly S-shaped. Recurrent vein 3× second abscissa of medial vein. Distance from nervulus to basal vein 1.2× nervulus length. Brachial cell widened medially, closed apically almost on level of recurrent vein. Hind wing (Figure 6) 4.6× as long as wide. First abscissa of costal vein 0.7× second abscissa. First abscissa of mediocubital vein 0.65× second abscissa. Recurrent vein long, curved toward base of wing, sclerotized for most part, interstitial.

Legs. Hind coxa with very small but distinct basoventral tooth (Figure 7), its length 1.7× maximum width. Hind femur almost 3× as long as wide (Figure 9). Hind tibia with seven short and thick spines on apical outside margin (Figure 8). Hind tarsus almost as long as hind tibia. Basitarsus thickened, 0.5× as long as second to fifth segments combined. Second tarsal segment 0.6× as long as basitarsus, 1.1× as long as fifth segment (without pretarsus).

Metasoma. Metasoma (Figure 11) 1.3× as long as head and mesosoma combined. First tergite high (lateral view) (Figure 10), distinctly and linearly widened from base to apex (dorsal view) (Figure 11), with distinct wide spiracular tubercles in basal 0.3 that are directed somewhat downwards. Acrosternite of first tergite about 0.6× as long as tergite. Maximum width of first tergite almost twice its minimum width; length 1.6× its apical width. Second tergite with rather deep, wide, weakly curved and rather weakly posteriorly convergent lateral longitudinal furrows; basal width of median area 1.4× its apical width; length of tergite 1.2× its basal width, 1.7× length of third tergite. Second suture complete, very deep laterally, shallow medially. Ovipositor sheath 0.75× as long as body, 1.4× as long as metasoma, 1.15× as long as fore wing.

Sculpture and pubescence. Vertex very densely granulate with fine rugulosity laterally and posteriorly. Frons densely rugulose with granulation. Face densely and rather finely transversely striate with dense ground granulation. Temple densely, semicircularly striate with dense granulation, finely striate-coriaceous below. Mesoscutum densely rugose-recticate, with dense granulation, rather widely rugose in medioposterior half. Scutellum entirely densely granulate. Mesopleura coarsely rugulose-granulate in upper 0.75, only granulate near sternauli, finely granulate-coriaceous below sternauli. Metapleura entirely coarsely rugose-areolate. Propodeum entirely densely rugose-areolate, without carinae or marginate areas. Hind coxae densely granulate, coarsely rugose in dorsal 0.3. Hind femur entirely densely granulate. Hind tibia finely punctulate-granulate. First and second tergites densely and distinctly undulately striate, with rugosity between striae. Third tergite only densely granulate, almost smooth in medioposterior 0.3. Remaining tergites finely coriaceous to smooth. Mesoscutum entirely with dense short semi-erect hairs. Hind tibia with short, dense and semi-erect hairs dorsally, length of these hairs 0.3–0.4× maximum width of hind tibia.
Colour. Head light reddish brown to brown, yellow around eyes in wide area. Mesosoma dark reddish brown, light reddish brown to yellowish brown for most part dorsally. Metasoma light reddish brown, second tergite laterally yellow in wide areas, but almost black marginally; third to sixth tergites laterally yellow in wide areas. Antenna yellow basally, brownish yellow to dark brown toward apex. Palpi pale yellow. Tegulae yellow. Legs yellow to brownish yellow; hind femur brown medially; middle and hind tibiae pale yellow basally; fifth tarsal segments brown. Ovipositor sheath brownish yellow, black apically at short distance. Fore wings entirely faintly yellowish infuscate. Pterostigma yellow in basal half, brown in apical half.

Male. Unknown.

Discussion
This new species is similar to *E. hoabinicus* sp. nov. but differs in the relatively short first flagellar segment (Figure 4 cf. Figure 69), the brachial cell medially widened and apically closed at the level of the recurrent vein (Figure 5 cf. Figure 70), the hind coxa with small basoventral tubercle (Figure 7 cf. Figure 72), and the first tergite in lateral view high (Figure 10 cf. Figure 75). *E. africanus* sp. nov. differs from the Madagascan *E. conspicuus* (Granger) in the short first flagellar segment (Figure 4 cf. Figure 14), the medially widened brachial cell of fore wing (Figure 5 cf. 15), the hind coxa with small basoventral tubercle (Figure 7 cf. Figure 17), the high first tergite in lateral view, the long acrosternite of the first tergite (Figure 10 cf. Figure 19), and the long second tergite (Figure 11 cf. Figure 20).

Distribution. South Africa.

**Eodendrus conspicuus** (Granger), comb. nov.
(Figures 12–20)

*Eodendrus conspicuus* Granger 1949, p 122.

*Dendrosotinus conspicuus*: Shenefelt and Marsh 1976, p 1277.

Type material
Lectotype (designated here for stability of nomenclature): female, “Madagascar, Behara”, “Museum Paris, XI-38, A. Seyrig”, “40”, “Type”, “Doryctes conspicuus” Gr., det. P. Marsh” (MNHN). Paralectotypes: two females, one male, “Madagascar, Behara”, “Museum Paris, I-38, A. Seyrig” (MNHN); one female, “Madagascar, Behara”, “Museum Paris, XI-38, A. Seyrig” (MNHN); two females, “Madagascar, Bekily, Reg. sud de l’île”, “Museum Paris, VIII-36, A. Seyrig” (MNHN); one female, “Madagascar, Bekily, Reg. sud de l’île”, “Museum Paris, VIII-36, A. Seyrig”, “36” (MNHN).

Description
Female. Body length 4.1–5.7 mm.

Head width 1.4–1.5 × its median length. Temple behind eye (dorsal view) weakly convex anteriorly, distinctly roundly narrowed posteriorly; transverse diameter of eye 1.5–1.6 × as long as temple (Figure 13). Ocelli rather small, in triangle with base 1.3 × its sides. POL 1.5–2.0 × Od, 0.7–0.9 × OOL. Eye glabrous, 1.1–1.2 × as high as broad. Malar space height 0.4–0.45 × height of eye, 0.75–0.9 × basal width of mandible. Face width almost equal to height of eye and 1.2–1.3 × height of face and clypeus combined. Clypeal suture
Figures 12–20. *Eodendrus conspicuus* (Granger). (12) Head, frontal view. (13) Head, dorsal view. (14) Basal five segments of antenna. (15) Fore wing. (16) Hind wing. (17) Hind coxa. (18) Hind femur. (19) First tergite, ventral view. (20) Metasoma, dorsal view.
distinct and complete. Hypoclypeal depression round, its width 0.7 × distance from edge of depression to eye (Figure 12). Antennae (Figure 14) slender, filiform, 39-segmented. First flagellar segment weakly curved outside, not flattened, 5.3–6.0 × as long as its apical width, almost equal to second segment. Penultimate segment about 4.0 × as long as wide, slightly shorter than apical segment; the latter without apical spine.

