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A systematic study of the tribe Platylabini (Hymenoptera: Ichneumonidae: Ichneumoninae) from Japan
(日本産 Platylabini 族（膜翅目ヒメバチ科ヒメバチ亜科）の体系学的研究)

北海道大学　大学院農学院
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A systematic study of the tribe Platylabini (Hymenoptera: Ichneumonidae: Ichneumoninae) from Japan

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Abstract

The Japanese species of the tribe Platylabini were revised. So far, five genera and 14 species were recorded from Japan. In the present study, 53 species within 16 genera of the tribe were recognized. The following genera were newly recoded from Japan: *Apaeleticus* Wesmael, 1845, *Clypeolabus* Heinrich, 1974, *Cratolaboides* Tereshkin, 2009, *Cratolabus* Heinrich, 1974, *Dentilabus* Heinrich, 1974, *Ectopius* Wesmael, 1859, *Heinrichiellus* Tereshkin, 2009, *Linycus* Cameron, 1903, *Notoplatylabus* Heinrich, 1936, and *Poecilostictus* Ratzeburg, 1852. The records of *Clypeolabus* and *Cratolabus* also represented new records from the Palearctic region of the genera. A new genus and species, *Metopilabus robustus* **gen. et sp. nov.** was described and its host, *Ditrigona virgo* (Butler, 1878) was recorded.

The generic definitions of each genus were revised. In this thesis, I treated following generic synonymies: *Pristicerops* Heinrich, 1961 **syn. rev.** as junior synonym of *Pristiceros* Gravenhorst, 1829; *Lamprojoppa* Cameron, 1901 **syn. rev.** as junior synonym of *Platylabus* Wesmael, 1845. The genus *Linycus* comprises a single species in Japan, and it resembles a Holarctic congener, *L. exhortator* (Fabricius, 1787) except for the coloration. The genus *Hypomecus* Wesmael, 1845 also comprises a single species. Japanese specimens were treated as a subspecies of *H. quadriannulatus* (Gravenhorst, 1829), *H. quadriannulatus tylus* Uchida, 1936 by Townes *et al*. (1965). I examined DNA barcodes (partial sequences of mitochondrial COI) and compute p-distances among *Linycus* and *Hypomecus*. Japanese specimens of *Linycus* differed from *L. exhortator* from Canada and United Kingdom by about 5% p-distances, thus in this study, I treated Japanese species of *Linycus* as a new species, *L. rugosobasalis* **sp. nov.** Japanese specimens of *Hypomecus* differed from *H. quadriannulatus* from Canada by about 1.5% p-distances, so I followed the treatment of Townes *et al*. (1965). Other species which are new to science and new to Japan in present study are as follows: *Apaeleticus japonicus* **sp. nov.**, *Asthenolabus delicatus* **sp. nov.**, *As. okiensis* **sp. nov.**, *Clypeolabus brevis* **sp. nov.**, *Cl. nigrus* **sp. nov.**, *Cl. matsumotoi* **sp. nov.**, *Cl. unicolor* **sp. nov.**, *Cl. watanabei* **sp. nov.**, *Cyclolabus kyushuensis* **sp. nov.**, *Cratolaboides palpalis* Tereshkin, 2009, *Cratolabus yamauchii* **sp. nov.**, *Dentilabus nigripodus* **sp. nov.**, *D. iyoensis* **sp. nov.**, *Ecopius nigricapitis* **sp. nov.**, *Heinrichiellus kusigematii* **sp. nov.**, *He. nambui* **sp. nov.**, *He. japonicus* **sp. nov.**, *Notoplatylabus podolicus conterranius* Tereshkin, 1993, *Poecilostictus cothurnatus* (Gravenhorst, 1829), *Pristiceros ferruginous* **sp. nov.**, *Pr. gloriosus* **sp. nov.**, *Pr. kusigematii* **sp. nov.**, *Pr. tricolor* **sp. nov.**, Pr. sp. A, B, E, H. The phylogenetic analyses using COI gene revealed

monophyly of Platylabini. The genus *Heinrichiellus* was not located within Platylabini clade in any analyses. The morphological characteristics also supported the exclusion of *Heinrichiellus* from Platylabini.

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Chapter I GENERAL INTRODUCTION

1. Subfamily Ichneumoninae Latreille, 1802

The family Ichneumonidae is the most species-rich family of Hymenoptera. Over 23,000 species within 38 subfamilies have been described (Quicke, 2014). Most of them are parasitoids on holometaborous insects, spiders, or other arthropods (Wahl, 1993). In their lifecycles, the parasitoids usually kill their hosts. Thus, the parasitoids play a critical role in terrestrial ecosystems. Not only in natural ecosystems, but also in regions of agriculture and forestry, the parasitoids which parasitize herbivorous insects are very important as natural enemies of many pest insects (Gauld, 1991).

The subfamily Ichneumoninae is one of the largest monophyletic subfamilies of Ichneumonidae, including 16 tribes, 424 genera, and over 4,300 described species (Bennett et al., 2019; Quicke, 2014; Yu et al., 2012). All of previous records indicate that they are solitary endoparasitoids of Lepidoptera (Yu et al., 2012). Thus, Ichneumoninae are one of the most important taxa for biological control of pests in agriculture and forestry. For example, Auberteterus alternecoloratus (Cushman, 1929) of the tribe Phaeogenini is known as a parasitoid of a notorious rice pest, Chilo suppressalis Walker. This species originally occurs in east Asia, and it was introduced to north America (Frank and McCoy, 1993) and Hawaii (Bartlett et al. 1978) as a biological control agent. Nevertheless, taxonomic study of this subfamily is very deficient. The main reason for delaying the study is confusion of higher classification in

the subfamily and difficulty of identification to tribes or genera. One of the greatest Ichneumonologist, Dr. Henry Townes published a series of monograph, "Genera of Ichneumonidae" (Townes, 1969; 1970a; 1970b; 1971). He revised and redefined all of genera of Ichneumonidae; actually, only except for the subfamily Ichneumoninae.

In Japan, Ichneumoninae is the most species rich subfamily of Ichneumonidae. Although 270 species have been recorded from Japan (Yu *et al*., 2012), only eight species (Momoi, 1965, 1970; Kusigemati, 1989; Kikuchi and Konishi, 2015a; b; 2016; 2018) have been recorded or described since Townes *et al*. (1965) catalogued Japanese Ichneumonidae. They are not only the importance for applied study as mentioned above, but also very interesting in ecological and evolutional study (e.g. Tschopp *et al*., 2013; Shaw *et al*., 2015). From these perspectives, establishment of the stable taxonomic system is necessary.

Ichneumoninae includes following 15 tribes (including Alomyini Foester as a tribe of Ichneumoninae, not as an independent subfamily):

Alomyini Foerster

Ceratojoppini Heinrich

Clypeodromini Tereshkin

Compsophoriini Heinrich

Eurylabini Heinrich

Goedartiini Townes

Heresiarchini Ashmaed

Ichneumonini Latreille

Ischnojoppini Heinrich

Joppocryptini Viereck

Listrodromini Förster

Oedicephalini Heinrich

Phaeogenini Förster

Platylabini Berthoumieu

Zimmeriini Heinrich

The monophyly of each of these tribes is quite doubtful. Quicke *et al*. (2009) included a comparatively large number of genera of Ichneumoninae and their phylogenetic analysis only supported the monophyly of Platylabini and Phaeogenini with some small exceptions. Bennett *et al*. (2019) also supported monophyly of Platylabini, Phaeogenini and Platylabini + Phaeogenini. But the results of Bennett *et al*. (2019) were derived from only two genera of each tribe that they included.

In this thesis, I focused on the systematics of Japanese Platylabini. All of the known hosts of the tribe are Lepidoptera, mainly family Geometridae (Yu *et al*., 2012) and they are all koinobiont endoparasitoids. This means that their host ranges are relatively narrow (Althoff, 2003). Host specific natural enemies are especially important in both pest control and ecology. So far, five genera and 14 species have seen recorded from Japan. Comparatively, this number is quite small. The number of species in the European and Oriental regions are 80 and 64, respectively. The Japanese archipelago is considerably long from north to south, with high mountainous areas of an altitude of over 3,000 m. The actual diversity of this tribe occurring in Japan is expected to be quite larger than our present knowledge.

2. Tribe Platylabini Berthoumieu, 1904

2-a. Classification

The tribe Platylabini was originally established by Berthoumieu (1904) and included eight genera: *Probolus* Wesmael, *Pyramidophorus* Tischbein, *Ryssolabus* Kriechbaumer, *Mischophorus* Kriechbaumer, *Eurylabus* Wesmael, *Platylabus* Wesmael, *Apaeleticus* Wesmael and *Ectopius* Wesmael. The most significant taxonomist on the subfamily Ichneumoninae, Dr. Gerd Heinrich revised this tribe in a series of studies (1934; 1935; 1962; 1967; 1974). He divided *Eurylabus* (and *Mischophorus*, which was synonymized under the name *Eurylabus*) into a tribe Eurylabini Heinrich, 1934. On the other hand, Dr. Henry Townes established Pristicerotini Townes & Townes, 1951. Pristicerotini including *Eurylabus* and *Coticheresiarches* Telenga in his study (Townes *et al*., 1961; Townes *et al*., 1965; Townes and Townes, 1973). Wahl and Mason (1995) treated Pristicerotini as a junior synonym of Platylabini, *Eurylabus* and *Coticheresiarches* were placed into Eurylabini and Zimmeriini Heinrich respectively. Riedel (2008) treated some species, which were formerly included in *Asthenolabus*, as *Platylabus*. Tereshkin (2009) revised the world genera of Platylabini, and provided a key to the genera of Platylabini. He treated some genera which were synonymized under other genera, such as *Lamprojoppa* Cameron (= *Platylabus* by Townes *et al*., 1961) and *Pristicerops* Heinrich (= *Pristiceros* by Townes *et al*., 1965), as valid genera. He also included *Heinrichiellus* Tereshkin in Platylabini. This genus was originally described as “vague tribal belonging” (Tereshkin, 1996). Riedel (2011) described a new genus, *Paraplatylabus* Riedel from Vietnam. A List of valid genera before this study is shown in Table 1.

In Japan, the taxonomic history of the tribe Platylabini preceding my study is as below.

Uchida (1926) described *Platylabus nigricornis* and *P. spiraculus* from Hokkaido, and *Platylabus hakonensis* [= *Pristiceros hakonensis* (Uchida, 1926)] from Honshu and Hachijo Island. This is the first record of this tribe.

Uchida (1930) described *Platylabus takeuchii* and *Platylabus semimarginalis* [= *Asthenolabus semimarginalis* (Uchida, 1930)] from Honshu.

Uchida (1932) described *Platylabus alboannulatus* and *Platylabus kosensis* [= *Pristiceros kosensis* (Uchida, 1932)] from Honshu.

Meyer (1933) recorded *Platylabus rufus* Wesmael, 1845 from Japan.

Uchida (1935) described *Platylabus wadai* [= *Asthenolabus wadai* (Uchida, 1935)] from Shikoku.

Uchida (1936) described *Hypomecus tylus* [= *Hypomecus quadriannulatus tylus* Uchida, 1936] from Kunashir Island and *Ectopius marginalis* [= *Cyclolabus marginalis* (Uchida, 1936)] from Iturup Island.

Uchida (1956a) described *Platylabus okui* from Amami Island.

Uchida (1956b) described *Ectopius convexus* [= *Cyclolabus convexus* (Uchida, 1956)] from Honshu.

Momoi (1965) recorded *Platylabus tenuicornis* (Gravenhorst, 1829) from Hokkaido.

2-b. Bionomics

Members of the subfamily Ichneumoninae are endoparasitoids, thus, the mothers oviposit into the bodies of their hosts. The subfamily includes both idiobionts and koinobionts. The former usually attack host pupae (called “pupal parasitoids”). The latter attack host larvae, usually fully grown, mature larvae or prepuapae of hosts and emerge from host pupae (“larval-pupal parasitoids”). *Alomya* of Alomyini (Hinz and

Short, 1983) and *Colpognathus* of Phaeogenini (Shaw and Bennett, 2001) are a few exceptions. They also oviposit into hosts larvae, and subsequently they mummify them. This host mummification is very unusual within the family Ichneumonidae, despite being the main strategy used by the subfamilies Aphidiinae and Rogadinae. These two genera also share similar morphological characteristics, but molecular evidence was shown that the similarity may be due to convergent evolution (Quicke *et al*., 2009). The host stages that they attack are related to female morphology. Hinz (1983) pointed out that amblypygous abdomen, meaning very short ovipositor and broad hypopygium, were usually found in species that attack mature larvae or prepupae, while oxypygous abdomen, having a more pronounced and slightly longer ovipositor and pointed hypopygium, were shared in species that oviposit directly into pupae. Platylabini, from the definition of the tribe, have an amblypygous abdomen. This implies that all members of the tribe are larval-pupal parasitoids. Most of host records are of the moth families Geometridae, some Drepanidae, and a few Sphingidae and Noctuidae (Yu *et al*., 2012). The host range of the tribe is probably diverse, some species having only host species, and others having several species within same family. One species, *Poecilostictus cothurnatus* (Gravenhorst, 1829) was recorded from pupae of Geometridae and Noctuidae. Most species of the subfamily lay their egg into the host haemocoel (e.g. Smith, 1932) and oviposit into the wall of the hind gut (van Veen, 1981), presumably as part of a mechanism to avoid encapsulation. This is probably one of the reasons for the rather wider host range of the species. The emergence methods of the tribe were recorded by Shaw *et al*. (2015) and most of the examined species showed variable cap-cutting, meaning circular cutting of the pupal cuticle like a cap. They pointed out that *Cyclolabus axillatorius* (Thunberg) used a remarkable strategy of

emergence, through subdorsally chewed holes. These differences in emergence strategies are probably related to host ranges.

2-c. Phylogeny

The family Ichneumonidae is presumed to be a definable monophyletic group (Sharkey and Wahl, 1992). The subfamily Ichneumoninae (including the subfamily Alomyini sensu Quicke *et al*., 2009) can be also defined as a monophyletic on the basis of phylogenetic analysis of morphological and molecular characters (Bennett *et al*., 2019; Quicke *et al*., 2009). The tribes Platylabini and Phaeogenini were presumed to sea monophyletic tribe. While other tribes have never been recovered as monophyletic.

Quicke *et al*. (2009) constructed a phylogenetic tree based on combined data of morphological characters and sequences of 28S rDNA. They included 1,001 species from 630 described genera, covering all extant subfamilies. The studied genera of Platylabini in Quicke *et al*. (2009) were *Afrectopius*, *Cyclolabus*, *Hypomecus*, *Linycus*, *Platylabus*, which they were found to be a monophyletic clade. One genus, *Probolus*, whisch is now placed in the tribe Ichneumonini, was also found within this clade. *Eurylabus* (Eurylabnini) and *Coticheresiarches* (Zimmeriini), the genera which were formerly included in Platylabini, were also included in the analysis, but not found to be closely related to the Platylabini in that study.

Bennett *et al*. (2019) analyzed subfamily relationships of Ichneumonidae by using 135 morphological and molecular sequence data (cytochrome oxidase I “DNA barcoding” region, the D2 region of 28S rDNA and part of the F2 copy of elongation factor 1-alpha) of 131 ichneumonid species. In the subfamily Ichneumoninae, genus *Alomya* was the sister group of all other Ichneumoninae. They pointed out that

Alomyinae Förster (= *Alomya* Panzer and *Megalomya* Uchida) was once again synonymized with Ichneumoninae and considered it own tribe. They included 2 species of Heresiarchini, 4 of Ichneumonini, 1 of Joppocryptini, 1 of Listrodromini, 3 of Phaeogenini and 2 of Platylabini in their analysis. Their focus was subfamily relationships, not relationships within Ichneumoninae, and their taxon sampling was not sufficient to consider the phylogenetic relationships within Ichneumoninae.

As mentioned above, phylogenetic relationships between tribes of Ichneumoninae are largely unsolved. Phylogenetic analysis has never been included far most, genera. Thus, the generic or tribal limits of Platylabini should be redefined through elucidation of their phylogeny.

3. Aims of the present study

The subfamily Ichneumoninae has an enormous diversity and it is the most species-rich subfamily in Japan. Despite the in importance and expected diversity, the actual diversity of the subfamily in Japan is still unclear. Over 6,000 species of Lepidoptera occur in Japan (Jinbo, 2011) and this subfamily is an important natural enemy of lepidopteran insects, but most of the hosts of Japanese species are unknown. Elucidation of parasitoid-host relationships is without doubt quite important and we need a stable taxonomic system for accumulation of the data.

Because this is the only subfamily of which Henry Townes did not publish a generic treatment, most of the generic or tribal definitions are uncertain. This fact is impeding construction of a classification system for this subfamily. Particularly in temperate areas of Asia, the elucidation of fauna is very low. Japanese fauna is

relatively well known compared to other Asian countries; but only 270 species were recorded from Japan despite 428 species having been recorded from United Kingdom (Yu *et al*., 2012). The specialist of this subfamily, Gerd Heinrich published many monographs on the group. But he had not included Japanese or any other East Asian fauna in his work. I found some of generic definitions, which only stand on the study of Oriental, Nearctic or Europe regions, are too strict. There are many species from Japan that cannot be placed in any established genera. But have intermediate diagnostic characteristics. The genera *Pristiceros* and *Pristicerops* are one such case. Heinrich divided them into two genera based on Nearctic and European species. Townes *et al*. (1965) synonymized them through studying Japanese species and some authors such as Tereshkin (2009) and Riedel (2017) still divide them, but several undescribed species found from Japan are likely to share intermediate combination of morphological characters. Furthermore, the number of undescribed species in Japan is higher than that of all described species of these two genera worldwide. Thus, revision of generic definitions is quite necessary for constructing a stable taxonomic system.

We need accumulate much more research in order to revise this enormous subfamily. To establish a stable taxonomic system of the subfamily Ichneumoninae occurring in Japan, here I focused on the tribe Platylabini and revise genera and species of Japanese Platylabini. Here I provided keys to genera and species. The relationships between genera and tribal positions of some genera were also investigated using phylogenetic methodologies.

Chapter II MATERIALS & METHODS

1. Specimens examined

Specimens examined in this study were deposited in following institute:

EUMJ: Ehime University Museum, Matsuyama, Ehime, Japan

KPMNH: Kanagawa Prefectural Museum of Natural History, Odawara, Kanagawa, Japan

MNHAH: Museum of Nature and Human Activities, Sanda, Hyogo, Japan

NIAES: National Institute for Agro-Environmental Sciences, Tsukuba, Ibaraki, Japan

NIBR: National Institute of Biological Resources, Incheon, Korea

NMNS: National Museum of Natural Sciences, Taichung, Taiwan

NTU: Department of Entomology, National Taiwan University, Taipei, Taiwan

OMNH: Osaka Museum of Natural History, Osaka, Japan

SEHU: Systematic Entomology, Hokkaido University, Sapporo, Japan

TARI: Insect Systematics Laboratory, Taiwan Agricultural Research Institute, Taichung, Taiwan

2. Nomenclatural treatments in this thesis

All nomenclatural treatments provided here are “not” valid on the International Code of Zoological Nomenclature (Art. 8.2, ICZN), because this is doctoral thesis.

3. Terminology and measurements

Morphological nomenclature in this work follows that of Townes (1969) and Sime and Wahl (2002). Terminology for male genitalia follows that of Snodgrass (1941), and microsculpture descriptions follow Eady (1968). Gauld (1991) is referred to for wing venation, and 1/M, 2/M, 3/M refer to the meaning abscissa of vein M (Pl. 4). In addition, some newly used term as follows; "**parathyridium**" for thyridium-like structures on tergites corresponding to the term "lunula" by Tereshkin (2009) and term "pseudothyridium" by Bennett *et al*. (2019); "**lateral lobe**" for lateral parts of metasomal sternites, that are separated by creases (Pl. 4-C-17). The following abbreviations are used in description;

OOL: ocello-ocular line, minimum distance between ocellus and eye margin (PL. 1a);

POL: postero-ocellar line, minimum distance between posterior ocelli (Pl. 1-b);

HL: length of head in dorsal view (Pl. 1-c);

HW: width of head in dorsal view (Pl. 1-d);

OW: width of occiput in dorsal view (Pl. 1-e);

BMW: basal mandibular width;

MBL: length of mandible;

MSL: length of malar space, the minimum distance from eye to mandibular base;

SCH: height of supra-clypeal area, measured by distance of lines between lower margins of each antennal sockets and between upper margin of each anterior tentorial pits in frontal view (Pl. 2-a);

SCW: width of supra-clypeal area, measured by minimum distance of each eyes in frontal view;

CLH: height of clypeus, measured from upper groove between supra-clypeal area and clypeus, to apical margin of clypeus (Pl. 1-j);

CLW: width of clypeus (Pl. 1-i);

MP: segment of maxillary palpus;

FL: segment of flagellum;

MSSL: length of mesoscutum, measured in profile (Pl. 2-a);

MSSW: width of mesoscutum, measured in dorsal view (Pl. 2-b);

ARL: length of areola (Pl. 2-d);

ARW: width of areola (Pl. 2-c);

PSD: dorsal distance of propodeal spiracles;

PSI: propodeal spiracle index, [length of propodeal spiracle] / [width of propodeal spiracle];

TS: tarsal segment (tarsomere);

T: metasomal tergite;

S: metasomal sternites;

THI: thyridial index, [width of inter-thyridial interval] / [width of thyridium]

Terms and measurements are shown in Plates 1–4. Following symbols were also used; "*" was for new record, "//" was for substitute of indention in original labels.

4. Morphological observations and figures

4-a. Observations and photography

I used a stereomicroscope (Nikon SMZ800) for observations of external morphology. A light microscope (Nikon E800) was used for observations and illustration of male genitalia. Photographs were taken at SEHU, using Olympus "OMD E-M10 Mk II" and Panasonic "LUMIX DMC-G8". A macrophotograph lens, Olympus "M.ZUIKO DIGITAL ED 60mm F2.8" Macro was used for photographing whole body habitus and wings. Partial closeup photographs were taken using Fujifilm "FUJINON EX 50/2.8 "lens and ZHONG YI OPTICS "FREEWALKER 20mm F2 SUPER MACRO 4-4.5:1" attached to Nikon Bellows PB-5. Multi-focus images were produced with image stacking software, Zerene Stacker (Zerene Systems, LLC, Richland, WA, USA). Photographs were retouched on Adobe Photoshop CS4. All photographs and drawings were prepared for plates with Adobe Illustrator CS4.

4-b. Dissection of metasomal sternites and male genitalia

Metasomal sternites and male genitalia were observed after chemical treatment and removal of muscles. For some specimens used for molecular analysis, I removed the metasoma from the body, and then used the whole metasoma instead of mid leg s for DNA extraction using proteinase K, (detail for section 4 in this chapter). After one to three days of treatment in proteinase K, I removed sternites and genitalia from metasoma by precision tweezers. In other specimens, specimens were first relaxed in boiled water. After specimens were sufficiently, I removed sternites and genitalia by precision tweezers. The sternites and genitalia were immersed 10% KOH solution for about 15 minutes. In both cases, remaining muscles were removed in 80% EtOH. The sterites and genitalia were observed in either α-terpineol or 80% EtOH and later

preserved in a glycerin tube (Polyethylene Genitalia Vials #1133C: BioQuip Products Inc.), or a micro slide glass (Maruyama, 2004), pinned with the specimen's body.

5. Molecular protocols

5-a. DNA extraction.

DNA were extracted from specimens preserved in ethanol (80% or 99%) or pinned dry specimens which were collected after 2010. A single mid-leg or whole metasoma was used for extraction. I pinned labels of serial numbers starting with "NKHU" with each specimen. I used standard protocols outlined in Cica Geneus® Total DNA Prep kit (for Tissue) (Kanto Chemical Co., Inc., Tokyo, Japan) except for the time of incubation in 1.5 ml tube of 200 μL Buffer CL and 20 μL proteinase at 56 °C and the volume of Buffer AE at final extraction was changed from 200 μL to 50 μL. I incubated them for one (about 24 hours) and three days for ethanol preserved specimens and dried specimens, respectively. When I used a metasoma for extraction it was picked and dissected after the first spin-down. Extracted DNA were stored in -20 °C freezer.

5-b. PCR protocol and sequencing.

I amplified DNA fragments for species identification by DNA barcoding and molecular phylogenetics. Universal primer set of Folmer *et al*. (1994), LCO1490 (5'-GGT CAA CAA ATC ATA AAG ATA TTG G -3') and HCO2198 (5'- TAA ACTT CAG GGT GAC CAA AAA ATC A -3') were used to amplify about 650 bp fragments of partial mitochondrial cytochrome c oxidase subunit I (COI).

Polymerase chain reaction (PCR) ampifications (20 μL) were performed in a thermal cycler, BioRad T100™. The reaction cycle was 94 °C for 1 min followed by forty cycles of 94 °C for 30 sec, 45 °C for 30 sec, and 68 °C for 60 sec, and after forty cycles, 68 °C for 10 min. The amplified products were purified, and then sequenced using a Sanger sequencer, Beckman Coulter CEQ2000XL.

6. Phylogenetics

To test the monophyly of the tribe Platylabini, I constructed a phylogenetic tree. I performed Maximum Likelihood (ML) method from partial sequence of COI gene. Including sequences from GenBank, I analyzed relationships of 56 species within 45 genera and 8 tribes. All sequences were aligned using ClustalW (Higgins *et al*., 1994) in MEGAX (Kumar *et al*. 2018). The number of aligned bases was 575. For ML method, Partitioning and nucleotide substitution models for each partition were obtained using PartitionFinder2 (Lanfear *et al*., 2016). The phylogenetic tree was constructed and tested using IQ-TREE (Nguyen *et al*., 2015). See more details in chapter IV.

Chapter III TAXONOMY

1. Introduction

So far, as shown in chapter I, 15 species in five genera of Platylabini have been recorded from Japan (Yu *et al*., 2012). However, I recognized over 50 species of the tribe in Japan. Most of them were undescribed, including a new genus and new records of genera from Japan. Only one species, *Platylabus tenuicornis* (Gravenhorst) had been recorded with its host (Momoi, 1965) and I also found some specimens with host records.

Here, I revise all genera and species of the tribe Platylabini occurring in Japan including morphological descriptions and diagnoses, host records and taxonomic remarks. Synonymies of some genera are also revised. In addition, I compare DNA barcodes to investigate genetic distances between Japanese and continental specimens. Keys to Japanese tribes of Ichneumoninae, genera of Platylabini, and species within each genus are provided for practical identification.

2. Revision of Japanese Platylabini

Family **Ichneumonidae Latreille, 1802**

Subamily **Ichneumoninae Latreille, 1802**

This subfamily comprises small to large sized wasps. Diagnostic characteristics are as following (modified from Wahl & Sharkey, 1993): head in frontal view usually rectangular (in **Cryptini** *sensu lato* usually triangular); clypeus moderately to extremely wide, always transverse; sternaulus of mesopleuron usually short or absent, very rarely reaching mid coxa; postpectal carina incomplete; fore wing always with closed areolet; metasomal segment 1 slender anteriorly, widened posteriorly, without glymma, and with spiracle near apex; metasoma dorsoventrally depressed; ovipositor short, without dorsal subapical notch and with sheath rigid.

There are 15 tribes in this subfamily, 10 of them occuring in Japan. A key to tribes recorded from Japan is following:

Key to tribes of Ichneumoninae from Japan.

1. Clypeus flat and very wide. Lower ends of occiput touching each other in female. Mandible long and stout, lower tooth longer than upper tooth. Propodeal spiracle rounded, nearly circular. Most of propodeal carinae reduced. Areolet of fore wing apically broadly truncate, vein 2m-cu interception clearly apicad midpoint of posterior margin (vein 2/M much longer than vein 3/M). Spiracle of metasomal segment 1 situated on middle. Body size medium to rather large. … **Alomyini** Foerster

-. Clypeus various. Lower ends of occiput never touching each other. Lower tooth of mandible usually shorter than upper tooth, or some× absent. Spiracle of metasomal segment 1 situated apically. … 2

2(1). Spiracles of propodeum small and circular. Body size rather small. … 3

-. Spiracles of propodeum somewhat elongate, shape rounded oval to slit. … 4

3(2). Mandible and female flagellum usually slender. Scutellum laterally carinate up to apex, convex, elevated above postscutellum. Petiole flattened, usually wider than height at middle. Female abdomen always amblypygous. … part of **Platylabini** Berthoumieu

-. Mandible often rather strong. Flagellum of female short, usually shorter than fore wing. Scutellum not completely carinate, usually flat. Petiole usually as high as width at middle. Female abdomen very rarely amblypygous, usually oxypygous … **Phaeogenini** Förster

4(2). Petiole flattened, distinctly wider than height at middle (only one exception for *Hypomecus* Gravenhorst, petiole higher than width, then clypeus strongly convex, mandible slender, scutellum highly elevated with posterior vertical shagreen surface). Female abdomen always amblypygous. … 5

-. Petiole as high as or higher than width at middle. Female abdomen various. … 6

5(4). Clypeus strongly to weakly convex, rather small. Apical margin without tooth like projection. Ovipositor usually straight, or rarely curved upward. … most of **Platylabini**

-. Head large, mandible rather stout. Clypeus wide and flat, apical margin with median tooth like projection. Ovipositor curved downward. … **Eurylabini** Heinrich

6(4). Clypeus and supra-clypeal area not separated, forming single slightly convex surface. Mandible wide and stout, with two teeth almost the same length. … 7

-. Clypeus and supra-clypeal area separated by weak groove (when separation very weak, then mandible rather slender and lower tooth much shorter than upper tooth). … 8

7(6). Areolet clearly pentagonal (apically truncate broadly). Metasoma shape oval. Female flagellum never clearly flattened and widened beyond middle. … **Listrodromini** Förster

-. Areolet apically truncate narrowly, nearly quadrangular. Metasoma elongate, T2 much longer than width. Female flagellum clearly flattened and widened beyond middle. … **Ischnojoppini** Heinrich

8(6). Propodeum in profile convex or sloping from base of areola, without distinguishable dorsal and postero-dorsal faces which meet at an angle; apex of second lateral area elongate downward. … **Heresiarchini** Ashmaed

-. Propodeum usually without distinguishable dorsal and postero-dorsal faces which meet at an angle. … 9

9(8). Mandible stout. Surface of scutellum with highly elevated median field **and** areolet quadrangular, anteriorly pointed and female abdomen amblypygous. … **Goedartiini** Townes

-. Not exactly as above. … 10

10(9). Mandible sickle shaped, and apical margin of clypeus thin and ovipositor sheath protruding from metasomal apex comparatively longer. … **Joppocryptini** Viereck

-. Not exactly as above. … 11

11. Antennal cavity absent. Clypeus rather small, strongly convex. Sternaulus developed, reaching middle of mesopleuron. Propodeum with strong apophysis on apex of second lateral area. Areolet clearly pentagonal (apically truncate broadly). Female abdomen amblypygous. … ***Heinrichiellus*** Tereshkin (**Platylabini**)

-. Antennal cavity present. Sternaulus usually not developed or slightly present. …

Ichneumonini Latreille

Tribe Platylabini Berthoumieu, 1904

Diagnosis. This tribe can be distinguished from other tribes by combination of flattened and widened petiole, weakly to strongly convex clypeus, slender mandible, and always amblypygous female abdomen. Most of genera that I examined share other character states, such as reduction of spine on tarsomere 4, and fusion of lateral lobe and median lobe on metasomal sternite 5. *Hypomecus*, the genus with a high and narrow petiole, also has both of these character states. An enigmatic genus, *Heinrichiellus*, without flattened petiole, does not share both. This genus can be distinguished from other tribe or even genera easily by key shown above.

Distributions. Worldwide (excluding the polar regions).

Remarks. Phylogenetic analysis of COI gene did not recover *Heinrichiellus* within Platylabini (see chapter IV), but it is hard to say where they should be placed. I assume that it is not a member of Platylabini, but here I placed this genus in Platylabini provisionarily. After revision of generic concepts, *Lamprojoppa* Cameron **syn. rev.** and *Pristicerops* Heinrich **syn. rev.** were treated as junior synonyms of *Platylabus* Wesmael and *Pristiceros* Gravenhorst. For details, see the section on each genus. I have recognized 16 genera from Japan, which can be distinguished from each other as shown in the following key.

Key to genera of Platylabini (incl. *Heinrichiellus*) occurred in Japan

1. Antennal cavity absent (frons not concave above each antennal socket) (Pl. 5-A). Clypeus distinctly convex. Antenna slender, not flattened in both sexes. Propodeum with sharp apophysis. Costula present, areola usually pentagonal (Pl. 5-C). Gastrocoelus slightly impressed, in form of longitudinal groove. Thyridium oval or absent. … ***Heinrichiellus*** Tereshkin

-. Antennal cavity present (frons concave above each antennal socket) (Pl. 5-B). … 2

2(1). Costula weakly present or absent. Petiole not flattened, higher than width (Pl. 5-D, E). Scutellum highly elevated, with shagreen posterior vertical surface (Pl. 5-H). Metasoma elongate, slender (Pl. 5-I). Thyridium distinct, wider than the interval. ... ***Hypomecus*** Wesmael

-. Petiole flattened, wider than height (Pl. 5-F, G). Scutellum without shagreen posterior vertical surface. … 3

3(2). Second segment of maxillary palpus bulged, barreled or semicircular (Pl. 5-H). Hind tarsomere 1 weakly curved ventrally (Pl. 5-J).… 4

-. Second segment of maxillary palpus normal, almost triangular and flat (Pl. 5-I). Hind tarsomere 1 straight (Pl. 5-K). … 5

4(3). Propodeal spiracle short, rounded. Areola elongate, costula reduced (Pl. 6-A). … ***Cratolaboides*** Tereshkin.

-. Propodeal spiracle elongate. Areola not elongate, almost square, costula present (Pl. 6-B). … ***Cratolabus*** Heinrich

5(3). Clypeus with arcuate apical margin, without angled corner (Pl. 6-E, F). Occipital carina often incomplete, fading out above base of mandible (Pl. 6-G). … 6

-. Clypeus with straight apical margin and lateral angled corner. … 7

6(5). Antennal cavity normal (Pl. 6-C). Clypeus very densely granulate (Pl. 6-E). Mandible rather stout. Gastrocoelus shallow, thyridium weakly developed. Female hypopygium without tuft of long setae. Tip of ovipositor sheath curved upward (Pl. 6-H). … ***Poecilostictus*** Ratzeburg

-. Polished area of antennal cavity rather short (Pl. 6-D). Clypeus densely punctate (Pl. 6-F). Gastrocoelus and thyridium various, usually developed. Hypostomal carina widened near mandibular base (Pl. 6-G). Female hypopygium with a tuft of long apicad setae on apex. Tip of ovipositor sheath straight (Pl. 6-I). … ***Clypeolabus*** Heinrich.

7(5). Propodeal spiracle small, short (<2.0× as long as wide), or almost circular. 8

-. Propodeal spiracle larger, elongate (>2.0× as long as wide). 13

8(7). Transverse furrow of pronotum medially interrupted by median projection. Surface of scutellum punctate. Metasomal T6–8 retracted below T5 and not visible, T5 with long setae on apical margin. Ovipositor sheath dorso-ventraly flattened and curved upward (Pl. 6-J). … ***Apaeleticus*** Wesmael

-. Surface of scutellum punctate or roughly rugose. Ovipositor sheath normal or dorso-ventraly flattened, straight. … 9

9(8). Transverse furrow of pronotum medially interrupted by median projection (Pl. 6-K). Pronotal base with sharp, angular prominence (Pl. 6-L) Surface of scutellum roughly rugose (Pl. 6-M). Ovipositor sheath dorso-ventraly flattened, straight. … ***Notoplatylabus*** Heinrich

-. Pronotal base without sharp, angular prominence. Scutellum punctate. … 10

10(9). Propodeum shorter. Gastrocoelus shallow, ambiguous and with strong rugae (Pl. 6-N), or in form of a longitudinal groove (Pl. 6-O). … 11

-. Gastrocoelus and thyridium regularly developed. … 12

11(10). Gastrocoelus shallow, ambiguous. T2 base including area of gastrocoelus roughly rugose (Pl. 6-N). … ***Linycus*** Cameron.

-. Propodeum slanted in profile, almost triangular (Pl. 6-P). Gastrocoelus in form of a longitudinal groove (Pl. 6-O). … ***Ectopius*** Wesmael.

12(10). Supra-clypeal area convex and protruding anteriorly (Pl. 7-A). Surface of supra-clypeal area dull and covered with microsculpture (Pl. 7-B). In dorsal view, gena convex, evenly receding or bulged behind eye. Areola short, costula usually developed, running anteriorly from areola (Pl. 7-C). … ***Cyclolabus*** Heinrich

-. Supra-clypeal area flat. Surface of supra-clypeal area somewhat polished, shining. In dorsal view, gena narrowed to convex. Areola usually longer, costula absent. … smaller species of ***Platylabus*** Wesmael

13(7). Costula (often very weakly) developed. … 14

-. Costula not developed. … 15

14(13). Male flagellum normal (Pl. 7-D). Propodeum with distinct tooth. Interval between thyridia short (Pl. 7-E). … ***Dentilabus*** Heinrich.

-. Male flagellum slightly to distinctly serrated (Pl. 7-F). Propodeum with indistinct, small tooth or without tooth. … ***Pristiceros*** Gravenhorst (*sensu* Townes).

15(13). Gastrocoelus shallow, ambiguous. Thyridium narrow. Interval between thyridia wider than its width (Pl. 7-G). … ***Asthenolabus*** Heinrich.

-. Gastrocoelus deep, distinct. Thyridium very wide, interval between thyridia very narrow (Pl. 7-H). … 16

17(16). Flagellum slender (Pl. 7-I). Mesoscutum regularly convex (Pl. 7-J). … ***Platylabus*** Wesmael

-. Flagellum stout (Pl. 7-K). Mesoscutum flattened (Pl. 7-L). … ***Metopilabus*** **gen. nov.**

Genus *Apaeleticus* Wesmael, 1845

Apaeleticus Wesmael, 1845: 238 [Type species: *Apaeleticus bellicosus* Wesmael, 1845; designated by Ashmead, 1900.]; Heinrich, 1962: 791–792; Heinrich, 1977: 282; Tereshkin, 2009: 1438–149.

Description based on Japanese species.

Head. Gena narrowed behind eye in dorsal view (Pl. 8-C); ocellar triangle weakly elevated above eyes. Antennal cavity of supra-antennal area expressed and polished; polished area of antennal cavity comparatively small; internal margins of compound eyes parallel (Pl. 8-A); supra-antennal area without tubercle between antennal sockets; antennal sockets large, protruding anteriorly in dorsal view; supra-clypeal area weakly convex (Pl. 8-A, C); clypeus moderately convex, transverse, with straight apical margin, clearly divided from supra-clypeal area by furrow; anterior tentorial pits moderate, longish oval; labrum with straight apical margin, slightly protruding from under clypeus. Mandible rather slender with small lower tooth. Malar space longer than mandibular base. Occipital carina complete; dorsomedian part of occipital carina evenly arched (Pl. 8-C); hypostomal carina normal, meeting with occipital carina above mandibular base. Maxillary palpus long, 2nd segment flat, not bulging.

Antenna. Flagella bristle-shaped, rather stout, not flattened.

Mesosoma. Collar of pronotum short, transverse furrow of pronotum interrupted by keel. Pronotal base without angular prominence (Pl. 8-B). Mesonotum moderately convex, notauli rather sharply developed on apical 1/3 (Pl. 8-B). Prepectal carina complete; subalar ridge rather thin; sternaulus distinct, reaching middle of mesopleuron; postpectal carina absent. Scutellum highly elevated, dorsal surface rather strongly convex (Pl. 8-B) Hind margin of metanotum with a triangle projection on each side of postscutellum. Propodeum with costula; juxtacoxal carina and pleural carina complete; areola almost as long as wide, hexagonal, anterior margin truncate (Pl. 8-C); apex of second lateral area with very short distinct tooth (Pl. 8-B, C). Prpodeum with distinguishable dorsal and postero-dorsal faces in profile. Propodeal spiracle small, cicular.

Legs. Rather stout and long. Fore and mid tarsomeres 2–5 weakly flattened, widened to apex, and with fine short hairs; spines on tarsomeres 2–4 normal (Pl. 64-A).

Wings. Areolet pentagonal; single bulla on 1m-cu and 3rs-m, two bullae on 2m-cu; ramulus slightly developed. Hind wing with vein cu-a.

Metasoma. Amblypygous**.** Petiole in profile straight, flattened, wider than deep, bending before base of postpetiole (Pl. 8-A); in dorsal view, basal half almost parallel sided; with lateral projection near base; dorsomedian carina absent; dorsolateral carina complete; postpetiole without distinct median field. Gastrocoelus rather shallow, quadangular; thyridium clearly developed and wide. Parathyridium rather small, distinct. T6–7 quite shortened, almost invisible (Pl. 6-J); apical margin of T5–7 with long setae (Pl. 6-J); Hypopygium with apical margin truncate; ovipositor sheath dorsoventrally flattened; ovipositor sheath and ovipositor strongly curved upward. S2–4 laterally

sclerotized and middle part weakly sclerotized, S5 entirely sclerotized. S2–4 with lateral lobe, S5 without lateral lobe.

Diagnosis. This genus can be distinguished from other genera of the tribe Platylabini by a combination of the following characteristics: flagellum rather stout; transverse furrow of pronotum interrupted by keel; sternaulus distinct, reaching middle of mesopleuron; ovipositor sheath and ovipositor strongly curved upward.

Distributions. Japan (1 sp.); Palearctic (9 spp.) and Nearctic (1 sp.) regions.

Remarks. This genus resembles species of *Notoplatylabus* but can be distinguished by shape of antennae and ovipositor. Only these genera share the keel on pronotal furrow, and the development of sternaulus is also a point in common between two genera.

***Apaeleticus japonicus* sp. nov.**

Pl. 6-J, 8, 65-A.

Type series. Holotype, ♀, **JAPAN**: 34°03’ N, 139°29’ E, Ako, Miyakejima Is., Izu Islands, Tôkyô, 7–30. VII. 2008, Hiroshi Makihara (EUMJ). Data on the label: “34°03’ N 139°29’ E // Ako, Miyake-jima Island, // Izu Islands,Tokyo, // JAPAN, 7–30. vii. 2008, // MT, H. Makihara”.

Paratypes, JAPAN: [Izu Islands] Same data as HT, 2♀♀. **[Shikoku]** Ôkawara, Sanagouchi-son, Tokushima Pref., 20. V. – 3. VI. 2017, MT, K. Ôhara (EUMJ). **[Yakushima Is.]** Kosugidani, Kagoshima Pref., 14. VII. 1979, M. Kotani (SEHU).

Female. Body length 5.5–6.0 (HT: 6.0) mm.

Coloration. Body ground color black and covered with short white setae. Flagellum with white semiannulus on flagellomeres 7–11. Legs reddish brown. Wing veins light brown. Metasomal T1, apical margin of T2–3 reddish brown.

Head (Pl. 8-A–C)**.** Surface of vertex and gena polished and strongly punctate; supra-antennal area and supra-clypeal area strongly punctate, and partially, transversely striate punctate; clypeus strongly punctate. HW/HL = 2.0–2.1 (HT: 2.1); OW/HW = 0.6; OOL/POL = 0.7. SCW/SCH = 2.2–2.3 (HT: 2.3); CLW/CLH = 2.5–2.6 (HT: 2.6). MBL/BMW = 1.5; MSL/BMW = 1.4–1.6 (HT: 1.4). MP5/BMW = 2.0–2.4 (HT: 2.1).

Antenna. Flagellum about 5.0 mm long; with 33 flagellomeres; apical flagellomere conical; FL1 2.6–2.7 (HT: 2.6) × as long as apical width and 1..1–1.2 (HT: 1.1) × as long as FL2.

Mesosoma (Pl. 8-B, C)**.** Surface of pronotum, upper half punctate, lower part polished and sparsely rugose transversely; mesoscutum polished and strongly punctate; dorsal surface of scutellum rather sparsely and weakly punctate; postscutellum polished, with sparse longitudinal rugae; mesopleuron and metapleuron very densely punctate and reticulate rugose except around mesopleural fovea polished; surface of 1st lateral area of propodeum punctate; 2nd lateral area, areola and pleural area rugose; petiolar area transeversely rugose. MSSL/MSSW = 0.9–1.0 (HT: 0.9); ARL/ARW = 0.9–1.0 (HT: 1.0); ARW/PSD = 0.4; PSI = 1.0–1.2 (HT: 1.0).

Legs. Surface of legs coriaceous, except coxae finely punctate. Hind tibia 0.4 × as long as fore wing.

Wings. Fore wing 4.0–4.5 (HT: 4.5) mm long; areolet 1.2 × as long as 3rs-m, 0.5–0.6 × as high as 2m-cu; 1/M:2/M = 1.0:1.0 Cu-a opposite Rs&M; Hind wing with cu-a 0.4 × as long as first abscissa of Cu1; 1 basal hamulus, 7 distal hamuli on R1 vein.

Metasoma. Surface of petiole including lateral area polished; postpetiole evenly punctate; metasomal tergites polished, T2–3 with dense and strong punctures.

Postpetiole slightly widened posteriorly. T1 L/W = 2.0–2.2 (HT: 2.1); T2 L/W = 1.0. THI = 1.0–1.3 (HT: 1.3).

Male. unknown

Diagnosis: This species can be easily distinguished from other species of the genus by combination of alomost completely black head and metasoma, rather strongly convex scutellum, and postpetiole without median field.

Distribution: Miyakejima Is., Shikoku, Yakushima Is.

Etymology: The name comes from Japan.

Remarks: This species represent the first record of the genus from Japan.

Genus *Asthenolabus* Heinrich, 1935

Sthenolabus Heinrich, 1935: 197 [Type species: *Platylabus latiscapus* Thomson, 1894; original designation.]; preoccupied by Schulthess-Rechberg, 1910

Asthenolabus Heinrich, 1951: 240, new name for *Stenolabus* Heinrich, 1935; Heinrich 1962: 772; Townes *et al*., 1965: 514, 600; Heinrich 1974: 169–170; Tereshkin, 2009: 1477–1478.

Description based on Japanese species.

Head. Gena moderately convex, evenly receding behind eye or moderately narrowed behind eye in dorsal view (Pls. 10-B, 11-A, 12-B); ocellar triangle weakly elevated above eyes. Antennal cavity of supra-antennal area expressed and polished; polished area of antennal cavity normal; internal margins of compound eyes parallel (Pls. 9-B, 10-A, 11-B, 12-A); supra-antennal area with small and distinct tubercle between antennal sockets; antennal sockets large, protruding anteriorly in dorsal view; clypeus moderately convex, transverse, with straight apical margin, clearly divided from

supra-clypeal area by furrow; anterior tentorial pits moderate to small, longish oval or slit shaped; labrum with straight apical margin, protruding from under clypeus. Mandible slender, narrowed to apex, with small lower tooth. Malar space almost as long as mandible base. Occipital carina complete; dorsomedian part of occipital carina weakly arched (Pls. 10-B, 11-A, 12-B); hypostomal carina normal, meeting with occipital carina. Maxillary palpus long, 2nd segment almost triangular, flat and not bulging.

Antenna. Flagella bristle-shaped, very long and slender, not flattened. Male antenna without tyloid.

Mesosoma. Collar of pronotum short, transverse furrow of pronotum not interrupted by keel. Pronotal base without angular prominence, slightly to moderately curved near lower edge (Pls. 9-C, 10-D, 11-C, 12-D). Mesonotum strongly convex, notauli weak, often developed apical 1/4–1/3. Prepectal carina complete; subalar ridge thin; sternaulus indistinct, not developed; postpectal carina absent. Scutellum highly elevated, dorsal surface slightly to strongly convex, with lateral carinae. Hind margin of metanotum with a triangle projection on each side of postscutellum. Propodeum without costula; juxtacoxal carina incomplete; areola quadrangular, anterior margin truncate (Pls. 9-D, 10-C, 11-D, 12-C); apex of second lateral area without distinct tooth (Pls. 9-C, 10-D, 11-C, 12-D). Propodeal spiracle middle to large size, much longer than wide.

Legs. Slender and long. Fore and mid tarsomeres 2–5 weakly flattened, widened to apex, and with fine short hairs; spines on tarsomeres 2–4 rather short, reduced.

Wings. Areolet quadrangular to narrow pentagonal; single bulla on 1m-cu and 3rs-m, two bullae on 2m-cu; ramulus slightly developed or absent. Hind wing with vein cu-a.

Metasoma. Amblypygous**.** Petiole in profile straight, flattened, clearly wider than deep, bending at base of postpetiole; the bend comparatively weak (Pls. 9-A, 10-F, 11-C, 12-F); in dorsal view, basal half parallel sided; dorsolateral carina entirely indistinct; postpetiole without distinct median field. Gastrocoelus shallow and narrow, oblique to body axis; thyridium clearly developed, the width clearly narrower than inter-thyridial interval (Pls. 9-E, 10-E, 11-D, 12-E). Parathyridium small, distinct. Hypopygium with apical margin protruding; ovipositor sheath narrowed from base to apex with roundly pointed apex, or almost parallel sided with rounded apex, and moderately protruding behind apex of metasoma. Sternites 2–4 laterally sclerotized and middle part weakly sclerotized, sternite 5 entirely sclerotized; S2–4 with lateral lobe, completely separated by crease or on S3–4 apically fused, and S5 without lateral lobe (fused).

Diagnosis. This genus can be distinguished from other genera of the tribe Platylabini by a combination of the following characteristics: costula absent; propodeum without distinct tooth; thyridium distinctly developed, very narrow and inter-thryidial interval much wider than thrydium.

Distributions. Japan (4 spp.); Palearctic (7 spp.), Nearctic (3 spp.), Oriental (4 spp.) regions.

Remarks. In this study, I followed the point of view by Riedel (2006); in that study, he revised generic definition of the genus *Asthenolabus*. Several species were transferred to *Platylabus*. Only species with distinctively shallow gastrocoelus were trerated as *Asthenolabus*, and here too. In the absence of costula and tooth on propodeum, this genus resembles the genus *Platylabus* and *Clypeolabus*, but easy to be distinguished from them by the morphology of gastrocoelus (*Platylabus*) and head (*Clypeolabus*).

***Asthenolabus semimarginalis* (Uchida, 1930)**

Pls. 7-G, 9

Platylabus semimarginalis Uchida, 1930: 98.

Asthenonlabus semimariginalis: Townes, Momoi & Townes, 1965: 514.

Type series. Holotype, Japan. ♀, Minoh City, Osaka Pref., Honshû, 9. VII. 1929, C. Teranishi (SEHU). Data on the label: “Japan, C. Teranishi”, "Minoo, 9/VII 1929".

Other materials examined: Japan: [Hokkaidô] 1♀, Brooklet near Noborikawa-tunnel, Yubari, 23. VII. – 5. VIII. 2007, MT, N. Kuhara (EUMJ); 1♀, Mt. Soranumadake, Sapporo City, 30. VIII. 1967, K. Kusigemati (SEHU); 1♀3♂♂, Jôzankei, Sapporo City, 20–31. VII. 1989, MT, M. Sharkey and K. Maetô (NIAES). **[Honshû]** Aomori Pref.: Ôkawa, Nishimeya vil., 1♂ (25. VII – 6. VIII. 2013), 1♂ (6–14. VIII. 2013), MT, T. Nakmura (EUMJ). Fukushima Pref.: Mt. Asakusatake, Tadami Town, 1♀ (13. VI – 11. VII. 2018), 1♂ (25. VI – 11. VII. 2018), MT, T. Ishikawa, Y. Nakano and H. Makihara (EUMJ). Hiroshima Pref.: 1♀, Mt. Kakezuyama, Geihoku Town, Hiroshima Pref., 17. VII. 1998, Rikio Matsumoto (OMNH). **[Shikoku]** Ehime Pref.: Namakusadani, Mt. Odamiyama, 1♂ (14. VII. 1998), 2♂♂ (15. IX. 1998), 1♀ (10. X. 1998), 1♂ (16. VII. 2000), 1♂ (24. IX. 2000), E. Yamamoto (EUMJ).

Female. Body length 8.0–10.0 (HT: 9.5) mm.

Coloration. Body ground color black and covered with short white setae. Supra-clypeal area often with a pair of short white line along eye margin (HT: absent. Lateral part of gena with or without short and narrow white line along eye (HT: absent). Flagellum with white semiannulus on flagellomeres 8–12 in female. Posterior 1/2–1/4 (HT: 1/2) of scutellum covered with white marking. Wing veins dark brown.

Head. Surface of vertex, gena, supra-clypeal area and clypeus weakly granulated or polished and shallowly punctate except for antennal cavity polished; malar space rather finely granulated; apical half of clypeus punctate rather sparser than basal half; median field of supra-clypeal area very weakly rugose vertically. Anterior tentorial pit longish oval. Occipital carina meeting hypostomal carina above base of mandible by 0.4 × MBW. Upper tooth of mandible with sharp apex; lower tooth 0.3 × of upper tooth. HW/HL = 1.8–2.0 (HT: 1.8); OW/HW = 0.6; OOL/POL = 1.0. SCW/SCH = 1.6–1.7 (HT: 1.7); CLW/CLH = 1.9–2.0 (HT: 2.0). MBL/BMW = 1.7–1.8 (HT: 1.8); MSL/BMW = 1.2. MP5/BMW = 2.0–2.2.

Antenna. Flagellum 8.0–10.0 (HT: 9.0) mm long, with 35 flagellomeres; apical flagellomere conical; FL1 4.7–5.0 (HT: 4.7) × as long as apical width and 1.3–1.4 (HT: 1.4) × as long as FL2.

Mesosoma. Surface of pronotum shallowly to moderately punctate, with weak rugae; mesoscutum finely punctate; dorsal and posterior surface of scutellum rather sparsely punctate; postscutellum polished; mesopleuron and metapleuron densely and strongly punctate except just above mesopleural fovea sparsely punctate; lateral area (1+2) of propodeum punctate on polished surface, except posterior 1/2 slightly to moderately (HT: slghtly) rugose; area of areola polished. Notaulus very weakly developed on apical 1/3. Sternaulus very weakly developed apical 1/4. Lateral carinae of scutellum reaching apex, hind margin not carinated and slanted. Propodeum in profile evenly arched from base of areola; juxtacoxal carina incomplete, posterior 1/5 indistinct; costula absent; pleural carinae distinct; areola quadrangular, widened toward posterior. MSSL/MSSW = 1.1; ARL/ARW = 1.1–1.3 (HT: 1.1); ARW/PSD = 0.4; PSI = 2.1–3.0 (HT: 2.1).

Legs. Surface of legs coriaceous, except coxae punctate. Hind tibia 0.4 × as long as fore wing.

Wings. Fore wing 7.0–8.5 (HT: 8.0) mm long; areolet 1.0–1.1 (HT: 1.0) × as long as 3rs-m, 0.5 × as high as 2m-cu, quadroangular; 1/M:2/M = 1.0:0.9–1.0 (HT: 0.9); Cu-a opposite Rs&M; Hind wing with cu-a 0.3 × as long as first abscissa of Cu1; 1–2 (HT: 2) basal hamuli, 8–10 (HT: 9) distal hamuli on R1 vein.

Metasoma. Surface of petiole and postpetiole polished; lateral area of petiole almost polished; T2–T6 coriaceous. Petiole bend an obtuse angle; in dorsal view almost parallel sided; postpetiole slightly widened; dorsomedian carina absent; median and lateral field of postpetiole not clearly separated. Ovipositor sheath narrowed from base to apex with roundly pointed apex. S2–S4 medially weakly sclerotized, S5–S6 completely sclerotized. T1 L/W = 2.0–2.1 (HT: 2.0); T2 L/W = 0.9–1.0 (HT: 0.9); THI = 1.8–2.2 (HT: 2.0).

Male. Body length 7.0–9.0 mm. As in female except for the following characters: white spots often distributed on supra-clypeal area, clypeus, mandible, scape, tegula, subalar ridge, each coxa and trochanter, and fore and mid femur; maxillary and labial palpus usually white; semiannulus reduced; first flagellomere 3.5–3.8 × as long as apical width.

Distribution: Hokkaidô, Honshû, Shikoku; **Korea**.

***Asthenolabus okiensis* sp. nov.**

Pl. 10

Type series. Holotype, Japan. ♀, Saigo, Oki Is., Shimane Pref., 17. VIII. 1963, H. Kadowaki (NIAES). Data on the label: “VIII 17, 1963 // Saigo // Okino-shima // Shimane Pref. // H. Kadowaki".

Female (HT). Body length 10.0 mm.

Coloration. Body ground color black and covered with short white setae. A pair of white line along eye margin, from upper margin of antennal cavity to middle of supra-clypeal area. Flagellum with white annulus on flagellomeres 9–12. Tegula pale brown. Wing veins dark brown.

Head. Surface of vertex, gena, supra-clypeal area and clypeus weakly granulated or polished and shallowly punctate except for antennal cavity polished; supraantennal area just above antennal cavity longitudinally striate; malar space rather finely granulated; apical 1/4 of clypeus punctate rather sparser than basal half. Anterior tentorial pit longish oval. Occipital carina meeting hypostomal carina above base of mandible by 0.6 × MBW. Upper tooth of mandible with sharp apex; lower tooth 0.3 × of upper tooth. HW/HL = 1.7; OW/HW = 0.6; OOL/POL = 0.9. SCW/SCH = 1.8; CLW/CLH = 2.1. MBL/BMW = 2.3; MSL/BMW = 1.3. MP5/BMW = 2.5.

Antenna broken, left antenna absent; right flagellum broken, present only 18 flagellomeres; FL1 3.2 × as long as apical width and 1.3 × as long as FL2.

Mesosoma. Surface of pronotum roughly punctate, lateral area roughly rugose; mesoscutum and dorsal surface of scutellum densely punctate; posterior surface of scutellum and postscutellum rugose punctate; mesopleuron and metapleuron densely and strongly punctate except just above mesopleural fovea sparsely punctate; surface of propodeum strongly rugose; Notaulus and sternaulus not developed. Lateral carinae of scutellum reaching apex, hind margin not carinated and slanted. Propodeum in profile,

basal area and areola flat, evenly slanted from base of petiolar area; juxtacoxal carina incomplete, posterior 1/4 indistinct; costula absent; posterior half of pleural carinae indistinct; areola quadrangular, rather wide, widened toward posterior. MSSL/MSSW = 1.1; ARL/ARW = 0.7; ARW/PSD = 0.4; PSI = 3.1.

Legs. Surface of legs coriaceous, except coxae punctate. Hind tibia 0.4 × as long as fore wing.

Wings. Fore wing 8.3 mm long; areolet 1.0 × as long as 3rs-m, 0.5 × as high as 2m-cu, quadroangular; 1/M:2/M = 1.0:1.0; Cu-a postfurcal Rs&M; ramulus slightly to moderately developed. Hind wing with cu-a 0.2 × as long as first abscissa of Cu1; 1 basal hamuli, 10 distal hamuli on R1 vein.

Metasoma. Surface of petiole and postpetiole rather dull, with very weak punctures; lateral area of petiole weakly rugose; T2–T6 coriaceous, T2 and T3 with weak fine rugae. Petiole bend an obtuse angle; in dorsal view almost parallel sided; postpetiole slightly widened; dorsomedian carina absent; median and lateral field of postpetiole not clearly separated. Ovipositor sheath narrowed from base to apex with roundly pointed apex. S2–S4 medially weakly sclerotized, S5–S6 completely sclerotized. T1 L/W = 3.0; T2 L/W = 0.9; THI = 2.0.

Male. Unknown.

Distribution: Oki Island.

Etymology: The name comes from the type locality, Oki Island.

Remarks. This is somewhat peculiar species, with notch and white membranous part on dorso-basal edge of antennal scape. This character is shared with only *Clypeolabus nigrus* **sp. nov.**

***Asthenolabus wadai* (Uchida, 1935)**

Pl. 11

Platylabus wadai Uchida, 1935: 33.

Asthenonlabus wadai: Townes, Momoi & Townes, 1965: 514.

Type series. Holotype, Japan. ♀, Hongawa, Kôchi Pref., Shikoku, VIII. 1932, H. Wada (SEHU). Data on the label: "Hongawa (Tosa), VIII 1932, H. Wada".

Female (HT). Body length 10.5 mm.

Coloration. Body ground color black and covered with short white setae. White spots on vertex just along eyes, postero-dorsal corner of pronotum, apex of scuttelum; short white line on the side of antennal cavity along eye, lateral area of gena along eye.

Head. Surface of vertex, gena, supra-clypeal area and clypeus dull and shallowly, finely punctate except for antennal cavity polished; malar space rather finely granulated; apical half of clypeus punctate rather sparser than basal half; median field of supra-clypeal area very weakly rugose vertically. Anterior tentorial pit longish oval. Occipital carina meeting hypostomal carina above base of mandible by 0.6 × MBW. Upper tooth of mandible with sharp apex; lower tooth 0.3 × of upper tooth. HW/HL = 2.0; OW/HW = 0.6; OOL/POL = 0.9. SCW/SCH = 1.8; CLW/CLH = 1.7. MBL/BMW = 1.6; MSL/BMW = 1.4. MP5/BMW = 1.5.

Antenna. Flagellum 10.0 mm long, with 35 flagellomeres; apical flagellomere conical; FL1 3.3 × as long as apical width and 1.3× as long as FL2.

Mesosoma. Surface of pronotum finely punctate; mesoscutum finely punctate, dull; dorsal and posterior surface of scutellum rather sparsely punctate; postscutellum dull; mesopleuron and metapleuron densely and feinely punctate except just above mesopleural fovea polished; propodeum granulate and finely punctate. Notaulus rather

sharply developed on apical 1/3. Sternaulus very weakly developed apical 1/4. Lateral carinae of scutellum reaching apex, hind margin not carinated and slanted. Propodeum in profile evenly arched from base of areola; juxtacoxal carina incomplete, almost absent; costula absent; pleural carinae distinct; areola quadrangular, elevated. MSSL/MSSW = 1.0; ARL/ARW = 0.8; ARW/PSD = 0.4; PSI = 2.2.

Legs. Surface of legs coriaceous, except coxae punctate. Hind tibia 0.4 × as long as fore wing.

Wings. Fore wing 9.0 mm long; areolet 1.0 × as long as 3rs-m, 0.5 × as high as 2m-cu, quadroangular; 1/M:2/M = 1.0:1.0; Cu-a oppoite Rs&M; ramulus slightly to moderately developed. Hind wing with cu-a 0.2 × as long as first abscissa of Cu1; 1 basal hamuli, 10 distal hamuli on R1 vein.

Metasoma. Surface of petiole and postpetiole slightly to weakly ruogose; T2–T6 coriaceous; basal half of T2 rugose punctate. Postpetiole slightly widened. Ovipositor sheath almost parallel sided with roundly pointed apex. S2–S4 medially weakly sclerotized, S5–S6 completely sclerotized. T1 L/W = 2.5; T2 L/W = 0.8. THI = 1.7.

Male. Unknown

Distribution: Honshû.

Remarks. This species is somewhat peculiar species occurs in Japan, with notch and white membranous part on dorso-basal edge of antennal scape. This character is shared with only *Clypeolabus nigrus* **sp. nov.**

***Asthenolabus delicatus* sp. nov.**

Pl. 12

Type series. Holotype, Japan. ♀, Yaita, Tochigi Pref., Honshû, 30. VI – 15. VII. 1989, K. Konishi (NIAES). Data on the label: "Yaita // Tochigi Pref. // 30. VI – 15. VII. 1989 // K. Konishi". **Paratype, Japan.** ♀, Yokouchi-Yaegiku, Aomori City, Aomori Pref., Honshû, 19. IX. 1992, T. Ichita (NIAES).

Female. Body length 9.0–10.0 (HT: 10.0) mm.

Coloration. Body ground color black and covered with short white setae. White marks on scutellum and T5–7.

Head. Surface of vertex, gena and supra-clypeal area dull and shallowly, finely punctate except for antennal cavity polished; median field of supra-clypeal area very weakly rugose vertically; clypeus rather sparsely punctate; apical half of clypeus punctate rather sparser than basal half; malar space rather finely granulated. Anterior tentorial pit longish oval. Occipital carina meeting hypostomal carina above base of mandible by 0.6 × MBW. Upper tooth of mandible with sharp apex; lower tooth 0.3 × of upper tooth. HW/HL = 1.9; OW/HW = 0.6; OOL/POL = 0.9. SCW/SCH = 1.6; CLW/CLH = 1.6. MBL/BMW = 1.8; MSL/BMW = 1.7. MP5/BMW = 2.2.

Antenna. Flagellum 9.0–9.5 (HT: 9.5) mm long, with 35 flagellomeres; apical flagellomere conical; FL1 3.5 × as long as apical width and 1.4 × as long as FL2.

Mesosoma. Surface of pronotum shallowly and finely punctate; mesoscutum finely punctate; dorsal and posterior surface of scutellum rather sparsely punctate; postscutellum polished; mesopleuron and metapleuron finely punctate except just above mesopleural fovea sparsely punctate; lateral area (1+2) of propodeum shallowly punctate; area of areola weakly rugose punctate. Notaulus very slightly developed on apical 1/3. Sternaulus very weakly developed apical 1/4. Lateral carinae of scutellum reaching apex, hind margin not carinated and slanted. Propodeum in profile weakly

arched from base of areola; juxtacoxal carina complete, weak; costula absent; pleural carinae distinct; areola quadrangular, rather longer, weakly widened toward posterior. MSSL/MSSW = 1.1; ARL/ARW = 1.4; ARW/PSD = 0.4; PSI = 2.5.

Legs. Surface of legs coriaceous, except coxae punctate. Hind tibia 0.4 × as long as fore wing.

Wings. Fore wing 8.0–9.0 (HT: 9.0) mm long; areolet 1.0–1.1 × as long as 3rs-m, 0.5 × as high as 2m-cu, quadroangular; 1/M:2/M = 1.0:1.1 Cu-a opposite Rs&M; ramulus slightly developed. Hind wing with cu-a 0.3 × as long as first abscissa of Cu1; 2 basal hamuli, 8–9 (HT: 9) distal hamuli on R1 vein.

Metasoma. Surface of petiole and postpetiole polished with sparse shallow punctures; T2–T6 coriaceous, T2–3 shallowly punctate. Petiole bend an obtuse angle; in dorsal view almost parallel sided; postpetiole slightly widened. Ovipositor sheath slightly narrowed from base to apex with roundly pointed apex. S2–S4 medially weakly sclerotized, S5–S6 completely sclerotized. T1 L/W = 2.4–2.5 (HT: 2.4); T2 L/W = 1.0. THI = 3.3–3.6 (HT: 3.6).

Male. Unknown

Distribution: Honshû.

Etymology: The name comes from the Latin word “delicatus”, that means “delicate”.

Remarks. Among Japanese species of the genus, only this species has white marking on apical part of metasoma.

Key to species of Japanese *Astenolabus*

1. Head and mesosomal surfaces dull. Socket of scape with notch and white membranous part on dorso-basal edge. Notaulus rather sharply developed.

Areola elevated above other areas of propodeum. Metasoma without white mark. ... *A. wadai* Uchida

-. Socket of scape without notch. Notaulus absent or very weakly developed. ... 2

2(1). Scutellum entirely black. Areola elevated above other areas of propodeum; area of areola roughly rugose; areola wider than the length. Metasoma without white mark. ... *A. okiensis* **sp. nov.**

-. Scutellum with a white mark. Areola flat; area of areola very weakly punctate; areola longer. ... 3

3(2). Inter-thyridial index more than 3.0. Dorsal surface of scutellum entirely white. Metasoma with white marks on T5–T7. ... *A. delicatus* **sp. nov.**

-. Inter-thyridial index less than 2.2. White mark on scutellum covers at most apical half of scutellum. Metasoma without white mark. *A. semimarginalis* Uchida

Genus *Clypeolabus* Heinrich, 1974

Clypeolabus Heinrich, 1974: 40–41 [Type species: *Clypeolabus lamellatus* Heinrich, 1974; original designation.]; Tereshkin, 2009: 1477–1478.

