Oriental Insects
Publication details, including instructions for authors and subscription information:
http://www.tandfonline.com/loi/toin20

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Published online: 08 May 2013.

To cite this article: Xiu-Wei Liu, Ying Wang, Cheng-De Li & Yan-Zhou Zhang (2013) On the Chinese species of Ericydnus Haliday (Hymenoptera: Encyrtidae), Oriental Insects, 47:1, 23-40, DOI: 10.1080/00305316.2012.753766

To link to this article: http://dx.doi.org/10.1080/00305316.2012.753766

Oriental Insects
Vol. 47, No. 1, 23–40, http://dx.doi.org/10.1080/00305316.2012.753766

On the Chinese species of *Ericydnus* Haliday (Hymenoptera: Encyrtidae)

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(*Received 22 February 2012; final version received 1 August 2012*)

Eight species of the encyrtid genus *Ericydnus* Haliday from China had been studied, of which the *Ericydnus huangi* sp. nov., *Ericydnus liaoi* sp. nov., *Ericydnus infuscatus* sp. nov. and *Ericydnus gigas* sp. nov. are described as new. Of these *Ericydnus apterogenes* Mayr, *Ericydnus japonicus* (Tachikawa) and *Ericydnus ventralis* (Dalman) are documented as new records from China, and a key to these is given. The voucher specimens including types are deposited in the Institute of Zoology, Chinese Academy of Sciences, Beijing.

Keywords: Chalcidoidea; new species; new records; *Ericydnus*; parasitoid; China

Introduction

The genus *Ericydnus* (Hymenoptera: Encyrtidae) incorrectly attributed to Walker (Gahan and Fagan 1923; Kerrich 1966, 1967) is of Haliday since Graham (1991). It is the only genus under the tribe Ericydnini Hoffer (1955) (=Grandoriellini Trjapitzin 1968), which is probably the sister group of the Dinocarsini and Anagyrini (Noyes 2000). This is one of the species-rich groups in the Encyrtidae (Trjapitzin 1989; Graham 1991), and nearly 30 species are included, of which the known hosts for some are Pseudococcidae (Hemiptera) (Noyes 2000, 2011). Majority of its species are Palaearctic, except *Ericydnus lamasi* (Domenichini) from Central and South America (Noyes 2000). Kerrich (1967) revised six of its species from the Palaearctic. The variations in the colour (Graham 1991), and those of the antennal segments, and the fore wing pose problems in species identities. Also, little work has been done of its species from China; so far, only one species, *Ericydnus scutellu*s Xu is known (Zhang and Huang 2004). This study describes four new species and adds three new records, and a key to the eight species provided.

Materials and methods

Terminology generally follows Noyes (2000), and the keys by Kerrich (1967), Trjapitzin (1989) and Graham (1991) used; and some specimens from the Natural History Museum, London (BMNH), had been compared. Voucher specimens including types are deposited in the Institute of Zoology, Chinese Academy of Sciences, Beijing (IZCAS), unless

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otherwise specified. Other depositories include Natural History Museum, London (BMNH); Instituto di Entomologia Espafiol, Madrid, Spain (IIEM); Naturhistoriska Riksmuseet, Stockholm, Sweden (NHRM); National Museum of Ireland Dublin (NMID); Zoological Institute, St. Petersburg, Russia (ZISP) and Institute of Applied Entomology, Zhejiang University, Hangzhou, Zhejiang, China (ZUIE).

Absolute measurements are given for body length, while relative measurements are given for other dimensions. The following abbreviations used: F1, F2, ... Fn, funicle segment number; AOD: largest diameter of anterior ocellus; HW: head width in facial view; FV: minimum width of the frontovertex; FVL: length of frontovertex from occipital margin to top of antennal scrobes in dorsal view; MS: malar space or the minimum distance between eye and mouth margin; POL: minimum distance between the posterior ocelli; OCL: minimum distance between the posterior ocellus and the occipital margin; AOL: minimum distance between posterior and anterior ocellus; OOL: minimum distance between the eye margin and the adjacent posterior ocellus; POD: largest diameter of posterior ocellus; EL: maximum diameter of the eye; EW: minimum diameter of eye; SL: length of scape; SW: maximum width of scape; FWL: length of fore wing excluding the marginal fringe; FWW: maximum width of the fore wing excluding the marginal fringe; HWL: length of hind wing, excluding the marginal fringe; HWW: width of hind wing, measured at the widest point, excluding the marginal fringe; PMV: postmarginal vein; MV: marginal vein; SV: stigmal vein; MT: length of the mid tibia and OL: length of ovipositor.

A. Genus *Ericydnus* Haliday

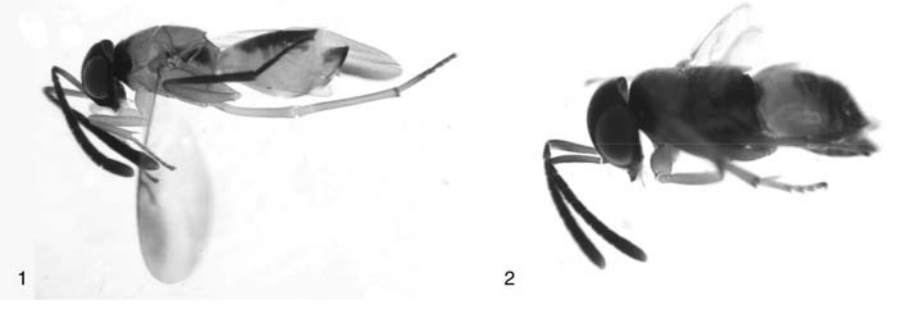
Ericydnus Haliday in Curtis 1832: 395. Type species *Ericydnus paludatus* Haliday, by designation (Westwood 1839: 72).

Grandoriella Domenichini 1951: 171. Type species *Grandoriella lamasi* Domenichini, by original designation; Noyes 1980: 196.

Diagnosis

Female

Body varying from robust to elongate (Figures 1, 2); frontovertex 0.33–0.50 × as head width, usually with some piliferous punctures beset in scaly reticulations or rarely with piliferous punctures along inner orbital margins; occipital margin sharp; scape cylindrical



Figures 1–2. 1, *E. japonicus* (Tachikawa); 2, *E. scutellus* Xu.

or subcylindrical; pedicel usually shorter than or as long as F1, rarely longer than the latter; funicle six segmented; clava three segmented, apex varying from slightly to distinctly obliquely truncate; mandible bidentate with lower tooth short; maxillary palpus four segmented (Figures 40, 53) and labial palpus three segmented (Figure 53); dorsum of thorax somewhat convex, scutellum flat, posteriorly sharply margined, usually with membranous flange (Figures 4, 47), and sometimes very short (Figure 27); fore wing fully developed (Figures 11, 20) or shortened (Figures 5, 41), if fully developed, hyaline or with an infuscate pattern; marginal, postmarginal and stigmal veins conspicuously long; postmarginal clearly longer than marginal and stigmal veins; cercal plate usually located in apical one-third of gaster; hypopygium reaching but usually extending past apex of gaster. Male similar to female; antenna with clava entire; wing usually hyaline, or infuscate; phallobase of genitalia with short parameres and a pair of digiti, each with two or three apical hooks (Figures 18, 33) and aedeagus not sharply pointed at apex.

