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Monograph

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Revision of *Xiphentedon* Risbec, 1957 and *Colpixys* Waterston, 1916 (Hymenoptera, Eulophidae), with descriptions of new species from the Afrotropics

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Abstract. The genera *Colpixys* and *Xiphentedon* are revised. Both genera are of Afrotropical distribution and are very similar to *Entedon*, but distinguished by a median strip or furrow on the propodeum replacing the median carina of *Entedon*. The genus *Xiphentedon* is characterized by the complete lateral propodeal sulci delimiting convex submedian areas, prosternum with a flange, axillula with indented projection, and densely hairy central mesopectus. The subgenus *Cederholmia* Gumovsky, 1997 of *Entedon* is considered a junior synonym of *Xiphentedon*, so two of its species are moved to the genus as *X. halli* (Gumovsky, 1997) comb. nov. and *X. danielssoni* (Gumovsky, 1997) comb. nov. The genus *Colpixys* is characterized by the lack of characters of *Xiphentedon*, but also by the broadly sculptured propodeum with the deep median furrow delimited laterally by two sinuous margins. Three (one new) species are recognized in *Colpixys* and sixteen (thirteen new) species allocated to three groups (*kayovei*, *danielssoni* and *forceps*) are assigned to *Xiphentedon*. The new species are: *Colpixys eburnus* sp. nov. from Ivory Coast, *Xiphentedon nesororum* sp. nov. from the Republic of South Africa (RSA), *X. simoni* sp. nov. from Tanzania, *X. dewittei* sp. nov. and *X. musimba* sp. nov. from the Democratic Republic of the Congo (DRC), *X. jeanyvesi* sp. nov. from Tanzania, the Central African Republic (CAR) and Cameroon, *X. wieringai* sp. nov. from Gabon, Ivory Coast, CAR and DRC, *X. kivuensis* sp. nov. from DRC, *X. palabora* sp. nov. from RSA, *X. sangha* sp. nov. from CAR, *X. nimba* sp. nov. from Guinea, *X. forceps* sp. nov. from Ivory Coast, Benin and RSA, *X. gerardi* sp. nov. from Benin, DRC and RSA, and *X. acutigena* sp. nov. from Ivory Coast, DRC, Tanzania and RSA. Morphological peculiarities and possible relationships of *Colpixys*, *Xiphentedon*, *Entedon* and some other genera are discussed.

Keywords. Entedoninae, *Entedon*, *Cederholmia*, parasitoids, Africa.

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Introduction

Entedonine parasitoids (Hymenoptera Linnaeus, 1758, Eulophidae Westwood, 1829) remain poorly known in the Afrotropics, and the available records (van Noort 2022) hardly cover their actual diversity. Moreover, habitat degradation and transformation of natural biodiversity refugia in Africa jeopardize the existence of these and many other groups of animals, which may go extinct unknown and unnamed (i.e., so-called dark extinction; Boehm & Cronk 2021). Therefore, faunistic and taxonomic surveys to reveal the concealed diversity of these poorly known and largely ignored groups of parasitoids are virtually the last chance to shed light on their disappearing world.

Both small endemic African genera *Colpixys* Waterston, 1916 and *Xiphentedon* Risbec, 1957 are highly reminiscent of the nearly cosmopolitan genus *Entedon* Dalman, 1820 in general appearance and key morphological features. However, unlike *Entedon*, these genera have not attracted much attention since their description.

The genus *Colpixys* was established by Waterston (1916) for *C. necator* Waterston, 1916 from Zimbabwe. Bouček (1972) described another species of this genus, provided characters for the separation of the congeners, and mentioned that “the broad and deep median furrow on the propodeum... separates the genus [*Colpixys*] from *Entedon*”.

Risbec (1957) described the genus *Xiphentedon* for the single species *X. kayovei* Risbec, 1957 from Rwanda. The diagnostic characters of this genus were quite obscure and mainly focused on the propodeum bearing two submedian carinae and “two lateral plicae”, and the robust and elongate “ovipositor” (not inherent to any other genus of Entedoninae Foerster, 1856). The genus has not been surveyed since its description.

Gumovsky (1997) described *Cederholmia* as a subgenus of *Entedon*, being characterized by a median strip on the propodeum replacing the median carina in the nominal subgenus, for two species from Africa: *Entedon (Cederholmia) halli* (Gumovsky, 1997) and *E. (C.) danielssoni* (Gumovsky, 1997), both species comb. nov. in *Xiphentedon*.

The entedonines which resemble either *Colpixys* or *Xiphentedon* are rarely collected. The author has located and collected such entedonine specimens during 20 years of museum inventories and field studies on Afrotropical Entedoninae. The accumulated material necessitated a revision of both genera. This work precedes further rigorous morphological and molecular genetic assessments of *Entedon* and related taxa.

Material and methods

Morphological terminology follows Bouček (1988), Schauff (1988, 1991), Gibson *et al.* (1997), Krogmann & Vilhelmsen (2006) and Burks *et al.* (2011).

Abbreviations for organs and measurements

CC	=	costal cell of fore wing
F1–F4	=	funicular segments
Gt1–7	=	I–VII gastral tergites
MDO	=	major diameter of ocellus
MV	=	marginal vein of fore wing
OCL	=	oculo-occipital distance
OMA	=	oval membranous areas adjacent to the petiolar foramen on first gastral tergite
OOL	=	oculo-ocellar distance
PMV	=	postmarginal vein of fore wing
POL	=	post-ocellar distance
PR	=	parastigma

SC	=	subcosta
SMV	=	submarginal vein of fore wing
STV	=	stigmatal vein of fore wing
WIP	=	wing interference pattern as defined by Shevtsova <i>et al.</i> (2011)

Morphological terminology

The term ‘dorsal interorbital distance’ is used to define the shortest distance between the eye orbits in a dorsal view of the head. Usually, this distance is shortest when measured slightly above the outer margins of the ocelli. The term ‘median vertexal distance’ is used to define the distance between the level of the scrobal depression and the occipital margin of the head in dorsal view, i.e., being the narrowest length of the head. The basalmost flagellomeres lacking the multiporous plate sensilla are considered here as anelli (sensu Schauff 1991, see below). The term “metascutellum” is preferred over “dorsellum” (Krogmann & Vilhelmsen 2006); the length of the metascutellum is measured along the length axis of the body. The term ‘metasoma’ is used for the petiole (the II abdominal segment) and gaster (III–X abdominal segments) together and measured as a solid unit when compared to the mesosoma and head. Otherwise, the petiole and the gaster are measured separately. Also, the terminal gastral tergum, resultant from the fusion of terga IX and X, is called the syntergum (Gibson *et al.* 1997; “epipygium” by Bouček 1988). The term “clava” is preferred to “club” for the terminal unit of flagellomeres (also following Bouček 1972, 1988). The submarginal vein is considered as being subdivided into the subcosta (SC) and parastigma (PR), as proposed by Erdős (1944).

Some terms apply to subjective estimations due to difficulties with their numerical formalization (e.g., the degree of curvature of gena). However, these may be assessed based on the provided figures. The ocelli were considered large if MDO is larger than OOL and OCL, and small if otherwise. The term ‘neck’ is used for the narrowing of a morphological structure.

The characters considered diagnostic for the following taxa and/or shedding light on their relationships are discussed below for different body parts, namely for the propodeum, thorax and head.

Imaging

The scanning electron microscopy (SEM) imaging was carried out using ISI ABT-55 low-vacuum and LEO 1455VP (the Mineralogy Department of NHMUK), and JEOL JSM-6480LV (RMCA) microscopes, which allowed examination of uncoated specimens at 10–20 kV and up to 4000× magnification.

Light stereomicroscopy images were acquired at the following institutions, using the listed equipment and software:

- NHMUK: JVC 3-CCD colour videocamera KY-F55B with Auto-Montage software (version 3.02.005)
- SAMC: Leica LAS 4.9 imaging system, comprising a Leica® Z16 microscope (with either a 2× or 5× objective) with a Leica DFC450 camera and 0.63× video objective, using an automated Z-stepper and the Leica Application Suite ver. 4.9 software installed on a desktop computer. Diffused lighting was achieved using a Leica LED5000 HDI dome
- SIZK: Leica Z16 APO microscope equipped with Leica DFC 450 camera, and image processing with LAS Core software, with the same lighting

The original figures of *Entedon* (*Cederholmia*) *danielssoni* and *E. (C.) halli* are provided in this report at their original resolutions, which had been reduced in the original descriptions (Gumovsky 1997).

Label citations that cannot be reliably interpreted and formatted are presented in double quotation marks.

Institutional abbreviations

CBGP	=	Center for Biology and Management of Populations, Montpellier, France
CIRAD	=	French Agricultural Research Centre for International Development, Montpellier, France
MNHN	=	National Museum of Natural History, Paris, France
MRAC	=	Royal Museum for Central Africa, Tervuren, Belgium
MZLU	=	Biological Museum (Entomology) of Lund University, Lund, Sweden
NHMUK	=	Natural History Museum, London, UK
RMNH	=	Naturalis Biodiversity Center, Leiden, Netherlands
SAMC	=	Iziko South African Museum, Cape Town, South Africa
SANC	=	National Collection of Insects of South Africa, Pretoria, South Africa
SIZK	=	I.I. Schmalhausen Institute of Zoology, Kyiv, Ukraine
USNM	=	United States Natural History Museum, Washington, DC, USA
ZISP	=	Zoological Institute of the Russian Academy of Sciences, St. Petersburg, Russian Federation

Other abbreviations

CAR is used for the Central African Republic, DRC is used for the Democratic Republic of the Congo, and RSA is used for the Republic of South Africa.

YPT is used for Yellow Pan (Moerike) trap.

Results

Taxonomy

Class Insecta Linnaeus, 1758
Order Hymenoptera Linnaeus, 1758
Superfamily Chalcidoidea Latreille, 1817
Family Eulophidae Westwood, 1829
Subfamily Entedoninae Foerster, 1856
Tribe Entedonini Foerster, 1856

Colpixys, *Xiphentedon* and morphologically similar genera

The genera *Colpixys* and *Xiphentedon* are similar and likely related to *Entedon*, but differ mainly in the morphology of the mesosoma, in particular in the median area of the propodeum. In both genera the median carina, which is the key diagnostic character for *Entedon*, is replaced by a median strip or furrow varying in shape and sculpture. Also, there are other features of head and mesosoma which either suggest relationships between or being critical for differentiation of the mentioned above genera. A review of some key characters is provided below, ranging from the propodeum to the head.

Propodeum (Fig. 1)

The main characters distinguishing *Entedon*, *Xiphentedon* and *Colpixys* from each other concern the structure of the propodeum. The possession of the complete median propodeal carina (Fig. 1A–C, mc) has been considered as diagnostic for *Entedon* (Erdős 1944; Graham 1963, 1971; Bouček 1988).

The median carina is a keel-shaped structure stretching from the anterior to the posterior edge of the propodeum (Fig. 1A–C, mc). It may slightly bifurcate anteriorly (Fig. 1C, mc) or disappear posteriorly in a raised coarse reticulation (Fig. 1B) in *Entedon*. In most Afrotropical, Indo-Malay, Australian and some Holarctic species, the carina is surrounded by groove-like channels on the sides (Fig. 1C, lc). This carina is absent in the described species of *Xiphentedon* (Fig. 1D) and *Colpixys* (Fig. 1F) and, correspondingly, in all the new species described below.

The median propodeal area of *Colpixys* and *Xiphentedon* may appear in one of three different configurations: (1) smooth flat strip delimited by nearly straight carinae (Fig. 1D, mstr); (2) shallow coriaceous strip delimited by fine carinae (Figs 18C–D, 19D, G); (3) sunken coriaceous furrow sharply delimited by raised borders (Fig. 1F, mf).