Description based on Japanese species.

Head. Gena moderately bulged behind eyes or convex, evenly receding behind eye in dorsal view (Pls. 13-D, 14-C, D, 15-B, 16-A, D); ocellar triangle weakly elevated above eyes. Antennal cavity of supra-antennal area expressed and polished; polished area of antennal cavity comparatively small (Pls. 6-F, 13-A, D, 18-A, B, E–H); polished area of antennal cavity short, almost as long as ocellar triangle; internal margins of compound eyes parallel (Pls 13-A, 18-A, B, E–H); supra-antennal area with small and distinct tubercle between antennal sockets; antennal sockets large, protruding anteriorly in

dorsal view; clypeus weakly convex, transverse, with evenly arched apical margin, without angled apicolateral corner, and not clearly divided from supra-clypeal area; apical margin of clypeus often very thin; anterior tentorial pits comparatively smaller and slit shaped; labrum with evenly arched apical margin, protruding from under clypeus. Mandible slender, narrowed to apex, with small lower tooth; apex of upper tooth sharp, or often rounded in female. Malar space considerably longer than mandible base. Occipital carina incomplete, fading out above base of mandible; dorsomedian part of occipital carina evenly arched (Pls. 13-D, 14-C, D, 15-B, 16-A, D); hypostomal carina strongly widened near mandibular base (Pl. 6-G). Maxillary palpus long, 2nd segment almost triangular, flat and not bulging.

Antenna. Flagella bristle-shaped, very long and slender, not flattened. Socket of scape with notch, and in *nigrus* sp. nov, white membranous part on dorso-basal edge. Male antenna with small tyloids (Pl. 18-D).

Mesosoma. Collar of pronotum short, transverse furrow of pronotum not interrupted by keel. Pronotal base without angular prominence, slightly curved or forming an angle near lower edge. Mesonotum strongly convex, notauli weak, often developed apical 1/4–1/3. Prepectal carina complete; subalar ridge very thin, with rough wrinkles; sternaulus indistinct, not developed; postpectal carina absent. Scutellum highly elevated, dorsal surface moderately convex, with lateral carinae. Hind margin of metanotum with a triangle projection on each side of postscutellum. Propodeum without costula and juxtacoxal carina; areola quadrangular, anterior edge truncate (Pls. 13-F, 14-C, D, 15-B, 16-C, D, 17-B); apex of second lateral area without distinct tooth. Propodeal spiracle rather small to middle size, longer than wide.

Legs. Slender and long. Fore and mid tarsomeres 2–5 weakly flattened, widened to apex, and with fine short hairs; spines on tarsomeres 2–4 rather short.

Wings. Areolet quadrangular, not petiolate; single bulla on 1m-cu and 3rs-m, two bullae on 2m-cu; ramulus slightly developed or absent. Hind wing with vein cu-a.

Metasoma. Amblypygous**.** Petiole in profile straight, flattened, clearly wider than deep, bending at base of postpetiole (Pls. 13-G, 14-A, B, 15-A, 16-A, B, 17-A); in dorsal view, basal half parallel sided; dorsolateral carina and ventrolateral carina distinct, dorsomedian carina indistinct at least on basal portion of postpetiole. Gastrocoelus deep to shallow, quadrangular, oblique or orthogonal to body axis; thyridium clearly developed, the width varies. Parathyridium large, distinct. Hypopygium with apical margin protruding; ovipositor sheath with apex rounded, slightly protruding behind apex of metasoma. Sternites 2–4 laterally sclerotized and middle part weakly sclerotized, sternite 5 often entirely sclerotized; S2–4 with lateral lobe, completely separated by crease and S5 without lateral lobe (fused) (Pl. 65-A); female hypopygium with a tuft of long apicad setae on apex.

Diagnosis. This genus can be distinguished from other genera of the tribe Platylabini by a combination of the following characteristics: polished area of antennal cavity comparatively small; anterior tentorial pit elongated, slit shaped; clypeus weakly convex, not clearly separated from supra-clypeal area; apical margin of clypeus without angled corner; gena not strongly narrowed to occiput from behind eyes in dorsal view; hypostomal carina strongly widened near mandibular base; propodeal spiracle somewhat elongate, not circular; costula absent; propodeum without distinct tooth; thyridium varies but distinctly developed; female hypopygium with a tuft of long apicad setae on apex.

Distributions. Japan (5 spp.); Myanmar (2 spp.).

Remarks. In the absence of costula and tooth on propodeum, this genus resembles the genus *Platylabus* and *Asthenolabus*, but easy to be distinguished from them by the morphology of head. So far, this genus was recorded only from Myanmar (Oriental region). This is new record of the genus from Palearctic region.

***Clypeolabus nigrus* sp. nov.**

Pls. 5-F, G, 6-D, G, 13

Type series. Holotype, ♀, **JAPAN**: Mt. Kanakusodake, Nagahama City, Shiga Pref., Honshu, 3. VIII. 2006, Rikio Matsumoto (OMNH). Data on the label: "JPN / Mt. Sara // [Shiga / Gifu] // Nagahama c. // Kanakusodake (金糞岳) // 35-32-14N/136-20-27E // 3. Aug. 2006 // R. Matsumoto leg.

Paratypes, JAPAN: [Hokkaidô] 1♂, Mt. Daisetsuzan, 22–26. VII. 1957, T. Uchida et al. (MNHAH); Sapporo City, 1♀ (12. IX. 1964), 1♀ (6. IX. 1967), K. Kusigemati (SEHU); 1♀, Shishamonai, Chitose City, 21. VII – 3. VIII. 2012, MT, N. Kuhara (EUMJ). **[Honshû]** Tochigi Pref.: 1♀, Okunikkô, Nikkô City, 1. VI. 1969, Y. Miyake (NIAES). Nagano Pref.: 1♀, Hakkaisan, Mt. Ontake, Ôtaki Vill., 28–31. VII. 2013, N. Kikuchi (SEHU). Ishikawa Pref.: 2♀♀, Nabetani, Tatsuno Town, 3. XI. 1989, I. Togashi (NIAES). Shiga Pref.: Yakumogahara, Hirasan, 16. VI. 1999, R. Matsumoto (OMNH). **[Sado Is.]** 1♂, Hakuundai–Mt. Myôkenzan, Kanaishinbo, 4. VIII. 2009, K. Watanabe (KPMNH). **[Sikoku]** Ehime Pref.: 1♂, Mt. Takakurayama, Mt. Odamiyama, 9. VII. 1994, LT, E. Yamamoto (NIAES). Tokushima Pref.: 1♀, Ôkawara, Sanagôchi Vill., 11–15. V. 2016, MT, K. Ôhara [NKHU0030] (EUMJ). **[Kyûshû]** Miyazaki Pref.:

1♀, Shiiya tôge, Shiiba Vill., 15–16. VI. 1985, K. Konishi (NIAES). Kagoshima Pref.: 1♀, Takachihonomine, Mt. Kirishima, 15. VI. 1963, A. Tanaka (SEHU).

Female. Body length 9.0–11.0 (HT: 10.0) mm.

Coloration. Body ground color black and covered with short white setae. Supra-clypeal area with a pair of short white line along eye margin. Flagellum with white semiannulus on flagellomeres 10–13 in female. Fore and mid tibiae and tarsi reddish brown. Wing veins dark brown.

Head. Surface of vertex, gena, supra-clypeal area and clypeus granulated and densely punctate except for antennal cavity polished; malar space rather finely granulated; apical margin of clypeus very thin. Occipital carina not meeting hypostomal carina, abruptly fading out above base of mandible by 0.8 × MBW. Upper tooth of mandible with sharp apex; lower tooth 0.3 × of upper tooth. HW/HL = 1.8–2.0 (HT: 1.9); OW/HW = 0.6–0.7 (HT: 0.7); OOL/POL = 0.9–1.0 (HT: 0.9). SCW/SCH = 1.6–1.7 (HT: 1.6); CLW/CLH = 1.7–1.8 (HT: 1.7). MBL/BMW = 1.6–1.8 (HT: 1.7); MSL/BMW = 1.4–1.6 (HT; 1.5). MP5/BMW = 1.4–1.5 (HT: 1.5).

Antenna. Flagellum 8.5–10.0 (HT: 9.5) mm long, with 36–40 (HT: 39) flagellomeres; apical flagellomere conical; FL1 4.9–5.2 × as long as apical width and 1.3–1.4 × as long as FL2.

Mesosoma. Surface of pronotum densely rugose-punctate; mesoscutum rugose reticulate to punctate reticulate; dorsal surface of scutellum deeply punatete, posterior surface rugose; postscutellum rugose; mesopleuron and metapleuron densely and strongly punctate except just above mesopleural fovea polished; lateral area (1+2) deeply punctate on polished surface, except posterior 1/4 punctures unclear; area of areola coarsely rugose. Notaulus very weakly developed on apical 1/3 (Fig. 23).

Sternaulus very weakly developed apical 1/4. Lateral carinae of scutellum reaching apex, hind margin not carinated and slanted. Propodeum in profile, basal area and areola flat, evenly slanted from base of petiolar area; juxtacoxal indistinct, almost absent; costula absent; pleural carinae distinct; areola quadrangular. MSSL/MSSW = 1.1–1.2; ARL/ARW = 1.0–1.1 (HT: 1.0); ARW/PSD = 0.3; PSI = 1.8–2.1 (HT: 2.0).

Legs. Surface of legs coriaceous, except hind coxa with shallow punctures. Hind tibia 0.4 × as long as fore wing.

Wings. Fore wing 8.0–10.5 (HT: 9.5) mm long; areolet 1.0–1.1 (HT: 1.0) × as long as 3rs-m, 0.5–0.6 (HT: 0.5) × as high as 2m-cu, quadroangular; 1/M:2/M = 1.0:1.2–1.3 (HT: 1.2); Cu-a opposite Rs&M; ramulus slightly to moderately developed. Hind wing with cu-a 0.2 × as long as first abscissa of Cu1; 3–4 (HT: 3) basal hamuli, 8–10 (HT: 10) distal hamuli on R1 vein.

Metasoma. Surface of petiole polished; postpetiole weakly and finely rugose; lateral area of petiole coarsely rugose; T2 and T3 finely punctate; T4–T6 coriaceous (Fig. 25). Petiole bend an obtuse angle; in dorsal view almost parallel sided; postpetiole weakly bulged behind spiracle; dorsomedian carina distinct from base to spiracle position, and indistinct on postpetiole; median and lateral parts of postpetiole separated; inter-thyridial area strongly to moderately depressed. S2–S4 medially weakly sclerotized, S5–S6 completely sclerotized. T1 L/W = 1.8–1.9; T2 L/W = 1.0–1.1. THI = 0.5–0.3.

Male. Body length 8.5–10.0 mm. As in female except for the following characters: setae on metasoma longer; first flagellomere 3.9–4.2 × as long as apical width; apex of paramere almost rounded.

Diagnosis: This species can be easily distinguished from other species of the genus by combination of: entirely black body; thin clypeal apical margin; 1/M longer than 2/M; THI small, less than 0.5.

Distribution: Hokkaidô, Honshû, Sado Island, Shikoku, Kyûshû.

Etymology: The name comes from the Latin word “nigra”, that means “black”.

***Clypeolabus brevis* sp. nov.**

Pls. 6-F, 14, 18-A–D

Type series. Holotype, ♀, **JAPAN**: Mt. Akatsuchiyama, Uken Vill., Kagoshima Pref., Amami Is., 24. IV. 2017, Namiki Kikuchi (SEHU). Data on the label: “[Japan] Amami-ôshima // Ôshima-gun, Uken-son, // Yuwan: Mt. Akatsuchiyama // 宇検村湯湾: 赤土山 [night] // [28.237N, 129.330E] // April 24, 2017 // Namiki KIKUCHI LEG”

Paratypes, JAPAN: [Sikoku] Kochi Pref.: 1♂, Kuroson, 29. IV. 1956, Y. Wake (EUMJ). **[Kyûshû]** Fukuoka Pref.: 1♂, Shikanoshima, Fukuoka City, 30. V. 1995, M. Sueyoshi (OMNH). Ôita Pref.: 1♂, Chôjabaru, Kokonoe Town, 5–7, V. 2016, YPT, T. Mita [NKHU0044] (EUMJ). Kagoshima Pref.: 1♂, Taniyama, 21. IV. 1966, K. Kusigemati (SEHU); 1♂, Terayama, 19. IV. 1973, K. Kusigemati (SEHU).

Female (HT). Body length 8.5 mm.

Coloration. Body ground color black and covered with short white setae. Supra-clypeal area with a pair of short whitish yellow line along eye margin; clypeus with a pair of whitish yellow spot on each lateral margin; vertex with a pair of whitish yellow spot just along eye. Basal 2/3 of mandible, maxillary and labial pulp ivory. Flagellum with whitish yellow semiannulus on flagellomeres 8–13 in female. Scutellum with small

whitish yellow spot on the apex. Fore and mid tibiae and all tarsi, and basal half of hind tibia reddish brown. Wing veins dark brown. Metasomal T2–T7 with whitish yellow line on the apex.

Head. Surface of vertex, gena, supra-clypeal area and clypeus densely and finely punctate except for antennal cavity polished; malar space rather finely granulated. Occipital carina not meeting hypostomal carina, abruptly fading out above base of mandible by 0.4 × MBW. Upper tooth of mandible with sharp apex; lower tooth 0.3 × of upper tooth. HW/HL = 2.0; OW/HW = 0.8; OOL/POL = 0.9. SCW/SCH = 0.6; CLW/CLH = 2.0. MBL/BMW = 1.8; MSL/BMW = 1.0. MP5/BMW = 2.0.

Antenna. Flagellum 7.5 mm long, with 35 flagellomeres; apical flagellomere conical; FL1 3.3 × as long as apical width and 1.3 × as long as FL2.

Mesosoma. Surface of pronotum finely punctate, with lower half of lateral area transversely rugose; mesoscutum, dorsal and posterior surface of scutellum finely punatete; postscutellum polished; mesopleuron and metapleuron densely punctate except just above mesopleural fovea polished; lateral area (1+2) of propodeum punctate on polished surface; area of areola almost polished; pleural area transversely rugose. Notaulus weakly developed on apical 1/3. Sternaulus very weakly developed apical 1/3. Lateral carinae of scutellum reaching apex, hind margin not carinated and slanted. Propodeum in profile, areola flat, evenly slanted from base of petiolar area; juxtacoxal carina indistinct in posterior half; costula absent; pleural carinae indistinct; areola quadrangular, very short and wide. MSSL/MSSW = 1.0; ARL/ARW = 0.7; ARW/PSD = 0.4; PSI = 2.0.

Legs. Surface of legs coriaceous, except hind coxa with shallow punctures. Hind tibia 0.4 × as long as fore wing.

Wings. Fore wing 8.0 mm long; areolet 1.4 × as long as 3rs-m, 0.6 × as high as 2m-cu, pentagonal; 1/M:2/M = 1.0:0.9. Cu-a opposite Rs&M; ramulus not developed. Hind wing with cu-a 0.3 × as long as first abscissa of Cu1; a basal hamulus, 7 distal hamuli on R1 vein.

Metasoma. Surface of petiole polished; postpetiole weakly and finely rugose; lateral area of petiole sparsely rugose; T2–7 polished, basal half of T2 rugose punctate, T2–3 punctate. Petiole very weakly bend; postpetiole not bulged behind spiracle; dorsomedian carina distinct from base to spiracle position, and indistinct on postpetiole; median and lateral parts of postpetiole separated; S2–S4 medially weakly sclerotized, S5–S6 completely sclerotized. T1 L/W = 1.7; T2 L/W = 0.6. THI = 0.8.

Male. Body length 8.0–8.5 mm. As in female except for the following characters: first flagellomere 3.0–3.3 × as long as apical width; male genitalia with apex of paramere almost rounded.

Diagnosis: This species can be easily distinguished from other species of the genus by combination of: clypeus and mandible with ivory part on both sex; areola very short; metasomal tergites polished.

Distributions: Shikoku, Kyûshû, Amami Island.

Etymology: The name comes from the Latin word that means, “short”.

***Clypeolabus matsumotoi* sp. nov.**

Pls. 15, 18-E

Type series. Holotype, ♀, **JAPAN**: Kusama, Niimi City, Okayama Pref., Honshû, 26. V. 1996, Rikio Matsumoto (OMNH). Data on the label: “Kusama // [Okayama] // Niimi c. // 26. May. 1996 // R. Matsumoto leg.”.

Paratypes, JAPAN: [Honshû] Ôsaka Pref.: 1♀, Hiraoka Park, Higashiôsaka City, 13. V. 2012, S. Fujie (SEHU).

Female. Body length 8.0 mm.

Coloration. Body ground color black and covered with short white setae. Each side of antennal sockets with a pair of short whitish yellow line along eye margin. Flagellum with whitish yellow semiannulus on flagellomeres 8–13 in female. Scutellum covered with whitish yellow spot. Tegula and subalar ridge with ivory spot. Fore and mid tibiae and all tarsi, and basal half of hind tibia reddish brown. Wing veins dark brown. Metasomal T2–T7 with whitish yellow line on the apex.

Head. Surface of vertex, gena, supra-clypeal area and clypeus densely and finely punctate except for antennal cavity polished; malar space rather finely granulated. Occipital carina not meeting hypostomal carina, abruptly fading out above base of mandible by 0.4 × MBW. Upper tooth of mandible with sharp apex; lower tooth 0.3 × of upper tooth. HW/HL = 2.0; OW/HW = 0.8; OOL/POL = 1.0. SCW/SCH = 0.5; CLW/CLH = 2.0. MBL/BMW = 1.9; MSL/BMW = 1.0. MP5/BMW = 2.2.

Antenna. Flagellum 8.0 mm long, with 35 flagellomeres; apical flagellomere conical; FL1 3.2 × as long as apical width and 1.4 × as long as FL2.

Mesosoma. Surface of pronotum finely punctate, with lower half of lateral area transversely rugose; mesoscutum, dorsal and posterior surface of scutellum finely punatete; postscutellum polished; mesopleuron and metapleuron densely punctate except just above mesopleural fovea polished; lateral area (1+2) of propodeum punctate on polished surface; area of areola almost polished; pleural area transversely rugose. Notaulus weakly developed on apical 1/3. Sternaulus very weakly developed apical 1/3. Lateral carinae of scutellum reaching apex, hind margin not carinated and slanted.

Propodeum in profile evenly arched from base of areola; juxtacoxal carina indistinct in posterior half; costula absent; pleural carinae indistinct; areola quadrangular, lateral part indistinct. MSSL/MSSW = 1.0; ARL/ARW = 1.1; ARW/PSD = 0.4; PSI = 2.1.

Legs. Surface of legs coriaceous, except hind coxa with shallow punctures. Hind tibia 0.4 × as long as fore wing.

Wings. Fore wing 8.0 mm long; areolet 1.4 × as long as 3rs-m, 0.6 × as high as 2m-cu, pentagonal; 1/M:2/M = 1.0:1.0. Cu-a opposite Rs&M; ramulus not developed. Hind wing with cu-a 0.3 × as long as first abscissa of Cu1; a basal hamulus, 8 distal hamuli on R1 vein.

Metasoma. Surface of petiole polished; postpetiole weakly and finely rugose; lateral area of petiole sparsely rugose; T2–7 polished, basal half of T2 rugose punctate, T2–3 punctate. Petiole very weakly bend; postpetiole not bulged behind spiracle; dorsomedian carina distinct from base to spiracle position, and indistinct on postpetiole; median and lateral parts of postpetiole separated; S2–S4 medially weakly sclerotized, S5–S6 completely sclerotized. T1 L/W = 1.5; T2 L/W = 0.6. THI = 0.7.

Male. Unknown.

Diagnosis: This species can be easily distinguished from other species of the genus by combination of: female tegula with white part; white line on supra-clypeal area short; postpetiole not widened.

Distributions: Honshû, Shikoku.

Etymology: The new species is named after Dr. Rikio Matsumoto, who collected holotype material.

***Clypeolabus watanabei* sp. nov.**

Pls. 16, 18-G, H

Type series. Holotype, ♀, **JAPAN**: Tatsubasawa, Mt. Yatsugatake, Hara Vill., Nagano Pref., Honshû, 15. X. 2006, Kyohei Watanabe (KPMNH). Data on the label: "長野県原村八ヶ岳立場沢 // (JAPAN) Nagano-pref. Hara mura // Mt. Yatugatake, Tatubasawa // 2006 X 15 // Kyohei Watanabe leg.".

Paratype, JAPAN: ♂**, [Honshû]** Sugadaira, Ueda City, Nagano Pref., 1. VIII. 2012, Masato Ito (SEHU).

Female (HT). Body length 8.0 mm.

Coloration. Body ground color black and covered with short white setae. Supra-clypeal area with a pair of short white line along eye margin. Flagellum with whitish yellow semiannulus on flagellomeres 8–13 in female. Scutellum with white spot. Collar of pronotum and subalar ridge with white spot. Wing veins dark brown.

Head. Surface of vertex, gena, supra-clypeal area and clypeus densely and finely punctate except for antennal cavity polished; malar space rather finely granulated. Occipital carina not meeting hypostomal carina, abruptly fading out above base of mandible by 0.4 × MBW. Upper tooth of mandible with sharp apex; lower tooth 0.3 × of upper tooth. HW/HL = 2.0; OW/HW = 0.8; OOL/POL = 0.9. SCW/SCH = 0.4; CLW/CLH = 2.0. MBL/BMW = 1.8; MSL/BMW = 1.0. MP5/BMW = 2.1.

Antenna. Flagellum 8.0 mm long, with 35 flagellomeres; apical flagellomere conical; FL1 4.6 × as long as apical width and 1.3 × as long as FL2.

Mesosoma. Surface of pronotum finely punctate, with lower half of lateral area transversely rugose; mesoscutum, dorsal and posterior surface of scutellum finely punatete; postscutellum polished; mesopleuron and metapleuron densely punctate except just above mesopleural fovea polished; popodeum weakly strigose. Notaulus

weakly developed on apical 1/3. Sternaulus very weakly developed apical 1/3. Lateral carinae of scutellum reaching apex, hind margin not carinated and slanted. Propodeum in profile evenly slanted from base of areola; juxtacoxal carina indistinct in posterior half; costula absent; pleural carinae indistinct; areola quadrangular. MSSL/MSSW = 1.0; ARL/ARW = 0.9; ARW/PSD = 0.4; PSI = 1.9.

Legs. Surface of legs coriaceous, except hind coxa with shallow punctures. Hind tibia 0.4 × as long as fore wing.

Wings. Fore wing 8.0 mm long; areolet 1.5 × as long as 3rs-m, 0.5 × as high as 2m-cu, pentagonal; 1/M:2/M = 1.0:1.1. Cu-a opposite Rs&M; ramulus not developed. Hind wing with cu-a 0.2 × as long as first abscissa of Cu1; a basal hamulus, 7 distal hamuli on R1 vein.

Metasoma. Surface of petiole polished; postpetiole polished, median field without puncture and lateral field punctate; lateral area of petiole sparsely rugose; T2–7 polished, T2–3 finely punctate. Petiole very weakly bend; postpetiole clearly widened behind spiracle; dorsomedian carina distinct from base to spiracle position, and indistinct on postpetiole; median and lateral parts of postpetiole separated; S2–S4 medially weakly sclerotized, S5–S6 completely sclerotized. T1 L/W = 1.5; T2 L/W = 0.6. THI = 1.1.

Male. Body length 7.0 mm. As in female except for the following characters: white band on supra-clypeal area bold, mandible with white mark; tegula white; first flagellomere 3.3 × as long as apical width; FL12–FL18 with indistinct tyloid.

Diagnosis: This species can be easily distinguished from other species of the genus by combination of: metasoma without white band; collar of pronotum with white spot; postpetiole widened apically.

Distribution: Honshû.

Etymology: The new species is named after Dr. Kyohei Watanabe, who collected holotype material.

***Clypeolabus unicolor* sp. nov.**

Pls. 17, 18-F

Type series. Holotype, ♀, **JAPAN**: Ôkawara, Sanagôchi Vill., Tokushima Pref., Shikoku, 6–19. V. 2017, MT, K. Ôhara [NKHU0125] (EUMJ). Data on the label: "35°57'28"N 134°25'10"E // Okawara, Sanagouchi-son, // Tokushima, Shikoku, // JAPAN, 6–19. v. 2017, // MT, K. Ôhara", "NKHU0125".

Paratypes, JAPAN: [Honshû] Toyama Pref.: 1♀, Jûrôdani, Arimine, Toyama City, 21–29. VII. 2009, MT, M. Watanabe (KPMNH); 1♀, Kamimomose, Togamura, Nanto City, 28. VII. – 4. VIII. 2009, MT, M. Watanabe (KPMNH). **[Shikoku]** Tokushima Pref.: 1♀, Same locality and collector as HT, 26. IV. – 5. V. 2017 (EUMJ). Kôchi Pref.: 1♀, Teragawa, Hongawa, 25. VII .1991, I. Yamashita (NIAES).

Female. Body length 7.0–9.0 (HT: 8.5) mm.

Coloration. Body ground color black and covered with short white setae. Flagellum with white semiannulus on flagellomeres 9–13 in female. Scutellum ivory. Wing veins dark brown.

Head. Surface of vertex, gena, supra-clypeal area and clypeus densely and finely punctate except for antennal cavity polished; malar space rather finely granulated. Occipital carina not meeting hypostomal carina, abruptly fading out above base of mandible by 0.4 × MBW. Upper tooth of mandible with rouded apex; lower tooth 0.2 × of upper tooth. HW/HL = 2.0–2.1 (HT: 2.1); OW/HW = 0.8–0.9 (HT: 0.9); OOL/POL =

1.0. SCW/SCH = 0.4; CLW/CLH = 2.0. MBL/BMW = 1.8; MSL/BMW = 1.0. MP5/BMW = 2.1–2.4 (HT: 2.3).

Antenna. Flagellum 7.5–9.0 (HT: 8.0) mm long, with 35 flagellomeres; apical flagellomere conical; FL1 5.0–5.3 (HT: 5.0) × as long as apical width and 1.3–1.5 (HT: 1.3) × as long as FL2.

Mesosoma. Surface of pronotum finely punctate, with lower half of lateral area transversely rugose; mesoscutum, dorsal and posterior surface of scutellum finely punatete; postscutellum polished; mesopleuron and metapleuron densely punctate except just above mesopleural fovea polished; popodeum weakly strigose. Notaulus weakly developed on apical 1/3. Sternaulus very weakly developed apical 1/3. Lateral carinae of scutellum reaching apex, hind margin not carinated and slanted. Propodeum in profile, areola flat, evenly slanted from base of petiolar area; juxtacoxal carina indistinct in posterior half; costula absent; pleural carinae indistinct; areola quadrangular, lateral part indistinct. MSSL/MSSW = 1.0; ARL/ARW = 1.0–1.1 (HT: 1.0); ARW/PSD = 0.4; PSI = 2.0.

Legs. Surface of legs coriaceous, except hind coxa with shallow punctures. Hind tibia 0.4 × as long as fore wing.

Wings. Fore wing 8.0–9.5 (HT: 9.0) mm long; areolet 1.3–1.4 (HT: 1.4) × as long as 3rs-m, 0.6 × as high as 2m-cu, pentagonal; 1/M:2/M = 1.0:1.1–1.2 (HT: 1.2). Cu-a opposite Rs&M; ramulus not developed. Hind wing with cu-a 0.2 × as long as first abscissa of Cu1; 1–2 (HT: 2) basal hamuli, 7–9 (HT: 9) distal hamuli on R1 vein.

Metasoma. Surface of petiole polished; postpetiole polished and sparsely punctate; lateral area of petiole sparsely rugose; T2–7 polished, T2–3 punctate, T4 sparsely punctate. Petiole very weakly bend; postpetiole clearly widened behind spiracle;

dorsomedian carina distinct from base to spiracle position, and indistinct on postpetiole; median and lateral parts of postpetiole separated; S2–S4 medially weakly sclerotized, S5–S6 completely sclerotized. T1 L/W = 1.3–1.5 (HT: 1.5); T2 L/W = 0.6. THI = 0.8–1.0 (HT: 0.8).

Male. Unknown.

Diagnosis: This species can be easily distinguished from other species of the genus by combination of: entirely black body except scutellum; scutellum strongly convex; apex of mandible rounded.

Distribution: Honshû, Shikoku.

Etymology: The name comes from the Latin word that means, "of one colour"

Key to species of Japanese *Clypeolabus*

1. Head and mesosomal surfaces dull. Socket of scape with notch and white membranous part on dorso-basal edge. Scutellum without white mark. Thyridium very wide, inter-thyridial area somewahat depressed. ... *C. nigrus* **sp. nov.**

-. Socket of scape without notch. Scutellum with white mark. Inter-thyridial area without depression. ... 2

2(1). Apex of upper tooth of mandible rounded. Scutellum mostly white, the dorsal surface strongly convex. Areola almost square. ... *C. unicolor* **sp. nov.**

-. Apex of upper tooth of mandible sharp. ... 3

3(2). Clypeus with white spots in both sexes. Maxillary and labial pulps, basal half of mandible white or ivory. Whitish mark on scutellum small, only covering apical 1/4. ... *C. brevis* **sp. nov.**

-. Clypeus without white spot. At least maxillary and labial pulps dark brown to black. ... 4

4(3). Collar of pronotum with white spot. Postpetiole widened apically. ... *C. watanabei* **sp. nov.**

-. Collar of pronotum without white spot. Postpetiole not widened apically, almost parallel sided. ... *C. matsumotoi* **sp. nov.**

Genus *Cratolaboides* Tereshkin, 2009

Cratolaboides Tereshkin, 2009: 1494 [Type species: *Cratolaboides palpalis* Tereshkin, 2009; original designation.].

Description based on Japanese species.

Head. Gena clearly narrowed behind eye in dorsal view (Pl 19-A); ocellar triangle elevated above eyes. Antennal cavity of supra-antennal area expressed and polished; internal margins of compound eyes parallel (Pl 19-C, D); supra-antennal area with small and distinct tubercle between antennal sockets; antennal sockets large, protruding anteriorly in dorsal view; supra-clypeal area flat; clypeus moderately convex, transverse, with straight apical margin, clearly divided from supra-clypeal area by furrow; anterior tentorial pits rather small, longish oval; labrum nearly triangular, with arcuate apical margin, protruding from under clypeus. Mandible very slender, strongly narrowed near base, with small lower tooth (Pl. 19-B). Malar space longer than mandibular base. Occipital carina complete, weakened above mandibular base; dorsomedian part of occipital carina slightly angled (Pl. 19-A); hypostomal carina normal, meeting with

occipital carina above mandibular base. Maxillary palpus long, 2nd segment semi triangular, strongly bulging (Pl. 20-B).

Antenna. Flagella bristle-shaped, long and slender, in female slightly flattened; tyloid absent.

Mesosoma. Collar of pronotum short, transverse furrow of pronotum not interrupted by keel. Pronotal base without angular prominence, evenly curved. Mesonotum strongly convex, notauli weakly developed apical 1/3. Prepectal carina complete; subalar ridge rather thin; sternaulus indistinct, almost not developed; postpectal carina absent. Scutellum highly elevated, dorsal surface moderately convex, with lateral carinae reaching apex. Hind margin of metanotum with a triangle projection on each side of postscutellum. Propodeum without costula; juxtacoxal carina incomplete, pleural carina complete, distinct; areola almost longer than wide, quadrangular, anterior margin truncate; apex of second lateral area with shrap distinct tooth (Pl. 19-H). Prpodeum with distinguishable dorsal and postero-dorsal faces in profile, dorsal face longer than postero-dorsal face. Propodeal spiracle short, rounded.

Legs. Slender and long. Fore and mid tarsomeres 2–5 weakly flattened, widened to apex, and with fine short hairs; tarsomere 4 weakly curved ventarally; spines on tarsomeres 2–4 moderate long (Pl. 64-C).

Wings. Areolet quadrangular; single bulla on 1m-cu and 3rs-m, two bullae on 2m-cu; ramulus weakly developed. Hind wing with vein cu-a (Pl. 19-F).

Metasoma. Amblypygous**.** Petiole in profile straight, flattened, clearly wider than deep, bending before base of postpetiole; in dorsal view, basal half almost parallel sided; with lateral projection near base (Pl. 19-I); dorsomedian carina indistinct on postpetiole; dorsolateral carina complete; postpetiole with distinct median field. Gastrocoelus

moderate, triangluar; thyridium clearly developed and wide (Pl. 19-I). Parathyridium rather small, distinct. Hypopygium with apical margin protruding; ovipositor sheath weakly narrowed toward apex, with rounded apex, weakly protruding behind apex of metasoma. S2–4 laterally sclerotized and middle part weakly sclerotized, S5 entirely sclerotized (Pl. 20-A). S2–3 with lateral lobe, S4–5 lateral lobe fused (Pl. 20-A).

Diagnosis. This genus can be distinguished from other genera of the tribe Platylabini by a combination of the following characteristics: second segment of maxillary palpus semi triangular, strongly bulging; propodeal spiracle large, elongate; tarsomere 4 weakly curved ventrally.

Distributions. Japan (1 sp.); Russia (1 sp.)

Remarks. This genus resembles the genus *Cratolabus* Heinrich and undoubtfully related to it. More details are discussed on remarks part of *Cratolabus*.

***Cratolaboides palpalis* Tereshkin, 2009**

Pls. 5-J, 19, 20, 65-C

Cratolaboides palpalis Tereshkin, 2009: 1473.

Specimen examined. Japan. [Hokkaido] 1minShiretoko Pen., Okepepu rindo, 13. VIII. 1996, T. Tachi, OMNH; 1♀, Ashoro-cho, Kamitoshibetsu, 17. VIII. 1996, T. Tachi, OMNH; 3♀ (8–16. VIII. 2011, MT), 2♀♀ (16–26. VIII. 2011, MT), Rumoi [43°55’08.30”N 141°39’19.43”E], Y. Nagayasu, EUMJ; 1♀ (20–27. VII. 2010, MT), 2♀♀ (16MJ; 1♀ (20–2011, MT), Hitsujigaoka, Sapporo [43°00’27”N 141°24’53”E], K. Konishi, EUMJ; 1♀, Hitsujigaoka, Sapporo [43°00’09”N 141°24’56”E], 3–10. VIII. 2010, MT, K. Konishi, EUMJ; 3♀♀, Hitsujigaoka, Sapporo [43°00’24”N 141°24’52”E], 8–15. VIII. 2012, MT, K. Konishi, EUMJ; 1♀, Kannon-zawa, Sapporo, 7. VIII. 2002, T.

Yoshida, SEHU; 1♀, Kannon-zawa, Sapporo [42.58N 141.15E], 7. VIII. 2002, MT, stream side, T. Yoshida, SEHU; 2♂♂, Mt. Tarumaesan, 21–26. VII, 1998, MT, K. Konishi, NIAES. **[Honshu]** Aomori Pref.: 1♀1♂ (4–19. VIII. 2011, MT), 2♀♀ (4–19. VIII– 15. VII. 2013, MT), 1♂ (15–25. VII. 2013, MT), Kawaratai, Nishimeya-mura [40°31'N 140°10'E], T. Nakamura, EUMJ; 1♂, Moyasawa, Aomori-shi, 11. VIII. 1992, T. Ichita, NIAES. Fukushima Pref.: 1♂, Nakatsu-gawa, Mts. Azuma, 10. VII. 1985, K. Konishi, NIAES. Tochigi Pref.: 1♂, Nikko, 24. VII. 1980, M. Miyazaki, NIAES. Tokyo: 1♀, Mt. Tenmoku, Okutama-cho, 14–15. VIII. 2013, N. Kikuchi, SEHU. Nagano Pref.: 3♀♀, Shiga-kogen, 26–27. VII. 1961, J. Minamikawa, NIAES. Hiroshima Pref.: 1♀, Sandankyo, 27. X. 1980, K. Konishi, NIAES. **[Shikoku]** Ehime Pref.: 1♂ (6. VIII. 1994, at light), 1♂ (25. VII. 1995, at light), Mt. Mizunashiyama, Mts. Odamiyama, E. Yamamoto, NIAES.

Male. Body length 7.5–8.5 mm.

Coloration. Body ground color black. Vertex with a pair of whitish yellow line along eye margin; face, clypeus, labrum, mandible and malar space to middle of gena whitish yellow; flagellar annulus, maxillary and labial palpi white. Collar of pronotum, upper margin of pronotum, subalar prominence, scutellum, postscutellum, propodeal tooth and third lateral area whitish yellow; whitish yellow spot on mesoscutum and mesopleuron. Metasoma with whitish yellow band on apex of each tergite. Fore and mid coxa and trochanter white; fore and mid femora, tibiae and tarsi light red; hind coxa black; hind trochanter white; hind femur and tibia dark brown; hind tarsus whitish yellow except tarsomere 5 and tarsal claws brown.

Head 1.9–2.0 × as wide as long in dorsal view and sparsely punctate on polished surface except vertex to area between antennal sockets without punctures; OOL/POL =

0.6–0.9; antennal cavity of frons expressed; frons with small and distinct tubercle between antennal sockets; antennal socket protrude anteriorly in dorsal view; face 1.8–1.9 × as wide as high; internal margins of compound eyes almost parallel or slightly narrowed downward; clypeus convex, transverse, 1.8–2.0 × as wide as high, with straight apical margin and rounded lateral margin; anterior tentorial pit small; labrum with rounded apical margin, protrude from under clypeus. Mandible slender, 1.7–1.9 × as long as mandibular base, strongly narrowed on base, curved inward, with small lower tooth; lower tooth 0.3–0.7 × as long as upper tooth length. Malar space 0.7–0.8 × as wide as mandibular base. Occipital carina complete and meeting hypostomal carina distant above base of mandible by 0.6 × width of mandibular base; Maxillary palpi with extremely hypertrophied 2nd segment, the segment 0.6–0.8 × as wide as long and 0.3–0.4 × as wide as mandibular base.

Antennae. 1.4–1.5 × as long as fore wing; apical flagellomere conical; FL1 4.7–5.9 × as long as apical width and 1.5–1.7 × as long as FL2.

Mesosoma. Pronotum sparsely punctate on polished surface; surface of mesonotum polished with scattered punctures. Prepectal carina complete; subalar prominences not sharpened; sternauli indistinct, present in basal 1/4; postpectal carina absent; surface of mesopleura covered with rather dense punctures, except speculums slightly polished. Scutellum highly elevated above postscutellum, with lateral carinae reaching apex, hind margin in profile slanted and with dorsal surface moderately convex. Propodeum in profile long, about 1.1 × as long as high; ARL/ARW = 1.2; surface of propodeum very sparse punctate. PSI = 1.3–1.6.

Legs slender and long. Hind tibia 7.3–7.7 × as long as apical width; ratio of length of tibiae, fore: mid: hind = 1.0: 1.4: 2.0. Hind tarsi slightly curved downward. Tarsal claws not pectinate.

Wings. Fore wing 5.5–6.5 mm long; areolet 1.2 × as long as 3rs-m, 0.6 × as high as 2m-cu, quadrangular, anteriorly pointed and almost symmetrical; each of 1m-cu, 2m-cu and 3rs-m with single bulla; Cu-a opposite Rs&M; ramulus present. Hind wing with cu-a 1/2 as long as first abscissa of Cu1.

Metasoma. T1 strongly polished with sparse and shallow punctures and slight wrinkling; profile curved downward at middle; basal part in dorsal view 5.0–5.5 × as long as wide; petiole flattened, at basal half about 1.5 × as wide as high; petiole in dorsal view gradually broadened posteriorly; dorsomedian and dorso-lateral carinae reduced at base to middle. T2 L/W = 1.0–1.1. Gastrocoelus and thyridia distinct, triangular, their width equal to interval between them. T2–3 punctate, T4–7 coriaceous. Genitalia as in Pl. 20-C; apex of paramere narrowly rounded; apical part of aedeagus in profile curved downward and not swollen.

Female. As in male except following characters: Body length 7.0–7.5 mm; body with less white markings than male; median field of supra-clypeal area black; mesopleuron without whitish yellow spot.

Distributions. Hokkaidô, Honshu, Shikoku; **Russia** (Yu *et al*., 2012).

Remarks. Significant morphological differences are not observed between description by Tereshkin (2009) and Japanese specimen; only color variations of female are found from Japanese specimen. This species can be easily distinguished from the other member of Pltaylabini by combination of form of maxillary palpi and distribution of

propodeal carinae. This is the first description of the male of *Cratolaboides* and first record from Japan.

Genus *Cratolabus* Heinrich, 1974

Cratolabus Heinrich, 1974: 162–163 [Type species: *Platylabus insulindicus* Heinrich, 1934; original designation.]; Tereshkin, 2009: 1493–1494.

Description based on Japanese species.

Head. Gena narrowed behind eye in dorsal view (Pl. 21-C); ocellar triangle elevated above eyes. Antennal cavity of supra-antennal area expressed and polished; internal margins of compound eyes parallel (Pl. 20-A, B); supra-antennal area with small and distinct tubercle between antennal sockets; antennal sockets large, protruding anteriorly in dorsal view; supra-clypeal area flat (Pl. 21-D); clypeus moderately convex, transverse, with straight apical margin, clearly divided from supra-clypeal area by furrow; anterior tentorial pits rather small, longish oval; labrum nearly triangular, with arcuate apical margin, protruding from under clypeus. Mandible very slender, strongly narrowed near base, with small lower tooth. Malar space longer than mandibular base. Occipital carina complete, weakened above mandibular base; dorsomedian part of occipital carina slightly angled; hypostomal carina normal, meeting with occipital carina above mandibular base. Maxillary palpus long, 2nd segment semi triangular, strongly bulging.

Antenna. Flagella bristle-shaped, long and slender, in female slightly flattened; tyloid absent.

Mesosoma. Collar of pronotum short, transverse furrow of pronotum not interrupted by keel. Pronotal base without angular prominence, evenly curved (Pl. 21-D). Mesonotum

strongly convex, notauli weakly developed apical 1/3. Prepectal carina complete; subalar ridge rather thin; sternaulus indistinct, almost not developed; postpectal carina absent. Scutellum highly elevated, dorsal surface moderately convex, with lateral carinae reaching apex. Hind margin of metanotum with a triangle projection on each side of postscutellum. Propodeum with costula, usually very ambiguous; juxtacoxal carina and pleural carina complete, distinct; areola almost as long as wide, hexagonal, anterior margin truncate (Pl. 21-C); apex of second lateral area with short distinct tooth (Pl. 21-D). Prpodeum with distinguishable dorsal and postero-dorsal faces in profile. Propodeal spiracle large, elongate.

Legs. Slender and long. Fore and mid tarsomeres 2–5 weakly flattened, widened to apex, and with fine short hairs; tarsomere 4 weakly curved ventarally (Pl. 5-L); spines on tarsomeres 2–4 rather shortened (Pl. 64-D).

Wings. Areolet quadrangular or narrow pentagonal; single bulla on 1m-cu and 3rs-m, two bullae on 2m-cu; ramulus weakly to moderately developed. Hind wing with vein cu-a.

Metasoma. Amblypygous**.** Petiole in profile straight, flattened, clearly wider than deep, bending before base of postpetiole (Pl. 21-F); in dorsal view, basal half almost parallel sided; with lateral projection near base; dorsomedian carina indistinct on postpetiole; dorsolateral carina complete; postpetiole with distinct median field. Gastrocoelus deep, quadangular; thyridium clearly developed and wide. Parathyridium rather small, distinct. Hypopygium with apical margin protruding; ovipositor sheath weakly narrowed toward apex, with rounded apex, weakly protruding behind apex of metasoma. S2–4 laterally sclerotized and middle part weakly sclerotized, S5 entirely sclerotized. S2–4 with lateral lobe, S5 without lateral lobe.

Diagnosis. This genus can be distinguished from other genera of the tribe Platylabini by a combination of the following characteristics: second segment of maxillary palpus semi triangular, strongly bulging; propodeal spiracle large, elongate; tarsomere 4 weakly curved ventarally.

Distributions. Japan* (1 sp.); Oriental region (4 spp.).

Remarks. This genus resembles a monotypic genus, *Cratolaboides* Tereshkin, 2009 in the shape of maxirally palpus, mandible and hind tarsus. Tereshkin (2009) pointed out that the differences were elongated areola, absence of costula and small circular propodeal spiracle in *Cratolaboides*. In Japanese species of *Cratolabus*, often costula very indistinct. Riedel (2011) noted that *Cratolaboides* possibly to be a junior synonym of *Cratolabus*. I can agree this argument, but need more materials and phylogenetic analyses.

***Crartolabus yamauchii* sp. nov.**

Pls. 5-L, 21

Type series. Holotype, ♀, **JAPAN**: Mt Aikodake, Yakushima Is., Kagoshima Pref., 2. V. – 5. VI. 2007, Takeo Yamauchi *et al*. (KPMNH). Data on the label: "[JAPAN] Kagoshima Pref. // Yakushim 屋久島 // 愛子岳（原生的照葉樹林） // MT (AN2), 170 m alt. // 2. May 2007–5 Jun. 2007 // Takeo YAMAUCHI *et al* .leg.".

Paratypes, JAPAN: [Honshû] Saitama Pref.: 1♀, Ôtaki, Chichibu City, 29. IX. 1999, T. Nambu (NIAES). Kanagawa Pref.: 3♂♂, Ogino Sports Park, Atsugi City, 23. IV. 2009, T. Muraki (KPMNH). Niigata Pref.: Mt. Nokogiriyama, Sueyoshi, Nagaoka City, 21. VII. – 21. VIII. 2014, S. Shimizu and R. Shimizu (SEHU). Toyama Pref.: 1♀, Kamimomose, Togamura, Nanto City, 15–29. IX. 2008, MT, M. Watanabe (KPMNH).

Yamanashi Pref.: 1♀, Near Ôtaki Fudô, Katsunuma Town, Kôshû City, 4. VIII. 2008, K. Watanabe (KPMNH). Ôsaka Pref.: 1♀, Izumi-Katsuragisan, Kaizuka City, 31. V. 1999, R. Matsumoto (OMNH). **[Kyûshû]** Fukuoka Pref.: 2♀♀, Kurume City, 11. VI. 1966, K. Kusigemati (SEHU). Kagoshima Pref.: 2♂♂, Shigeta, Mt. Takakumayama, IV. 19. 1970, A. Tanaka (SEHU). **[Yakushima Is.]** Same data as HT, 3♀♀; Mt. Aikodake, 11. V. 1983, K. Konishi (NIAES).

Female. Body length 6.5–10.5 (HT: 8.0) mm.

Coloration. Body ground color black and covered with short white setae. Area around mandibular base ivory. Maxirally and labial palpus dark brown. Flagellum with white semiannulus on flagellomeres 9–12. Reddish brown part on fore and mid legs, and hind tibia (in HT hind tibia completely black). Wing veins dark brown. Metasomal T5–T7 with apical white marking. Several PT specimens with apical white band also on T2–T4.

Head. Surface of vertex and gena polished to weakly coriaceous and weakly punctate very sparsely; supra-clypeal area and clypeus weakly punctate. Occipital carina meeting hypostomal carina above base of mandible by 0.4 × BMW. HW/HL = 1.8–2.0; OW/HW = 0.5–0.6; OOL/POL = 0.9–1.0. SCW/SCH = 1.7–1.8; CLW/CLH = 1.7. MBL/BMW = 1.9–2.2; MSL/BMW = 0.8–1.0. MP5/BMW = 2.0–2.1.

Antenna. Flagellum very long, 8.0–11.0 (HT: 10.0) mm long; with 35 flagellomeres; apical flagellomere conical; FL1 4.9–5.3 (HT: 5.0) × as long as apical width and 1.5–1.6 (HT: 1.5) × as long as FL2.

Mesosoma. Surface of pronotum, upper half shallowly punctate, lower part polished and near posterior margin weakly rugose transversely; mesoscutum polished and densely punctate; dorsal and posterior surface of scutellum rather sparsely punctate;

postscutellum polished, with sparse longitudinal rugae; mesopleuron and metapleuron very densely punctate except around mesopleural fovea polished; surface of 1st lateral area of propodeum punctate; 2nd lateral area and pleural area rugose; areola very weakly rugose; petiolar medially polished. MSSL/MSSW = 1.0–1.1 (HT: 1.0); ARL/ARW = 0.8–1.1; ARW/PSD = 0.4; PSI = 2.0–2.4 (HT: 2.0).

Legs. Surface of legs coriaceous, except coxae finely punctate. Hind tibia 0.4 × as long as fore wing.

Wings. Fore wing 5.5–8.0 (HT: 6.5) mm long; areolet 1.1 × as long as 3rs-m, 0.5–0.6 × as high as 2m-cu; 1/M:2/M = 1.0:1.3 Cu-a opposite Rs&M; ramulus slightly to moderately developed. Hind wing with cu-a 0.2 × as long as first abscissa of Cu1; 2–3 (HT: 2) basal hamuli, 8–11 (HT: 8) distal hamuli on R1 vein.

Metasoma. Surface of petiole including lateral area slightly rugose; postpetiole weakly rugose; metasomal tergites coriaceous, T2–3 with dense punctures. Postpetiole slightly widened medially. T1 L/W = 1.6–1.8 (HT: 1.8); T2 L/W = 1.0–1.1 (HT: 1.0). THI = 0.8–0.9 (HT: 0.9).

Male. Body length 8.0–9.0 mm. As in female except for the following characters: supra-clypeal area, clypeus, mandible, maxirally and labial palpus ivory; subalar rdge and scutellum,with ivory spot; FL1 3.1–3.4; paramere of genitalia black, aedeagus ivory.

Diagnosis: This species can be easily distinguished from other species of the genus by alomost completely black body.

Distribution: Honshû, Kyûshû, Yakushima Is.

Etymology: The new species is named after Dr. Takeo Yamauchi, who collected holotype material.

Genus *Cyclolabus* Heinrich, 1935

Cyclolabus Heinrich, 1935: 198 [Type species: *Platylabus nigricollis* Wesmael, 1845; original designation.]; Heinrich, 1951: 280; Heinrich 1962: 756–772; Townes *et al*., 1965: 513–514; Townes & Townes, 1966: 273; Heinrich 1974: 143–144; Tereshkin, 2009: 1448–1449.

Description based on Japanese species.

Head. Surface of head dull, finely granulated, malar space rather finely granulated (Pls. 7-B, 22-A, B, 23-A, B, 24-A, B). Gena moderately convex, evenly receding behind eye behind eye in dorsal view (Pls. 22-A, 23-A, 24-A); ocellar triangle weakly elevated above eyes. Antennal cavity of supra-antennal area expressed and polished; polished area of antennal cavity small (Pls. 22-A, 23-A, 24-A); internal margins of compound eyes parallel (Pls. 22-B, 23-B, 24-B); supra-antennal area with very small and indistinct tubercle between antennal sockets; antennal sockets large, protruding anteriorly in dorsal view; supra-clypeal area convex, protruding anteriorly (Pls. 7-B, 22-D, 23-D, 24-C); clypeus small, moderately convex, transverse, with straight apical margin, clearly divided from supra-clypeal area by furrow; anterior tentorial pits moderate, oval; labrum with arcuate apical margin, protruding from under clypeus. Mandible slender, narrowed to apex, with small lower tooth. Malar space almost as long as mandible base. Occipital carina complete or reduced above mandibular base; dorsomedian part of occipital carina weakly angled (Pls. 22-A, 23-A, 24-A); hypostomal carina normal. Maxillary palpus long, 2nd segment almost triangular, flat and not bulging.

Antenna. Flagella bristle-shaped, long and slender, weakly flattened.

Mesosoma. Collar of pronotum short, transverse furrow of pronotum not interrupted by keel. Pronotal base without angular prominence, clearly curved near lower edge (Pls. 22-C, 23-C, 24-D). Mesonotum strongly convex, notauli rather sharply developed apical 1/3. Prepectal carina complete; subalar ridge rather thick; sternaulus indistinct, not developed; postpectal carina absent. Scutellum highly elevated, dorsal surface moderately convex, with lateral carinae. Hind margin of metanotum with a triangle projection on each side of postscutellum. Propodeum with distinct costula; juxtacoxal carina complete and indistinct; areola wide, quadrangular, anterior margin truncate (Pls. 7-C, 22-C, 23-C, 24-D); apex of second lateral area without distinct tooth. Prpodeum short in profile. Propodeal spiracle small, circular.

Legs. Slender and long. Fore and mid tarsomeres 2–5 weakly flattened, widened to apex, and with fine short hairs; spines on tarsomeres 2–4 rather short, reduced.

Wings. Areolet pentagonal; single bulla on 1m-cu and 3rs-m, two bullae on 2m-cu; ramulus weakly developed. Hind wing with vein cu-a.

Metasoma. Amblypygous**.** Petiole in profile straight, flattened, clearly wider than deep, bending at base of postpetiole; in dorsal view, basal half parallel sided or weakly widened toward posterior; dorsolateral carina complete; postpetiole with distinct median field. Gastrocoelus moderately deep; thyridium clearly developed and moderately wide. Parathyridium normal, distinct. Hypopygium with apical margin not protruding, apex bare; cercus with long setae; ovipositor sheath weakly narrowed from base to apex with roundly pointed apex, comparatively long, and clearly protruding behind apex of metasoma. S2–5 laterally sclerotized and middle part weakly sclerotized, S6 entirely sclerotized.

Diagnosis. This genus can be distinguished from other genera of the tribe Platylabini by a combination of the following characteristics: surface of head dull; surpraclypeal area convex and protruding anteriorly; costula present; propodeum without distinct tooth; propodeal spiracle circular; gastrocoelus and thrydium regularly developed; cercus with long setae; ovipositor sheath rather long.

Distributions. Japan (3 spp.); Western Palearctic (5 spp.), Eastern Palearctic (5 spp.), Nearctic (11 spp.), Oriental (1 sp.) and Neotropical (1 sp.) regions.

Remarks. A part of *Platylabus* resembles this genus in small, roundish propodeal spiracle. In contrast to *Platylabus*, this genus has convex and granulated supra-clypeal area, and usually ovipositor sheath is much longer in *Cyclolabus*.

***Cyclolabus convexus* (Uchida, 1956)**

Pls. 7-A–C, 22

Ectopius convexus Uchida, 1956: 98; Iwata, 1958: 69; Iwata, 1960: 140.

Cyclolabus convexus: Townes, Momoi & Townes, 1965: 514.

Type series. Holotype, Japan. ♀, Sasayama,Tamba City, Hyôgo Pref., Honshû, 4. XI. 1954, K. Nohara (SEHU). Data on the label: “877”, " SASAYAMA, TAMBA, 4-XI-1954, K NOHARA ".

Other materials examined: Japan. [Honshû]: 1♀, Yamatogawa river, Ôsaka Pref., 9 .XI. 2011, T. Yamada (OMNH). **[Kyûshû]:** 1♀, Miike, Takaharu Town, Miyazaki Pref., 20. V. 1982, H. Takemoto (NIAES).

Female. Body length 5.0–6.5 (HT: 6.5) mm.

Coloration. Body ground color black and covered with short white setae. Supra-antennal area with a pair of short white line along eye margin. Vertex with a pair

of white spot just along eye. Labrum light brown. Flagellum with white semiannulus on flagellomeres 6–11. Collar of pronotum and subalar ridge with a white marking. Posterior 2/3–3/4 (HT: 3/4) of scutellum covered with white marking. Fore and mid legs of a Kyûshû specimen reddish brown. Wing veins dark brown. Metasomal T5–T6 with apical white marking.

Head. Occipital carina meeting hypostomal carina just above base of mandible. HW/HL = 1.6–1.7 (HT: 1.7); OW/HW = 0.6–0.7 (HT: 0.7); OOL/POL = 0.8–0.9 (HT: 0.9). SCW/SCH = 1.4–1.5 (HT: 1.5); CLW/CLH = 2.2–2.4 (HT: 2.4). MBL/BMW = 1.6; MSL/BMW = 1.0–1.2 (HT: 1.2). MP5/BMW = 1.8.

Antenna. Flagellum 5.5–6.5 (HT: 6.5) mm long, with 30 flagellomeres; apical flagellomere conical; FL1 3.6–3.7 (HT: 3.7) × as long as apical width and 1.7–1.8 (HT: 1.7) × as long as FL2.

Mesosoma. Surface of pronotum shallowly and rather sparsely punctate; mesoscutum densely punctate; dorsal and posterior surface of scutellum rather sparsely punctate; postscutellum polished; mesopleuron and metapleuron densely and strongly punctate except just above mesopleural fovea sparsely punctate; first lateral area of propodeum weakly punctate; second lateral area strongly punctate; third lateral area transversely rugose; area of areola very weakly rugose; petiolar area rather sparsely punctate. Lateral carinae of scutellum reaching apex. MSSL/MSSW = 1.0; ARL/ARW = 1.8–2.0 (HT: 1.8); ARW/PSD = 0.4; PSI = 1.3.

Legs. Surface of legs coriaceous, except coxae finely punctate. Hind tibia 0.4 × as long as fore wing.

Wings. Fore wing 5.0–5.5 (HT: 5.5) mm long; areolet 1.0 × as long as 3rs-m, 0.5 × as high as 2m-cu; 1/M:2/M = 1.0:1.2 Cu-a opposite Rs&M; ramulus slightly developed.

Hind wing with cu-a 0.3 × as long as first abscissa of Cu1; a basal hamulus, 7 distal hamuli on R1 vein.

Metasoma. Surface of petiole almost polished; postpetiole with a little puncture; lateral area of petiole weakly rugulose; T2–T3 densely punctate, T4–T5 coriaceous. Petiole in dorsal view almost parallel sided in basal half; postpetiole strongly widened; dorsomedian carina complete; median and lateral field of postpetiole clearly separated by dorsomedian carina. T1 L/W = 1.8–1.9 (HT: 1.9); T2 L/W = 0.8. THI = 0.9–1.0 (HT: 1.0).

Male. Unknown.

Diagnosis: This species can be easily distinguished from other species of the genus by combination of: T5–T6 with apical white marking; petiole in dorsal view almost parallel sided in basal half; dorsomedian carina complete; median and lateral field of postpetiole clearly separated by dorsomedian carina.

Distribution: Honshû, Kyûshû*.

***Cyclolabus kyushuensis* sp. nov.**

Pl. 23

Type series. Holotype, Japan. ♀, Yamaguchidani, Itsuki Vill., Kumamoto Pref., 8. V. 1999, R. Matsumoto (OMNH). Data on the label: “JPN / Kyushu // [Kumamoto] // Itsuki v. // Yamaguchidani // 8. May. 1999".

Paratype, Japan. [Kyûshû]: 1♀, Mt. Eboshidake, Kagoshima Pref., 15. V. 1970, K. Kusigemati (SEHU).

Female. Body length 6.0–6.5 (HT: 6.0) mm.

Coloration. Body ground color black and covered with short white setae. Supra-antennal area with a pair of very short white line along eye margin. Vertex with a pair of white spot just along eye. Labrum light brown. Flagellum with white semiannulus on flagellomeres 6–11. Collar of pronotum and subalar ridge with a white marking. Posterior 1/3–1/2 (HT: 1/2) of scutellum covered with white marking. Fore and mid femora and tibiae reddish brown. Wing veins dark brown.

Head. Occipital carina meeting hypostomal carina just above base of mandible, but occipital carina very weakened just above base of mandible. HW/HL = 1.6–1.7 (HT: 1.6); OW/HW = 0.6–0.7 (HT: 0.6); OOL/POL = 1.0. SCW/SCH = 1.5; CLW/CLH = 2.2. MBL/BMW = 1.7; MSL/BMW = 1.0–1.2 (HT: 1.2). MP5/BMW = 1.9.

Antenna. Flagellum 6.0–6.5 (HT: 6.0) mm long, with 29–30 (HT: 30) flagellomeres; apical flagellomere conical; FL1 3.9–4.1 (HT: 4.1) × as long as apical width and 1.3–1.4 (HT: 1.3) × as long as FL2.

Mesosoma. Surface of pronotum shallowly and rather sparsely punctate; mesoscutum densely punctate on coriaceous surface; dorsal and posterior surface of scutellum rather sparsely punctate. postscutellum polished. mesopleuron densely punctate except just above mesopleural fovea sparsely punctate; metapleuron rather weakly punctate; first lateral area of propodeum weakly punctate; second lateral area punctate except for basal 1/4 without puncture; third lateral area weakly transversely rugose; area of areola very weakly rugose; petiolar area rather sparsely punctate. Lateral carinae of scutellum almost reaching apex. MSSL/MSSW = 1.0; ARL/ARW = 0.7; ARW/PSD = 0.4; PSI = 1.4.

Legs. Surface of legs coriaceous, except coxae finely punctate. Hind tibia 0.4 × as long as fore wing.

Wings. Fore wing 5.5 mm long areolet 1.1 × as long as 3rs-m, 0.5 × as high as 2m-cu; 1/M:2/M = 1.0:1.2 Cu-a opposite Rs&M; ramulus slightly developed. Hind wing with cu-a 0.3 × as long as first abscissa of Cu1; a basal hamuli, 8 distal hamuli on R1 vein.

Metasoma. Surface of petiole almost polished; postpetiole with a little punctures; lateral area of petiole slightly rugulose; Metasomal tergite coriaceous, with T2–T3 densely punctate except inter-thrydial area with very sparse punctures. Petiole in dorsal view clearly widened toward spiracle; postpetiole weakly widened; dorsomedian carina complete; median and lateral field of postpetiole clearly separated by dorsomedian carina. T1 L/W = 2.0; T2 L/W = 0.8–0.9 (HT: 0.9); THI = 1.0–1.2 (HT: 1.2).

Male. Unknown.

Diagnosis: This species can be distinguished from other Japanese species of the genus by combination of: T5–T6 without apical white marking; petiole in dorsal view widened posteriorly in basal half; inter-thrydial area polished.

Distribution: Kyûshû.

Etymology: The name comes from the type locality, Kyûshû.

***Cyclolabus marginalis* (Uchida, 1936)**

Pl. 24

Ectopius marginalis Uchida, 1936: 143.

Cyclolabus marginalis: Townes, Momoi & Townes, 1965: 514.

Type series. Holotype, Japan. ♀, Shana, Etorofu Is., Kuriles, Hokkaidô, 11–20, VII. 1935, Y. Sugihara (SEHU). Data on the label: “Kuriles, Etorofu, Y. Sugihara”, “Shana, 11-20. VII. 1935”.

Female (HT). Body length 5.5 mm.

Coloration. Body ground color black and covered with short white setae. Supra-antennal area with a pair of very short white line along eye margin. Vertex with a pair of white spot just along eye. Labrum, maxillary and labial palpi, tegula light brown. Flagellum with white semiannulus on flagellomeres 6–11. Collar of pronotum and subalar ridge with a white marking. Posterior half of scutellum covered with white marking. Wing veins dark brown.

Head. Occipital carina meeting hypostomal carina just above base of mandible, but occipital carina very weakened just above base of mandible. HW/HL = 1.7; OW/HW = 0.7; OOL/POL = 1.0. SCW/SCH = 1.5; CLW/CLH = 2.1. MBL/BMW = 1.7; MSL/BMW = 1.1. MP5/BMW = 2.1.

Antenna. Flagellum 6.0 mm long, with 30 flagellomeres; apical flagellomere conical; FL1 4.2 × as long as apical width and 1.3 × as long as FL2.

Mesosoma. Surface of pronotum shallowly and rather sparsely punctate; mesoscutum densely punctate on coriaceous surface; dorsal and posterior surface of scutellum rather sparsely punctate. postscutellum polished. mesopleuron densely punctate except just above mesopleural fovea sparsely punctate; metapleuron rather weakly punctate; first lateral area of propodeum weakly punctate; second lateral area punctate except for basal 1/4 without puncture; third lateral area weakly transversely rugose; area of areola very weakly rugose; petiolar area rather sparsely punctate. Lateral carinae of scutellum almost reaching apex. MSSL/MSSW = 1.0; ARL/ARW = 0.7; ARW/PSD = 0.4; PSI = 1.4.

Legs. Surface of legs coriaceous, except coxae finely punctate. Hind tibia 0.4 × as long as fore wing.

Wings. Fore wing 5.5 mm long areolet 1.1 × as long as 3rs-m, 0.5 × as high as 2m-cu; 1/M:2/M = 1.0:1.2 Cu-a opposite Rs&M; ramulus slightly developed. Hind wing with cu-a 0.3 × as long as first abscissa of Cu1; a basal hamuli, 8 distal hamuli on R1 vein.

Metasoma. Surface of petiole almost polished; postpetiole coriaceous with a little punctures; lateral area of petiole slightly rugulose; Metasomal tergite coriaceous, with T2–T3 densely punctate except inter-thrydial area granulate. Petiole in dorsal view clearly widened toward spiracle; postpetiole weakly widened; dorsomedian carina complete; median and lateral field of postpetiole clearly separated by dorsomedian carina. T1 L/W = 1.8; T2 L/W = 0.8; THI = 1.2.

Male. Unknown

Diagnosis: This species can be distinguished from other Japanese species of the genus by combination of: T5–T6 without apical white marking; petiole in dorsal view widened posteriorly in basal half; inter-thrydial area granulate.

Distribution: Kuriles (Etorofu Island).

Key to species of Japanese *Cyclolabus*

1. Basal half of petiole parallel sided. Metsomal T5–6 with apical white marks. ... *C. convexus* (Uchida)

-. Petiole widened from base to apex. Metasoma without white mark. ... 2

2(1). Median field of postpetiole entirely distinct. Inter-thyridial area polished. ... *C. kyushuensis* **sp. nov.**

-. Median field of postpetiole ambiguous on apical half. Inter-thyridial area granulated. *C. marginalis* (Uchida)

Genus *Dentilabus* Heinrich, 1974

Dentilabus Heinrich, 1974: 147 [Type species: *Platylabus variegatus* Wesmael, 1845; original designation.]; Tereshkin, 2009: 1522.

Description based on Palearctic species.

Head. Gena narrowed to occiput from behind eyes in dorsal view; ocellar triangle slightly or not elevated above eyes. Antennal cavity of supra-antennal area expressed and polished; internal margins of compound eyes parallel; supra-antennal area with small and distinct tubercle between antennal sockets; antennal sockets large, protruding anteriorly in dorsal view ; clypeus strongly convex, transverse, with straight apical margin; anterior tentorial pits large and elongate; labrum as wide as apical margin of clypeus, trapezoid, with straight apical margin, protruding from under clypeus. Mandible slender, sharply narrowed to basal 1/3, and gradually narrowed from base to apex, with small lower tooth. Malar space considerably longer than mandible base. Occipital carina complete and meeting hypostomal carina above base of mandible or fading out far above base of mandible; dorsomedian part of occipital carina evenly arched. Maxillary palpus long, 2nd segment almost triangular, flat and not bulging.

Antenna. Flagella bristle-shaped, very long and slender, not flattened. Male antenna with or without distinct tyloids.

Mesosoma. Collar of pronotum short, transverse furrow of pronotum not interrupted by keel. Pronotal base without angular prominence. Mesonotum strongly convex, notauli weak, almost not developed, or clearly developed in anterior 1/3. Prepectal carina complete; subalar ridge not sharpened; sternaulus indistinct, not developed or shallow but reaching to middle of mesonotum; postpectal carina absent. Scutellum highly elevated, with lateral carinae. Hind margin of metanotum with a triangle projection on

each side of postscutellum. Propodeum usually with complete set of carinae; costula very weak or often atrophied; pleural carina rarely very indistinct; apex of second lateral area with distinct short apophysis almost perpendicular to surface of propodeum. Propodeal spiracle considerably longer than wide.

Legs. Slender and long. Fore and mid tarsomeres 2–5 weakly flattened, widened to apex, and with fine short hairs; spines on tarsomeres 2–4 short.

Wings. Areolet usually quadrangular, slightly petiolate above and almost symmetrical, or pentagonal and asymmetrical; single bulla on 1m-cu and 3rs-m, two bullae on 2m-cu; ramulus slightly developed or absent. Hind wing with vein cu-a.