B. Key to the species from China (female)

1 Head in dorsal view – occiput extending back so that it is clearly visible behind its margin.....*ventralis* (Dalman)
Head in dorsal view – occiput not extending back so that it is invisible behind its margin.....2
2 Fore wing fully developed (Figures 11, 20, 26, 35), with apex extending past apex of gaster.....3
Fore wing not fully developed (Figures 5, 41, 46, 54), with apex not extending past apex of gaster.....5
3 Scape of antenna dark brown; apical funicular segments transverse with F6 slightly broader than long (Figure 25).....*infuscatus* sp. nov.
Scape of antenna yellow or yellowish brown, except apex or dorsal margin dark brown; apical funicular segments longer than broad with F6 at least slightly longer than broad (Figures 10, 19).....4
4 Thorax entirely dark brown; coxae of fore and mid legs dark brown (Figures 21, 22).....*gigas* sp. nov.
Thorax generally yellow except pronotum, anterior part of mesoscutum and sometimes mesopleuron dark brown; coxae of fore and mid legs yellow or yellowish brown (Figures 12, 13).....*japonicus* (Tachikawa)
5 Fore wing with both marginal and stigmal veins (Figures 41, 46).....6
Fore wing with marginal vein utmost punctiform, stigmal vein absent (Figures 5, 54).....7
6 Laminate $<0.16\times$ as long as scutellum.....*liaoi* sp. nov.
Laminate about 0.2(as long as scutellum (Figure 47).....*scutellus* Xu
7 Thorax entirely yellow; antenna with scape yellow or yellowish brown (Figure 52); ovipositor slightly longer than or as long as mid tibia (Figure 58).....*huangi* sp. nov.
Thorax dark brown except mesoscutum laterally yellowish brown; antenna with scape dark brown (Figure 3); ovipositor shorter than mid tibia (Figure 9).....*apterogenes* Mayr

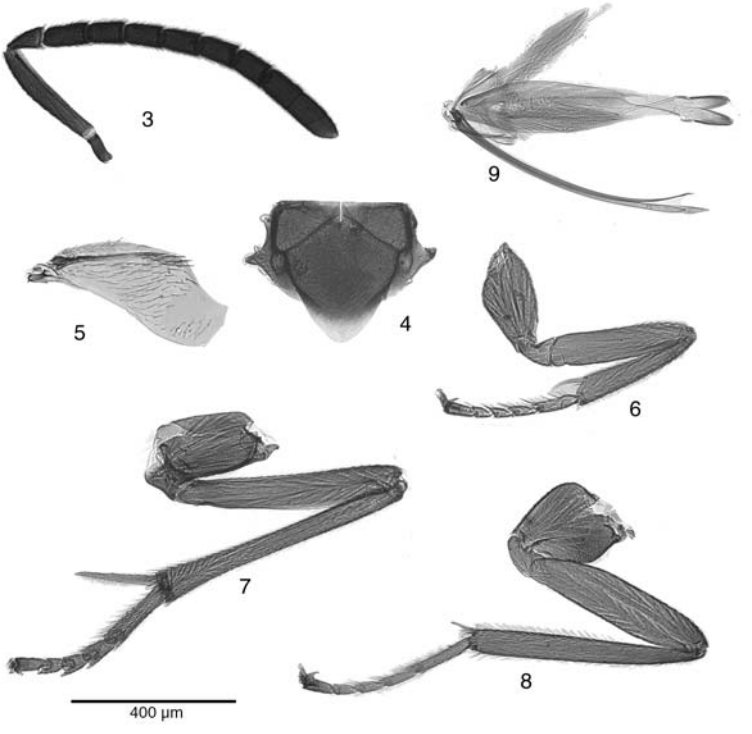
C. Descriptions of species

1. *Ericydnus apterogenes* Mayr (Figures 3–9)

longicornis apterogenes Mayr 1876: 76
latiusculus Thomson 1876: 125

Description

Female length 1.0–2.1 mm. Body dark brown; head black with blue and green reflections, mesoscutum dark brown with bluish green reflections, sometimes laterally brownish yellow; scutellum black with bluish green reflections; antenna dark brown, base and apex



Figures 3–9. *E. apterogenes* Mayr, female: 3, antenna; 4, scutellum; 5, fore wing; 6, fore leg; 7, mid leg; 8, hind leg; 9, ovipositor.

of scape with faint yellow brown area; tegula dark brown; mesopleuron dark brown, faintly metallic; fore wing hyaline, venation brown; legs brown or yellowish brown, except all coxae and hind femora dark brown; gaster dark brown and shiny with bluish green reflections.

Head about 2.1 × as wide as frontovertex at point of anterior ocellus, covered with reticulate sculpture beset in piliferous punctures; ocelli at an angle of about 90°; posterior ocellus separated from inner eye margin by its own diameter and from occipital margin by about 2 × its own diameter; eye not quite reaching occipital margin, separated by 1.5 × diameter of a facet; frontovertex subparallel sided; scrobes U shaped, rarely meeting dorsally; antenna with scape subcylindrical (Figure 3), only slightly expanded and flattened at apex, about 5.5 × as long as broad, pedicel nearly 1.6 × as long as broad and about 0.8 × as long as F1, funicular segments longer than broad, F1 2 × as long as and F6 1.2 × as long as broad, clava three segmented, its apex with a very slight, oblique truncation; mandible relatively broad and with two subequal teeth.

Mesoscutum sculptured with small, irregular cells and silvery white setae; scutellum sculptured with more coarse, irregular, polygonal cells, slightly convex, about as long as broad, or slightly broader than long, maximum length of laminate $< 0.2 \times$ as that of scutellum (Figure 4); fore wing often not fully developed (Figure 5).

Gaster a little longer than thorax; ovipositor slightly or as long as mid tibia; ovipositor sheath often slightly exserted in dorsal view.

Relative measurements: HW 73, FV 35, FVL 35, POL 31, AOL 18, OOL 3, OCL 6, POD 3, AOD 3.5, EL 41, EW 28, MS 17, SL 39, SW 7, FWL 57, FWW 22, HWL 26, HWW 8.5, MT 84, OL 89.

Male

Similar to female but for antenna and genitalia.

Specimens examined

9f, China: Inner Mongolia, Hulun (Hailaer), 13.viii.1981, Coll. DX Liao; 1f, Jilin, Changbaishan Mt., 13.viii.1991, Coll. DW Huang (IZCAS).