The coriaceous furrow sharply delimited by raised borders is diagnostic for both hitherto described species of *Colpixys* (*C. necator*, Fig. 9A and *C. gigas* Bouček, 1972, Fig. 1F, mf), as well as for the

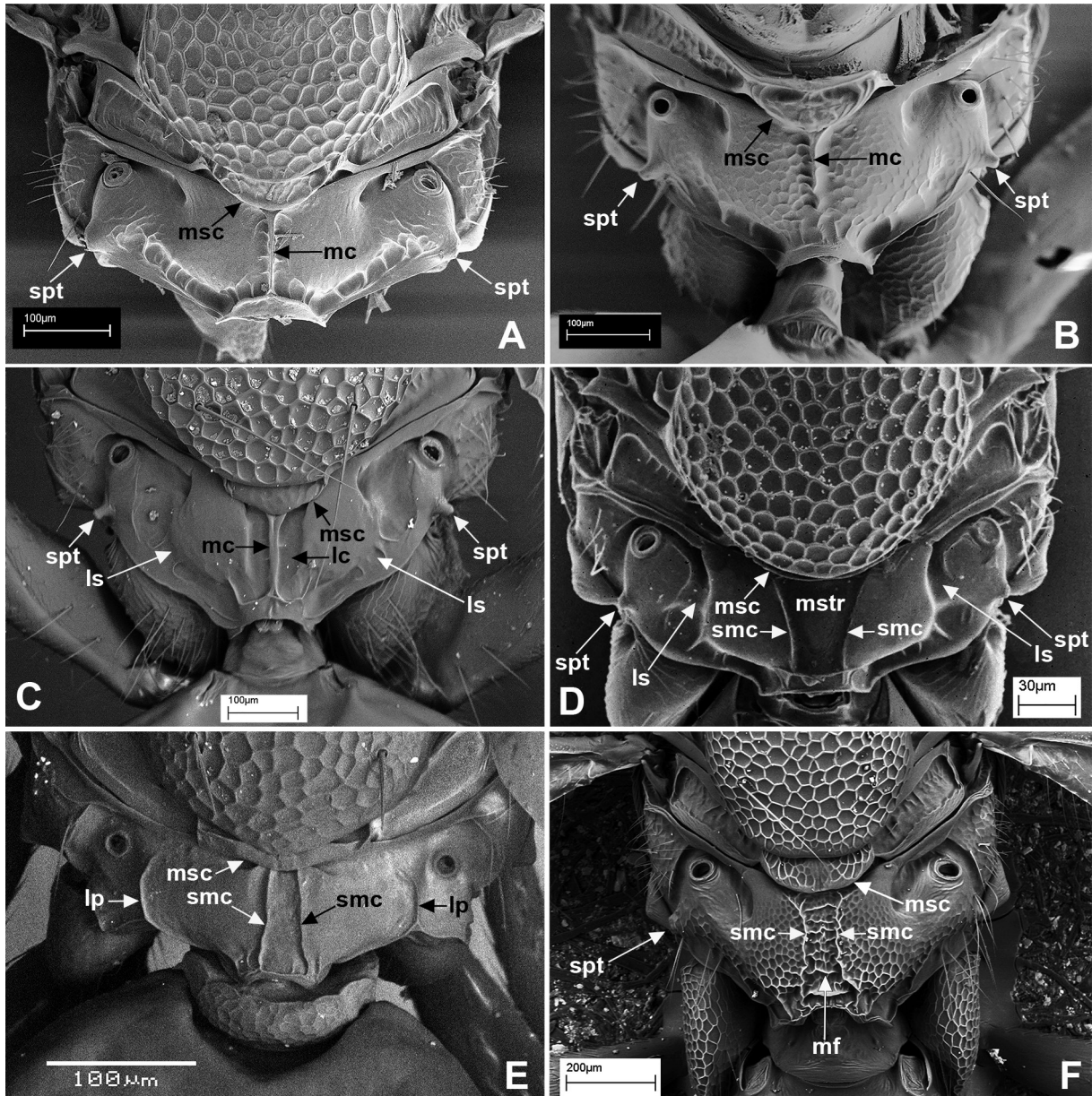


Fig. 1. Propodeum. **A.** *Entedon sylvestris* Szelenyi, 1981, ♀ (used for SEM). **B.** *Entedon crassiscapus* Erdős, 1944, ♀ (used for SEM). **C.** *Entedon magnificus* (Girault & Dodd, 1913), ♀ (SANC). **D.** *Xiphentedon nesororum* sp. nov., ♀ (used for SEM). **E.** *Pediobius ropalidae* (Risbec, 1958), ♀ (paratype, MRAC). **F.** *Colpixys gigas* Bouček, 1972, ♀ (paratype, NHMUK). Abbreviations: lc = lateral channel on sides of median carina; lp = lateral plica; ls = lateral sulcus of propodeum; mc = median carina; mf = median furrow; msc = metascutellum; mstr = median strip; smc = submedian carinae; spt = spiracular tubercle on propodeum.

below-described *C. eburnus* sp. nov. (Fig. 9B). The type species of *Xiphentedon*, *X. kayovei*, and most of the other (new) species gathered below into the *kayovei*-group, possess a smooth or light coriaceous median strip (of either broad V or Y shape) delimited by fine carinae on the median propodeum (Figs 1D, 13C, 14E). The coriaceous, distinctly margined strip (often Y-shaped) is found in some species described below under the proposed *danielssoni* and *forceps* groups of *Xiphentedon* (Figs 21C, 25D, 26E, 27D, 28A and others).

The median propodeal strip of *Xiphentedon* may or may be not homologous to the median propodeal furrow of *Colpixys*. On the one hand, this groove-like strip may appear homologous to the lateral channels occasionally flanking the median propodeal carina in *Entedon* (Fig. 1C, lc), i.e., being resultant from the secondary loss of the carina. On the other hand, the median strip may appear homologous to the median propodeal carina of *Entedon* (Fig. 1C, mc), being a derivation of a longitudinal split of its apical bifurcation. Both these hypotheses require independent verification.

The median furrow (or groove) is relatively rare in entedonines. It is present in a state similar to that of *Colpixys* in the genus *Afrotroppopsis* Gumovsky, 2007 (Gumovsky 2007: fig. 1c). It is also present in modified states in some species of *Pediobius* Walker, 1846, e.g., *P. ropalidiae* (Risbec, 1958) (Fig. 1E), where the submedian carinae are nearly subparallel (Fig. 1E, smc), but weakly diverging posteriorly as in the majority of its congeners.

Another essential character, which has not been discussed for *Entedon* and allied genera, is the lateral propodeal sulcus (Fig. 1C–D). If the sulcus is complete, it surrounds the spiracular elevation and continues posteromedially to the supracoxal flange to the nucha, such that it delimits the submedian propodeal area laterally. The posterior part of the sulcus, referred to as the “channel between median panels and supracoxal flange” by Burks (2003), is often crossed by distinct costulae. The lateral propodeal sulcus is complete in many (chiefly tropical) species of *Entedon* (Fig. 1C, ls), in *Xiphentedon kayovei* and most new species attributed below to this genus (Fig. 1D, ls), and in some other genera (e.g., *Proacrias* Ihering, 1914). In most Holarctic species of *Entedon* and in *Colpixys* the sulcus is interrupted in its median part (Fig. 1A–B, F).

Thorax (Figs 2–4)

The pronotal shoulders, or “the postero-lateral expansions of the pronotum, which form a bump or protuberance” (Schauff 1988), or “lateral bullae” (Schauff 1991) have often been considered diagnostic for *Entedon* (Erdős 1944; Graham 1963, 1971; Bouček 1988), and for *Entedon* and *Colpixys* (Schauff 1988). This ‘shoulder’ represents a callus on the lateral panel of the pronotum (Fig. 2E–F, psh) in the above-mentioned genera. In most other entedonines the pronotum is smoothly curved, not forming any lateral swellings or protrusions. Similar, but not identical dorsal expansions of the pronotum are present in some other representatives of Entedoninae, for instance, in species of *Apleurotropis* Girault, 1913 (Fig. 3A, dsh), *Pleurotroppopsis* Girault, 1913 (Fig. 3C), *Parahorismenus* Girault, 1915, *Paracrias* Ashmead, 1904, *Derostenus* Westwood, 1833, and also in some *Pediobius* and others. The lateral protrusion (‘shoulders’) of the pronotum represent an expansion of the sharply delimited pronotal collar in these genera.

The pronotal shoulder of *Entedon* and allied groups is bordered by a semicircular ridge (or plica) below (Gumovsky 2002, 2011; Burks *et al.* 2011; Fig. 2, lpl), whereas the upper sector of the lateral panel of the pronotum bears no plica in most other entedonine genera. The pronotal ridge is situated in the upper sector of the lateral panel of the pronotum (Fig. 3E–F, lpl). The shape of the ridge also varies: it is semicircular in *Entedon*, *Colpixys* and *Xiphentedon* (Fig. 2, lpl), but nearly straight in the shape of a carina in *Apleurotropis*, *Pleurotroppopsis*, *Chrysocharis* Foerster, 1856, *Achrysocharoides* Girault, 1913 (Fig. 3, pcr) and some other genera.

One of the peculiarities of the lateral pronotal ridge of *Entedon*, *Colpixys* and *Xiphentedon* is its proximity to a sparse group of orifices near its anterior margin (Fig. 2, or). Similar orifices are present as a dense group in species of *Pleurotropsis* and *Apleurotropis*, which possess a transverse carina that is topologically similar to the lateral pronotal ridge mentioned above (Fig. 3). The nature and function of these orifices is unknown; they may be structures used in a sensory or secretory capacity.

The prosternum is the sclerite that is connected posteriorly to the propleuron and bears the prodiscrimen and the profurca (Yoder *et al.* 2010). This sclerite is exposed in Entedoninae and is visible as a diamond-shaped structure due to divergent propleurae, unlike in the subfamily Eulophinae (Gauthier *et al.* 2000). In most entedonines the prosternum is flat or, if convex, evenly curved. This condition is found in

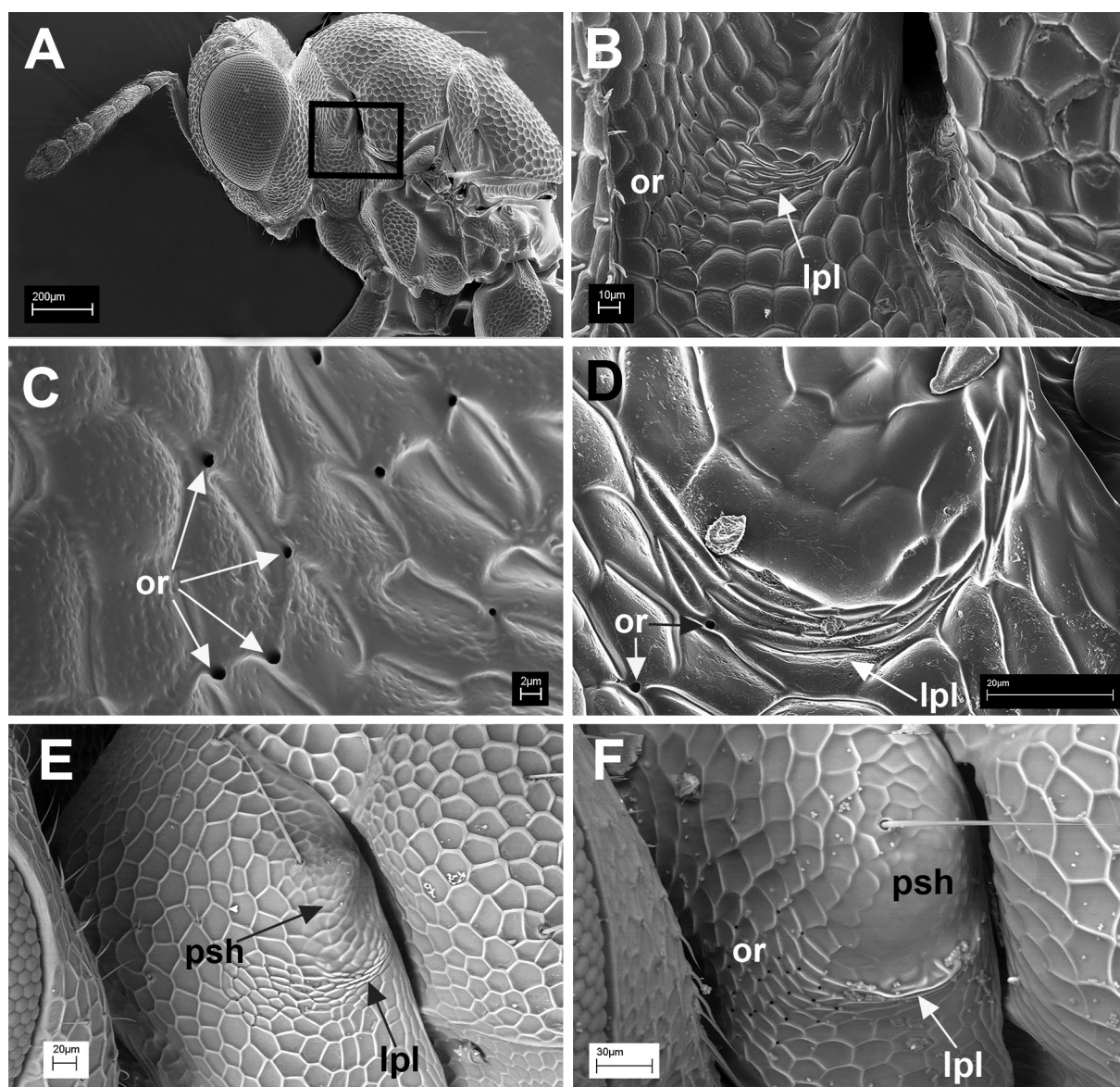


Fig. 2. A–C. *Entedon sparetus* Walker, 1839, ♀ (reared from *Gymnetron asellus* (Gravenhorst, 1807)) (used for SEM). A. Head and mesosoma. B. Enlarged area in frame on Fig. A. C. Orifices enlarged. D. *E. diotimus* Walker, 1839, ♀, plica on lateral panel of pronotum (used for SEM). E–F. Lateral panel of pronotum. E. *Colpixys necator* Waterson, 1916, ♀ (NHMUK). F. *Xiphentedon nesororum* sp. nov., ♀ (paratype, NHMUK). Abbreviations: lpl = lateral pronotal plica; or = orifices; psh = lateral pronotal shoulder.