**Mesosoma.** Length 2.0–2.2 × its height. Mesoscutum highly and almost perpendicularly raised above pronotum. Notauli complete, deep in anterior half and shallow in posterior half, distinctly crenulate. Prescutellar depression rather shallow, with five to seven distinct carinae, almost smooth, 0.2–0.25 × as long as weakly convex scutellum. Sternauli deep, straight, finely granulate, running along almost entire length of lower part of mesopleura.

**Wings.** Fore wing (Figure 115) 3.7 × as long as its maximum width. Radial vein arising shortly after middle of pterostigma. Metacarpus 1.1 × as long as pterostigma. Second radial abscissa 3.0–3.8 × first abscissa, 0.7 × the straight third abscissa, 1.2–1.4 × first radiomedial vein. Second radiomedial cell 3.0–3.5 × as long as its maximum width, 1.2 × as long as brachial cell. First abscissa of medial vein distinctly S-shaped. Recurrent vein about 6.0 × second abscissa of medial vein. Distance from nervulus to basal vein about 1.5 × nervulus length. Brachial cell closed apically almost on level of recurrent vein. Hind wing (Figure 16) 5.0 × as long as wide. First abscissa of costal vein 0.5 × second abscissa. First abscissa of mediocubital vein 0.55–0.65 × second abscissa. Recurrent vein rather long, curved toward base of wing, unsclerotized, shortly antefurcal.

**Legs.** Hind coxa without basoventral tooth (Figure 17), its length 1.8 × maximum width. Hind femur 3.0–3.2 × as long as wide (Figure 18). Hind tarsus almost as long as hind tibia. Basitarsus 0.6 × as long as second to fifth segments combined. Second tarsal segment 0.7–0.8 × as long as basitarsus, 1.6 × as long as fifth segment (without pretarsus).

**Metasoma.** Metasoma (Figure 20) 1.1–1.2 × as long as head and mesosoma combined. First tergite distinctly and linearly widened from base to apex, with small spiracular tubercles. Acrosternite of first tergite about 0.4 × as long as tergite (Figure 19). Maximum width of first tergite 1.8–2.0 × its minimum width; length about 1.5 × its apical width. Second tergite with rather distinct, straight, weakly posteriorly convergent lateral longitudinal light furrows; length of tergite 0.8–0.9 × its basal width, 1.1–1.2 × length of third tergite. Second suture shallow and complete, with very weak lateral bends. Ovipositor sheath almost as long as mesosoma and metasoma combined.

**Sculpture.** Vertex and temple with very thin and dense striation, with granulation between striae. Frons transversely and partly obliquely striate. Face distinctly and densely transversely striate. Mesoscutum densely granulate, with undulate striae in medioposterior part. Scutellum densely granulate. Mesopleura rather finely granulate for most part, very finely granulate below. Propodeum rather finely and irregularly rugulose, finely and small reticulate in basolateral parts, without marginate areas and carinae. Hind legs very weakly granulate. First tergite densely punctulate with rugulosity. Second tergite entirely and third in basal 0.3–0.7 striate-rugose, third tergite laterally rugulose-granulate. Remaining tergites smooth.

**Colour.** Body light brown, vertex medially, mesonotum and mesopleura entirely, metapleura partly, first tergite entirely and other tergites medially distinctly infuscate;
rarely body almost entirely dark reddish brown. Antenna light brown, infuscate apically. Palpi yellowish brown. Legs yellow or yellowish brown, weakly infuscate distally. Ovipositor sheath black. Fore wings faintly infuscate. Pterostigma brown, yellow in basal 0.3–0.5 and apically.

Male. Body length 4.0 mm. First metasomal tergite 1.7 × as long as apical width. Propodeum with rather distinct carina in basal 0.3. Otherwise similar to female.

Discussion
This new species is similar to *E. eous* (Belokobylskij) but differs in the long second radial abscissa (Figure 15 cf. Figure 48), the brachial cell apically closed almost at the level of the recurrent vein (Figure 15 cf. Figure 48), the relatively short second tergite (Figure 20 cf. Figure 54), and the larger and paler body.

Distribution. Madagascar.

**Eodendrus convergens** Belokobylskij, sp. nov.
(Figures 21–31)

*Type material*
Holotype: female, “Brunei: Bukit Sulans, nr. Lamunin, N.E. Stork” (BMNH).

*Description*
Female. Body length 3.2 mm; fore wing length 2.3 mm.

Head width 1.4 × its median length. Head behind eye (dorsal view) almost parallel-sided in anterior half, roundly narrowed in posterior half; transverse diameter of eye about twice as long as temple (Figure 22). Ocelli small, in triangle with base 1.4 × its sides. POL 2 × Od, 0.8 × OOL. Eye glabrous, 1.15 × as high as broad. Malar space height 0.4 × height of eye, 0.8 × basal width of mandible (Figure 23). Face width 0.9 × height of eye and 1.1 × height of face and clypeus combined. Clypeus with narrow lower flange. Clypeal suture distinct and complete. Hypoclypeal depression round, its width 0.7 × distance from edge of depression to eye, 0.35 × width of face (Figure 21). Hypostomal flange narrow. Antennae (Figure 24) slender, filiform, 29-segmented, 1.2 × as long as body. Scapus 1.3 × as long as its maximum width. First flagellar segment weakly curved outside, not flattened, 5.5 × as long as its apical width, 0.9 × as long as second segment. Penultimate segment 4.3 × as long as its width, 0.7 × as long as first flagellar segment, almost equal to apical segment; the latter pointed apically.

Mesosoma. Length 2.2 × its height. Mesoscutum rather highly and perpendicularly raised above pronotum. Pronotal keel rather distinct. Notauli deep in anterior half, shallow in posterior half, crenulate-granulate. Prescutellar depression rather shallow, with three carinae, coriaceous, 0.3 × as long as weakly convex scutellum. Subalar depression shallow, wide, striate-rugulose. Sternauli rather shallow, but deep medially, weakly curved, narrow, coriaceous, connected with prepectal carina anteriorly, running along almost entire length of lower part of mesopleura. Metapleural flange rather long, wide, rounded apically.
Figures 21–31. *Eodendrus convergens* sp. nov. (21) Head, frontal view. (22) Head, dorsal view. (23) Head, lateral view. (24) Basal and apical segments of antenna. (25) Fore wing. (26) Hind wing. (27) Hind tibia. (28) Hind coxa. (29) Hind femur. (30) First tergite, lateral view. (31) Metasoma, dorsal view.
Wings. Fore wing (Figure 25) 4.5 × as long as its maximum width. Radial vein arising weakly a little middle of pterostigma. Metacarpus 1.2 × as long as pterostigma. Second radial abscissa 2.8 × first abscissa, 0.5 × the straight third abscissa, 1.3 × first radiomedial vein. Second radiomedial cell almost 3.0 × as long as its maximum width, 1.5 × as long as brachial cell. First abscissa of medial vein almost straight. Recurrent vein 3.0 × second abscissa of medial vein. Distance from nervulus to basal vein almost equal to nervulus length. Brachial cell closed apically distinctly before recurrent vein. Hind wing (Figure 26) 6.0 × as long as wide. First abscissa of costal vein 0.5 × second abscissa. First abscissa of mediocubital vein 0.4 × second abscissa. Recurrent vein rather long, curved toward base of wing, unsclerotized, distinctly antefurcal.

