

Taxonomic Review of the Genus *Plectiscidea* (Hymenoptera: Ichneumonidae: Orthocentrinae) from South Korea

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ABSTRACT

The three newly recognized species of the genus *Plectiscidea* are reported in this: *Plectiscidea aquilonia* Humala, 2003, *Plectiscidea bistrata* (Thomson, 1888), and *Plectiscidea collaris* (Gravenhorst, 1829). Among them, *P. bistrata* is recorded for the first time in the Eastern Palaearctic region and this genus is reported for the first time from South Korea. A key to species of this genus and photographs of each species are provided.

Keywords: new record, Parasitoids, *Plectiscidea*, taxonomy

INTRODUCTION

Orthocentrinae is a cosmopolitan subfamily of small body sized Ichneumonidae, which is a moderately large group and koinobiont endoparasitoids of Diptera. More than 520 described species have been recorded worldwide (Yu et al., 2016). In South Korea, Orthocentrinae was reported 21 currently described species into eight genera. In addition, reviews on genera *Orthocentrus*, *Megastylus*, and *Proclitus* are in process.

The genus *Plectiscidea* belonging to the subfamily Orthocentrinae, was first described by Viereck (1914). According to the catalogue of world Ichneumonidae (Yu et al., 2016), the 96 recognized species of *Plectiscidea* are distributed mainly in the Western Palaearctic region. Three species of *Plectiscidea* and this genus are found to occur in South Korea for the first time. Also, *P. bistrata* is recorded for the first time in the Eastern Palaearctic.

In this study, we provide diagnoses of three species, photographs, and a key to species of this genus.

MATERIALS AND METHODS

Materials used in this study were collected by sweeping and Malaise trapping, after which they were deposited in the Animal Systematic Laboratory of Yeungnam University (YNU,

Gyeongsan, Korea). The morphological terminology follows that of Gauld (1991). Specimens were examined using an AxioCam MRc5 camera attached to a stereo microscope (Zeiss SteREO Discovery. V20; Carl Zeiss, Göttingen, Germany). The images were processed using AxioVision SE64 software (Carl Zeiss), and optimized using the Delta imaging system (i-solution, IMT i-Solution Inc., Vancouver, Canada). Distributional data mainly follow that of Yu et al. (2016).

Abbreviations used in the South Korean province and type depositories are as follows: GB, Gyeongsangbuk-do; GG, Gyeonggi-do; GW, Gangwon-do; ANSP, Academy of Natural Sciences of Philadelphia, Philadelphia, Pennsylvania, U.S.A.; IZU, Instytut Zoologiczny Uniwersytetu, Sienkiewicza, Wrocław, Poland. (Gravenhorst collection.); MPQ, Museum of the Province of Quebec, Quebec City, Quebec, Canada; UL, Université Laval, Department de Biologie, Faculté des Sciences, Ste Foy, Quebec, Canada; USNM, U.S. National Museum of Natural History, Smithsonian Institute, Washington, D.C., 20560, U.S.A.; ZI, Zoologiska Institutionen, Helgonavägen, Lund, Sweden; ZIN, Zoological Institute, Academy of Sciences, St. Petersburg, Russia; ZSM, Zoologisches Staatssammlung, Münchhausenstrasse 21, München, Germany.

SYSTEMATIC ACCOUNTS

Order Hymenoptera Linnaeus, 1758

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Family Ichneumonidae Latreille, 1802
Subfamily Orthocentrinae Förster, 1869

¹*Genus *Plectiscidea* Viereck, 1914

Plectiscidea Viereck, 1914: 1–186. Type species: *Plectiscus collaris*

Ephalmator Rossem, 1981: 79–135. Type species: *Ephalmator subsimilis*

Key to species of the genus *Plectiscidea* from South Korea

- 1. First tergite more than 2.0 times as long as second tergite. From second to seventh tergites evenly dark brown *P. aquilonia*
- First tergite less than 2.0 times as long as second tergite. From second to seventh tergites mostly dark brown but apical part of second and basal part of third tergites yellowish brown 2
- 2. Apical margin of clypeus truncate. Ovipositor as long as hind tibia. First tergite densely granulate *P. bistriata*
- Apical margin of clypeus round. Ovipositor long, more than 1.8 times as long as hind tibia. First tergite densely granulate and with longitudinal striae *P. collaris*

²*1. *Plectiscidea aquilonia* Humala, 2003

Plectiscidea aquilonia Humala, 2003: 1–175. Type: female; type depository: ZIN.