Colpixys, with the exception of *C. eburnus* sp. nov., whereas in *Xiphentedon* the prosternum bears a flange (occasionally with pubescence on the ventral surface) (Figs 22A, 27E–F, 36C–D, 38B–C). Similar prosternum shapes occur in some species of the putatively related genus *Entedon*.

The axillula has been considered to be an indistinctly defined and externally small area posterior to the axilla in the Chalcidoidea (Krogmann & Vilhelmsen 2006). No discernible structures, apart from small carinae or ridges, are generally reported for this area. However, occasionally the axilla bears a projection in some of the groups discussed below. This projection occurs in genera which are not closely

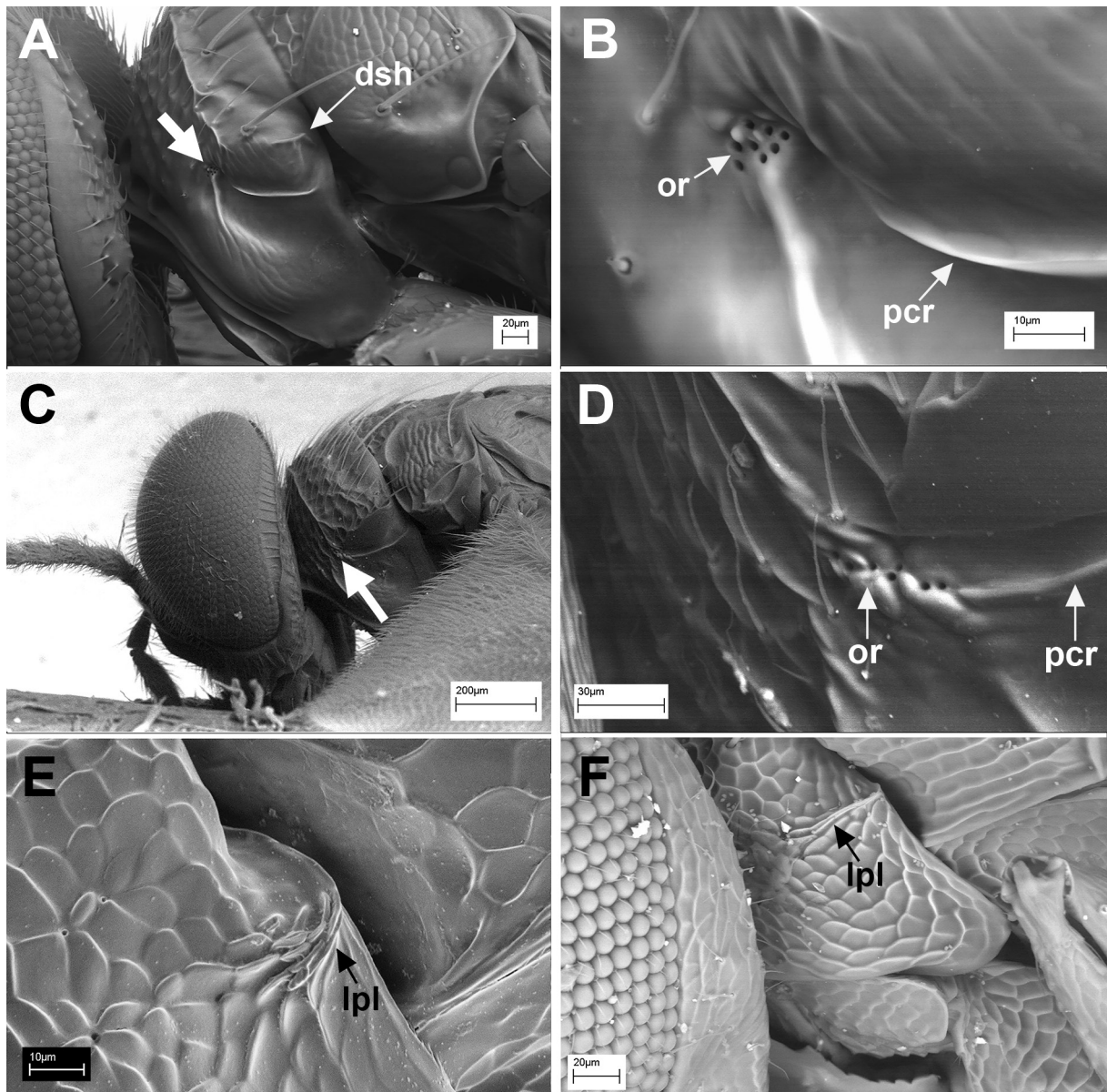


Fig. 3. A–B. *Apleurotropis lacteicoxa* (Girault, 1915), ♀ (NHMUK). A. Anterior part of mesosoma. B. Enlarged area arrowed in Fig. A. C–D. *Pleurotroppopsis podagrica* (Waterston, 1925), ♀ (NHMUK). C. Head and anterior part of mesosoma. D. Enlarged area arrowed in Fig. C. E. *Chrysocharis prodice* (Walker, 1839), lateral panel of pronotum (used for SEM). F. *Achrysocharoides zwoelferi* (Delucchi, 1954) (used for SEM), lateral panel of pronotum. Abbreviations: dsh = dorsal expansion of pronotum (virtual pronotal shoulder); lpl = lateral pronotal plica; or = orifices; pcr = pronotal carina on lateral panel of pronotum.

related, i.e., *Entedon* (the tribe Entedonini of Entedoninae), *Entedononecremnus* Girault, 1915 (the tribe Euderomphalini of Entedoninae) and *Trisecodes* Delvare & LaSalle, 2000 (formerly unplaced within Eulophidae Westwood 1829, now in Systasidae Bouček, 1988; Burks *et al.* 2022). The shape of the projection is diverse and provisionally diagnostic at the species level for many Afrotropical, Oriental, Australasian and occasionally European species of *Entedon*, but also in *Xiphentedon*, as illustrated below. This projection bears two to five tooth-like indentations in these entedonines (for example, Figs 12F, 16C, 18D, 19G, 20F, 24G, 28B, D, 30D, 36F).

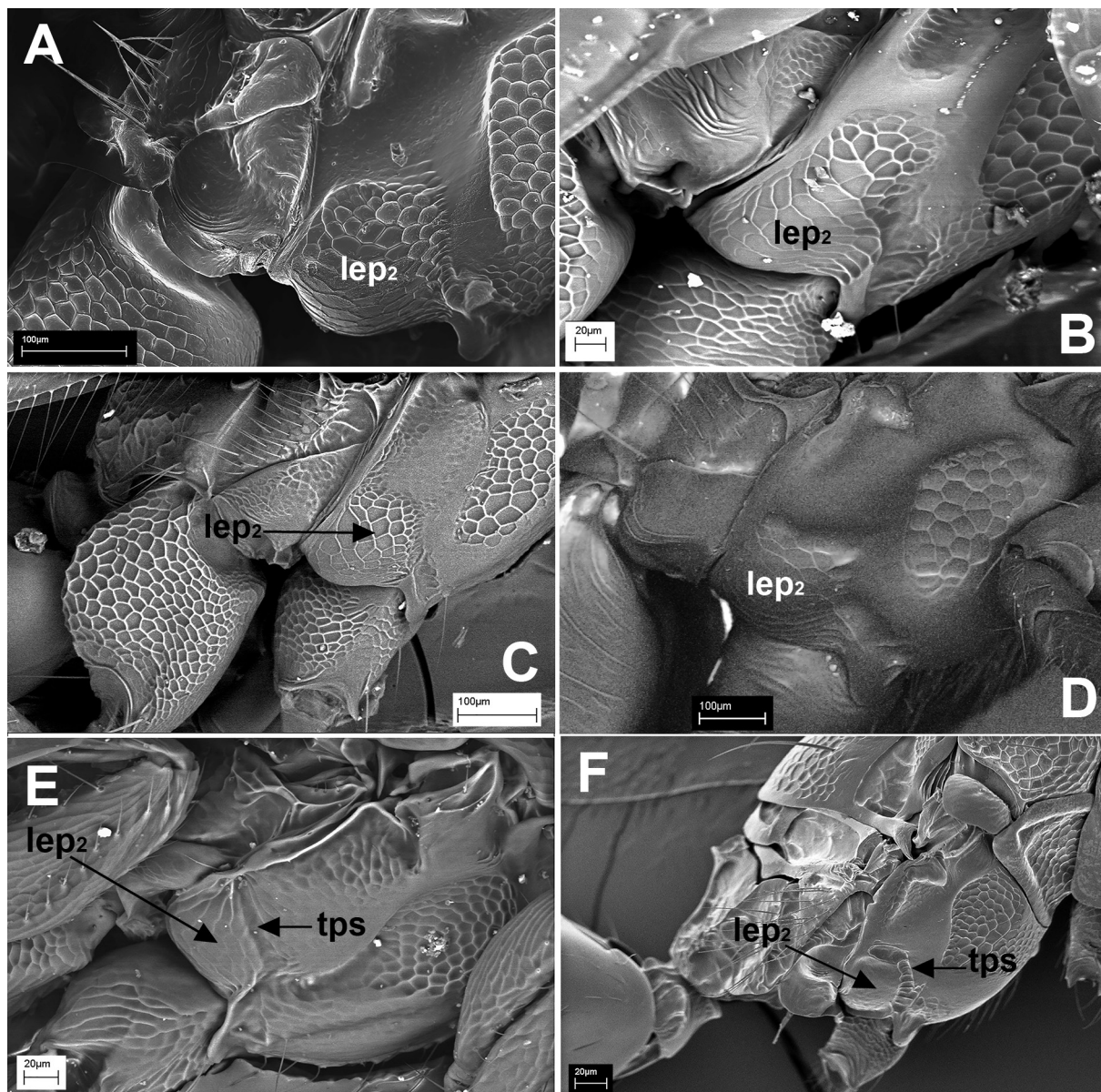


Fig. 4. Posterior mesosoma and attachment points of hind and mid legs. **A.** *Entedon sparetus* Walker, 1839, ♀ (reared from *Gymnetron asellus* (Gravenhorst, 1807)) (used for SEM). **B.** *E. bruchivorus* Rasplus, 1990 (NHMUK). **C.** *Colpixys necator* Waterston, 1916 (NHMUK). **D.** *Xiphentedon kayovei* Risbec, 1957 (holotype, MRAC). **E.** *Achrysocharoides zwoelferi* (Delucchi, 1954) (used for SEM). **F.** *Mestocharis maculata* (Foerster, 1841) (used for SEM). Abbreviations: lep₂ = lower mesepimeron; tps = transepimeral sulcus.

Another character is the shape and form of the transepimeral line. The transepimeral line separates the lower and upper parts of the mesepimeron (Gibson *et al.* 1997; Fig. 4, tps). The transepimeral line is sulcate in most Eulophidae, and particularly in the majority of Entedoninae (Fig. 4E–F, tps). However, in *Entedon*, *Xiphentedon* and *Colpixys* this sulcus is absent, and the delimitation of the lower mesepimeron is traceable only by the change in sculpture (Fig. 4A–D, lep₂).

A further character is the size (surface area and length) of the metascutellum. Most Entedonini of Entedoninae possess a comparatively long metascutellum, distinctly visible in dorsal view. The metascutellum is semicircular in shape in most species of *Entedon* (Fig. 1A–C, msc) and *Colpixys* (Fig. 1F, msc). However, in the specimens examined of the subgenus *Cederholmia* of *Entedon*, in *X. kayovei*, and also in some new species described below, the metascutellum is reduced to a narrow bar which is barely discernible in dorsal view (for example, Fig. 1D).

Head (Figs 5–7)

The V-shaped or transverse frontal sutures (frontal sulcus: Graham 1959, 1971; frontal grooves/sutures: Schauff 1988, 1991; the transverse facial sulcus: Burks *et al.* 2011; Fig. 5) is found in most of the Entedonini, and is likely one of the morphological synapomorphies for Entedoninae (e.g., Schauff 1991). Although the sutures are reduced in many species of *Entedon* (a secondary loss: Schauff 1988; Fig. 6C–D), they are distinctly traceable in some species of this genus (Fig. 6A–B) and in all species classified below as either *Colpixys* or *Xiphentedon* (Fig. 6E–F).

The non-sulcate scrobal grooves are conserved across genera and shared by *Chrysocharis* (Fig. 5D), *Achrysocharoides* (Fig. 5E–F), *Entedon* (Fig. 6A–D), and *Derostenus* (Schauff 1988). *Entedon* and *Achrysocharoides* have been shown to be closely related (Gumovsky 2002; Burks *et al.* 2011). The genera *Colpixys* and *Xiphentedon* also possess these non-sulcate scrobal grooves (Fig. 6E–F), which may indicate their affinity to *Entedon* and *Achrysocharoides*. The anellus is defined as a small, narrow (or disc-like) flagellomere situated between the pedicel and the first funicular segment, or as the flagellomere that is located proximally on the flagellum and lacks longitudinal sensilla (Yoder *et al.* 2010). Schauff (1991) analyzed the number and conditions of anelli, which occur in Entedoninae and are proposed to distinguish the terminal anellus from the first funicular segment based on the absence (anellus) or presence (funicular segment) of the multiporous plate sensilla, apart from separation by size. Also, the possession of three anelli was considered a plesiomorphy for Entedoninae by Schauff (1991). The groups with three anelli (*Tropicharis* Hansson, 1998) and with only one anellus (*Closterocerus* Westwood, 1833, *Chrysonotomyia* Ashmead, 1904, *Omphale* Haliday, 1833 and *Parzaomomyia* Girault, 1915) were demonstrated to be a grade at the base of Entedonini by Burks *et al.* (2011).