Metasoma. Amblypygous**.** Petiole in profile straight, flattened, clearly wider than deep, bending at base of postpetiole; in dorsal view clearly broadened posteriorly; dorsolateral carina and ventrolateral carina distinct, dorsomedian carina indistinct at least on basal portion of postpetiole. Gastrocoelus usually deep, quadrangular, oblique to body axis; thyridium wider than inter-thyridiae interval; inter-thyridiae area usually with impression. Parathyridium large, distinct. Hypopygium with apical margin protruding and longitudinal fold in middle; ovipositor sheath with apex conical, slightly protruding behind apex of metasoma. Sternites 2–4 laterally sclerotized and middle part weakly sclerotized, sternite 5 entirely sclerotized; S2 & 3 with lateral lobe, completely separated by crease, subsequent sternites without lateral lobe (fused).

Diagnosis. This genus can be easily distinguished from other genera of the tribe Platylabini by a combination of the following characteristics: gena narrowed to occiput from behind eyes in dorsal view; 2nd segment of maxillary palpus almost triangular, flat and not bulging; transverse furrow of pronotum not interrupted by keel; mesoscutum very densely punctate and not shining; apex of second lateral area of propodeum with

distinct short apophysis; propodeal spiracle elongate; thyridium distinctly developed and wider than inter-thyridial interval.

Remarks. In the original description of the genus, Heinrich (1974) pointed out that *Dentilabus* resembles *Platylabus* Wesmael and the differences are as follows: (1) horizontal part of propodeum is relatively longer in *Dentilabus*; area dentiplae [=second lateral area] also elongated, more precipitous, and ending in pointed apophysis; (2) temples narrow immediately behind the eyes and more towards the back; (3) middle of T2 base with a distinct longitudinal depression; (4) metasoma of the female longer than in the typical *Platylabus*, approximately parallel sided; (5) mesoscutum always very densely punctate, dull. He also mentioned that the male flagellum lacks a distinct tyloid. The connection between occipital and hypostomal carinae is mentioned in the recent redescription of the genus by Tereshkin (2009). In the species in our study, *D. nigripodus* fits well with the previous definition of the genus. In contrast, *D. iyoensis* possesses some characteristics that do not fit the description of this genus, particularly the presence of tyloids, ventrally incomplete occipital carina, pentagonal areolet, rather shallow gastrocoelus, and rather wider inter-thyridiae area without any depression. The morphology of T2 is also similar to that in *Platylabus*. However, weakly developed costulae and clearly developed apophysis on propodeum are typical for *Dentilabus*. Moreover, the depression on the inter-thyridiae area is weak or almost absent in some specimens of *D. nigripodus*. I have included the new species, *D. iyoensis,* in this genus, and rather than place it in a new genus, we have modified the generic concept of *Dentilabus* to encompass *D. iyoensis* (see also under genus description). Also, the presence of angulation on the ventral margin of the penis valve is shared by *D. iyoensis* and *D. nigirpodus.*

***Dentilabus nigripodus* sp. nov.**

Pls. 25, 26

Type series. Holotype, ♀, **JAPAN**: Namakusa-dani, Odamiyama, Kita-gun, Ehime Prefecture, Shikoku, 28. VII. 2000, Eiji Yamamoto (EUMJ). Data label: "(Ehime JAPAN) / Namakusa-dani / Odamiayama / 28. VII. 2000 / E. Yamamoto"

Paratypes, JAPAN: [Hokkaidô] 1♂, Bekanbeushi marsh, Akkeshi Town [43.105N, 144.875E, MT], 12–31. VII. 2003, Rikio Matsumoto (OMNH); 2♂ (2–17. VII. 2010), 1♂ (17–31. VII. 2010), Headwaters of Sarugawa river, Niisho-tôge [42.974N, 142.749E, MT], N. Kuhara (EUMJ); 1♂ (9–23. VII. 2007), 1♂ (23. VII. – 5. VIII. 2007), Brooklet near Noborikawa-tunnel, Yubari [42.919N, 142.116E, MT], N. Kuhara (EUMJ); 1♀, Kamuikotan, Asahikawa City, 16. VIII. 1982, K. Furukawa (SEHU); 1♂ (15–27. VII. 1994), 1♂ (27. VII. – 13. VIII. 1994), Misumai, Sapporo City, N. Kuahara (EUMJ); 1♂, Kan'non-zawa, Misumai, Sapporo City, 16–27. VII. 1992, N. Kuahara (NIAES). **[Honshû]** Ishikawa Pref.: 1♂, Fukuoka, Kawachi-mura, 8. IX. 1989, I. Togashi (NIAES). Hyôgo Pref.: 1♂, Nakusa, Myôken, Tajima, 9. VIII. 1952, K. Iwata (MNHAH); 1♂, Fujioka, Sasayama, 10. VI. 1953, S. Taniguchi (MNHAH); 1♂, Tanba, Sasayama, 17. VI. 1953, K. Nohara. Okayama Pref.: 1♂, Kanba, Okayama, 8. VI. 1947, J. Minamikawa (NIAES). **[Shikoku]** Ehime Pref.: 2♂ (29. VI. 2000), 1♀1♂ (4. VII. 2000), 2♂ (10. VII. 2000), 1♀ (27. VII. 2000), 2♂ (8. VIII. 2000), 3♂ (15. VIII. 2000), 6♂ (21. VIII. 2000), 1♀ (4. IX. 2000), Namakusa-dani, Odamiyama, Kita-gun, Eiji Yamamoto (EUMJ); 3♂ (6. VII. 2000), 1♂ (15. VII. 2000), Koyayama, Odamiyama, Eiji Yamamoto (EUMJ) & 1♂ (25. IX. 1994), same locality and collector, (NIAES). **[Kyûshû]** Fukuoka Pref.: 1♂ (24. V. 1956), 1♀ (25. V. 1956), Hikosan, S. Momoi,

(MNHAH). **KOREA: [Gangwon-do]** 1♂, Mt. Gariwang, Daehwa-ri, Pyeongchang-gun [37.530N, 128.498E, MT], JD. Yeo & JD Yoon (NIBR, IN0000199569).

Coloration. Body ground color black and covered with short white setae. Vertex with a pair of white spots along eye margin; supra-clypeal area with a pair of white spots along eye margin in female, a pair of white lines along eye margin in male (white colorings on head of female often absent as in Fig. 6 but in males usually developed). Flagellum with white semiannulus on flagellomeres 7(8)–11 in female, 9–13 in male. Apex of collar of pronotum with or without single white spot. Subalar ridge, scutellum and postscutellum with or without white spot; propodeal spine white or black, in some specimens white spots extending from propodeal spine to entire of third lateral area. Wing veins dark to light brown. Metasomal T1 with or without a pair of white spots on apicolateral margin of postpetiole; T2 with apical white band; T3 with or without apical white margin; T6 and T7 with broad white band on apex.

Female. Body length 7.9–11.0 mm.

Head. Surface of vertex and gena coriaceous, with rather shallow punctures (often almost without punctures); area between anterior ocellus and antennal cavity weakly strigose; supra-clypeal area and clypeus almost polished to weakly granulate, with punctures; malar space finely granulate. Head 1.9–2.0 × as wide as long in dorsal view; postocciput 0.5–0.6 × as wide as head in dorsal view; OOL/POL = 1.0–1.6. Supra-clypeal area 1.6–1.9 × as wide as high; clypeus 1.9–2.3 × as wide as high. Mandibles 1.7–2.0 × as long as mandibular base; lower tooth 0.3–0.4 × as long as upper tooth length. Malar space 0.7–0.9 × as wide as base of mandible. Occipital carina

meeting hypostomal carina above base of mandible by 0.7–0.9 × width of mandibular base. Maxilla with 5th segment of palpus 1.8–1.9 × as long as mandibular base.

Antenna. Flagellum 8.2–9.8 mm long, with 33–35 flagellomeres; apical flagellomere conical; 1st flagellomere 4.8–6.3 × as long as apical width and 1.3–1.6 × as long as the 2nd.

Mesosoma. Surface of pronotum densely punctate except lower half rugose; mesoscutum finely granulate, with dense punctures; dorsal surface of scutellum sparsely punctate and posterior surface of scutellum rather densely punctate; postscutellum polished and the anterior edge weakly rugulose; mesopleuron densely punctate except around mesopleural fovea sparsely punctate; metapleuron densely punctate; propodeum rugose or rugose punctate, area of areola coarsely rugose. Mesoscutum 1.4–1.5 × as long as wide. Notaulus indixtinct. Sternaulus indistinct; postpectal carina absent. Lateral carinae of scutellum reaching apex, hind margin not carinated. Propodeum in profile, basal area flat and evenly slanted from base of areola; juxtacoxal carina present, often indistinct in basal half; areola quadrangular 0.9–1.1 × as long as wide and 0.3–0.4 × as wide as distance of propodeal spiracles; petiolar area 1.7–2.4 × as long as areola. Propodeal spiracle 2.2–2.8 × as long as wide.

Legs. Surface of legs polished with shallow punctures. Hind tibia 0.4 × as long as fore wing.

Wings. Fore wing 7.0–9.0 mm long; areolet 0.8–0.9 × as long as 3rs-m, 0.3 × as high as 2m-cu, quadrangular and slightly petiolate; Cu-a opposite Rs&M; ramulus developed or absent. Hind wing with cu-a 0.3–0.4 × as long as first abscissa of Cu1; 1–2 basal hamuli, 8–10 distal hamuli on R1 vein.

Metasoma. Surface of T1 polished with weak punctures or wrinkles; lateral area of petiole rugose punctate; T2 and basal half of T3 densely punctate; T4–T7 coriaceous. Petiole bend obtuse angle, in profile the angle between petiole and postpetiole 120–-125°; in dorsal view broadened posteriorly; T1 1.8–2.1 × as long as wide. Second tergite in dorsal view 0.8–1.2 × as long as wide at apex. Inter-thyridiae interval 0.3–0.5 × as long as thyridium; inter-thyridiae area strongly to moderately depressed.

Male. Body length 8.0–11.2 mm. As in female except for the following characters: first flagellomere 3.2–4.4 × as long as apical width; scutellum more coarsely punctate; hind tibia 0.4 × as long as fore wing; apical margin of subgenial plate rounded; male genitalia as in Figs 17–19, paramere with transparent areas as in Fig. 19, apex of paramere truncate, penis valve with apex tapering and elongate and with a small hook on ventral margin at around apical 1/3.

Distributions: Hokkaidô, Honshû, Shikoku, Kyûshû; **Korea**.

Etymology: The name comes from a combination of the Latin word “nigrus” and “podus”, that means “balck” and “leg”.

Remarks. This species resembles the European species, *D. variegatus*, the type species of the genus, and the differences are very small, but it is distinguished by coloration; often pale spots on the face of females reduced or absent (in *D. variegatus* usually distinct), scutellum and teeth on propodeum often uniformly black (in *D. variegatus*, usually white or whitish yellow), and all femora and tibiae almost uniformly black (in *D. variegatus*, although often hind tibiae and apical 1/3 of hind femora becoming black, usually all femora and tibiae mostly reddish brown to orange). In addition, the propodeum in profile is rather long and basal area is not clearly depressed (in *D. variegatus*, propodeum in profile shorter and basal area considerably depressed), and

bending angle of T1 is a little more acute than in *D. variegatus*, are useful to distinguish the two species.

***Dentilabus iyoensis* sp. nov.**

Pl. 27

Type series. Holotype, ♀, **JAPAN**: Mt. Saragamine, Ehime Prefecture, Shikoku, 1. VI. 1955, Mutsuo Miyatake (EUMJ). Data on the label: "Shikoku / Mt. Sara / VI. 1, 1955 / M. Miyatake"

Paratype, JAPAN: [Sikoku] Komeneno, Matsuyama City, Ehime Prefecture, 27. V. 1978, M. Kotani (EUMJ).

Coloration. Body ground color black and covered with short white setae. Vertex with a pair of white spots along eye margin; supra-clypeal area with a pair of white line along eye margin in male. Flagellum with white semiannulus on flagellomeres 7–11 in female, 10–14 in male. Propodeal spine reddish brown. In female, fore and mid tibiae and tarsi reddish brown. In male, fore femur reddish brown, fore and mid tibiae whitish brown, and all tarsi yellowish white. Wing veins dark brown. Metasomal T2 with apical reddish brown band; T7 with broad white band on apex.

Female. Body length 8.7 mm.

Head. Surface of vertex and gena granulate; supra-clypeal area and clypeus granulate, with shallow, small punctures; malar space rather finely granulate. Head 1.9 × as wide as long in dorsal view; postocciput 0.5 × as wide as head in dorsal view; OOL/POL = 1.2. Supra-clypeal area 1.8 × as wide as high; clypeus 1.6 × as wide as high. Mandibles 2.0 × as long as mandibular base; lower tooth 0.3 × as long as upper tooth length. Malar space 0.7 × as wide as base of mandible. Occipital carina not meeting hypostomal

carina, fading out near hypostomal carina above base of mandible by 0.9 × width of mandibular base. Fifth segment of maxillary palpus 2.2 × as long as mandibular base.

Antenna. Flagellum 9.7 mm long, with 37 flagellomeres; apical flagellomere conical; 1st flagellomere 5.8 × as long as apical width and1.6 × as long as the 2nd.

Mesosoma. Surface of pronotum densely punctate except lower half weakly rugose; mesoscutum and dorsal surface of scutellum finely granulate, with dense punctures; postscutellum weakly rugulose; mesopleuron densely punctate except around mesopleural fovea sparsely punctate, and anterior margin striate; metapleuron densely rugose-punctate; propodeum coarsely rugose-punctate, area of areola coarsely rugose. Mesoscutum 1.4 × as long as wide. Notaulus developed on apical 1/3. Sternaulus weakly developed apical half; postpectal carina absent. Lateral carinae of scutellum reaching apex, hind margin slightly carinated. Propodeum in profile, basal area flat and evenly slanted from base of areola; juxtacoxal carina present, indistinct; costula weakly zigzagged; pleural carinae weak; areola quadrangular, 1.2 × as long as wide and 0.3 × as wide as dorsal distance between propodeal spiracles; petiolar area 2.2 × as long as areola. Propodeal spiracle 1.8 × as long as wide.

Legs. Surface of legs coriaceous, except hind coxa with small punctures. Hind tibia 0.4 × as long as fore wing.

Wings. Fore wing 6.9 mm long; areolet 1.3 × as long as 3rs-m, 0.4 × as high as 2m-cu, almost pentagonal; Cu-a opposite Rs&M; ramulus slightly developed. Hind wing with cu-a 0.3 × as long as first abscissa of Cu1; 2 basal hamuli, 8 distal hamuli on R1 vein.

Metasoma. Surface of petiole polished; postpetiole and basal 1/4 of T2 finely rugose punctate; lateral area of petiole coarsely rugose-punctate; apical 3/4 of T2 and basal half of T3 densely punctate; T4–T7 coriaceous. Petiole bend obtuse angle; in profile the

angle between petiole and postpetiole 100°; in dorsal view broadened posteriorly; T1 2.0 × as long as wide; dorsomedian carina distinct from base to spiracle position, and indistinct on postpetiole; Second tergite in dorsal view 0.9 × as long as wide at apex. Inter-thyridiae interval 0.8 × as long as thyridium; inter-thyridiae area not depressed.

Male. Body length 8.5 mm. As in female except for the following characters: first flagellomere 5.6 × as long as apical width; hind margin of scutellum distinctly carinated; male genitalia with apex of paramere almost rounded, apex of penis valve not elongated and ventral margin of penis valve with a right-angled corner near middle.

Distributions: Shikoku.

Etymology: The name comes from the old country name of type locality, “Iyo”.

Remarks. This species is quite different from other members of the genus *Dentilabus* and can easily be distinguished from the other known members of the genus by the following characters; presence of tyloids, ventrally incomplete occipital carina, pentagonal areolet, shallow gastrocoelus, and wider inter-thyridiae area without any depression. We could find only a pair of specimens that we examined here. These specimens were old, thus, to keep specimens in complete condition, we have not dissected them. It seems to be quite a rare species, and more specimens are required to clarifying the species limits and variability.

Key to Palearctic species of *Dentilabus*

1. Occipital carina meeting hypostomal carina. Notaulus not developed. Punctures on scutellum sparser than on mesoscutum. Areolet quadrangular, often slightly petiolate. Hind femur black or reddish. Punctures on postpetiole not reaching to

its hind margin. Gastrocoelus quite deep, interval between thyridiae depressed. Male flagellum without distinct tyloid. ... 2

-. Occipital carina not meeting hypostomal carina. Notaulus developed in apical 1/3. Mesoscutum and scutellum uniformly densely punctate. Areol*et al*omost pentagonal, never petiolate. Hind femur black. Dorsomedian carina distinct from base to the line of T1 spiracles. Punctures on postpetiole reaching to its hind margin. Gastrocoelus rather shallow, interval between thyridiae not depressed. Male flagellum with distinct tyloids. ... *D. iyoensis*, **sp. nov.**

2(1). More developed white spots and bands. All femora and tibiae mostly orange to reddish brown. Propodeum in profile a little shorter, petiolar area more than 2.7 × as long as areola. Bend of T1 a little more obtuse, in profile the angle between petiole and postpetiole about 140°. ... *D. variegatus* (Wesmael)

-. White pattern on the body often reduced. All femora and tibiae blackish. Propodeum in profile a little longer, petiolar area 1.7–2.4 × as long as areola. Bend of T1 a little more acute, in profile the angle between petiole and postpetiole 120–-125°.... *D. nigripodus*, **sp. nov.**

Genus *Ectopius* Wesmael, 1859

Ectopius Wesmael, 1859: 14 [Type species: *Ichneumon rubellus* Gmelin, 1790; monobasic.]; Townes *et al*., 1965: 513; Tereshkin, 2009: 1443–1445.

Description based on Japanese species.

Head. Gena convex behind eye in dorsal view; ocellar triangle weakly elevated above eyes. Antennal cavity of supra-antennal area expressed and polished; internal margins

of compound eyes parallel; supra-antennal area with small tubercle between antennal sockets; antennal sockets large, protruding anteriorly in dorsal view; supra-clypeal area weakly convex; clypeus moderately convex, transverse, with straight apical margin, clearly divided from supra-clypeal area by furrow; anterior tentorial pits small, slit-shaped; labrum with straight apical margin, slightly protruding from under clypeus. Mandible rather slender with small lower tooth. Malar space shorter than mandibular base. Occipital carina complete; dorsomedian part of occipital carina angled; hypostomal carina normal, meeting with occipital carina above mandibular base. Maxillary palpus long, 2nd segment flat, strongly bulging.

Antenna. Flagella bristle-shaped, slender, not flattened.

Mesosoma. Collar of pronotum short, transverse furrow of pronotum not interrupted by keel. Pronotal base without angular prominence. Mesonotum strongly convex, notauli weakly developed on apical 1/3. Prepectal carina complete; subalar ridge rather thin; sternaulus distinct, reaching middle of mesopleuron; postpectal carina absent. Scutellum highly elevated, dorsal surface almost flat, lateral carina reaching apex. Hind margin of metanotum with a triangle projection on each side of postscutellum. Propodeum with costula; juxtacoxal carina absent; pleural carina complete; areola quite short and wide, hexagonal, anterior margin truncate; apex of second lateral area without tooth. Prpodeum shortened, triangular in profile. Propodeal spiracle small, roundish.

Legs. Rather stout and long. Fore and mid tarsomeres 2–5 weakly flattened, widened to apex, and with fine short hairs; spines on tarsomeres 2–4 reduced, shortened.

Wings. Very long. Areolet pentagonal; single bulla on 1m-cu and 3rs-m, two bullae on 2m-cu; ramulus slightly developed. Hind wing with vein cu-a.

Metasoma. Amblypygous**.** Petiole in profile straight, flattened, wider than deep, almost not bending; in dorsal view, basal half almost parallel sided; dorsomedian carina and dorsolateral carina complete; postpetiole with distinct median field. Gastrocoelus shallow, in form of longitudinal furrow; thyridium absent. Parathyridium moderate, distinct. Hypopygium with apical margin protruding, and with tuft of setae; ovipositor sheath narrowed toward apex, and apex rounded; S2–4 laterally sclerotized and middle part weakly sclerotized, S5 entirely sclerotized.

Diagnosis. This genus can be distinguished from other genera of the tribe Platylabini by a combination of the following characteristics: head convex in dorsal view; areola very short, propodeum in profile triangular; gastrocoelus shallow, in form of longitudinal furrow and thyridium absent.

Distributions. Japan (1 sp.); Palearctic (2 spp.).

Remarks. This genus has very unique shape of propodeum, no similar characteristic was found within Platylabini. The shape of gastrocoelus is also quite peculiar, and it resembles the genus *Heinrichiellus*.

***Ectopius nigricapitis* sp. nov.**

Pls. 6-O, P, 28

Type series. Holotype, ♀, **JAPAN**: Mt. Kakezuyama, Geihoku Town, Hiroshima Pref., 10. X. 1998, Rikio Matsumoto (OMNH). Data on the label: "JPN / Honshu // [Hiroshima] // Geihoku t. // Kakezuyama // 10. Oct. 1998 // R. Matsumoto leg.".

Paratypes, JAPAN: [Kyûshû] 3♂♂, Mt. Shiratoriyama, Izumi Vil., Kumamoto Pref., 5. X. 1979, T. Goto (NIAES).

Female (HT). Body length 6.0 mm.

Coloration. Body ground color black and covered with short white setae. Supra-clypeal area with a pair of white line along inner eye margin. Maxillary and labial palpus ivory. Flagellum with white semiannulus on flagellomeres 9–15. Tegula white. Scutellum and postscutellum with yellow spot. Fore and mid tarsi reddish brown. Wing veins dark brown. Apical margin of T5–7 with white mark.

Head. Surface of head sparsely and shallowly puncate. HW/HL = 1.8; OW/HW = 0.7; OOL/POL = 0.7. SCW/SCH = 1.5; CLW/CLH = 2.3. MBL/BMW = 2.1; MSL/BMW = 0.5. MP5/BMW = 2.6.

Antenna. Flagellum 6.5 mm long; with 34 flagellomeres; apical flagellomere conical; FL1 3.9 × as long as apical width and 1.3 × as long as FL2.

Mesosoma. Surface of pronotum polished, without puncture; mesoscutum, dorsal surface of scutellum, postscutellum, mesopleuron and metapleuron polished and very weakly punctate; surface of propodeum very slightly strigose, alomost polished. MSSL/MSSW = 1.0; ARL/ARW = 0.3; ARW/PSD = 0.3; PSI = 1.7.

Legs. Surface of legs coriaceous, except coxae finely punctate. Hind tibia 0.3 × as long as fore wing.

Wings. Fore wing 7.0 mm long; areolet 1.0× as long as 3rs-m, 0.6 × as high as 2m-cu; 1/M:2/M = 1.0:1.1 Cu-a opposite Rs&M; ramulus slightly to moderately developed. Hind wing with cu-a 0.3 × as long as first abscissa of Cu1; 1 basal hamulus, 7 distal hamuli on R1 vein.

Metasoma. Surface of metasomal tergites polished except T2 coriaceous. Postpetiole slightly narrowed posteriorly. T1 L/W = 3.8; T2 L/W = 1.1.

Male. Body length 6.0–6.5 mm. As in female except for the following characters: FL1 2.9–3.1; paramere of genitalia short, apex rounded.

Diagnosis: This species resembles the congener *E. rubellus*, but can be distinguished by coloration and shape of dorsomedian part of occipital caina (in *rubellus*, slightly arched, never angled).

Distribution: Honshû, Kyûshû.

Etymology: The name comes from a combination of Latin words; “nigra” means “black” and “caputus” means “head”.

Remarks: This species represent the first record of the genus from Japan.

Genus *Heinrichiellus* Tereshkin, 2009

Heinrichia Tereshkin, 1996: 89 [Type species: *Heinrichia hildegardae* Tereshkin; monobasic. Preoccupied by *Heinrichia* Stresemann, 1931].

Heinrichiella Tereshkin, 2000: 232 [New name for *Heinrichia* Tereshkin, 1996. Preoccupied by *Heinrichiella* Hedwig, 1949].

Heinrichiellus Tereshkin, 2009: 1535 [New name for Heinrichiella Tereshkin, 2000]; Kikuchi & Konishi, 2015: 32.

Heinrichiola Kocak & Kemal, 2009: 1 [New name for *Heinrichiella* Tereshkin, 2000].

Description based on Japanese species.

Head. Gena narrowed to occiput from behind eyes in dorsal view; ocellar triangle slightly elevated above eyes. Antennal cavity of supra-antennal area not expressed; internal margins of compound eyes parallel; small and distinct tubercle between antennal sockets; antennal sockets large, protruding anteriorly in dorsal view; clypeus strongly convex, transverse, with straight apical margin; anterior tentorial pits large, circular; labrum as wide as apical margin of clypeus, trapezoid, with almost straight to

weakly concave apical margin, slightly protruding from under clypeus. Mandible slender, sharply narrowed to basal 1/3, and gradually narrowed from base to apex, with small lower tooth. Malar space as long as or longer than mandible base. Occipital carina complete and meeting hypostomal carina above base of mandible; dorsomedian part of occipital carina evenly arched. Maxillary palpus very long, 2nd segment almost triangular, flat and not bulging.

Antenna. Flagellum bristle-shaped, very long and slender, not flattened; apical segment conical. Male antenna without distinct tyloid.

Mesosoma. Collar of pronotum short, transverse furrow of pronotum not interrupted by keel. Pronotal base without angular prominence, almost straight. Mesonotum strongly convex, notauli weakly to strongly developed. Prepectal carina complete; subalar ridge not sharpened; sternaulus somewhat distinct, reach to the middle of mesopleuron; postpectal carina absent. Scutellum highly elevated, with lateral carinae. Hind margin of metanotum with a triangle projection on each side of postscutellum. Propodeum usually with complete set of carinae; pleural carina sometimes rather indistinct; apex of second lateral area with distinct apophysis. Propodeal spiracle circular to somewhat elongate.

Legs. Slender and long. Fore and mid tarsomeres 2–5 weakly flattened, widened to apex, and with fine short hairs; spines on tarsomeres 2–4 normal.

Wings. Areolet pentagonal, symmetrical or asymmetrical; single bulla on 1m-cu and 3rs-m, two bullae on 2m-cu; ramulus slightly developed or absent. Hind wing with vein cu-a; 2/Cu1 often translucent.

Metasoma. Amblypygous**.** Petiole in profile straight, not clearly flattened, almost as wide as deep, weakly bending at base of postpetiole; in dorsal view gradually broadened posteriorly; dorsolateral carina and ventrolateral carina absent, cross section of petiole

rounded. Gastrocoelus shallow, in the form of a longitudinal furrow; thyridium small, rounded and at far distant from base of T2 or absent; Parathyridium large, distinct on T2. Hypopygium with apical margin protruding and longitudinal fold in middle; ovipositor sheath oval in profile, with apex conical, slightly protruding behind apex of metasoma. Sternites 2–4 laterally sclerotized and middle part membranous, S5 entirely sclerotized, S2, 3 with lateral plate, completely separated by crease, S4, 5 without lateral lobe.

Diagnosis. This genus can be easily distinguished from other genera of the tribe Platylabini by a combination of the following characteristics: Antennal cavity of supra-antennal area not expressed; sternaulus developed; carinae of propodeum developed including costula; apex of second lateral area of propodeum with distinct apophysis; dorsolateral carina and ventrolateral carina absent, cross section of petiole rounded; gastrocoelus shallow, in the form of a longitudinal furrow; thyridium small, rounded and at far distant from base of T2 or absent; S2–5 with lateral lobe completely separated by crease.

Remarks. So far, only one species of the genus were described. The species described in present thesis possess following characteristics that do not fit the definition of this genus; small and rounded propodeal spiracle (in *H. japonicus* sp. nov. and *H. kusigematii* sp. nov.); absence of thylidium (*H. japonicus* sp. nov.). Thus, here we redescribed the genus as above. In this genus, metasomal sternites with complete lateral lobe on S5. This characterisitic has not been shared with any other genera of the tribe. The present phylogenetic analysis did not recover this genus within Platylabini clade (Pls. 63, 64). In this thesis, I treat this genus as Platylabini temporally. The tribal position should be revised.

***Heinrichiellus kusigematii* sp. nov.**

Pl. 29

Type series. Holotype, ♂, Japan: Mt. Kisrishima, Kagoshima Pref., Kyûshû, 6. VI. 1966, Kanetosi Kusigemati (SEHU). Data on the label: "Mt. Kirishima // Kyushu // 6. VI. 1966 // K. KUSIG".

Male (HT). Body length 8.0 mm.

Coloration. Body ground color dark brown. Supar-clypeal area and clypeus ivory, with median part brown. Flagellum with white semiannulus on flagellomeres 11–14. Ivory spots on collar of pronotum, lateral part of pronotum, tegula. Scutellum, subalar ridge, apophysis of propodeum ivory. Wing veins dark brown.

Head. Surface of vertex, gena, supra-clypeal area and clypeus densely slightly coriaceous; malar space rather finely granulated. HW/HL = 1.5; OW/HW = 0.5; OOL/POL = 1.2. SCW/SCH = 0.9; CLW/CLH = 2.0. MBL/BMW = 2.0; MSL/BMW = 1.4. MP5/BMW = 2.2.

Antenna. Flagellum 7.5 mm long, with 35 flagellomeres; apical flagellomere conical; FL1 6.8 × as long as apical width and 1.5 × as long as FL2.

Mesosoma. Surface of pronotum weakly rugose; mesoscutum polished with median part longitudinally strigose; dorsal and posterior surface of scutellum slightly rugose; postscutellum polished; mesopleuron and metapleuron densely punctate except just above mesopleural fovea polished; popodeum weakly strigose. Lateral carinae of scutellum reaching apex. Propodeum with long sharp apophysis. MSSL/MSSW = 1.2; ARL/ARW = 1.1; ARW/PSD = 0.4; PSI = 1.1.

Legs. Surface of legs coriaceous, except hind coxa with shallow punctures. Hind tibia 0.4 × as long as fore wing.

Wings. Fore wing 8.0 mm long; areolet 1.5 × as long as 3rs-m, 0.5 × as high as 2m-cu, pentagonal; 1/M:2/M = 1.0:1.1. Cu-a opposite Rs&M; ramulus not developed. Hind wing with cu-a 0.2 × as long as first abscissa of Cu1; 2 basal hamuli, 7 distal hamuli on R1 vein.

Metasoma. Surface of petiole polished; postpetiole polished and sparsely punctate; T2–7 coriaceous, with T2–3 punctate. Petiole very weakly bend; postpetiole not widened behind spiracle; dorsomedian carina indistinct; median and lateral parts of postpetiole not clearly separated. T1 L/W = 3.4; T2 L/W = 1.3.

Female. Unknown.

Distributions. Kyûshû.

Etymology. This species is named after Dr. Kanetoshi Kusigemati who collected the holotype.

Diagnosis. This species is easily distinguished from othe species of the genus by comination of following characteristics: median part of mesoscutum longituidinally strigose; propodeal spiracle circular; thyridium present.

***Heinrichiellus nambui* sp. nov.**

Pls. 30, 31

Holotype. ♀, 35°56'N 138°54'E, Chichibu City, Saitama Prefecture, Honshu, Japan. Data on the label: "Green School, Ootaki, Saitama, Japan 10. VII. 1999 T. Nambu leg. [YPT & MT]". Deposited in the collection of NIAES. **Paratypes, Japan: [Hokkaidô]** 43°00'N 141°24'E, Hitsujigaoka, Sapporo City, 1♀ (20–27. VIII. 2003), 1♂, (4–11. VIII. 2008), MT, K. Konishi (EUMJ).

Description of Female.

Coloration. Body ground color reddish to blackish brown. Vertex with a pair of white spots along eye margins; clypeus whitish brown medially and white on lateral quarter; maxillary and labial palpi whitish brown; labrum and flagellar annulus (eighth–eleventh flagellomeres) white. Subalar prominence white; scutellum whitish brown on anterior two-third and white on posterior one-third. Metasoma with seventh tergite white. Ovipositor sheath black; basal quarter and apical portion white.

Head. Head 1.5 × as wide as long in dorsal view and coriaceous except area between polished antennal sockets; OOL/POL = 1.1; SCW/SCH = 1.2; CLW/CLH = 1.7; anterior tentorial pits large; labrum very wide, 0.8 × as wide as clypeus, with straight apical margin, protruding from under clypeus. Mandible slender, 3.6 × as long as wide at base, gradually narrowed from base to apex, with lower tooth 0.3 × as long as upper tooth. Malar space 2.2 × as wide as base of mandible. Occipital carina complete and separated from hypostomal carina above base of mandible by 1.4 × width of mandibular base; dorsomedian part of occipital carina evenly arched. Maxillary palpus extremely long, reaching epicnemial carina; fifth segment 4.0 × as long as mandibular base.

Antenna. Flagellum bristle-shaped, very long and slender; apical flagellomere conical; FL1 8.5 × as long as apical width and 1.7 × as long as FL2.

Mesosoma. Collar of pronotum long. Pronotum strigose on coriaceous surface. Mesonotum strongly convex, with notaulus developed to middle of mesonotum; surface of mesonotum granulate with scattered punctures except densely punctate postero-median portion. Epicnemial carina complete; subalar prominence not sharp; impression below speculum not strong; sternaulus distinct, sharp, almost reaching base of middle coxa; postpectal carina absent; surface of mesopleuron obliquely strigose, except speculum slightly polished. Scutellum highly elevated above postscutellum, with

lateral carina reaching apex and dorsal surface almost flat; hind margin of metanotum with a triangular projection on each side of postscutellum. Propodeum in profile with area basalis flat and evenly slanted from base of area superomedia; regular carinae of propodeum complete; basal one-third of juxtacoxal carina distinct; area superomedia pentagonal, 1.1 × as long as wide; apex of area dentiparae with very strongly developed and sharp apophysis, almost perpendicular to surface of propodeum, and the apophysis slightly curved downward or almost straight; surface of propodeum rugose; area metapleuralis strigose. Propodeal spiracle 2.5 × as long as wide.

Legs. Legs very slender and long; all legs longer than fore wing. Hind tibia 9.0 × as long as apical width; ratio of length of tibiae fore:mid:hind = 1.0:1.3:1.8. Tarsal claws not pectinate.

Wings. Fore wing 5.9 mm long; areolet 1.8 × as long as *3rs-m*, 0.7 × as high as *2m-cu*, pentagonal and almost symmetrical; *1m-cu*, *2m-cu*, and *3rs-m* each with single bulla; *Cu-a* opposite *Rs & M*; ramulus absent. Hind wing with *cu-a* one-fourth as long as first abscissa of *Cu1*.

Metasoma. Metasoma coriaceous. First tergite in profile almost straight, slightly bent downward at base of postpetiole; in dorsal view 4.6 × as long as wide at base; petiole very long, rounded in cross-section, not flattened, of approximately equal width and height; in dorsal view petiole slightly broadened posteriorly; dorsomedian carina present only on apical portion of postpetiole. Second tergite in dorsal view 2.8 × as long as wide at base. Gastrocoelus slightly impressed, in form of longitudinal groove. Thyridium oval, distant from base of second tergite by 0.7 × its length. Tergites 3–6 with laterotergites separated by distinct crease. Sternites 2–5 laterally sclerotized and middle part not sclerotized. Hypopygium with apical margin rounded and longitudinally

folded in middle. Ovipositor sheath with apex truncate, protruding beyond apex of metasoma.

Male. As in female except for the following characters: OOL/POL = 1.33; SCL/SCW = 1.5; CLW/CLH = 2.0; F1 7.1 × as long as apical width and 1.5 × as long as F2; apophysis of propodeum shorter than that in female, almost straight; area superomedia 1.2 × as wide as long; genitalia as in Pl. 31; apex of paramere rather narrow and curved downwards; basal apodeme of aedeagus broadened and curved downwards.

Distributions. Hokkaidô, Honshû.

Etymology. This species is named after Mr. Toshiaki Nambu who collected the holotype.

Diagnosis. When this new species is compared with the descriptions of another congener, *H. hildegardae*, by Tereshkin (1996, 2009), they can be distinguished on the basis of the following key.

***Heinrichiellus japonicus* sp. nov.**

Pls. 5-A, 32, 64-D, 65-H

Type series. Holotype, ♀, Japan: Tokyo Metropolitan University, Minamiôsawa, Hahiôji City, Tôkyô, Honshû, 4–26. VII. 2014, MT, Systematic Zoology lab. of TMU (SEHU). **Paratypes, Japan: [Honshû]** Aomori Pref.: Kawaratai, Nishimeya Vil., 2♂♂ (6–14. VII. 2013), 6♂♂ (15–25. VII. 2013), 1♂ (4–19. VIII. 2013), MT, T. Nakamura (EUMJ). Tôkyô: Same locality and collector as HT, 8♂♂ (23. VI. – 4. VII. 2014 [NKHU0025]), 4♂♂ (4–26. VII. 2014). Kanagawa Pref.: 1♂, Mt. Kôbôyama, Hadano City, 15. VI. 2008, K. Watanabe (KPMNH). Niigata Pref.: 1♀22♂♂, Mt Nokogiriyama, Suyoshi, Nagaoka City, 21. VIII. – 22. IX. 2014, MT, S. Shimizu and R. Shimizu

(SEHU). Aichi Pref.: Karisu, Inuyama City, 2♀♀ (19–25. VII. 1996), 2♀♀ (30. VIII. – 5. IX. 1996), 2♀♀ (13–19. IX. 1996), 1♀ (27. IX. – 3. X. 1996), EMT, T. Mabuchi (EUMJ); Mt. Sanageyama, Toyota City, 1♀ (3–9. VII. 1992), 3♀♀ (24–30. VII. 1992), 1♀ (28. VIII. – 3. IX. 1992), 3♀♀ (4–10. IX. 1992), 3♀♀2♂♂ (11–17. IX. 1992), 5♀♀ (18–24. IX. 1992), 3♀♀ (25. IX. – 1. X. 1992), EMT, K. Shima (EUMJ). **[Shikoku]** Tokushima Pref.: 1♀, Ôkawara, Sanagouchi-son, MT, K. Ôhara (EUMJ). Ehime Pref.: Yurano, Kumakôgen, 3♂♂ (30. VI. 2007), 1♂ (10. VII. 2007), MT, E. Yamamoto (EUMJ). [Kyûshû] Kagoshima Pref.: Mt. Takakumayama, 2♂♂ (27. VIII. 1970), 1♀1♂ (28. VIII. 1970), 1♀ (30. VIII. 1970), K. Kusigemati (SEHU). [Yakushima] Mt. Aikodake, 1♀6♂♂ (25. VIII. – 22. IX. 2006), 1♀4♂♂ (8–28. VI. 2007), 3♂♂ (28. VI. – 29. VII. 2007), MT, T. Yamauchi (KPMNH); 8♂♂, Arakawa, 25. VIII. – 22. IX. 2006, MT, T. Yamauchi (KPMNH).

Female. Body length 6.0–7.0 (HT: 7.0) mm.

Coloration. Body ground color dark brown to black. Vertex with a pair of white spot along eye margin. Apical margin of clypeus, mandible, labial and maxillary pulps ivory. Flagellum with white semiannulus on flagellomeres 7–13. Scutellum often with ivory spot (in HT absent). Wing veins dark brown except stigma pale brown. Fore leg reddish brown. Apical half of taromere 1 to tarosmere 4 ivory. T5–7 white.

Head. Surface of head coriaceous, supra-clypeal area and clypeus with shallow punctures; malar space rather finely granulated. HW/HL = 1.8–1.9 (HT: 1.9); OW/HW = 0.5; OOL/POL = 0.8–0.9 (HT: 0.8). SCW/SCH = 1.5; CLW/CLH = 1.9–2.0 (HT: 2.0). MBL/BMW = 2.0; MSL/BMW = 1.0–1.1 (HT: 1.0). MP5/BMW = 3.0–3.2 (HT: 3.2).

Antenna. Flagellum 6.0–7.0 (HT: 7.0) mm long, with 36–39 (HT: 38) flagellomeres; apical flagellomere conical; FL1 5.3–5.7 (HT: 5.5) × as long as apical width and 1.7–1.8 (HT: 1.8) × as long as FL2.

Mesosoma. Surface of pronotum polished; mesoscutum weakly coriaceous with weak punctures, median part very weakly reticulate striate longitudinally; dorsal and posterior surface of scutellum slightly coriaceous, dorsal surface sparsely punctate; postscutellum polished; mesopleuron and metapleuron strigose to reticulate strigose except just above mesopleural fovea polished; popodeum polished. Lateral carinae of scutellum reaching apex. Propodeum with rather short sharp apophysis. MSSL/MSSW = 1.0–1.1 (HT: 1.1); ARL/ARW = 0.8–1.0 (HT: 1.0); ARW/PSD = 0.4; PSI = 1.2–1.8 (HT: 1.7).

Legs. Surface of legs coriaceous, except hind coxa with shallow punctures. Hind tibia 0.4 × as long as fore wing.

Wings. Fore wing 5.0–5.5 (HT: 5.5) mm long; areolet 1.4–1.5 (HT: 1.4) × as long as 3rs-m, 0.5 × as high as 2m-cu, pentagonal; 1/M:2/M = 1.0:1.0. Cu-a opposite Rs&M; ramulus not developed. Hind wing with cu-a 0.2 × as long as first abscissa of Cu1; second abscissa of Cu1 translucent; 1 basal hamulus, 6–7 (HT: 7) distal hamuli on R1 vein.

Metasoma. Surface of petiole polished; postpetiole weakly coriaceous and sparsely punctate; T2–7 coriaceous, with T2 punctate. Petiole slightly bend; postpetiole not widened behind spiracle; dorsomedian carina indistinct; median and lateral parts of postpetiole not clearly separated. T1 L/W = 2.9–3.1 (HT: 2.9); T2 L/W = 0.8–0.9 (HT: 0.8).

Male. Body length 5.0–6.0 mm. As in female except for the following characters: antennal scape, lateral field of supra-clypeal area and clypeus ivory; semiannulus

reduced, just on 11 or 12–14; first flagellomere 4.1–4.5 × as long as apical width; lower margin of pronotum ivory; fore and mid legs usually pale brown; male genitalia with apex of paramere narrowed.

Distributions. Honshû, Shikoku, Kyûshû, Yakushima Is.

Etymology: The name comes from Japan.

Diagnosis. This species is easily distinguished from other species of the genus by comination of following characteristics: head shorter in dorsal view; propodeal spiracle rather short; thyridium absent.

Remarks. A part of specimens were collected by emergence trap on the forest floor. Despite most of specimens from MTs were males, EMT specimens were mostly females. This should be related to their host species. Although the host species is unknown, they are probably small lepidopteran larvae that pupate or live on forest floor.

Key to species of the genus *Heinrichiellus*

1. Thyridium absent. Apophysis on propodeum comparatively shorter. … *H. japonicus* **sp. nov.**

-. Thyridium present. Apophysis on propodeum long. … 2

2(1). Propodeal spiracle circular. Median part of mesoscutum longituidinally strigose. … *H. kusigematii* **sp. nov.**

-. Propodeal spiracle elongate. Median part of mesoscutum not longituidinally strigose … 3

3(2). Body punctate; mesopleura microsculptured; area superomedia of propodeum long and hexagonal in female, almost square in male; spiracles of propodeum 3 × as long as wide; areolet of fore wing asymmetrical. … *H. hildegardae* Tereshkin

-. Body coriaceous with rugosity; mesopleura obliquely strigose; area superomedia of propodeum pentagonal in both sex; spiracles of propodeum 2.5 × as long as wide; areolet of fore wing almost symmetrical. … *H. nambui* **sp. nov.**

Genus *Hypomecus* Wesmael, 1845

Hypomecus Wesmael, 1845: 111 [Type species: *Hypomecus albitarsis* Wesmael, 1845 (=*Mesoleptus quadriannulatus* Gravenhorst 1829); monobasic.]; Townes, 1951: 181; Heinrich, 1962: 794–796; Tereshkin, 2009: 1477–1478.

Description based on Japanese species.

Head. Gena moderately receding behind eye in dorsal view; ocellar triangle moderately elevated above eyes. Antennal cavity of supra-antennal area expressed and polished; internal margins of compound eyes parallel; supra-antennal area with small and distinct tubercle between antennal sockets; antennal sockets large, protruding anteriorly in dorsal view; clypeus moderately convex, transverse, with straight apical margin, clearly divided from supra-clypeal area by groove; anterior tentorial pits moderately large and tear drop shaped; labrum with straight apical margin, protruding from under clypeus. Mandible slender, narrowed to apex, with small lower tooth; apex of upper tooth sharp. Occipital carina and hypostomal carina normal, meeting above mandibular base; dorsomedian part of occipital carina slightly angled. Maxillary palpus long, 2nd segment almost triangular, flat and not bulging.

Antenna. Flagella bristle-shaped, very long and slender, not flattened. Male flagellum semi-serrate, with large, distinct tyloids.

Mesosoma. Collar of pronotum short, transverse furrow of pronotum not interrupted by keel. Pronotal base without angular prominence, evenly curved near lower edge.

Mesonotum strongly convex, notauli rather sharply developed apical 1/3. Prepectal carina complete; subalar ridge moderately thick; sternaulus indistinct, almost not developed; postpectal carina absent. Scutellum highly elevated, dorsal surface flat and inclined, without lateral carinae; posterior surface shagreen. Hind margin of metanotum with a triangle projection on each side of postscutellum. Propodeum with costula, often ambiguous; juxtacoxal carina absent; areola elongate and quadrangular, anterior edge truncate or weakly arched; apex of second lateral area with small tooth. Propodeal spiracle large, longer than wide.

Legs. Slender and long. Fore and mid tarsomeres 2–5 weakly flattened, widened to apex, and with fine short hairs; spines on tarsomeres 2–4 reduced.

Wings. Areolet quadrangular, not petiolate; single bulla on 1m-cu and 3rs-m, two bullae on 2m-cu; ramulus slightly developed. Hind wing with vein cu-a.

Metasoma. Metasoma elongated, very slender and long. Amblypygous**.** Petiole in profile straight, not flattened, higher than wide, bending at base of postpetiole; in dorsal view, rather narrowed from base to middle; dorsolateral carina and ventrolateral carina and dorsomedian carina indistinct; postpetiole without distinct median field. Gastrocoelus rateher deep, quadrangular, strongly oblique to body axis; thyridium clearly developed, wide. Parathyridium large, distinct. Hypopygium with apical margin protruding over last tergite; ovipositor sheath with apex rounded, slightly visible behind apex of metasoma. S2–4 laterally sclerotized and middle part weakly sclerotized, S5 mostly sclerotized and just the middle weakly sclerotized; S2–3 with lateral lobe, completely separated by crease and S4–5 without lateral lobe (fused).

Diagnosis. This genus can be easily distinguished from other genera of the tribe Platylabini by a combination of the following characteristics: clypeus moderately

convex; male flagellum semi-serrate and with strongly developed tyloids; scutellum highly elevated, without lateral carina; posterior surface of scutellum shagreen; metasoma very slender and long; petiole not flattened, higher than the wide.

Distributions. Japan (1 sp.); Holarctic and Oriental regions (1 sp.).

Remarks. This is very peculiar genus within the tribe on morphology of its petiole, that slender and long, and clearly higher than its width. Other characteristics, such as convex clypeus and elongate female hypopygium are very suitable for the tribe. The newly observed characteristics, spines on tarsomere (Pl. 64-E) and metasomal sternites (Pl. 65-C) are also.

***Hypomecus quadriannulatus tylus* Uchida, 1936**

Pls. 5-E, G 33, 64-E, 65-C

Hypomecus tylus Uchida, 1936: 142.

Hypomecus quadriannulatus tylus: Townes, Momoi & Townes, 1965: 514.

Type series. Holotype, ♀, Nikishiro, Nagahama Kunashiri Is., 17. VII. 1935, Toichi Uchida (SEHU). Data on the label: “Kuriles // Kunashiri // T. Uchida”, “Nikishiro // 17-22. VII. 1935”.

Paratypes, JAPAN: [Kunashiri Is.] Furukamappu, 29. VII. 1935, Y. Sugihara (SEHU); Seseki, 28. VII. 1935, T. Uchida (SEHU).

Other specimens examined. JAPAN: [Hokkaidô] Nisshô-toge, Chisaka, Saru-gun, 2♂♂ (2–17. VII. 2010), 1♀ (17–31. VII. 2010), 1♂ (17–31. VII. 2010 [NKHU0047]), MT, N. Kuhara (EUMJ); 1♀, Hitsujigaoka, Sapporo City, 15–22. X. 2003, MT, K. Konishi (EUMJ). **[Honshû]** 1♀, Saitama Pref.: Gonotsubo, Yorii Town, 28. X. 1979, T. Nambu (NIASE). **[Shikoku]** 1♂, Ehime Pref.: Namakusadani, Mt. Odamiyama, 8. VII.

1998, E. Yamamoto (EUMJ). **[Kyûshû]** 1♀, Ôita Pref.: Mt. Kurodake, Mts. Kujû, 17. V. 1980, K. Maetô (NIAES).

Female. Body length 8.0–15.0 (HT: 10.0) mm.

Coloration. Body ground color black and covered with short white setae. Supra-antennal area with a pair of very short white line along eye margin. Vertex with or without (HT: without) a pair of white spot just along eye. Flagellum with white semiannulus on flagellomeres 9–12 to 8–13 (HT: 8–13). Fore and mid tibiae and tarsi with reddish brown part. Hind tarsomere, apical half of 2, and 3–4 white. Wing veins dark brown.

Head. Surface of vertex, gena polished and very sparsely punctate; supra-clypeal area and clypeus weakly punctate; malar space rather finely granulated. Occipital carina meeting with hypostomal carina above mandible by about 0.4 × MBW. Upper tooth of mandible with sharp apex; lower tooth about 0.3 × of upper tooth. HW/HL = 1.8–2.0; OW/HW = 0.6–0.7; OOL/POL = 0.9–1.0. SCW/SCH = 1.8–1.9; CLW/CLH = 1.6–1.8. MBL/BMW = 1.9–2.1; MSL/BMW = 1.3–1.5. MP5/BMW = 2.4–2.9.

Antenna. Flagellum 8.0–14.0 mm long, with 34–40 (HT: 36) flagellomeres; apical flagellomere conical; FL1 5.9–6.5 × as long as apical width and 1.3–1.4 × as long as FL2.

Mesosoma. Surface of pronotum weakly punctate, lower half weakly rugose; mesoscutum polished and densely punctate except median area weakly granulated and punctate; dorsal surface of scutellum punctate; posterior surface of scutellum and postscutellum shagreen; mesopleuron and metapleuron polished and densely, strongly punctate except around mesopleural fovea sparsely; lateral area (1+2) punctate on polished surface; area of areola very weakly to moderately (HT: very weakly) rugose.

On HT, costula very ambiguous, nearly absent. MSSL/MSSW = 1.1–1.2; ARL/ARW = 0.9–1.3; ARW/PSD = 0.4–0.5; PSI = 2.0–2.2.

Legs. Surface of legs coriaceous, except hind coxa with shallow punctures. Hind tibia 0.4 × as long as fore wing.

Wings. Fore wing 7.0–12.5 mm long; areolet 1.0–1.1 × as long as 3rs-m, 0.5–0.7 × as high as 2m-cu, quadroangular; 1/M:2/M = 1.0:1.4–1.5 Cu-a opposite Rs&M; ramulus slightly to moderately developed. Hind wing with cu-a 0.2 × as long as first abscissa of Cu1; 3–4 basal hamuli, 8–10 distal hamuli on R1 vein.

Metasoma. Surface of petiole including lateral area polished; postpetiole moderately rugose; metasomal tergites coriaceous, dull, and T2 with weak punctures; area of gastrocoelus and inter-thrydial area rugose. Basal half of petiole in dorsal view almost parallel sided; postpetiole slightly widened posteriorly. T1 L/W = 2.2–2.5; T2 L/W = 1.0–1.1. THI = 0.4–0.6.

Male. Body length 8.5–12.0 mm. As in female except for the following characters: with much more white marks on head and mesosoma; first flagellomere 5.6 × as long as apical width; flagellum semi-serrate, with distinct oval tyloids; male genitalia with apex of paramere narrowed.

Distributions. Hokkaidô, Honshû*, Shikoku*, Kyûshû*.

Remarks. This genus comprises only single species, *H. quadriannulatus* and very widely spreaded, Holarctic and Oriental regions. This subspecies was originally described as independent species, and Townes *et al*. (1965) treated as a subspecies of *H. quadriannulatus*. In Japan, it has been recorded only from Kuriles. This subspecies differs from nominotypical subspecies only in the coloration of legs. I succeed to obtain DNA barcode from a specimen collected in Hokkaidô [NKHU0047]. A DNA barcode

of nominotypical subspecies from Canada was available on GenBank [JN294083]. I computed p-distance of these two barcodes, and the distance was 1.37%. This is a little bit high within single species, but not too high. Here, I concluded that Japanese populations of *Hypomecus* species were a subspecies of *H. quadriannulatus*, *H. q. tylus*, from molecular and morphological observations.

Genus *Linycus* Cameron, 1903

Linycus Cameron, 1903: 198 [Type species: *Linycus rufipes* Cameron, 1903; monobasic.]; Perkins, 1959: 67; Heinrich 1962: 777–783; Townes *et al*., 1965: 513; Townes & Townes, 1966: 273; Heinrich 1974: 178–179; Heinrich, 1977: 278–279; Tereshkin, 2009: 1454–1455.

Description based on Japanese species.

Head. Gena moderately narrowed behind eye in dorsal view; ocellar triangle weakly elevated above eyes. Antennal cavity of supra-antennal area expressed and polished; polished area of antennal cavity small; internal margins of compound eyes parallel; supra-antennal area with small and distinct tubercle between antennal sockets; antennal sockets large, protruding anteriorly in dorsal view; supra-clypeal area rather convex, protruding anteriorly; clypeus small, moderately convex, transverse, with straight apical margin, clearly divided from supra-clypeal area by furrow; anterior tentorial pits moderate, longish oval; labrum trapezoid shaped, with straight apical margin, strongly protruding from under clypeus. Mandible slender, narrowed to apex, with small lower tooth. Malar space almost as long as mandible base. Occipital carina complete, weakened above mandibular base; dorsomedian part of occipital carina angled;

hypostomal carina slightly widened near mandibular base. Maxillary palpus long, 2nd segment almost triangular, flat and not bulging.

Antenna. Flagella bristle-shaped, long and slender, not flattened.

Mesosoma. Collar of pronotum short, transverse furrow of pronotum not interrupted by keel. Pronotal base without angular prominence, but clearly angled. Mesonotum strongly convex, notauli weakly developed apical 1/3. Prepectal carina complete; subalar ridge rather thin; sternaulus indistinct, developed on apical 1/3; postpectal carina absent. Scutellum highly elevated, dorsal surface moderately convex, with lateral carinae. Hind margin of metanotum with a triangle projection on each side of postscutellum. Propodeum with distinct costula; juxtacoxal carina and pleural carina indistinct; areola usually wide, hexagonal, anterior margin truncate; apex of second lateral area without distinct tooth. Prpodeum short in profile. Propodeal spiracle small, circular to rounded.

Legs. Slender and long. Fore and mid tarsomeres 2–5 weakly flattened, widened to apex, and with fine short hairs; spines on tarsomeres 2–4 normal.

Wings. Areolet pentagonal; single bulla on 1m-cu and 3rs-m, two bullae on 2m-cu; ramulus weakly developed. Hind wing with vein cu-a.

Metasoma. Amblypygous**.** Petiole in profile straight, flattened, clearly wider than deep, bending before base of postpetiole; in dorsal view, basal half weakly widened toward posterior; dorsomedian carina and dorsolateral carina complete; postpetiole with distinct median field. Gastrocoelus shallow, ambiguous; thyridium clearly developed and narrow. Area of gastrocoelus and inter-thyridial area roughly rugose. Parathyridium normal, distinct. Hypopygium with apical margin protruding; cercus with long setae; ovipositor sheath parallel sided with rounded apex, comparatively long, and clearly

protruding behind apex of metasoma. S2–4 laterally sclerotized and middle part weakly sclerotized, S5 entirely sclerotized. S2–4 with lateral lobe, S5 without lateral lobe.

Diagnosis. This genus can be distinguished from other genera of the tribe Platylabini by a combination of the following characteristics: surface of head dull; surpraclypeal area convex and protruding anteriorly; spines on tarsomere 4 normally developed; costula present; propodeum with small tubercle; propodeal spiracle circular; gastrocoelus shallow, the area rugose; cercus with long setae; ovipositor sheath rather long.

Distributions. Japan (1 sp.); Western Palearctic (3 spp.), Eastern Palearctic (2 spp.), Nearctic (4 spp.), Oriental (1 sp.) and Neotropical (4 sp.) regions.

Remarks. This genus resembles species of *Cyclolabus*, but can be distinguished by shape of gastrocoelus, rugae on inter-thrydial area, and development of spines on tarsomere. By the phylogenetic position that estimated in this study, the spines of tarsus should be one of plesiomorphic caharacters.

***Linycus rugosobasalis* sp. nov.**

Pls. 34, 64-F, 65-E

Type series. Holotype, ♀, **JAPAN**: 43°00’ N, 141°24’ E, Hitsujigaoka, Sapporo City, Hokkaidô, 31. VII. – 1. VIII. 2012, YPT, Kazuhiko Konishi (EUMJ). Data on the label: “43°00’ N, 141°24’ E // Hitsujigaoka, Sapporo, // Hokkaido, JAPAN, 31. vii. - // 1. vii. 2012, yellow pan trap // in lettuce field, // K. Konishi”, “NKHU0042”.

Paratypes, JAPAN:[Hokkaidô] Bekanbeushi marsh, Akkeshi Town, 1♀6♂♂ (12–31. VII. 2003), 1♂ (1–31. VIII. 2003), MT, R. Matsumoto (OMNH); 43°00’ N, 141°24’ E, Hitsujigaoka, Sapporo City, 1♂ (23–30. VI. 2008, MT), 1♀ (22–29. VI. 2010, MT), 1♂ (13–14. VIII. 2010, MT), 1♂ (18–25. VII. 2011, MT), 1♀ (3–6. VIII. 2011, YPT), 1♀

(17–18. VIII. 2011, YPT), 1♀ (19–20. VII. 2012, YPT), K. Konishi (EUMJ); 1♀, Maruyama, Sapporo City, 12. VI. 1980, K. Maetô (NIAES). **[Honshû]** Aomori Pref.: Towada, 1♂ (24. VIII. 1966), 1♀ (25. VIII. 1966), K. Kusigemati (SEHU); Sakaimatsu, Aomori City, 13. IX. 1993, T. Ichita (SEHU). Iwate Pref.: Mt. Hayachine, 2♀♀ (27. VI. – 5. VII. 1989), 3♂♂ (19–25. VII. 1989), MT, M. Sharkey and H. Makihara (NIAES). Ibaraki Pref.: 1♂, Narui, Tôyama, Ushiku City, 27. IV. 2009, H. Yoshitake and T. Kurihara (EUMJ). Toyama Pref.: 1♂, Kamimomose, Togamura, Nanto City, 28. VII. – 4. VIII. 2009, MT, M. Watanabe (KPMNH). Hyôgo Pref.: Sasayama, 29. VII. 1962 (MHNAH). **[Shikoku]** Tokushima Pref.: Ôkawara, Sanagouchi-son, 1♀ (4–8. VII. 2016 [NKHU0041]), 1♀ (4–7. VIII. 2016 [NKHU0040]), MT, K. Ôhara (EUMJ). **[Kyûshû]** Fukuoka Pref.: Mt. Fukuchiyama, Kitakyûshû City, 16. VII. 1969, H. Makihara (SEHU); Mt. Tachibana, Fukuoka City, 8. VI. 1981, K. Konishi (NIAES). Saga Pref.: Ideno, Mitsuse Vill., 17. V. 1998, R. Matsumoyo (OMNH).

Female. Body length 6.5–9.0 (HT: 7.0) mm.

Coloration. Body ground color black and covered with short white setae; setae on head and mesoscutum brown. Flagellum with white semiannulus on flagellomeres 6–9. Rarely with reddish brown part on legs or basal part of metasoma. Wing veins dark brown. Metasomal T5–T7 with apical white marking.

Head. Surface of vertex and dorsal part of gena granulated and punctate; supra-clypeal area finely granulated with dense punctures and reticulate rugose; clypeus granulated and densely punctate. Occipital carina meeting hypostomal carina just above base of mandible. HW/HL = 1.9–2.2 (2.0); OW/HW = 0.6–0.7 (HT: 0.6); OOL/POL = 0.9–1.0 (HT: 1.0). SCW/SCH = 1.6–1.7; CLW/CLH = 1.5–1.6 (HT: 1.5). MBL/BMW = 1.9–2.2 (HT: 2.0); MSL/BMW = 1.0–1.4 (HT. 1.3). MP5/BMW = 1.4–1.5 (HT: 1.5).

Antenna. Flagellum about as long as body length, with 31 flagellomeres; apical flagellomere conical; FL1 4.5–5.4 (HT: 4.9) × as long as apical width and 1.4–1.5 (HT: 1.4) × as long as FL2.

Mesosoma. Surface of pronotum, upper half shallowly punctate, lower part longitudinally rugose; mesoscutum dull, granulated and densely punctate, and median part reticulate punctate; dorsal and posterior surface of scutellum rather sparsely punctate; postscutellum polished, with sparse longitudinal rugae; mesopleuron densely punctate and reticulate rugose; metapleuron covered with strong oblique rugae; surface of propoduem roughly rugose. Lateral carinae of scutellum reaching apex. MSSL/MSSW = 0.9–1.0 (HT: 0.9); ARL/ARW = 0.4; ARW/PSD = 0.6–0.8 (HT: 0.7); PSI = 1.2–1.8 (HT: 1.4).

Legs. Surface of legs coriaceous, except coxae finely punctate. Hind tibia 0.4 × as long as fore wing.

Wings. Fore wing 5.0–7.5 (HT: 5.5) mm long; areolet 1.0–1.1 (HT: 1.1) × as long as 3rs-m, 0.5–0.6 (HT: 0.6) × as high as 2m-cu; 1/M:2/M = 1.0:0.9–1.0 (HT: 1.0). Cu-a opposite Rs&M; ramulus slightly to moderately developed. Hind wing with cu-a 0.2 × as long as first abscissa of Cu1; a basal hamulus, 7–9 (HT: 7) distal hamuli on R1 vein.

Metasoma. Surface of petiole almost polished; postpetiole and lateral area of petiole weakly rugose; basal half of T2 roughly punctate; apical half of T2, whole of T3 densely punctate and coriaceous, T4–T5 coriaceous. Petiole in dorsal view almost parallel sided in basal half; postpetiole slightly widened; dorsomedian carina complete; median and lateral field of postpetiole clearly separated by dorsomedian carina. T1 L/W = 1.8–1.9; T2 L/W = 1.0–1.1. THI = 1.5–1.9 (HT: 1.8).

Male. Body length 7.0–8.5 mm. As in female except for the following characters: FL1 3.5–3.8; paramere of genitalia black, apex narrowed.

Diagnosis: This species can be easily distinguished from other species of the genus by combination of: head, mesoscutum and scutellum always entirely black; basal half of T2 roughly rugose.

Distribution: Hokkaidô, Honshû, Shikoku, Kyûshû.

Etymology: The name comes from a combination of Latin words, "rugosus" means "wrinkled" and "basale" means "basal", after the sculpture of metasaomal T2.

Remarks: I compared Japanese specimens of this genus to Taiwanese *L. gotoi* Kusigemati, 1989 and genotype species, *L. exhortator* from Europe (deposited in SEHU and TARI) and Korea (deposited in EUMJ and NIBR). Japanese specimens are very similar to *L. exhortator* except for entirely black body coloration of Japanese specimens. Additionally, Japanese specimens have some color variations, such as Pl. 34-H, I. To identify Japanese specimens, I examined DNA barcode obtained from three Japanese specimens including color variations [NKHU0040–0042], and also compared DNA barcode from Genbank; *L. exhortator* from Canada [MK959435] and UK [KY998734]. No difference was found between sequences of Canada and UK. The maximum p-distance among Japanese specimens was less than 1.2%. The minimum p-distance between Japanese specimen and *L. exhortator* was about 5.2%. This difference means almost undoubtfully different species. Thus, here I described Japanese specimens as a new species.

Genus *Metopilabus* gen. nov.

Type species: *Metopilabus robustus* gen. et sp. nov

Description.

Head. Head clearly transverse. Gena moderately narrowed behind eye in dorsal view; ocellar triangle elevated above eyes. Antennal cavity of supra-antennal area expressed and polished; polished area of antennal cavity normal; internal margins of compound eyes parallel; supra-antennal area with small and distinct tubercle between antennal sockets; antennal sockets large, protruding anteriorly in dorsal view; clypeus moderately convex, clearly transverse, with straight apical margin, clearly divided from supra-clypeal area by furrow; anterior tentorial pits very small, almost invisible; labrum with straight apical margin, protruding from under clypeus. Mandible slender, narrowed to apex, with small lower tooth. Malar space shorter than mandible base. Occipital carina complete; dorsomedian part of occipital carina evenly arched; occipital carina reduced above mandible, thus not meeting with hypostomalcarina; hypostomal carina normal. Maxillary palpus normal, 2nd segment almost triangular, flat and not bulging.

Antenna. Flagella bristle-shaped, robust, in female shorter than fore wing, not flattened. Male antenna without tyloid.

Mesosoma. Collar of pronotum short, transverse furrow of pronotum shallow and not interrupted by keel. Pronotal base without angular prominence, moderately curved near lower edge. Mesonotum flat, anterior edge forming an angle in profile, notauli absent. Prepectal carina complete; subalar ridge thin; sternaulus absent; postpectal carina absent. Scutellum very wide, very slightly elevated, dorsal surface strongly flatened, without lateral carinae. Hind margin of metanotum with a triangle projection on each side of postscutellum. Propodeum without costula; juxtacoxal carina absent; areola quadrangular, anterior margin truncate; apex of second lateral area without distinct tooth. Propodeal spiracle large, much longer than wide.

Legs. Stout and short. In female, all femora strongly bulged. Apical spine of tibia extremely shortened and stout. Tarsomeres 2–5 with fine short hairs; spines on tarsomeres 2–4 short and reduced.

Wings. Areolet quadrangular; single bulla on 1m-cu and 3rs-m, two bullae on 2m-cu; ramulus weakly developed. Hind wing with vein cu-a.

Metasoma. Amblypygous**.** Petiole in profile straight, flattened, clearly wider than deep, bending at base of postpetiole; in dorsal view, with lateral projection near the base; dorsolateral carina distinct; drosomedian carina present, indistinct on postpetiole; postpetiole without distinct median field. Gastrocoelus deep and wide, oblique to body axis; thyridium clearly developed, the width clearly wider than inter-thyridial interval. Parathyridium rather small, distinct. Hypopygium with apical margin protruding; ovipositor sheath moderately narrowed from base to apex with roundly pointed apex, slightly protruding behind apex of metasoma. S2–4 laterally sclerotized and middle part weakly sclerotized, S5 entirely sclerotized; S2–3 with lateral lobe, completely separated by crease, S4–5 without lateral lobe (fused).

Diagnosis. This genus can be easily distinguished from other genera of the tribe Platylabini by a combination of the following characteristics: head clearly transverse; antenna and legs very stout; scutellum flat and wide, without lateral carina; costula absent; propodeum without distinct tooth; thyridium distinctly developed, inter-thryidial interval narrower than thrydium.

Distributions. Japan (1 sp.).

Etymology. This genus name comes from the combination of the name of subfamily, Metopiinae, and the genus *Platylabus*. The former one shares similar characteristics

with this genus, such as robust antennae and legs, and some species of them use leaf roller as the hosts.