Distribution

China (new record), Austria and Sweden (Trjapitzin 1989: 118; Graham 1991: 187; Japoshvili 2007: 82).

Comments

E. apterogenes was once synonymised with *Ericydnus strigosus* by Kerrich (1967: 119), but Graham (1991) considered it as a valid species. The Chinese material agrees well with Graham's (1991) description of colouration, antenna and membranous flange of scutellum.

2. *Ericydnus japonicus* (Tachikawa) (Figures 1, 10–18)

Grandoriella japonicus Tachikawa 1963: 58; Kerrich 1966: 119; Trjapitzin 1989: 118.

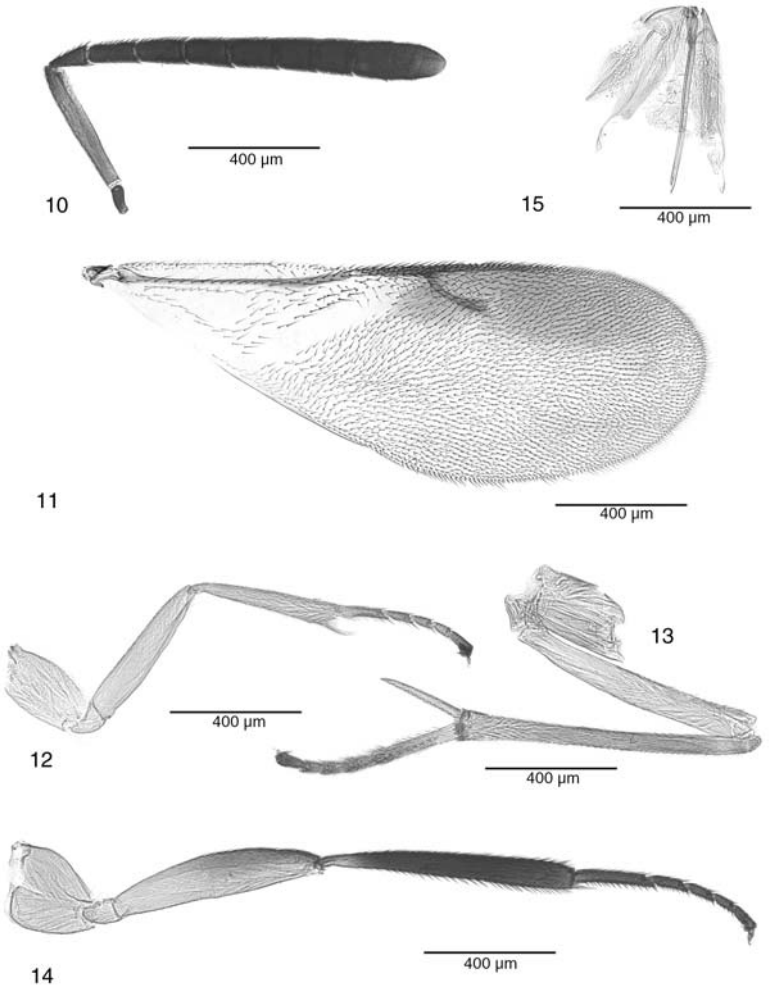
Description

Female length 1.6–1.8 mm. Head black with bluish green reflections, pronotum black with bluish green reflections, mesoscutum anteriorly and sometimes medially dark brown, with purple reflections, laterally yellow; scutellum yellowish brown; metanotum dark brown but sometimes medially yellowish brown; mesopleuron brownish yellow, sometimes posterior half dark brown; antenna with scape dark yellowish brown but apically faintly dark brownish, the rest dark brown; tegula dark yellow to pale brown; fore wing distinctly infuscate as shown in Figure 11, venation brown; legs yellow but apical tarsi of fore and mid legs, apical half of hind femora along dorsal margin, hind tibia and tarsi black (Figure 14), mid tibia slightly yellow brownish at base; gaster yellow, dorsally black, with apex of hypopygium dark brown.

Head about 2.1 × as wide as frontovertex at point of anterior ocellus, sculptured with reticulations beset in piliferous punctures; ocelli at an angle slightly $>90°$; posterior ocellus separated from inner eye margin by slightly more than and from occipital margin by about 1.5 × its own diameter; eye not quite reaching occipital margin, separated by 1.5 × diameter of a facet; antenna with scape subcylindrical (Figure 10), only slightly expanded and flattened at apex, about 6 × as long as broad; pedicel nearly 1.95 × as long as broad and about 0.8 × as long as F1; funicular segments gradually shortening but widening distad, with F1 distinctly longer than F6, F1 about 2.4 × and F6 about 0.7 × as long as broad; and clava three segmented, with apex obliquely truncate.

Mesoscutum and scutellum sculptured with irregular, polygonal cells, scutellum slightly convex, about 1.1 × as long as broad; fore wing about 2.8 × as long as broad (Figure 11), marginal vein slightly shorter than stigmal vein; postmarginal vein almost 2 × as long as marginal vein.

Gaster with ovipositor not or slightly exserted in dorsal view (Figure 15).



Figures 10–15. *E. japonicus* (Tachikawa), female: 10, antenna; 11, fore wing; 12, fore leg; 13, mid leg; 14, hind leg; 15, ovipositor.

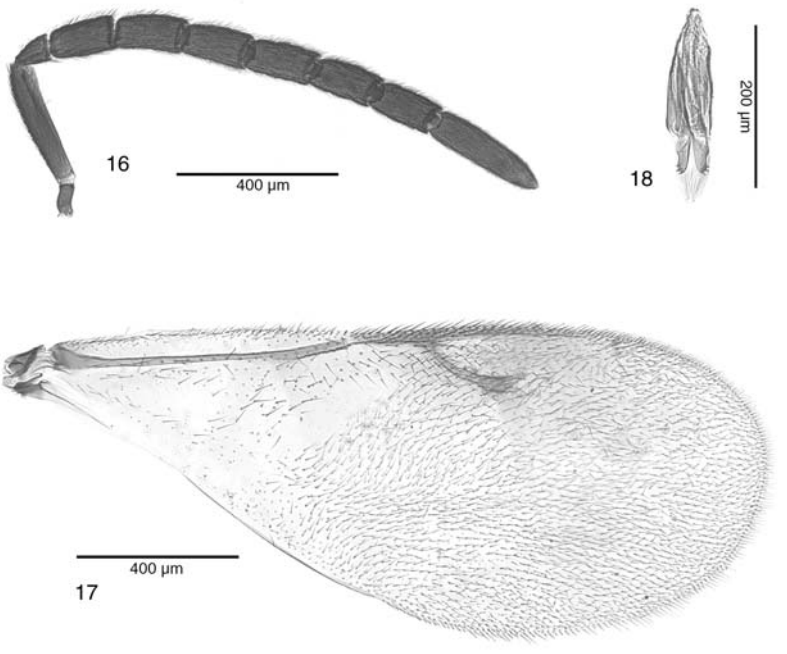
Relative measurements: HW 67, FV 31.5, FVL 26, POL 14.5, AOL 7, OOL 4, OCL 5.5, POD 4, AOD 5, EL 37, EW 25, MS 15, SL 37, SW 7, FWL 189, FWW 68, HWL 141, HWW 35. MT 95, OL 60, MV 22, PMV 41, SV 22.