Legs. Hind coxa without basoventral tooth, its length 1.7 × maximum width (Figure 28). Hind femur almost 3.0 × as long as wide (Figure 29). Hind tibia with four short and thick spines on apical outside margin (Figure 27). Hind tarsus almost as long as hind tibia. Basitarsus thickened, 0.5 × as long as second to fifth segments combined. Second tarsal segment 0.65 × as long as basitarsus, 1.3–1.5 × as long as fifth segment (without pretarsus).

Metasoma. Metasoma (Figure 31) 1.5 × as long as head and mesosoma combined. First tergite distinctly and almost linearly widened from base to apex (Figure 31), with long and rather thick spiracular tubercles in basal 0.3 that are directed somewhat downwards. Acrosternite of first tergite about 0.5 × as long as tergite. Maximum width of first tergite about 2 × its minimum width; length 1.8 × its apical width. Second tergite with rather deep, straight, distinctly carinate, strongly posteriorly convergent lateral longitudinal light furrows; basal width of median area 3 × its apical width; length of tergite 1.3 × its basal width, 1.3 × length of third tergite. Second suture very shallow medially and deep laterally, with weak lateral bends. Ovipositor sheath 0.8 × as long as body, 1.4 × as long as metasoma, 1.2 × as long as fore wing.

Sculpture and pubescence. Vertex and frons finely and densely transversely striate with dense granulation. Face coarsely transversely striate with fine granulation between striae. Temple finely and densely transversely striate-coriaceous, smooth below. Mesoscutum densely rugulose-granulate, widely rugose in medioposterior 0.7. Scutellum finely granulate-coriaceous. Mesopleura densely granulate with rugosity, very finely coriaceous below sternauli. Metapleura entirely coarsely rugulose-areolate. Propodeum densely rugulose-areolate with granulation, sparsely striate posteriorly, without carina and marginate areas. Hind coxae granulate, transversely striate with dense granulation dorsally, finely coriaceous ventrally. Hind femur finely and densely granulate in upper half, coriaceous in below half. Hind tibia densely granulate. First and second tergites entirely densely striate, with rugulosity between striae. Third tergite densely granulate-coriaceous, with fine striation medially; smooth in medioposterior 0.75 and lateroposterior 0.2. Remaining tergites smooth. Mesoscutum entirely with dense short semi-erect hairs. Hind tibia with long, rather sparse and semi-erect hairs dorsally, length of these hairs 0.8–1.3 × maximum width of hind tibia.

Colour. Body yellowish brown, head and apex of metasoma yellow. Antenna yellow in basal 0.2, distinctly infuscated toward apex. Palpi yellow. Tegulae brownish yellow. Legs brownish yellow, tarsi yellow, fifth tarsal segments brown. Ovipositor sheath brown. Fore wings faintly infuscate. Pterostigma brown, yellow in basal 0.4 and apically.
Male. Unknown.

Discussion

This new species is similar to *E. hoabinicus* sp. nov. but differs in the lateral furrows of second tergite being distinctly carinate and strongly posteriorly convergent (Figure 31 cf. Figure 76), the relatively greater postocellar distance (Figure 22 cf. Figure 67), the relatively narrow fore wing (Figure 25 cf. Figure 70), the long dorsal hairs of the hind tibia (Figure 27 cf. Figure 74), and the finely sculptured scutellum.

Distribution. Brunei.

**Eodendrus elongatus** Belokobylskij and Long, sp. nov.

(Figures 32–43)

Type material

Holotype: male, “Vietnam: Ha Tinh, Huong Son, 18°22’N, 106°13’E, 450 m. April 7–13, 1998, Malaise, K. Long” (ZISP). Paratype: one male (head partly destroyed), “Vietnam, pr. Ha Son Binh (=Hoa Binh), Da Bac, Tuly, forest, 19.10.1990, Belokobylskij” (ZISP).

Description

**Male.** Body length 3.9–4.2 mm; fore wing length 3.0–3.1 mm.

Head width 1.3–1.4 × its median length. Head behind eye (dorsal view) almost parallel-sided in anterior half, distinctly and roundly narrowed in posterior half; transverse diameter of eye 1.2–1.4 × as long as temple (Figure 33). Ocelli medium size, in triangle with base 1.4 × its sides. POL 1.7–2.0 × Od, 0.75 × OOL. Eye glabrous, 1.2 × as high as broad. Malar space height 0.4 × height of eye, 0.8 × basal width of mandible (Figure 34). Face width 0.9 × height of eye and 1.2 × height of face and clypeus combined. Clypeus with very narrow lower flange. Clypeal suture distinct and complete. Hypoclypeal depression round, its width 0.7–0.8 × distance from edge of depression to eye, 0.45 × width of face (Figure 32). Hypostomal flange very narrow. Antennae (Figure 35) weakly thickened, filiform, 37–39-segmented, 1.3 × as long as body. Scapus 1.3 × as long as its maximum width. First flagellar segment weakly curved outside, weakly flattened, 3.8–4.0 × as long as its apical width, equal to or slightly shorter than second segment. First and second flagellar segments dorsally flat and almost glabrous. Penultimate segment 4.0–4.5 × as long as its width, 0.6–0.65 × as long as first segment, 0.8–1.0 × as long as apical segment; the latter pointed apically.