Remarks. In the absence of costula and tooth on propodeum, and the shape of gastrocoelus and thrydium, this genus resembles the genus *Platylabus*, but easy to be distinguished from them by the morphology of antennae, mesosoma, and legs. These characteristics are very peculiar within Platylabini. Based on a specimen reared from the host, the host is a Drepanidae species, *Ditrigona virgo* (Butler, 1878). The host larvae make a shelter from leaves. The peculiar morphology of this genus should be an adaptation to concealed hosts. The similar cases were reported in the subfamily Metopiinae (Quicke, 2014) and Shimizu *et al*. (2016). Besides, using Drepanidae as a host is reported some Platylabus spp., such as *Platylabus tenuicornis* (Gravenhorst, 1829) reared from an unidentified species of Drepanidae by Momoi (1970).

***Metopilabus robustus* Gen. et sp. nov**

Pls. 7–K, L, 35,64-G

Type series. Holotype, Japan. ♀, Mt. Kakezuyama, Geihoku Town, Hisorshima Pref., Honshû, 17. VII. 1998, Rikio Matsumoto (OMNH). Data on the label: "Japan / Honshû // [Hiroshima] // Geihoku t. // Kakezuyama // 17. Jul. 1998 // R. Matsumoto leg.".

Paratypes: Japan: [Hokkaidô] 1♂, Maruyama, Sapporo City, 3. IX. 1958, S. Momoi (MNHAH). **[Honshû]** Iwate Pref.: Mt. Hayachine, 1♂ (19–25. VII. 1989), 1♂ (2–8. VIII. 1989), 1♀ (8–15. VIII. 1989), MT, M. Sharkey and H. Makihara (NIAES). Yamagata Pref.: Mamurogawa Town, 1♂ (15. VII. 2012), 1♂ (19. VIII. 2012), MT, Y. Matsubara and K. Fukuda (SEHU). Fukushima Pref.: Numanotaira, Mt. Asakusatake, Tadami, 25. VI. – 11. VII. 2018, MT, T. Ishikawa, Y. Nakano and H. Makihara (EUMJ).

Saitama Pref.: 1♂, Wada, Ogano Town, 1. VII. 1988, T. Nambu (NIAES); 1♂, Kawamata, Chichibu City, 7. VIII. 1973, T. Nambu (NIAES); 1♀, Mt. Hotosan, Nagatoro Town, XI. 1968, emerged from *Leucodrepana sacra* [=*Ditrigona virgo* (Butler, 1878)], S. Sugi (NIAES). Kanagawa Pref.: 1♂, Mt. Miurafuji–Mt. Takeyama, Yoksuka City, 13. VII. 2008, K. Watanabe (KPMNH). Ishikawa Pref.: Mt. hakusan, 26. VIII. 1993, I. Togashi (NIAES). **[Shikoku]** Ehime Pref.: Namakusadani, Mt. Odamiyama, 1♀ (16. VIII. 1998), 1♂ (24. VII. 2000), E. Yamamoto (EUMJ). Tokushima Pref.: 1♂, Ôkawara, Sanagouchi-son, 30. VI. – 3. VII. 2016, MT, K. Ôhara (EUMJ). **[Kyûshû]** Miyazaki Pref.: 1♀, Mt. Osuzu, 22. V. 1966 (SEHU); Ôkôchi, Shiiba Vill., 6. VIII. 1970, A. Nagatomi (SEHU).

Female. Body length 7.0–9.0 (HT: 9.0) mm.

Coloration. Body ground color black and covered with short white setae. Supra-clypeal area and clypeus with a pair of bold whitish yellow line along eye margin, from antennal cavity to mandibular base; vertex with a pair of whitish yellow spot just along eye. Mandible, maxillary and labial pulpus amber. Flagellum with white semiannulus on flagellomeres 8–12. Small whitish yellow spot on subalar ridge. Fore and mid tibiae and femora brown. Mid and hind tibia with white band on basal half. Wing veins dark brown.

Head. Surface of vertex and gena sparsely, shallowly punctate; supra-clypeal area rather densely punctate; clypeus sparsely punctate; antennal cavity polished; malar space rather finely granulated. Occipital carina reduced above base of mandible by 0.8 × MBW. Upper tooth of mandible with sharp apex; lower tooth 0.3 × of upper tooth. HW/HL = 2.0; OW/HW = 0.8; OOL/POL = 1.0. SCW/SCH = 2.0–2.2 (HT: 2.1);

CLW/CLH = 2.8–3.2 (HT: 3.1). MBL/BMW = 1.6–1.8 (HT: 1.6); MSL/BMW = 0.3–0.4 (HT: 0.3). MP5/BMW = 1.4–1.5 (HT: 1.5).

Antenna. Flagellum 5.0–6.5 (HT: 6.5) mm long, with 32–33 (HT: 32) flagellomeres; apical flagellomere conical; FL1 2.5–2.8 (HT: 2.7) × as long as apical width and 1.3–1.4 × as long as FL2.

Mesosoma. Surface of pronotum, mesoscutum, mesopleuron and metapleuron shallowly and rather sparsely punctate except just above mesopleural fovea polished; dorsal surface of scutellum very sparsely and shallowly punctate; postscutellum polished; lateral area (1+2) of propodeum sparsely punctate on polished surface; area of areola polished. Propodeum in profile, basal area and areola flat, sloping frombase of petiolar area; areola very rarely (n = 1) absent. MSSL/MSSW = 1.1–1.2 (HT: 1.1); ARL/ARW = 0.4; ARW/PSD = 0.8–1.1 (HT: 0.9); PSI = 2.0–2.5 (HT: 2.1).

Legs. Surface of coxae sparsely punctate, femora coriaceous, tibiae finely granulated. Hind tibia 0.3 × as long as fore wing.

Wings. Fore wing 6.0–7.0 (HT: 7.0) mm long; areolet 1.0–1.1 (HT: 1.0) × as long as 3rs-m, 0.5–0.6 × as high as 2m-cu, quadroangular; 1/M:2/M = 1.0:1.2 Cu-a opposite Rs&M. Hind wing with cu-a 0.2 × as long as first abscissa of Cu1; 2 basal hamuli, 7–8 (HT: 8) distal hamuli on R1 vein.

Metasoma. Surface of petiole polished; postpetiole very sparsely punctate; lateral area of petiole almost polished; T2–T3 rather sparsely punctate, T4–T6 polished. Postpetiole widened apically. T1 L/W = 1.6–1.8 (HT: 1.7); T2 L/W = 0.7–0.9 (HT: 0.8). THI = 0.8–1.1 (HT: 1.0).

Male. Body length 7.0–9.0 mm. As in female except for the following characters: white spots also distributed on lateral part of gena, scape; clypeus, supra-clypeal area except

for just middle, and fore and mid trochanter white; maxillary and labial palpus white; semiannulus reduced, on FL12–15; femora and tibiae more slender than in female; flagellum almost as long as fore wing; FL1 2.5–3.0 × as long as apical width; male genitalia with apex of paramere almost rounded.

Distributions. Hokkaidô, Honshû, Shikoku, Kyûshû

Etymology. The name comes from the Latin word "robustus", that means "robust", after the robust antennae and legs.

Genus *Notoplatylabus* Heinrich, 1934

Notoplatylabus Heinrich, 1934: 30–31 [Type species: *Notoplatylabus podolicus* Heinrich, 1934; monobasic.]; Heinrich, 1974: 175–176; Tereshkin, 1993: 479–482; Tereshkin, 2009: 14762–1463.

Description based on Japanese species.

Head. Gena strongly narrowed behind eye in dorsal view; ocellar triangle moderately elevated above eyes. Antennal cavity of supra-antennal area expressed and polished; internal margins of compound eyes parallel; supra-antennal area without distinct tubercle between antennal sockets; antennal sockets large, protruding anteriorly in dorsal view; median field of supra-clypeal area strongly convex and protrude anteriorly; clypeus strongly convex, transverse, with straight apical margin, clearly divided from supra-clypeal area by groove; anterior tentorial pits moderately large and circular; labrum with straight apical margin, protruding from under clypeus. Mandible very slender, narrowed to apex, with small lower tooth; apex of upper tooth sharp. Occipital carina reduced on doromedian part; hypostomal carina normal, meeting with occipital

carina on mandibular base. Maxillary palpus long, 2nd segment almost triangular, flat and not bulging.

Antenna. Flagella bristle-shaped, very long and slender, slightly flattened. Male flagellum with small, indistinct tyloids.

Mesosoma. Collar of pronotum short, transverse furrow of pronotum interrupted by keel. Pronotal base with angular prominence. Mesonotum strongly convex, notauli very sharply developed over middle. Prepectal carina complete; subalar ridge moderately thick; sternaulus strongly developed, deep, reaching to the middle of mesopleuron; postpectal carina absent. Scutellum highly elevated, dorsal surface weakly convex and roughly rugose transversely, with lateral carinae reaching apex. Hind margin of metanotum with a triangle projection on each side of postscutellum. Propodeum with costula; juxtacoxal carina complete; areola hexagonal, anterior edge truncate; apex of second lateral area with small tooth. Propodeal spiracle small, cicular.

Legs. Slender and long. Ventral margin of hind femur forming an obtuse angle; fore and mid tarsomeres 2–5 weakly flattened, widened to apex, and with fine short hairs; spines on tarsomeres 2–4 complete, long.

Wings. Areolet quadrangular, not petiolate; single bulla on 1m-cu and 3rs-m, two bullae on 2m-cu; ramulus weakly developed. Hind wing with vein cu-a.

Metasoma. Amblypygous**.** Petiole in profile straight, flattened, wider than hight, bending near right angle at base of postpetiole; dorsolateral carina and ventrolateral carina complete; dorsomedian carina indistinct, almost absent; postpetiole without distinct median field. Gastrocoelus rather deep, quadrangular, almost orthogonal to body axis; thyridium clearly developed, wide and rather long. Parathyridium moderate, distinct. Hypopygium with apical margin weakly protruding; ovipositor sheath

dorsoventrally flattened, with apex narrowed. S2–5 laterally sclerotized and middle part weakly sclerotized; female hypopygium medially membranous; S2–4 with lateral lobe, completely separated by crease and S5 without lateral lobe (fused).

Diagnosis. This genus can be easily distinguished from other genera of the tribe Platylabini by a combination of the following characteristics: transverse furrow of pronotum interrupted by keel; pronotal base with angular prominence; notauli very sharply developed over middle; sternaulus strongly developed, deep, reaching to the middle of mesopleuron; spines on tarsomeres 2–4 complete, long; ventral margin of hind femur forming an obtuse angle; ovipositor sheath dorsoventrally flattened.

Distributions. Japan (1 sp.); Palearctic (1 sp.) and Oriental regions (1 sp.).

***Notoplatylabus podolicus conterranius* Tereshkin, 1993**

Pls. 6-K, L, M, 36

Notoplatylabus podolicus conterranius Tereshkin, 1993: 142 [♀♂, Type locality: Primor'ye Kray, Russia]; Choi *et al.*, 2014: 76 [New to Korea].

Specimens examined. JAPAN: [Hokkaidô] 1♀, Hyakumatsuzawa, Sapporo City, 18. IX. – 1. XI. 1998, MT, K. Mizota, M. Maruyama, T. Hironaga & A. Ohkawa (SEHU). **[Honshû]** 1♂, Shiga Pref.: Kitahira, Ôtsu City, 13. VIII. 2008, T. Yoshida (SEHU). **[Kyûshû]** 1♀, Ôita Pref.: Chôjabaru, Kokonoe-machi, 1030 m, 5–7. V. 2016, YPT, T. Mita (EUMJ). [Yakushima Is.] Mt. Aikodake, T. Yamauchi, 1♀ [2. V. – 5. VII. 2007, MT], 1♀ [2. XI. – 1. XII. 2007, MT], 1♀ [28 XI. – 1. XII. 2007, collision trap], 2♀♀ [1–25. XII. 2007, MT] (KPMNH). **KOREA:** Mt. Odae, Tapdong-ri, Jinbu-myeon, Pyeongchang-gun, Gangwon-do, MT, S. J. Park & I. J. Huh, 1♀ [27. V. – 4. VII. 2013], 1♂ [31. VII. – 30. VIII. 2012] (NIBR)

Female. Body length 5.5–6.5 mm.

Coloration. Body ground color black and covered with short white setae. Flagellum with white semiannulus on flagellomeres 7–10 to 6–11. Fore and mid legs often with reddish brown part. Wing veins dark brown. Metasomal T6–7 white.

Head. Surface of vertex granulate; gena polished; area between antennal cavity and inner eye margin longitudinally striate; supra-clypeal area transversely striate punctate; clypeus shallowly punctate; malar space rather finely granulated. HW/HL = 1.8–2.0; OW/HW = 0.5–0.7; OOL/POL = 0.9–1.0. SCW/SCH = 1.5–1.7; CLW/CLH = 1.7–1.8. MBL/BMW = 1.9–2.2; MSL/BMW = 0.9–1.1. MP5/BMW = 2.3–2.5.

Antenna. Flagellum 5.5–7.0 mm long, with 35 flagellomeres; apical flagellomere conical; FL1 3.7– 4.2 × as long as apical width and 1.–1.2 × as long as FL2.

Mesosoma. Surface of pronotum polished, posterior margin rugose; mesoscutum strongly punctate to reticulate rugose; dorsal and posterior surface of scutellum, postscutellum rugose; mesopleuron reticulate strigose except around mesopleural fovea polished, and posterior margin with rib-like rugae; metapleuron finely rugose; propodeum roughly rugose, except middle of petiolar area polished. MSSL/MSSW = 1.1–1.2; ARL/ARW = 0.9–1.1; ARW/PSD = 0.3; PSI = 1.0–1.1.

Legs. Surface of legs coriaceous, except hind coxa with shallow punctures. Hind tibia 0.4 × as long as fore wing.

Wings. Fore wing 5.0–6.0 mm long; areolet 1.0–1.1 × as long as 3rs-m, 0.5–0.6 × as high as 2m-cu; 1/M:2/M = 1.0:1.1 Cu-a opposite Rs&M; ramulus slightly developed. Hind wing with cu-a 0.2 × as long as first abscissa of Cu1; a basal hamulus, 6–7 distal hamuli on R1 vein.

Metasoma. Surface of petiole including lateral area just slightly rugose; postpetiole rather sparsely punctate, apicomedian area of postpetiole without puncture; metasomal tergites coriaceous, T2–3 with dense punctures. Basal half of petiole in dorsal view almost parallel sided; postpetiole not widened posteriorly. T1 L/W = 1.8–2.0; T2 L/W = 1.0–1.1. THI = 1.2–1.5.

Male. Body length 5.0–6.5 mm. As in female except for the following characters: fore and mid legs umber or yellowish brown; first flagellomere 2.4–2.7 × as long as apical width; flagellum with indistinct small tyloids.

Distributions. Hokkaidô, Honshû, Kyûshû, Yakushima Is; **Korea, Russia** (Yu *et al*., 2012).

Remarks. This genus comprises two species, *N. podolicus* Heinrich, 1934 and *N. birmanicus* Heinrich, 1974. The former comprises *N. p. podolicus* and *N. p. conterranius* Tereshkin, 1993. I could examine Korean specimens of *N. p. conterranius* and Taiwanese specimens of *N. birmanicus*. This genus seems morphologically uniform, and these species were very difficult to be divided by morphological characteristics. As in Tereshkin (1993), colorations are rather clearly different. Here, I treat Japanese specimens as *N. p. conterranius* by the uniformly blackish body. The species and subspecies classification should be revised in future works. It will be helpful to use DNA barcoding technics, but I have not obtained DNA barcode from Japanese specimens due to the condition of specimens.

Genus *Poecilostictus* Ratzeburg, 1852

Poecilostictus Ratzeburg, 1852: 174 [Type species: *Poecilostictus octopunctatus* Ratzeburg, 1852 *(=Hoplismenus cothurnatus* Gravenhorst, 1829*)*; monobasic.]; Perkins, 1959: 56; Heinrich, 1974: 187–189; Tereshkin, 2009: 1496–1497.

Neoplatylabus Heinrich, 1935: 196–198 [Type species: *Hoplismenus cothurnatus* Gravenhorst, 1829; monobasic.].

Description based on Japanese species.

Head. Head surface strongly granulate with fine punctures, clypeus very finely granulate and matt. Gena bulging out behind eye eye in dorsal view; ocellar triangle moderately elevated above eyes. Antennal cavity of supra-antennal area expressed and polished; internal margins of compound eyes parallel; supra-antennal area with distinct tubercle between antennal sockets; antennal sockets large, protruding anteriorly in dorsal view; clypeus slightly convex, transverse, with arcuate apical margin, clearly divided from supra-clypeal area by groove; anterior tentorial pits moderately large and roundish; labrum with arcuate apical margin, slightly protruding from under clypeus. Mandible stout and narrowed near base and parallel sided to apex, with small lower tooth; apex of upper tooth sharp. Occipital carina reduced just before junction to hypostomal carina; dorsomedian part of occipital carina evenly arched; hypostomal carina normal. Maxillary palpus long, 2nd segment almost triangular, flat and not bulging.

Antenna. Flagella bristle-shaped, very long and slender, moderately flattened. Male flagellum with medium, distinct oval tyloids.

Mesosoma. Collar of pronotum short, transverse furrow of pronotum interrupted by keel. Pronotal base without angular prominence. Mesonotum strongly convex, notauli slightly developed on apical 1/3. Prepectal carina complete; subalar ridge moderately

thick; sternaulus not developed; postpectal carina absent. Scutellum highly elevated, dorsal surface weakly to moderately convex with lateral carinae reaching apex. Hind margin of metanotum with a triangle projection on each side of postscutellum. Propodeum with costula; juxtacoxal carina indistinct; areola very wide, anterior edge truncate; apex of second lateral area without tooth. Propodeal spiracle very large, elongated.

Legs. Slender and long. Fore and mid tarsomeres 2–5 weakly flattened, widened to apex, and with fine short hairs; spines on tarsomeres 2–4 reduced, shortened.

Wings. Areolet pentagonal; single bulla on 1m-cu and 3rs-m, two bullae on 2m-cu; ramulus weakly developed. Hind wing with vein cu-a.

Metasoma. Amblypygous**.** Petiole in profile straight, flattened, wider than hight, bending at base of postpetiole; dorsolateral carina and ventrolateral carina complete; dorsomedian carina ambiguous; postpetiole with distinct median field. Gastrocoelus rateher shallow, quadrangular but ambiguous; thyridium clearly developed, moderately wide. T6–7 shortened, nearly invisible. Parathyridium moderate, distinct. Hypopygium with apical margin arcuate; ovipositor sheath rather long, clearly protruding from apex of metasoma; just apex of ovipositor sheath curved upward. S2–4 laterally sclerotized and middle part weakly sclerotized; female hypopygium medially membranous; S2–3 with lateral lobe completely separated by crease, S4 apical half fused, and S5 without lateral lobe (fused).

Diagnosis. This genus can be easily distinguished from other genera of the tribe Platylabini by a combination of the following characteristics: clypeus very finely granulate and matt with arcuate apical margin; Gastrocoelus rateher shallow,

quadrangular but ambiguous; thyridium clearly developed, moderately wide; T6–7 shortened, nearly invisible; just apex of ovipositor sheath curved upward.

Distributions. Japan (1 sp.); Palearctic (1 sp.) and Oriental (1 sp.) regions.

Remarks. The morphology of head, scutellum, legs and metasoma seems considerable relation with other genera of Platylabini. However, a phylogenetic analysis in this study showed that this genus is not a member of Platylabini, and related to the genus *Hoplismenus* Gravenhorst, 1829. Morphological characteristics of spine of tarsomere 4 and metasomal sternites never support the result. It is necessary to perform much more phylogenetic analyses within the subfamily, so here I temporally stated this genus in the tribe Platylabini.

***Poecilostictus cothurnatus* (Gravenhorst, 1829)**

Pls. 6-B, C, H, 37, 64-I, 65-G

Hoplismenus cothurnatus Gravenhorst, 1829: 426 [♀♂, Type locality: Primor'ye Kray, Russia]

Poecilostictus octopunctatus Ratzeburg, 1852: 174.

Neoplatylabus cothurnatus: Heinrich, 1935: 196–198

Poecilostictus cothurnatus: Tereshkin, 2009: 1489–1490

Specimens examined. JAPAN: [Hokkaidô] 1♀, Nisshô-toge, Chisaka, Saru-gun, 2–17. VII. 2010, MT, N. Kuhara (EUMJ); 1♀, Shirogane, Yubari City, 27. IX. 1993, Y. Nishijima (SEHU). **[Honshû]** Aomori Pref.: 1♀, Hibakozawa Rindô, Aomori City, 6. IZ. 1992, T. Ichita (NIAES). Tochigi Pref.: 1♀, Amayu SB, Nasushiobara City, 21. IX. 2010, E. Katayama (KPMNH). Gunma Pref.: 3♂, Takamine-kôgen, Tsumagoi Vill., 3. IX. 2015, Sô Shimizu [NKHU0043] (SEHU). Tokyo: Mt. Tenmoku, Okutama Town,

30. VI. 2013, N. Kikuchi (SEHU). Nagano Pref.: 1♀, Mugikusa-tôge, Kitayama, Chino City, 20. VI. 2007, H. Katahira (KPMNH); 1♀, Hakkaisan, Mt. Ontake, Ôtaki Vill., 16–17. IX. 2011, K. Asahi (SEHU). Gifu Pref.: 3♂♂, Mikasayama, Mt. Ontake, 6. IX. 2012, R. Matsumoto (OMNH). **[Sado Is.]** 2♀♀, Hakuundai–Mt. Myôken, Kanai-shinbo, Niigata Pref., 16–17. IX. 2011, K. Watanabe (KPMNH). **[Shikoku]** Ehime Pref.: 1♂, Hontani, Mt. Odamiyama, 3. VII. 1994, E. Yamamoto (NIAES); Namakusadani, Mt. Odamiyama, 1♀ (6. VI. 1998), 1♀ (22. X. 2000), E. Yamamoto (NIAES); 1♀, Mt. Ibukiyama, Saijô City, 9. VIII. 2008, R. Matsumoto (OMNH). Tokushima Pref.: Meotoike, Mt. Tsurugisan, 22–23. VII. 2017, J. Okayasu (EUMJ). Kôchi Pref.: Tengu-kôgen, Higashitsuno Vill., 1♂ (22. V. 1997, NIAES), 1♂ (20. VII. 2000, EUMJ), I. Yamashita. **[Kyûshû]** Fukuoka Pref.: Mt. Hikosan, 1♀ (4. VIII. 1955, S. Momoi), 1♂ (12. X. 1955, K. Iwata) (MNHAH).

Female. Body length 7.5–11.0 mm.

Coloration. Body ground color black and covered with short white setae. A pair of white line along inner eye margin from vertex to mandibular base. Pronotum, subalar ridge, sucutellum often with whitish yellow spots. Flagellum with white semiannulus on flagellomeres 7– or 8–10. Fore and mid legs often entirely reddish brown. Hind femur varies from entirely black to basal half reddish brown; hind tibia varies from entirely black to basal 3/4 reddish brown; hind tarsus ivoly. Wing veins dark brown. Metasomal T5–6 with apical white mark.

Head. HW/HL = 1.6–1.7; OW/HW = 0.7–0.8; OOL/POL = 1.0–1.1. SCW/SCH = 1.7–1.8; CLW/CLH = 1.9–2.0. MBL/BMW = 1.6–1.7; MSL/BMW = 1.4–1.6. MP5/BMW = 1.8–2.2.

Antenna. Flagellum 7.5–11.0 mm long, with 38–44 flagellomeres; apical flagellomere conical; FL1 5.0–5.2 × as long as apical width and 1.5–1.6 × as long as FL2.

Mesosoma. Surface of pronotum, mesoscutum, dorsal surface of scutellum, mesopleuron, metapleuron finely and densely punctate; posterior surface of scutellum, postscutellum longitudinally strigose; propodeum roughly rugose, except basal area and first lateral area punctate; area of areola longitudinally rugose. MSSL/MSSW = 1.1–1.2; ARL/ARW = 0.6–0.8; ARW/PSD = 0.4; PSI = 2.2–2.8.

Legs. Surface of legs coriaceous, except hind coxa densely punctate. Hind tibia 0.4 × as long as fore wing.

Wings. Fore wing 8.0–12.5 mm long; areolet 1.1–1.2 × as long as 3rs-m, 0.5–0.6 × as high as 2m-cu, pentagonal, apex rather wide; 1/M:2/M = 1.0:1.0–1.1 Cu-a opposite Rs&M; ramulus slightly to moderately developed. Hind wing with cu-a 0.3 × as long as first abscissa of Cu1; 1–3 basal hamuli, 9–12 distal hamuli on R1 vein.

Metasoma. Surface of petiole including lateral area just slightly rugose; median field of postpetiole granulate with a few punctures, lateral filed sparsely punctate; T2–3 finely granulate with dense punctures; T4–5 coriaceous. Basal half of petiole in dorsal view almost parallel sided; postpetiole not widened posteriorly. T1 L/W = 1.9–2.2; T2 L/W = 0.8–0.9. THI = 2.2–3.1.

Male. Body length 9.0–11.5 mm. As in female except for the following characters: supra-clypeal area and clypeus white; first flagellomere 5.6 × as long as apical width; flagellum with distinct tyloids; petiolar area transversely rugose.

Distributions. Hokkaidô, Honshû, Shikoku, Kyûshû, Sado Is; **Western Palearctic region** (Yu *et al*., 2012).

Remarks. This genus comprises two species, *P. cothurnatus* and *P. decoratus* Heinrich, 1974. The latter species occurs in Oriental region, and with much more whitish yellow marks on mesosoma and metasoma. I carefully compared Japanese specimens and European specimens of this species, and concluded that there is no considerable morphological difference. DNA barcode of Japanese specimens were obtained, but no barcode from Europe were found in any database.

Genus *Pristiceros* Gravenhorst, 1829

Pristiceros Gravenhorst, 1829 [Type species: *Pristiceros serrarius* Gravenhorst, 1829; monobasic.]

Neopristoceros Heinrich, 1961; syn. by Heinrich, 1962.

Type species: *Ichneumon lascivus* Cresson, 1867; original designation.

Pristicerops Heinrich, 1962; syn. by Townes, Momoi & Townes, 1965.

Type species: *Platylabus bakeri* Davis, 1898; original designation.

Description based on Japanese species.

Head. Gena moderately to strongly convex and evenly receding behind eye in dorsal view; ocellar triangle weakly elevated above eyes. Antennal cavity of supra-antennal area expressed and polished; polished area of antennal cavity normal; internal margins of compound eyes parallel; supra-antennal area with small and distinct tubercle between antennal sockets; antennal sockets large, protruding anteriorly in dorsal view; clypeus weakly to moderately convex, clearly transverse, with straight apical margin, clearly divided from supra-clypeal area by furrow; anterior tentorial pits moderate to large, oval; labrum with straight apical margin, protruding from under clypeus. Mandible slender to rather stout, with small lower tooth. Malar space shorter than mandible base.

Occipital carina complete; dorsomedian part of occipital carina evenly arched to slightly angled; occipital carina meeting with hypostomal carina above mandible; hypostomal carina normal. Maxillary palpus normal, 2nd segment almost triangular, flat and not bulging.

Antenna. Flagella bristle-shaped, slender, not or weakly flattened. Male antenna less or more serrate (or semi-serrate), usually with tyloid.

Mesosoma. Collar of pronotum short, transverse furrow of pronotum shallow and not interrupted by keel. Pronotal base without angular prominence, moderately curved near lower edge. Mesonotum convex, notaulus slightly to not developed on apical 1/3. Prepectal carina complete; subalar ridge rather thick; sternaulus slightly developed; postpectal carina absent. Scutellum elevated above psotscutellum, dorsal surface strongly moderately convex, with lateral carina reaching apex. Hind margin of metanotum with a triangle projection on each side of postscutellum. Propodeum with costula, rarely indistinct; juxtacoxal carina present; areola quadrangular or hexagonal, anterior margin truncate; apex of second lateral area without distinct tooth. Propodeal spiracle large, much longer than wide.

Legs. Slender or often stout in female, and long. Tarsomeres 2–5 with fine short hairs in female; spines on tarsomeres 2–4 short and reduced.

Wings. Areolet quadrangular; single bulla on 1m-cu and 3rs-m, two bullae on 2m-cu; ramulus slightly to moderately developed. Hind wing with vein cu-a.

Metasoma. Amblypygous**.** Petiole in profile straight, flattened, clearly wider than deep, bending at base of postpetiole; in dorsal view, with lateral projection near the base; dorsolateral carina distinct; drosomedian carina present; postpetiole with distinct median field. Gastrocoelus deep to shallow; thyridium clearly developed, the width

varies. Parathyridium large, distinct. Hypopygium with apical margin protruding; ovipositor sheath parallel sided to moderately narrowed from base to apex with roundly pointed apex, slightly protruding behind apex of metasoma. S2–4 laterally sclerotized and middle part weakly sclerotized or membranous, S5 entirely sclerotized; S2–3 with lateral lobe, completely separated by crease, S4 often fused on apical half, S5 without lateral lobe (fused).

Diagnosis. This genus can be easily distinguished from the other genera of Platylabini by combination of the following characteristics: male flagellum more or less serrate; scutellum carinated laterally to apex; costula present; propodeal spiracle elongated; apex of second lateral area without any projection; T1 slightly curved downwards; thyridium distinct.

Distributions. Japan (10 spp.); Eastern Palearctic (12 spp.), Westeran Palearctic (4 spp.), Nearctic (2 spp.) and Oriental (3 spp.) regions.

Remarks. Heinrich (1961) recognized the genus *Pristicerops* and separated it from *Pristiceros* by male flagellum characteristics (fully serrate or semi-serrate) based on species from Nearctic and western Palearctic regions. However, Townes *et al*. (1965), including examination of Japanese species, treated *Prisiticerops* as a junior synonym of *Pristiceros*. Heinrich (1974) and some subsequent authors (Rasnitsyn and Siytan, 1981; Tereshkin, 2009; Riedel, 2011) argued that these genera could be distinguished by the male flagellum and morphology of thyridium in both sexes: in *Pristiceros*, the male flagellum is distinctly serrate and the interval between thyridia is as wide as or narrower than thyridium; in *Pristicerops*, the male flagellum is semi-serrate and the interval between thyridia is distinctly wider than thyridium. Through my observation of Japanese species (described below), I attributed some species with distinctly serrate

male flagellum and distinctly narrow thyridium to this genus (e.g. Pl. 55-E, H; Pl. 56-E, H; Table 1). Thus, in this thesis, I accept the Townes' opinion on the synonymy of *Pristicerops*.

***Pristiceros hakonensis* (Uchida, 1926)**

Pls. 38, 47-A, 49-A, 52-A, 53

Platylabus hakonensis Uchida, 1926: 153.

Pristiceros hakonensis: Townes, Momoi & Townes, 1965: 514.

Type series. Lectotype, Japan. ♀ [Honshû] Kanagawa Pref. Data on the label: "Japan, T. Uchida", "ハコネ[Hakone], 27/VII", "Type", "Platylabus // hakonensis // sp. nov.", "Platylabus // hakonensis // Uchida // Det. S. MOMOI,", SEHU.

Other specimens examined. Japan [Hokkaidô] 1♀, Headwaters of Sarugawa-R, Niishô-tôge [42.9740N 142.7497E, Alt. 1050 m], 17 – 31. VII. 2010, MT, N. Kuhara, EUMJ; [Honshû] Aomori Pref.: 1♀, Okawa, Nishimeya vil., 6 – 14. VIII. 2013, MT, T. Nakmura, EUMJ. Toyama Pref.: 1♀, Toyama City, Arimine, Jûrôdani [Alt. 1120 m], 21 – 28. VII. 2009, MT, M. Watanabe *et al*., EUMJ; 1♀, Toyama City, Arimine, Inonedani [Alt. 1120 m], 4 – 11. VIII. 2009, MT, M. Watanabe *et al*., EUMJ. Ishikawa Pref.: 1♂, Mt. Hakusan [Alt. 1500–1700 m], 5. VIII. 1992, I. Togashi, NIASE. [Kyûshû] Kumamoto Pref.: 1♀, Izumi vil., Mt. Shiratori [Alt. 1300 m], 25. VIII. 1983, light trap, K. Konsihi, NIASE.

Female. Body length 6.7–9.8 mm.

Coloration. Body ground color Black (Pl. 38-A). Vertex with a pair of whitish-yellow spots along eye margins (Pl. 53-B); inner eye margins with whitish-yellow line from vertex to middle; clypeus with white spot on lateral corner; flagellar annulus (8th–14th

flagellomeres) white. Fore and mid femora and tibiae orange to dark brown; fore tarsi reddish-brown. Metasoma with whitish-yellow band on apical margin of each tergites. Ovipositor sheath dark brown.

Head 1.9 × as wide as long in dorsal view and with shallow puncture on coriaceous surface, except supra-antennal area polished and malar space granulate; OOL/POL = 0.9–1.1 (Pl. 53-B). Supra-antennal area concaved; supra-antennal area with small and distinct tubercle between antennal sockets; antennal sockets almost circular, large, protrude anteriorly in dorsal view; supra-clypeal area 1.7–1.8 × as wide as high; internal margins of compound eyes parallel; clypeus weakly convex and transverse, 1.9–2.3 × as wide as high, with straight apical margin (Pl. 20-D); labrum with straight apical margin, protrude from under clypeus. Mandible slender, 1.8–2.1 × as long as wide at base, gradually narrowed from base to apex, with lower tooth 0.4 × as long as upper tooth (Pl. 53-F). MSL/BMW = 0.6–0.7. Occipital carina complete and separated from hypostomal carina above base of mandible by 0.3–0.5 × width of mandibular base; dorsomedian part of occipital carina evenly arched (Pl. 53-B). Maxillary palpi reaching epicnemial carina. Flagellum bristle-shaped, very slightly widened at apical 0.3, very long and slender, 1.2 × as long as fore wing; apical flagellomere conical; first flagellomere 5.1–5.6 × as long as wide at base and 1.2–1.4 × as long as second one.

Mesosoma. Collar of pronotum long. Pronotum polished, very slightly strigose and sparsely punctate. Mesosucutum strongly convex, 1.0–1.2 × as long as wide; notauli weakly developed on apical 1/4 to almost not developed; surface of mesoscutum polished and dense punctae. Epicnemial carina complete; sternaulus weakly developed, reaching at middle of mesopleuron; postpectal carina absent; surface of mesopleuron polished with rather dense punctures except area of scrobe without puncture. Scutellum

rather sparsely punctate, highly elevated above postscutellum, with lateral carina reaching apex and dorsal surface significantly convex; hind margin of metanotum with a triangular projection opposite lateral longitudinal carina on each side of postscutellum. Metapleuron rather densely punctate except juxtacoxal area without puncture; juxtacoxal carina present and distinct; Propodeum in profile rather short; regular carinae of propodeum complete; areola hexagonal, 1.0–1.2 × as long as wide (Pl. 53-G); apex of second lateral area without any projection; surface of propodeum sparsely punctate except areola almost not punctate. Propodeal spiracle 1.6–2.3 × as long as wide.

Legs rather slender and long. Fore femora 2.7–3.3 × as long as deep in lateral view; apex of hind TS1 not swollen; hind TS1 0.6–0.8 × as long as TS2–TS5 combined. Tarsal claws not pectinate.

Wings (Pl. 47-A). Fore wing 6.5–8.2 mm long; areolet 1.2 × as long as 3rs-m, 0.6 × as high as 2m-cu, quadrangular and asymmetrical; 1m-cu with single bulla, 2m-cu and 3rs-m each with double bullae**;** Cu-a opposite Rs & M; ramulus distinctly present. Hind wing with cu-a 0.4 trimes as long as 1-Cu; two basal hamuli, 8–10 distal hamuli on R1 vein.

Metasoma. T1 in profile almost straight, slightly bent downward at base of postpetiole; 2.2–2.3 × as long as wide in dorsal view; petiole long, rectangular in cross-section, flattened, clearly wider than deep; dorsal surface of petiole polished; in dorsal view petiole almost parallel sided; dorsomedian carina complete; median area of postpetiole polished and very sparsely punctate. T2 densely punctate, T3 basal 3/4 densely punctate and apical 1/4 coriaceous, T4–T7 coriaceous. T2 in dorsal view 1.7–1.8 × as long as wide at base. Gastrocoelus deep, quadrangular. Thyridium linear, oblique to longitudinal axis of body; Inter-thyridial interval 0.9–1.2 × as long as thyridium. S2–S5

laterally sclerotized and middle part not sclerotized. Hypopygium with apical margin rounded. Ovipositor sheath short, with apex blunt angle shaped, protruding beyond apex of metasoma (Pl. 53-I).

Male. As in female except for the following characters.

Head. OOL/POL = 1.1 (Pl. 53-A); supra-clypeal area 1.8 × as wide as high; clypeus 1.4 × as wide as high (Pl. 53-C). MSL/BMW = 0.8. Flagellum semi-serrate from second flagellomere; first flagellomere 3.5 × as long as wide at base and 1.6 × as long as the second one; seven linear tyloids on 10th–16th flagellomere (Pl. 53-E).

Coloration. Flagellum without annulus, ventral hale rather pale colored. Fore and mid legs orange.

Mesosoma. Areola hexagonal, 0.7 × as long as wide. Propodeal spiracle 2.5 × as long as wide.

Metasoma. T2 in dorsal view 1.4 × as long as wide at base. Genitalia as in Pl. 19-A; apex of paramere broad and clearly truncate. Apex of aedeagus truncated in profile, forked in apico-dorsal view.

Distributions. Hokkaidô*, Honshû, Hachijô Is., Kyûshû*.

Remarks. This is the new record from Hokkaidô and Kyûshû. Paralectotype specimens which caught in Hachijô Is. (Uchida 1926) were not found in SEHU.

***Pristiceros kosensis* (Uchida, 1932)**

Pls. 38, 47-B, 49-B, 52-B, 54

Platylabus kosensis Uchida, 1932: 147.

Pristiceros kosensis: Townes, Momoi & Townes, 1965: 514.

Type series. Holotype, Japan. ♀ [Honshû] Nara Pref. Data on the label: "26, VII, 1929, Kose, Takeuchi", “Platylabus // kosensis // Uch. // Type”, SEHU.

Other specimens examined. Japan [Hokkaidô] 1♂, Brooklet near Noborikawa tunnel, Yûbari [42.919N 142.116E], 23. VII. – 5. VIII. 2007, MT, N. Kuhara, EUMJ. [Honshû] Gifu Pref.: 1♀, Ohtaki v. Mikasayama [35.8703N 137.5187E], 6. IX. 2012, R. Matsumtoto, OMNH.

Female. Body length 11 mm.

Coloration. Body ground color black (Pl. 39-A). Vertex with a pair of whitish-yellow spots along eye margins (Pl. 53-B); inner eye margins with whitish-yellow line from vertex to middle; clypeus with white spot on lateral corner; flagellar annulus (8th–13th flagellomeres) white. Fore tibiae reddish-brown. Ovipositor sheath dark brown.

Head 1.7–1.8 × as wide as long in dorsal view and with shallow puncture on coriaceous surface, except supra-antennal area polished and malar space granulate; OOL/POL = 0.9-1.1 (Pl. 54-B). Supra-antennal area concaved; supra-antennal area with small and distinct tubercle between antennal sockets; antennal sockets almost circular, large, protrude anteriorly in dorsal view; supra-clypeal area 1.6–1.7 × as wide as high; internal margins of compound eyes parallel; clypeus weakly convex and transverse, 2.2 × as wide as high, with straight apical margin (Pl. 54-D); labrum with straight apical margin, protrude from under clypeus. Mandible slender, 1.6–1.8 × as long as wide at base, gradually narrowed from base to apex, with lower tooth 0.3 × as long as upper tooth. MSL/BMW = 0.9. Occipital carina complete and separated from hypostomal carina above base of mandible by 0.7 × width of mandibular base; Dorsomedian part of occipital carina evenly arched (Pl. 54-B). Maxillary palpi reaching epicnemial carina. Flagellum bristle-shaped, very slightly widened at apical 0.3, very long and slender,

1.0–1.1 × as long as fore wing; apical flagellomere conical; first flagellomere 4.8–5.2 × as long as wide at base and 1.3–1.4 × as long as second one.

Mesosoma. Collar of pronotum long. Pronotum slightly strigose and punctae. Mesosucutum strongly convex, 1.3–1.4 × as long as wide; notauli developed on apical 1/3; surface of mesoscutum weakly strigose and densely punctae. Epicnemial carina complete; sternaulus weakly developed, reaching at middle of mesopleuron; postpectal carina absent; surface of mesopleuron polished with dense punctures except area of scrobe without puncture. Scutellum rather sparsely punctate, highly elevated above postscutellum, with lateral carina reaching apex and dorsal surface significantly convex; hind margin of metanotum with a triangular projection opposite lateral longitudinal carina on each side of postscutellum. Metapleuron sparse punctate; juxtacoxal carina present but not distinct. Propodeum in profile not short; regular carinae of propodeum complete; areola rectangular, 1.0–1.2 × as long as wide (Pl. 54-G); apex of second lateral area without any projection; surface of propodeum sparse punctate and weakly rugose. Propodeal spiracle 2.3–3.5 × as long as wide.

Legs rather slender and long. Fore femora 3.4–3.7 × as long as deep in lateral view; apex of hind TS1 not swollen; hind TS1 0.8–0.9 × as long as TS2–TS5 combined. Tarsal claws not pectinate.

Wings (Pl. 47-B). Fore wing 10 mm long; areolet 1.1 × as long as 3rs-m, 0.5 × as high as 2m-cu, quadrangular and asymmetrical; 1m-cu with single bulla, 2m-cu and 3rs-m each with double bullae**;** Cu-a opposite Rs & M; ramulus distinctly present. Hind wing with cu-a 0.3 × as long as 1-Cu; two or three basal hamuli, 11 distal hamuli on R1 vein.

Metasoma. T1 in profile almost straight, slightly bent downward at base of postpetiole; 2.1–2.3 × as long as wide in dorsal view; petiole long, rectangular in cross-section,

flattened, clearly wider than deep; dorsal surface of petiole polished; in dorsal view petiole almost parallel sided; Dorsomedian carina complete; median area of postpetiole with transverse wrinkles. T2 coriaceous with sparse shallow punctures, T3–T7 coriaceous to reticulate coriaceous. T2 in dorsal view 1.5–1.7 × as long as wide at base. Gastrocoelus shallow, quadrangular (Pl. 54-H). Thyridium linear, oblique to longitudinal axis of body; Inter-thyridial interval 0.7–0.9 × as long as thyridium. S2–S5 laterally sclerotized and middle part not sclerotized. Hypopygium with apical margin weakly pointed. Ovipositor sheath rather short, with apex blunt angle shaped, protruding beyond apex of metasoma (Pl. 54-I).

Male. As in female except for the following characters.

Coloration. Pale color area larger than in female (Pl. 39-B). Head in frontal view mainly white except for gena black (Pl. 54-C); mandibles, maxillary and labial palpi white. Apical part of collar of pronotum, subalar ridge and scutellum mainly white. Fore and mid legs orange.

Head. OOL/POL = 0.6 (Pl. 54-A); supra-clypeal area 1.8 × as wide as high; clypeus 2.0 × as wide as high (Pl. 54-C). Mandible slender, 2.0 × as long as wide at base (Pl. 54-F). MSL/BMW = 0.5. Flagellum clearly serrate from second flagellomere; first flagellomere 1.2 × as long as the second one; ten longish-oval tyloids on 10th–19th flagellomere (Pl. 54-E).

Legs slender and long. Fore femora 4.0 × as long as deep in lateral view; hind TS1 0.7 × as long as TS2–5 combined.

Mesosoma. Mesosucutum 1.2 × as long as wide. Juxatacoxal carina distinct. Propodeal spiracle 2.2 × as long as wide.

Metasoma. T1 2.4 × as long as wide in dorsal view. Basal half of T2 transversely rugose; in dorsal view 1.8 × as long as wide at base. Genitalia as in Pl. 19-B; apex of paramere broad and clearly truncate. Apex of aedeagus narrowed in profile, forked in apico-dorsal view.

Distributions. Hokkaidô*, Honshû.

Remarks. This is the first description of male of this species and new record from Hokkaidô.

***Pristiceros* sp. A, sp. nov.**

Pls. 40, 47-C, 49-C, 52-C, 55

Type series. Holotype, Japan. ♀. Data on the label: "Mt. Daimanji, Fuse V. Oki Is., Shimane, Japan. 26. VI. 2002 T. Nambu". Deposit in SEHU.

Paratypes, JAPAN: [Hokkaidô] 1♂, Headwaters of Sarugawa-R, Niishô-tôge [42.9740N 142.7497E, Alt. 1050 m], 20. VI. – 2. VII. 2010, MT, N. Kuhara, EUMJ; 1♂, Niupu, Bifuka [44.5371N 142.6056E], 30. V. – 19. VI. 2010, MT, N. Kuhara & M. Sueyoshi, EUMJ. [Honshû] Niigata Pref.: 1♂, Nagaoka City, Suyoshi Town, Mt. Nokogiri-yama [37°23'N 138°55'E, Alt. 680–765 m], 25. V. 2014, S. Shimizu, SEHU; 1♂, Nagaoka City, Suyoshi Town, Mt. Nokogiri-yama [37°23'38"N 138°55'46"E, Alt. 690 m], 28. VI. – 21. VII. 2014, S. Shimizu & R. Shimizu, SEHU. Hirosima Pref.: 1♀, Geihoku town, Kakezuyama, 17. VII. 1998, R. Matsumoto, OMNH.

Female. Body length 10 mm.

Coloration. Body ground color black (Pl. 40-A). Vertex with a pair of whitish-yellow spots along eye margins (Pl. 55-B); inner eye margins with whitish-yellow line from vertex to malar space; clypeus with white spot on lateral corner; maxillary and labial

palpi off-white, with brown spot on first segments and base of second segment of maxillary palpi; labrum and flagellar annulus (8th–13th flagellomeres) white. Collar and upper margin of pronotum whitish-yellow; subalar ridge whitish-yellow**;** mesopleuron with one or two whitish-yellow spots; mesosucutum with a pair of whitish-yellow spots; scutellum and postscutellum whitish-yellow; metapleuron with whitish-yellow spot on each of upper division and apex of lower division; third lateral area of propodeum whtish-yellow. All coxae with a whitish-yellow spot; fore and mid femora, tibiae and tarsi light umber except for TS5 black; hind femora light umber except for apical half or quarter black. Metasoma with whitish-yellow band on apical margin of each tergites. Ovipositor sheath reddish-brown.

Head 1.6–1.8 × as wide as long in dorsal view and sparsely punctate, except supra-antennal area polished and malar space granulate; OOL/POL = 1.0 (Pl. 55-B). Supra-antennal area concaved; supra-antennal area with small and distinct tubercle between antennal sockets; antennal sockets almost circular, large, protrude anteriorly in dorsal view; supra-clypeal area 1.6–1.7 × as wide as high; internal margins of compound eyes parallel; clypeus weakly convex and transverse, 2.1–2.3 × as wide as high, with straight apical margin (Pl. 54-D); labrum with straight apical margin, protrude from under clypeus. Mandible slender, 2.0 × as long as wide at base, narrowed from base to apex, with lower tooth 0.5 × as long as upper tooth (Pl. 55-F). MSL/BMW = 0.9–1.2. Occipital carina complete and separated from hypostomal carina above base of mandible by 0.6 × width of mandibular base; Dorsomedian part of occipital carina evenly arched (Pl. 55-B). Maxillary palpi reaching epicnemial carina. Flagellum bristle-shaped, little widened at apical 0.3, very long and slender, 1.3 × as long as fore

wing; apical flagellomere conical; first flagellomere 5.2 × as long as wide at base and 1.4 × as long as second one.

Mesosoma. Collar of pronotum long. Pronotum strigose and punctae. Mesosucutum strongly convex, 1.0–1.2 × as long as wide; notauli not developed; surface of mesoscutum polished with dense punctures. Epicnemial carina complete; sternaulus not distinct, present only apical part; postpectal carina absent; surface of mesopleuron polished with dense punctures. Scutellum sparsely punctate, highly elevated above postscutellum, with lateral carina reaching apex and dorsal surface moderately convex; hind margin of metanotum with a triangular projection opposite lateral longitudinal carina on each side of postscutellum. Metapleuron punctate with slightly oblique rugose juxtacoxal area; juxtacoxal carina present but not distinct. Propodeum in profile rather short; regular carinae of propodeum complete; areola hexagonal and transverse, 1.4–1.7 × as wide as long (Pl. 55-G); apex of second lateral area without any projection; surface of propodeum sparsely punctate and weakly rugose. Propodeal spiracle 2.0–2.5 × as long as wide.

Legs rather stout and long. Fore femora 3.0 × as long as deep in lateral view; apex of hind TS1 swollen, 1.5 × as deep as the middle in lateral view; hind TS1 0.9 × as long as TS2–TS5 combined. Tarsal claws not pectinate.

Wings (Pl. 47-C). Fore wing 8.6 mm long; areolet 1.0 × as long as 3rs-m, 0.5 × as high as 2m-cu, quadrangular and asymmetrical; 1m-cu with single bulla, 2m-cu and 3rs-m each with double bullae**;** Cu-a opposite Rs & M; ramulus slightly present. Hind wing with cu-a 0.3 × as long as 1-Cu; two or three basal hamuli, 11 distal hamuli on R1 vein.

Metasoma. T1 in profile almost straight, slightly bent downward at base of postpetiole; 2.1–2.2 × as long as wide in dorsal view; petiole long, rectangular in cross-section,

flattened, clearly wider than deep; dorsal surface of petiole polished; in dorsal view petiole almost parallel sided; Dorsomedian carina present only on apical portion of postpetiole; median area of postpetiole with weak transverse wrinkles. T2 and T3 granulate with sparse shallow punctures, T4 granulate to reticulate coriaceous, T5–T7 reticulate coriaceous. T2 in dorsal view 1.4 × as long as wide at base. Gastrocoelus shallow, quadrangular. Thyridium linear, oblique to longitudinal axis of body; Inter-thyridial interval 2.4–2.6 × as long as thyridium. S2–S4 laterally sclerotized and middle part not sclerotized. Hypopygium with apical margin pointed and longitudinally folded at apex. Ovipositor sheath with apex rounded, protruding beyond apex of metasoma (Pl. 55-I).

Male. As in female except for the following characters.

Coloration. Pale color spots larger than in female (Pl. 40-B). Head in frontal view mainly white except for median area and gena black (Pl. 55-C). All tarsi whitish-yellow (paler than tibiae).

Head. OOL/POL = 0.7–0.9 (Pl. 55-A); supra-clypeal area 1.4–1.6 × as wide as high; clypeus 1.9–2.3 × as wide as high (Pl. 55-C). Flagellum clearly serrate from second flagellomere; first flagellomere 1.5–1.9 × as long as the second one; nine or ten longish-oval tyloids on 9th or 10th to 18th–20th flagellomere (Pl. 55-E).

Legs rather slender and long. Fore femora 4.1–4.6 × as long as deep in lateral view; apex of hind TS1 not swollen; hind TS1 0.7–0.8 × as long as TS2–5 combined.

Metasoma. T2 in dorsal view 1.5 × as long as wide at base; Inter-thyridial interval 2.4–2.6 × as long as thyridium (Pl. 55-H). Genitalia as in Pl. 19-B; apex of paramere broad and truncate. Apex of aedeagus narrowed in profile, forked in apico-dorsal view.

Distributions. Hokkaidô, Honshû, Oki Is.

***Pristiceros* sp. B, sp. nov.**

Pls. 41, 47-D, 49-D, 52-D, 56

Type series. Holotype, Japan. ♀. Data on the label: "Misumai, Sapporo, // Hokkaidô, JAPAN, // small stream, // 27. VII – 13. VIII. 1994, // MT, N. Kuhara". Deposit in SEHU.

Paratypes, JAPAN: [Hokkaidô] 1♂, Takinoue, Ukishima-tôge [43.9388N 142.9514E, Alt. 690 m], 30. V. – 19. VI. 2010, MT, N. Kuhara EUMJ; 1♂, Sapporo City, Usubetsu [42.9348N 141.1206E], 29. IV. – 24. V. 2012, MT, N. Kuhara EUMJ; 1♂, Sapporo City, Jôzankei, Hôheikyô, 30. V. 2014, N. Kikuchi, SEHU; 1♂, Tomakomai City, Hokkaidô Univ. Exp. Forest, 18 – 20. VI. 1980, K. Maeto, NIASE. [Honshû] Iwate Pref.: 1♀, Mt. Hayachine [Alt. 400 m], 2 –8. VII. 1989, MT, M. Sharkey & H. Makihara, MT, NIASE. Niigata Pref.: 1♀, Myôkô City, Suginosawa, Otomi-tôge [36°51'N 138°10'E, Alt. 1300–1520 m], 17. VIII. 2013, sweeping, S. Shimizu, SEHU; 1♀, Nagaoka City, Suginosawa, Sasagamine [Alt. 1300 m], 15. VII. 2013, sweeping, S. Shimizu, SEHU; S. Echigo, 10. VIII. 1982, K. Baba, KU. Nagano Pref.: 1♀, Shimashimadani, 14. X. 1982, T. Goto, NIASE. [Sado Is.] Sado City, Ôkura, Mt. Itsubo, 2. VIII. 2012, N. Kikuchi, SEHU.

Female. Body length 7.0–10 mm.

Head 1.8–2.0 × as wide as long in dorsal view and sparsely punctate, except supra-antennal area polished and malar space granulate; OOL/POL = 1.1–1.2 (Pl. 23-B). Supra-antennal area concaved; supra-antennal area with small and distinct tubercle between antennal sockets; antennal sockets almost circular, large, protrude anteriorly in dorsal view; supra-clypeal area 1.7 × as wide as high; internal margins of compound eyes parallel; clypeus weakly convex and transverse, 1.9–2.4 × as wide as high, with

straight apical margin (Pl. 55-D); labrum with straight apical margin, protrude from under clypeus. Mandible slender, 1.8–1.9 × as long as wide at base, narrowed from base to apex, with lower tooth 0.3 × as long as upper tooth (Pl. 23-F). MSL/BMW = 0.8–0.9. Occipital carina complete and separated from hypostomal carina above base of mandible by 0.5–0.6 × width of mandibular base; Dorsomedian part of occipital carina evenly arched (Pl. 56-B). Maxillary palpi reaching epicnemial carina. Flagellum bristle-shaped, little widened at apical 0.3, very long and slender, 1.0–1.1 × as long as fore wing; apical flagellomere conical; first flagellomere 4.1–5.8 × as long as wide at base and 1.2 × as long as second one.

Mesosoma. Collar of pronotum long. Pronotum slightly strigose and rather densely punctae. Mesosucutum strongly convex, 1.0 × as long as wide; notauli not developed; surface of mesoscutum polished with dense punctures. Epicnemial carina complete; sternaulus weakly developed, reaching at middle of mesopleuron; postpectal carina absent; surface of mesopleuron polished with dense punctures. Scutellum sparsely punctate, highly elevated above postscutellum, with lateral carina reaching apex and dorsal surface moderately convex; hind margin of metanotum with a triangular projection opposite lateral longitudinal carina on each side of postscutellum. Metapleuron polished and densely punctate; juxtacoxal carina present and distinct. Propodeum in profile rather short; regular carinae of propodeum complete; areola hexagonal and transverse, 1.3 × as long as wide (Pl. 56-G); apex of second lateral area without any projection; surface of propodeum rather weakly rogosopunctate. Propodeal spiracle 3.0–3.6 × as long as wide.

Legs rather stout and long. Fore femora 2.7–3.4 × as long as deep in lateral view; apex of hind TS1 not swollen; hind TS1 0.7–0.8 × as long as TS2–TS5 combined. Tarsal claws not pectinate.

Wings (Pl. 47-D). Fore wing 6.7–8.7 mm long; areolet 1.2 × as long as 3rs-m, 0.5 × as high as 2m-cu, quadrangular and asymmetrical; 1m-cu with single bulla, 2m-cu and 3rs-m each with double bullae**;** Cu-a opposite Rs & M; ramulus distinctly to slightly present. Hind wing with cu-a 0.3 × as long as 1-Cu; two or three basal hamuli, nine distal hamuli on R1 vein.

Metasoma. T1 in profile almost straight, slightly bent downward at base of postpetiole; 2.0–2.2 × as long as wide in dorsal view; petiole long, rectangular in cross-section, flattened, clearly wider than deep; dorsal surface of petiole polished; in dorsal view petiole almost parallel sided; Dorsomedian carina present only on apical portion of postpetiole; median area of postpetiole with sparse punctures. T2 and T3 granulate with rather dense punctures, T4 granulate to reticulate coriaceous with sparse punctures, T5–T7 coriaceous. T2 in dorsal view 1.4 × as long as wide at base. Gastrocoelus shallow, quadrangular. Thyridium linear, oblique to longitudinal axis of body; Inter-thyridial interval 2.3–3.5 × as long as thyridium. S2–S4 (or S5) laterally sclerotized and middle part not sclerotized. Hypopygium with apical margin weakly pointed and longitudinally folded at apex. Ovipositor sheath rather short, with apex rounded, protruding beyond apex of metasoma (Pl. 56-I).

Coloration. Body ground color Black (Pl. 41-A). Vertex with a pair of whitish-yellow spots along eye margins (Pl. 56-B); inner eye margins with whitish-yellow line from vertex to malar space; maxillary and labial palpi brown to black, with or without off-white spot; labrum and flagellar annulus (8th–11th flagellomeres) white. Subalar

ridge whitish-yellow; mesosucutum with a pair of whitish-yellow spots; apical half of scutellum whitish-yellow; postscutellum whitish-yellow to black. Fore femora, basal 3/4 of mid and hind tibiae umber. Metasoma with whitish-yellow band on apical margin of each tergites. Ovipositor sheath dark brown.

Male. As in female except for the following characters.

Coloration. Pale color spots larger than in female (Pl. 41-B). Clypeus with white spot on each lateral corner (Pl. 55-C). Collar and upper margin of pronotum whitish-yellow; mesopleuron with single whitish-yellow spot; metapleuron with whitish-yellow spot on each of upper division and apex of lower division; third lateral area of propodeum whtish-yellow. Fore tarsi umber.

Head 1.7–1.8 × as wide as long in dorsal view; OOL/POL = 0.8–0.9 (Pl. 56-A). Supra-clypeal area 1.7–1.8 × as wide as high; clypeus 1.9–2.3 × as wide as high (Pl. 56-C). MSL/BMW = 0.6–0.8. Flagellum 1.2–1.3 × as long as fore wing, clearly serrate from second flagellomere; first flagellomere 1.3–1.4 × as long as the second one; ten or 11 linear tyloids on 10th to 19th or 20th flagellomere (Pl. 56-E).

Mesosoma. Areola 1.2–1.4 × as wide as long. Propodeal spiracle 2.7–3.0 × as long as wide.

Legs rather slender and long. Fore femora 3.7–4.5 × as long as deep in lateral view.

Metasoma. T1 2.3 × as long as wide in dorsal view. T2 in dorsal view 1.5–1.6 × as long as wide at base (Pl. 56-H). Genitalia as in Pl. 19-C; apex of paramere rather pointed. Apex of aedeagus narrowed in profile, forked in apico-dorsal view.

Distributions. Hokkaidô, Honshû, Sado Is.

***Pristiceros gloriosus* sp. nov.**

Pls. 42-A, 47-E, 50-A, 57

Type series. Holotype, Japan. ♀. Data on the label: “Mt. Osuzu // Kyuhu // 22 V 1966 // K. KUSIG.”. Deposit in KU.

Paratypes, JAPAN: [Honshû] Shiga Pref.: 1♀, Shiga Town, Kitahira [Alt. 1000 m], 1. VII. 2001, K. Yoshida, OMNH. [Kyûshû] Kagoshima Pref.: 1♀, Mt. Kirishima, 6. VI. 1966, K. Kusigemati, KU.

Female. Body length 9.2–9.8 mm.

Coloration. Body ground color black (Pl. 42-A). Vertex with a pair of whitish-yellow spots along eye margins (Pl. 57-A); inner eye margins with whitish-yellow line from vertex to malar space; clypeus with white spot on lateral corner; maxillary and labial palpi off-white, with brown spot on first segments and base of second segment of maxillary palpi; labrum and flagellar annulus (8th–14th flagellomeres) white. Collar and upper margin of pronotum whitish-yellow; subalar ridge whitish-yellow**;** mesopleuron with single whitish-yellow spot; mesosucutum with a pair of whitish-yellow spots; scutellum and postscutellum whitish-yellow; metapleuron with whitish-yellow spot on each of upper division and apex of lower division; third lateral area of propodeum whtish-yellow. All legs light umber except for apical half of hind femora and each TS5 dark brown. Metasoma with whitish-yellow band on apical margin of each tergites. Ovipositor sheath reddish-brown.

Head 1.7 × as wide as long in dorsal view; vertex and gena polished and very sparsely punctate; supra-antennal area polished; Supra-clypeal area and clypeus rather densely punctate, or mid area of Supra-clypeal area rather rugose; malar space granulate; OOL/POL = 0.9–1.1 (Pl. 57-A). Supra-antennal area concaved; supra-antennal area with small and distinct tubercle between antennal sockets; antennal sockets almost

circular, large, protrude anteriorly in dorsal view; supra-clypeal area 1.8–2.0 × as wide as high; internal margins of compound eyes parallel; clypeus slightly convex and transverse, 2.0 × as wide as high, with straight apical margin (Pl. 57-B); labrum with straight apical margin, protrude from under clypeus. Mandible rather slender, 2.0 × as long as wide at base, narrowed from base to apex, with lower tooth 0.5 × as long as upper tooth (Pl. 57-C). MSL/BMW = 0.7–0.8. Occipital carina complete and separated from hypostomal carina above base of mandible by 0.4–0.6 × width of mandibular base; Dorsomedian part of occipital carina evenly arched (Pl. 57-A). Maxillary palpi reaching epicnemial carina. Flagellum bristle-shaped, rather widened at apical 0.3, very long and slender, 1.3–1.4 × as long as fore wing; apical flagellomere conical; first flagellomere 4.0–4.5 × as long as wide at base and 1.3–1.4 × as long as second one.

Mesosoma. Collar of pronotum long. Pronotum strigose and rather sparsely punctae. Mesosucutum strongly convex, 1.0 × as long as wide; notauli weakly developed on apical 1/3; surface of mesoscutum polished with dense punctures. Epicnemial carina complete; sternaulus not distinct, present only apical part; postpectal carina absent; surface of mesopleuron polished with dense punctures. Scutellum rather sparsely punctate, highly elevated above postscutellum, with lateral carina reaching apex and dorsal surface moderately convex; hind margin of metanotum with a triangular projection opposite lateral longitudinal carina on each side of postscutellum. Metapleuron punctate; juxtacoxal carina present. Propodeum in profile rather short; regular carinae of propodeum complete; areola hexagonal, 1.0–1.4 × as wide as long (Pl. 57-D); apex of second lateral area without any projection; surface of propodeum sparsely punctate and weakly rugose. Propodeal spiracle 2.5–3.1 × as long as wide.

Legs rather stout and long. Fore femora 2.5 × as long as deep in lateral view; apex of hind TS1 swollen, 1.5 × as deep as the middle in lateral view; hind TS1 0.9 × as long as TS2–TS5 combined. Tarsal claws not pectinate.

Wings (Pl. 47-E). Fore wing 8.3–9.3 mm long; areolet 1.2 × as long as 3rs-m, 0.5 × as high as 2m-cu, quadrangular and asymmetrical; 1m-cu with single bulla, 2m-cu and 3rs-m each with double bullae**;** Cu-a opposite Rs & M; ramulus slightly present. Hind wing with cu-a 0.5 × as long as 1-Cu; two or three basal hamuli, 9–11 distal hamuli on R1 vein.

Metasoma. T1 in profile almost straight, slightly bent downward at base of postpetiole; 2.3 × as long as wide in dorsal view; petiole long, rectangular in cross-section, flattened, clearly wider than deep; dorsal surface of petiole polished; in dorsal view petiole almost parallel sided; Dorsomedian carina present only on apical portion of postpetiole; median area of postpetiole polished. T2 polished with rather sparse shallow punctures, T3–T7 distinctly polished with very sparse and shallow punctures. T2 in dorsal view 1.2–1.4 × as long as wide at base. Gastrocoelus shallow, rectangular or triangular. Thyridium linear, oblique to longitudinal axis of body; Inter-thyridial interval 3.5–4.9 × as long as thyridium. S2–S5 laterally sclerotized and middle part not sclerotized. Hypopygium with apical margin broadly truncated or rounded and longitudinally folded at apex. Ovipositor sheath with apex rounded, protruding beyond apex of metasoma (Pl. 57-F).

Male. Unknown.

Distributions. Honshû, Kyûshû.

Etymology. The name comes from the Latin word “gloria”, that means “glory”

***Pristiceros kusigematii* sp. nov.**

Pls. 42-B, 47-F, 50-B, 58

Type series. Holotype, Japan. ♀. [Hokkaidô]. Data on the label: “Mt. Soranuma // Hokkaido // 29 VIII 1965 // K. KUSIG.”. Deposit in KU.

Female. Body length 7.3 mm.

Coloration. Body ground color black (Pl. 42-A). Vertex with a pair of whitish-yellow spots along eye margins (Pl. 58-A); inner eye margins with whitish-yellow line from vertex to clypeus; maxillary and labial palpi off-white; labrum and flagellar annulus (9th–10th flagellomeres) white. Collar and upper margin of pronotum whitish-yellow; subalar ridge whitish-yellow**;** mesopleuron with single whitish-yellow spot; scutellum and postscutellum whitish-yellow; metapleuron with whitish-yellow spot on each of upper division and apical half of lower division; apical half of second lateral area and third lateral area of propodeum whitish-yellow. All coxae with a whitish-yellow spot; fore and mid legs light umber; hind femora, tibiae, tarsi reddish brown except for apical 1/4 of femora, basal 2/3 of tibiae and basal half of TS5 light umber. Metasoma with whitish-yellow band on apical margin of T1–T4; T5–T7 whitish-yellow. Ovipositor sheath reddish-brown.

Head 1.9 × as wide as long in dorsal view; vertex and gena polished and very sparsely punctate; supra-antennal area polished; Supra-clypeal area rather densely punctate; clypeus rather sparsely punctate; malar space granulate; OOL/POL = 0.6 (Pl. 58-A). Supra-antennal area concaved; supra-antennal area with small and distinct tubercle between antennal sockets; antennal sockets almost circular, large, protrude anteriorly in dorsal view; supra-clypeal area 1.8 × as wide as high; internal margins of compound eyes parallel; clypeus weakly convex and transverse, 2.0 × as wide as high, with straight apical margin (Pl. 58-B); labrum with straight apical margin, protrude from under

clypeus. Mandible slender, 1.8 × as long as wide at base, narrowed from base to apex, with lower tooth 0.2 × as long as upper tooth (Pl. 58-C). MSL/BMW = 0.7. Occipital carina complete and separated from hypostomal carina above base of mandible by 0.3 × width of mandibular base; Dorsomedian part of occipital carina weakly bent (Pl. 58-A). Maxillary palpi reaching epicnemial carina. Flagellum bristle-shaped, rather widened at apical 0.3, rather short and rather stout, 0.8 × as long as fore wing; apical flagellomere conical; first flagellomere 4.1 × as long as wide at base and 1.2 × as long as second one.

Mesosoma. Collar of pronotum rather short. Pronotum strigose and rather sparsely punctae. Mesosucutum strongly convex, 1.1 × as long as wide; notauli not developed; surface of mesoscutum polished with dense punctures. Epicnemial carina complete; sternaulus weakly developed, reaching at middle of mesopleuron; postpectal carina absent; surface of mesopleuron polished with dense punctures except mesopleural fovea without puncture. Scutellum rather sparsely punctate, highly elevated above postscutellum, with lateral carina reaching apex and dorsal surface moderately convex; hind margin of metanotum with a triangular projection opposite lateral longitudinal carina on each side of postscutellum. Metapleuron punctate; juxtacoxal carina present. Propodeum in profile rather short; regular carinae of propodeum complete; areola rectangular and transverse, 1.9 × as wide as long (Pl. 25-D); apex of second lateral area without any projection; surface of propodeum sparsely punctate and weakly rugose except for areola polished and without puncture. Propodeal spiracle 2.3 × as long as wide.