Male

Length 1.0–1.6 mm, similar to female but for antenna, genitalia, frontovertex width and ocelli location as given in Tachikawa (1963); antenna with pedicel about 0.5 × as long as F1, funicular segments nearly equal, about 2.4 × as long as broad, clava entire; and digitus of genitalia apically with three hooks (Figure 18).

Specimens examined

1f, 2 m, China: Beijing, Changping, vi.2009; 2f, 1 m, Beijing, Haidian, vi.2010; 4f, Shandong, Yantai (Kunlun Mt.), 14.vi.1964, Coll. JL Mao (IZCAS).



Figures 16–18. *E. japonicus* (Tachikawa), male: 16, antenna; 17, fore wing; 18, genitalia.

Distribution

China (new record), Japan and Russia.

Comments

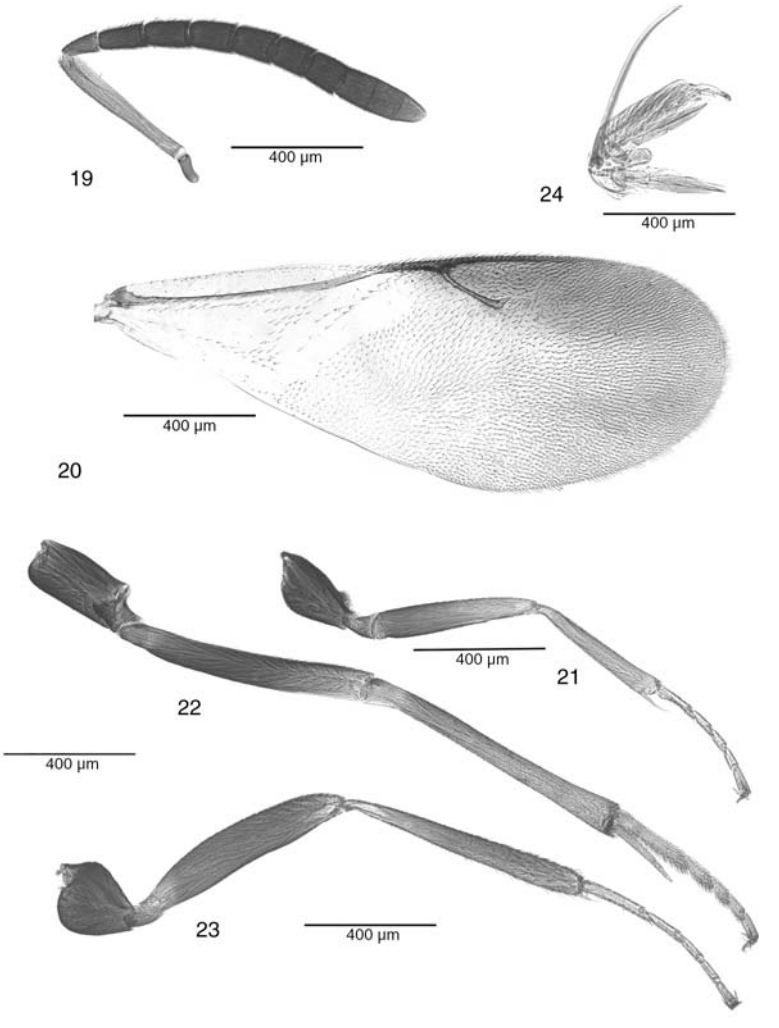
The Chinese specimens agree well with original description of antenna and membranous flange of scutellum, but variation in colouration noticed of mesoscutum and mesopleuron.

3. *Ericydnus gigas* sp. nov. (Figures 19–24)

Description

Female length 1.9–2.1 mm. Body completely dark brown; head black with blue and green reflections, mesoscutum with bluish green reflections, scutellum black with golden purple reflections; antenna dark brown; tegula dark brown; fore wing infuscate as shown in Figure 20; legs dark brown; joints, fore and mid tibia dark yellowish brown; and gaster black and shiny with bluish green reflections at base.

Head about 2.7 × as wide as frontovertex, sculptured with reticulations beset in piliferous punctures; ocelli at an angle slightly $<90°$; posterior ocellus separated from inner eye margin by 0.6 × and from occipital margin by about 1.5 × its own diameter; eye not quite reaching occipital margin, separated by 1.5 × diameter of a facet; antenna with scape subcylindrical (Figure 19), about 6.5 × as long as broad; pedicel nearly 1.78 × as long as broad and about 0.8 × as long as F1; funicle segments longer than broad, F1 about 1.8 × and F6 about 1.1 × as long as broad; and clava three segmented, with apex usually obliquely truncate.



Figures 19–24. *E. gigas* sp. nov., female: 19, antenna; 20, fore wing; 21, fore leg; 22, mid leg; 23, hind leg; 24, ovipositor.

Mesoscutum sculptured with small, irregular cells, scutellum sculptured with more superficial, irregular, polygonal cells, slightly convex, about 1.2 × as long as broad, its apex very weakly laminated; fore wing about 2.7 × as long as broad, marginal vein slightly shorter than stigmal vein; and postmarginal vein almost 2 × as long as marginal vein (Figure 20).

Gaster with ovipositor not or slightly exserted in dorsal view (Figure 24).

Relative measurements: HW 83, FV 31, FVL 43, POL 17, AOL 15, OOL 3, OCL 7, POD 5, AOD 5, EL 53, EW 38, MS 17, SL 54, SW 7, FWL 224, FWW 65, HWL 129, HWW 35, MT 103, OL 78, MV 24, PMV 50, SV 20.

Holotype

f, China: Xinjiang, Kurle, Korla, 7.vi.1965, Coll. DX Liao; *paratypes*, 5f, with data same as holotype (IZCAS).

Etymology

The name is from Latin word ‘gigas’, indicating the large body of this species.

Comments

This new species is similar to *E. japonicus* (Tachikawa), but can be separated by the characters as given in the key.

4. *Ericydnus infuscatus* sp.nov. (Figures 25–33)

Description

Female length 1.8–2.0 mm. Body completely dark brown; head black with blue and green reflections, mesoscutum with bluish green reflections, scutellum black with golden purple reflections; antenna dark brown; tegula dark brown; fore wing infuscate as shown in Figure 26 but apically hyaline; fore leg with coxa, base of femora, apical segment of tarsus dark brown, the rest often yellow or yellowish brown; mid leg with coxa dark brown, tibia subbasally dark yellowish brown and apical segment of tarsus dark brown, the rest yellow or yellowish brown; hind leg dark brown except coxa darker; and gaster black and shiny with bluish green reflections at base.