**Mesosoma.** Length 2.4–2.5 × its height (Figure 36). Mesoscutum weakly and roundly raised above pronotum. Pronotal keel fine. Notauli deep in anterior half, very shallow in posterior half, crenulate-granulate. Prescutellar depression shallow, wide, with median carina, densely rugulose, 0.2–0.4 × as long as scutellum. Subalar depression shallow, wide, striate-rugose with granulation. Sternauli rather shallow, but deep medially, narrow, straight, almost smooth, connected with prepectal carina anteriorly, running along almost entire length of lower part of mesopleura. Metapleural flange long, narrow, rounded apically.
Figures 32–43. *Eodendrus elongatus* sp. nov. (32) Head, frontal view. (33) Head, dorsal view. (34) Head, lateral view. (35) Basal and apical segments of antenna. (36) Mesosoma, lateral view. (37) Hind coxa. (38) Hind femur. (39) Hind tibia. (40) Fore wing. (41) Hind wing. (42) First tergite, lateral view. (43) Metasoma, dorsal view.
Wings. Fore wing (Figure 40) 3.8–4.3 × as long as its maximum width. Radial vein arising from middle of pterostigma. Metacarpus 1.1–1.15 × as long as pterostigma. Second radial abscissa 3.5–4.0 × first abscissa, 0.6 × the straight third abscissa, 1.6–1.8 × first radiomedial vein. Second radiomedial cell 3.4–3.6 × as long as its maximum width, 1.5–1.6 × as long as brachial cell. First abscissa of medial vein weakly S-shaped. Recurrent vein 4.0–5.5 × second abscissa of medial vein. Distance from nervulus to basal vein 1.7 × nervulus length. Brachial cell closed apically weakly before level of recurrent vein. Hind wing (Figure 41) 5.5–5.7 × as long as wide. First abscissa of costal vein 0.55 × second abscissa. First abscissa of mediocubital vein 1.5–1.6 × as long as brachial cell. First abscissa of medial vein weakly S-shaped. Recurrent vein short, weakly curved toward base of wing, unsclerotized for most part, distinctly antefurcal.

Legs. Hind coxa without basoventral tooth, its length almost twice maximum width (Figure 37). Hind femur 3.2–3.4 × as long as wide (Figure 38). Hind tibia with six short and thick spines on apical outside margin (Figure 39). Hind tarsus almost as long as hind tibia. Basitarsus weakly thickened, 0.6 × as long as second to fifth segments combined. Second tarsal segment 0.5–0.55 × as long as basitarsus, almost as long as fifth segment (without pretarsus).

Metasoma. Metasoma (Figure 43) 1.1 × as long as head and mesosoma combined. First tergite not high (lateral view) (Figure 42), distinctly and linearly widened from base to apex (Figure 43), with distinct and not long spiracular tubercles in basal 0.3 that are not directed downwards. Acrosternite of first tergite 0.25–0.3 × as long as tergite. Maximum width of first tergite 1.7–1.85 × its minimum width; length 2.1 × its apical width. Second tergite with shallow, rather wide, weakly curved and weakly posteriorly convergent longitudinal lateral furrows; basal width of area 2.2–2.5 × its apical width; length of tergite 1.3 × its basal width, 1.4–1.6 × length of third tergite. Second suture complete, rather deep (especially laterally), regularly curved or almost straight medially, without lateral bends.

Sculpture and pubescence. Vertex densely and finely transversely striate with dense fine granulation, striae semicircular laterally. Frons coarsely transversely striate with fine granulation between striae. Face distinctly transversely striate for most part, with fine granulation or coriaceous. Temple finely and densely transversely striate, coriaceous or almost smooth on lower 0.3. Mesoscutum densely rugulose-granulate, undulately striate-rugose on rather narrow area in medioposterior half. Scutellum distinctly densely granulate. Mesopleura rugose-punctulate medially, finely punctulate-coriaceous above sternauli, smooth below sternauli. Metapleura entirely rugose-areolate with dense fine granulation. Propodeum entirely densely rugose-areolate, with fine median carina in basal half, without areas. Hind coxa finely coriaceous, dorsally finely granulate with several rugae posteriorly. Hind femur entirely finely coriaceous. Hind tibia rather densely granulate with striation partly. First and second tergites entirely and third in basal 0.7 coarsely undulately striate with rugulosity between striae; third tergite smooth in medio-apical 0.3, rugulose-coriaceous in apicolateral 0.3. Fourth or fourth and fifth tergites very finely coriaceous. Remaining tergites smooth. Mesoscutum entirely with dense short semi-erect hairs. Hind tibia with rather long, rather sparse and semi-erect hairs dorsally, length of these hairs 0.7–1.0 × maximum width of hind tibia.

Colour. Head brownish yellow, yellow below. Mesosoma yellowish brown, sometimes propodeum medially and posteriorly and metanotum brown. Metasoma brown to reddish brown, sides of second and third tergites widely or very widely yellow; fourth to sixth
tergites yellow laterally. Antenna yellow basally, distinctly infuscate toward apex. Palpi pale yellow. Tegulae yellow. Legs yellow, coxae paler, fifth tarsal segments brown. Fore wings entirely faintly infuscate. Pterostigma brown, yellow in basal 0.3 and apical 0.2–0.25.

**Female.** Unknown.

**Discussion**

This new species is similar to *E. eous* (Belokobylskij) but differs in the long first and second metasomal tergites (Figure 43 cf. Figure 54), the long and weakly depressed mesosoma (Figure 36 cf. Figure 51), the mesoscutum not arising highly above pronotum (Figure 36 cf. Figure 51), the distinctly posteriorly convergent lateral depression of the second tergite (Figure 43 cf. Figure 54), and the relatively long temple (Figure 33 cf. Figure 45).

**Distribution.** Vietnam.

*Eodendrus eous* (Belokobylskij), comb. nov.

(Figures 44–54)

*Dendrosotinus eous* Belokobylskij 1988, p 627.

*Dendrosotinus* (*Eodendrus*) *eous*: Belokobylskij 1998, p 66.

**Material examined**

One female (holotype), Russia, “Primorski krai, 30 km V Spassk-Dal’niy, les, 3.VII.1984, Belokobylskij” (ZISP); one female, Japan, “[Honshu] Simogano, Jinza, Kyoto Pref., 6.VIII.1980, R. Shimamoto” (NIAES); one female, “Korea, Gyeonggi, Osansi, Sucheongdong (M.T.), 31.V.1999, H.-G. Lee” (BCIK).

**Description**

**Female.** Body length 3.0–3.4 mm; fore wing length 2.3–2.8 mm.

Head width 1.3–1.5 × its median length. Head behind eyes (dorsal view) weakly convex anteriorly, roundly narrowed posteriorly. Transverse diameter of eye 1.4–1.6 × as long as temple (Figure 45). Ocelli small, in triangle with base 1.4 × its sides. POL 1.7–2.5 × Od, 0.8–1.0 × OOL. Eye glabrous, 1.2–1.3 × as high as broad. Malar space height 0.3–0.4 × height of eye, 0.7–0.9 × basal width of mandible (Figure 46). Face width 0.8–1.0 × height of eye and 1.2–1.3 × height of face and clypeus combined. Malar suture very fine. Clypeus with very narrow lower flange. Clypeal suture distinct and complete. Hypoclypeal depression round, its width 0.6–0.8 × distance from edge of depression to eye, 0.45–0.5 × width of face (Figure 44). Hypostomal flange narrow. Antennae (Figure 47) slender, filiform, 28–31-segmented, 1.2–1.3 × as long as body. Scapus 1.3–1.5 × as long as its maximum width. First flagellar segment weakly curved outside, not flattened, 5.0–5.5 × as long as its apical width, almost as long as second segment. Penultimate segment 3.3–4.0 × as long as wide, about 0.5 times as long as first flagellar segment, about 0.9 times as long as apical segment; the latter pointed apically.