Material examined. 1♀, South Korea: GB: Cheongdo-gun, Unmun-myeon, Ssalbawi, 35°38'08"N 129°01'27"E, 9 Jun 2012, Lee JW (YNU); 1♂, Seoul: Noweon-gu, Sanggye 4-dong, Mt. Suraksan, 7–25 Oct 2007, Lim JO (YNU).

Diagnosis. Body 2.7–2.9 mm; fore wing 2.5–2.7 mm. Face polished with long white hairs, 0.6 times as long as wide in frontal view (Fig. 1C); clypeus not separated from face; vertex impunctate, polished with long hairs (Fig. 1D); occipital carina distinct (Fig. 1E). Mesosoma shiny and impunctate; pronotum with distinct epomia; mesoscutum with notauli; propodeum with long hairs; propodeal carina incomplete, posterior transverse carina, lateral longitudinal carina and pleural carina distinct. Legs slender, with hairs. Fore wing without areolet (Fig. 1F); hind wing with four distal hamuli. First tergite densely granulate (Fig. 1G), first tergite 2.13 times as long as second tergite in lateral view. Ovipositor short (Fig. 1A), 0.43 times as long as hind tibia.

Color. Generally dark reddish brown (Fig. 1A, B). Clypeus, mandible and palpi yellowish brown. Legs yellowish brown to brown, hind coxa darken. Second to seventh tergites dark brown.

Distribution. South Korea (new record), Finland, Norway, Russia.

³*2. *Plectiscidea bistriata* (Thomson, 1888)

Plectiscus bistriatus Thomson, 1888: 1266–1318. Lectotype: female; type depository: ZI.

Material examined. 1♀, South Korea: GW: Donghae-si, Samhwa-dong, Mureung valley, 37°27'52"N, 129°01'26"E, 10–20 Sep 2006, Lee JW (YNU); 1♀, ditto, 6–16 Oct 2005, Lee JW (YNU).

Diagnosis. Body 3.1–3.3 mm; fore wing 3.1–3.2 mm. Face polished with long white hairs (Fig. 2B), 0.61 times as long as wide in frontal view; clypeus not separated from face, apical margin of clypeus truncate (Fig. 2B); vertex impunctate, polished with long hairs (Fig. 2C); occipital carina distinct. Antenna with 17–18 flagellomeres. Mesosoma shiny and impunctate (Fig. 2D); pronotum with distinct epomia; mesoscutum with notauli; propodeum with long hairs; posterior transverse carina, lateral longitudinal carina and pleural carina distinct. Legs slender, with hairs. Fore wing with areolet (Fig. 2E); hind wing with four distal hamuli. First tergite densely granulate, first tergite 1.54 times as long as second tergite in lateral view. Ovipositor slender, 0.92 times as long as hind tibia; ovipositor sheath upcurved with hairs.

Color. Generally dark reddish brown to black (Fig. 2A). Clypeus, mandible and palpi yellowish brown. Legs yellowish brown to brown, hind coxa darken. Second to seventh tergites dark brown; apical part of second and basal part of third tergites yellowish brown.

Distribution. South Korea (new record), Austria, Finland, Germany, Greenland, Lithuania, Netherlands, Poland, Russia, Serbia and Montenegro, Sweden, Yugoslavia.

⁴*3. *Plectiscidea collaris* (Gravenhorst, 1829)

Plectiscus collaris Gravenhorst, 1829: 1–989. Lectotype: female; type depository: IZU.

Plectiscus binodulus Förster, 1871: 71–123. Type: female; type depository: ZSM.

Orthocentrus carinatus Provancher, 1879: 269–281. Lectotype: male; type depository: UL.