Graham (1971) did not specify the number of anelli for *Entedon*, but mentioned one anellus only. Schauff (1988) mentioned that there are three anelli, with the first being largest in *Entedon*. However, Bouček (1988) also mentioned that *Entedon* has only one anellus. Waterston (1916) mentioned the “triple ring joint” (namely, three anelli) for *Colpixys*. Risbec (1957) did not mention the number and shape of anelli for *Xiphentedon*.

Species of *Entedon* (Fig. 7A–B), *Colpixys* (Fig. 7C–D) and *Xiphentedon* (Fig. 7H) indeed have three anelli: the notably and evenly enlarged first anellus, and two following anelli which taper dorsally, and thus the anelli appear subtriangular in shape (Fig. 7A–D, H). The third anellus is asymmetrical and its shape appears different when viewed from different angles (Fig. 7A–D). The third anellus is comparatively wide and bears trichoid sensilla when observed from the exterior view (Fig. 7A, D, H, a3) in most species of *Entedon*, *Colpixys* and *Xiphentedon*. Occasionally, the third anellus is wider in this part than the entire first anellus (e.g., in *Colpixys gigas*, Fig. 7D, a3). However, it is rather thin and hardly different from the preceding second anellus when seen from the interior (medial) view (Fig. 7C, a3). The difference in size between internal and external aspects and also in the sensillar armoration of the

enlarged anellus occurs in other genera too (Schauff 1991). For example, the structure of anelli described above is also inherent to *Pleurotropsopsis podagrica* (Waterson, 1925) (Fig. 7G). In addition, the enlarged (terminal of the two) anellus in *Mestocharis maculata* (Foerster, 1841) bears numerous trichoid and even one asymmetrical basiconic peg sensillum (= sensillum ampulaceum: Fig. 7E–F).

This review of some key morphological characters of the discussed taxa indicates that a combined molecular and morphological phylogenetic assessment of relationships of *Colpixys* and *Xiphentedon* is necessary. Either of these groups may appear to be derived within *Entedon*, and that may require re-consideration of their taxonomic ranks in future. This report, however, addresses the species diversity of *Colpixys* or *Xiphentedon* in their revised concepts, with comprehensive morphological descriptions.

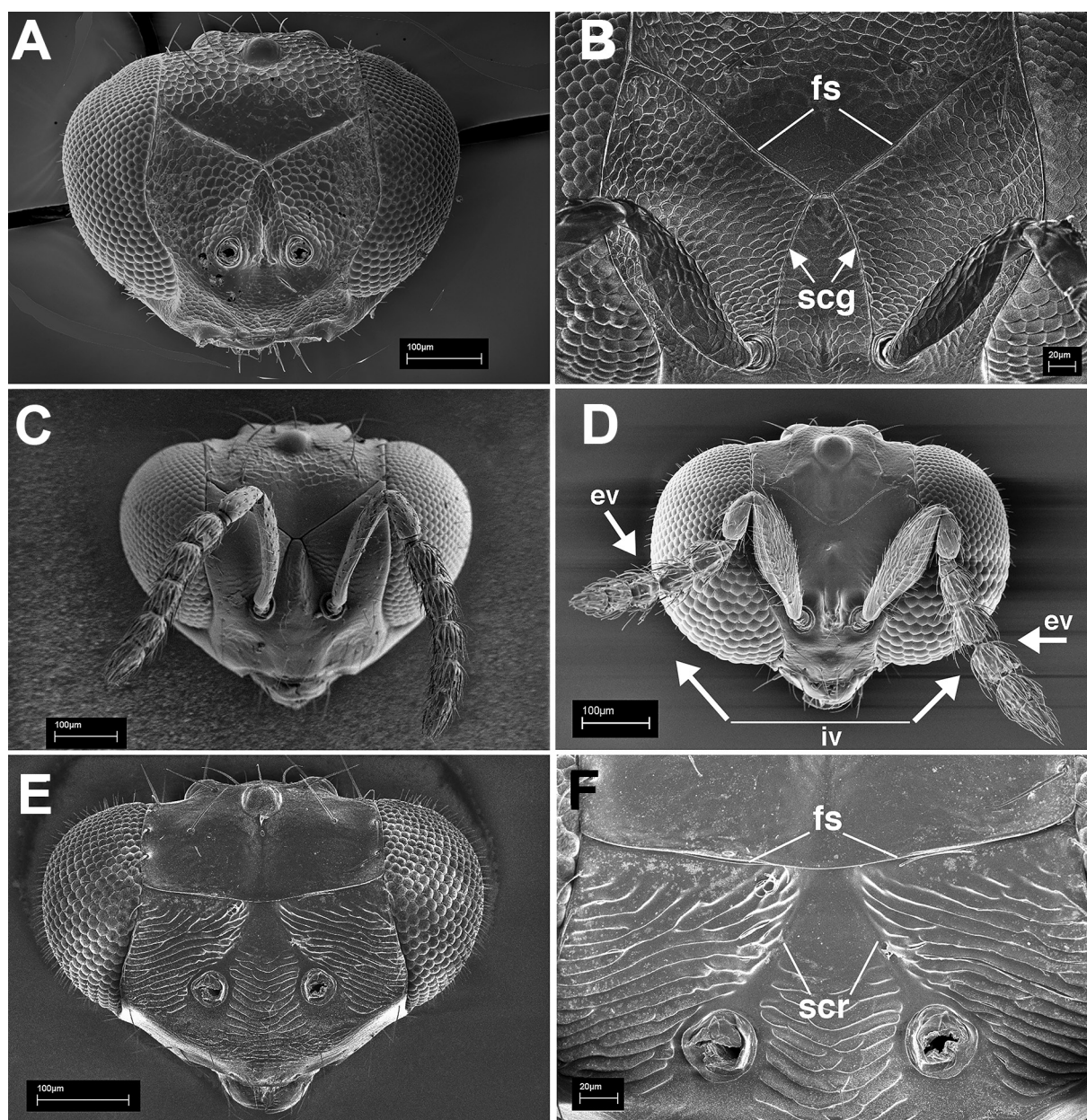


Fig. 5. Head in frontal view. **A–B.** *Pediobius* aff. *eubius* (Walker, 1839), ♀ (used for SEM). **C.** *Mestocharis maculata* (Foerster, 1841), ♀ (used for SEM). **D.** *Chrysocharis prodice* (Walker, 1839), ♂ (used for SEM). **E–F.** *Achrysocharoides* sp., ♂ (used for SEM). Abbreviations: ev = external view; fs = frontal sutures; iv = internal view; scg = scrobal grooves; scr = scrobal depressions.

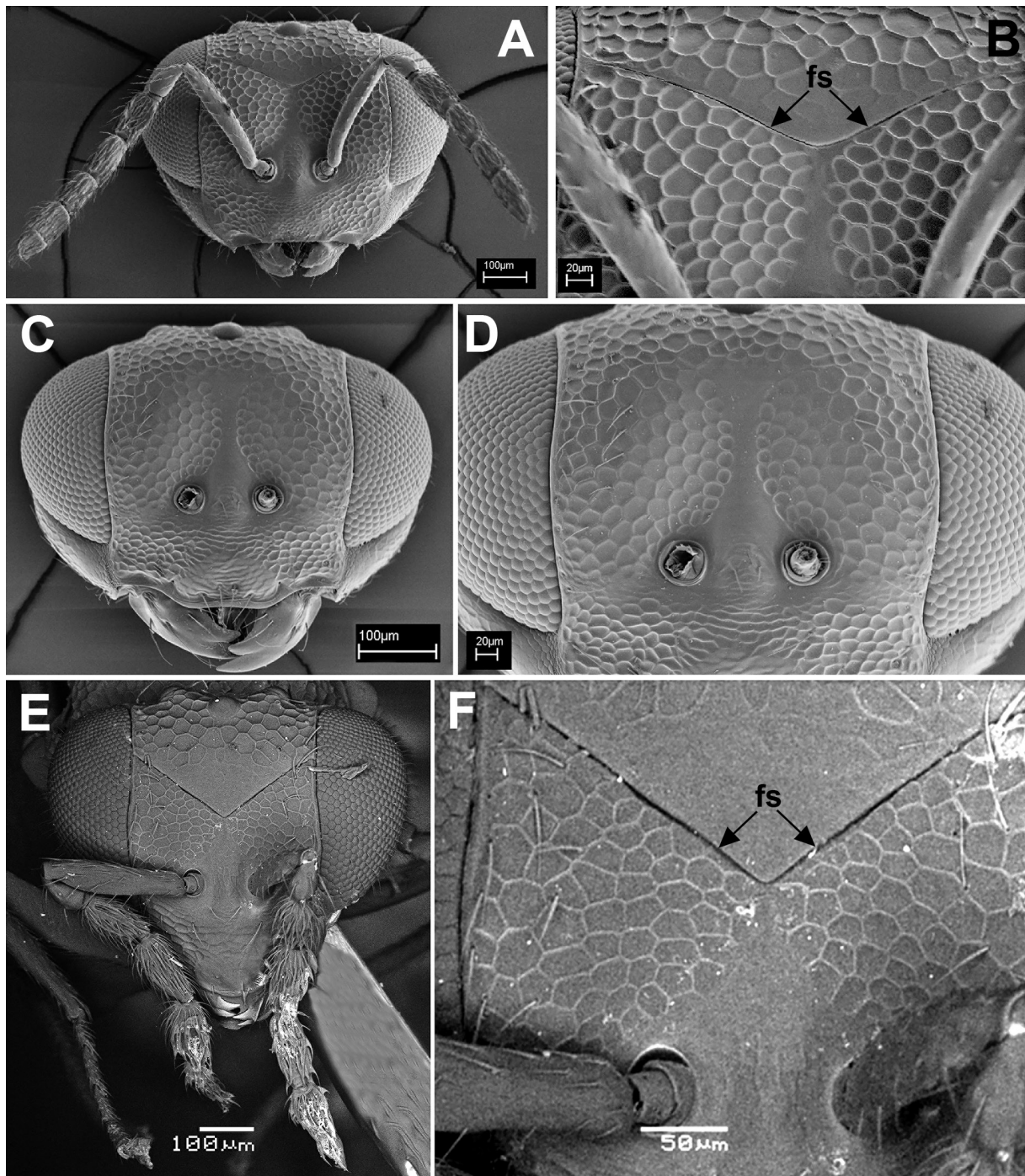


Fig. 6. Head in frontal view. **A–B.** *Entedon zanara* Walker, 1839, ♀ (used for SEM). **C–D.** *E. cyanellus* Dalman, 1820, ♀ (used for SEM). **E–F.** *Xiphentedon kayovei* Risbec, 1957 (holotype, Rwanda; MRAC). Abbreviation: fs = frontal sutures.