**Mesosoma.** Length 2.0–2.2 × its height (Figure 51). Mesoscutum highly and almost perpendicularly raised above pronotum. Notauli complete, deep in anterior 0.3, shallow in
Figures 44–54. Eodendrus eous (Belokobyłskij). (44) Head, frontal view. (45) Head, dorsal view. (46) Head, lateral view. (47) Basal and apical segments of antenna. (48) Fore wing. (49) Hind wing. (50) Hind coxa. (51) Mesosoma, lateral view. (52) Hind femur. (53) Hind tibia. (54) Metasoma, dorsal view.
posterior 0.7, crenulate-rugulose. Prescutellar depression shallow, short, with five to seven carinae, finely rugulose, \(0.3 \times\) as long as weakly convex scutellum. Subalar depression shallow, wide, striate-rugose. Sternauli shallow, narrow, weakly curved, almost smooth, connected with prepectal carina anteriorly, running along almost entire lower part of mesopleura. Metapleural flange rather short, wide, pointed apically.

Wings. Fore wing (Figure 48) \(3.4–3.5 \times\) as long as its maximum width. Radial vein arising almost from middle of pterostigma. Metacarpus \(1.1–1.2 \times\) as long as pterostigma. Second radial abscissa \(2.7–3.3 \times\) first abscissa, \(0.5–0.6 \times\) the straight third abscissa, \(1.25–1.5 \times\) first radiomedial vein. Second radiomedial cell \(2.7–3.3 \times\) as long as its maximum width, \(1.4–1.6 \times\) as long as narrow brachial cell. First abscissa of medial vein weakly S-shaped. Recurrent vein \(3.5–5.0 \times\) second abscissa of medial vein. Distance from nervulus to basal vein \(0.5–1.3 \times\) nervulus length. Brachial cell closed apically distinctly before recurrent vein. Hind wing (Figure 49) about \(5.0 \times\) as long as wide. First abscissa of costal vein \(0.5–0.55 \times\) second abscissa. First abscissa of mediocubital vein \(0.4–0.5 \times\) as long as second abscissa. Recurrent vein rather short, curved toward base of wing, weakly sclerotized, weakly antefurcal.

Legs. Hind coxa without basoventral tubercle, its length \(1.8\) times maximum width (Figure 50). Hind femur \(3.0–3.3 \times\) as long as wide (Figure 52). Hind tibia with six thick spines on apical outside margin (Figure 53). Hind tarsus almost as long as hind tibia. Basitarsus thickened, \(0.55–0.6 \times\) as long as second to fifth segments combined. Second tarsal segment about \(0.6 \times\) as long as basitarsus, \(1.3–1.4 \times\) as long as fifth segment (without pretarsus).

Metasoma. Metasoma (Figure 54) almost as long as head and mesosoma combined. First tergite distinctly and almost linearly widened from base to apex, with small spiracular tubercles in basal 0.3. Acrosternite of first tergite \(0.35–0.4 \times\) as long as tergite. Maximum width of first tergite about twice its minimum width; length \(1.4–1.6 \times\) its apical width. Second tergite with more or less distinct, shallow, weakly curved and weakly posteriorly convergent lateral longitudinal light furrows. Length of second tergite \(1.1–1.15 \times\) its basal width, \(1.25–1.5 \times\) length of third tergite; basal width of area on second tergite about \(1.3 \times\) its apical width. Second suture shallow and almost straight, with very weak or without lateral bends. Ovipositor sheath \(0.85–0.95 \times\) as long as body, \(1.7–1.85 \times\) as long as metasoma, \(1.1–1.2 \times\) as long as fore wing.

Sculpture and pubescence. Vertex granulate-coriaceous with fine and dense striation. Frons finely and densely striate and with fine reticulation. Face distinctly transversely striate. Temple finely coriaceous-striate, smooth in below \(0.25–0.3\). Mesoscutum densely granulate-rugulose, rugosity more distinct on median lobe, with wide rugose medioposterior area. Scutellum finely and densely granulate. Mesopleura granulate-coriaceous or only coriaceous in below half, almost smooth ventrally. Propodeum densely reticulate-rugulose, sometimes only densely punctulate in basolateral areas, with weakly marginate and incomplete areas or areas indistinct, sometimes with dorsal carina in basal half, areola small, but often indistinct. Hind coxae rugose-striate dorsally with fine granulation, punctulate-coriaceous laterally. Hind femur rather densely striate-granulate dorsally, finely coriaceous ventrally. First and second tergites entirely and third tergite in basal 0.3 striate with rugulosity between striae, third tergite laterally densely reticulate. Remaining tergites smooth. Mesoscutum entirely with dense, short and semi-erect hairs.
Hind tibia with short, rather dense and semi-erect hairs dorsally, length of these hairs 0.5–0.8 × maximum width of tibia.

**Colour.** Body dark reddish brown, head ventrally and around eye (sometimes widely) yellowish brown or light reddish brown, often mesoscutum laterally and anteriorly, pronotum mediolaterally or ventrally and mesopleura below half light reddish brown or reddish brown. Antennae dark brown or black, three or four basal segments light reddish brown. Palpi yellow. Legs light brown, hind coxa, femur and usually tibia darker, all tibiae widely infuscate, pale yellow or light brown basally. Ovipositor sheath dark reddish brown, black apically or entirely black. Fore wings faintly infuscate. Pterostigma brown, pale in basal 0.3 and apically.

**Male.** Unknown.

**Discussion**

*E. eous* (Belokobylskij) is the only species of *Eodendrus* known in the Palaearctic fauna. This species is very similar to *E. conspicuus* (Granger) from Madagascar, and their differences are indicated in the key.

**Distribution.** Russia (Primorskii Krai), Japan (Honshu Is.), S. Korea.

_Eodendrus flavus_ Belokobylskij and Long, sp. nov.

(Figures 55–65)

**Type material**

Holotype: female, "Vietnam: Vinh Phuc Prov., Me Linh District, Ngoc Thanh, Tam Dao foothill, 21°24’N 105°43’E; h=400 m, 12–13.05.2002, S. Belokobylskij" (ZISP).