Plectiscus niger Provancher, 1883: 3–20. Type: male; type depository: MPQ.

Catastenus glabrifrons Davis, 1897: 193–348. Lectotype: male; type depository: ANSP.

Miomiris nasoni Davis, 1897: 193–348. Lectotype: male; type depository: ANSP.

Plectiscus orcae Ashmead, 1902: 117–268. Type: female; type depository: USNM.

Korean name: ¹*어리긴뿔맴시벌속(신칭), ²*유럽어리긴뿔맴시벌(신칭), ³*두줄어리긴뿔맴시벌(신칭), ⁴*목도리어리긴뿔맴시벌(신칭)

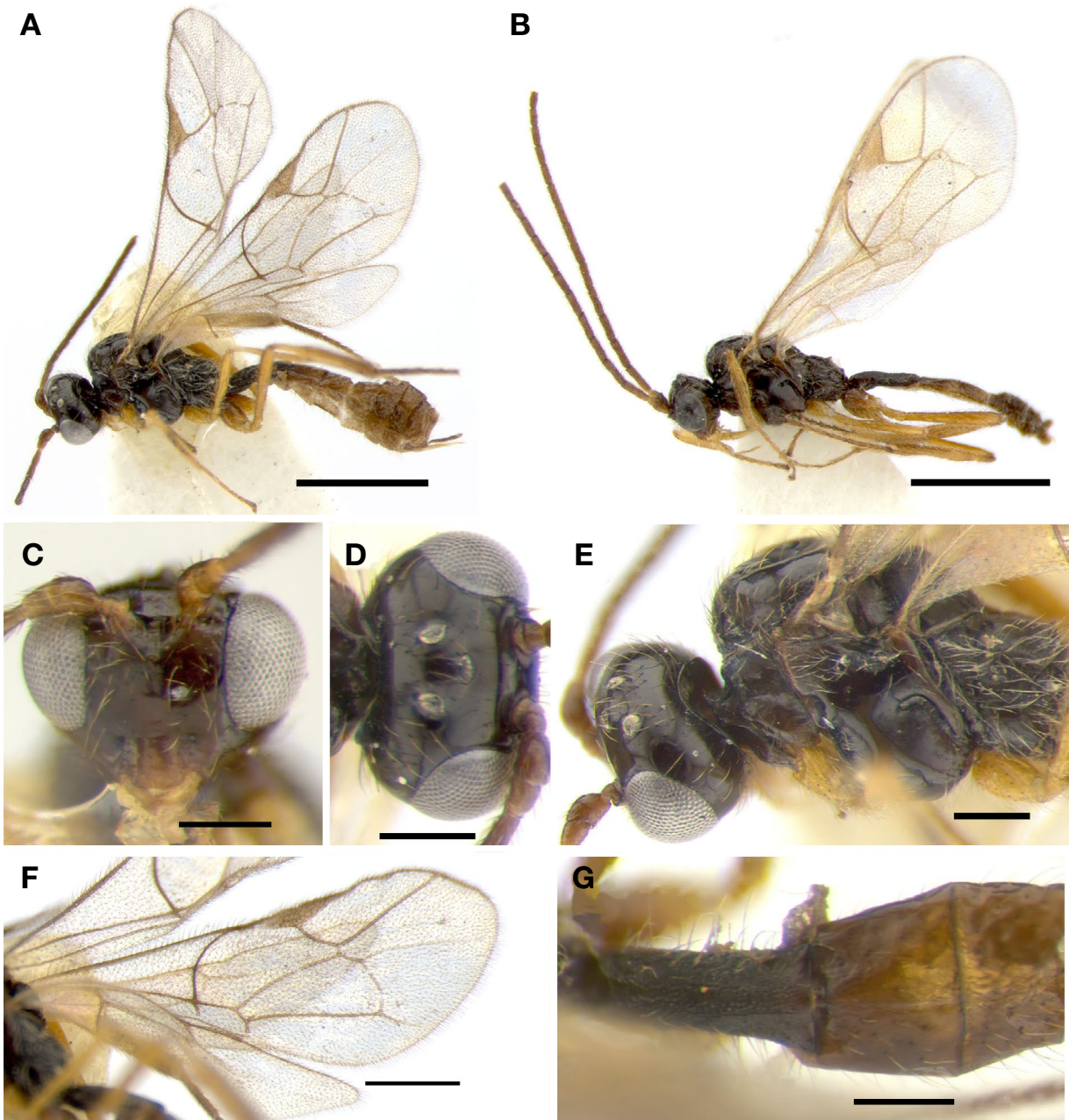


Fig. 1. *Plectiscidea aquilonia* Humala, 2003. A, Habitus in lateral view (female); B, Habitus in lateral view (male); C, Head in frontal view; D, Head in dorsal view; E, Mesosoma in lateral view; F, Wings; G, First to third tergites. Scale bars: A, B=1 mm, C-E, G=0.2 mm, F=0.5 mm.

Mesochorus areolatus Viereck, 1903: 43–100. Type: female; type depository: ANSP.

Plectiscus parvus Cushman, 1922: 1–30. Type: female; type depository: USNM.

Material examined. 1 ♀, South Korea: GG: Anyang-si, Manan-gu, Mt. Kwanaksan, 25 Sep–15 Oct 2008, Lim JO (YNU);

1 ♀, Anyang-si, Manan-gu, Kwanag, alt. 133 m, 37°25'21.6"N, 126°56'56.8"E, 25 Sep–15 Oct 2008, Lim JO (YNU); 2 ♀, GW: Donghae-si, Samhwa-dong, Mureung valley, 6–16 Oct 2005, Lee JW (YNU); 1 ♀, Hongcheon-gun, Nae-myeon, Mt. Gyeongsan, 28 Aug–26 Sep 2013, Lee JW (YNU).

Diagnosis. Body 3.4–3.5 mm; fore wing 3.3–3.4 mm. Face polished with long white hairs (Fig. 3B), 0.78 times as long as