Head about 3 × as wide as frontovertex; ocelli at an angle of about 90°; posterior ocellus separated from inner eye margin by slightly more than its own diameter and from occipital margin by about 1.5 × its own diameter; eye not quite reaching occipital margin, separated from by 1.5 × diameter of a facet; antenna with scape subcylindrical (Figure 25), about 5.0 × as long as broad; pedicel nearly 1.53 × as long as broad, pedicel nearly as long as F1; F1 about 1.3 × as long as and F6 about 0.54 × as long as broad; and clava three segmented, with apex obliquely truncate.

Mesoscutum sculptured with small, irregular cells, scutellum sculptured with coarse, irregular, polygonal cells, slightly convex, about 1.1 × as long as broad, its apex slightly laminated, with membrane about 0.66 × as long as scutellum; and fore wing fully developed, about 2.7 × as long as broad, venation as shown in Figure 30.

Gaster with ovipositor not or slightly exserted in dorsal view (Figure 30).

Relative measurements: FVL 35, AOL 10, OOL 4.5, OCL 6, POD 4, AOD 4, EL 46.5, EW 38, MS 22, SL 46, SW 9.5, FWL 203, FWW 73, HWL 149, HWW 35, MT 108, OL 78, MV 19, PMV 36, SV 25.

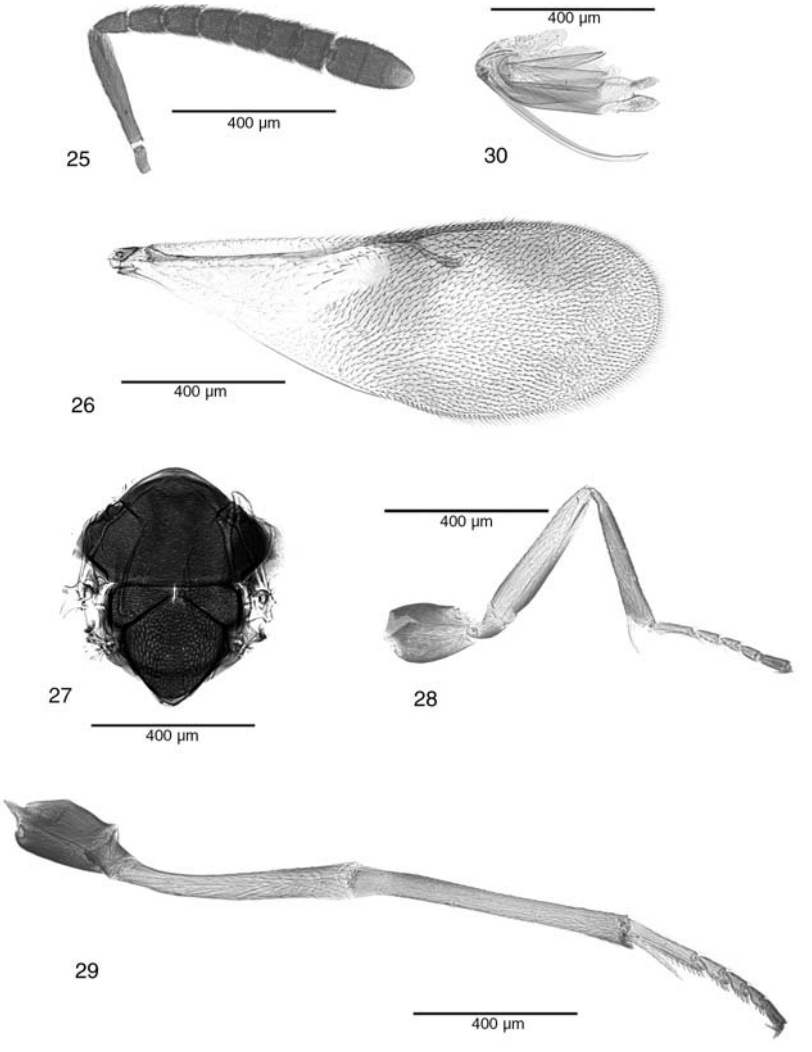
Male length 1.0–1.6 mm, similar to female but for antenna and genitalia. Antenna with clava obliquely truncate for about half its length (Figure 31); fore wing slightly infuscate around marginal vein (Figure 32); genitalia with phallobase characterised by protruding parameres (Figure 33), widely separated and rounded at apex, and digiti long and slender; and aedeagus sharply pointed at apex.

Holotype

Holotype: 1f, China: Shanxi, Wutai Mt., 3.vii.2006, Coll. YZ Zhang. Paratype: 3f, 3 m, same as holotype; 2f, Beijing, Haidian, 3.vii.2006, Coll. YZ Zhang; 1 m, Liaoning, Shenyang, 8.vii.2010, Coll. YQ; 1f, Anhui, Huang Mt., 29.vi.2008, Coll. YH Zhao (IZCAS).

Etymology

The name ‘infuscatus’ is derived from the character of infuscate fore wing.



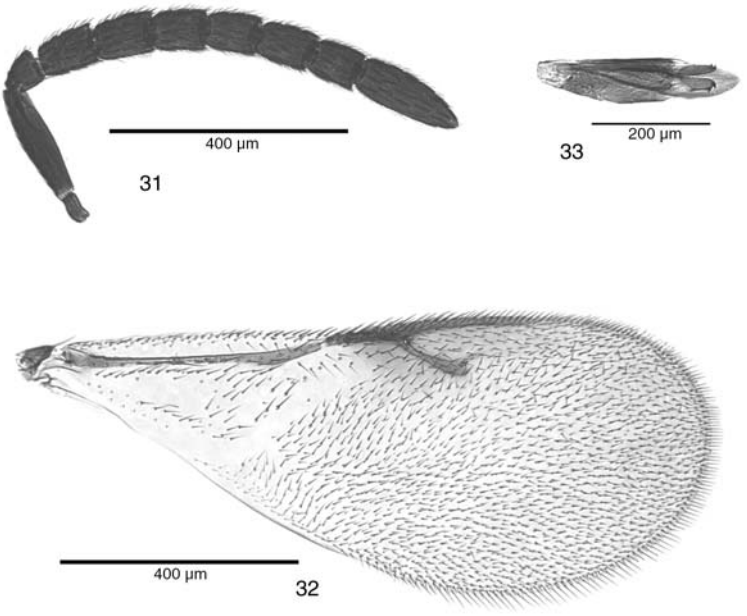
Figures 25–30. *E. infuscatus* sp. nov., female: 25, antenna; 26, fore wing; 27, scutellum; 28, fore leg; 29, mid leg; 30, ovipositor.