**Description**

**Female.** Body length 2.4 mm; fore wing length 1.8 mm.

Head width 1.3 × its median length. Head behind eye (dorsal view) regularly roundly narrowed; transverse diameter of eye 1.4 × as long as temple (Figure 56). Ocelli small, in triangle with base 1.5 × its sides. POL 2.6 × OD, 0.7 × OOL. Eye glabrous, 1.15 × as high as broad. Malar space height 0.4 × height of eye, 0.75 × basal width of mandible (Figure 57). Face width almost equal to height of eye and 1.25 × height of face and clypeus combined. Clypeus with narrow lower flange. Clypeal suture distinct and complete. Hypoclypeal depression round, its width 0.8 × distance from edge of depression to eye, 0.4 × width of face (Figure 55). Hypostomal flange very narrow. Antennae (Figure 58) slender, filiform, more than 22-segmented (apical segments missing). Scapus 1.25 × as long as its maximum width. First flagellar segment weakly curved outside, not flattened, about 5.0 × as long as its apical width, 0.85 × as long as second segment. Subapical segments about 4.5 × as long as their width.

**Mesosoma.** Length 2.2 × its height. Mesoscutum highly and perpendicularly raised above pronotum. Pronotal keel rather distinct. Notauli deep in anterior half, shallow in posterior
half, coarsely crenulate. Prescutellar depression rather shallow, with three carinae, almost smooth, 0.4× as long as weakly convex scutellum. Subalar depression shallow, wide, striate-rugulose. Sternauli rather deep, straight, narrow, almost smooth, connected with
prepectal carina anteriorly, running along almost entire length of lower part of mesopleura. Metapleural flange short, narrow, pointed apically.

Wings. Fore wing (Figure 59) 3.7 × as long as its maximum width. Radial vein arising from middle of pterostigma. Metacarpus 1.1 × as long as pterostigma. Second radial abscissa 2.8 × first abscissa, 0.55 × the straight third abscissa, 1.4 × first radiomedial vein. Second radiomedial cell 3.4 × as long as its maximum width, 1.3 × as long as brachial cell. First abscissa of medial vein straight. Recurrent vein 3.0 × second abscissa of medial vein. Distance from nervulus to basal vein 1.3 × nervulus length. Brachial cell closed apically distinctly before recurrent vein. Hind wing (Figure 60) 5.3 × as long as wide. First abscissa of costal vein 0.6 × second abscissa. First abscissa of mediocubital vein 0.4 × second abscissa. Recurrent vein short, curved toward base of wing, unsclerotized, distinctly antefurcal.

Legs. Hind coxa without basoventral tooth, its length almost twice maximum width (Figure 61). Hind femur 3.0 × as long as wide (Figure 62). Hind tibia with four short spines on apical outside margin (Figure 63). Hind tarsus 0.9 × as long as hind tibia. Basitarsus 0.6 × as long as second to fifth segments combined. Second tarsal segment about 0.6 × as long as basitarsus, 1.1 × as long as fifth segment (without pretarsus).

Metasoma. Metasoma (Figure 65) 1.25 × as long as head and mesosoma combined. First tergite distinctly and linearly widened from base to apex, with long spiracular tubercles in basal 0.3 that are directed somewhat downwards. Acrosternite of first tergite about 0.45 × as long as tergite. Maximum width of first tergite almost twice its minimum width; length 1.7 × its apical width. Second tergite with rather distinct, straight, posteriorly convergent lateral longitudinal light furrows; basal width of median area about twice its apical width; length of tergite 1.2 × its basal width, 1.2 × length of third tergite. Second suture distinct laterally, almost absent medially, with very weak lateral bends. Ovipositor sheath 0.85 × as long as body, 1.5 × as long as metasoma, 1.1 × as long as fore wing.

Sculpture and pubescence. Vertex and frons very finely transversely striate and densely coriaceous, vertex medially almost smooth. Face distinctly and densely transversely striate. Temple finely longitudinally striate, almost smooth in lower 0.25. Mesoscutum densely reticulate-rugulose, additionally with fine granulation. Scutellum granulate-striate. Mesopleura rugulose-granulate in upper 0.3, finely granulate-coriaceous medially, almost smooth below sternauli. Metapleura entirely and densely rugulose-reticulate. Propodeum densely granulate in basal half, rugose-striate with granulation in apical half, without carinae and marginate areas. Hind coxae sparsely striate and with dense granulation dorsally, densely and finely granulate laterally. First and second tergites distinctly striate, densely reticulate between striae. Third tergite very finely coriaceous mediobasally, smooth for most part. Remaining tergites smooth. Mesoscutum entirely with dense short semi-erect hairs. Hind tibia with rather short, dense and semi-erect hairs dorsally, length of these hairs 0.5–0.7 × maximum width of hind tibia.

Colour. Body brownish yellow. Antenna dark reddish brown, five basal segments brownish yellow. Palpi yellow. Tegulae yellowish red. Legs yellow. Ovipositor sheath brownish yellow in basal 0.6, distinctly infuscate to almost black in apical 0.4. Fore wings faintly infuscate. Pterostigma brown, pale yellow in basal 0.3 and apically.
**Male.** Unknown.

**Discussion**

This new species is similar to *E. hoabinicus* sp. nov. but differs in the relatively long temple (Figure 56 cf. Figure 67), the relatively short and wide scapus (Figure 58 cf. Figure 69), the long first radiomedial cell (Figure 59 cf. Figure 70), the long fifth tarsal segment, the medially indistinct second metasomal suture (Figure 65 cf. Figure 76), the medially almost smooth vertex, and the almost entirely smooth third tergite (Figure 65 cf. Figure 76).

**Distribution.** Vietnam.

*Eodendrus hoabinicus* Belokobylskij and Long, sp. nov.
(Figures 66–76)

**Type material**

Holotype: female, “Vietnam: Hoa Binh Province, Mai Chau District, Pa Co, 20°45’N 104°54’E; h=1200 m, 19–21.04.2002, S. Belokobylskij” (ZISP). Paratypes: one female with label data as holotype (IEBR); one female, “Brunei: Bukit Sulans, nr. Lamunin, N.E. Stork” (BMNH).