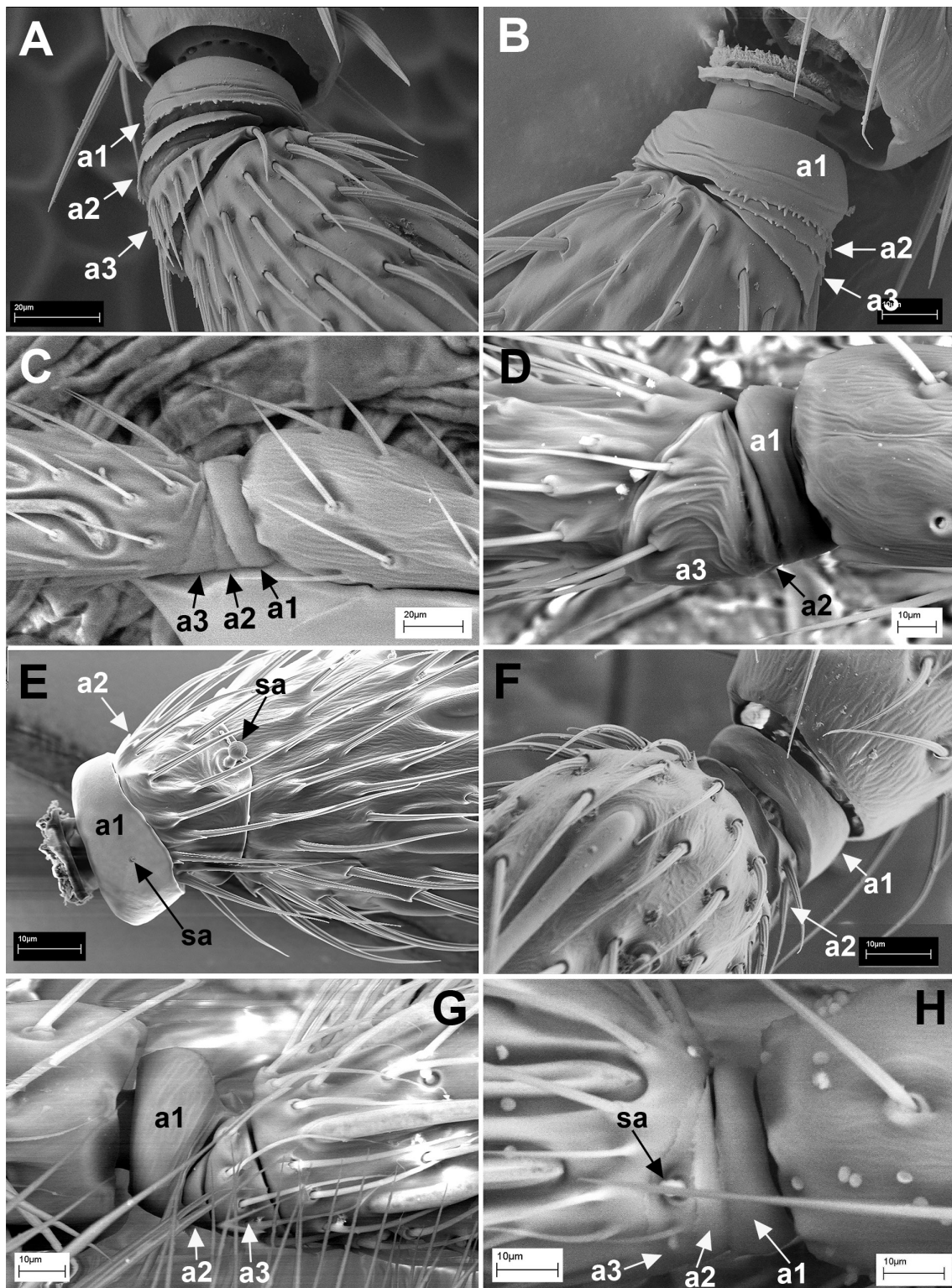


Fig. 7. Anelli. **A–B.** *Entedon cyanellus* Dalman, 1820, ♀ (used for SEM). **A.** External view. **B.** Internal view. **C.** *Colpixys necator* Waterston, 1916, ♀, internal view (NHMUK). **D.** *Colpixys gigas* Bouček, 1972, ♀, external view (paratype, NHMUK). **E–F.** *Mestocharis maculata* (Foerster, 1841), ♀ (used for SEM). **E.** External view. **F.** Internal view. **G.** *Pleurotroppopsis podagrica* (Waterston, 1925), ♀, external view (NHMUK). **H.** *Xiphentedon neserorum* sp. nov., ♀, external view (paratype, NHMUK). Abbreviations: a1–a3 = anelli; sa = sensillum ampullaceum.

Key to the species of *Xiphentedon* Risbec, 1957 and *Colpixys* Waterston, 1916

1. Pronotum with protruding lateral shoulders (Fig. 2, psh); each shoulder is in the form of a convex callus in the upper sector of the lateral panel of the pronotum, and delimited by a semicircular plica beneath (Fig. 2, lpl); transepimeral sulcus is effaced (Fig. 4A–D) 2
 - Pronotum without bulging lateral shoulders surrounded by a distinct semicircular plica below; if similar structures are present, then in different combinations: either shoulders are present, not as bulges or bumps, but as expansions of the delimited pronotal collar (Fig. 3A, dsh), or the plica (semicircular or straight) is not delimiting a bulging shoulder from below; transepimeral sulcus present as a distinct groove (Fig. 4E–F) other genera of Entedoninae

2. Propodeum with a single median carina (Fig. 1A–C, mc), nearly reaching the metascutellum, which is visible in dorsal view as a wide semi-circular plate (Fig. 1A–C, msc); frontal sutures are angulate (Fig. 6A–B, fs) or absent (Fig. 6C–D) *Entedon* Dalman, 1820
 - Propodeum with median strip (Fig. 1D), or a deep furrow delimited by two submedian carinae or by pliciform borders (Fig. 1F) medially; metascutellum visible (Fig. 1F) or hardly discernible (Fig. 1D) in dorsal view; face with V-shaped frontal sutures (Fig. 6F, fs) 3 (*Xiphentedon* Risbec, 1957 and *Colpixys* Waterston, 1916)

3. Metascutellum long, easily discernible in dorsal view (Fig. 1F, msc), if somewhat smaller, then semi-circular in shape (but not in the shape of a narrow bar: *C. eburnus* sp. nov., Figs 9B, 11F), and anterior margin of mesoscutellum without a paired anteromedian protrusion; propodeum (Figs 1F, 9A–B): with median furrow represented by a deep sunken area, delimited by sinuous margins (Fig. 1F, mf), lateral propodeal sulcus incomplete, supracoxal flange with two to five setae posteriad of spiracular projection; axillula without a projection, at most with carinulae or plicae (Fig. 9C–D, F); gena evenly curved (Fig. 11D); metasomal petiole conical with margined, notably raised ‘roof’ dorsally in both sexes (Figs 8C, 10C, 11F); prosternum either evenly curved or with an arc traced by a carina, not a flange 4 (*Colpixys* Waterston, 1916)
 - Metascutellum different: hardly visible in dorsal view, present as a narrow, bar-shaped strip (Fig. 1D, msc); propodeum with median smooth or coriaceous strip in the shape of a Y (Fig. 18C) or broad V (Fig. 1D), distinctly delimited by fine carinae which diverge anteriorly; lateral propodeal sulcus complete (Fig. 1D, ls): if not (*X. acutigena* sp. nov., Fig. 38D), then anterior margin of mesoscutellum with a paired anteromedian protrusion (Fig. 37B, D); supracoxal flange asetose; axillula with indentate projection (Figs 12F, 16C, 18D, 19G, 20F, 24G, 28B, D, 30D, 36F); shape of gena and metasomal petiole varies; prosternum planar: with a flange (often with pubescence on ventral surface) on its arc (Figs 22A, 27E–F, 36C–D) 6 (*Xiphentedon* Risbec, 1957)

4. F1 of female about 6.0 × as long as wide, F2 about 5.0 × as long as wide; gaster of female 6.0–7.0 × as long as wide, 2.2–2.3 × combined length of head plus mesosoma, syntergum long, 6.0–7.0 × as long as wide, parallel-sided (Fig. 10A); funicle of male five-segmented *C. gigas* Bouček, 1972
 - F1 of female 3.0–4.0 × as long as wide, F2 2.0–3.0 × as long as wide; gaster of female at most 3.0 × as long as wide, slightly longer than head plus mesosoma, syntergum sub-triangular, wider than long; male (when known) with three-segmented funicle and two-segmented clava 5

5. Metascutellum long (about one-third the length of propodeum), with lateral margins outlined (Figs 8C, 9A); metasoma of female slightly longer than head plus mesosoma, about 2.0–3.0 × as long as wide (Fig. 8A–B); dorsal ‘roof’ of metasomal petiole about 0.4 × as long as propodeum (Figs 8C, 9A); prosternum evenly curved; tip of scape slightly darker than the remaining part of it; subcosta of submarginal vein with two to three dorsal setae; fore wing mostly transparent; male funiculars less than 3.0 × as long as wide *C. necator* Waterston, 1916
 - Metascutellum short (about one quarter the length of propodeum), with lateral margins evenly curved (Figs 9B, 11F); metasoma shorter than head plus mesosoma (Fig. 11C, E), as long as wide or slightly

- wider than long; dorsal ‘roof’ of petiole about $0.3\times$ as long as propodeum (Fig. 11F); prosternum with a transverse carina or ridge on its arc; base of scape slightly darker than the remaining apical part (Fig. 11C–D); subcosta of submarginal vein with two dorsal setae; fore wing slightly infumate medially (Fig. 11A–C) *C. eburnus* sp. nov.
6. Anterior margin of mesoscutellum with a paired anteromedian protrusion (Figs 34B, 35D, 36E, 37B, D); median area of propodeum with coriaceous or lightly reticulate strip, borders of which diverge anteriorly (mostly broadly Y-shaped) and delimited by fine carinae or pliciform borders (Figs 33D, 34B, 35D, 36E, 37B, D); metasomal petiole short conical in female, long conical in male (when known)...7 (***forceps* group of *Xiphentedon***)
- Anterior margin of mesoscutellum almost straight or evenly curved (Figs 16D, 25D, 32C), at most with weak indentation (Figs 19D, 30E) 9
7. Gena with a short acute spike (Figs 37E–F, 38A–B); scape pale, slightly darkened apically; fore tibia with two pale stripes, other tibiae pale (Fig. 37C); median strip of propodeum lightly reticulate, its delimitation fading posteriorly among coarse reticulation; lateral propodeal sulcus incomplete, interrupted medially (Figs 37B, D, 38D); axillular projection lamellate and multidentate (Fig. 38E); male antenna with a deep constriction between two terminal flagellomeres (clavomeres) ***X. acutigena*** sp. nov.
- Gena smooth, without a spike; scape dark, mid and hind tibiae darkened not more than basally; median strip of propodeum coriaceous, stretching back to nucha; lateral propodeal sulcus complete 8
8. Mid and hind tibiae darkened with just a narrow basal band (Fig. 33A), fore tibia with two traceable longitudinal pale stripes; median strip of propodeum nearly $2.0\times$ as wide anteriorly as posteriorly (narrowly Y-shaped) (Figs 33D, 34B) ***X. forceps*** sp. nov.
- Legs almost entirely dark (Fig. 35A); median strip of propodeum less than $1.5\times$ as wide anteriorly as posteriorly (Figs 35D, 36E) ***X. gerardi*** sp. nov.
9. Larger species, usually more than 2.0 mm in length, head more than $2.0\times$ as wide as long, gaster at least slightly longer than broad, median strip of propodeum of broad V (Figs 12E, 13C, 14E, 16D, 19D) or broad Y (Figs 18C, 20E) shape...10 (***kayovei* group of *Xiphentedon***)
- Smaller species, usually less than 2.0 mm in length, head less than $2.0\times$ as wide as long, gaster mostly subcircular, median propodeal strip Y-shaped (Figs 21C, 24H, 25D, 26E, 27D, 29F)15 (***danielssoni* group of *Xiphentedon***)
10. Propodeal strip subtrapeziform with nearly straight carinae diverging anteriorly (broad V-shaped, Fig. 1D), posterior areas of propodeum mostly smooth; gaster elongate, funicular segments with short peduncles 11
- Propodeal strip Y-shaped, sculptured (Fig. 18C), posterior areas of propodeum light reticulate; gaster slightly longer than broad, funicular segments with distinct peduncles 14
11. Propodeal median strip coriaceous, submedian areas light reticulate posteriorly (Fig. 19D); gaster about $2.3\times$ as long as wide (Fig. 19A), syntergum about $1.3\text{--}1.4\times$ as long as wide; anterior margin of mesoscutellum with very short median paired indentations (Fig. 19D); costal cell with three setae on ventral surface ***X. simoni*** sp. nov.
- Propodeal strip and submedian areas smooth 12
12. Syntergum of female gaster somewhat wider than long (Fig. 17A, C, E); costal cell of fore wing aetose ***X. halli*** (Gumovsky, 1997) comb. nov.
- Syntergum of female gaster at least $3.0\times$ as long as broad; costal cell of fore wing with a row of short hairs 13

13. Syntergum of female about $3.0\times$ as long as wide (Fig. 16D); mid and hind tibiae darkened similarly: both not more than on their basal one-quarter to one-third (Fig. 15A–B); metasomal petiole of male with anterior collar, slightly longer than broad; costal cell of fore wing with three setae on ventral surface *X. nesororum* sp. nov.
- Syntergum of female at least $5.0\times$ as long as wide (Fig. 14C); mid and hind tibiae differ in degree of dark coloration: hind tibia darkened not more than on its basal half, but mid tibia darkened on about basal $\frac{3}{4}$ – $\frac{4}{5}$ (Figs 12A, 14A, C); metasomal petiole of male nearly $2.8\times$ as long as wide, without anterior collar; costal cell of fore wing at most with one to two setae on ventral side *X. kayovei* Risbec, 1957
14. Antennal scape entirely dark, metallic; median propodeal strip abruptly narrowing posteriorly (Y-shaped: Fig. 18C), metasomal petiole long and robust, nearly $4.0\times$ as long as wide (appears shorter if observed in dorsal view); gena nearly evenly curved (Fig. 18E); axillular projection with four to five denticles (Fig. 18D) *X. musimba* sp. nov.
- Antennal scape pale basally; median propodeal strip gradually narrowing posteriorly (intermediate between broad Y- and V-shaped), metasomal petiole short conical (Fig. 20E); gena bulging; axillular projection with six denticles (Fig. 20F) *X. dewittei* sp. nov.
15. Antennal scape entirely dark, metallic 16
- Antennal scape at least partially pale 19
16. Metasomal petiole short, wider than long (Fig. 30E); gaster slightly longer than broad, ovate (Fig. 30C); mid and hind tibiae pale on posterior half (Fig. 30A, C); scape slender, but narrowing apicad, flagellum with short robust segments (Fig. 30F–G)..... *X. palabora* sp. nov.
- Metasomal petiole robust, as long as or longer than broad (Fig. 27D) 17
17. Interantennal space without a process (Fig. 27F) 18
- Interantennal space with a narrow and sharp process (Fig. 22A, F) 20
18. Hind and mid tibiae predominantly darkened, just their extreme tips pale (Fig. 29A); spur of hind tibia $1.2\times$ as long as width of tibia; axillular projection with at least four teeth (Fig. 29E, H) *X. kivuensis* sp. nov.
- Hind and mid tibiae dark on about their proximal halves, the rest pale (Figs 30A, C, 31B); spur of hind tibia not longer than width of tibia; axillular projection bidentate *X. wieringai* sp. nov.
19. Scape dark with pale base (Fig. 32E) *X. nimba* sp. nov.
- Scape entirely pale (Fig. 31D) *X. sangha* sp. nov.
20. Head dorsally about $2.0\times$ as wide as long; dorsal interorbital distance about $1.5\times$ median vertexal distance (Fig. 22F) *X. danielssoni* (Gumovsky, 1997) comb. nov.
- Head dorsally about $2.5\times$ as wide as long; dorsal interorbital distance nearly $2.0\times$ median vertexal distance (Fig. 24D) *X. jeanyvesi* sp. nov.