Legs rather stout and long. Fore femora 2.6 × as long as deep in lateral view; apex of hind TS1 not swollen; hind TS1 0.8 × as long as TS2–TS5 combined. Tarsal claws not pectinate.

Wings (Pl. 47-F). Fore wing 6.0 mm long; areolet 1.0 × as long as 3rs-m, 0.4 × as high as 2m-cu, quadrangular and asymmetrical; 1m-cu with single bulla, 2m-cu and 3rs-m each with double bullae**;** Cu-a opposite Rs & M; ramulus slightly present. Hind wing with cu-a 0.3 × as long as 1-Cu; two basal hamuli, 8 distal hamuli on R1 vein.

Metasoma. T1 in profile almost straight, slightly bent downward at base of postpetiole; 1.6 × as long as wide in dorsal view; petiole long, rectangular in cross-section, flattened, clearly wider than deep; dorsal surface of petiole polished; in dorsal view petiole almost parallel sided; Dorsomedian carina complete; median area of postpetiole polished with sparse punctures. Basal half of T2 rather densely punctate, apical half of T2 and T3–T7 coriaceous. T2 in dorsal view 1.1 × as long as wide at base. Gastrocoelus rather deep, quadrangular. Thyridium linear, oblique to longitudinal axis of body; Inter-thyridial interval 1.5 × as long as thyridium. S2–S5 laterally sclerotized and middle part not sclerotized. Hypopygium with apical margin weakly pointed and longitudinally folded at apex. Ovipositor sheath rather long, with apex rounded, protruding beyond apex of metasoma (Pl. 58-F).

Male. Unknown.

Distributions. Hokkaidô.

***Pristiceros* sp. E, sp. nov.**

Pls. 43, 48-A, 50-C, 52-E, 59

Type series. Holotype, Japan. ♀. Data on the label: " (JAPAN) NIIGATA Pref. Myoukou City. // Suginosawa. Sasagamine. 1305m alt. // 36-52-2N/138-4-42E (at light.) // 16. August. 2013; Sou SHIMIZU leg.". Deposit in SEHU.

Paratypes, JAPAN: [Honshû] Niigata Pref.: 1♂, Nagaoka City, Suginosawa, Sasagamine [36°52’2”N 138°4’42”E, Alt. 1300 m], 17. IX. 2013, sweeping, S. Shimizu, SEHU. Nagano Pref.: 1♂, Ôtaki vil., Mt. Ontake, Hakkaisan [35.867N 137.517E Alt. 1650–1850 m], 30. VII. 2012, S. Fujie, SEHU. Fukui Pref.: 1♂, Obama City, Kaminegori, Onyû-tôge [35°23’13”N 135°47’30”E, Alt. 730 m], 13 – 14. VII. 2012, light trap, M. Adachi, SEHU.

Female. Body length 9.0 mm.

Coloration. Body ground color black (Pl. 43-A). Vertex with a pair of whitish-yellow spots along eye margins (Pl. 59-B); maxillary and labial palpi dark brown; flagellar annulus (9th–14th flagellomeres) white. Subalar ridge whitish-yellow. Metasoma with very narrow whitish-yellow band on apical margin of T2–T7. Ovipositor sheath dark brown.

Head 1.8 × as wide as long in dorsal view; vertex and gena polished and very sparsely punctate; supra-antennal area polished; Supra-clypeal area densely punctate; clypeus rather sparsely punctate; malar space granulate; OOL/POL = 0.8 (Pl. 59-B). Supra-antennal area concaved; supra-antennal area with small and distinct tubercle between antennal sockets; antennal sockets almost circular, large, protrude anteriorly in dorsal view; supra-clypeal area 1.6 × as wide as high; internal margins of compound eyes parallel; clypeus weakly convex and transverse, 2.0 × as wide as high, with straight apical margin (Pl. 59-D); labrum with straight apical margin, protrude from under clypeus. Mandible slender, 1.8 × as long as wide at base, narrowed from base to apex, with lower tooth 0.2 × as long as upper tooth. MSL/BMW = 0.8. Occipital carina complete and separated from hypostomal carina above base of mandible by 0.4 × width of mandibular base; Dorsomedian part of occipital carina evenly arched (Pl. 59-B).

Maxillary palpi reaching epicnemial carina. Flagellum bristle-shaped, little widened at apical 0.3, very long and slender, 1.0 × as long as fore wing; apical flagellomere conical; first flagellomere 4.6 × as long as wide at base and 1.2 × as long as second one.

Mesosoma. Collar of pronotum long. Pronotum slightly strigose and very sparsely punctae. Mesosucutum strongly convex, 1.1 × as long as wide; notauli not developed; surface of mesoscutum polished with dense punctures. Epicnemial carina complete; sternaulus weakly developed, present only apical part; postpectal carina absent; surface of mesopleuron polished with dense punctures. Scutellum rather sparsely punctate, highly elevated above postscutellum, with lateral carina reaching apex and dorsal surface moderately convex; hind margin of metanotum with a triangular projection opposite lateral longitudinal carina on each side of postscutellum. Metapleuron polished and densely punctate; juxtacoxal carina present and distinct. Propodeum in profile not short; regular carinae of propodeum complete; areola hexagonal, 1.1 × as long as wide (Pl. 59-G); apex of second lateral area without any projection; surface of propodeum rather sparsely punctate except for first to third pleural areas and petiolar area rugose. Propodeal spiracle 3.3 × as long as wide.

Legs rather stout and long. Fore femora 2.5 × as long as deep in lateral view; apex of hind TS1 not swollen; hind TS1 0.7 × as long as TS2–TS5 combined. Tarsal claws not pectinate.

Wings (Pl. 48-A). Fore wing 8.0 mm long; areolet 1.1 × as long as 3rs-m, 0.5 × as high as 2m-cu, quadrangular and asymmetrical; 1m-cu with single bulla, 2m-cu and 3rs-m each with double bullae**;** Cu-a opposite Rs & M; ramulus distinctly to slightly present. Hind wing with cu-a 0.4 × as long as 1-Cu; two basal hamuli, 11 distal hamuli on R1 vein.

Metasoma. T1 in profile almost straight, slightly bent downward at base of postpetiole; 2.0 × as long as wide in dorsal view; petiole long, rectangular in cross-section, flattened, clearly wider than deep; dorsal surface of petiole polished; in dorsal view petiole almost parallel sided; Dorsomedian carina present only on apical portion of postpetiole; median area of postpetiole without puncture. T2 and T3 polished with dense punctures, T4–T7 coriaceous. T2 in dorsal view 1.5 × as long as wide at base. Gastrocoelus shallow, quadrangular. Thyridium linear, almost perpendicular to longitudinal axis of body; Inter-thyridial interval 2.0 × as long as thyridium. S2–S5 laterally sclerotized and middle part not sclerotized. Hypopygium with apical margin truncated and longitudinally folded at apex. Ovipositor sheath rather short, with apex rounded and slight bulge to downwards, protruding beyond apex of metasoma (Pl. 59-I).

Male. As in female except for the following characters.

Coloration. Pale color spots larger than in female (Pl. 43-B). Clypeus with white spot on each lateral corner (Pl. 59-C). Collar and upper margin of pronotum whitish-yellow. Fore and mid femora to tarsi and basal half of hind tibiae umber; hind tarsi whitish-yellow.

Head. Supra-clypeal area 1.4 × as wide as high; clypeus 2.3 × as wide as high (Pl. 59-C). MSL/BMW = 0.7. Flagellum 1.3 × as long as fore wing, clearly serrate from second flagellomere; first flagellomere 1.2 × as long as the second one; eight or nine longish-oval tyloids on 10th to 17th or 18th flagellomere (Pl. 59-E).

Mesosoma. Areola 1.3 × as wide as long.

Legs rather slender and long. Fore femora 3.7 × as long as deep in lateral view; hind TS1 0.8 × as long as TS2–TS5 combined.

Metasoma. T2 in dorsal view 1.4 × as long as wide at base (Pl. 59-H). Genitalia as in Pl. 19-E; apex of paramere truncated. Apex of aedeagus narrowed in profile, almost not forked in apico-dorsal view.

Distributions. Honshû.

***Pristiceros ferruginous*, sp. nov.**

Pls. 44, 48-B, 50-D, 60

Type series. Holotype, Japan. ♀ [Hokkaidô] Data on the label: "42.9740N 142.7497E // Hedwaters of Sarugawa R., // Nisshô-tôge (1050 m), // Hokkaidô, JAPAN, 12 – 20. // VI. 2010, MT, N. Kuahara" Deposit in EUMJ.

Paratypes, JAPAN: [Hokkaidô] 2♀♀, Takinoue, Ukishima-tôge [43.9388N 142.9514E, Alt. 690 m], 30. V. – 19. VI. 2010, MT, N. Kuhara EUMJ. [Honshû] Aomori Pref.: 1♀, Nishimeya vil., Kawaratani [40°31'N 140°10'E], 29. V. – 6 .VI. 2013, MT, T. Nakamura, EUMJ. Ishikawa Pref.: 1♀, Tatsukuchi town, Nabetani, 30. IV. 1990, Y. Sugie, NIAES. [Kyûshû] Fukuoka Pref.: 1♀, Fukuoka City, Nogochi, 16. IV. 1997, R. Matsumoto, OMNH.

Female. Body length 8.5–9.5 mm.

Coloration. Body ground color black (Pl. 44-A). Vertex with a pair of whitish-yellow spots along eye margins (Pl. 60-A); inner eye margins with whitish-yellow to yellow line from vertex to side of clypeus; apical half of vertex, supra clypeal area and malar space reddish-brown; maxillary and labial palpi dark brown; flagellar annulus (8th–12th flagellomeres) white. Collar and upper margin of pronotum yellow; subalar ridge with yellow spot; mesopleuron with single reddish-brown spot; mesosucutum with a braod reddish-brown line; apical half of scutellum whitish-yellow to yellow; third lateral area

of propodeum reddish-brown. All legs dark-brown to reddish-brown. Metasoma with reddish-brown band on apical margin of T2–T7. Ovipositor sheath dark brown.

Head 1.8 × as wide as long in dorsal view; vertex and gena little granulated and rather sparsely punctate; supra-antennal area polished; Supra-clypeal area and clypeus rather densely punctate; malar space granulate; OOL/POL = 0.8 (Pl. 27-A). Supra-antennal area concaved; supra-antennal area with small and distinct tubercle between antennal sockets; antennal sockets almost circular, large, protrude anteriorly in dorsal view; supra-clypeal area 1.6 × as wide as high; internal margins of compound eyes parallel; clypeus weakly convex and transverse, 1.7–2.1 × as wide as high, with straight apical margin (Pl. 27-B); labrum with straight apical margin, protrude from under clypeus. Mandible slender, 1.7–1.9 × as long as wide at base, narrowed from base to apex, with lower tooth 0.2 × as long as upper tooth (Pl. 27-C). MSL/BMW = 0.7–1.0. Occipital carina complete and separated from hypostomal carina above base of mandible by 0.6–0.7 × width of mandibular base; Dorsomedian part of occipital carina weakly bent (Pl. 27-A). Maxillary palpi reaching epicnemial carina. Flagellum bristle-shaped, not widened, long and slender, 0.9 × as long as fore wing; apical flagellomere conical; first flagellomere 3.9–4.1 × as long as wide at base and 1.2–1.3 × as long as second one.

Mesosoma. Collar of pronotum long. Pronotum strigose and rather densely punctae. Mesosucutum strongly convex, 1.2–1.3 × as long as wide; notauli not developed; surface of mesoscutum coriaceous with dense punctures. Epicnemial carina complete; sternaulus weakly developed, reaching at apical 1/3 of mesopleuron; postpectal carina absent; surface of mesopleuron polished with dense punctures. Scutellum rather sparsely punctate, highly elevated above postscutellum, with lateral carina reaching apex and dorsal surface strongly convex; hind margin of metanotum with a triangular

projection opposite lateral longitudinal carina on each side of postscutellum. Metapleuron punctate; juxtacoxal carina present but not distinct. Propodeum in profile bot short; regular carinae of propodeum complete; areola rectangular and transverse, 1.3–1.4 × as wide as long (Pl. 50-D); apex of second lateral area without any projection; surface of propodeum weakly rugose. Propodeal spiracle 2.7–3.4 × as long as wide.

Legs rather stout and long. Fore femora 3.0 × as long as deep in lateral view; apex of hind TS1 not swollen; hind TS1 0.7 × as long as TS2–TS5 combined. Tarsal claws not pectinate.

Wings (Pl. 48-B). Fore wing 8.8–9.3 mm long; areolet 1.2 × as long as 3rs-m, 0.6 × as high as 2m-cu, quadrangular and asymmetrical; 1m-cu with single bulla, 2m-cu and 3rs-m each with double bullae; Cu-a opposite Rs & M; ramulus slightly present. Hind wing with cu-a 0.3 × as long as 1-Cu; two or three basal hamuli, 9 or 10 distal hamuli on R1 vein.

Metasoma. T1 in profile almost straight, slightly bent downward at base of postpetiole; 2.6–2.7 × as long as wide in dorsal view; petiole long, rectangular in cross-section, flattened, clearly wider than deep; dorsal surface of petiole polished; in dorsal view petiole almost parallel sided; Dorsomedian carina present to mid of postpetiole; median area of postpetiole polished with weak wrinkles. Basal half of T2 distinctly rugose, apical half of T2 and T3 coriaceous with sparse punctures, T4–T7 coriaceous. T2 in dorsal view 1.6–1.8 × as long as wide at base. Gastrocoelus rather deep, quadrangular. Thyridium linear, oblique to longitudinal axis of body; Inter-thyridial interval 0.7–0.8 × as long as thyridium. S2–S4 laterally sclerotized and middle part not sclerotized. Hypopygium with apical margin weakly pointed and longitudinally folded at apex.

Ovipositor rather short, with apex blunt angle shaped, protruding beyond apex of metasoma (Pl. 60-F).

Male. Unknown.

Distributions. Hokkaidô, Honshû, Kyûshû.

Etymology: The name comes from the Latin word “ferruginous”, that means “rusty”, after the body coloration of this species

***Pristiceros tricolor,* sp. nov.**

Pls. 45, 48-C, 51-A, 52-F, 61

Type series. Holotype, Japan. ♀. Data on the label: “vi. 20, 1989 // Mt. Hayachine // Iwate Pref. // at light // K. Konishi” Deposit in NIAES.

Paratypes, JAPAN: [Hokkaidô] 1♀, Sapporo City, Jôzankei, 3. V. 1968, K. Kusigemati, KU. [Honshû] Iwate Pref.: 1♀, Mt Hayachine, 20. VI. 1989, light trap, K. Konishi, NIAES. Nagano Pref.: 1♀, Ôtaki vil., Mt. Ontake [35°52’15”N 137°31’22”E, Alt. 1840 m], 13 – 25. VI. 2015, MT, S. Shimizu, SEHU; 1♀, Kawakami vil., Azusayama [35.57N 138.41E, Alt. 1355–1455 m], 14. VI. 2015, K. Watanabe, KPMNH. Ibaraki Pref.: 2♀♀, Mt. Yamizosan, 27. IX. 1987, K. Konishi, NIASE. Nara Pref.: 1♂, Yamato-kôriyama City, Yatachô [34°39’51”N 135°44’18”E], 19. VI. 2006, R. Matsumoto, OMNH. [Shikoku] Kochi Pref.: 1♀, Tsuno town, Tengu-kôgen [32°38N 133°00’ E], 21. VII. 2001, light trap, I. Yamashita, EUMJ. [Kyûshû] Ôita Pref.: 2♀♀, Mts. Kuju, Mt. Kurodake, 5. V. 1982, K. Konishi

Female. Body length 9.0–9.2 mm.

Coloration. Body ground color Black (Pl. 45-A). Vertex with a pair of yellow spots along eye margins (Pl. 61-B); apical half of vertex, supra clypeal area and malar space

reddish-brown; maxillary and labial palpi dark brown; flagellar annulus (8th–13th flagellomeres) white. Collar and upper margin of pronotum yellow; subalar ridge yellow; mesopleuron with single whitish-yellow spot; mesosucutum with a braod reddish-brown line; apical half of scutellum and postscutellum yellow. All legs umber to reddish-brown. Metasoma with reddish-brown band on apical margin of T2–T7. Ovipositor sheath dark brown.

Head 1.7 × as wide as long in dorsal view; vertex and gena slight granulated and rather sparsely punctate; supra-antennal area polished; Supra-clypeal and clypeus rather densely punctate; malar space granulate; OOL/POL = 0.8 (Pl. 61-B). Supra-antennal area concaved; supra-antennal area with small and distinct tubercle between antennal sockets; antennal sockets almost circular, large, protrude anteriorly in dorsal view; supra-clypeal area 1.7–1.8 × as wide as high; internal margins of compound eyes parallel; clypeus weakly convex and transverse, 2.1–2.2 × as wide as high, with slight rounded apical margin (Pl. 61-D); labrum with straight apical margin, protrude from under clypeus. Mandible slender, 1.7–1.8 × as long as wide at base, narrowed from base to apex, with lower tooth 0.4 × as long as upper tooth (Pl. 61-F). MSL/BMW = 0.7. Occipital carina complete and separated from hypostomal carina above base of mandible by 0.4 × width of mandibular base; Dorsomedian part of occipital carina evenly arched (Pl. 61-B). Maxillary palpi reaching epicnemial carina. Flagellum bristle-shaped, slightly widened at apical 0.3 or almost not widened, rather long and slender, 0.8–1.1 × as long as fore wing; apical flagellomere conical; first flagellomere 3.7 × as long as wide at base and 1.1–1.4 × as long as second one.

Mesosoma. Collar of pronotum rather long. Pronotum strigose and punctae. Mesosucutum strongly convex, 1.1 × as long as wide; notauli not developed; surface of

mesoscutum polished with dense punctures. Epicnemial carina complete; sternaulus slightly developed, present only apical part; postpectal carina absent; surface of mesopleuron polished with dense punctures. Scutellum rather densely punctate, highly elevated above postscutellum, with lateral carina reaching apex and dorsal surface moderately convex; hind margin of metanotum with a triangular projection opposite lateral longitudinal carina on each side of postscutellum. Metapleuron polished and densely punctate; juxtacoxal carina present but not distinct. Propodeum in profile not short; regular carinae of propodeum complete; areola hexagonal and transverse, 1.4–1.5 × as long as wide (Pl. 61-G); apex of second lateral area without any projection; surface of propodeum sparsely punctate. Propodeal spiracle 2.4–2.7 × as long as wide.

Legs rather stout and long. Fore femora 2.5–2.7 × as long as deep in lateral view; apex of hind TS1 not swollen; hind TS1 0.7–0.8 × as long as TS2–TS5 combined. Tarsal claws not pectinate.

Wings (Pl. 48-C). Fore wing 6.0–7.2 mm long; areolet 1.1 × as long as 3rs-m, 0.6 × as high as 2m-cu, quadrangular and asymmetrical; 1m-cu with single bulla, 2m-cu and 3rs-m each with double bullae**;** Cu-a opposite Rs & M; ramulus distinctly to slightly present. Hind wing with cu-a 0.4 × as long as 1-Cu; two or three basal hamuli, 8–11 distal hamuli on R1 vein.

Metasoma. T1 in profile almost straight, slightly bent downward at base of postpetiole; 1.9-2.0 × as long as wide in dorsal view; petiole long, rectangular in cross-section, flattened, clearly wider than deep; dorsal surface of petiole polished; in dorsal view petiole almost parallel sided; Dorsomedian carina present only on apical portion of postpetiole; median area of postpetiole with sparse punctures or weakly rugose. T2 and T3 coriaceous with rather dense punctures, T4–T7 coriaceous. T2 in dorsal view 1.2 ×

as long as wide at base. Gastrocoelus shallow, quadrangular to triangular. Thyridium linear, oblique to longitudinal axis of body; Inter-thyridial interval 1.0–1.1 × as long as thyridium. S2–S4 laterally sclerotized and middle part not sclerotized. Hypopygium with apical margin rounded and longitudinally folded at apex. Ovipositor sheath short and rather broadened, with apex rounded and slight bulge to downwards, protruding beyond apex of metasoma (Pl. 61-I).

Male. As in female except for the following characters.

Coloration. Pale color spots larger than in female (Pl. 45-B). Supra-clypeal area, clypeus and malar space whitish-yellow (Pl. 61-C). Flagellum without annulus; ventral half of flagellum light umber. Collar and upper margin of pronotum whitish-yellow. Fore and mid femora to tarsi and basal half of hind tibiae light umber.

Head. OOL/POL = 0.6 (Pl. 61-A). Supra-clypeal area 1.6 × as wide as high; clypeus 2.0 × as wide as high (Pl. 61-C). MSL/BMW = 0.5. Flagellum 1.2 × as long as fore wing, semi-serrate; seven linear tyloids on 10th to 16th flagellomere (Pl. 61-E).

Legs. Fore femora 3.3 × as long as deep in lateral view; hind TS1 0.6 × as long as TS2–TS5 combined.

Metasoma. T1 2.3 × as long as wide in dorsal view. T2 in dorsal view 1.4 × as long as wide at base (Pl. 61-H). Genitalia as in Pl. 19-F; apex of paramere rounded. Apex of aedeagus narrowed in profile, forked in apico-dorsal view.

Distributions. Hokkaidô, Honshû, Shikoku, Kyûshû.

Etymology: The name comes from the Latin word “tricolor”, that means “three colored”, after the body coloration of this species

***Pristiceros* sp. H, sp. nov.**

Pls. 46, 48-D, 51-B, 52-G, 62

Type series. Holotype, Japan. ♀. Data on the label: "JAPAN: Osaka-pref., Takatsuki-shi, // Hara~Hagitani // N34.88, E135.59 // 28. Apr. 2012 // Shunpei Fujie leg." Deposit in SEHU.

Paratypes, JAPAN: [Hokkaidô] 3♀♀, Mt. Apoi, 28. VI. 1967, K. Kusigemati, KU; 1♀, From Mt. Kurrodake to Sôunkyô, 34. VII. 1956, M. Miyatake, EUMJ; 1♀, Akan N. Park, Mt. Meakan, 7. VII. 1958, M. Miyatake, EUMJ; 1♀, Mt. Asahidake, 2. VII. 1958, F. Takechi, EUMJ; 2♀♀, Sapporo City, Jôzankei, 26. V. 1967, K. Kusigemati, KU. [Honshû] Aomori Pref.: 2♀♀, Nishimeya vil., Kawaratani [40°31'N 140°10'E], 12 – 21 .VI. 2013, MT, T. Nakamura, EUMJ; Aomori City, Yokouchi-Yaegiku, (1♀, 7. VI. 1992; 1♀, 6 – 13. VI. 1992), T. Ichita, NIAES. Tokyo Pref.: 1♀, Oume City, Ônita, 7. V. 1994, light trap, S. Kubota, NIAES. Kanagawa Pref.: 1♂, Hadano City, Mt. Kôbôyama, 5. IV. 2007, K. Watanabe, KPMNH. Ôsaka Pref.: 1♀, Ikeda City, Satsukiyama [38.8450N 135.4370E], 28. IV. 2013, R. Matsumoto, OMNH. Okayama Pref.: 2♀♀, Niimi City, Kusama, 26. V. 1996, R. Matsumoto, OMNH. [Kyûshû] Kagoshima Pref.: 1♂, Terayama, 27. IV. 1970, K. Kusigemati, KU.

Female. Body length 6.8–8.7 mm.

Coloration. Body ground color black (Pl. 46-A). Clypeus with whitish-yellow spot on each lateral margin; maxillary and labial palpi whitish-yellow; flagellar annulus (8th–14th flagellomeres) white. Upper margin of pronotum whitish-yellow or black; subalar ridge with or without whitish-yellow spot; scutellum with or without whitish-yellow spot on apex. Fore femora, tibiae, tarsi, mid tibiae, tarsi, hind tarsi light umber; basal 3/4 of hind tibiae light umber. Metasoma with whitish-yellow band on apical margin of T2–T7. Ovipositor sheath dark brown.

Head 1.8–1.9 × as wide as long in dorsal view; vertex and gena rather densely punctate; supra-antennal area polished; Supra-clypeal rather densely punctate; clypeus rather sparsely punctate; malar space granulate; OOL/POL = 0.9–1.0 (Pl. 62-B). Supra-antennal area concaved; supra-antennal area with small and distinct tubercle between antennal sockets; antennal sockets almost circular, large, protrude anteriorly in dorsal view; supra-clypeal area 1.6–1.7 × as wide as high; internal margins of compound eyes parallel; clypeus weakly convex and transverse, 2.1 × as wide as high, with slight rounded apical margin (Pl. 62-D); labrum with rounded apical margin, protrude from under clypeus. Mandible slender, 1.8–2.0 × as long as wide at base, narrowed from base to apex, with lower tooth 0.3 × as long as upper tooth (Pl. 62-E). MSL/BMW = 0.9–1.0. Occipital carina complete and separated from hypostomal carina above base of mandible by 0.4 × width of mandibular base; Dorsomedian part of occipital carina weakly bent (Pl. 62-B). Maxillary palpi reaching epicnemial carina. Flagellum bristle-shaped, moderately widened at apical, rather long and slender, 0.9–1.0 × as long as fore wing; apical flagellomere conical; first flagellomere 3.6–4.0 × as long as wide at base and 1.2–1.4 × as long as second one.

Mesosoma. Collar of pronotum rather long. Pronotum slightly strigose and rather densely punctae. Mesosucutum strongly convex, 1.0 × as long as wide; notauli developed slightly and only apex or not developed; surface of mesoscutum polished with dense punctures. Epicnemial carina complete; sternaulus not developed; postpectal carina absent; surface of mesopleuron polished with dense punctures. Scutellum rather densely punctate, highly elevated above postscutellum, with lateral carina reaching apex and dorsal surface moderately convex; hind margin of metanotum with a triangular projection opposite lateral longitudinal carina on each side of postscutellum.

Metapleuron polished and densely punctate; juxtacoxal carina present and apical half not distinct. Propodeum in profile not short; regular carinae of propodeum complete, some× costula indistinct; areola rectangular and transverse, 1.5–1.8 × as long as wide (Pl. 62-F); apex of second lateral area without any projection; surface of propodeum rather densely punctate except for areola without puncture and some× rugose. Propodeal spiracle 1.8–3.0 × as long as wide.

Legs rather stout and long. Fore femora 3.0–3.1 × as long as deep in lateral view; apex of hind TS1 not swollen; hind TS1 1.0–1.1 × as long as TS2–TS5 combined. Tarsal claws not pectinate.

Wings (Pl. 48-D). Fore wing 6.0–7.6 mm long; areolet 1.4 × as long as 3rs-m, 0.5 × as high as 2m-cu, quadrangular and asymmetrical; 1m-cu with single bulla, 2m-cu and 3rs-m each with double bullae**;** Cu-a opposite Rs & M; ramulus distinctly to slightly present. Hind wing with cu-a 0.4 × as long as 1-Cu; two or three basal hamuli, 9–11 distal hamuli on R1 vein.

Metasoma. T1 in profile almost straight, slightly bent downward at base of postpetiole; 2.4–2.7 × as long as wide in dorsal view; petiole long, rectangular in cross-section, flattened, clearly wider than deep; dorsal surface of petiole polished; in dorsal view petiole almost parallel sided; Dorsomedian carina present only on apical portion of postpetiole; median area of postpetiole with sparse punctures. T2 slightly coriaceous with rather dense punctures, T3–T7 granulate to reticulate coriaceous (Pl. 51-B). T2 in dorsal view 1.5–1.8 × as long as wide at base. Gastrocoelus shallow, quadrangular. Thyridium baculiform, oblique to longitudinal axis of body; Inter-thyridial interval 2.5–3.7 × as long as thyridium. S2–S4 laterally sclerotized and middle part not sclerotized. Hypopygium with apical margin rather pointed and longitudinally folded at apex.

Ovipositor sheath rather long, with apex rounded, protruding beyond apex of metasoma (Pl. 62-H).

Male. As in female except for the following characters.

Coloration. Pale color area larger than in female (Pl. 46-B). Supra-clypeal area, clypeus and malar space whitish-yellow (Pl. 62-C). Flagellum without annulus; ventral half of flagellum light umber. Collar and upper margin of pronotum whitish-yellow. Fore and mid femora coxae whitish-yellow.

Head 1.7× as wide as long in dorsal view. MSL/BMW = 0.6. Supra-clypeal area 1.5 × as wide as high; clypeus 2.0 × as wide as high (Pl. 62-C). MSL/BMW = 0.5. Flagellum 1.1 × as long as fore wing, semi-serrate.

Legs. Fore femora 3.9–4.0 × as long as deep in lateral view; hind TS1 0.8 × as long as TS2–TS5 combined.

Metasoma. T1 2.9–3.0 × as long as wide in dorsal view. T2 in dorsal view 2.1–2.2 × as long as wide at base (Pl. 62-G). Genitalia as in Pl. 19-G; apex of paramere rounded. Apical half of aedeagus clearly curved; apex of aedeagus rounded in profile, forked in apico-dorsal view.

Distributions. Hokkaidô, Honshû, Kyûshû.

Key to species of *Pristiceros* from Japan

Female.

1. Inter-thyridial interval more than 1.9 × as wide as thyridium. … 2

-. Inter-thyridial interval less than 1.6 × as wide as thyridium. … 6

2 (1). Ovipositor sheath rather long and narrow (Pl. 62-H). Dorsomedian part of occipital carina weakly bent (Pl. 62-B). … *P*. sp. H, sp. nov.

-. Ovipositor sheath rather broad. Dorsomedian part of occipital carina evenly curved. … 3

3 (2). Inner eye margin without whitish-yellow line (Pl. 59-D). Mesosucutum, scutellum and postsucutellum completely black. … *P*. sp. E, sp. nov.

-. Inner eye margin with whitish-yellow line. Mesosucutum, scutellum and postsucutellum with or without whitish yellow spots. … 4

4 (3). Apex of hind TS1 not swollen (Pl. 41-A). Mesoscutum completely black. … *P*. sp. B, sp. nov.

-. Apex of hind TS1 swollen (Pl. 40-A, 42-A). Mesoscutum with a pair of whitish-yellow spots. … 5

5 (4). T3 granulate with sparse and shallow punctures (Pl. 49-C). … *P*. sp. A, sp. nov.

-. T3 polished wit very sparse punctures (Pl. 50-A). … *P*. *gloriosus* sp. nov.

6 (1). Ovipositor sheath rather long and narrow (Pl. 58-F). … *P*. *kusigematii* sp. nov.
Ovipositor sheath rather broad. … 7

7 (6). Supra-clypeal area with reddish-brown part (Pls. 60-B, 61-D). … 8

-. Supra-clypeal area without reddish-brown part, almost black. … 9

8 (7). T2 longer, 1.6–1.8 × as long as wide at apex (Pl. 60-E). … *P*. *ferruginous* sp. nov.

-. T2 shorter, 1.2 × as long as wide at apex (Pl. 61-H). … *P*. *tricolor* sp. nov.

9 (7). Scutellum with single white spot. Areola pentagonal (Pl. 53-G). … *P*. *hakonensis*

-. Scutellum completely black. Areola rectangular (Pl. 54-G). … *P*. *kosensis*

Male.

1. Flagellum semi-serrate. … 2

-. Flagellum distinctly serrate. … 3

2 (1). Inter-thyridial interval almost as wide as thyridium (Pl. 53-H). … *P. hakonensis*

-. Inter-thyridial interval more than 1.9 × as wide as thyridium (Pl. 62-G). … *P.* sp. H, sp. nov.

3 (1). Inter-thyridial interval almost as wide as thyridium. … 4

-. Inter-thyridial interval more than 1.9 × as wide as thyridium. … 5

4 (3). Number of tyloids 10 (Pl. 54-E). Costula branched at basal half of areola (Pl. 54-G). … *P. kosensis*

-. Number of tyloids 7 (Pl. 61-E). Costula branched at middle or apical half of areola (Pl. 54-G). … *P. tricolor* sp. nov.

5 (3). Tyloids at middle longish oval (Pl. 55-E). Mesosucutum with a pair of whitish-yellow spots. … *P.* sp. A, sp. nov.

-. Tyloids narrower (Pl. 56-E). Mesosucutum completely black. … *P.* sp. B, sp. nov.

Chapter IV PHYLOGENY

1. Introduction

Within the subfamily, Platylabini is one of the only two tribes that was presumed to be monophyletic by Bennet *et al*., (2019) and Quicke *et al*., (2009). However, their results stood on a small number of genera from the tribe. The genera analyzed in Quicke *et al*. (2009) were *Afrectopius*, *Cyclolabus*, *Hypomecus*, *Linycus*, *Platylabus*, and in Bennett *et al*. (2019) were *Cyclolabus* and *Linycus*. In this study, I obtained DNA barcodes, partial sequences of cytochrome c oxidase subunit I (COI), from a part of examined specimens. The sequences included *Heinrichiellus*, which is probably not closely related to any other genera of Platylabini. To test monophyly of the tribe and estimate the phylogenetic position of *Heinrichiellus*, I estimated a maximum-likelihood tree based on the COI gene.

2. Materials and methods

2-a. Choice of taxa

I used COI sequences that were obtained from specimens I examined. They included 14 platylabine species within 9 genera. I also obtained COI sequences from GenBank. The tribe Alomyini is considered as the sister group of all other members of Ichneumoninae (Bennett *et al*., 2019; Quicke *et al*., 2009), so I chose *Alomya japonica* Uchida, 1929 as a considerable out group. A total 56 species within 43 genera of 7 tribes were sequenced. The tribe Ichneumonini is divided into five subtribes and in this

study, I included four of them. All serial numbers or accession numbers of GenBank for included sequences are listed in Table 3.

2-b. Phylogenetic analysis

All sequences were aligned using ClustalW (Higgins *et al*., 1994) in MEGA X (Kumar *et al*. 2018). Total length of aligned fragment is 575 bp without any indels. All codon psositions were used for analysis. A evolutionaly tree was estimated using maximum-likelihood (ML) method using iq-tree 1.6.12 (Nguyen *et al*., 2015), with 10,000 replicates of an ultrafast likelihood bootstrap. Before the estimation of ML tree, the best substitution models and partition schemes were estimated using partitionfinder 2.1.1 (Lanfear *et al*., 2017), with the greedy algorithm. The codon positions) were predefined for the partitionfinder analyses. The best-fit partition scheme and models were as in Table 4.

3. Results and discussion

By ML analysis, most parts of Platylabini and of Phaeogenini were recovered as monophyletic with much higher bootstrap values (Pl. 63). The genus *Heinrichiellus* was never recovered within Platylabini as presumed by morphological characters. Additionally, *Poecilostictus* was also not recovered within Platylabini, and its sister taxon was fond to be *Hoplismenus terrificus* Wesmael, 1848. This relationship was rather strongly supported, through no supporting morphological evidence was found. In this analyse, other tribes were polyphyletic even in morphologically uniform tribes such

as Listrodromini. These results were obtained from only one gene, so we need more genes for completely clear answers to the phylogenetic problems.

Chapter V GENERAL DISSCUSSIONS & CONCLUSION

1. Morphological characters for classification

Through the examination of Platylabini and some other ichneumonines, I found many characteristics that are useful for identification of tribes, genera, and species. Their stability and variety among taxa are discussed here.

1-a. Head morphology

Clypeus. As a rule, it is weakly to strongly convex in all genera of the tribe. The degree of convexity varied within each genus. Usually with straight apical margin, but in *Poecilostictus* and *Clypeolaus*, apical margin is arcuate. Noticeable differences on surface sculpture was observed in *Poecilostictus*; the surface densely granulate and differentiated from supra-clypeal area.

Antennal cavity. Different types of antennal cavities occur in *Clypeolabus*, *Cyclolabus*, and *Heinrichiellus*. In the former two, the polished area is narrowed (Pl. 6-D). In the latter, the cavity is completely absent, so frons above antennal socket is convex. Absence of the antennal cavity is not known from any other genera of the subfamily.

Gena. In dorsal view it is varied from strongly narrowed posteriorly to bulged behind eyes, and the states are stable on the species level but rather varied within each genus.

Occipital and hypostomal carinae. Most platylabine genera have a junction of these carinae above the mandibles. Only in *Clypeolaus*, the hypostomal carina

is strongly widened and elevated, and occipital carina is reduced above mandible, without junction with hypostomal carina. Usually stable within genus, an exceptional case is *Dentilabus iyoensis*, occipital carina is reduced above mandible but hypostomal carina normal.

Mandible. As a rule of the tribe, most platylabine mandibles are slender and elongate. In most slender type of mandibles such as in *Cratolaboides* and *Notoplatylabus*, both their upper margin and lower margin are strongly narrowed near the base. Some species such as *Pristiceros gloiousus* and *Poecilostictus cothurnatus* have rather stout mandibles. Usually with two apical teeth, the lower tooth much smaller than upper one. Which is usually sharp. Only in several species of *Clypeolabus*, the upper tooth is blunt, rounded in females (Pl. 17-A). The coloration of mandibles is stable within species but with some sexual differences.

Maxillary palpus. The second segment is usually flat, triangular. Only two genera, *Cratolabus* and *Cratolaboides* share a peculiar characteristic: strongly bulged.

Antenna. Slender, long antenna is a tribal character, usually as long as or longer than body and fore wing. Shape of female antenna is rather stable within genus and not varied much within the tribe. Female antenna is shortened in *Apaeleticus* and *Metopilabus*. Male antenna usually normal, bristle shaped. In *Hypomecus* and *Pristiceros*, male antenna is serrate (in some *Pristiceros* spp., more strongly). Often male flagellum has tyloids on median segments. The shape of tyloids is varied within genus and stable within species, so the shape is a useful character for species classification.

1-b. Mesosoma morphology

Pronotum. Transverse furrow of pronotum is variably shallow to deep. A significant difference in generic level classification is the interruption by median projection (Pl. 6-K). This character is shared in only *Apaeleticus* and *Notoplatylabus*. The shape of the base (or latero-ventral margin) is also varied, but the differences are somewhat continuous. In *Notoplatylabus*, it is remarkably specialized, base with sharp, angular prominence (Pl. 6-L).

Mesoscutum. The surface sculpture is useful for species level classification, varying from polished, with sparse punctures to dull, with fine coarse punctures. In profile, usually convex and then apico-dorsal margin arcuate. In *Metopilabus*, it is strongly flattened, and apico-dorsal margin with angled in profile. *Notaulus* is usually almost completely undeveloped to weakly developed on apical 1/3. At least in *Heinrichiellus* and *Notoplatylabus*, it is more sharply expressed, extending near middle of mesoscutum. The notaulus of *Notoplatylabus* is peculiar, deep and cellularly wrinkled (Pls. 6-K, 36-D).

Scutellum. It is almost always highly elevated and carinate to apex. The surface is varied from flat to strongly convex, and it is useful for species level classification. The surface punctures are also useful for species level identification. In *Hypomecus*, scutellum is not carinate, and posterior vertical surface is shagreened. The most peculiar case occurs in *Metopilabus*, in which the whole scutellum is strongly flattened, wide and not carinate (Pl. 35-C).

Mesopleuron. The surface is variable, polished or dull, punctate to different degrees, or strongly to weakly rugose. The differences are useful for species level classification. *Sternaulus* is usually not or only slightly developed. In *Apaeleticus*, *Notoplatylabus* and *Heinrichiellus* it is sharply developed, reaching middle of mesopleuron.

Propodeum. The shape of propodeal spiracle, circular or elongate, has been used for generic definition within the tribe and within the subfamily. However, I found intra-generic variation in *Heinrichiellus* and *Platylabus*. These genera are defined in that they have elongate propodeal spiracles, but *Heinrichiellus kusigematii* and *Platylabus cyclus* have circular propodeal spiracles. We should treat this character more carefully, combined with other characteristics, for classifying genera. The carinae of propodeum are quite useful on both genus and species level. Presence of costula is usually stable wihtin the genus, but the degree of development is varied. The shape of areola is usually stable within species and very useful for species level classification. The tooth or apophysis often occurs on the apical end of second lateral area. This character is useful on the generic level except for genus *Platylabus*, which has intra-generic variation.

1-c. Wing and leg morphology

Wing. Most wing venation is not useful for classification. The wing cell, areola, is the exception. The shape is variable pentagonal or quadrangular, symmetrical or asymmetrical, and may or may not be petiolate. Pentagonal areolet can be divided into two types, broad and narrow pentagonal. The broad pentagonal

type only occurs in *Heinrichiellus*. In my view, the petiolate to narrow pentagonal type can be vary within genera and is useful for species level classification. The Ratio of 2/M and 3/M is also useful on the species level.

Femur and tibia. Usually slender, long legs are shared within the tribe. Often rather thickened in females. The hind femur of *Notoplatylabus* has a peculiar angular prominence near middle. Only in *Metopilabus*, particularly in female, femur and tibia strongly thickened and shortened (Pl. 35-G, H). A pair of spurs on apex of tibia is also very shortened (Pl. 35-I).

Tarsus. Tereshkin (2009) noted that the "majority of genera do not have any specific peculiarities." But through my investigation, I found a morphological peculiarity for the tribe; reduction of spine on apex of tarsomere (Pl. 64). *Apaeleticus*, *Cratolaboides*, *Heinrichiellus* and *Linycus* don't share this characteristic (Pl. 64-A, C, D), and only *Eurylabus* shares it among other tribes of the subfamily.

1-d. Metasoma morphology

Petiole and postpetiole. The flattened petiole is an important diagnostic character for the tribe. Among Japanese species, the unflattened petiole only occurs in *Hypomecus* and *Heinrichiellus*. The bend between petiole and postpetiole in profile is somewhat varied within genera and stable in species. The dorsomedian carina on petiole is a useful character for genus level classification, and on postpetiole is useful for species level. The shape in dorsal view and surface sculpture of postpetiole are also useful on the species level.

Tergites. The shape and surface sculpture of metasomal tergites is useful on the species level. The shape of gastrocoelus, including the depth and sharpness, is useful for generic level classification. All genera of Platylabini examined here have the gastrocoelus. In *Ectopius* and *Heinrichiellus*, the gastrocoelus is very narrow and rather long, in a shape of longitudinal furrow. Thyridium is often absent in these two genera, but usually present in other genera. Width of thyridium and inter-thyridial interval are useful for both genus and species level classification. Often some apical tergites are shortened, hardly visible. In *Apaeleticus* and *Poecilostictus*, T6 and T7 are clearly shortened, and T5 with apical long setae (Pl. 6-H, J).

Sternites. None of previous studies on the subfamily Ichneumoninae showed detailed observation on metasormal sternites. Sime & Wahl (2002) noted in their morphological matrix that the state of S2-5 divided "is the plesiomorphic state for the Alomyini and Cryptinae", but in my investigation, at least *Alomya japonica* has S5 undivided. Usually S2 has lateral lobe, divided by a clear crease. In Platylabini I examined except for *Heinrichiellus*, lateral lobe of S4–5 or S5 is fused with median lobe (Pl. 65). Lateral lobe of S5 in *Heinrichiellus* divided. Only in *Eurylabus*, S3 also fused. This genus is the exception that has fused metasomal sternites among non-platylabine genera (Pl. 65). Female with most apical sternite, hypopygium, often bearing standing setae along apical margin. *Clypeolabus* has tuft of long setae on median apex (Pl. 6-I).

Ovipositor and ovipositor sheath. The shape of ovipositor sheath is very useful for species level classification. In *Apaeleticus*, *Heinrichiellus* and

Poecilostictus, the shape of ovipositor sheath is genus specific. The ovipositor sheath of *Apaeleticus* is dorsoventrally flattened and clearly curved upward with ovipositor (Pl. 6-J). The ovipositor sheath of *Heinrichiellus* is narrowed at base and widened at middle (Pl. 32-G). The ovipositor sheath of *Poecilostictus* is slightly curved upward just at apex (Pl. 6-H).

2. Diversity of Platylabini occurring in Japan

In present study, 53 species within 16 genera were found from Japan. This number is much higher than that of the previous known genera and species from the Eastern Palearctic region, 30 species within 12 genera (Choi *et al*., 2014; Yu *et al*., 2012). Ten genera were newly recorded from Japan and one new genus was described. Within the genus *Pristiceros* and *Clypeolabus*, there are ten and five species occurring in Japan, respectively. These numbers are higher than all previously described species within each genus. Compared to adjacent regions, such as the Western Palearctic region with 85 species and Oriental region with 60 species (Yu *et al*., 2012), it seems that the fauna of Japanese Platylabini is not completely elucidated. The genera *Paraplatylabus*, *Platymischos* and *Pyramidophorus* were not found from Japan in the present study, but they had already been recorded from the Palearctic region (Choi *et al*., 2014; Yu *et al*., 2012). These genera possibly will be found in further study. Additionally, some species are currently represented by single specimen. Furthermore, specimens from Ryukyu Islands are very few, so I assume that the effort on collecting this tribe from Japan is not sufficient, and more species will be found from Japan.

3. Phylogenetic problems on Platylabini

Present analyse revealed that at least two platylabine genera are not included in the platylabine clade. The systematic position of *Heinrichiellus* as a member of Platylabini, is quite doubtful and the morphological observations on metasomal sternites do not support the tribal affiliation. In the present study, I provisionally included *Heinrichiellus* in Platylabini, but the genus should be moved to another tribe. To place their actual tribal position, it is necessary to estimate the evolutional history within the subfamily Ichneumoninae. Another problem was found in the position of *Poecilostictus*. In contrast to Heinrichiellus, this genus shares a lot of morphological characteristics with other genera of Platylabini, such as fused metasomal sternites, reduced spine on tarsomere, and clearly flattened petiole but the support values of the ML tree for the position is rather higher. More genes and taxa are necessary to construct robust systematics.

4. Conclusion

A total of 53 species within 16 genera of Platylabini were found and described from Japan. Most were new to Japan or new to science. Although there are probably some more species that have not been found yet, Japan has become one of the most species-rich countries in the world for the tribe. The presented key to genera of the tribe is an important milestone for the study of the subfamily Ichneumoninae occurring in Asia. So far, because of the incompleteness of generic definitions and previous keys, it had been hard to identify genera. In the present study, I carefully revised generic

definitions of the tribe, such as follows. Because of the presence of the species with intermediate characteristics, *Pristicerops* was revised as a junior synonym of *Pristiceros*. Some species of *Platylabus* with small and circular propodeal spiracle were not keyed to *Platylabus* in the key from Tereshkin (2009). Such species are surely a part of *Platylabus* with support from molecular data. I am sure that all specimens can be identified to genus using the presented key, including even not yet found species. However, several phylogenetic problems remain. This fact does not only depend on remaining problems within the tribe Platylabini, but also on the phylogenetic obscurity within the subfamily Ichneumoninae. Thus, it is important that we should try to clarify the evolutionary history of the whole subfamily.

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Tables

Table 1. The list of World genera of Platylabini

Platylabini Berthoumieu, 1904	
Abzaria Cameron, 1885	
Acantholabus Heinrich, 1974	
Afrectopius Heinrich, 1936	
Ambloplisus Heinrich, 1930	
Apaeleticus Wesmael, 1845	
Asthenolabus Heinrich, 1951	
Carlsonia Heinrich, 1971	
Clypeolabus Heinrich, 1974	
Cratolaboides Tereshkin, 2009	
Cratolabus Heinrich, 1974	
Cyclolabellus Heinrich, 1974	
Cyclolabus Heinrich, 1936	
Dentilabus Heinrich, 1974	
Ectopius Wesmael, 1859	
Ectopoides Heinrich, 1951	
Heinrichiellus Tereshkin, 2009	
Hirtolabus Heinrich, 1974	
Hoplopla tystylus Schmiedeknecht, 1912	Not treated in Tereshkin (2009)
Hypomecus Wesmael, 1845	
Lamprojoppa Cameron, 1901	Townes et al. (1961) treated as junior synonym of *Platylabus*
Levansa Townes, 1961	
Linycus Cameron, 1903	
Lissolaboides Heinrich, 1974	
Neeurylabia Heinrich, 1967	
Neolevansa Gauld, 1984	
Neolinycus Heinrich, 1971	
Notoplatylabus Heinrich, 1936	
Pachyjoppa Cameron, 1901	Townes et al. (1961) treated as junior synonym of *Pristiceros*
Pagarenes Cameron, 1903	Townes et al. (1961) treated as junior synonym of *Pristiceros*
Paraplatylabus Riedel, 2011	
Platybirmania Heinrich, 1974	
Platylabus Wesmael, 1845	
Platymischos Tischbein, 1868	Tereshkin (2009) treated as junior synonym of *Rhyssolabus* Berthomieu, 1896
Poecilostictus Ratzeburg, 1852	
Pristicerops Heinrich, 1961	Townes et al. (1961) treated as junior synonym of *Pristiceros*
Pristiceros Gravenhorst, 1829	
Pyramidophorus Tischbein, 1882	Townes et al. (1965) treated as junior synonym of *Platylabus*
Spanophatnus Cameron, 1905	
Tropicolabus Heinrich, 1959	

Table 2. Inter-thyridial interval and male flagellum of Japanese *Pristiceros* spp.

	Inter thyridial interval/Width of thyridium	Male flagellum
P. hakonensis	0.9–1.2	*semi-serrate*
P. kosensis	0.7–0.9	serrate
P. sp. A	2.4–2.6	serrate
P. sp. B	2.3–3.5	serrate
P. gloriosus sp. nov	3.5–4.9	–
P. kusigematii sp. nov.	1.5	–
P. sp. E	2	serrate
P. ferruginous sp. nov.	0.7–0.8	–
P. tricolor sp. nov.	1.0–1.1	serrate
P. sp. H	2.5–3.7	*semi-serrate*

Table 3. The list of COI sequences analyzed in this thesis

Tribe	scientific name	No.
Alomyini	*Alomya japonica*	NKHU0059
Heresiarchini	*Coelichneumon nobilis*	HM414091
Heresiarchini	*Heresiarches* sp.	JF963390
Heresiarchini	*Coelichneum eximius*	KR931159
Heresiarchini	*Syspasis scutellator*	HQ954920
Hoplismenina	*Hoplismenus terrificus*	NKHU0039
Ichneumonini: Amblytelina	*Tricholabus* sp.	FN662460
Ichneumonini: Amblytelina	*Ctenichneumon albomacuratus*	NKHU0033
Ichneumonini: Amblytelina	*Setanta* sp.	JF793293
Ichneumonini: Amblytelina	*Diphyus palliatorius*	JF963219
Ichneumonini: Cratichneumonina	*Crypteffigies confusus*	JN292595
Ichneumonini: Cratichneumonina	*Cratichneumon viator*	KR791378
Ichneumonini: Cratichneumonina	*Vulgichneumon deceptor*	KR923526
Ichneumonini: Ichneumonina	*Platyjoppa naxae*	NKHU0057
Ichneumonini: Ichneumonina	*Patroclus homocerus*	HQ955019
Ichneumonini: Ichneumonina	*Patrocloides montanus*	JN293946
Ichneumonini: Ichneumonina	*Stenichneumon militarius*	JN293966
Ichneumonini: Ichneumonina	*Aoplus groenlandicus*	KF604427
Ichneumonini: Ichneumonina	*Ichneumon computatorius*	KR792446
Ichneumonini: Ichneumonina	*Conopyge* sp.	JF792949
Ischnojoppini	*Ischnojoppa* sp.	JF9643474
Listrodromini	*Listrodromus* sp.	JF963491
Listrodromini	*Anisobas* sp.	JF792904
Listrodromini	*Neotypus* sp.	JF957054
Phaeogenini	*Colpognathus* sp.	JF963132
Phaeogenini	*Heterischnus* sp.	JF963391
Phaeogenini	*Pseudalomya* sp.	JF963801
Phaeogenini	*Dirophanes hariolus*	HQ552485
Phaeogenini	*Diadromus pulchellus*	JX648647
Phaeogenini	*Aethecerus nitidus*	KR890147
Phaeogenini	*Hemichneumon subdolus*	HM020514
Phaeogenini	*Trachyarus fuscipes*	HM020540
Phaeogenini	*Nematomicrus* sp.	JF963639
Phaeogenini	*Lusius* sp.	JF963494
Phaeogenini	*Epitomus infuscatus*	KR787684
Phaeogenini	*Misetus* sp.	JF973365
Platilabini	*Hypomecus quadriannulatus*	JN294083
Platilabini	*Hypomecus quadriannulatus tylus*	NKHU0047
Platilabini	*Clypeolabus brevis* sp. nov.	NKHU0044
Platilabini	*Clypeolabus unicolor* sp. nov.	NKHU0125
Platilabini	*Clypeolabus nigrus* sp. nov.	NKHU0030
Platilabini	*Pristiceros* spB	NKHU0049
Platilabini	*Pristiceros hakonensis*	NKHU0078
Platilabini	*Pristiceros ferruginus* sp. nov.	NKHU0080
Platilabini	*Pristiceros tricolor* sp. nov.	NKHU0088
Platilabini	*Platylabus takeuchii*	KU753348
Platilabini	*Dentilabus nigripodus*	NKHU0026
Platilabini	*Cratolaboides palpalis*	NKHU0037
Platilabini	*Platylabus* sp.	JF793283
Platilabini	*Platylabus cyclus* sp. nov.	NKHU0112
Platilabini	*Cyclolabus* sp.	JF963184
Platilabini	*Linycus exhortator*	MK959435
Platilabini	*Linycus rugosobasalis*	NKHU0040
Platilabini	*Poecilostictus cothurnatus*	NKHU0043
Platylabini	*Heinrichiellus japonicus*	NKHU0025
Platylabini	*Heinrichiellus nambui*	NKHU0055

Table 4 The best-fit partition scheme and models.

Partition	Models
COI 1st codon position	GTR+I+G
COI 2st codon position	K81UF+I+G
COI 3st codon position	TIM+G

Plates legends

Plate 1. Head of Platylabini. A, Head in dorsal view; B, head in profile; C, head in frontal view; D, head in hind view. — 1, Compound eye; 2, antennal socket; 3, anterior ocellus; 4, posterior ocellus; 5, occipital carina; 6, vertex; 7, malar space; 8, clypeus; 9, labrum; 10, mandible; 11, labial palp; 12, maxillary palp; 13, gena; 14, anterior tentrial pit; 15, supra-antennal area; 16, supra-clypeal area; 17, occipit; 18, foramen magnum; 19, hypostomal carina. — a, Ocello-ocular line (OOL); b, postero-ocellar line (POL); c, length of head (HL); d, width of head (HW); e, width of occipit (OW); f, width of supra-clypeal area; g, height of supra-clypeal area; h, width of clypeus; i, hight of clypeus.

Plate 2. Mesosoma of Platylabini. A, Mesosoma in profile; B, mesosoma in dorsal view. — 1, Mesoscutum; 2, notaulus; 3, pronotum; 4, collar of pronotum; 5, transverse furrow of pronotum; 6, epomia; 7, epicnemial carina; 8, propleuron; 9, tegula; 10, scutellum; 11, postscutellum (part of metanotum); 12, mesopleuron; 13, subalar ridge; 14, hypoepimeron; 15, sternaulus; 16, scrobe; 17, metapleuron; 18, juxtacoxal carina; 19, propodeum; 20, propodeal spiracle; 21, first lateral area; 22, costula (part of anterior transverse carina); 23, lateral longitudinal carina; 24, second lateral area; 25, pleural carina; 26, axillary trough of mesonotum; 27, axillary trough of metanotum; 28, basal area; 29, median longitudinal carina; 30, areola; 31, petiolar area; 32, third pleural area; 33, third lateral area. — a, Length of mesoscutum (MSSL); b, width of mesoscutum (MSSW); c, width of areola (ARW); d, length of areola (ARL).

Plate 3. Antenna, wings and leg of Platylabini. A, Antenna in lateral view; B, fore

wing; C, hind wing; D, hind leg in profile; E, apical part of mid tarsus in ventral view. — 1, Flagellum; 2, anellus; 3, pedicellus; 4, flagellomere; 5, tyloid; 6, scapus; 7, stigma; 8, ramulus; 9, basal hamulus; 10, distal hamulus; 11, coxa; 12, trochanter; 13, trochantellus; 14, femora; 15, tibia; 16, tibial supr; 17, tarsus; 18, tarsomere; 19, tarsal craw; 20, apical spines on tarsomere. — a, Length of femora; b, depth of femora; c, width of TS1 in middle; d, width of TS1 at apex.

Plate 4. Metasoma of Platylabini. A, female metasoma in profile; B, T1 and T2 in dorsal view; C, male metasomal sternite 2–7 (S2–7); D, male genitalia in ventaral view; E, male genitalia in mesal view. — 1, Petiole; 2, postpetiole; 3, tergite 1 (T1); 4, dorsomedian carina; 5, spiracle of T1; 6, gastrocoelus; 7, thyridium; 8, spiracle of T2; 9, lunula; 10, sternite 2 (S2); 11, hypopygium; 12, cercus; 13, ovipositor sheath; 14, ovipositor; 15, median area of postpetiole; 16, lateral area of postpetiole; 17, lateral lobe; 18, strongly sclerotized part; 19, weakly sclerotized part; 20, paramere; 21, aedeagus; 22, digitus; 23, cuspis; 24, volsella; 25, apodeme of aedeagus. — a, Length of T1; b, width of T1; c, width of thyridium; d, inter-thyridial interval.

Plate 5. Key characteristics of genera of Platylabini. A, *Heinrichiellus japonicus* sp. nov., antennal cavity; B, *Cratolaboides palpalis*, ditto; C, *He. kusigematii* sp. nov., propodeum; D, E, *Hypomecus quadriannulatus tylus*, petiole; F, G, *Clypeolabus nigrus* sp. nov., ditto; H, *Hy. q. tylus*, posterior surface of propodeum; I, *Hy. q. tylus*, metasoma; J, *Cr. palpalis*, second segment of maxillary pulp; K, *Pristiceros hakonensis*, ditto; L, *Cratolabus yamauchii* sp. nov., hind tarsomere 1; *Pristiceros gloriosus*, ditto.

Plate 6. Key characteristics of genera of Platylabini. A, *Cratolaboides palpalis*, propodeum (spiracle and costula); E, *Cratolabus yamauchii*, ditto; B, *Poecilostictus cothrunatus*, antennal cavity; F, *Clypeolabus brevis* sp. nov., ditto; C, *P. cothrunatus*, clypeus; D, *Cl. nigrus* sp. nov., ditto; G, *Cl. nigrus* sp. nov., hypostomal carina and reduction of occipital carina; H, *P. cothrunatus*, bending of ovipositor sheath; I, *Clypeolabus brevis* sp. nov., tuft of setae on hypopygium; J, *Apaeleticus japonicus*, apex of metasoma; K, *Notoplatylabus podolicus conterranius*, keel on transverse furrow of pronotum; L, ditto, angular prominence of pronotum; M, ditto, scutellum; N, *P. cothrunatus*, thyridium; O, *Ectopius nigricapitis* sp. nov., ditto; P, ditto, propodeum in profile.

Plate 7. Key characteristics of genera of Platylabini. A, B, *Cyclolabus convxus*, supra-clypeal area; C, ditto, propodeum (costula); D, *Dentilabus iyoensis* sp. nov., male flagellum; F, *Pristiceros* sp. B, ditto; E, *D. nigripodus* sp. nov., metasomal T2; G, *Asthenolabus semimarginalis*, ditto; H, *Platylabus nigricornis*, ditto; I, *Pl. takeuchii*, female antenna; J, ditto, meosscutum in profile; K, *Metopilabus robustus* Gen et sp. nov., female antenna; L, ditto, meosscutum in profile.

Plate 8. *Apaeleticus japonicus* sp. nov, female. A, Head in frontal view; B, head and mesosoma in profile; C, head and mesosoma in dorsal view; D, metasoma in dorsal view.

Plate 9. *Asthenolabus semimarginalis* (Uchida), female. A, Habitus; B, head in frontal view; C, mesosoma in profile; D, mesosoma in dorsal view; E, metasoma in dorsal view.

Plate 10. ***Asthenolabus okiensis*** **sp. nov, female**. A, Head in frontal view; B, head in dorsal view; C, mesosoma in profile; D, mesosoma in dorsal view; E, metasoma in dorsal view; F, metasoma in profile.

Plate 11. ***Asthenolabus wadai*** **(Uchida), female**. A, Head in dorsal view; B, head in frontal view; C, habitus in profile; D, habitus in dorsal view.

Plate 12. ***Asthenolabus deliacatus*** **sp. nov, female**. A, Head in frontal view; B, head in dorsal view; C, mesosoma in profile; D, mesosoma in dorsal view; E, metasoma in dorsal view; F, metasoma in profile.

Plate 13. ***Clypeolabus nigrus*** **sp. nov, female**. A, Head in frontal view; B, head in profile; C, mesosoma in profile; D, head in dorsal view; E, mesosoma in dorsal view; F, propodeum in dorsal view; G, metasoma in profile; H, metasoma in dorsal view.

Plate 14. ***Clypeolabus brevis*** **sp. nov**. A, B, Habitus in profile; C, D, habitus in dorsal view; A, C, female; B, D, male.

Plate 15. ***Clypeolabus matsumotoi*** **sp. nov., female.** A, Habitus in profile; B, habitus in dorsal view.

Plate 16. ***Clypeolabus watanabei*** **sp. nov**. A, B, Habitus in profile; C, D, habitus in dorsal view; A, C, female; B, D, male.

Plate 17. *Clypeolabus unicolor* sp. nov., female. A, Habitus in profile; B, habitus in dorsal view; A, C, female; B, D, male.

Plate 18. *Clypeolabus* spp. A, *C. brevis*, female, head in frontal view; B, *C. brevis*, male, head in frontal view; C, *C. brevis*, female, mandible; D, *C. brevis*, male, tyloids; E, *C. matsumotoi*, female, head in frontal view; F, *C. unicolor*, female, head in frontal view; G, *C. watanabei*, female, head in frontal view; H, *C. watanabei*, male, head in frontal view.

Plate 19. *Cratolaboides palaplis* Tereshkin. A–C, Head, male; D, head, female; E, antenna, male; F, wings, male; G, H, mesosoma, male; I, metasoma, male; J, metasoma, female.

Plate 20. *Cratolaboides palaplis* Tereshkin, male. A, S2–6, male; B, maxillary palp, male (a, lateral view; b, frontal view); C, male genitalia (a, ventral view; b, paramere in mesal view; c, aedeagus in lateral view).

Plate 21. *Cratolabus yamauchii* sp. nov. A, Head in frontal view, female; B, head in frontal view, male; C–E, female; C, head and mesosoma in dorsal view; D, head and mesosoma in profile; E, metasoma in dorsal view; F, metasoma in profile.

Plate 22. *Cyclolabus convexus* (Uchida), female. A, Head in dorsal; B, head in frontal view; C, mesosoma in dorsal view; D, mesosoma in profile; E, metasoma in profile; F,

metasoma in dorsal view.

Plate 23. ***Cyclolabus kyushuensis*** **sp. nov., female**. A, Head in dorsal; B, head in frontal view; C, mesosoma in dorsal view; D, mesosoma in profile; E, metasoma in dorsal view; F, metasoma in profile.

Plate 24. ***Cyclolabus marginalis*** **(Uchida), female**. A, Head in dorsal; B, head in frontal view; C, mesosoma in dorsal view; D, mesosoma in profile; E, metasoma in dorsal view; F, metasoma in profile.

Plate 25. ***Dentilabus nigripodus*** **sp. nov**. A, Head in dorsal view; B, C, head in frontal view; D. scutellum to propodeum in dorsal view; E, mesosoma in dorsal view; F, mesosoma in profile; G, metasoma in dorsal view; H, metasoma in profile. A, E–H, female; B–D, male.

Plate 26. ***Dentilabus nigripodus*** **sp. nov., male**. A, S2–7, male; Metasomal sternites; B, subgenital plate (8th sternite); C, right aedeagus in profile; D, aedeagus in dorsal view; E, left paramere and volsella in mesal view.

Plate 27. ***Dentilabus iyoensis*** **sp. nov**. A, Head in dorsal view; B, C, head in frontal view; D, mesosoma in dorsal view; E, mesosoma in profile; F, metasoma in dorsal view; G, metasoma in profile; H, genitalia; I, tyloids. A, B, D–G, Female; C, H, I, male.

Plate 28. ***Ectopius nigricapitis*** **sp. nov**. A, Head in dorsal view; B–D, head in frontal

view; E, mesosoma and metasoma in dorsal view; F, mesosoma in profile; G, tyloids. A, E, F, female; C, D, G, male.

Plate 29. *Heinrichiellus kusigematii* sp. nov., male. A, Head in frontal view; B, head and mesosoma in profile, C, head and mesosoma in dorsal view; D, propodeum in dorsal view; E, metasoma in dorsal view; F, metasoma in profile.

Plate 30. *Heinrichiellus nambui* sp. nov. female. A, Habitus in profile; B, head in dorsal view; C, head in frontal view; D, antenna; E, mesosoma in dorsal view; F, mesopleuron in profile; G, scutellum in profile; H, propodeum in profile; I, propodeum in dorsal view; J, wings; K, T1 and basal half of T2 in dorsal view; L, apex of metasoma.

Plate 31. *Heinrichiellus nambui* sp. nov., male gentalia. A, Genitalia in ventral view; B, left paramere and volsella in mesal view; C, right aedeagus in profile.

Plate 32. *Heinrichiellus japonicus* sp. nov. female. A, Head in frontal view; B, head in profile; C, mesosoma in profile; D, head in dorsal view; E, mesosoma in dorsal view; F, propodeum in profile; G, metasoma in profile; H, metasoma in dorsal view.

Plate 33. *Hypomecus quadriannulatus tylus* Uchida. A, Head in dorsal view; B, C, head in frontal view; D, habitus in dorsal view; E, habitus in profile; F, tyloids. A, B, D, E, Female; C, F, male.

Plate 34. ***Metopilabus robustus*** **Gen et sp. nov**. A, B, Head in frontal view; C, head and mesosoma in dorsal view; D, head and mesosoma in profile; E, propodeum in dorsal view; F, metasoma in dorsal view; G, H, hind femur; I, hind tibia; J, K, habitus in profile. A, C–G, I, J, Female; B, H, K, male.

Plate 35. ***Linycus rugosobasalis*** **sp. nov. female**. A, Head in dorsal view; B, head in profile; C, head in frontal view; D, mesosoma in dorsal view; E, mesosoma in profile; F, metaosma in dorsal view; G, metasoma in profile; H, I, habitus in profile. I, specimen with reddish color parts.

Plate 36. ***Notoplatylabus podolicus conterranius*** **Tereshkin, female**. A, Head in dorsal view; B, head in frontal view; C, mesosoma in profile; D, mesosoma in dorsal view; E, metasoma in dorsal view.

Plate 37. ***Poecilostictus cothrunatus*** **(Gravenhorst)**. A, Head in dorsal view; B, C, head in frontal view; D, mesosoma in profile; E, mesosoma in dorsal view; F, metasoma in dorsal view; G, tyloids. A, B, D–F, Female; C, G, male.

Plate 38. Habitus of ***Pristiceros hakonensis***. A, Female; B, male.

Plate 39. Habitus of ***Pristiceros kosenensis***. A, Female; B, male.

Plate 40. Habitus of ***Pristiceros*** **sp. A**. A, Female; B, male.

Plate 41. Habitus of *Pristiceros* sp. B. A, Female; B, male.

Plate 42. Habitus of *Pristiceros gloriosus* and *P. kusigematii*. A, *P. gloriosus*, female; B, *P. kusigematii*, female.

Plate 43. Habitus of *Pristiceros* sp. E. A, Female; B, male.

Plate 44. Habitus of *Pristiceros ferruginous*. A, Female.

Plate 45. Habitus of *Pristiceros tricolor*. A, Female; B, male.

Plate 46. Habitus of *Pristiceros* sp. H. A, Female; B, male.