**Description**

**Female.** Body length 3.0–3.3 mm; fore wing length 2.2–2.7 mm.

Head width 1.5–1.6 × its median length. Head behind eye (dorsal view) weakly convex in anterior half, roundly narrowed in posterior half; transverse diameter of eye about twice as long as temple (Figure 67). Ocelli small, in triangle with base 1.4–1.5 × its sides. POL 1.4–1.6 × Od, 0.5–0.6 × OOL. Eye glabrous, 1.2 × as high as broad. Malar space height 0.4–0.5 × height of eye, 0.8–1.0 × basal width of mandible (Figure 68). Face width almost equal to height of eye and 1.1–1.2 × height of face and clypeus combined. Clypeus with narrow lower flange. Clypeal suture distinct and complete. Hypoclypeal depression round, its width 0.5–0.6 × distance from edge of depression to eye, 0.3–0.4 × width of face (Figure 66). Hypostomal flange narrow. Antennae (Figure 69) rather slender, filiform, more than 26-segmented (apical segments missing). Scapus 1.2–1.3 × as long as its maximum width. First flagellar segment weakly curved outside, not flattened, 5.0–5.5 × as long as its apical width, 0.85 × as long as second segment. Subapical segments about 4.5 × as long as their width.

**Mesosoma.** Length 2.2 × its height. Mesoscutum highly and perpendicularly raised above pronotum. Pronotal keel rather distinct. Notauli deep in anterior half, shallow in posterior half, coarsely crenulate. Prescutellar depression rather shallow, with three carinae, almost smooth, 0.4 × as long as scutellum. Subalar depression shallow, wide, striate-rugulose. Sternauli rather deep, straight, narrow, almost smooth, connected with prepectal carina anteriorly, running along entire length of lower part of mesopleura. Metapleural flange rather short, wide, almost pointed apically.

**Wings.** Fore wing (Figure 70) 3.4–3.7 × as long as its maximum width. Radial vein arising from or shortly behind middle of pterostigma. Metacarpus 1.1–1.2 × as long as
pterostigma. Second radial abscissa 2.5–3.5 × first abscissa, 0.5 × the straight third abscissa, 1.2–1.4 × first radiomedial vein. Second radiomedial cell 2.8–3.0 × as long as its maximum width, 1.3 × as long as brachial cell. First abscissa of medial vein very weakly S-shaped. Recurrent vein about 3.0 × second abscissa of medial vein. Distance from
nervulus to basal vein 1.0–1.3 × nervulus length. Brachial cell closed apically distinctly before recurrent vein. Hind wing (Figure 71) 5.5 × as long as wide. First abscissa of costal vein 0.5–0.6 × second abscissa. First abscissa of mediocubital vein 0.5 × second abscissa. Recurrent vein short, curved toward base of wing, unsclerotized, distinctly antefurcal.

Legs. Hind coxa without basoventral tooth, its length 1.8–2.0 × maximum width (Figure 72). Hind femur 3.0–3.3 × as long as wide (Figure 73). Hind tibia with five short spines on apical outside margin (Figure 74). Hind tarsus 1.1 × as long as hind tibia. Basitarsus thickened, 0.5 × as long as second to fifth segments combined. Second tarsal segment 0.6–0.65 × as long as basitarsus, 1.3–1.5 × as long as fifth segment (without pretarsus).

Metasoma. Metasoma (Figure 76) almost as long as head and mesosoma combined. First tergite distinctly and linearly widened from base to apex, with long spiracular tubercles in basal 0.25 that are directed somewhat downwards. Acrosternite of first tergite about 0.5 × as long as tergite. Maximum width of first tergite 2.3 × its minimum width; length 1.6–1.7 × its apical width. Second tergite with rather distinct, shallow, almost straight, posteriorly convergent, lateral longitudinal light furrows; basal width of median area 1.8–2.2 × its apical width; length of tergite 1.0–1.2 × its basal width, 1.3–1.5 × length of third tergite. Second suture shallow, but distinct, with very weak lateral bends. Ovipositor sheath 0.7–0.9 × as long as body, 1.3–1.8 × as long as metasoma, 0.9–1.1 × as long as fore wing.

Sculpture and pubescence. Vertex and frons distinctly and densely granulate with fine transverse striation in part. Face distinctly transversely striate with dense granulation between striae. Temple distinctly and obliquely striate-coriaceous, almost smooth in lower 0.25. Mesoscutum densely rugulose-granulate, rather widely rugose-reticulate in medioposterior 0.7. Scutellum distinctly and densely granulate. Mesopleura rugulose-granulate in upper 0.3, granulate or granulate-coriaceous in median 0.3, almost smooth below sterna. Metapleura entirely and coarsely rugulose-reticulate. Propodeum densely rugulose-reticulate, rather sparsely and distinctly punctulate in long lateral areas, sometimes with fine median carina in basal 0.3, without marginate areas. Hind coxae distinctly and sparsely striate with dense granulation in dorsal half and coriaceous laterally. Hind femur distinctly and densely granulate, finely granulate below. Hind tibia densely granulate, coriaceous in lower half. First and second tergites densely striate, with dense reticulation between striae. Third tergite striate in mediobasal 0.25, densely granulate basolaterally, coriaceous for most part, smooth medioapically. Remaining tergites smooth. Mesoscutum entirely with dense short semi-erect hairs. Hind tibia with rather short, rather dense and semi-erect hairs dorsally, length of these hairs 0.5–0.8 × maximum width of hind tibia.

Colour. Head brownish yellow. Mesosoma light reddish brown, prescutellar depression, axillae, metanotum, below part of metapleura and propodeum mediadly and posteriorly or entirely distinctly infuscate to black. Metasoma dark reddish brown, second and third tergites in furrows and suture and around its light reddish brown, second tergite with rather large yellow or brownish yellow lateroapical spots; apex of metasoma brownish yellow. Sometimes body almost entirely light reddish brown. Antenna dark reddish brown, almost black apically, two basal segments yellow. Palpi yellow. Tegulae yellowish brown. Legs brownish yellow; hind leg light reddish brown, trochanter and basal 0.2 of tibia pale yellow; rarely legs entirely yellow. Ovipositor sheath black, dark brown basally. Fore wings faintly infuscate. Pterostigma brown, pale yellow in basal 0.4 and apically.
Male. Unknown.

Discussion

This new species is similar to *E. petiolatus* sp. nov. but differs in the relatively short temple (Figure 67 cf. Figure 78), the thick hind femur (Figure 73 cf. Figure 84), the wide and short first metasomal tergite (Figure 76 cf. Figure 87), and the short second tergite (Figure 76 cf. Figure 87). *E. hoabinicus* sp. nov. is similar also to *E. eous* (Belokobylskij) but differs in the long acrosternite of the first tergite, the large spiracular tubercle of the first tergite (Figure 76 cf. Figure 54), the relatively short temple (Figure 67 cf. Figure 45), the first flagellar segment being distinctly shorter than the second segment (Figure 76 cf. Figure 87), and the distinctly convergent posteriorly furrows of the second tergite (Figure 76 cf. Figure 54).

Distribution. Vietnam, Brunei.

**Eodendrus petiolatus** Belokobylskij and Chen, sp. nov.
(Figures 77–87)

Type material

Holotype: female, “China, Guangxi, Tianlin, 31.V.1982, (He J.-H.), No 822073” (ZJUH).