Comments

This new species is similar to *Ericydnus longicornis* (Dalman 1820); females of both have infuscate fore wing and very short scutellum flange. However, in the new species, pedicel is about as long as F1, and F1 utmost 1.3 × as long as broad (in *longicornis*, pedicel about 0.66 × as F1, and F1 about 1.66 × as long as broad); and mesopleuron dark brown (in *longicornis* mesopleuron brightly testaceous).

5. *Ericydnus ventralis* (Dalman) (Figures 34–38)

Encyrtus ventralis Dalman 1820: 166; Trjapitzin 1989: 188–190
dichrous Mercet 1921: 164; Kerrich 1966: 119



Figures 31–33. *E. infuscatus* sp. nov., male: 31, antenna; 32, fore wing; 33, genitalia.

Walker, F. 1837 Monographia Chalciditum.
Source: Entomological Magazine. 4:349–364.
Notes: taxonomy
paludatus Haliday in Walker 1837: 363; Kerrich 1967: 167–168

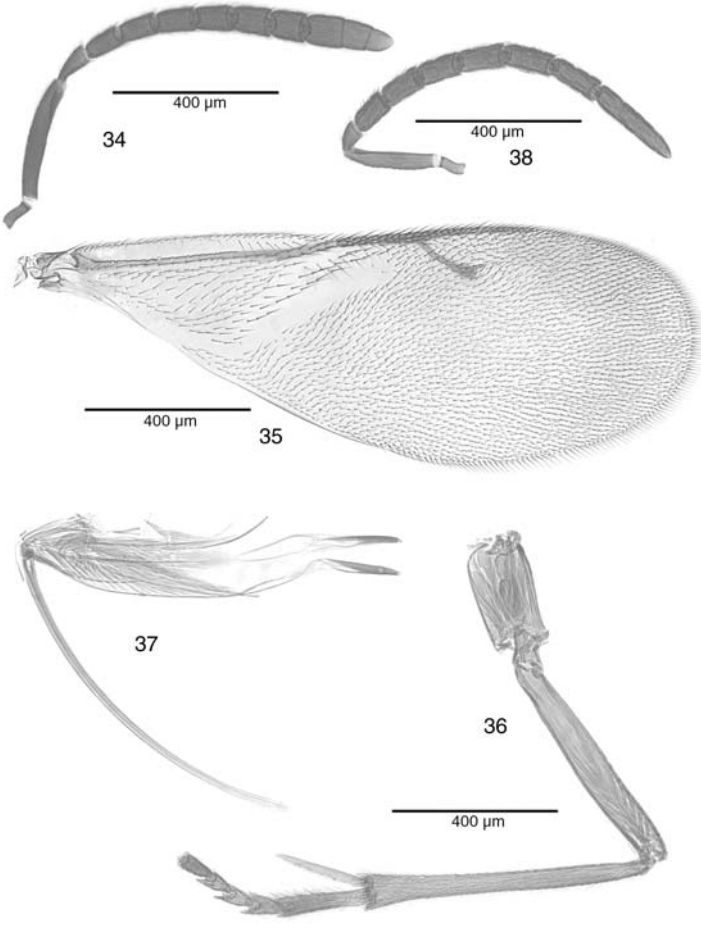
Description

Female length 1.7–1.8 mm. Head black with blue and green reflections, mesoscutum with bluish green reflections, scutellum black with golden purple reflections; antenna dark brown; tegula black; fore wing hyaline; legs black, joints and mid tibia pale brown; gaster black and shiny with bluish green reflections at base.

Head about 2.1 × as wide as frontovertex; ocelli at an angle of about 90°; posterior ocellus separated from inner eye margin by 0.33 × and from occipital margin by about 2.3 × its own diameter; eye not quite reaching occipital margin, separated by 1.5 × diameter of a facet; antenna with scape clearly expanded and flattened (Figure 34), about 6.1 × as long as broad; pedicel about 1.5 × as long as broad and slightly shorter than F1; funicle segments longer than broad, F1 about 1.6 × as long as and F6 about 0.8 × as long as broad; and clava three segmented, usually solid and obliquely truncate.

Mesoscutum and scutellum sculptured with small, irregular cells; scutellum dorsally almost flat, about 1.2 × as long as broad, its membranous flange < 0.1 × as long as scutellum; fore wing about 2.7 × as long as broad; marginal vein about 1.2 × as long as stigmal vein; and postmarginal vein about 1.3 × as long as marginal vein (Figure 35).

Gaster with ovipositor slightly exserted and visible in dorsal view (Figure 37).



Figures 34–38. *E. ventralis* (Dalman), female: 34, antenna; 35, fore wing; 36, mid leg; 37, ovipositor; 38, male, antenna.

Relative measurements: HW 54, FV 25, FVL 29, POL 19, AOL 13, OOL 1, OCL 7, POD 3, AOD 4, EL 33, EW 22, MS 14, SL 26, SW 6, FWL 147, FWW 50, HWL 105, HWW 27, MT 65, OL 93, MV 19, PMV 28, SV 15.

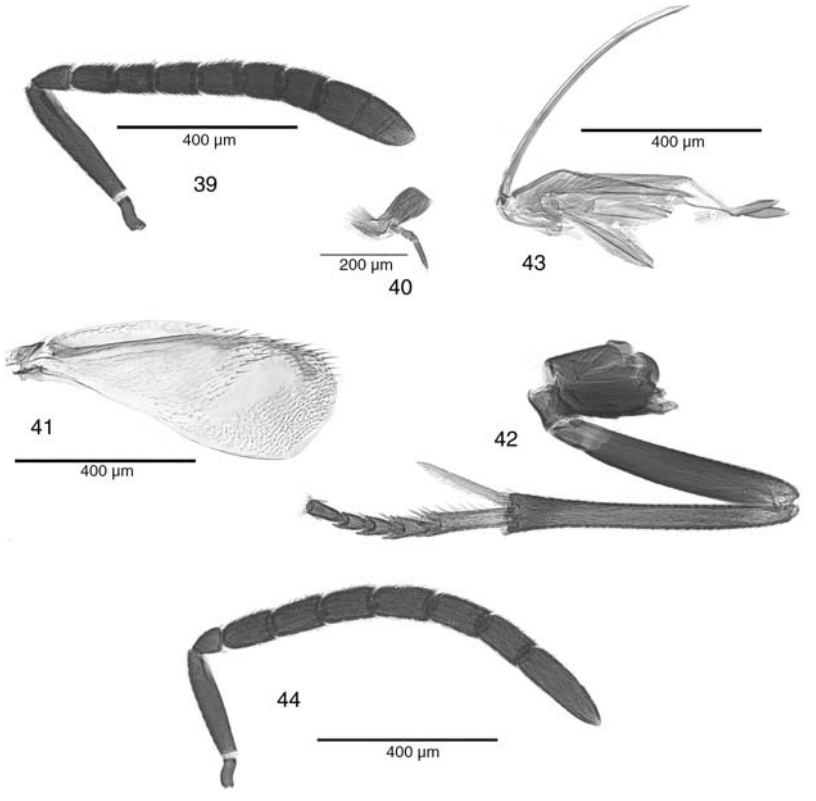
Male length 1.0–1.6 mm, similar to female but for antenna and genitalia. Antenna with pedicel about 1.2 × as long as broad, and about 0.6 × as long as F1 (Figure 38); funicular segments longer than broad; and clava entire.