Genus *Colpixys* Waterston, 1916

Colpixys Waterston, 1916: 129.

Colpixys – Bouček 1972: 203.

Type species

Colpixys necator Waterston, 1916, by monotypy and original designation.

Diagnosis

Pronotum with lateral semicircular ridge under protruding shoulders (Fig. 2E); face with V-shaped frontal suture; propodeum with coriaceous median furrow delimited by margins which are subparallel or weakly diverging posteriorly and more or less straight, submedian areas usually reticulate: lighter anteriorly and coarser posteriorly, lateral sulcus of propodeum incomplete (Figs 1F, 8C, 9A–B, 11F); prosternum evenly curved or at most with a carina (*C. eburnus* sp. nov.); mesopectus poorly pubescent above mesofurcal pit; mesepisternum without epicnemial protrusion; axillula without a projection, at most with carinulae or plicae (Fig. 9C–D, F); metascutellum long, semi-circular (but somewhat shorter in *C. eburnus* sp. nov.); supracoxal flange with setae; gena not bulging; male antenna with three-segmented funicle and two-segmented clava (*C. necator*) or five-segmented funicle (clava not present, *C. gigas*); male gaster without pale subbasal spot.

Biology

The available records concern parasitism of larvae of Erotylidae and Languriidae (Coleoptera) (Waterston 1916; Bouček 1972).

Distribution

Afrotropical region.

Colpixys necator Waterston, 1916
Figs 2E, 4C, 7C, 8, 9A, C–D

Colpixys necator Waterston, 1916: 129.

Colpixys necator – Bouček 1972: 206.

Diagnosis

As for the genus, and also: middle-sized species (about 3.2 mm ♀, 2.0 mm ♂); scape pale, only its tip slightly darker, rest of antenna dark; legs predominantly pale, just with darker femora; prosternum evenly curved (Fig. 8A–B, E–F); axillula with irregular costulae (Fig. 9C); metascutellum long, about 1/3 of length of propodeum; median propodeal furrow coriaceous, slightly diverging posteriorly; metasomal petiole short conical, slightly wider than long, with nearly evenly sloping dorsal ‘roof’, which is about 0.4× as long as propodeum (Figs 8C, 9A).

Female

Fore and mid femora either with a short dark stripe on ventral margin, or entirely darkened, hind femur pale; fore tibia with two dark stripes, mid and hind tibiae pale; fore tarsi and two terminal tarsomeres of mid and hind legs dark; pedicel plus flagellum about 3.0× as long as scape, which is 4.0× as long as wide, flagellum not clavate, with elongate segments; F1 3.0–4.0×, F2 and F3 2.0×, clava 3.0× as long as wide; metascutellum relatively long and semi-circular; speculum of fore wing closed, subcosta of submarginal vein with two to three setae on its dorsal surface; propodeum with three to four setae on its flange posterior of spiracular tubercle; submedian areas of propodeum lightly reticulate anteriorly and coarsely reticulate posteriorly; metasoma 2.0–3.0× as long as wide, as long as or slightly longer or shorter than combined length of head plus mesosoma, syntergum subtriangular, transverse.

Male (not known previously, Fig. 8E–F)

Similar to female, except: antennal scape pale with just extreme apex darker, nearly 3.0× as long as wide, two apical flagellar segments (clavomeres) broadly attached in most specimens, or with deeper constriction between the clavomeres (one of the males reared from ‘*Barbaropus paradoxus*’ in

Zimbabwe), F1 2.5–2.6×, F2 2.0×, F3 1.66×, clava 3.0× as long as wide; gaster pentagonal, 1.3–2.0× as long as wide; speculum of fore wing open below, with just one to two setae below PR; MV slightly widened basally.

Female description

Waterston 1916; Bouček 1972.

Type material examined

Holotype

ZIMBABWE • ♀; “Salisbury” [Chishawasha near Harare]; 22 Nov. 1915; R.W. Jack leg.; “ex *Barbaropus paradoxus* Olliff”; NHMUK 5.1325.

Other material examined

REPUBLIC OF SOUTH AFRICA • 2 ♂♂; “Transvaal” [now Northern Province], Soutpan, “Pretoria Dist.” [now Tshwane]; 25°24' S, 28°06' E; 16 Nov. 1983; M.W. Mansell leg.; SANC • 1 ♀; Blyderivierspoortdam Nat. Reserve; 24°32' S, 30°47' E; 25–26 Nov. 1984; G.L. Prinsloo leg.; SANC • 1 ♂; D’Nyala Nat. Res.; “Ellisras District” [now Lephalale]; 23°45' S, 27°49' E; 10–14 Nov. 1986; G.L. Prinsloo leg.; SANC • 3 ♂♂; Hans Merensky Nat. Res.; 23°40' S, 30°39' E; 27–30 Nov. 1981; G.L. Prinsloo leg.; SANC • 1 ♂; Kwa-Zulu Natal; Lake Sibaya; Jan. 1978; G.L. Prinsloo leg.; SANC • 1 ♂; “Lake Kosi; Ntl.”; Jan. 1978; G.L. Prinsloo leg.; SANC • 1 ♂; Limpopo Province, Mopani District, near Phalaborwa municipality, Palabora Mining Company’s Molengraaff portion, ‘Marula line’ [= marula tree, *Sclerocarya birrea*]; 23°57'40" S, 31°08'59" E; 435 m a.s.l.; 10–13 Dec. 2014; A. Gumovsky and S. Mthombeni leg.; dry recently burned thickets of *Dichrostachys cinerea* bushes, with occasional *Euclea divinorum* and *Philenoptera violacea* trees; 75 YPTs; SIZK • 1 ♀; same collection data as for preceding; Palabora Mining Company’s Cleveland Game Reserve; 24°02'14" S, 31°10'26" E; ~40 m a.s.l.; 8–11 Dec. 2014; A. Gumovsky and I.M. Weiersbye leg.; disturbed riparian woodland more than 50 m from the Olifants River, with common tree species *Spirostachys africana*, *Ziziphus mucronata*, *Xanthocerus zambesiaca*; 75 YPTs (extra); SIZK.

ZIMBABWE • 13 ♀♀, 3 ♂♂; same collection data as for preceding; no date; NHMUK • 1 ♀; same collection data as for preceding; Oct. 1982; A. Watsham leg.; NHMUK • 1 ♂; same collection data as for preceding; Dec. 1974; SANC.

Biology

This species was reared from *Barbaropus nyassae* (Fowler, 1885) (Bouček 1972) (Coleoptera: Erotylidae).

Distribution

Zimbabwe (Waterston 1916; Bouček 1972), RSA (new record).

Remarks

The species differs from *C. gigas* in general habitus (shorter gaster and antennal segments, in particular) and from *C. eburnus* sp. nov. in the shape of the metasomal petiole (more robust in *C. eburnus*), gaster and metascutellum (both are shorter in *C. eburnus*).

The males of this species demonstrate variability in the number and structure of flagellar segments. The males reared from *B. paradoxus* in Zimbabwe have two apical segments nearly free, whereas two terminal flagellomeres are broadly attached to each other in the rest of the studied males. The F1 and F2 of both flagella are fused in the male from Lake Kosi (RSA): the resultant segment is nearly 5.0×

as long as wide and there are only two funiculars. Despite this being a unique character state, I regard this specimen to be conspecific with other studied specimens of *C. necator* and record it as an aberrant specimen. Bouček (1988) mentioned a similar aberration (the fusion of the two first funicular segments) for *Theocolax formiciformis* Westwood, 1832 (Cerocephalidae). Also, the degree of infumation of the

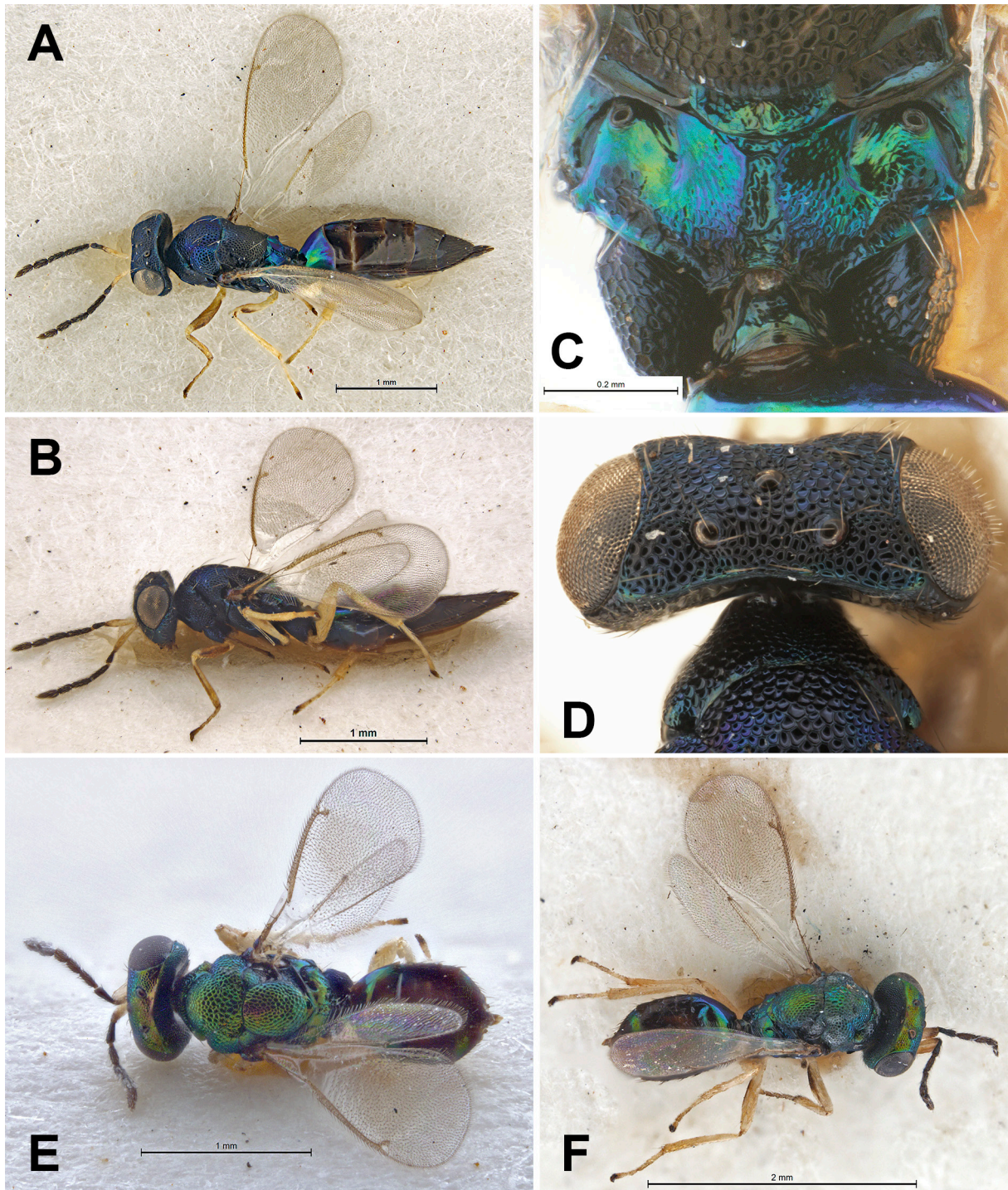


Fig. 8. *Colpixys necator* Waterston, 1916 (SANC). **A–D.** ♀, from Zimbabwe. **E–F.** ♂, from RSA. **A–B,** **E–F.** Habitus in dorso-lateral (A, F), lateral (B) and dorsal (E) views. **C.** Propodeum. **D.** Head and anterior part of mesosoma in dorsal view.

fore wings varies: the wing is transparent in most specimens, but it is somewhat infumate in the male from the Palabora Mining Company's Cleveland Game Reserve (RSA).

Colpixys gigas Bouček, 1972

Figs 1F, 9E–F, 10

Colpixys gigas Bouček, 1972: 203.