Plate 47. Wings of *Pristiceros* spp. A, *P. hakonensis*; B, *P. kosensis*; C, *P.* sp. A; D, *P.* sp. B; E, *P. gloriosus*; F, *P. kusigematii*.

Plate 48. Wings of *Pristiceros* spp. A, *P.* sp. E; B, *P. ferruginous*; C, *P. tricolor*; D, *P.* sp. H.

Plate 49. Surface of metasoma T3 (female). A, *Pristiceos hakonensis*; B, *P. kosensis*; C, *P.* sp. A; D, *P.* sp. B.

Plate 50. Surface of metasoma T3 (female). A, *Pristiceos. gloriosus*; B, *P. kusigematii*; C, *P.* sp. E; D, *P. ferruginous*.

Plate 51. Surface of metasomal T3 (female). A, *Pristiceos. tricolor*; B, *P.* sp. H.

Plate 52. Male genitalia of *Pristiceros* spp. A, *P. hakonensis*; B, *P. kosensis*; C, *P.* sp. A; D, *P.* sp. B; E, *P.* sp. E; F, *P. tricolor*; G, *P.* sp. H.

Plate 53. *Pristiceros hakonensis*. A, C, E, F, H, Male; B, D, G, I, female. — A, B, Head in dorsal view; C, D, head in frontal view; E, 10th to 16th segment of flagellum; F, mandible in lateral view; G, areola; H, T2 in dorsal view; I, apex of metasoma.

Plate 54. *Pristiceros kosensis*. A, C, E, F, H, Male; B, D, G, I, female. — A, B, Head in dorsal view; C, D, head in frontal view; E, 10th to 19th segment of flagellum; F, mandible in lateral view; G, areola; H, T2 in dorsal view; I, apex of metasoma.

Plate 55. *Pristiceros* sp. A. A, C, E, F, H, Male; B, D, G, I, female. — A, B, Head in dorsal view; C, D, head in frontal view; E, 9th to 17th segment of flagellum; F, mandible in lateral view; G, areola; H, T2 in dorsal view; I, apex of metasoma.

Plate 56. *Pristiceros* sp. B. A, C, E, F, H, Male; B, D, G, I, female. — A, B, Head in dorsal view; C, D, head in frontal view; E, 10th to 20th segment of flagellum; F, mandible in lateral view; G, areola; H, T2 in dorsal view; I, apex of metasoma.

Plate 57. *Pristiceros gloriosus*. Female. A, Head in dorsal view; B, head in frontal view; C, mandible in lateral view; D, areola; E, T2 in dorsal view; F, apex of metasoma.

Plate 58. ***Pristiceros kusigematii***. Female. A, Head in dorsal view; B, head in frontal view; C, mandible in lateral view; D, areola; E, T2 in dorsal view; F, apex of metasoma.

Plate 59. ***Pristiceros*** **sp. E**. A, C, E, F, H, Male; B, D, G, I, female. ― A, B, Head in dorsal view; C, D, head in frontal view; E, 9th to 17th segment of flagellum; F, mandible in lateral view; G, areola; H, T2 in dorsal view; I, apex of metasoma.

Plate 60. ***Pristiceros ferruginous***. Female. A, Head in dorsal view; B, head in frontal view; C, mandible in lateral view; D, areola; E, T2 in dorsal view; F, apex of metasoma.

Plate 61. ***Pristiceros tricolor***. A, C, E, F, H, Male; B, D, G, I, female. ― A, B, Head in dorsal view; C, D, head in frontal view; E, 10th to 17th segment of flagellum; F, mandible in lateral view; G, areola; H, T2 in dorsal view; I, apex of metasoma.

Plate 62. ***Pristiceros*** **sp. H**. A, C, E, G, Male; B, D, F, H, female. ― A, B, Head in dorsal view; C, D, head in frontal view; E, mandible in lateral view; F, areola; G, T2 in dorsal view; H, apex of metasoma.

Plate 63. ML tree from COI gene.

Plate 64. Apical spines of female taromeres. A, *Apaeleticus japonicus*; B, *Cratolabus yamauchii*; C, *Cratolaboides palpalis*; D, *Heinrichiellus japonicus*; E, *Hypomecus quadiannulatus tylus*; F, *Linycus rugosobasalis*; G, *Metopilabus robustus*; H, *Platylabus*

takeuchii; I, *Poecilostictus cothrunatus*; J, *Eutanyacra picta* (Ichneumonini: Ambytelina)

Plate 65. Metasomal sternites. A, *Clypeolabus brevis*, male; B, *Dentilabus nigripodus*, male; C, *Hypomecus quadiannulatus tylus*, male; D, *Notoplatylabus podolicus conterranius*, female; E, *Linycus rugosobasalis*, male; F, Pristiceros sp. B, male; G, *Poecilostictus cothrunatus*, male; H, *Heinrichiellus japonicus*, male; I, *Eurylabus quadriatus* (Eurylabini), female; J, *Hoplismenus terrificus* (Ichneumonini: Hoplismenina), female.

Plate 1

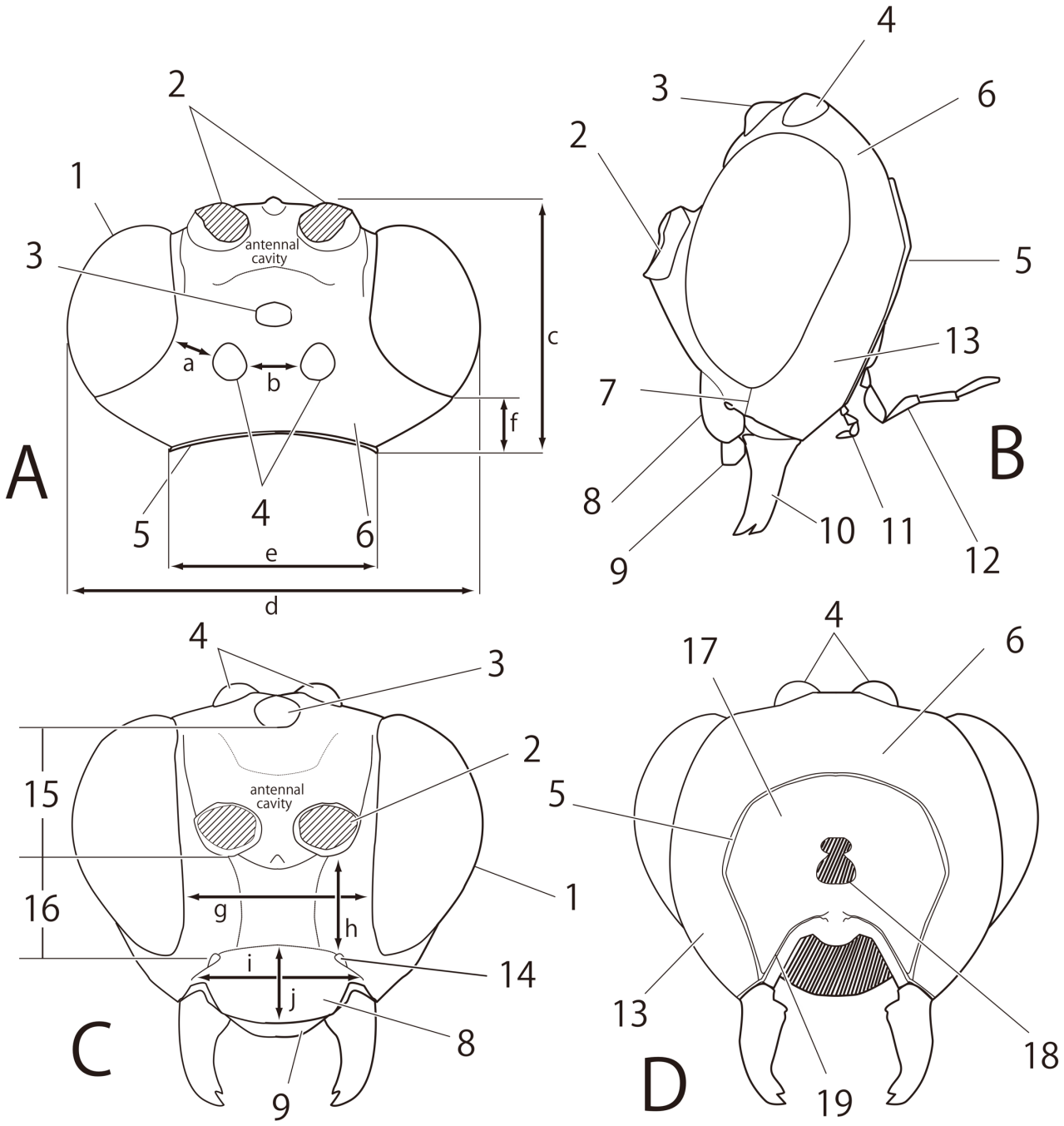

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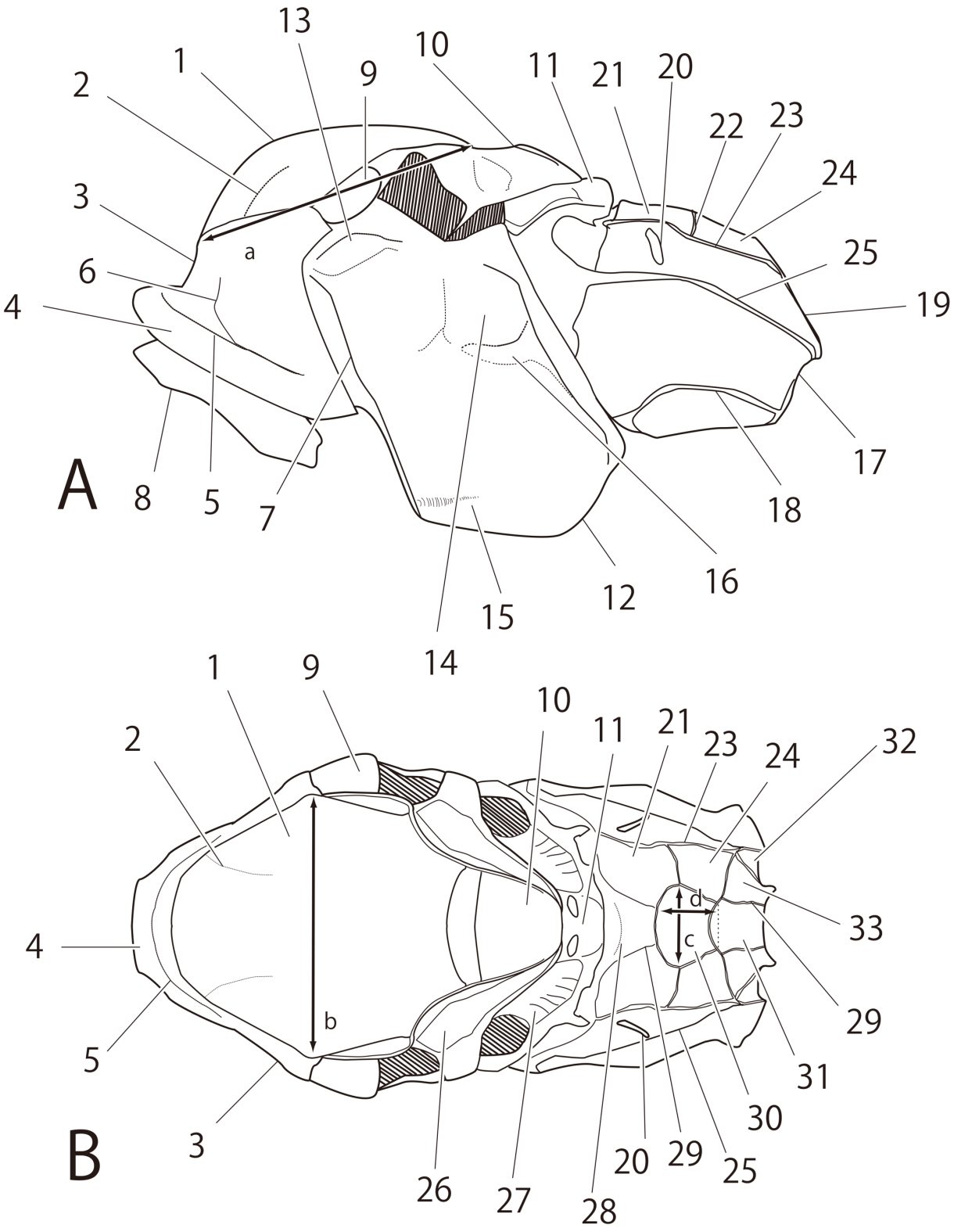

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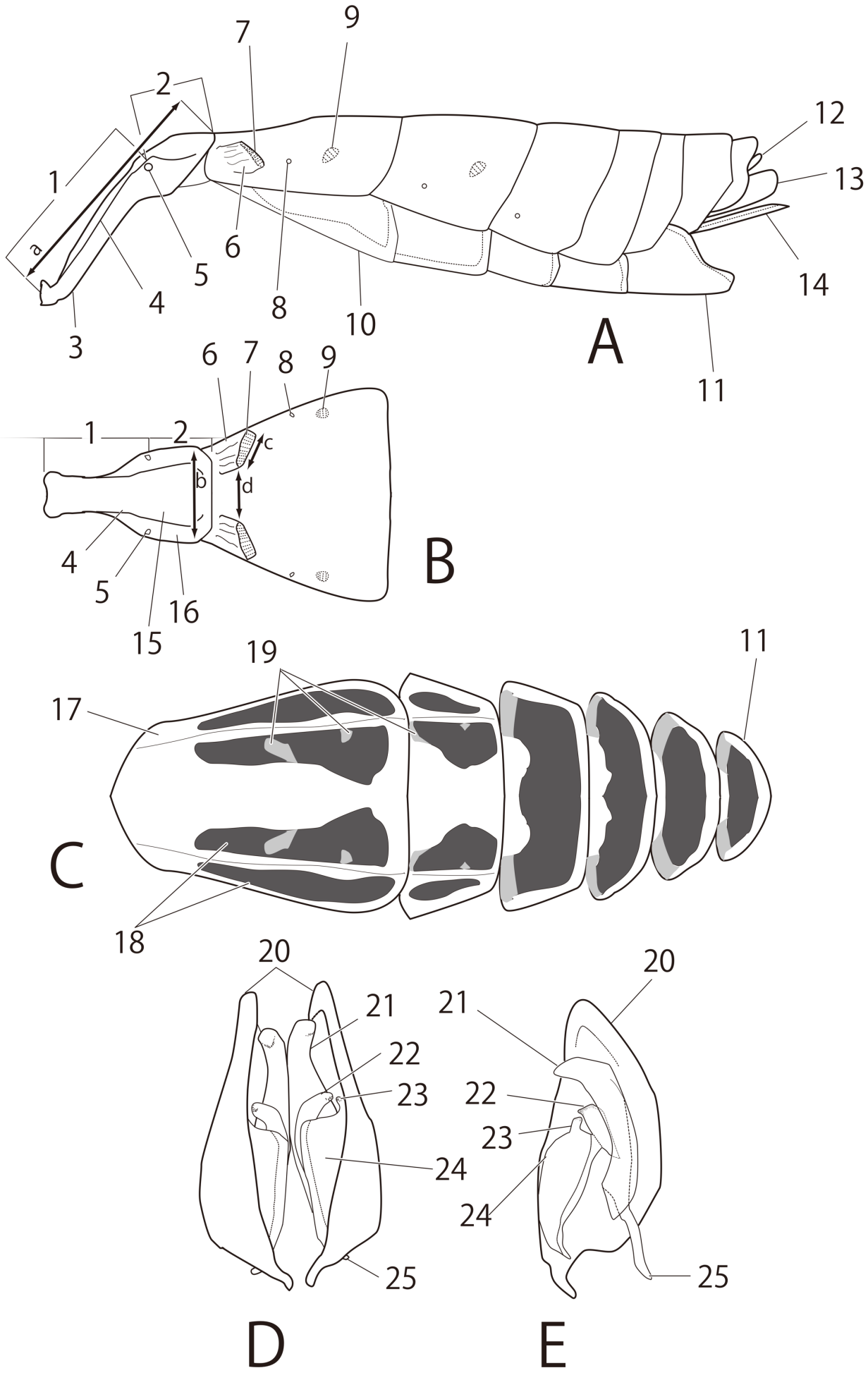


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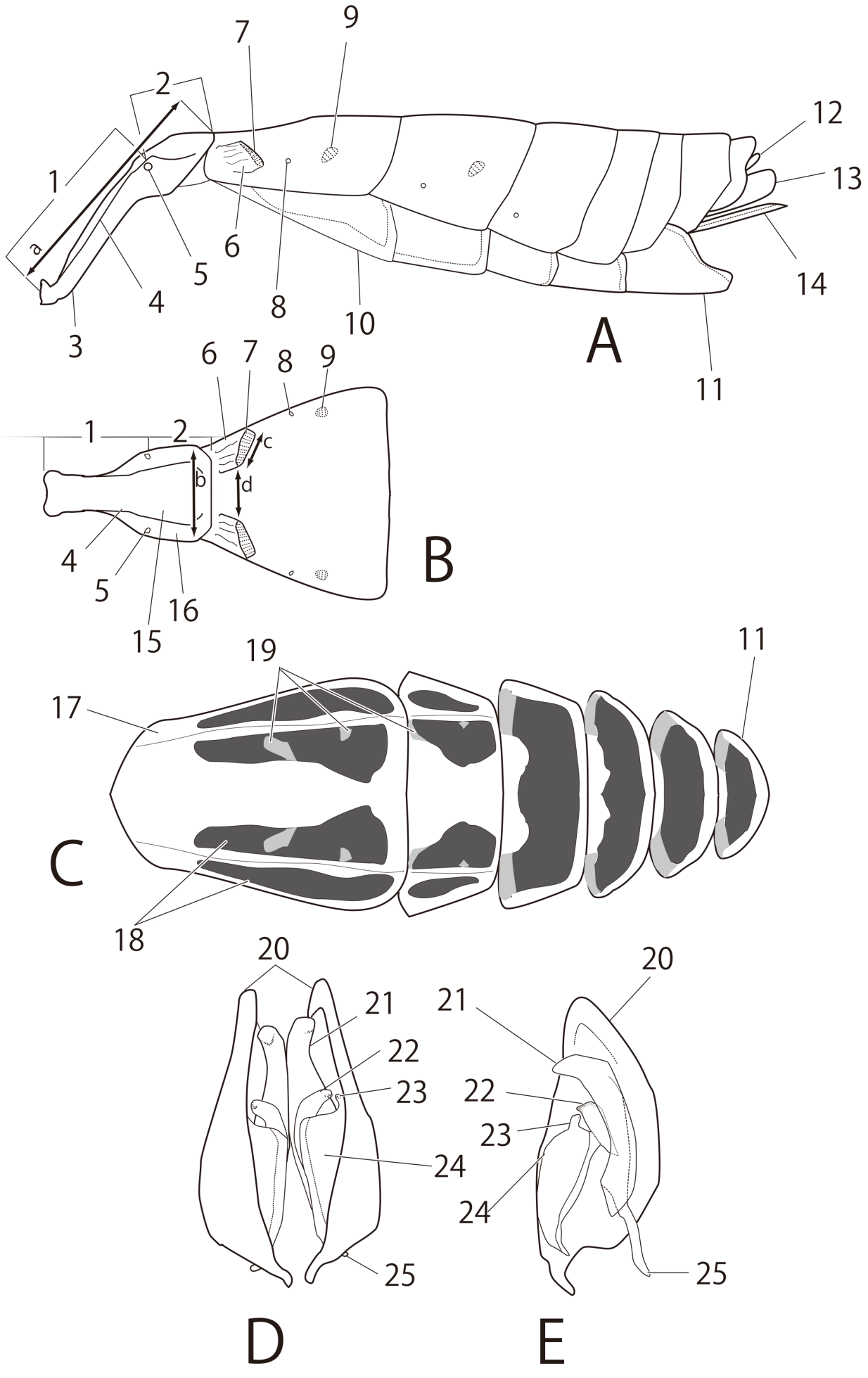

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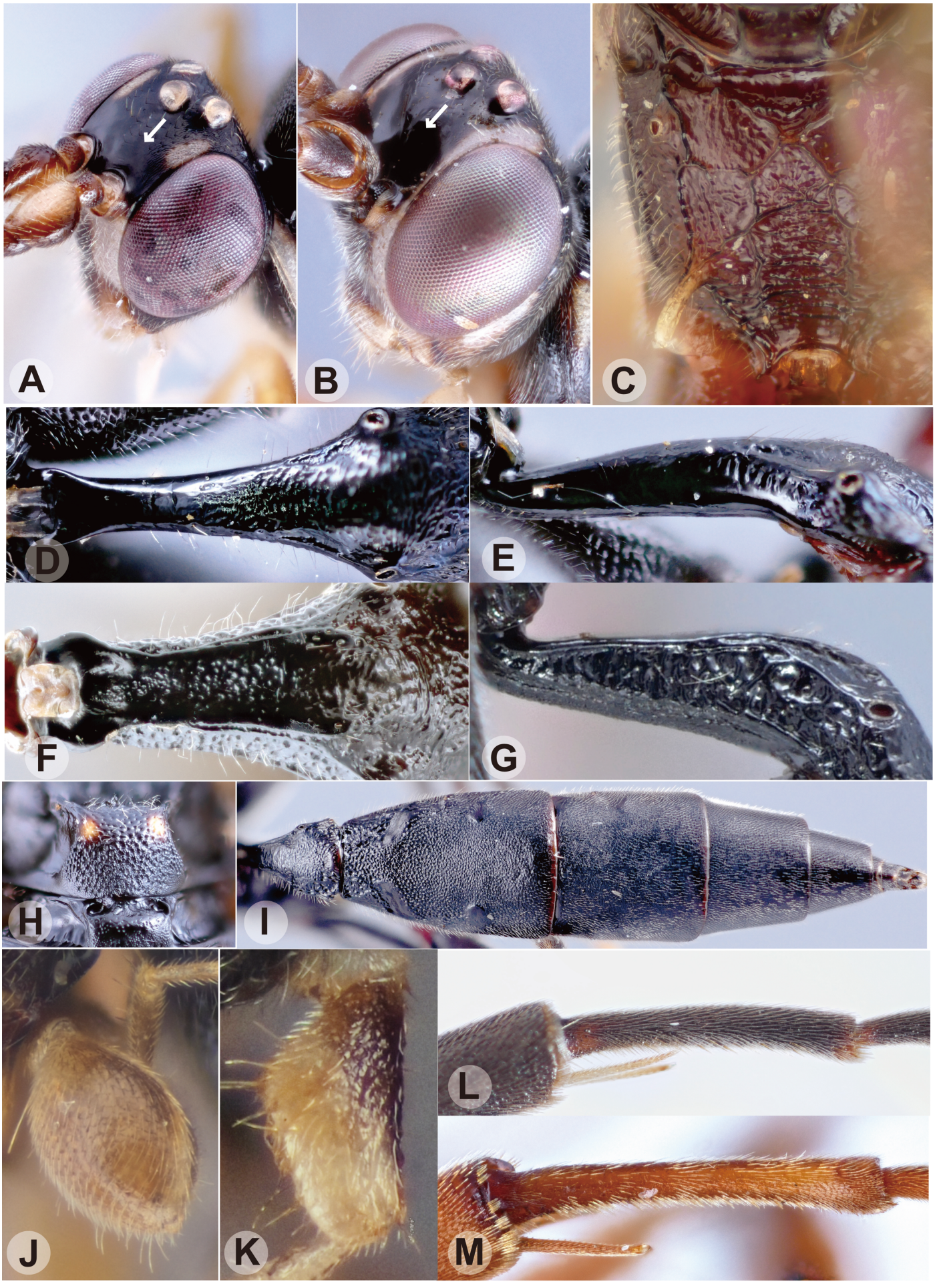


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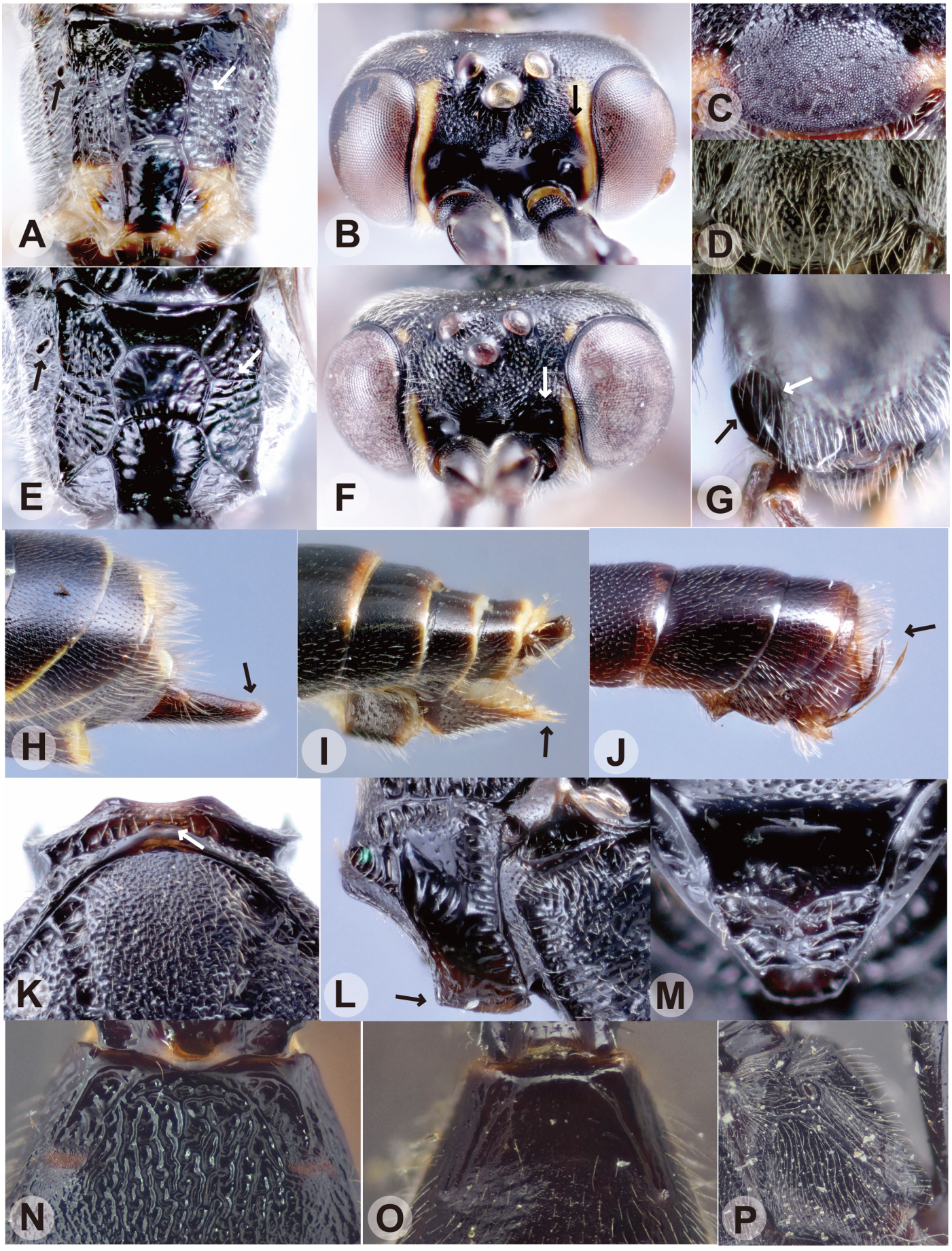


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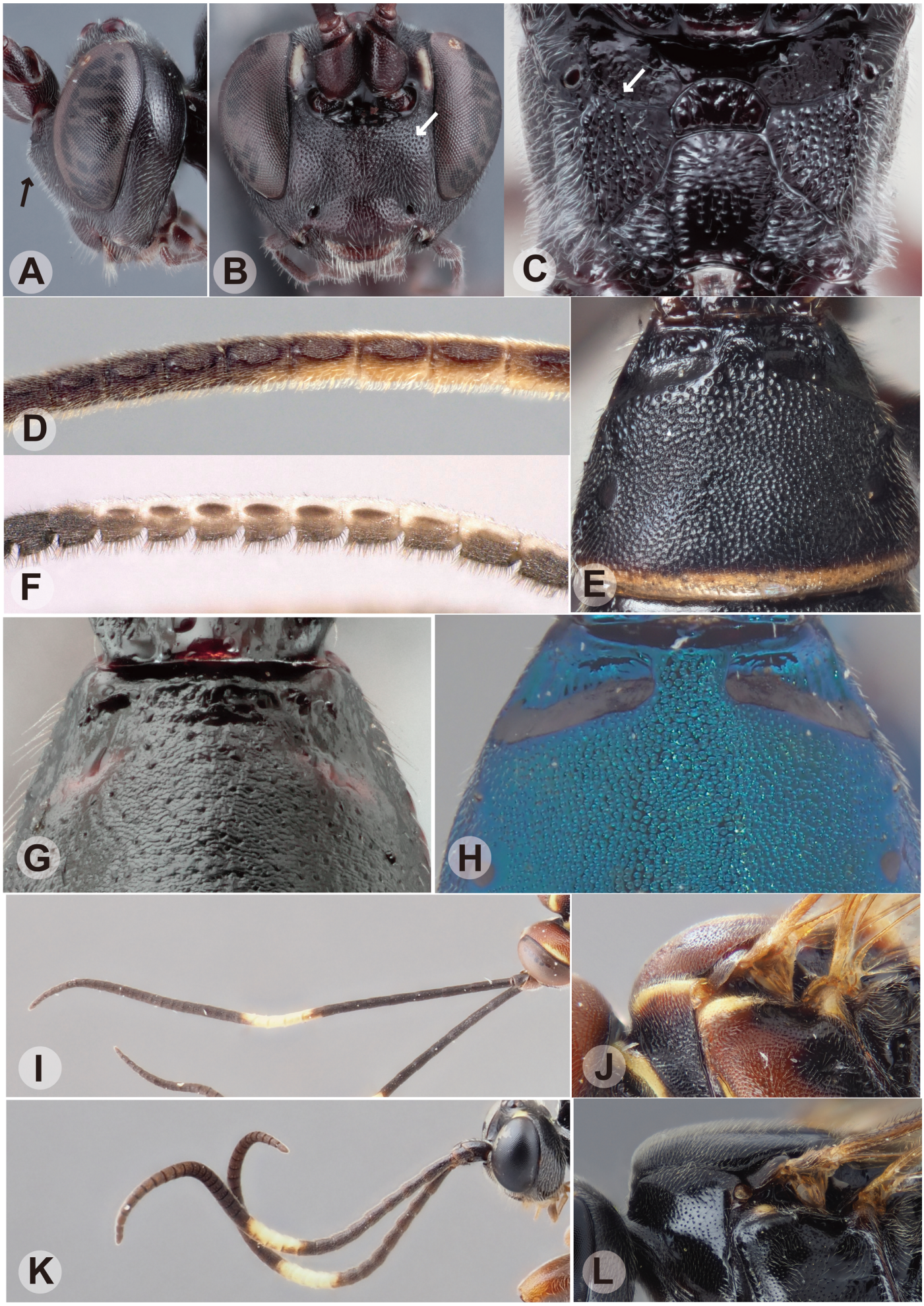


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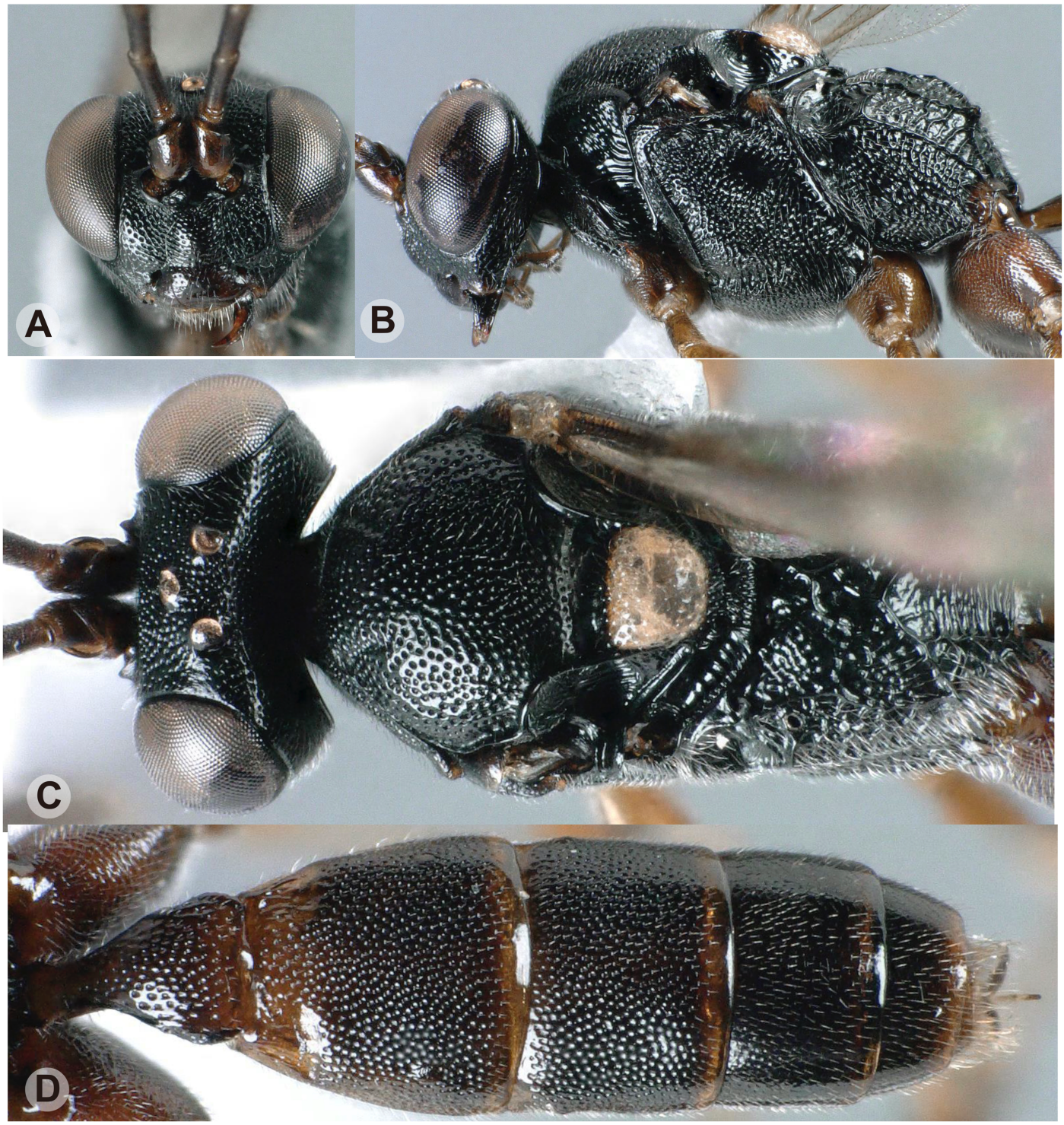


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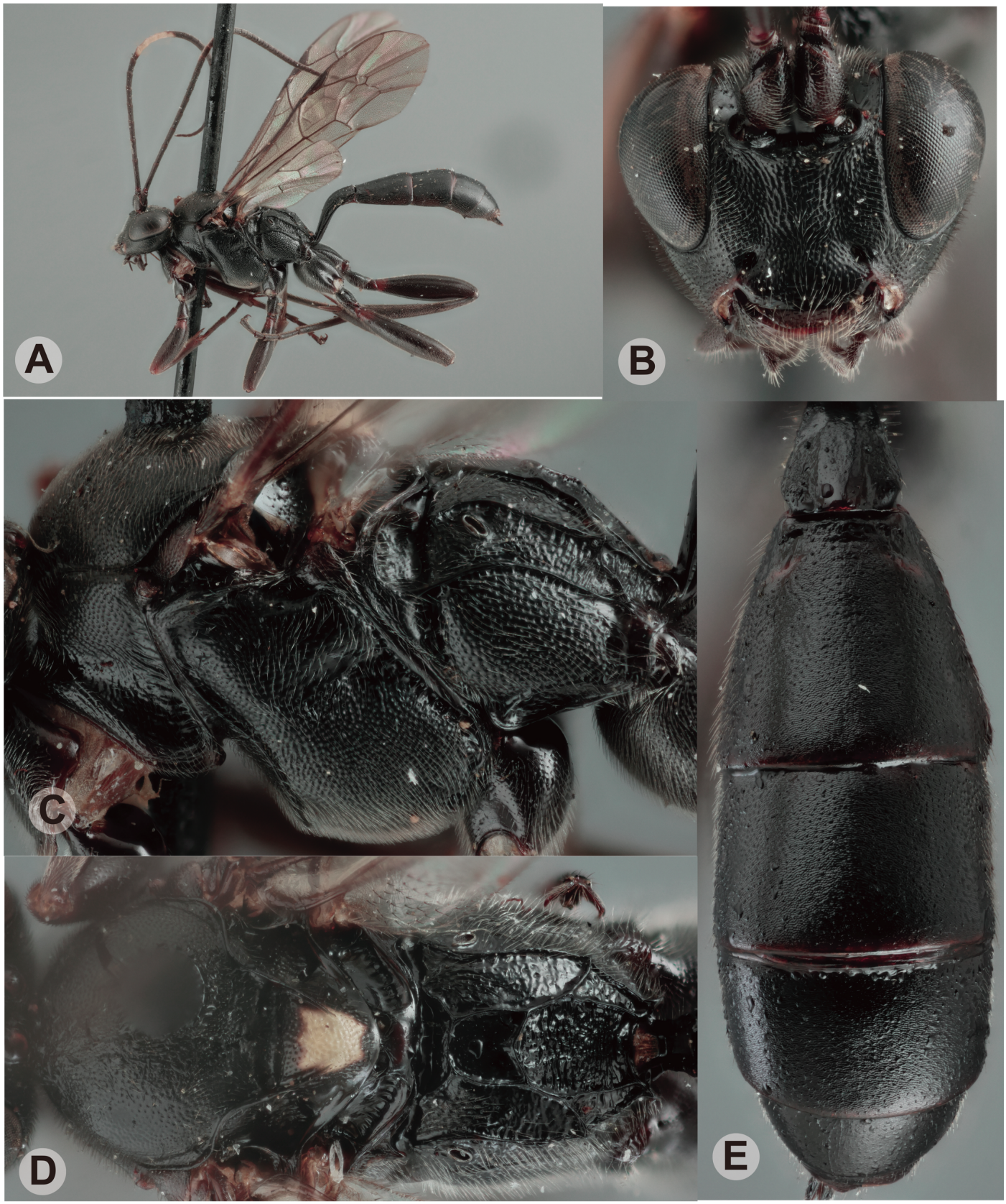


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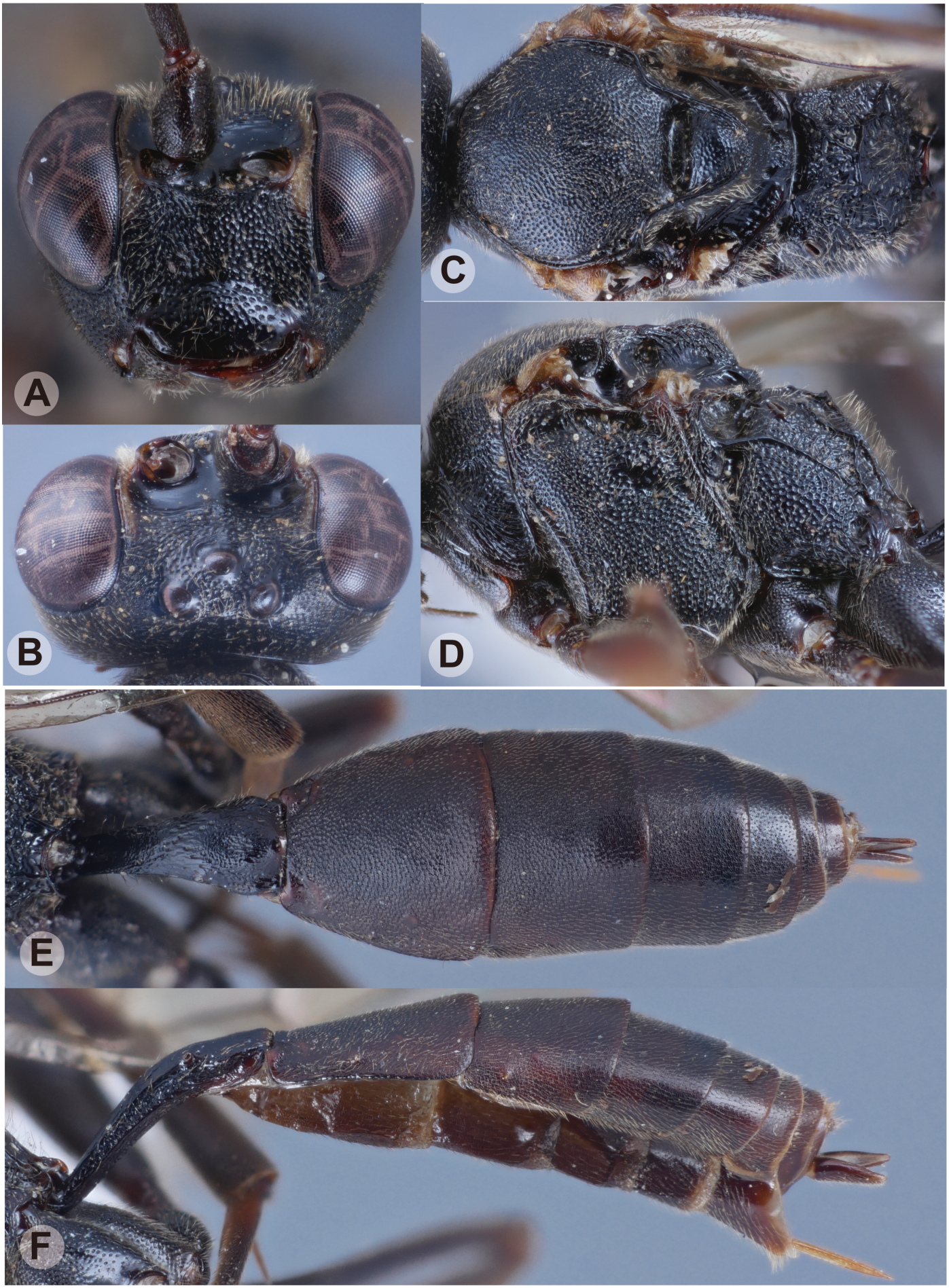


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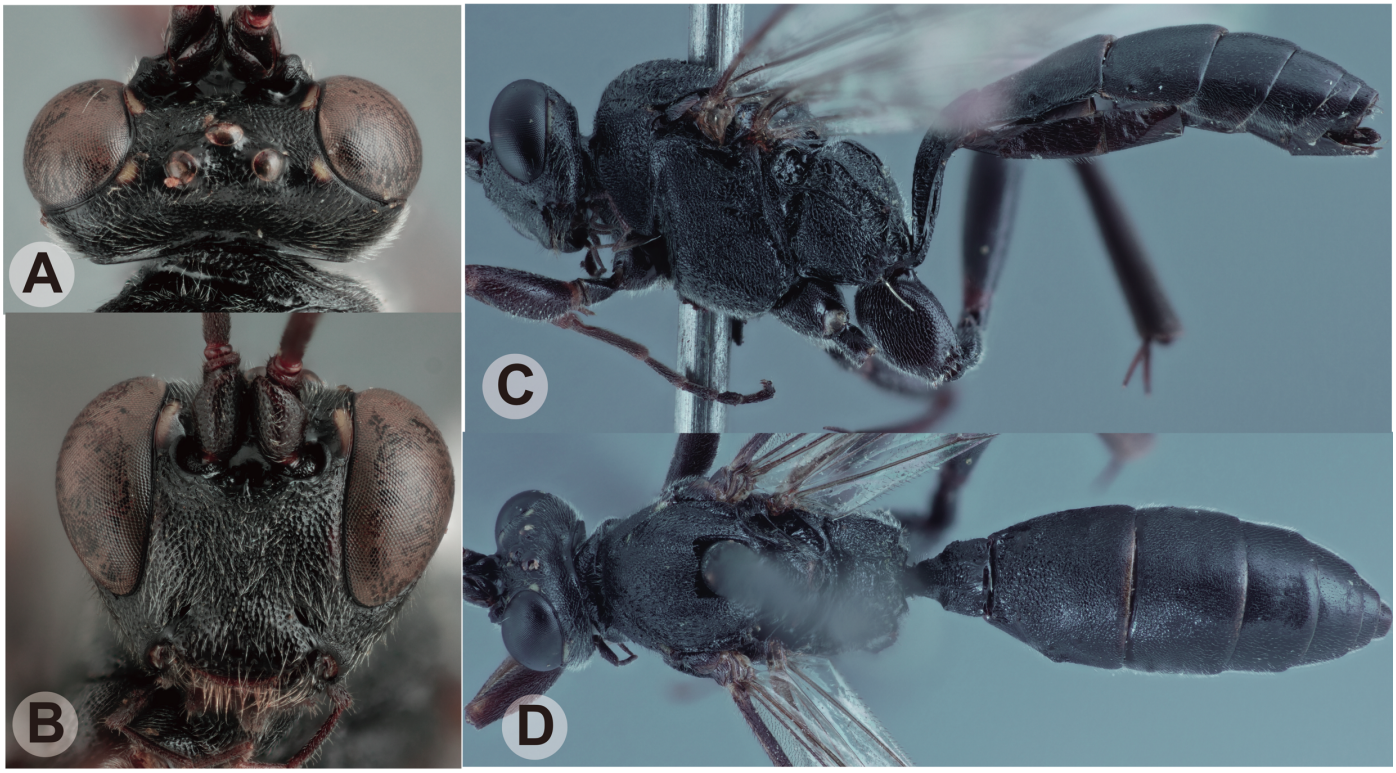


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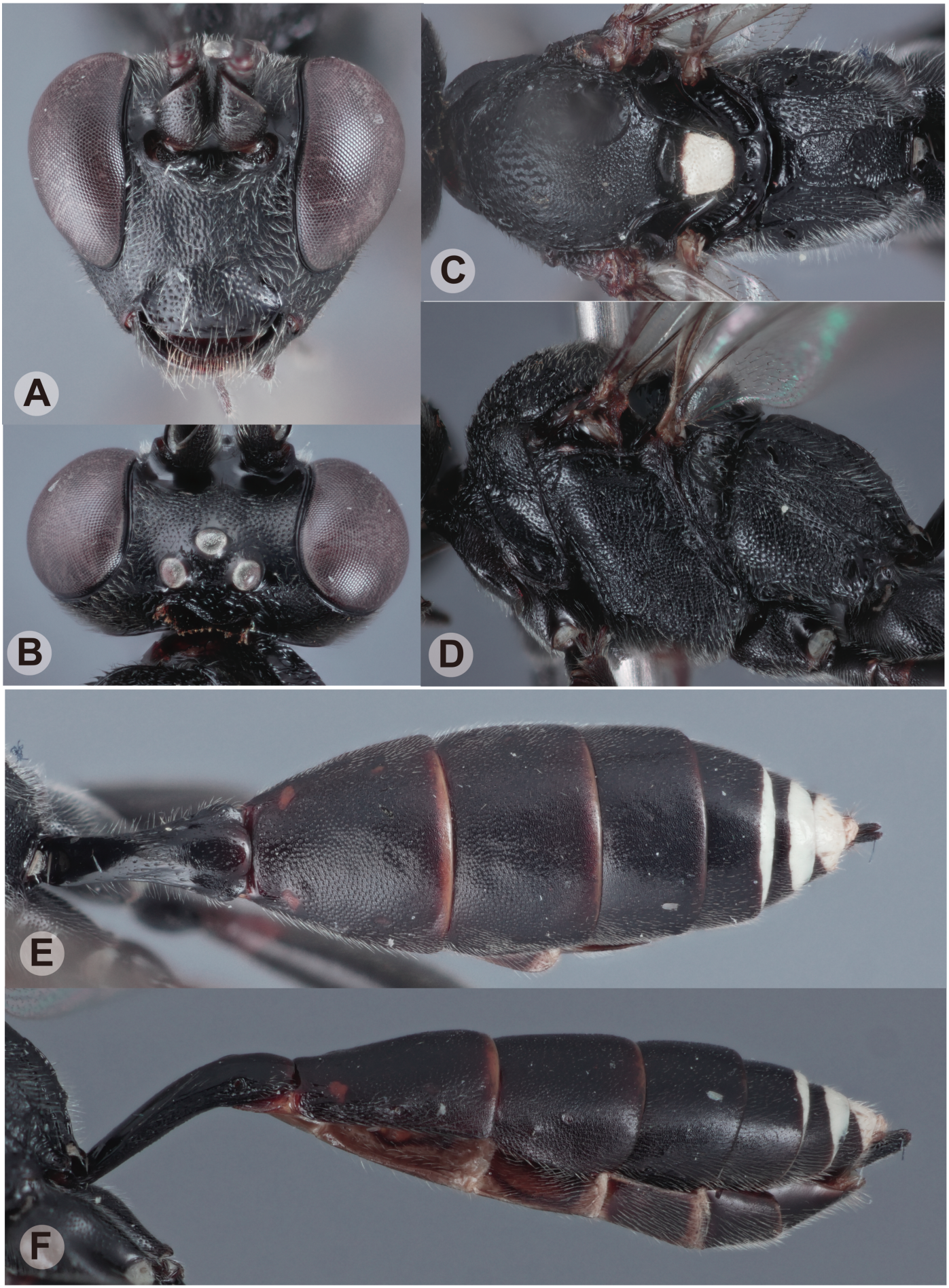


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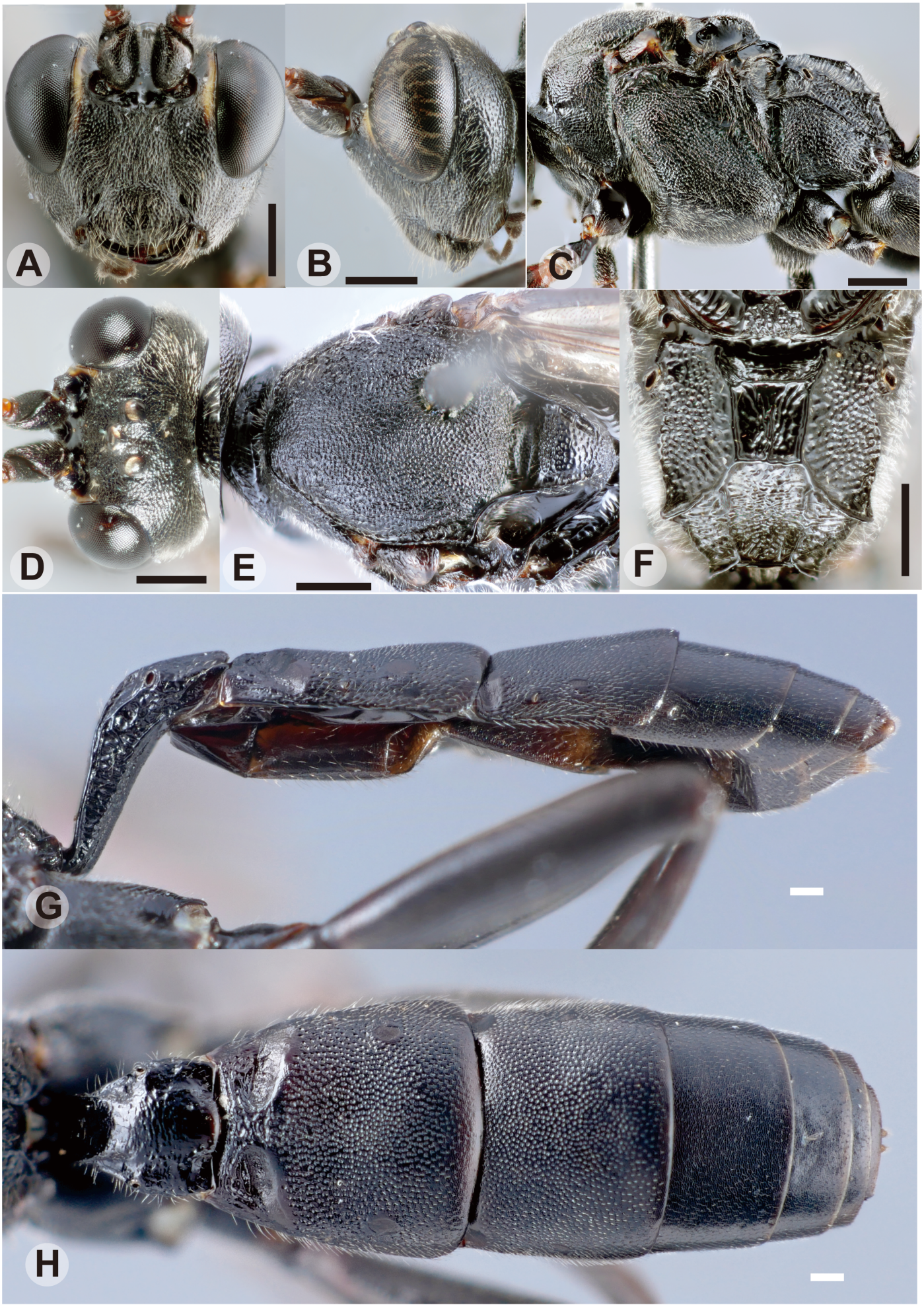


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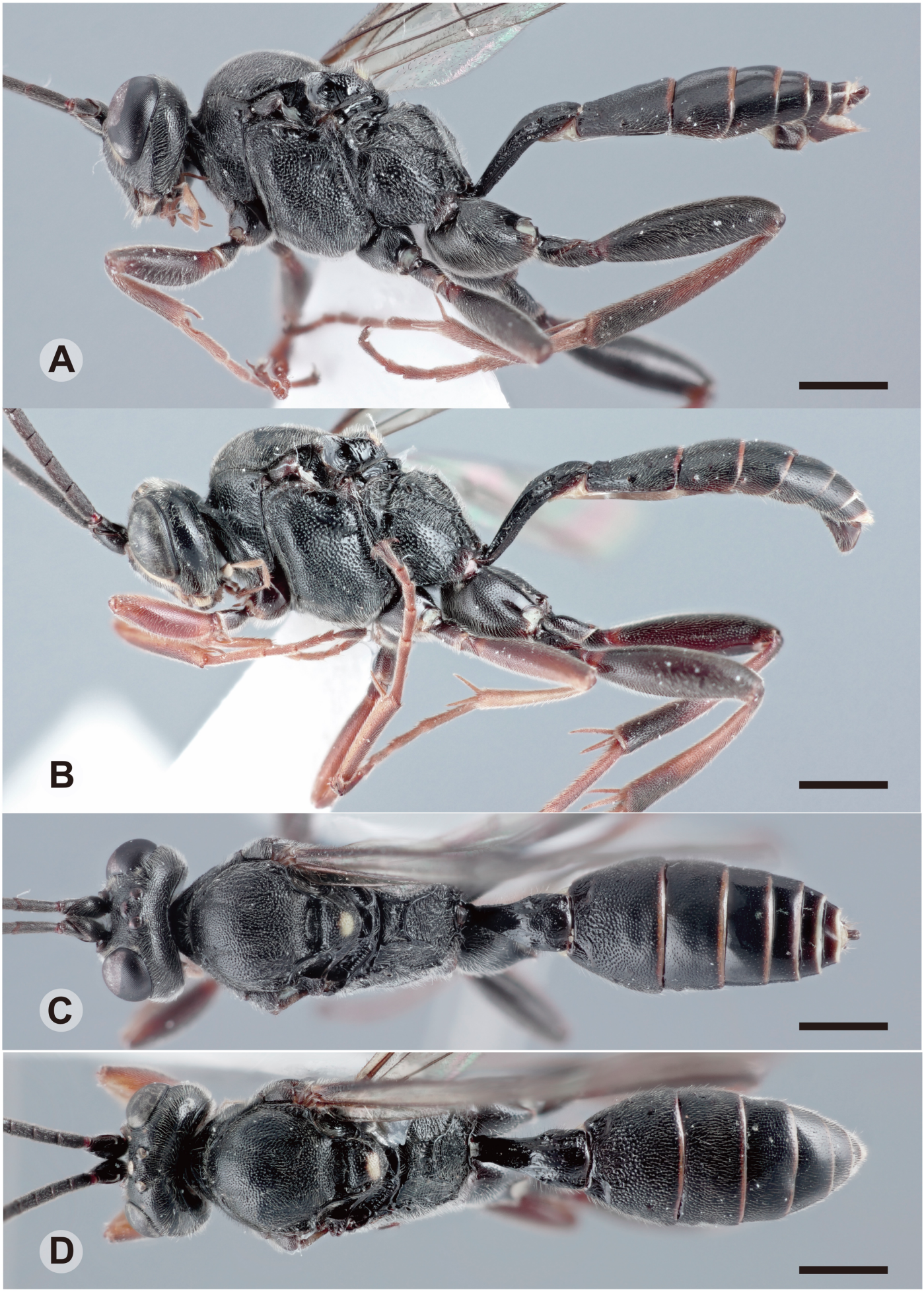


Plate 15



Plate 16

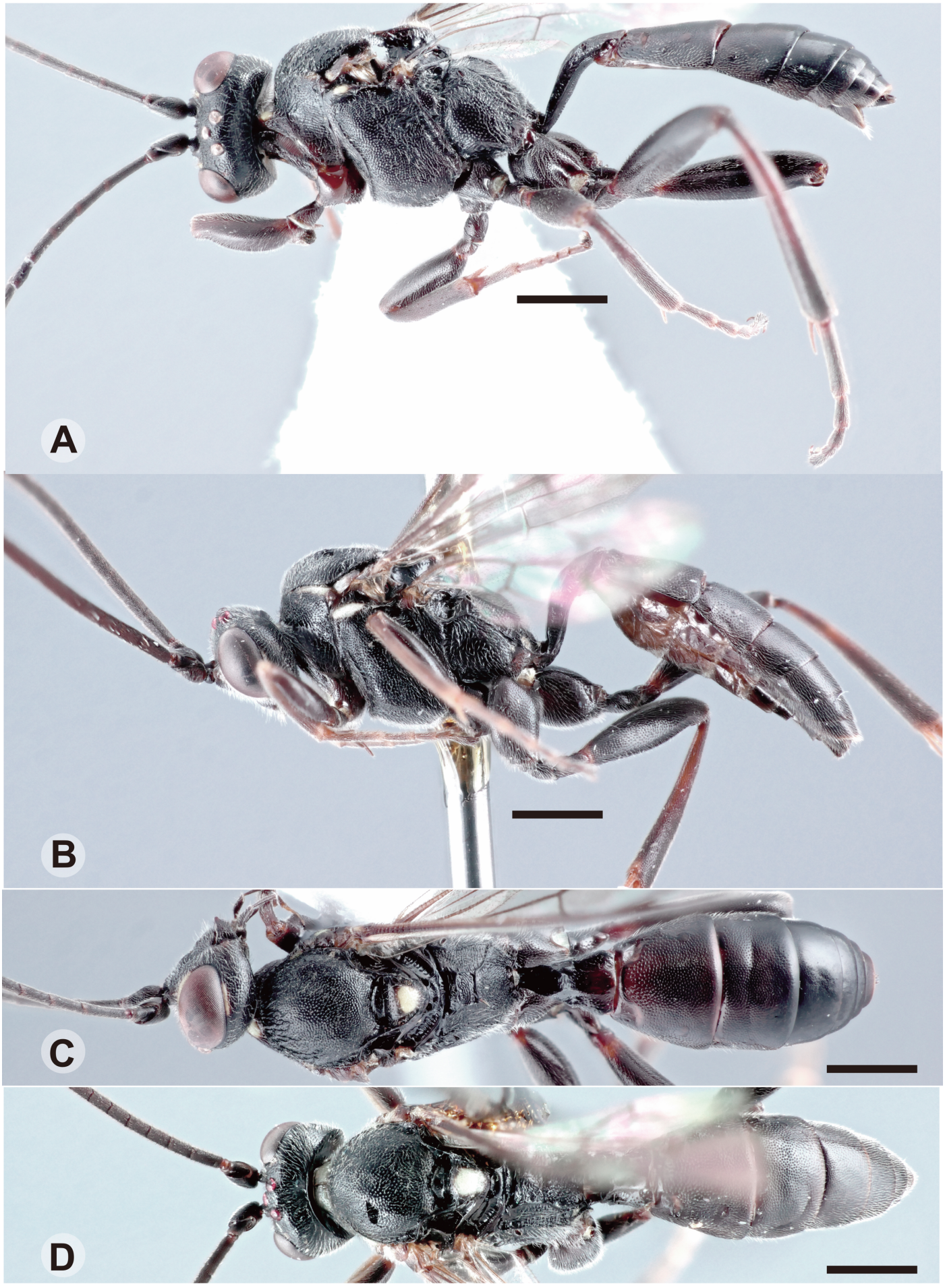


Plate 17



Plate 18

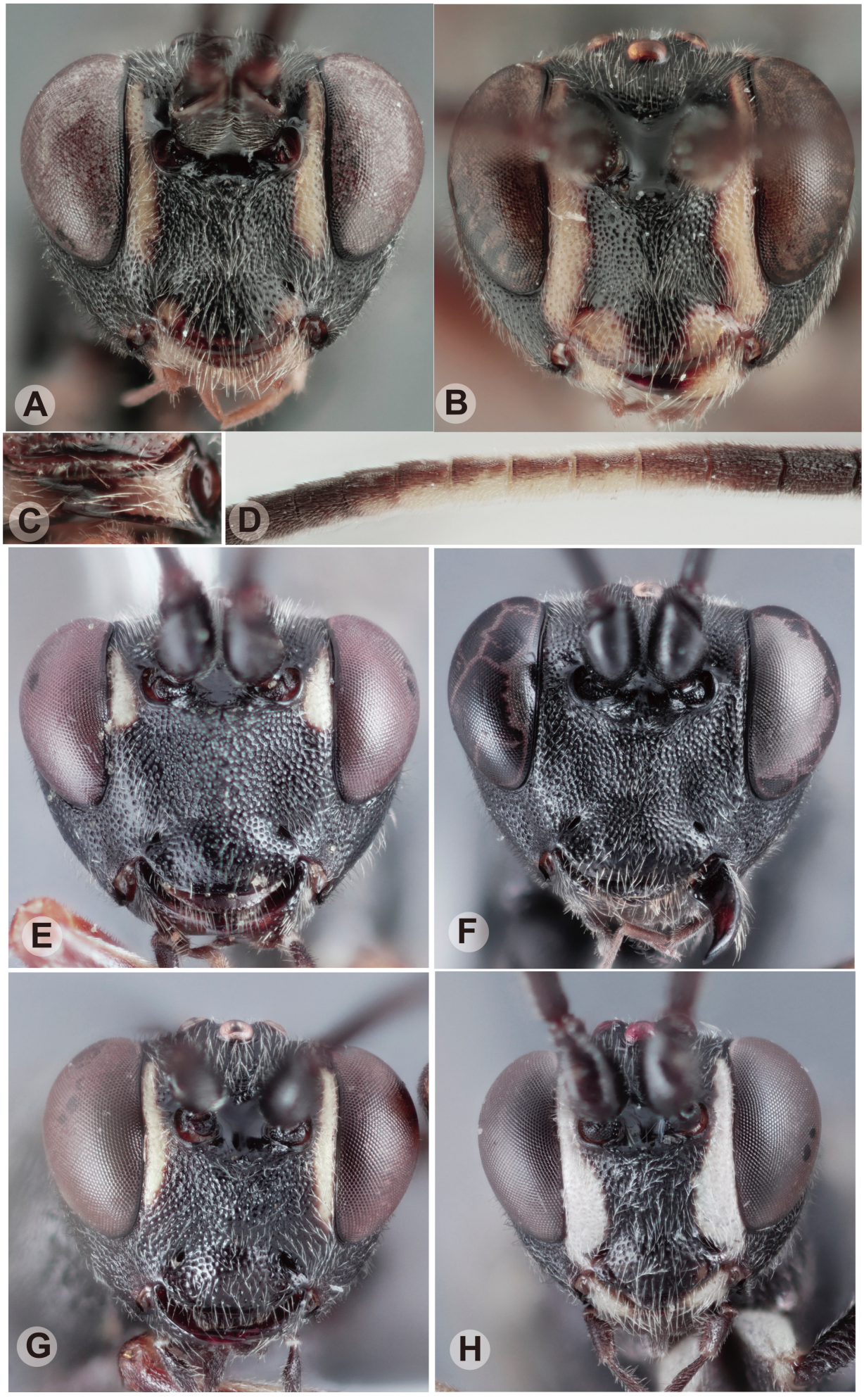


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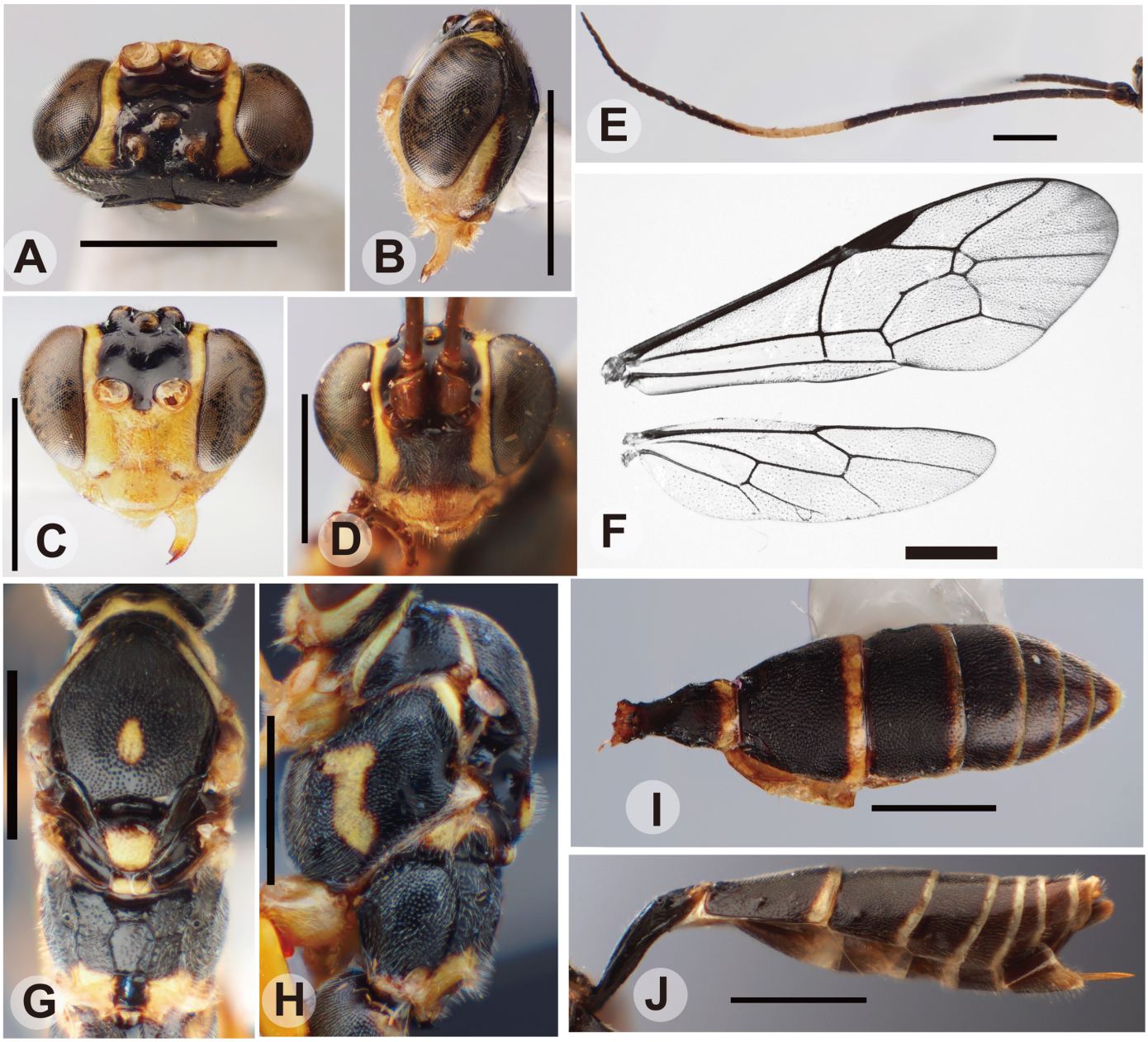