Specimens examined

3f, 13 m, China: Xinjiang, Wulumuqi, Coll. NQ Lin; 1f, 1 m, Xinjiang, Wulumuqi, Coll. ZQ Niu (IZCAS).

Hosts

Phenacoccus hystrix (Zilling and Niemeyer 1929), *Puto pilosellae*.



Figures 39–44. *E. liaoi* sp. nov., female: 39, antenna; 40, maxillary palpi; 41, fore wing; 42, mid leg; 43, ovipositor; 44, male, antenna.

Distribution

China (new record); Austria, Bulgaria, Finland, Georgia, Germany, Hungary, Ireland, Mongolia, Netherlands, Norway, Poland, Romania, Russia, Spain, Sweden, United Kingdom (Noyes 2011).

Comments

This species varies in body colour (Graham 1991).

6. *Ericydnus liaoi* sp. nov. (Figures 39–44)

Description

Female length 1.4–1.8 mm. Head black with blue and green reflections, mesoscutum with bluish green reflections, scutellum black with golden purple reflections; antenna dark brown; tegula black; fore wing infuscate, but apically hyaline; legs dark brown; joints and mid tibia pale brown; and gaster black, shiny with bluish green reflections at base.

Head about 2.6 × as wide as frontovertex; ocelli at an angle of about 90°; posterior ocellus separated from inner eye margin by slightly less than and from occipital margin by about 4 × its own diameter; eye not quite reaching occipital margin, separated by 1.5 × diameter of a facet; antenna with scape subcylindrical, about 5.5 × as long as broad

(Figure 39); pedicel about 1.2 × as long as broad, and nearly as long as F1; F1–F4 longer than broad; F1 about 1.5 × as long as and F6 about as long as broad; and clava three segmented, with apex obliquely truncate.

Mesoscutum and scutellum sculptured with irregular, polygonal cells; scutellum dorsally almost flat, about 1.3 × as long as broad, its apex strongly laminated; and fore wing not or fully developed (Figure 41) (Graham 1991).

Gaster with ovipositor not or slightly exserted (Figure 43).

Relative measurements: HW 64, FV 25, FVL 27, POL 20, AOL 14, OOL 1.5, OCL 8, POD 2, AOD 3, EL 42, EW 25, MS 18, SL 32, SW 6, FWL 71, FWW 27, HWL 29, HWW 7, MT 70, OL 68.

Male length 1.0–1.6 mm, similar to female but for antenna and genitalia. Antenna with pedicel about 0.6 × as long as F1 (Figure 44), funicular segments longer than broad, and clava solid; and digitus of genitalia apically with two hooks.

Holotype

f, China, Xinjiang, Tashi, 5.vii.1965, Coll. DX Liao; *paratypes*, 10f, 2 m, with data same as holotype; 1f, Inner Mongolia, 3.vii.2010, Coll. CD Zhu (IZCAS).

Etymology

The species is named after professor Ding-Xi Liao, who made much contribution to Chinese Encyrtidae.

Comments

This new species is close to *Ericydnus sipylus* (Walker 1837) in antenna and fore wing, and also length of scutellum laminate; but its pedicel is about 1.2 × as long as broad, and F1 utmost 1.5 × as long as broad (in *sipylus*, pedicel is about 2 × as long as broad, F1 about 1.75 × as long as broad); thorax and gaster nearly completely dark brown except base of gaster being rarely yellowish brown (in *sipylus*, thorax and gaster are generally brightly testaceous).

7. *Ericydnus scutellus* Xu (Figures 2, 45–51)

Ericydnus scutellus Xu in Xu et al. 2000: 285–286.

Description

Female length 1.7–1.9 mm. Head dark brown with blue and green reflections, pronotum and anterior part of mesoscutum with bluish green reflections, scutellum yellowish brown with golden purple reflections; antenna dark brown, scape with faint metallic reflections; pedicel and flagellum dark brown; tegula black; mesopleuron brownish yellow, faintly metallic, fore wing hyaline, venation brown; legs brownish yellow with apical tarsi dark brown; and base of gaster yellow with the rest dark brown having bluish green reflections.

Head about 3 × as wide as frontovertex at anterior ocellus; ocelli at an angle of about 90°; posterior ocellus separated from inner eye margin by about 0.5 × and from occipital margin by 1.5 × its own diameter; eye not quite reaching occipital margin, separated by 1.5 × diameter of a facet; antenna with scape slightly expanded and flattened, about 5.2 × as long as broad (Figure 45); pedicel about 1.7 × as long as broad, and about as long as F1; funicular segments gradually shortening but widening distad, with F1 distinctly longer than F6, F1 about 1.8 × as long as and F6 about 0.9 × as long as broad; and clava three segmented, with apex obliquely truncate.

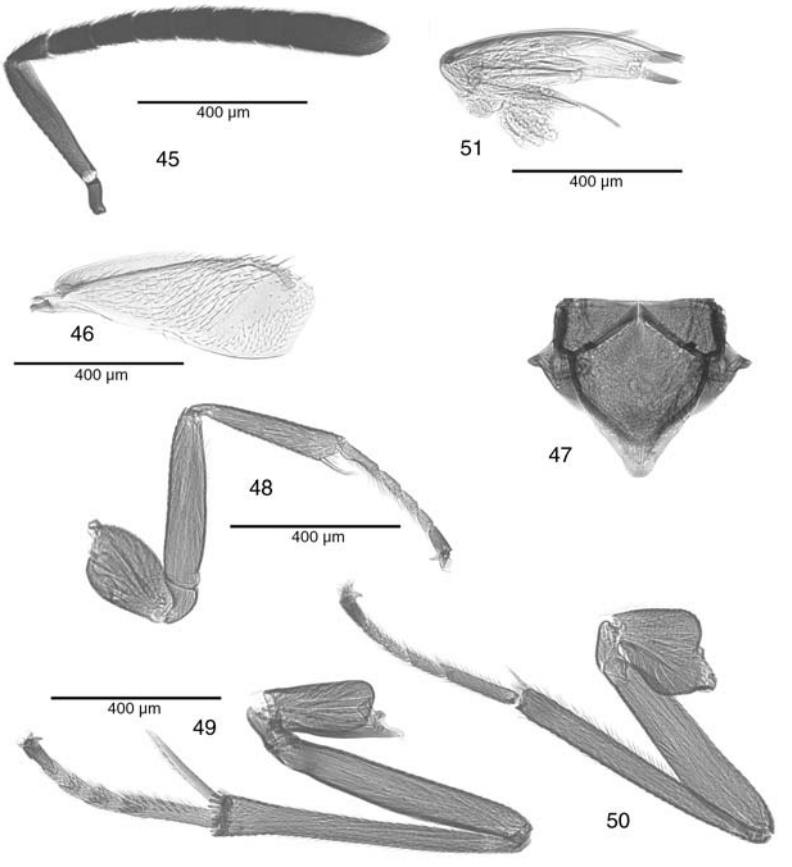


Figure 45–51. *E. scutellus* Xu, female: 45, antenna; 46, fore wing; 47, scutellum; 48, fore leg; 49, mid leg; 50, hind leg; 51, ovipositor.