Description

Female. Body length 4.2 mm; fore wing length 2.8 mm.

Head width 1.4 × its median length. Head behind eye (dorsal view) weakly convex in anterior half, almost linearly narrowed in posterior half; transverse diameter of eye 1.5 × as long as temple (Figure 78). Ocelli small, in triangle with base 1.5 × its sides. POL 1.7 × Od, 0.7 × OOL. Eye sparsely and shortly setose, 1.15 × as high as broad. Malar space height 0.4 × height of eye, 0.8 × basal width of mandible (Figure 79). Face width almost equal to height of eye and 1.2 × height of face and clypeus combined. Clypeus with narrow lower flange. Clypeal suture distinct and complete. Hypoclypeal depression round, its width 0.6 × distance from edge of depression to eye, 0.35 × width of face (Figure 77). Hypostomal flange indistinct. Antennae (Figure 80) slender, filiform, more than 23-segmented (apical segments missing). Scapus 1.3 × as long as its maximum width. First flagellar segment weakly curved outside, not flattened, about 5.0 × as long as its apical width, slightly shorter than second segment. Subapical segments 3.8–4.0 × as long as their width.

Mesosoma. Length about 2 × its height. Mesoscutum highly and almost perpendicularly raised above pronotum. Pronotal keel fine. Notauli deep in anterior half, shallow to almost indistinct in posterior half, crenulate. Prescutellar depression shallow, wide, with distinct median carina, striate with granulation, 0.3 × as long as weakly convex scutellum. Subalar depression shallow, wide, rugose-areolate. Sternauli rather shallow, almost straight, narrow, very finely coriaceous, connected with prepectal carina anteriorly, running along almost entire length of lower part of mesopleura. Metapleural flange rather short, wide, almost pointed apically.
Wings. Fore wing (Figure 81) 3.6 × as long as its maximum width. Radial vein arising from middle of pterostigma. Metacarpus 1.15 × as long as pterostigma. Second radial abscissa almost 3.0 × first abscissa, 0.5 × the straight third abscissa, 1.4 × first radiomedial vein. Second radiomedial cell almost 3.0 × as long as its maximum width, 1.3 × as long as brachial cell. First abscissa of medial vein distinctly S-shaped. Recurrent vein 5.0 × second
abscissa of medial vein. Distance from nervulus to basal vein almost equal to nervulus length. Brachial cell closed apically distinctly before recurrent vein. Hind wing (Figure 82) 5.6 × as long as wide. First abscissa of costal vein 0.5 × second abscissa. First abscissa of mediocubital vein 0.5 × second abscissa. Recurrent vein long, curved toward base of wing, unsclerotized, distinctly antefurcal.

Legs. Hind coxa without basoventral tooth, its length 2 × maximum width (Figure 83). Hind femur 4.2 × as long as wide (Figure 84). Hind tibia with six short spines on apical outside margin (Figure 85). Hind tarsus 1.1 × as long as hind tibia. Basitarsus 0.6 × as long as second to fifth segments combined. Second tarsal segment about 0.6 × as long as basitarsus, 1.5 × as long as fifth segment (without pretarsus).

Metasoma. Metasoma (Figure 87) 1.6 × as long as head and mesosoma combined. First tergite weakly and linearly widened from base to apex, with long spiracular tubercles in basal 0.3 that are directed somewhat downwards. Acroternite of first tergite 0.6 × as long as tergite. Maximum width of first tergite 1.8 × its minimum width; length 2.3 × its apical width. Second tergite with shallow, curved, distinctly posteriorly convergent, light longitudinal lateral furrows; basal width of median area 1.6 × its apical width; length of tergite 1.6 × its basal width, 1.2 × length of third tergite. Second suture shallow, but distinct, with very weak lateral bends. Ovipositor sheath 0.9 × as long as body, 1.4 × as long as metasoma, 1.3 × as long as fore wing.

Sculpture and pubescence. Vertex and frons finely transversely striate with granulation. Face distinctly transversely striate. Temple finely striate-coriaceous, almost smooth in lower 0.25. Mesoscutum striate-rugulose, with dense and fine granulation between striae. Scutellum finely granulate. Mesopleura rugulose-granulate in upper 0.7, almost smooth in lower 0.3. Metapleura entirely rugulose-reticulate. Propodeum densely rugulose-reticulate, with finely punctulate or almost smooth narrow and long lateral areas, without carinae and marginate areas. Hind coxae finely striate-granulate in dorsal half, almost smooth ventrally. First tergite striate, second and third tergites widely striate medially, striate-reticulate laterally. Remaining tergites smooth. Mesoscutum entirely with dense short semi-erect hairs. Hind tibia with rather short, dense and semi-erect hairs dorsally, length of these hairs 0.8–0.9 × maximum width of hind tibia.

Colour. Head and mesoscutum light reddish brown, remaining mesosoma and apex of metasoma reddish brown, most part of metasoma almost black. Antenna reddish brown, darkened toward apex, brownish yellow basally. Palpi yellow. Tegulae yellowish red. Legs brownish yellow. Ovipositor sheath black. Fore wings faintly infuscate. Pterostigma brown, pale yellow in basal 0.3 and apically.

Male. Unknown.

Discussion

This new species is similar to E. eous (Belokobylskij) from the Russian Far East but differs in the narrow and long first tergite with long spiracular tubercles (Figure 87 cf. Figure 54), the long acroternite of the first metasomal segment, the long second tergite (Figure 87 cf. Figure 54), the setose eye, and the slender hind femur (Figure 84 cf. Figure 52). It differs from E. hoabinicus sp. nov. in the long and narrow first and second tergites (Figure 87 cf.
Figure 76), the relatively long temple (Figure 78 cf. Figure 67), hind coxa (Figure 83 cf. Figure 72) and hind femur (Figure 84 cf. Figure 73), and the setose eyes.

Distribution. China (Guangxi).

Acknowledgements

We wish to express our sincere thanks to Mrs C. Villemant (Paris) for sending type material, to Dr K. Konishi (Sapporo, Japan), Dr T. Matsumura (Tsukuba, Japan), Mr D.-S. Ku (South Korea) for allowing us to study undetermined material from their collections, and to Dr J. B. Whitfield (Urbana, IL, USA), Dr J. Carpenter (New York, USA), Dr M. Shaw (Edinburgh, UK) and Dr D. Quicke (Ascot, U.K.) for reviewing an early draft of the manuscript. The present work was partly supported by the Russian Foundation for Basic Research (grant no. 04-04-48018) and the ASEAN Regional Center for Biodiversity and Conservation (ARCBC) funded by the European Commission (RE-VNM-004).

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