Plate 20

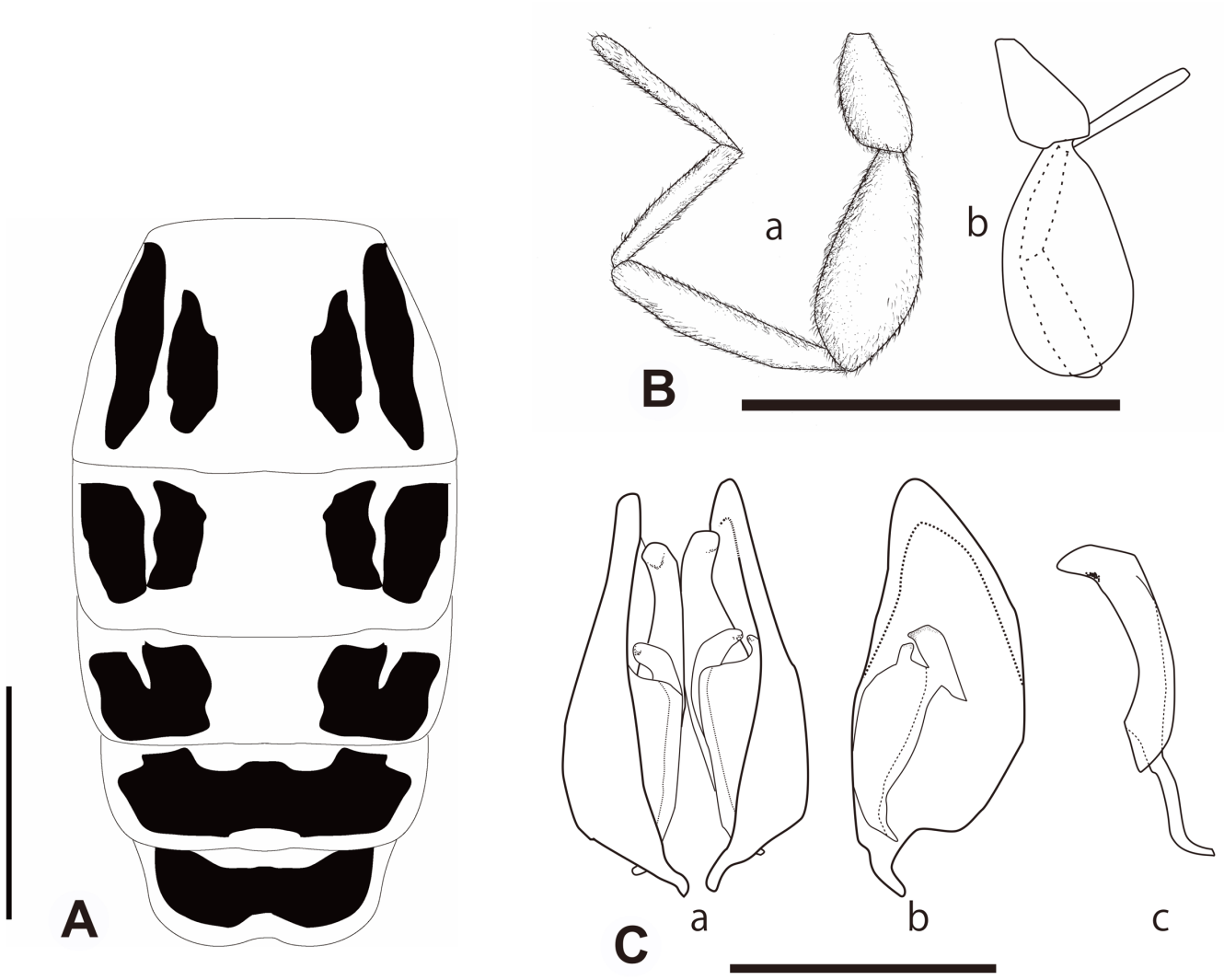


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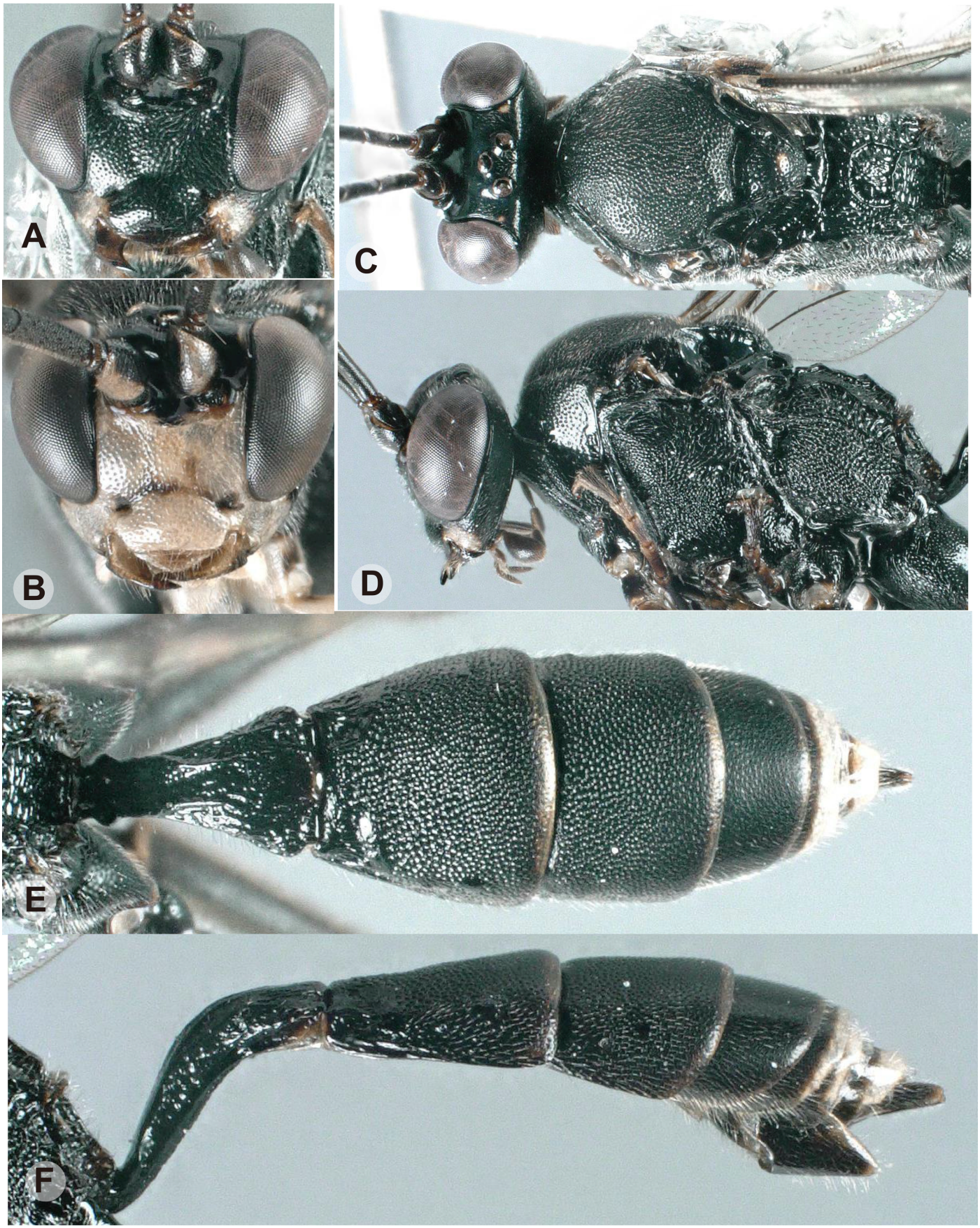


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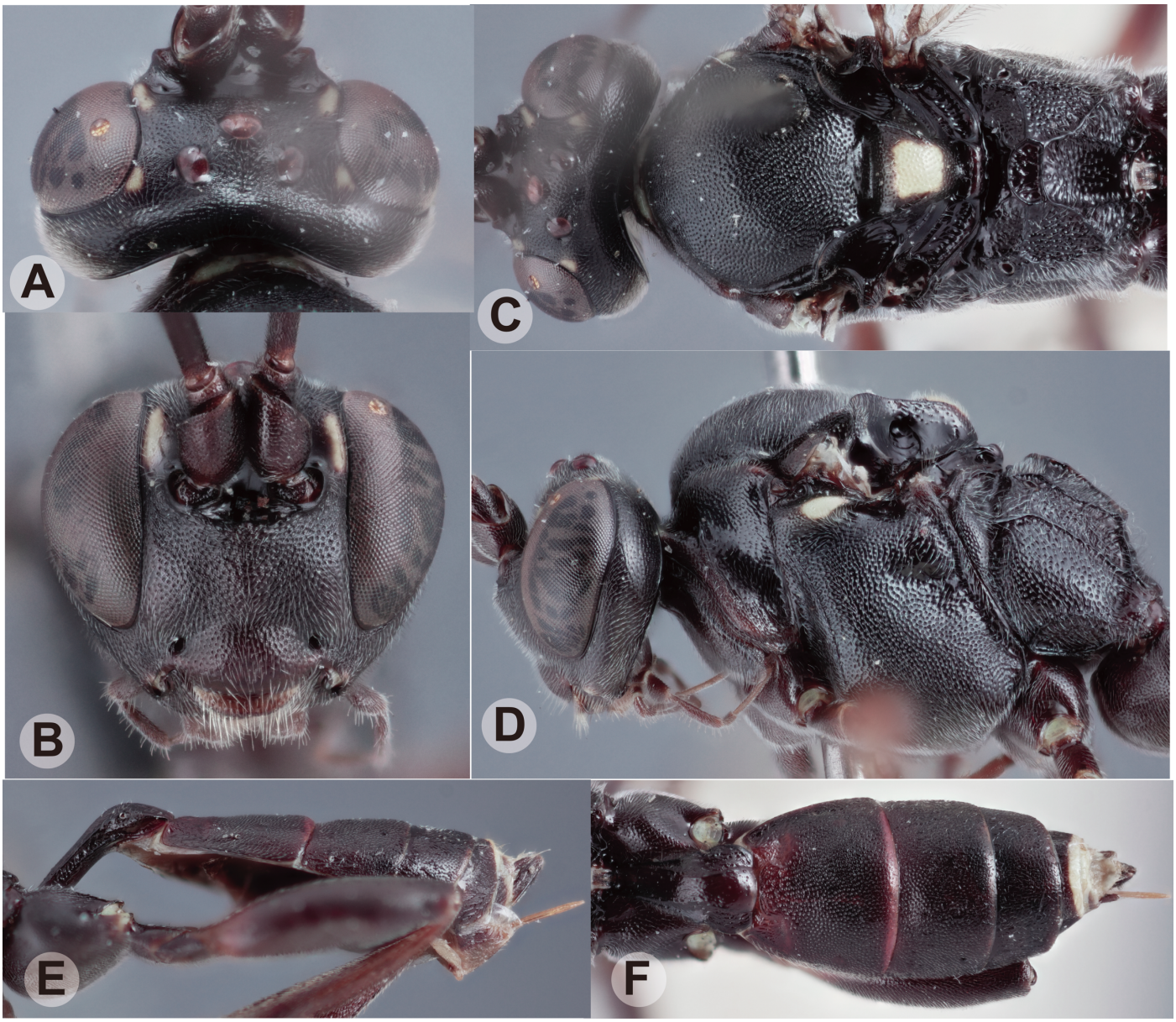


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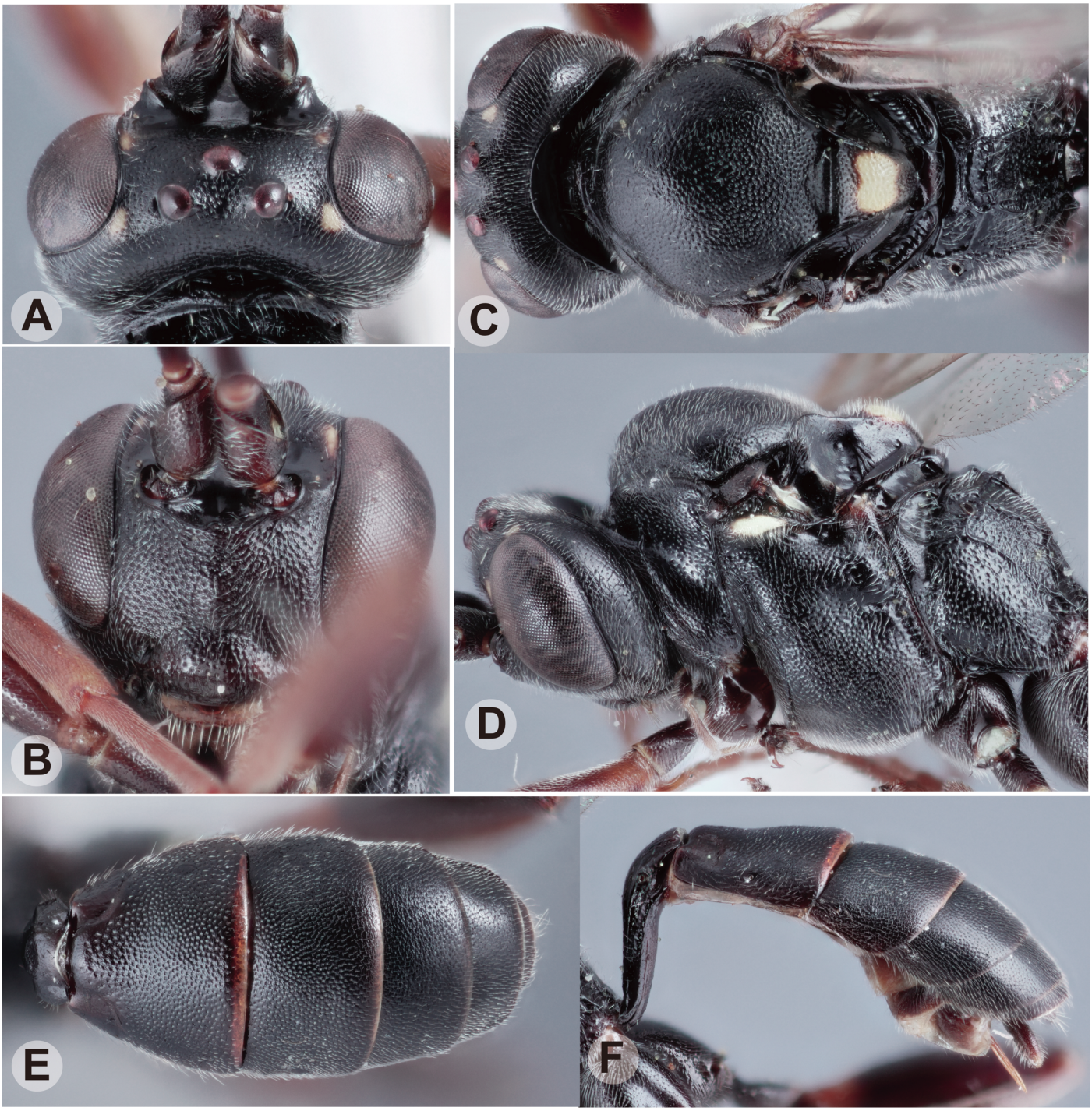


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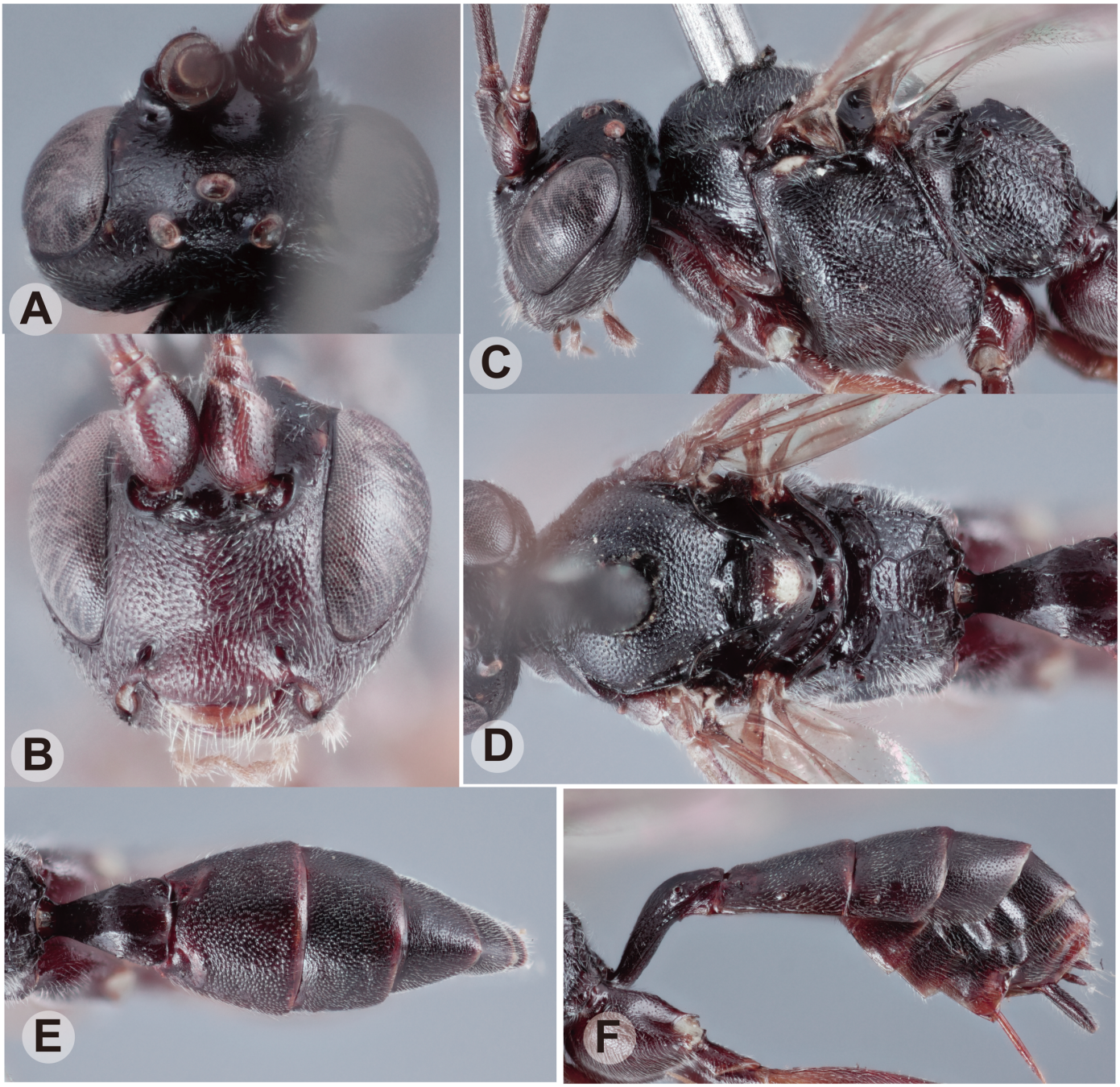


Plate 25

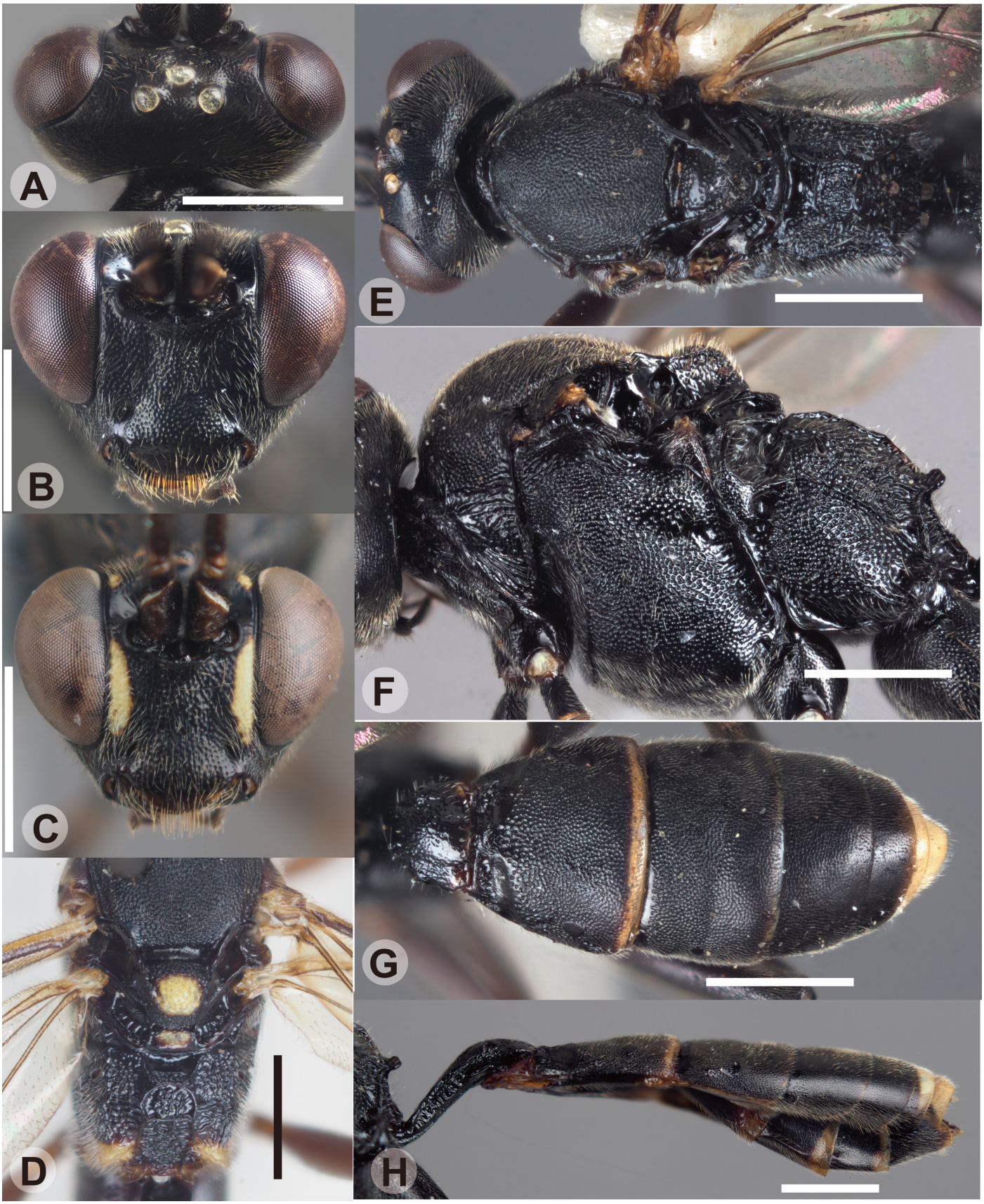


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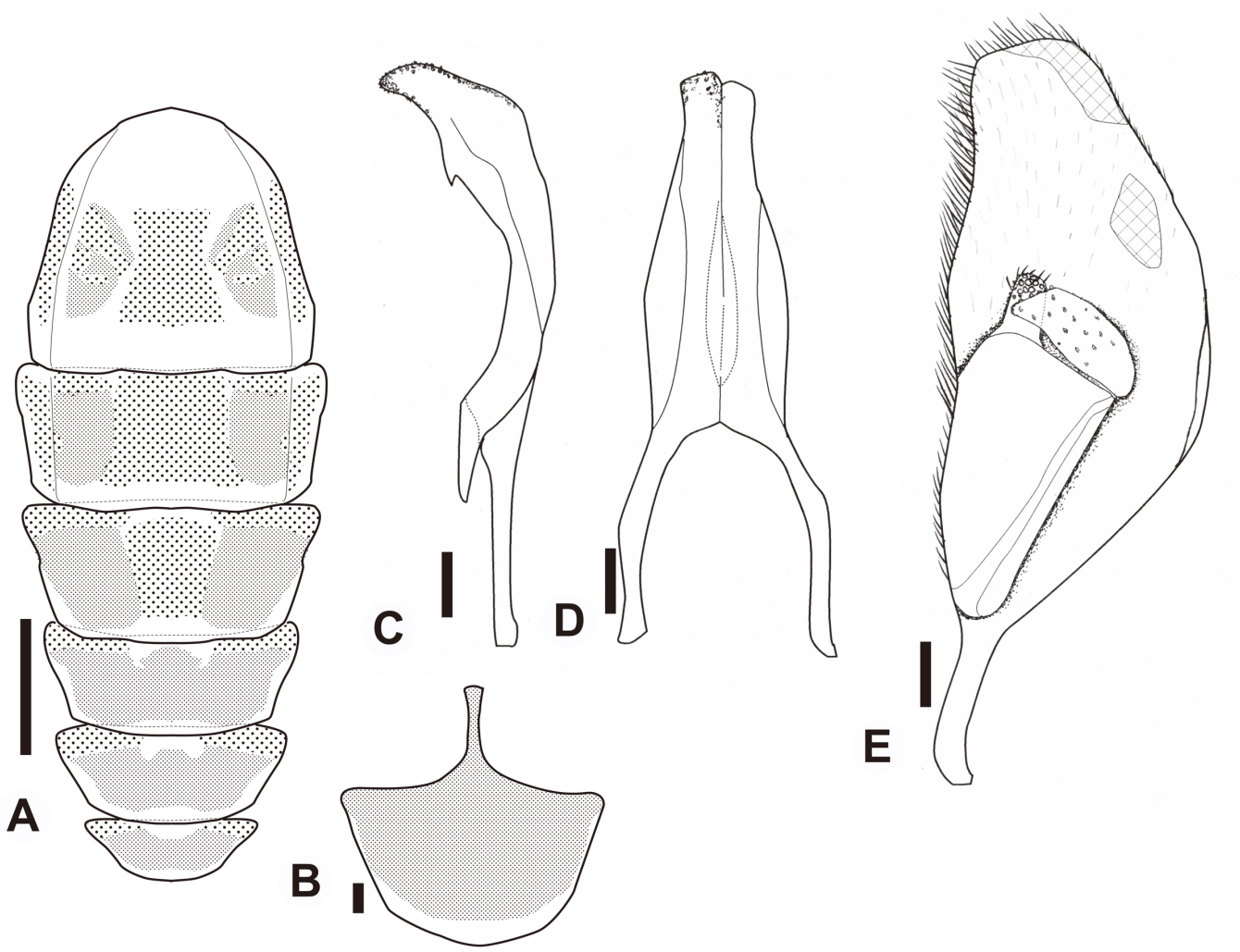


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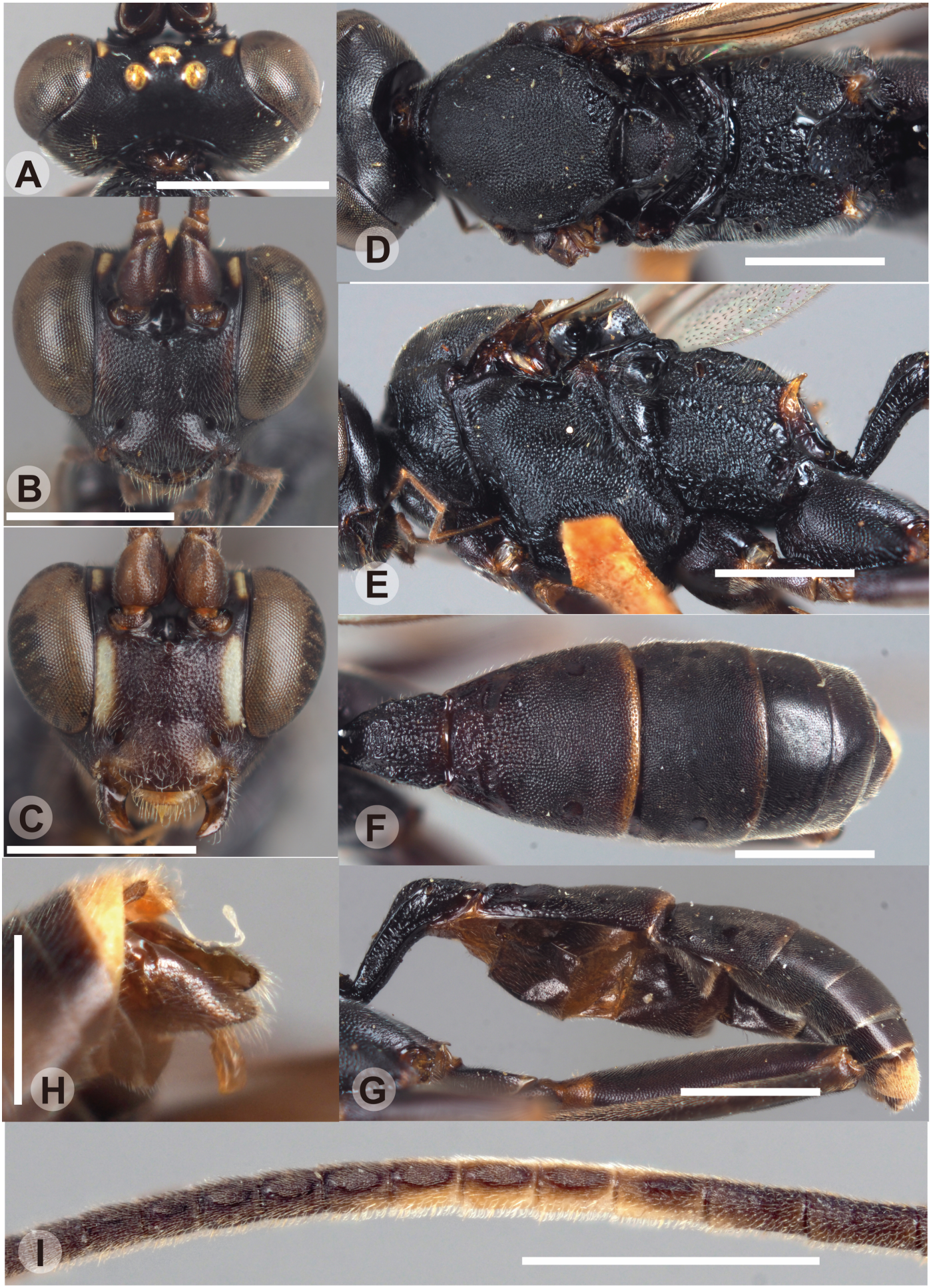


Plate 28



Plate 29

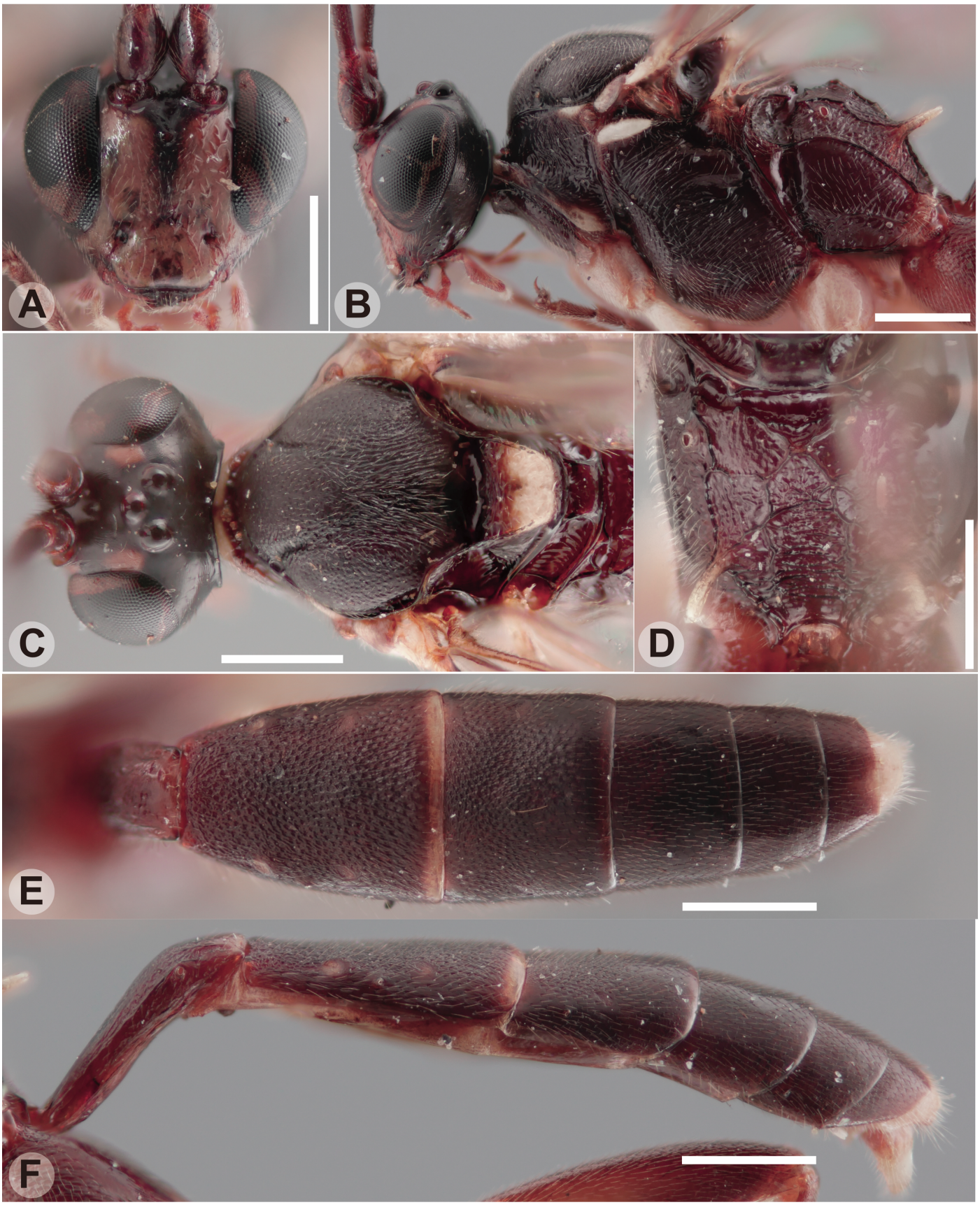


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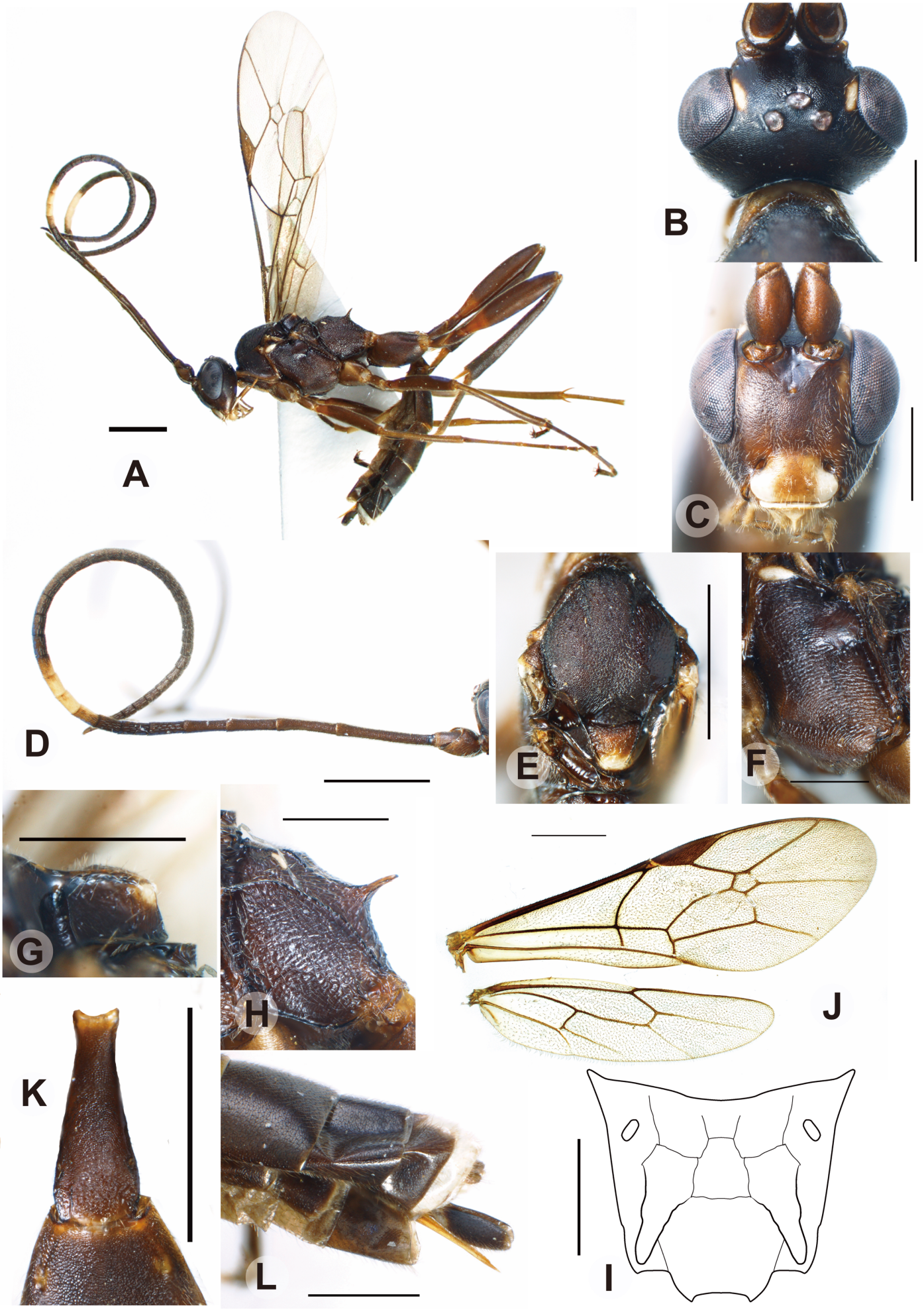


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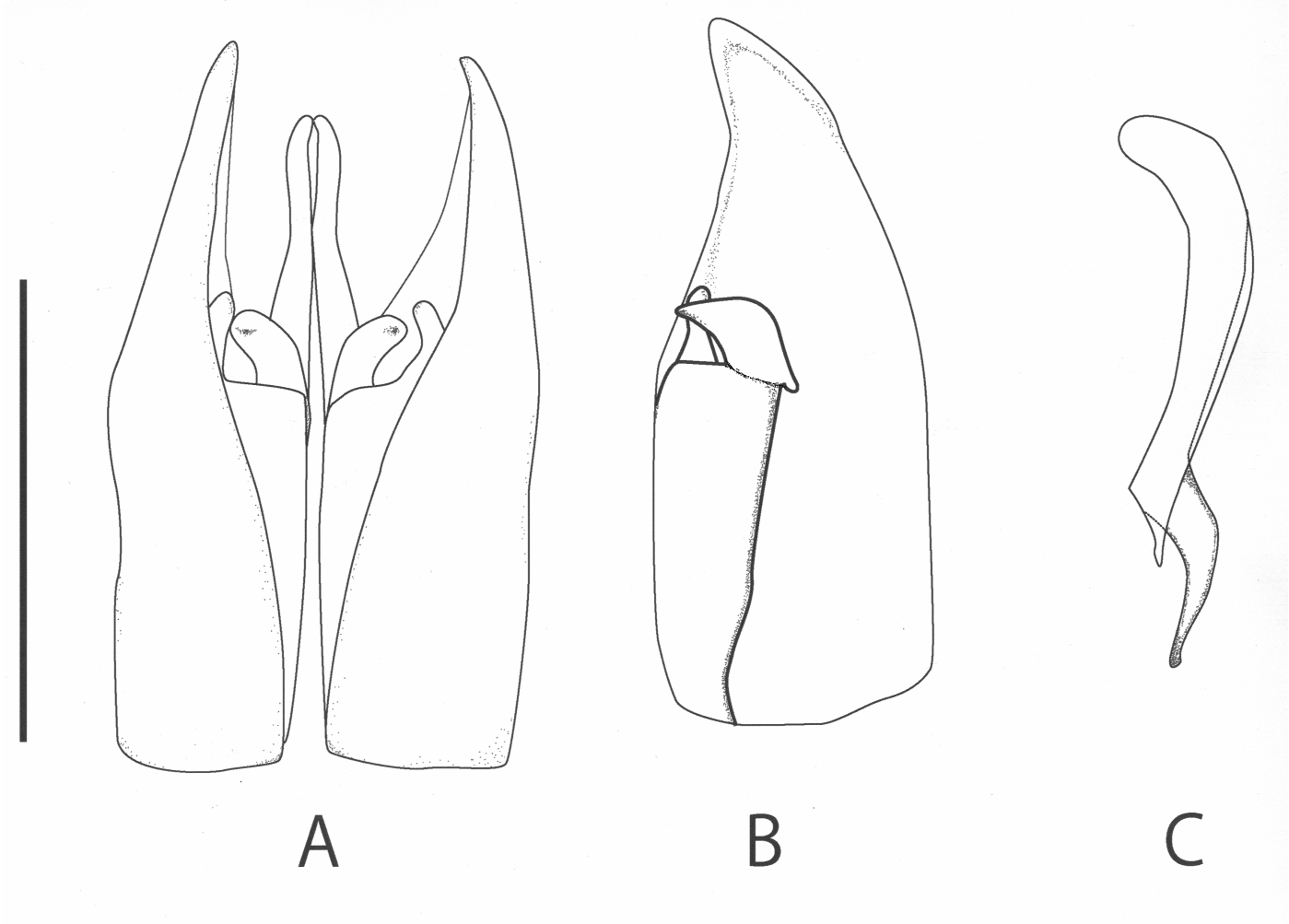


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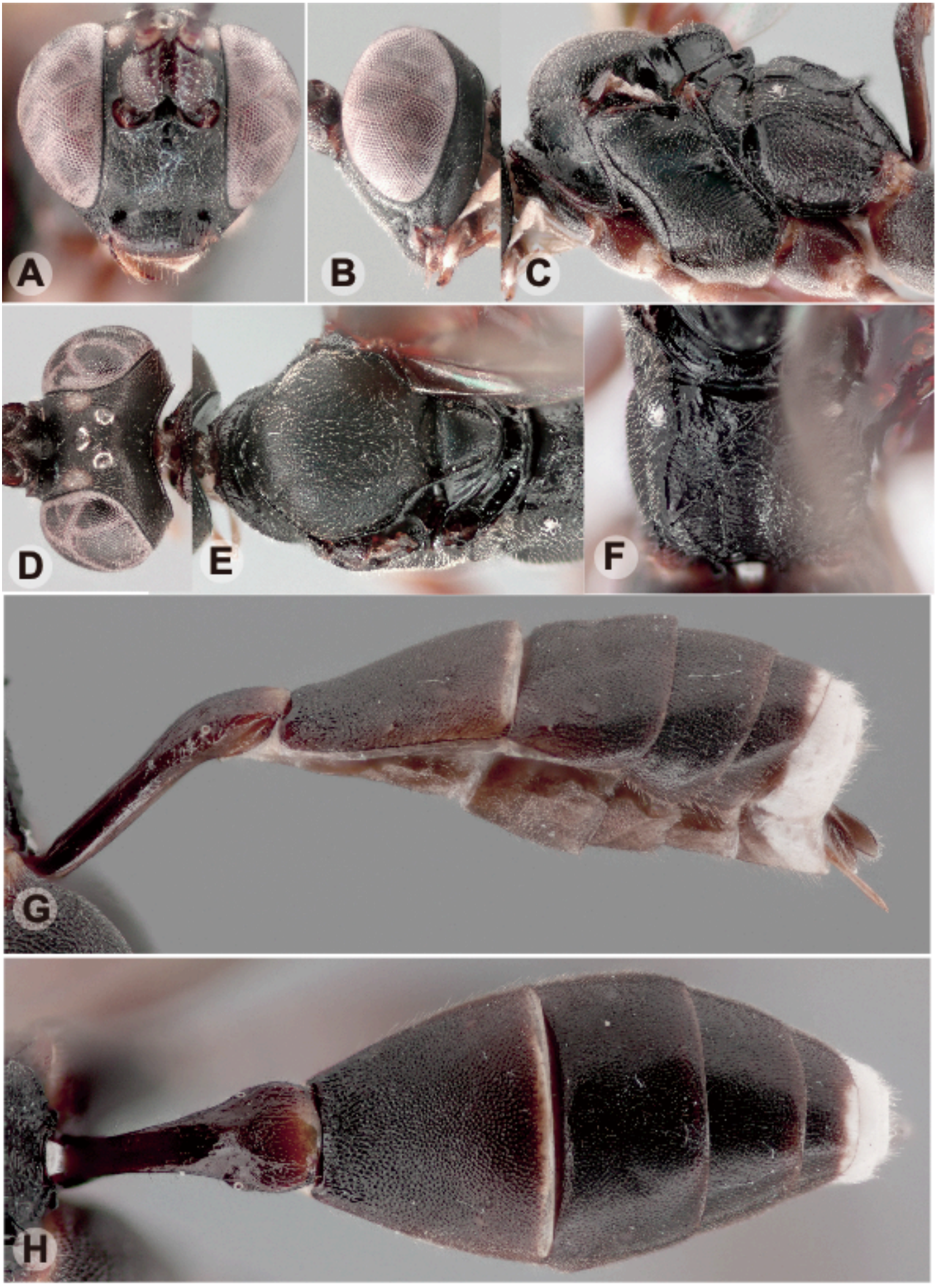


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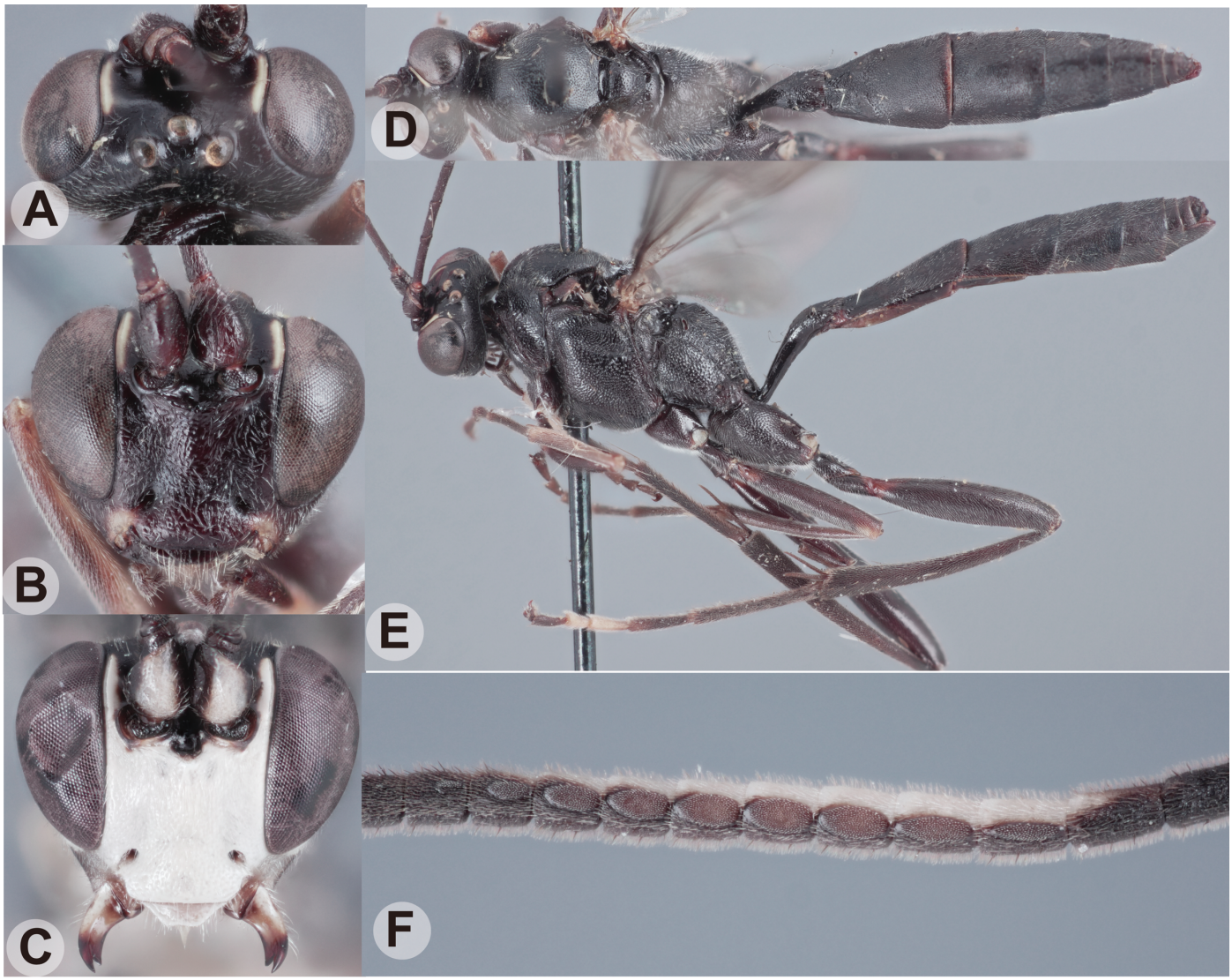


Plate 34

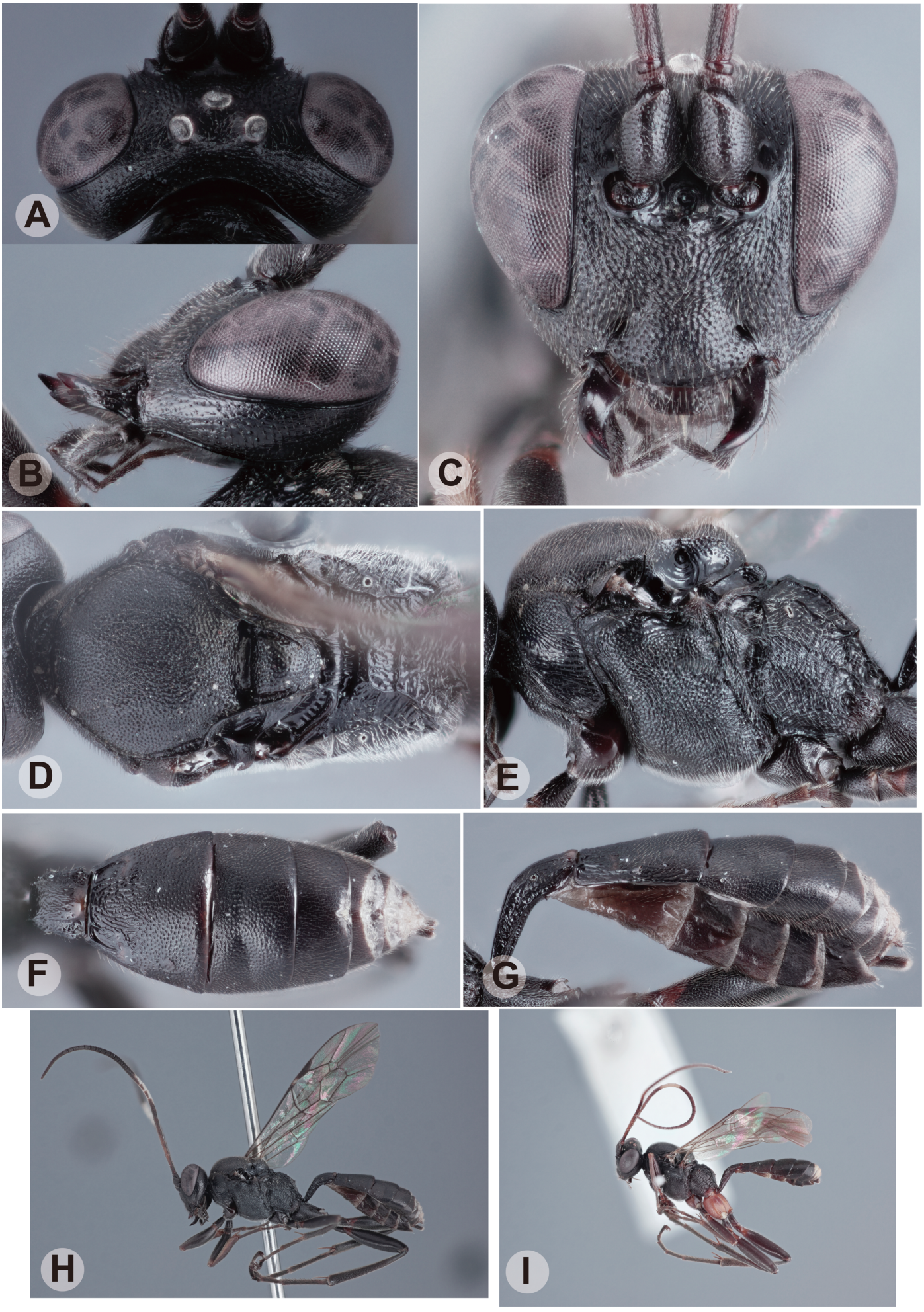


Plate 35

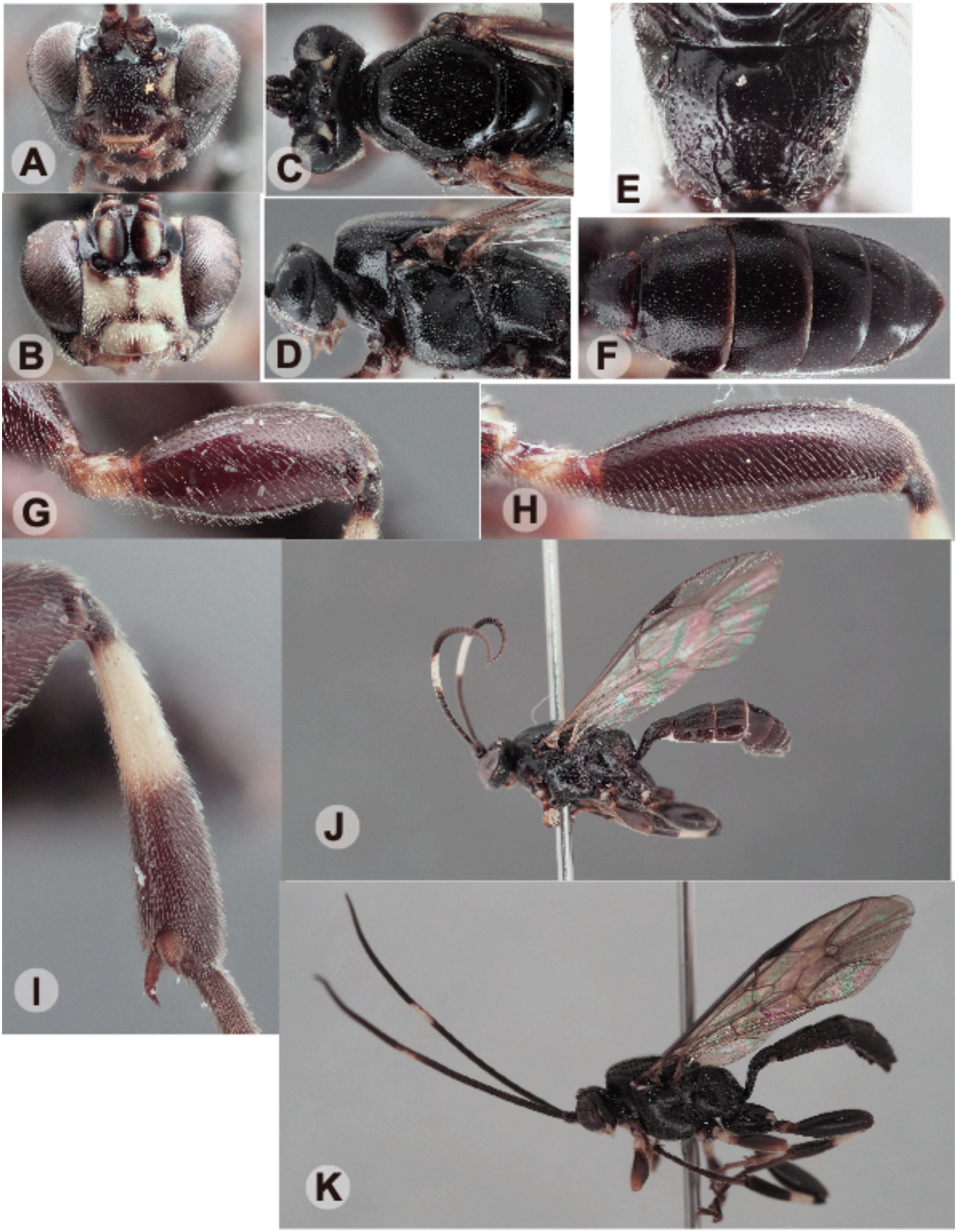


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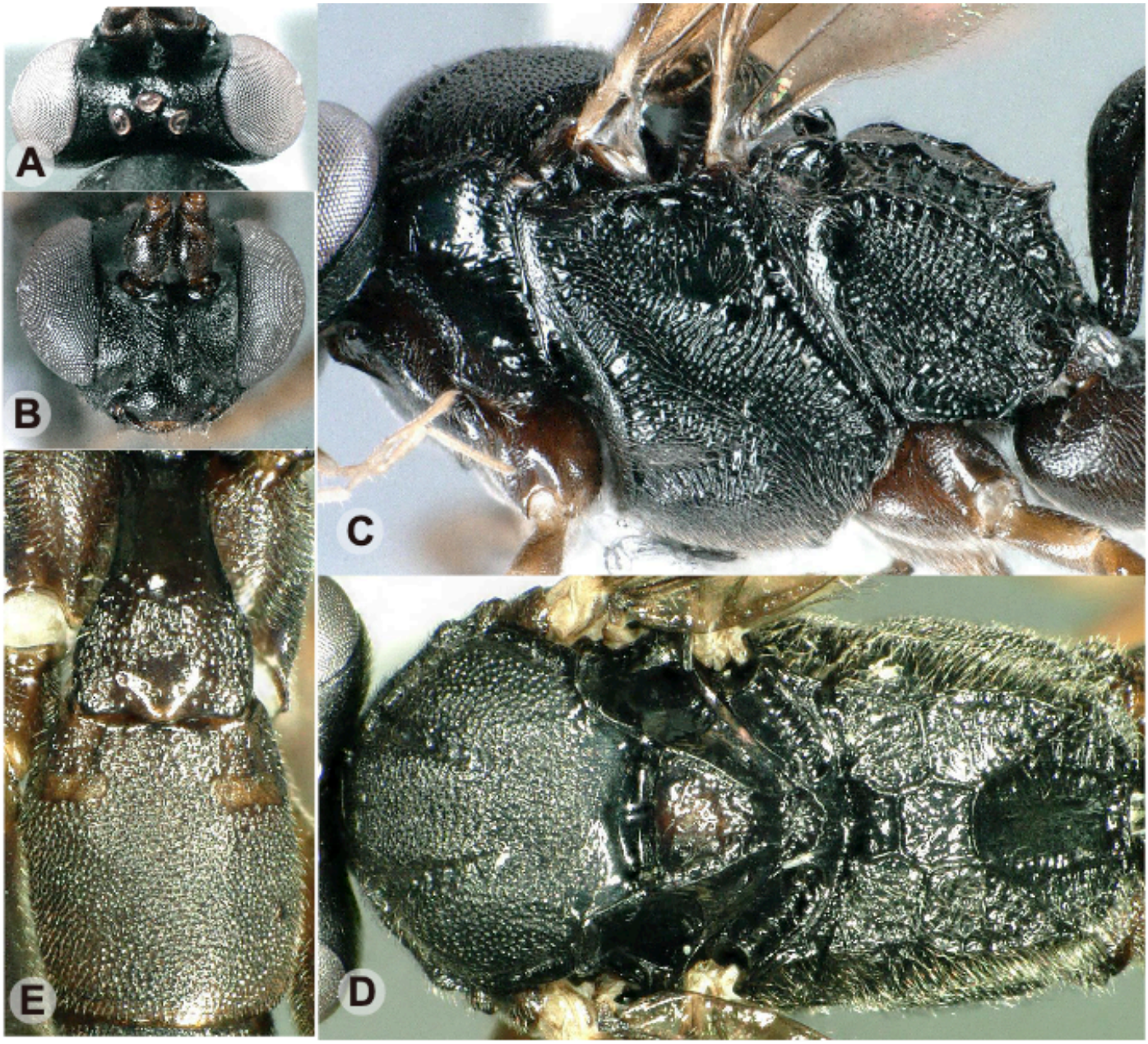


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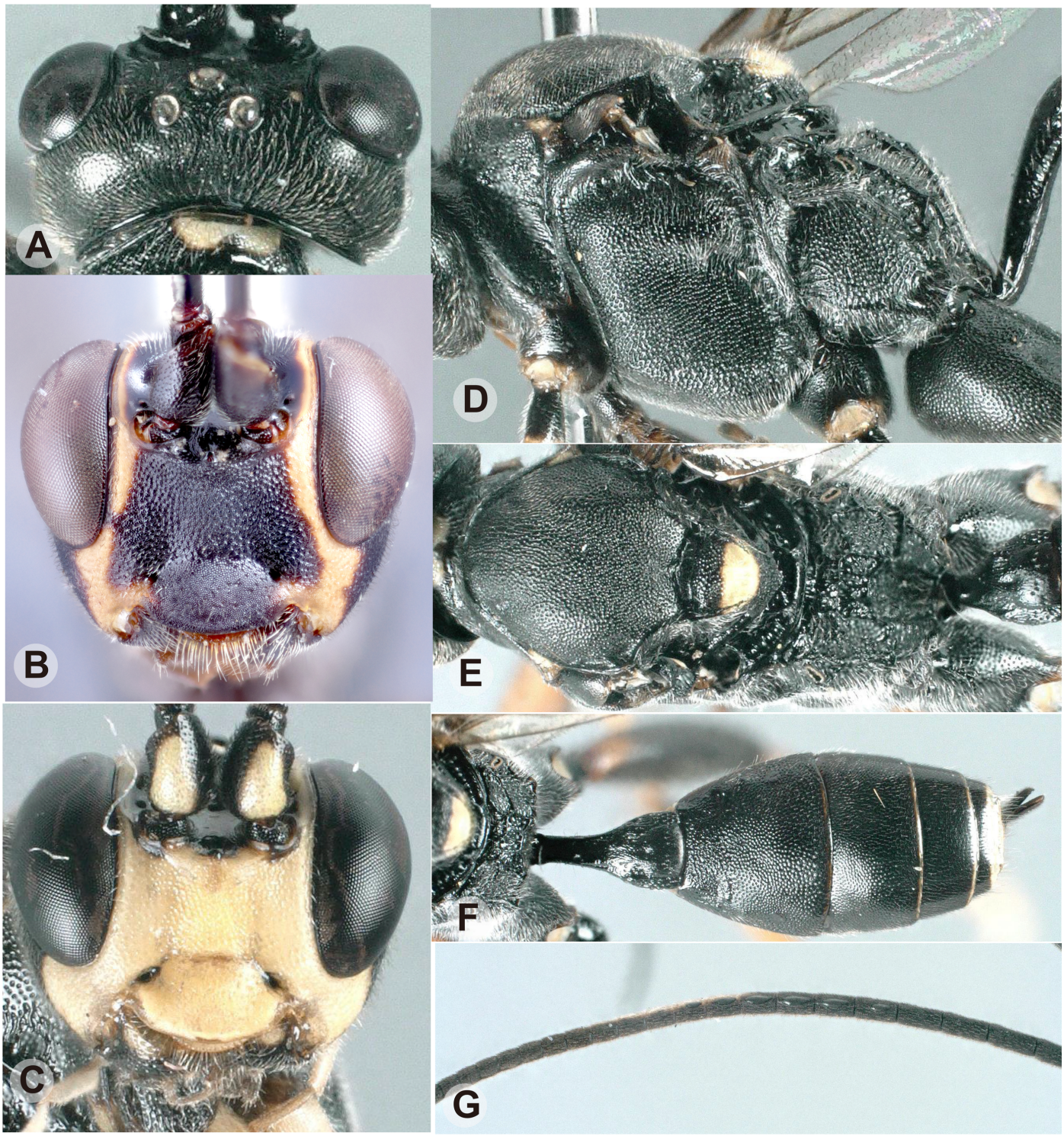