Mesoscutum and scutellum sculptured with irregular, polygonal cells; scutellum slightly convex, about 1.3 × as long as broad, its apex strongly laminated, with membranous flange about 0.2 × as long as scutellum (Figure 47); fore wing as shown in Figure 46.

Gaster about as long as thorax; ovipositor about 0.75 × as long as mid tibia (Figure 51), ovipositor sheath very slightly exserted in dorsal view.

Relative measurements: MT 71, OL 60.

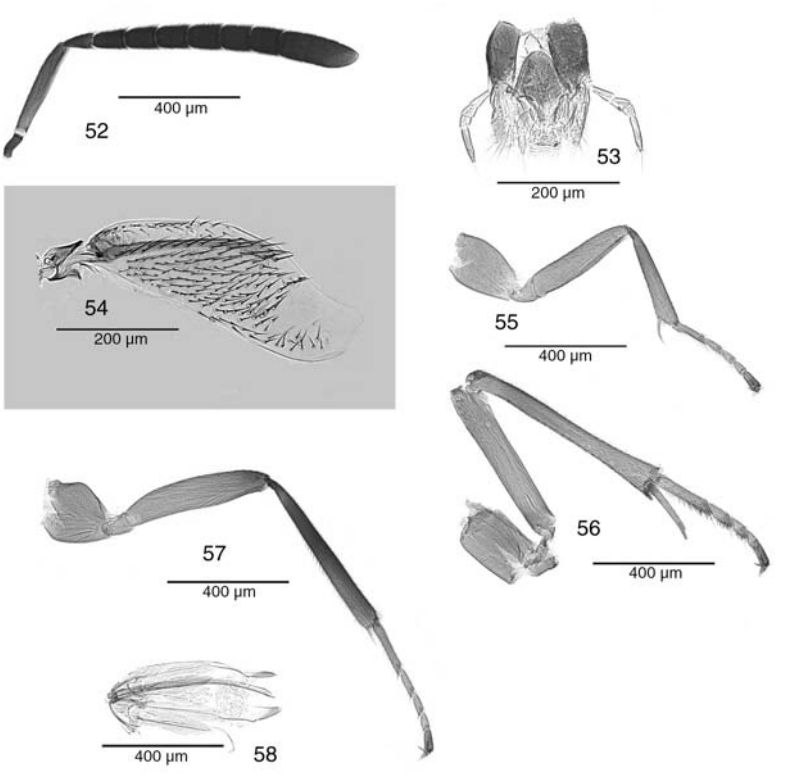
Specimens examined

f, holotype, China: Jilin, Liaoyuan, 5.vii.1991, Coll. JX Lou, C95086 (ZUIE); 3f, Shanxi, Heng Mt., 3.x.2002, Coll. YZ Zhang (IZCAS).

8. *Ericydnus huangi* sp. nov. (Figures 52–58)

Description

Female length about 1.6–1.7 mm. Head black with blue and green reflections; pronotum anteriorly dark brown, posteriorly (visible part) yellowish brown; mesoscutum and



Figures 52–58. *E. huangi* sp. nov., female: 52, antenna; 53, maxillary palpi; 54, fore wing; 55, fore leg; 56, mid leg; 57, hind leg; 58, ovipositor.

scutellum brownish yellow; tegula and metanotum (except median part) dark brown; mesopleuron dark brown with golden purple reflections; gaster largely yellow except apical third dark brown and with bluish green reflections; antenna dark brown except outer aspect of scape yellowish brown; fore wing hyaline; legs yellow or brownish yellow except hind tibiae and apex of hind femora dark brown.

Head nearly 2.7 × as wide as frontovertex, sculptured with reticulations beset in piliferous punctures; ocelli at an angle slightly $>60°$; posterior ocellus separated from inner eye margin by about 0.66 × and from occipital margin by about 3 × its own diameter; eye not quite reaching occipital margin, separated by 1.5 × diameter of a facet; antenna with scape subcylindrical, about 6 × as long as broad (Figure 52); pedicel nearly 1.75 × as long as broad, and about as long as F1; funicle segments longer than broad, F1 about 1.8 × and F6 about 1.1 × as long as broad; and clava three segmented, with apex obliquely truncate.

Mesoscutum and scutellum sculptured with irregular, polygonal cells; scutellum slightly convex, nearly 1.3 × as long as broad, its apex very strongly laminated, with membranous flange nearly 0.2 × as long as scutellum; and fore wing not fully developed (Figure 54).

Gaster about as long as thorax; ovipositor about 0.9 × as long as mid tibia (Figure 58), and its sheath only slightly exserted in dorsal view.

Relative measurements: HW 63, FV 23, FVL 31, POL 18, AOL 15, OOL 2, OCL 9, POD 3, AOD 3, EL 42, EW 32, MS 15, SL 33, SW 7, FWL 45, FWW 16, HWL 19, HWW 5.5, MT 67, OL54.

Male length about 1.7 mm, similar to female but for antenna and genitalia. Antenna with pedicel about 0.8 × as long as F1, funicular segments longer than broad, and clava solid; and digitus of genitalia with two hooks apically.

Holotype

f, China; Anhui, Xuancheng (Jingting Mt.), 3.vi.2003, Coll. ZL Sha; *paratypes*, 1f, 1 m, with data same as holotype (IZCAS).

Etymology

The species is named after professor Da-Wei Huang, who made a great contribution to Chinese Encyrtidae.

Comments

This new species is similar to *E. scutellus* Xu, but can be separated by its narrower frontovertex, more obliquely truncated clava and its fore wing.

Acknowledgements

This project was supported by the National Natural Science Foundation of China (NSFC Grant Nos 30870321, 31071950), by the Chinese Academy of Sciences (KSCX2-YW-NF-02) and by the National Science Fund for Fostering Talents in Basic Research (Special subjects in animal taxonomy, NSFC-J0630964/J0109). The authors would like to thank Dr John S Noyes, Natural History Museum, London, for loan of the type material.

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