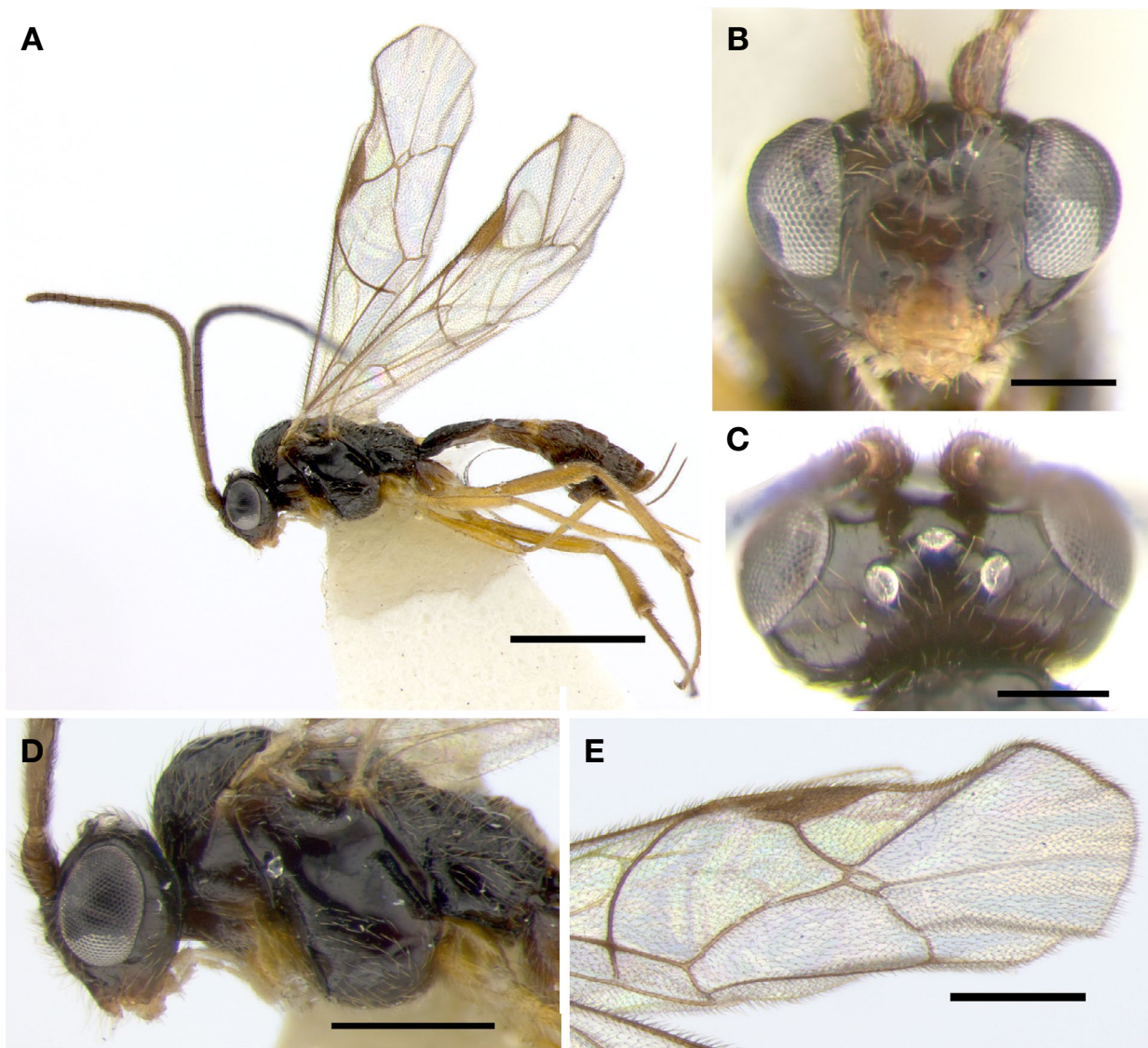


Fig. 2. *Plectiscidea bistriatus* (Thomson, 1888). A, Habitus in lateral view (female); B, Head in frontal view; C, Head in dorsal view; D, Head and mesosoma in lateral view; E, Fore wing. Scale bars: A=1 mm, B, C=0.2 mm, D, E=0.5 mm.

wide in frontal view; clypeus not separated from face, apical margin of clypeus round (Fig. 3B); vertex impunctate, polished with long hairs (Fig. 3D). Antenna with 19 flagellomeres. Mesosoma shiny and impunctate (Fig. 3C); pronotum with distinct epomia; mesoscutum with weak notauli (Fig. 3D); propodeum with long hairs; posterior transverse, lateral longitudinal, pleural and median longitudinal carinae distinct. Legs slender, with hairs. Fore wing without areolet (Fig. 3E); hind wing with five distal hamuli. First tergite densely granulate and with longitudinal striae (Fig. 3F), first tergite 1.87 times as long as second tergite in lateral view. Ovipositor slender and straight (Fig. 3A), 1.88 times as long as hind tibia.

Color. Generally dark reddish brown to black (Fig. 3A).

Antennal scape yellow; antennal flagellomeres brown. Clypeus, mandible and palpi yellowish brown. Ventral area of pronotum yellowish brown. Legs yellow, fore coxa paler, hind coxa darken. Second to seventh tergites dark brown; apical part of second and basal part of third tergites yellowish brown.

Distribution. South Korea (new record), Austria, Belarus, Canada, Czech Republic, Denmark, Finland, France, Georgia, Germany, Greenland, Hungary, Iceland, Italy, Latvia, Lithuania, Mexico, Netherlands, Norway, Poland, Romania, Russia, Sweden, U.S.A., Ukraine, United Kingdom, Yugoslavia.

Host. [Diptera] *Exechia dorsalis*, *Mycetophila fungorum*, *Synplasta rustica* (Yu et al., 2016).