Plate 38



Plate 39

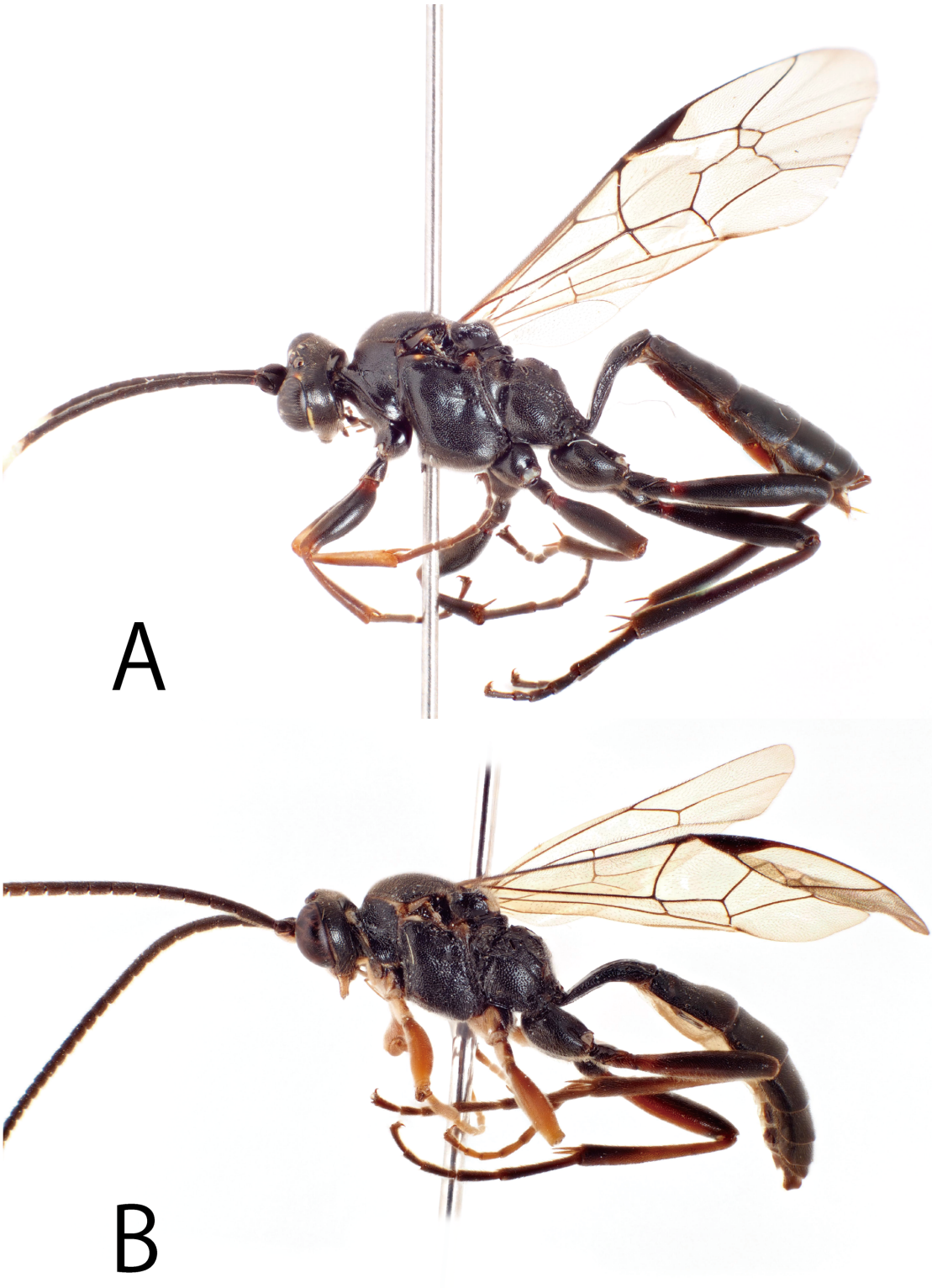


Plate 40



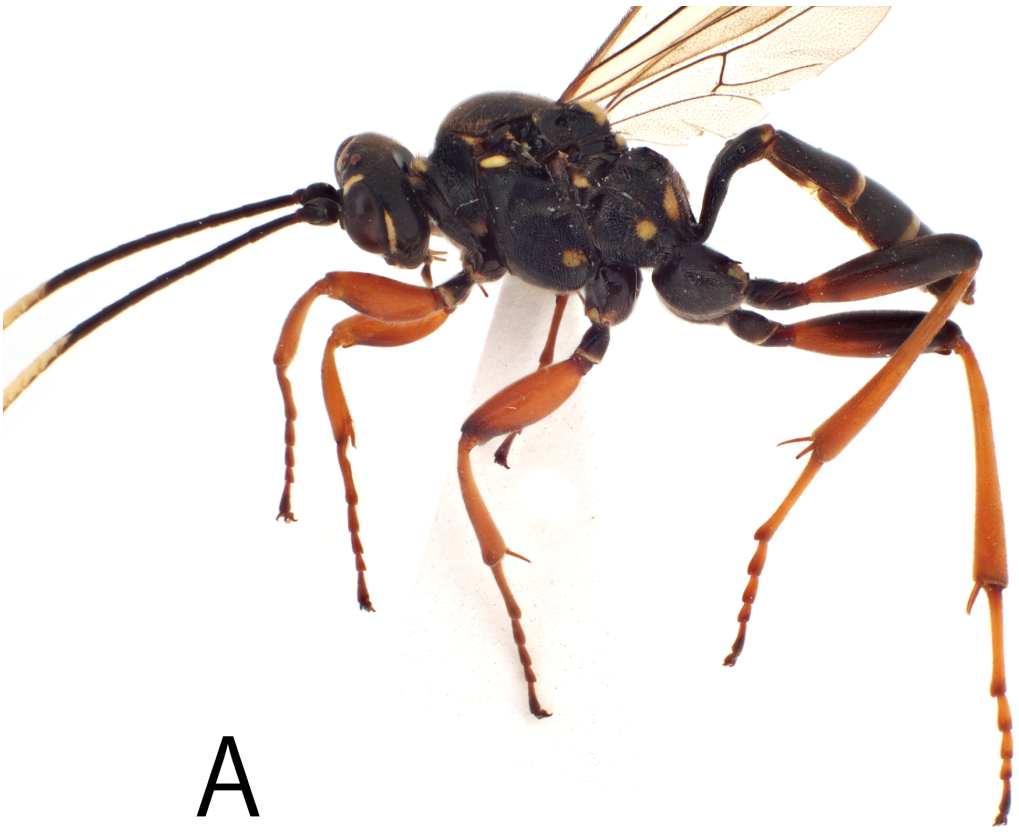


Plate 41





Plate 42



A



B

Plate 43

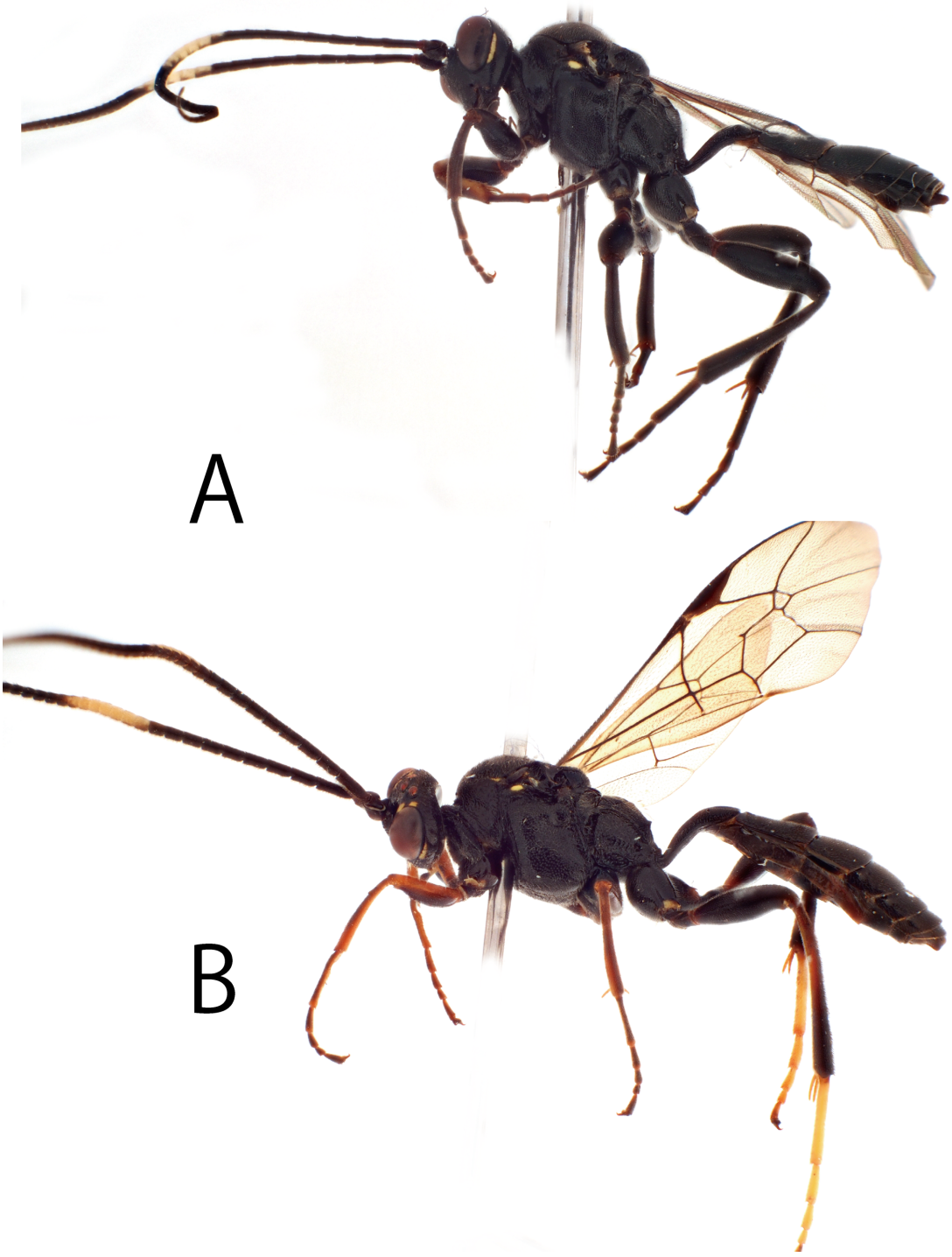


Plate 44



Plate 45

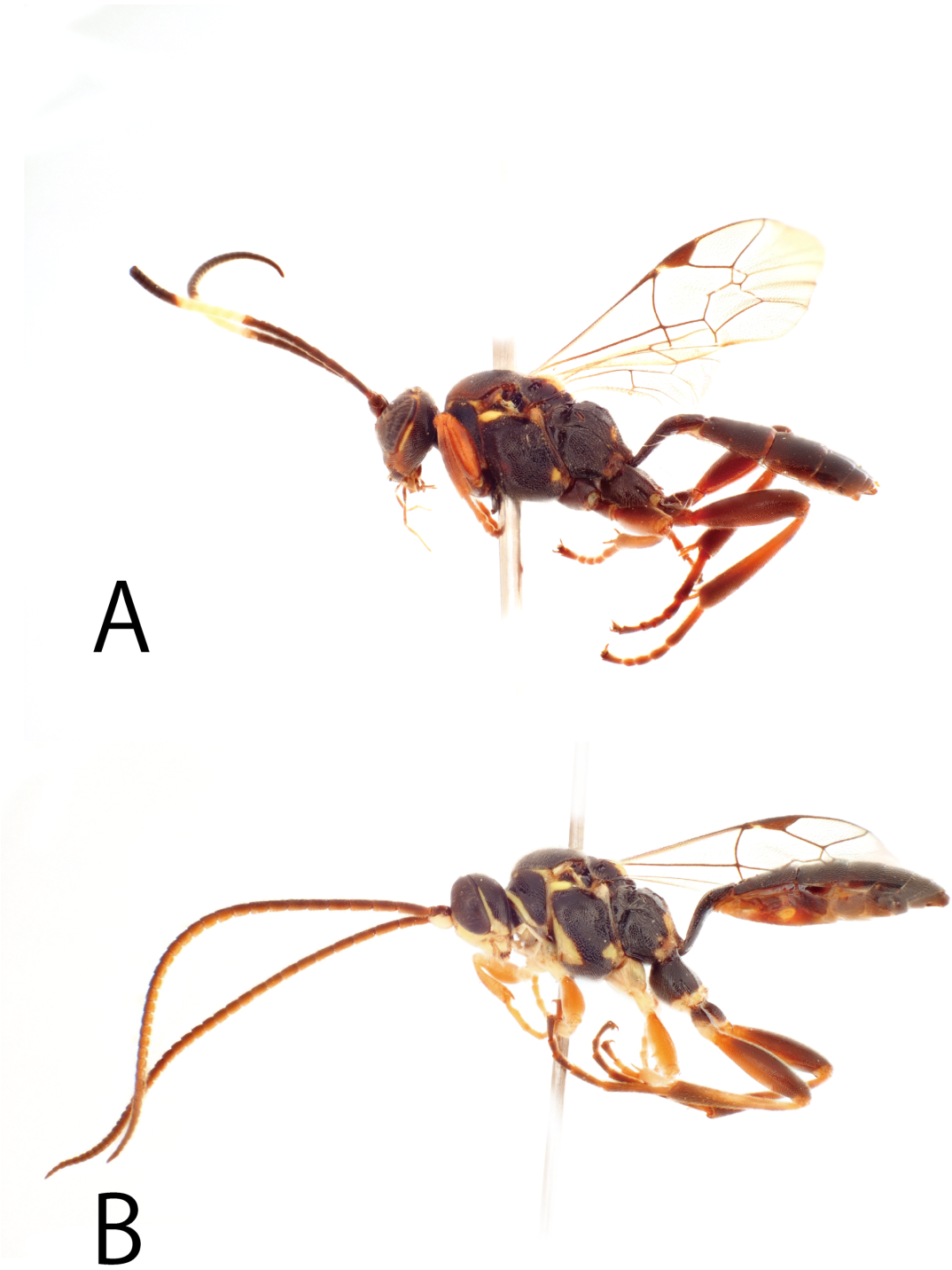


Plate 46

A



B



Plate 47



A



B



C



D



E



F

Plate 48



A



B



C



D

Plate 49

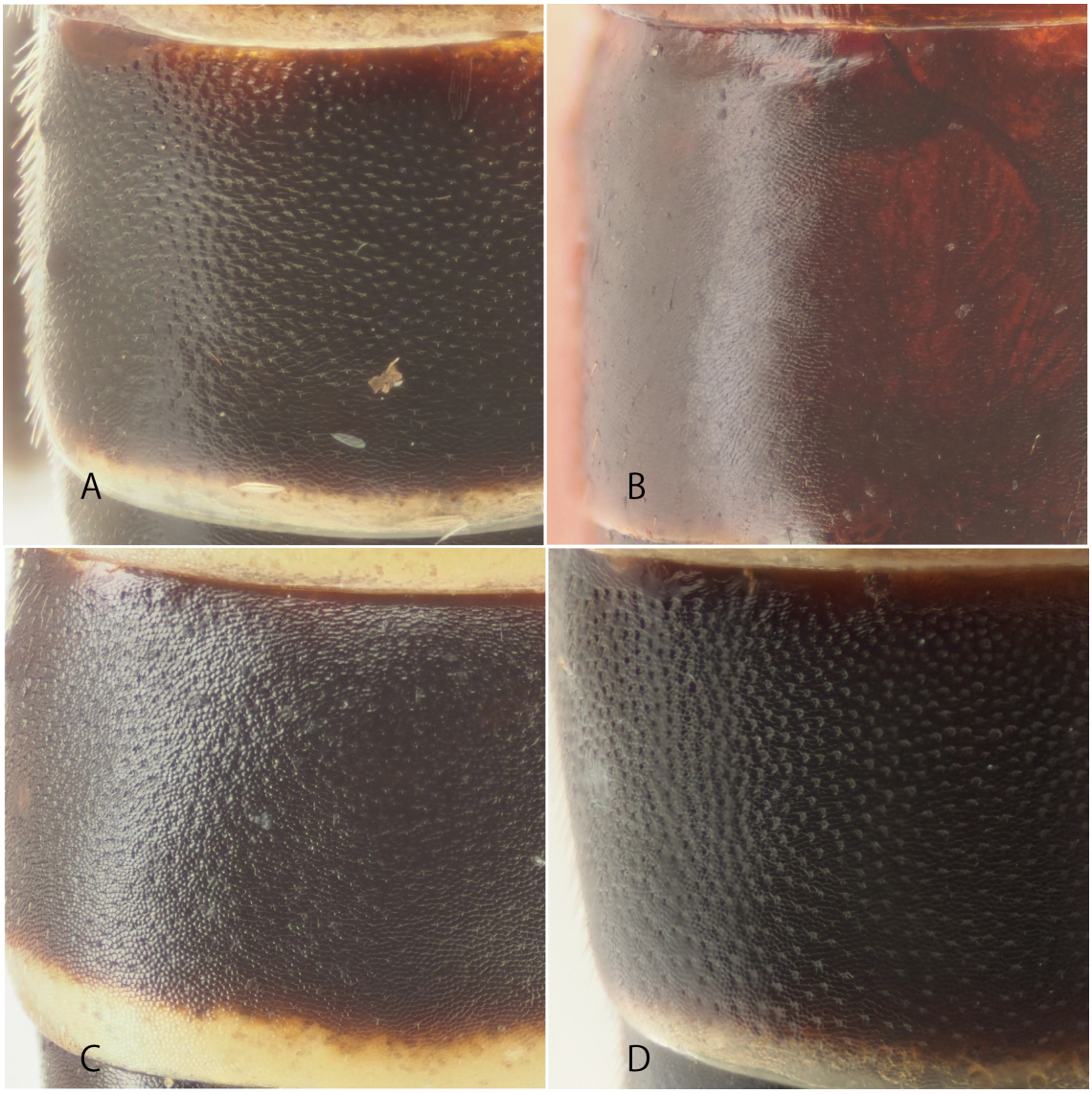


Plate 50

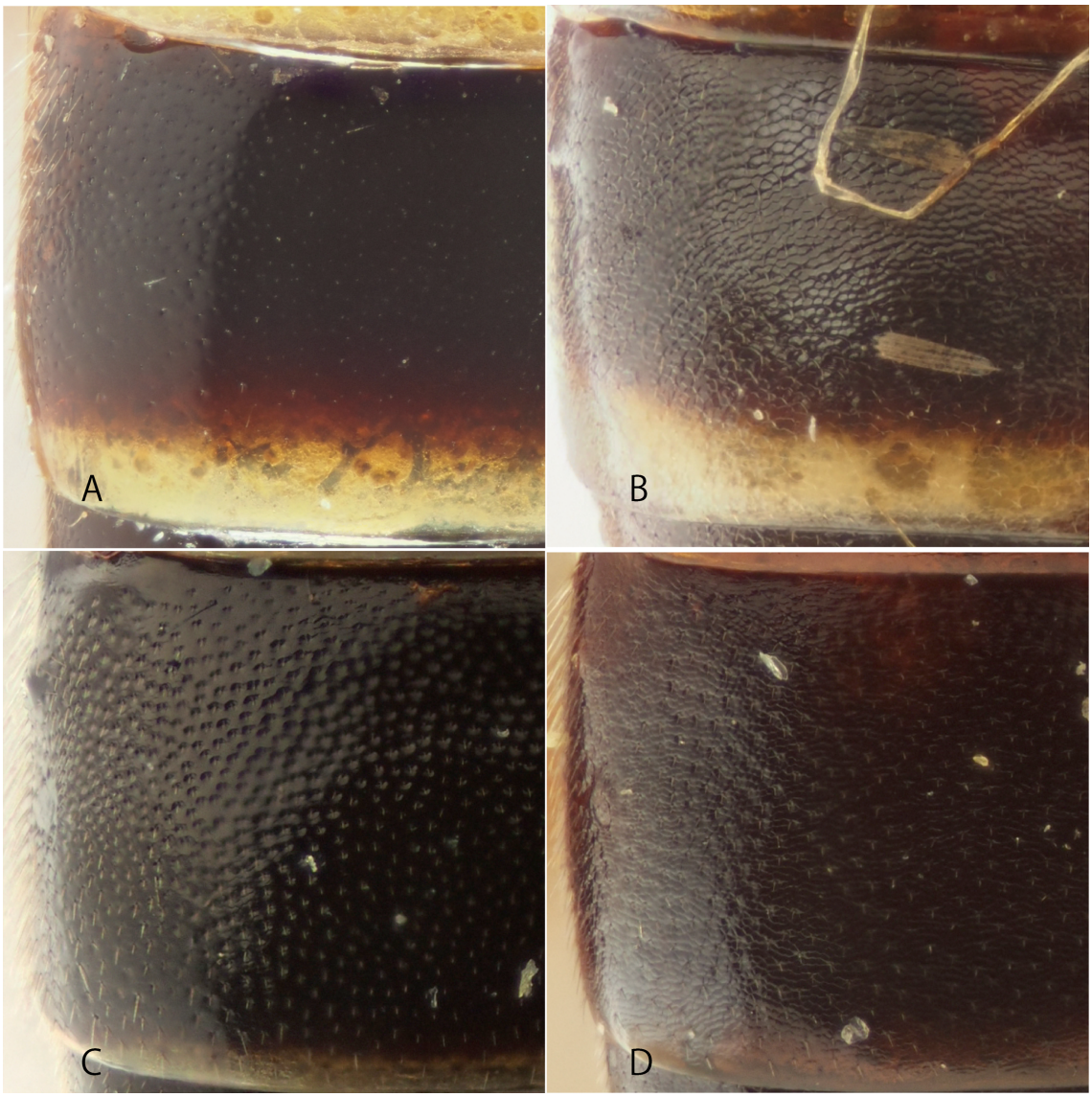


Plate 51

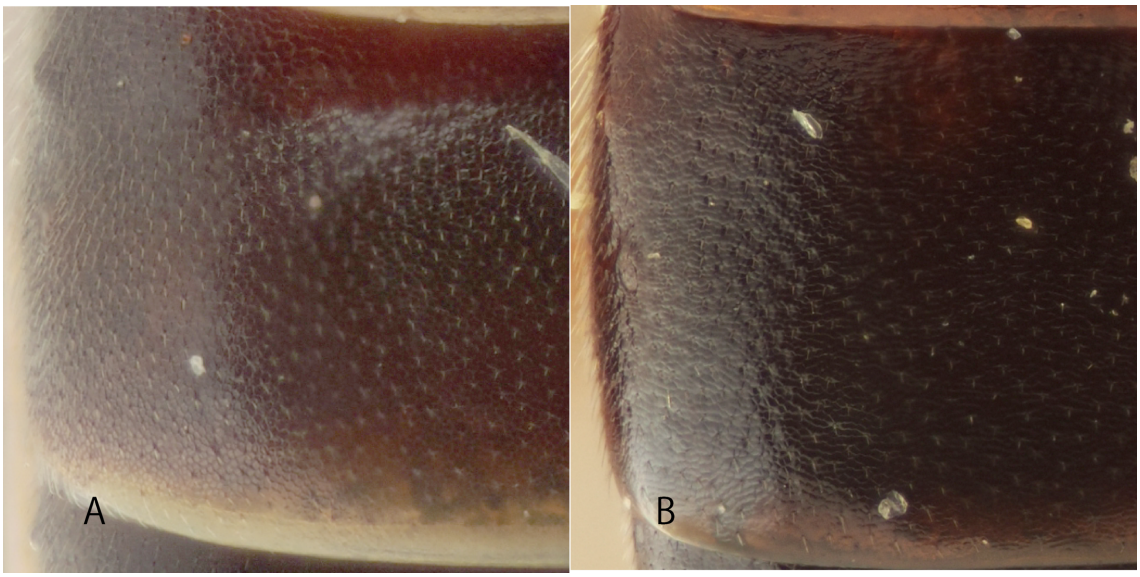


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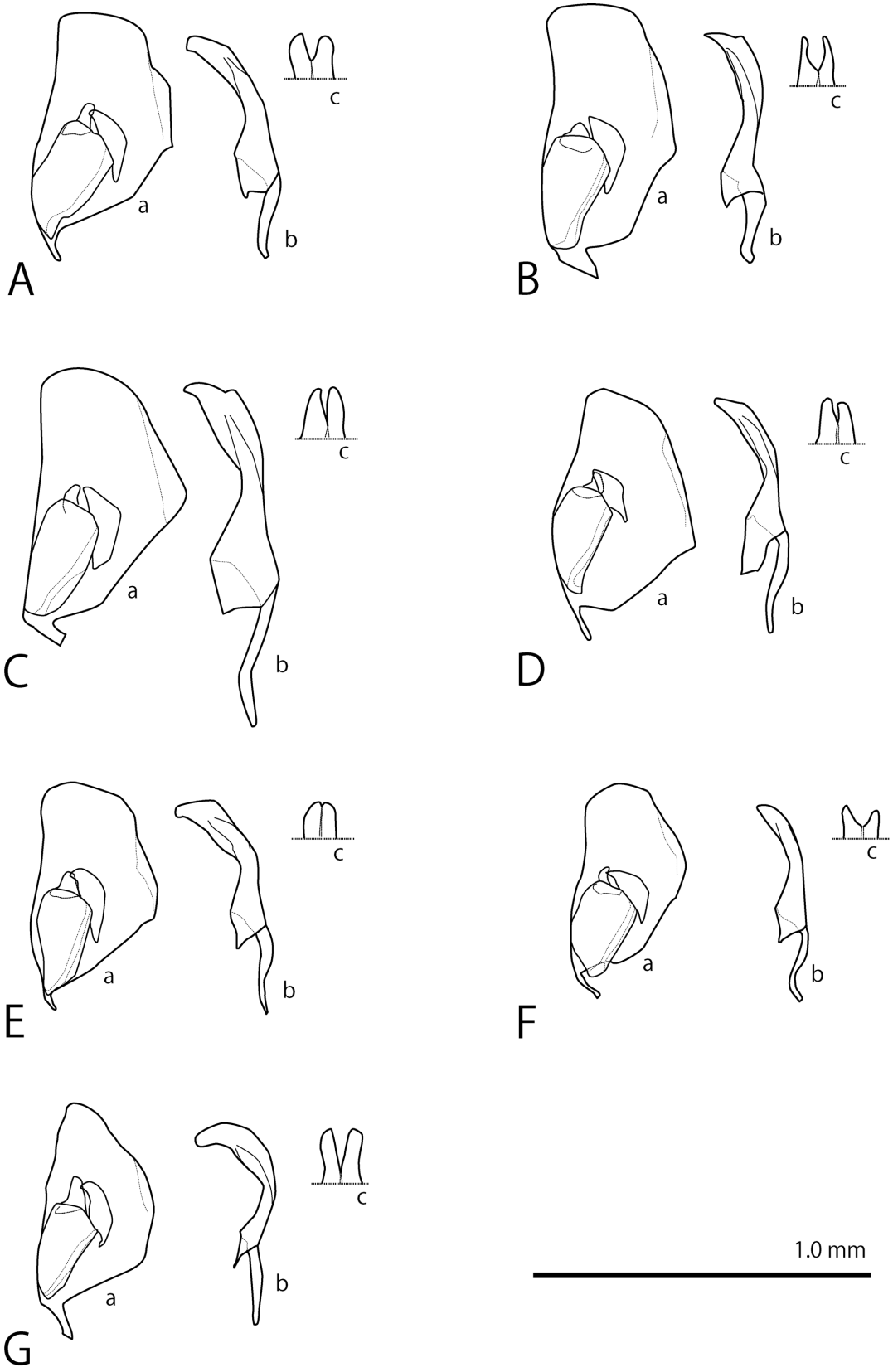


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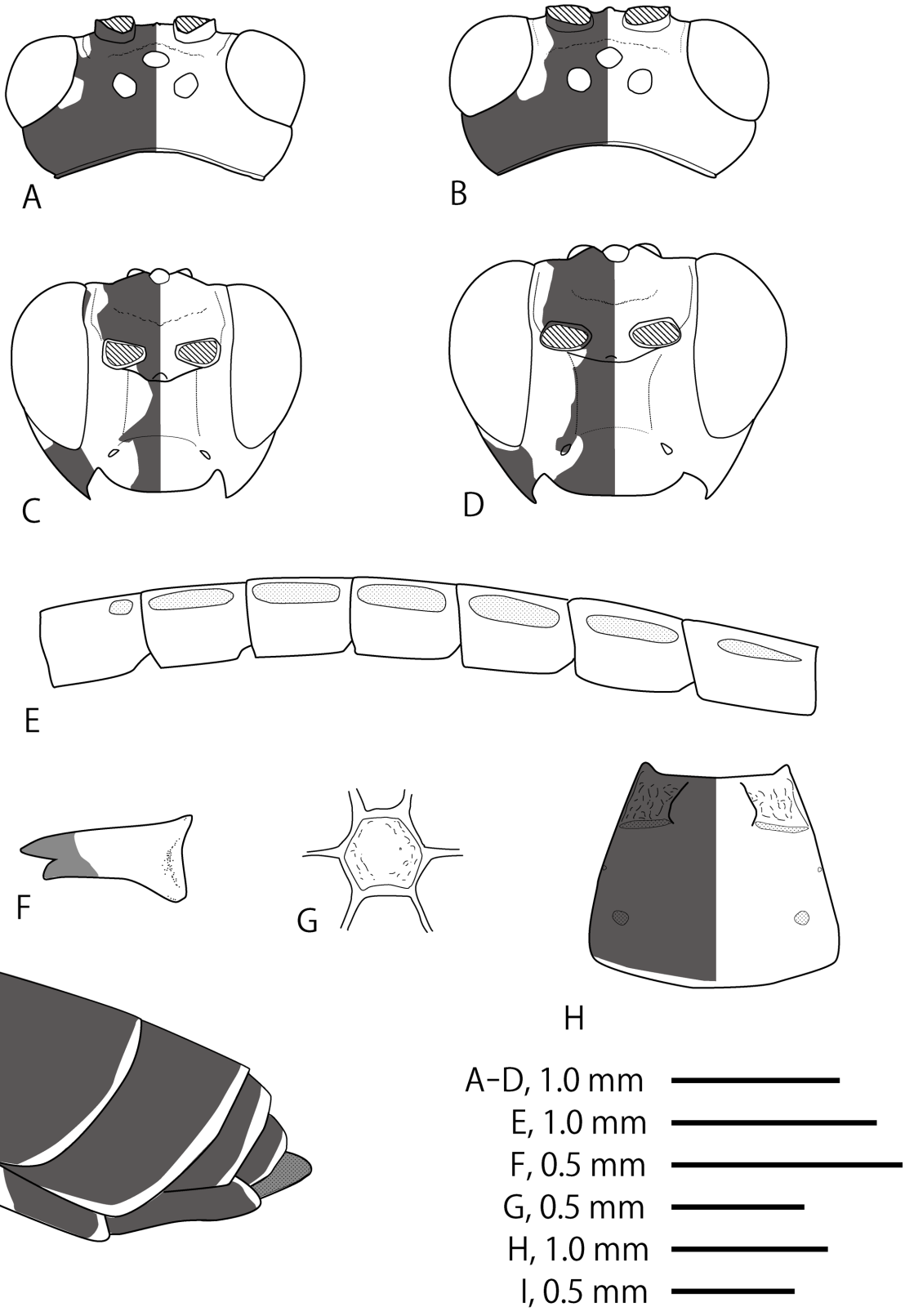


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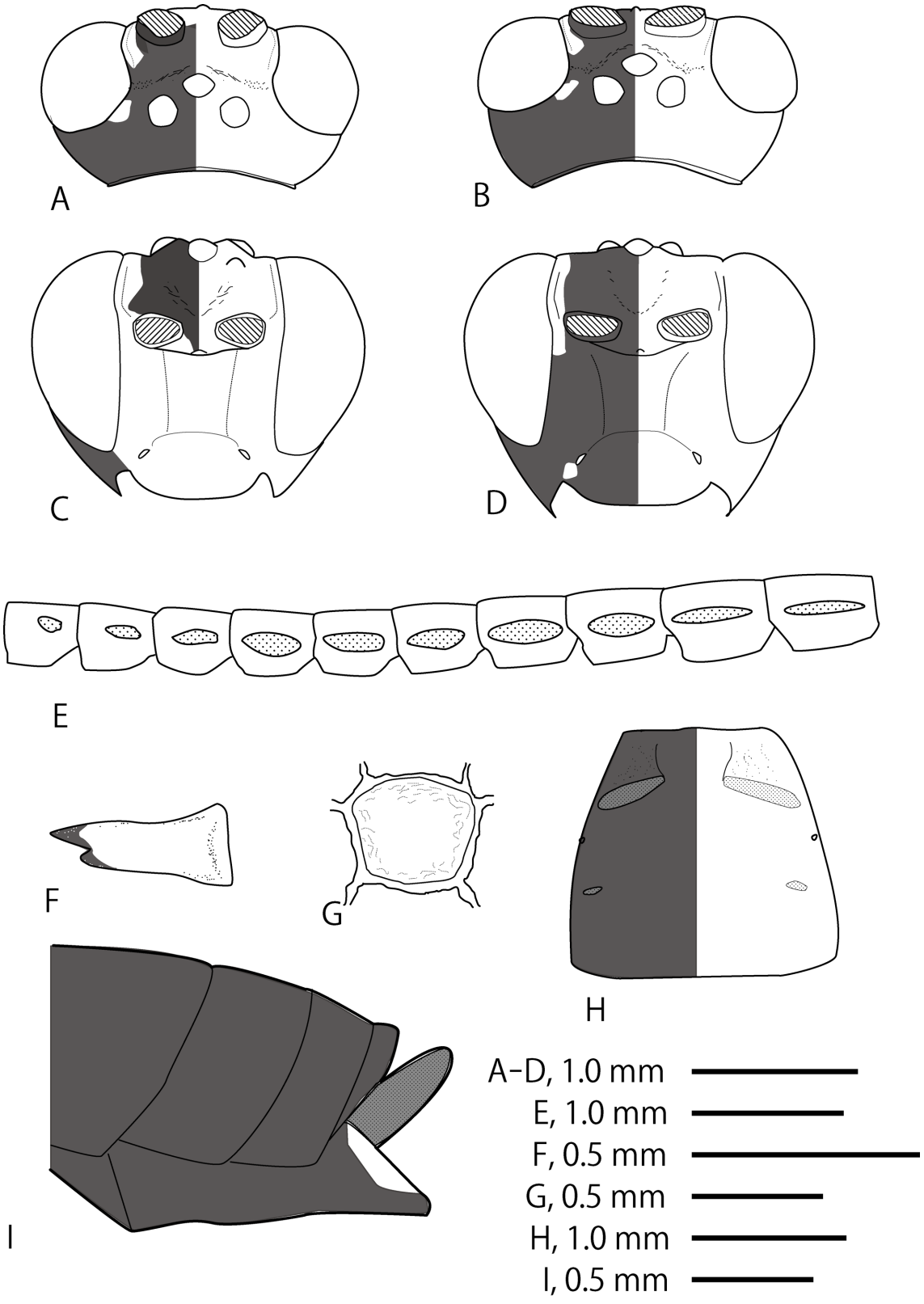


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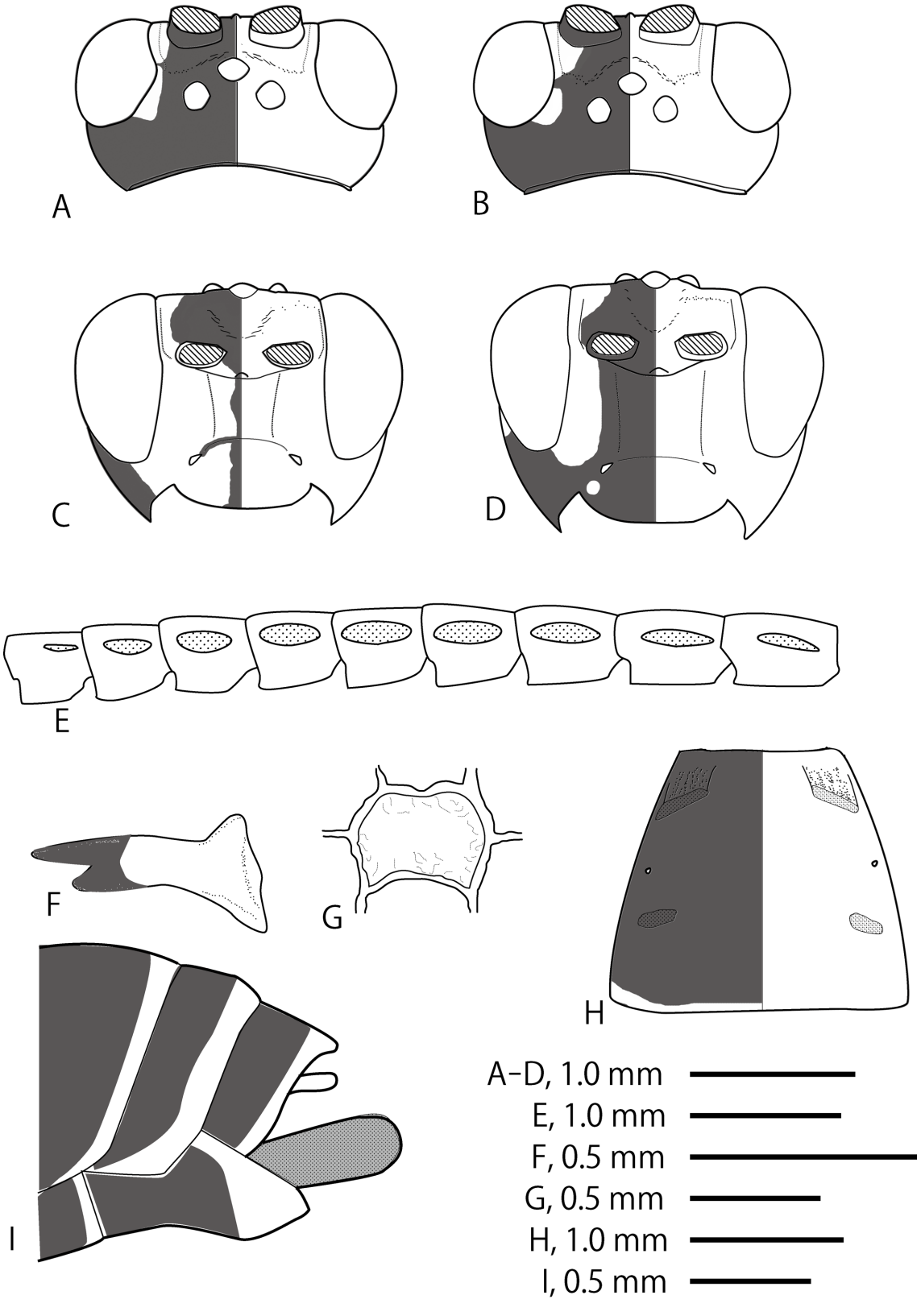


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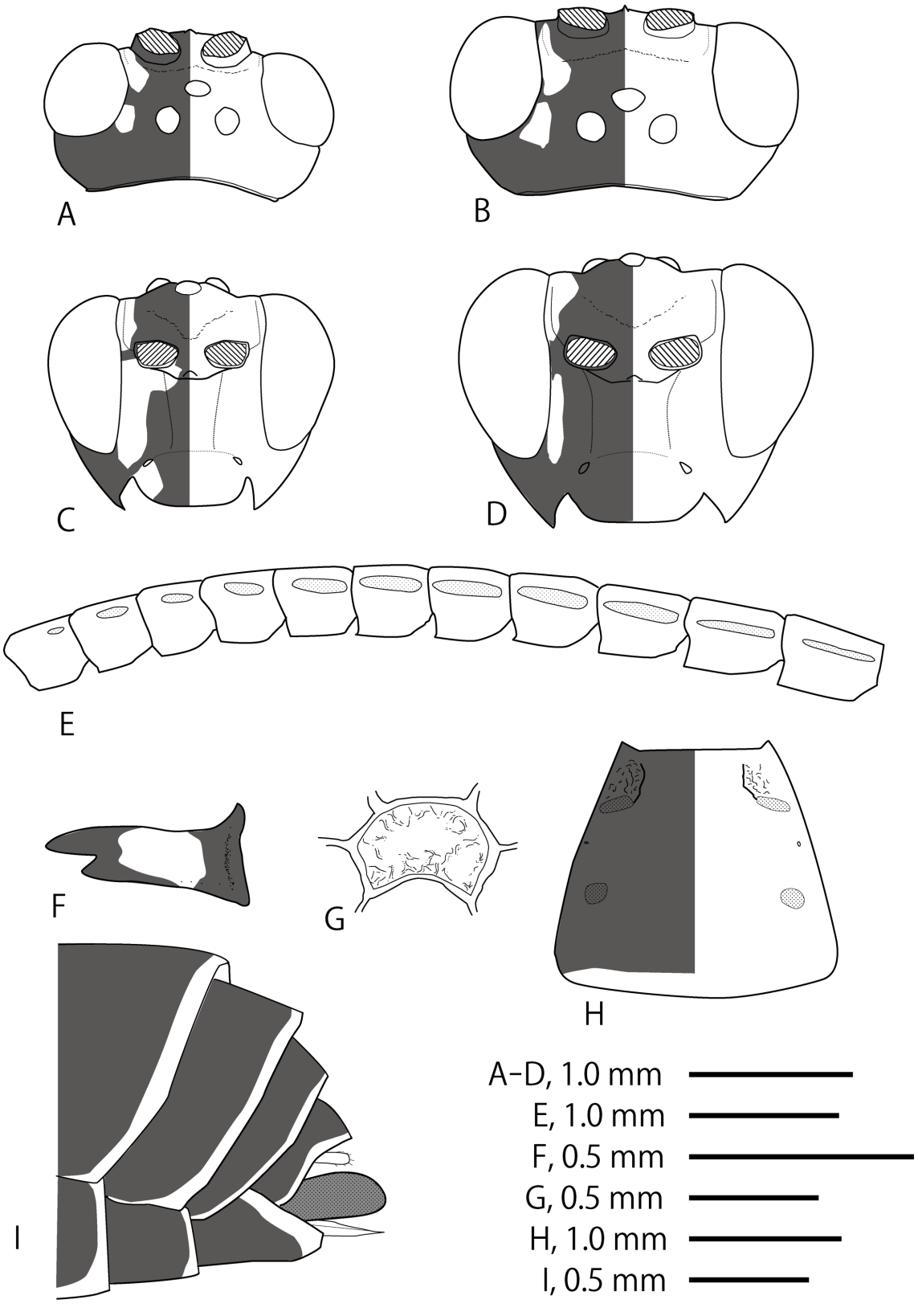


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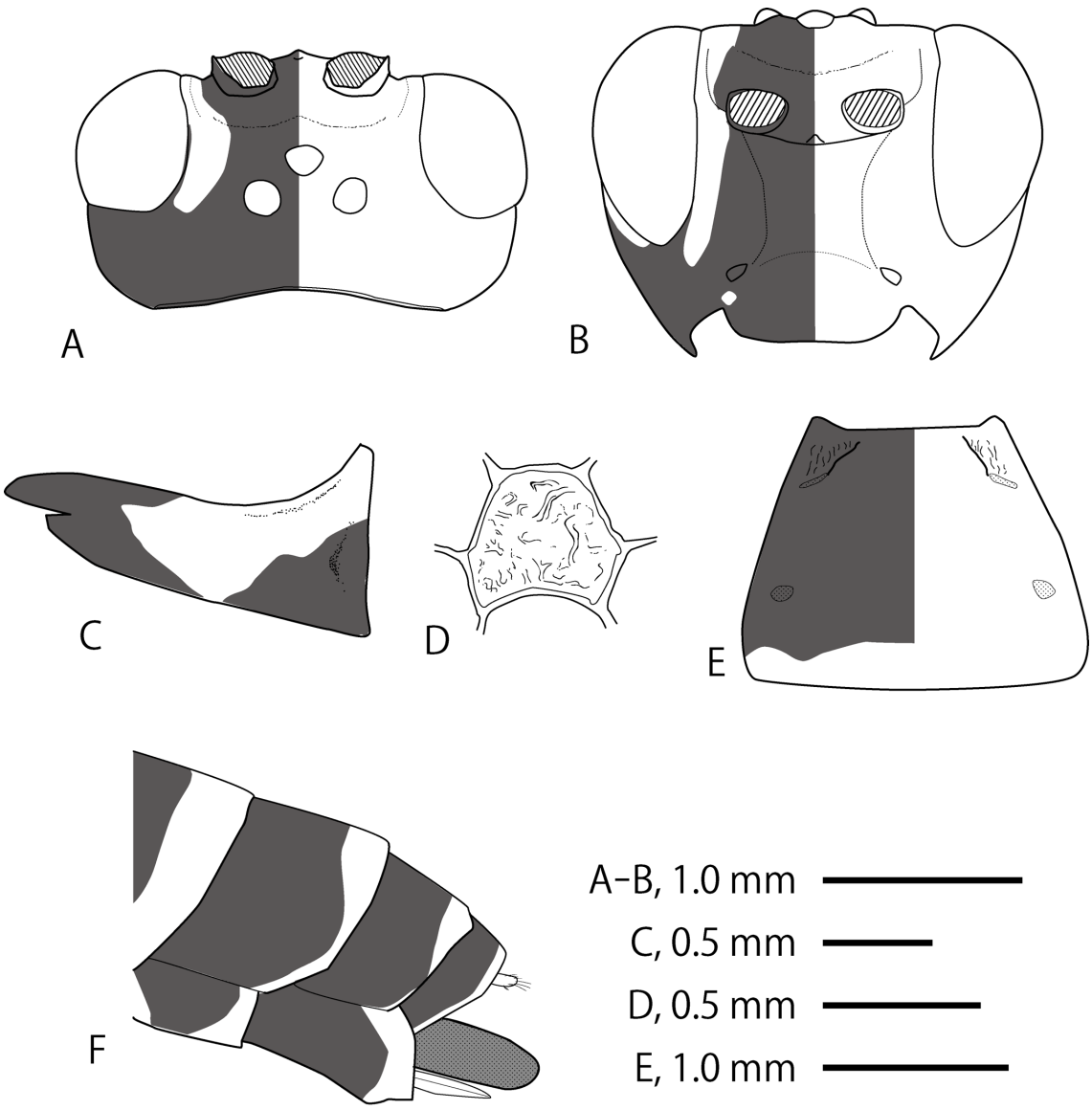
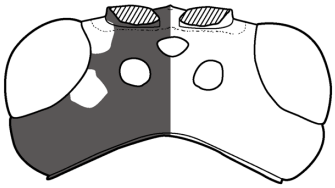
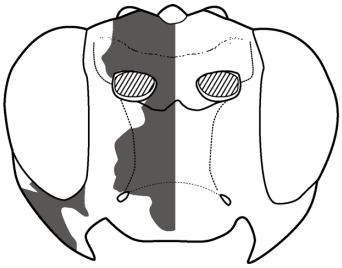


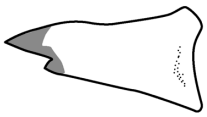
Plate 58



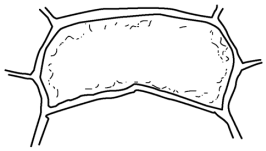
A



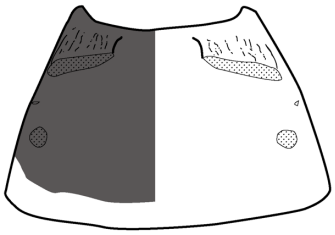
B



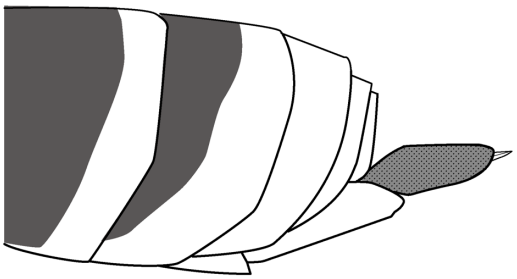
C



D



E



F

A–B, 1.0 mm

C, 0.5 mm

D, 0.5 mm

E, 1.0 mm

F, 0.5 mm

Plate 59

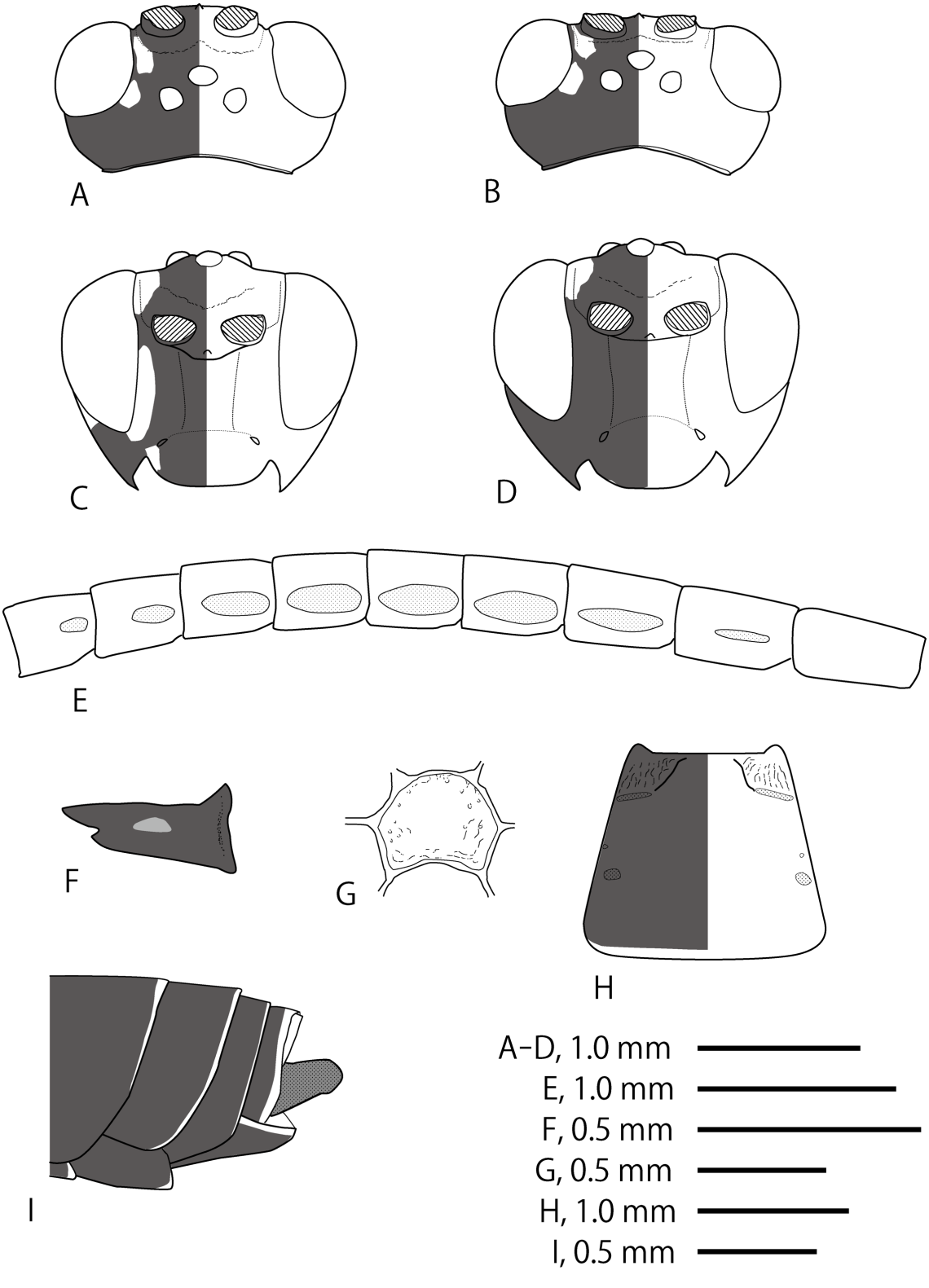


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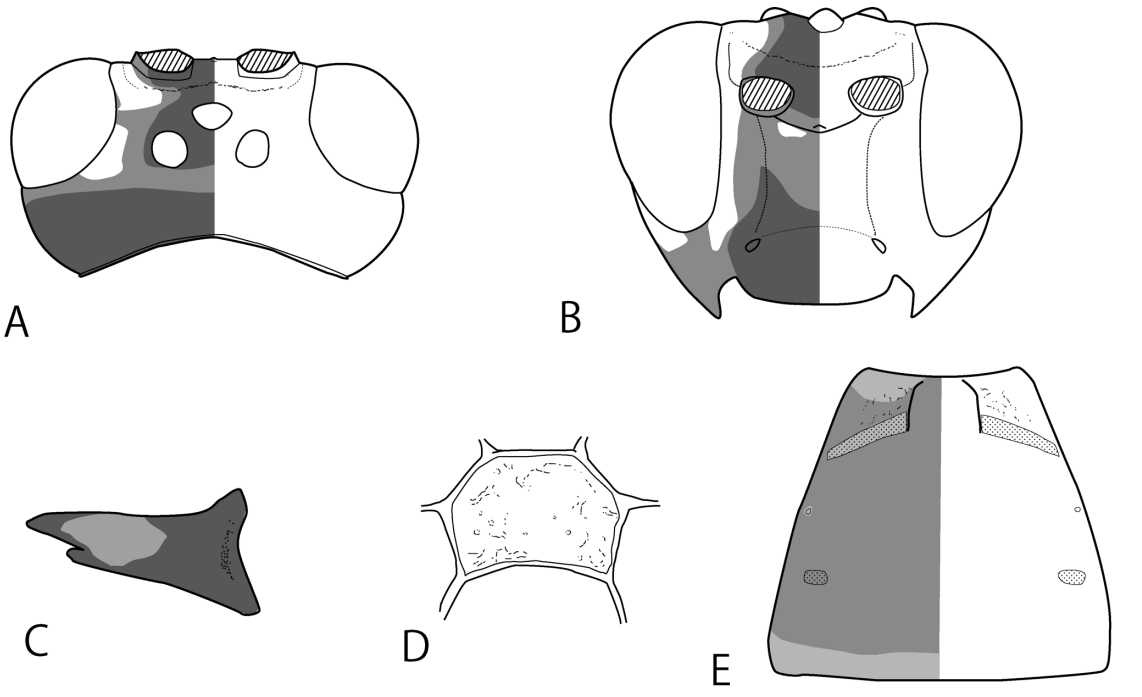
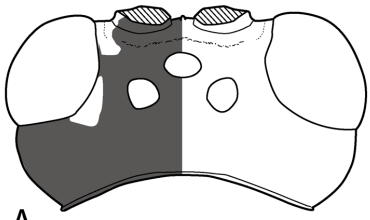
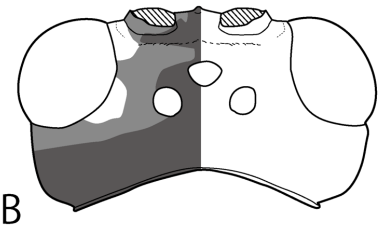


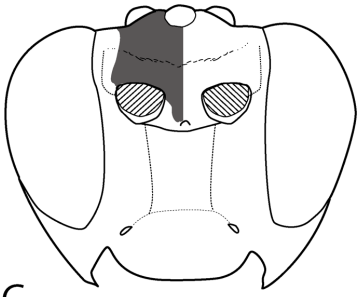
Plate 61



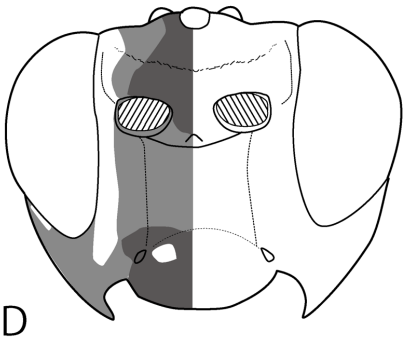
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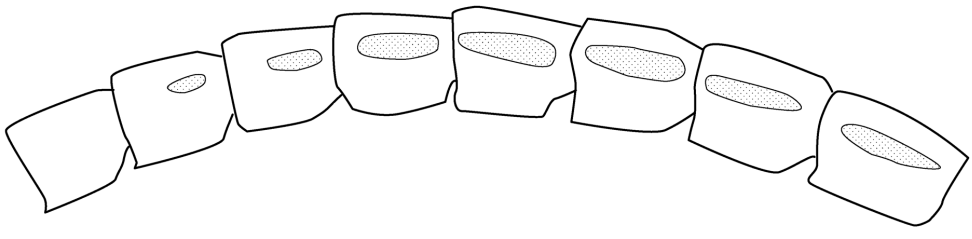
B



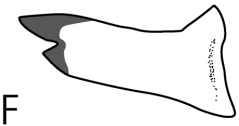
C



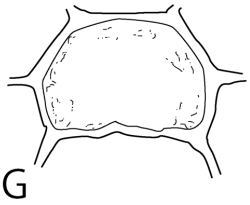
D



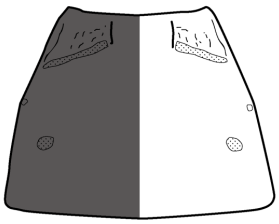
E



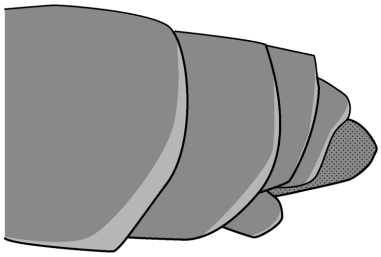
F



G



H



I

A–D, 1.0 mm

E, 1.0 mm

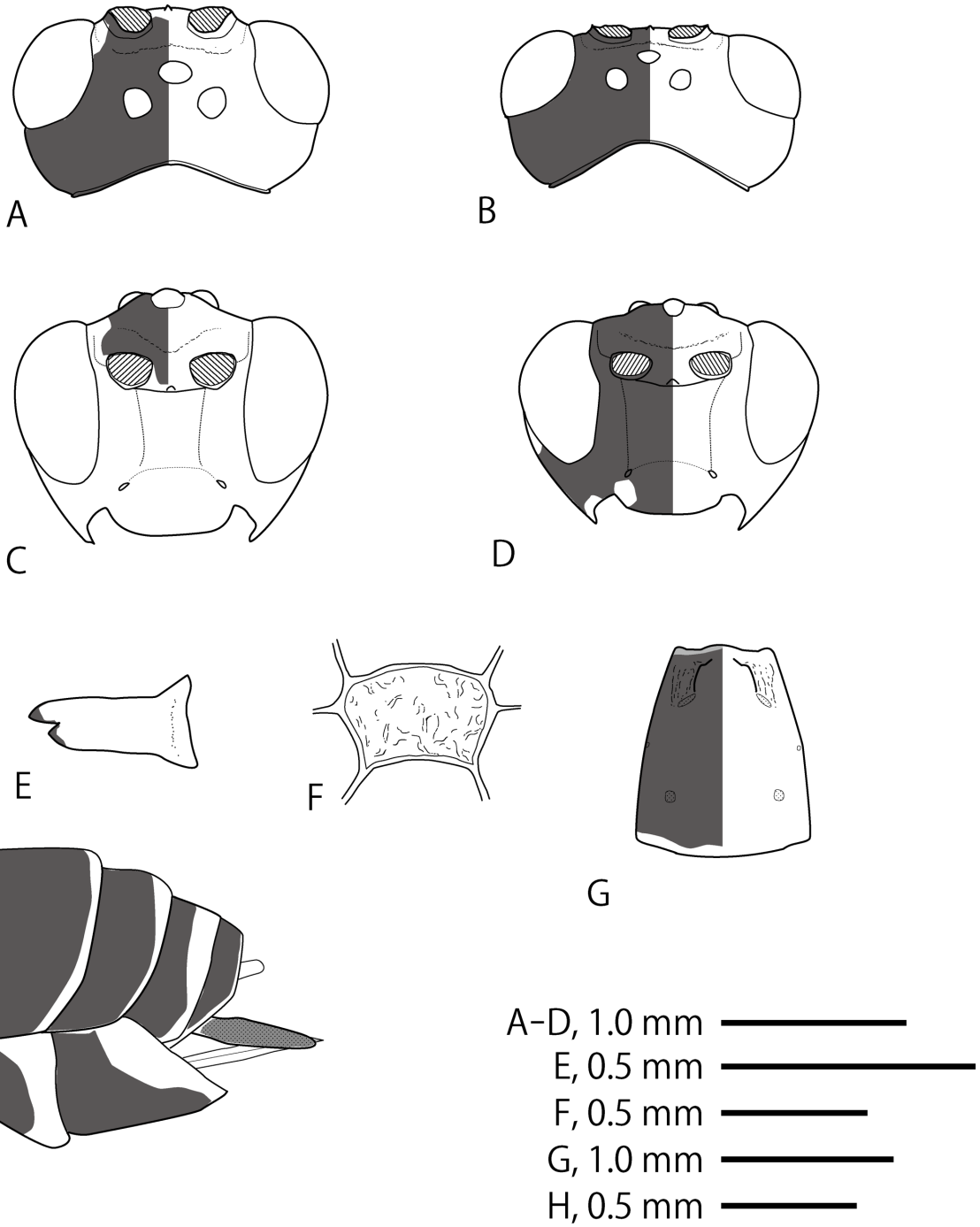
F, 0.5 mm

G, 0.5 mm

H, 1.0 mm

I, 0.5 mm

Plate 62



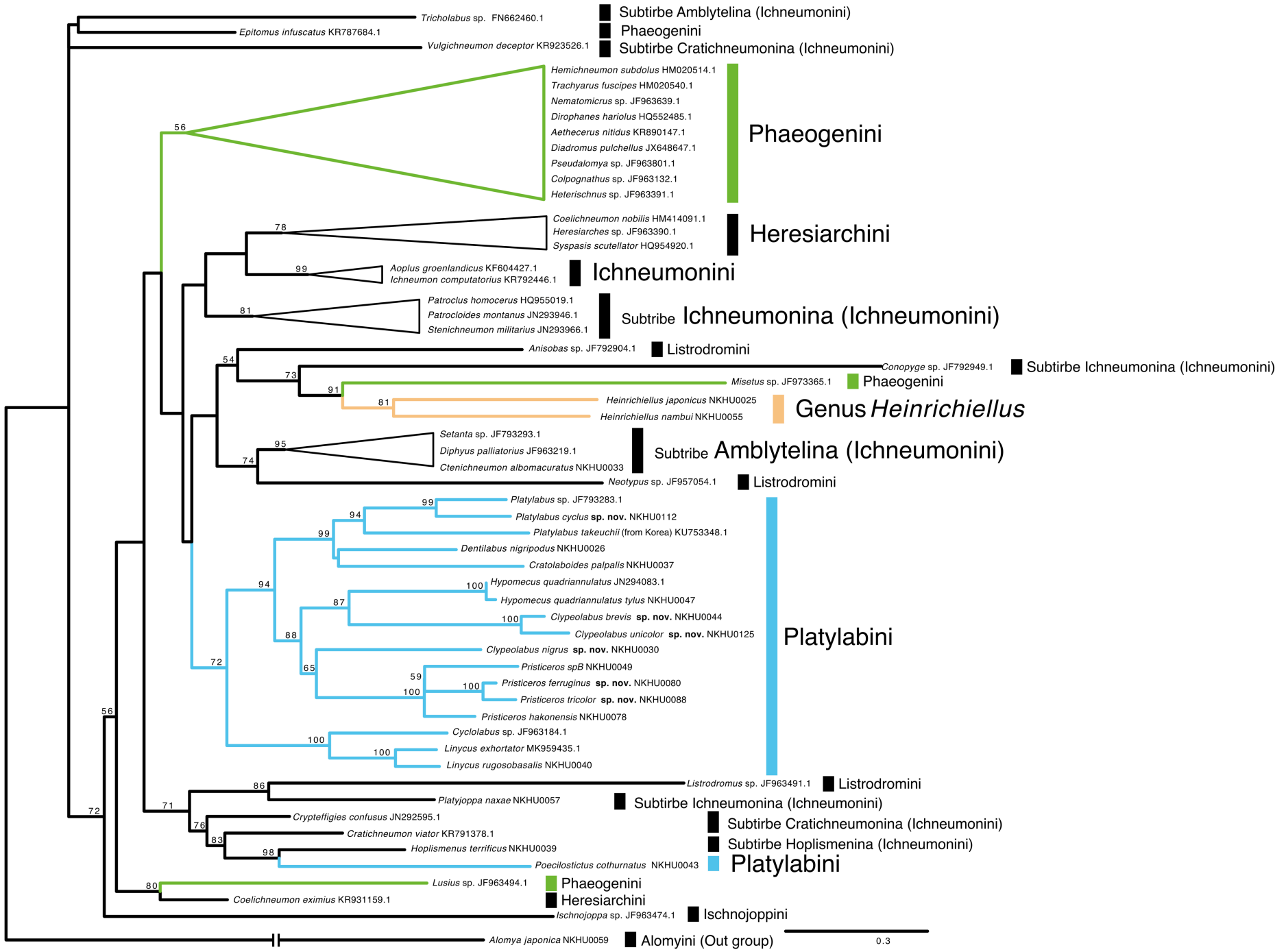

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Vulgichneumon deceptor KR923526.1
Subtirbe Amblytelina (Ichneumonini)
Phaeogenini
Subtirbe Cratichneumonina (Ichneumonini)
Hemichneumon subdolus HM020514.1
Trachyarus fuscipes HM020540.1
Nematomicrus sp. JF963639.1
Dirophanes hariolus HQ552485.1
Aethecerus nitidus KR890147.1
Diadromus pulchellus JX648647.1
Pseudalomya sp. JF963801.1
Colpognathus sp. JF963132.1
Heterischnus sp. JF963391.1
Phaeogenini
Coelichneumon nobilis HM414091.1
Heresiarches sp. JF963390.1
Syspasis scutellator HQ954920.1
Heresiarchini
Aoplus groenlandicus KF604427.1
Ichneumon computatorius KR792446.1
Ichneumonini
Patroclus homocerus HQ955019.1
Patrocloides montanus JN293946.1
Stenichneumon militarius JN293966.1
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Listrodromini
Conopyge sp. JF792949.1
Subtirbe Ichneumonina (Ichneumonini)
Misetus sp. JF973365.1
Phaeogenini
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Genus Heinrichiellus
Setanta sp. JF793293.1
Diphyus palliatorius JF963219.1
Ctenichneumon albomacuratus NKHU0033
Subtribe Amblytelina (Ichneumonini)
Neotypus sp. JF957054.1
Listrodromini
Platylabus sp. JF793283.1
Platylabus cyclus sp. nov. NKHU0112
Platylabus takeuchii (from Korea) KU753348.1
Dentilabus nigripodus NKHU0026
Cratolaboides palpalis NKHU0037
Hypomecus quadriannulatus JN294083.1
Hypomecus quadriannulatus tylus NKHU0047
Clypeolabus brevis sp. nov. NKHU0044
Clypeolabus unicolor sp. nov. NKHU0125
Clypeolabus nigrus sp. nov. NKHU0030
Pristiceros spB NKHU0049
Pristiceros ferruginus sp. nov. NKHU0080
Pristiceros tricolor sp. nov. NKHU0088
Pristiceros hakonensis NKHU0078
Cyclolabus sp. JF963184.1
Linycus exhortator MK959435.1
Linycus rugosobasalis NKHU0040
Platylabini
Listrodromus sp. JF963491.1
Listrodromini
Platyjoppa naxae NKHU0057
Subtirbe Ichneumonina (Ichneumonini)
Crypteffigies confusus JN292595.1
Subtirbe Cratichneumonina (Ichneumonini)
Cratichneumon viator KR791378.1
Subtirbe Hoplismenina (Ichneumonini)
Hoplismenus terrificus NKHU0039
Poecilostictus cothurnatus NKHU0043
Platylabini
Lusius sp. JF963494.1
Phaeogenini
Coelichneumon eximius KR931159.1
Heresiarchini
Ischnojoppa sp. JF963474.1
Ischnojoppini
Alomya japonica NKHU0059
Alomyini (Out group)
0.3

Plate 63

Plate 64

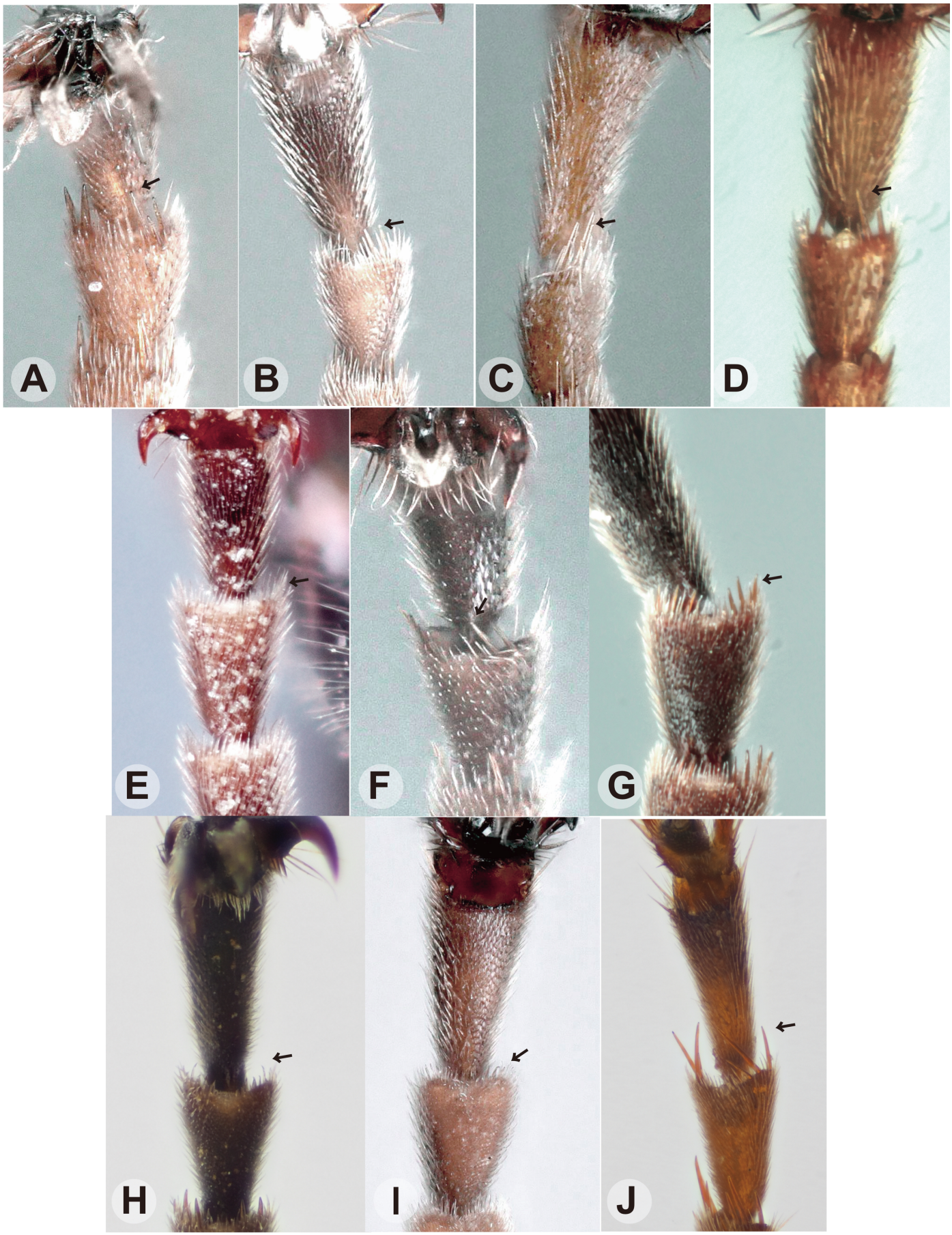


Plate 65