Diagnosis

As for the genus, and also: large species (about 5.0 mm ♀, 3.0 mm ♂) with elongate mesosoma and gaster; body bright green, scape pale, only tip dark, rest of antenna dark, all legs, except for metallic coxae and darker pretarsi, pale (Fig. 10); axillula coarsely sculptured, with pliciform structures (Fig. 9F); median propodeal furrow with subparallel margins, coriaceous (Fig. 1F); propodeum with three to five setae on flange and posteriad spiracular tubercle; prosternum evenly curved, with a small transverse carina on its arc.

Female

Pedicele plus flagellum nearly 3.0× as long as scape, pedicel 2.3×, scape 5.0–5.5× as long as wide, flagellum with elongate segments, F1 about 6.0×, F2 nearly 5.0×, F3 4.0×, clava about 5.0× as long as wide, with elongate clavomeres and with deep constriction between them; metasomal petiole transverse conical, slightly wider than long, with robust, evenly sloping metallic neck; gaster about 6.0× as long as wide, very long, syntergum in form of a broad parallel-sided stylus, 6.0–7.0× as long as wide; CC with one to three setae on ventral side; WIP with wide violet area apically, followed by some green and red narrow stripes.

Male

Antenna with five separate elongate funiculars, scape widened, about 3.3–3.4× as long as wide.

Female and male description

Bouček 1972.

Type material examined

Holotype

GHANA • ♀; Bodomase, E of Kumasi; 420 m a.s.l.; 6.54° N, 1.14° W; 17 Aug. 1967; S. Endrödy-Younga leg.; No 260; ex *Pennisetum purpureum*; NHMUK 5.2175.

Paratypes

GHANA • 14 ♀♀, 7 ♂♂; same collection data as for preceding; NHMUK • 2 ♀♀; same collection data as for preceding; ZISP • 1 ♀, 1 ♂; same collection data as for preceding; USNM.

Other material examined

CAMEROON • 10 ♀♀, 2 ♂♂; Idenao, R. Sanje; 4°14' N, 9°00' E; 13 May 2001; R.J. Post leg.; NHMUK • 1 ♀, 1 ♂; Yaoundé, Nkolbisson station; 15 Dec. 1966; P. Bruneau de Miré leg.; CIRAD.

GHANA • 1 ♀; Kumasi, Kwadaso; 3 Mar. 1977; G. Scheibelreiter leg.; NHMUK.

UGANDA • 1 ♂; Semliki, ~ 4 km SW of Bundimasoli; 17 Feb. 2013; A. Gumovsky leg.; dried marsh; DNA extract A08; SIZK.

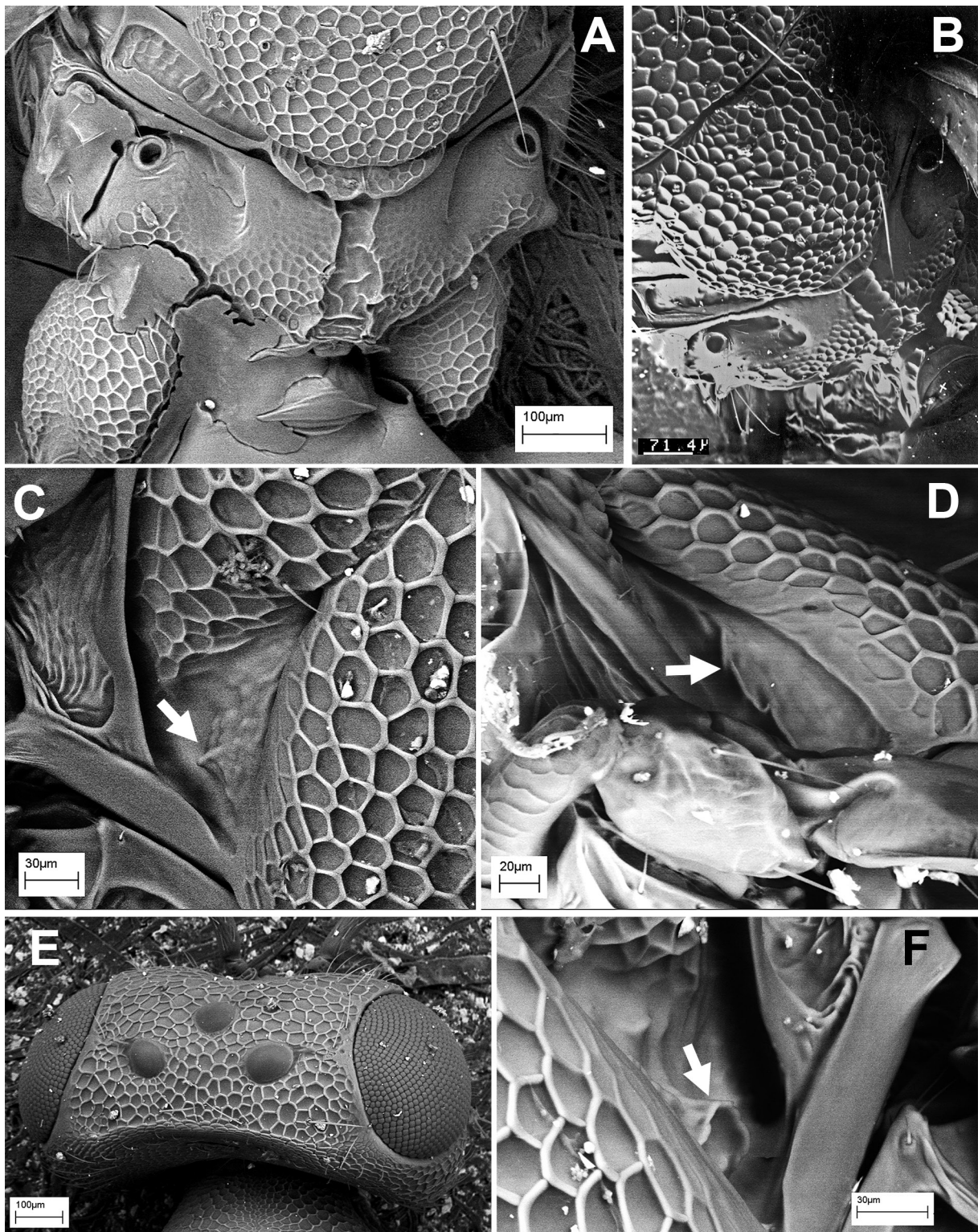


Fig. 9. A, C–D. *Colpixys necator* Waterston, 1916 (NHMUK). B. *C. eburnus* sp. nov. (paratype, Ivory Coast; CBGP). E–F. *C. gigas* Bouček, 1972 (paratype, Ghana; NHMUK). A–B. Propodeum. C–D, F. Axillula. E. Head in dorsal view.

Biology

Bred from languriid beetle larvae in stems of *Pennisetum purpureum*.

Distribution

Ghana (Bouček 1972; this paper), Cameroon, Uganda (new record).

Remarks

The species is highly distinct: it differs from both *C. necator* and *C. eburnus* sp. nov. in general habitus: longer gaster and antennal segments, in particular.

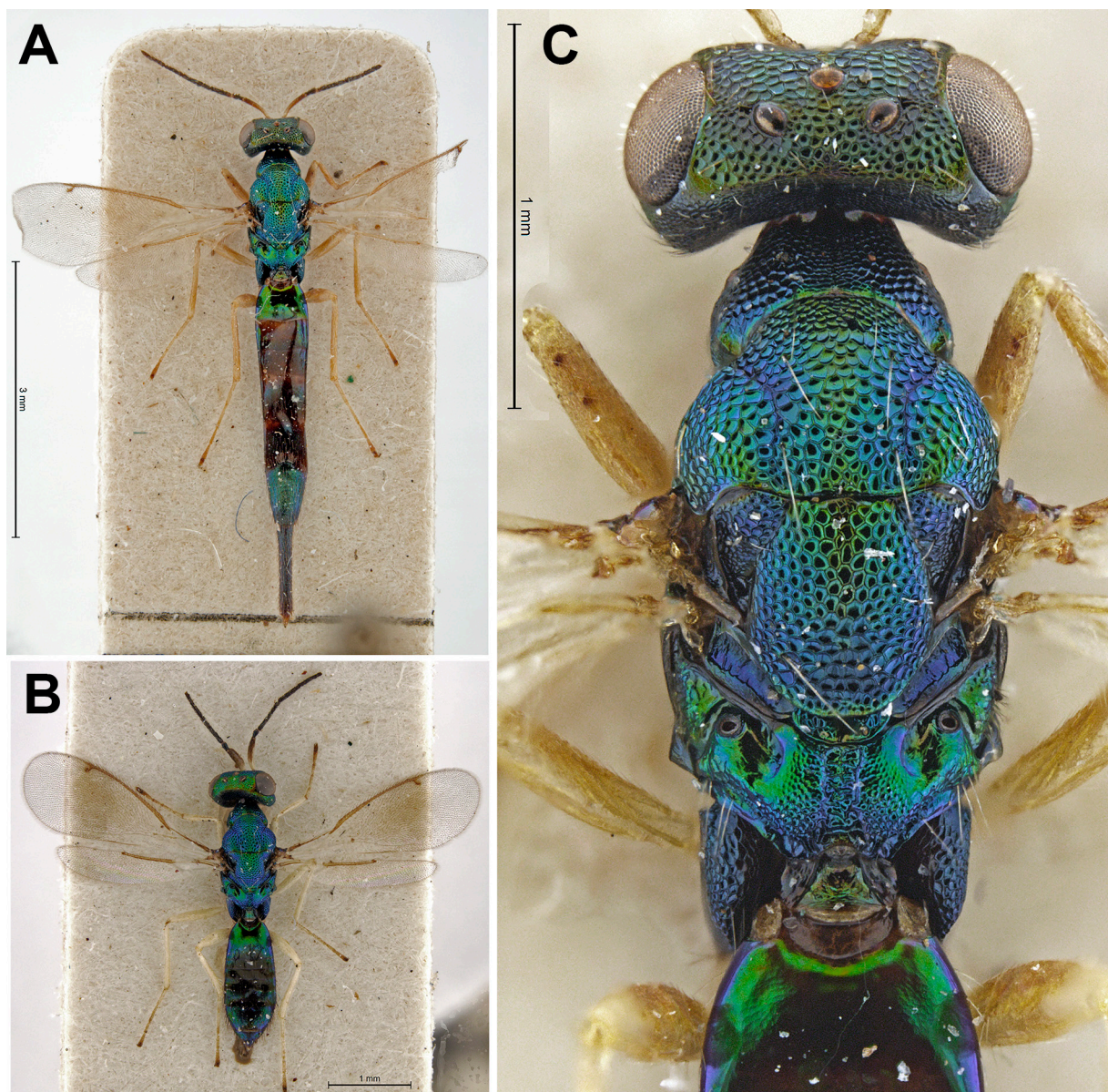


Fig. 10. *Colpixys gigas* Bouček, 1972, paratypes (Ghana; USNM). A–B. Habitus, ♀ (A) and ♂ (B). C. ♀, head, mesosoma and anterior part of metasoma.

Colpixys eburnus sp. nov.

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Figs 9B, 11

Diagnosis

As for the genus, and also: medium-sized species (about 2.5 mm in length, ♀); scape pale, only the base slightly darker, rest of antenna dark; fore and mid femora darkened (except tips), hind femur with a dark spot dorsally, pretarsi darker (Fig. 11); prosternum with a transverse carina or ridge at its arc; metascutellum short, but visible in dorsal view, about ¼ of length of propodeum, margins of median propodeal furrow sinuate and subparallel, its surface coriaceous (Figs 9B, 11F); fore wing with fuzzy weak cloud (Fig. 11A–C); metasomal petiole transverse, with robust raised and margined ‘roof’, about 0.3 × as long as propodeum (Figs 9B, 11F); WIP with broad red field along apical margin followed by narrow blue, green and violet stripes (Fig. 11B).

Female

Pedicel plus flagellum about 1.8 × as long as scape, scape slender, about 4.0–5.0 × as long as wide; gaster 1.1–1.2 × as long as wide, syntergum transverse; costal cell without setae on ventral side.

Etymology

The specific epithet concerns the collecting locality, Côte d’Ivoire (Ivory Coast): ‘*eburnus*’ is the Latin adjective for ‘*ivory*’.

Type material examined

Holotype

IVORY COAST • ♀; Lamto; Malaise trap; 9 Apr. 1985; J.-Y. Rasplus leg.; CBGP.

Paratypes

IVORY COAST • 1 ♀; same collection data as for holotype; 5 May 1985; CBGP • 1 ♀; same collection data as for holotype; 9 Apr. 1985; CBGP • 2 ♀♀; same collection data as for holotype; 16 Apr. 1985; CBGP • 1 ♀; same collection data as for holotype; 11 Apr. 1985; CBGP • 2 ♀♀; same collection data as for holotype; 27 Apr. 1985; CBGP • 1 ♀; same collection data as for holotype; 15 Apr. 1985; CBGP • 1 ♀; same collection data as for holotype; 29 Mar. 1985; CBGP • 1 ♀; Ranch Marahoué, 60 km NW of Mankono; gallery forest; Malaise trap; 16 Apr. 1980; J.W. Everts c.s. leg.; NHMUK.