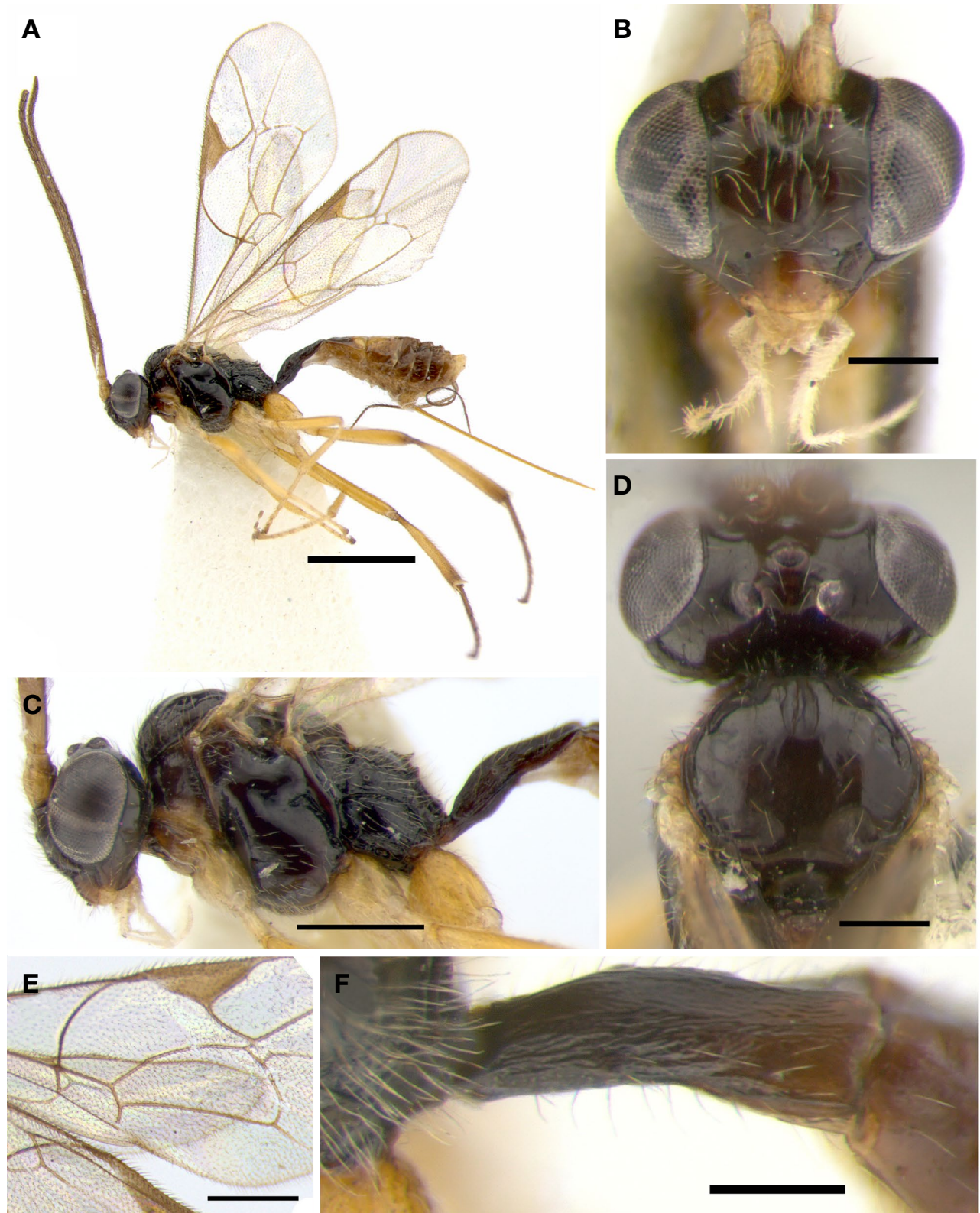


Fig. 3. *Plectiscidea collaris* (Gravenhorst, 1829). A, Habitus in lateral view (female); B, Head in frontal view; C, Head and mesosoma in lateral view; D, Head and mesoscutum in dorsal view; E, Fore wing; F, First tergite. Scale bars: A=1 mm, B, D, F=0.2 mm, C, E=0.5 mm.

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CONFLICTS OF INTEREST

No potential conflict of interest relevant to this article was reported.

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