Description

Female

Body length 2.0–2.4 mm. Dark green to black, with green or blue tint on posterior mesoscutum, propodeum and syntergum, mesoscutellum occasionally with violet tint; legs: coxae black, trochanters white, fore and mid femora broadly brown in mid part, hind femur pale with small brown spot posteriorly, tibiae pale; all tarsi pale brown; antennal scape pale, pedicel and flagellum dark; fore wing slightly infumate, venation pale brownish; OMA pale brown, sunken in a pit with raised borders.

Head in dorsal view 2.3–2.5 × as wide as long; ocelli of moderate size, MDO:OOL:OCL in ratio 66:69:65, POL 2.4–2.5 × OOL. Occipital margin carinate. Eye densely pubescent.

Head in frontal view 1.4 × as wide as high. Face evenly reticulate, but borders of meshes indistinct just above frontal sutures. Eye height and interocular distance in ratio 48:47, eye height about 4.0–4.5 × malar space. Surface between toruli poorly elevated. Width of oral fossa 2.7–2.8 × malar space.

Antenna inserted at a distance equivalent to the diameter of antennal torulus above lower eye margin. Antennal scape slender, about 4.0–5.0× as long as wide, 0.6× eye height, with ventral margin slightly flattened; combined length of pedicel plus flagellum 0.7–0.8× width of the head; pedicel slightly more than 2.0× as long as wide, 0.7–0.8× F1 which is about 3.0×, F2 nearly 2.0×, F3 about 2.0× as long as wide, clava two-segmented, about 2.0× as long as wide, with short terminal spine.

Mesosoma 1.5–1.6× as long as wide. Pronotal collar not carinate, pronotal shoulders wide, blunt. Prosternum with rugulose sculpture, with distinct, short subtriangular flange. Mesoscutum nearly 2.0× as broad as long; mesoscutellum wide, as long as wide, slightly longer than mesoscutum. Axilla with one seta.

Axillula without a projection, with rugulose sculpture.

Metascutellum short, in shape of a narrow semi-circular bar, about ¼ length of propodeum.

Propodeum lightly reticulate anteriorly and coarser posteriorly, with rugulose median furrow delimited by irregularly sinuate rugae. Supracoxal flange narrow.

Fore wing about 2.0× as long as wide, CC mostly asetose, but occasionally with isolated short setae moved from SC, 7.0–9.0× as long as wide, SC with two setae; MV 1.4–1.5× CC, PMV slightly longer than STV; speculum partly closed below: basal hairline represented by two setae, cubital hairline by a row of five setae, though these rows not meeting; apical marginal fringe short, length and mean width of PR in ratio 2:3.

Metasomal petiole robust conical, slightly broader than long, with clearly sculptured and sharply margined dorsal ‘roof’, about 0.3× as long as propodeum. Gaster slightly longer than broad. OMA delimited by somewhat raised margins.

Male

Unknown.

Biology

Unknown.

Distribution

Ivory Coast.

Remarks

The species differs from *C. necator* in possessing a short petiolate metasoma, in particular, in the shape of the metasomal petiole with a distinctly margined ‘roof’ being about 0.3× as long as the propodeum (0.4× in *C. necator*), the relatively narrow metascutellum being about ¼ of length of the propodeum (about ⅓ in *C. necator*) and the prosternum bearing a carina on its arc (evenly curved in *C. necator*).

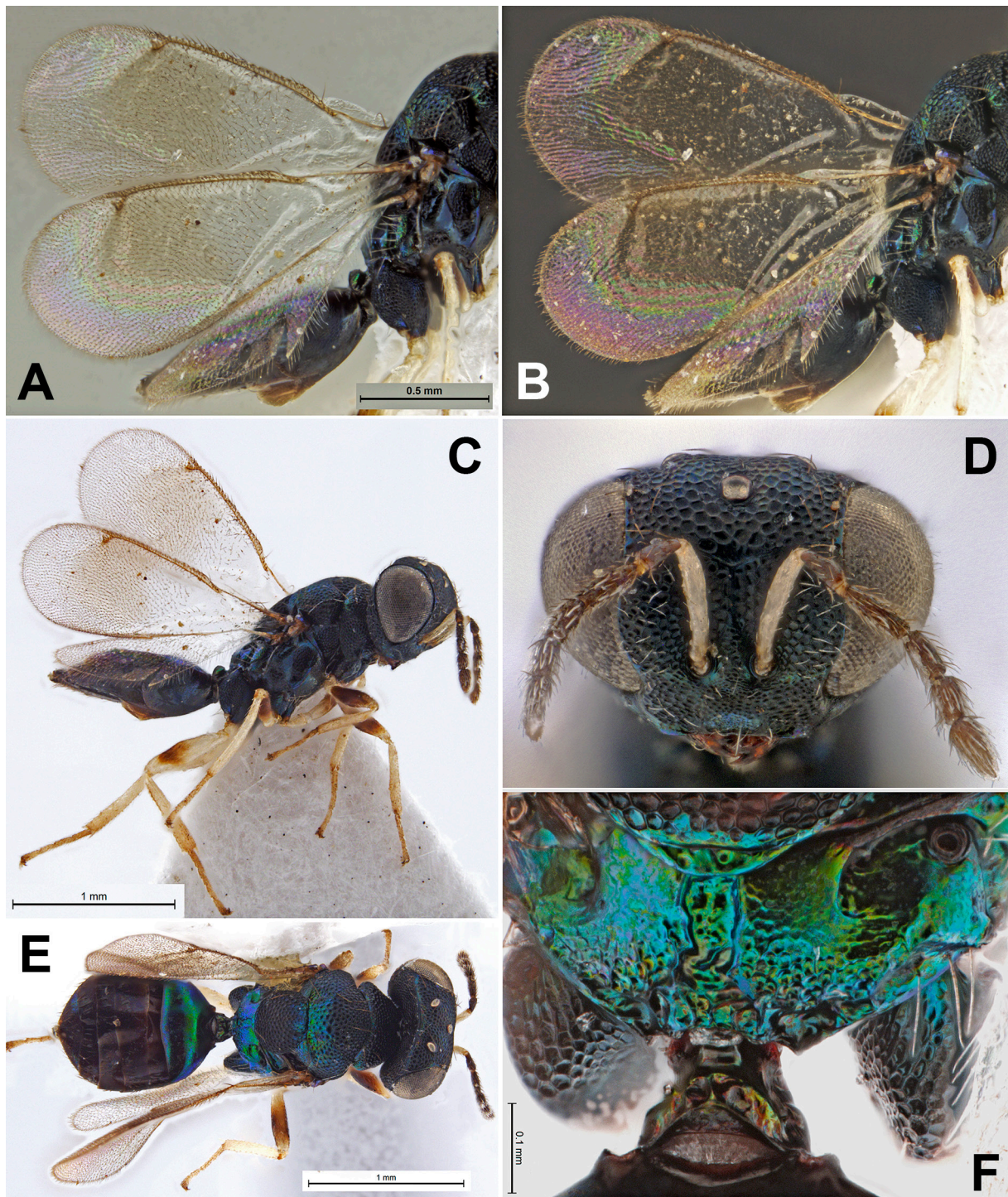


Fig. 11. *Colpixys eburnus* sp. nov., ♀, holotype (Ivory Coast; CBGP). **A–B.** Wings under direct (A) and reflected (B, showing WIP) light. **C, E.** Habitus in lateral (C) and dorsal (E) views. **D.** Head in frontal view. **F.** Propodeum.

Genus *Xiphentedon* Risbec, 1957

Xiphentedon Risbec, 1957: 150.

Cederholmia Gumovsky, 1997: 26 (as a subgenus of *Entedon*), **syn. nov.**

Type species

Xiphentedon kayovei Risbec, 1957, by monotypy and original designation.

Diagnosis

Pronotum with lateral semicircular ridge under protruding shoulders (Fig. 2F); face with V-shaped frontal sutures; propodeum with Y- or V-shaped smooth or coriaceous median strip (not carina), lateral propodeal sulcus complete (except for *X. acutigena* sp. nov.) (Figs 1D, 18C); prosternum with protruding flange (often with pubescence on ventral side) (Figs 22A, 27E–F, 36C–D); mesopectus densely pubescent above mesofurcal pit; notauli poorly traced as shallow depressions (Fig. 13C); mesepisternum with weak, but mostly traceable epicnemial protrusion (Fig. 22D, epp); axillula with indentated projection (Figs 12F, 16C, 18D, 19G, 20F, 24G, 28B, D, 30D, 36F); metascutellum mostly in shape of a narrow bar, barely visible in dorsal view (for example, Figs 1D, 14E, 18C–D, 19D, 21C); gaster of males (when known) with pale sub-basal spot (Figs 15C–D, 23F, 24A, 33F, 35C, 37G); WIP with broad red or violet-blue field along apical margin followed by narrow blue, green and violet stripes (Figs 14B, 15B, 18B, 19C, 20C, 21B, 25A, 26B, 29B, 30B, 31C, 33H, 36B); antenna of both sexes with three-segmented funicle and two-segmented clava (males: figs 15C–D, 21E, 23G, 29G, 33F, 35C, 37G–H).

Three species groups are recognized: *kayovei*, *danielssoni* and *forceps* (all proposed here).

Remarks

The subgenus *Cederholmia* of *Entedon*, described by Gumovsky (1997) for two African species, *E. (C.) halli* and *E. (C.) danielssoni*, was diagnosed by the propodeal median strip. The comparison of both species with *X. kayovei*, the type species of *Xiphentedon*, suggests their prospective close relationship and supports placement within the same taxon. Since *Xiphentedon* is considered here to be a valid genus, *Cederholmia* is considered a junior synonym, with consequent new combinations of both its species.

Biology

The only available host record (for *X. nesororum* sp. nov.) concerns a leafrolling weevil (Curculionoidea): perhaps either a curculionid or brentid.

Distribution

Afrotropical region: wide range of sub-Saharan countries.

***kayovei* species group**

Diagnosis

Body mostly slender; anterior margin of mesoscutellum nearly straight or with weak indentation, but never with a distinct advanced paired anteromedian protrusion. Generally, medium-sized species: greater than 2.0 mm in length.

Xiphentedon kayovei Risbec, 1957
Figs 12–14

Xiphentedon kayovei Risbec, 1957: 150.

Diagnosis

As for the genus and group and also: scape pale, pedicel and flagellum dark (Fig. 14F); head dorsally about $2.5\times$ as wide as long; interantennal space without a process; gena slightly bulging (Figs 13B, F, 14F); fore tibia with two pale stripes, mid and hind tibiae dark basally, pale distally, but with a different darkening: hind tibia dark at most on its basal half, but mid tibia dark on about its basal $\frac{3}{4}$ – $\frac{4}{5}$ (Figs 12A, 14A, C); axillular projection bidentate and broadly sessile (Figs 13D); median propodeal strip broad, smooth, not sunken (Figs 13C, 14E).

Female

Length 4.0 mm. Pedicel plus flagellum about $2.0\times$ as long as scape; gaster about $4.0\times$ as long as wide, syntergum at least $6.6\times$ as long as wide; CC with two to six short setae on ventral side (not always seen, moved from ventral margin of SC); WIP: with very broad blue field along apical margin and with narrow blue and green fields.

Male (not previously known)

Metasomal petiole slightly less than $3.0\times$ as long as its basal width, without anterior collar.

Type material examined

Holotype

RWANDA • ♀ (pinned on a minute pin); Kayove, terr. Kisenyi; 200 m a.s.l.; 14 Feb. 1953; P. Basilewsky leg.; MRAC.

Other material examined

DEMOCRATIC REPUBLIC OF THE CONGO • 1 ♀; “Congo Belge : P.N.A., Kitondo (près Gandjo), 2000 m., 7–23 Jan. 1935, G.F. de Witte : 1025”; MRAC • 1 ♀; “Congo belge : P.N.A., Mt. Sessero, près Bitashimwa (Bambous), 2000 m, 1–2 Aug. 1934, G.F. de Witte : 505”; MRAC • 1 ♀; “Congo belge : P.N.U. [Park Nationale Upemba], Kaziba affl. g. Senze s. (affl. dr. Lufira), 1.140 m., 8–14 Feb. 1948, Mis. G.F. de Witte. 1274a”; MRAC • 1 ♀; “Congo Belge : Kivu, Nyongera (près Rutshuru), 1218 m., 18 Jul. 1935, G.F. de Witte : 1665”; MRAC • 1 ♂; “Congo belge : P.N.A., Kanyabayongo (Kabasha), 1760 m, 6 Dec. 1934, G.F. de Witte : 871”; MRAC.

RWANDA • 1 ♂; same collection data as for holotype; “R. DET. 7289 E.”; MRAC • 2 ♀♀, 2 ♂♂; “Congo belge : Ruanda, Ruhengeri (Sources Kirii), 1800–1825 m., 562”; 31 Aug. 1934; G.F. de Witte; MRAC.

UGANDA • 1 ♀; near Kampala, 2 km E of Mukono; 21 Mar. 2009; A. Gumovsky leg.; sweeping on grassland and palms; SIZK.

Biology

Unknown.

Distribution

Rwanda (Risbec 1957), DRC, Uganda (new records).

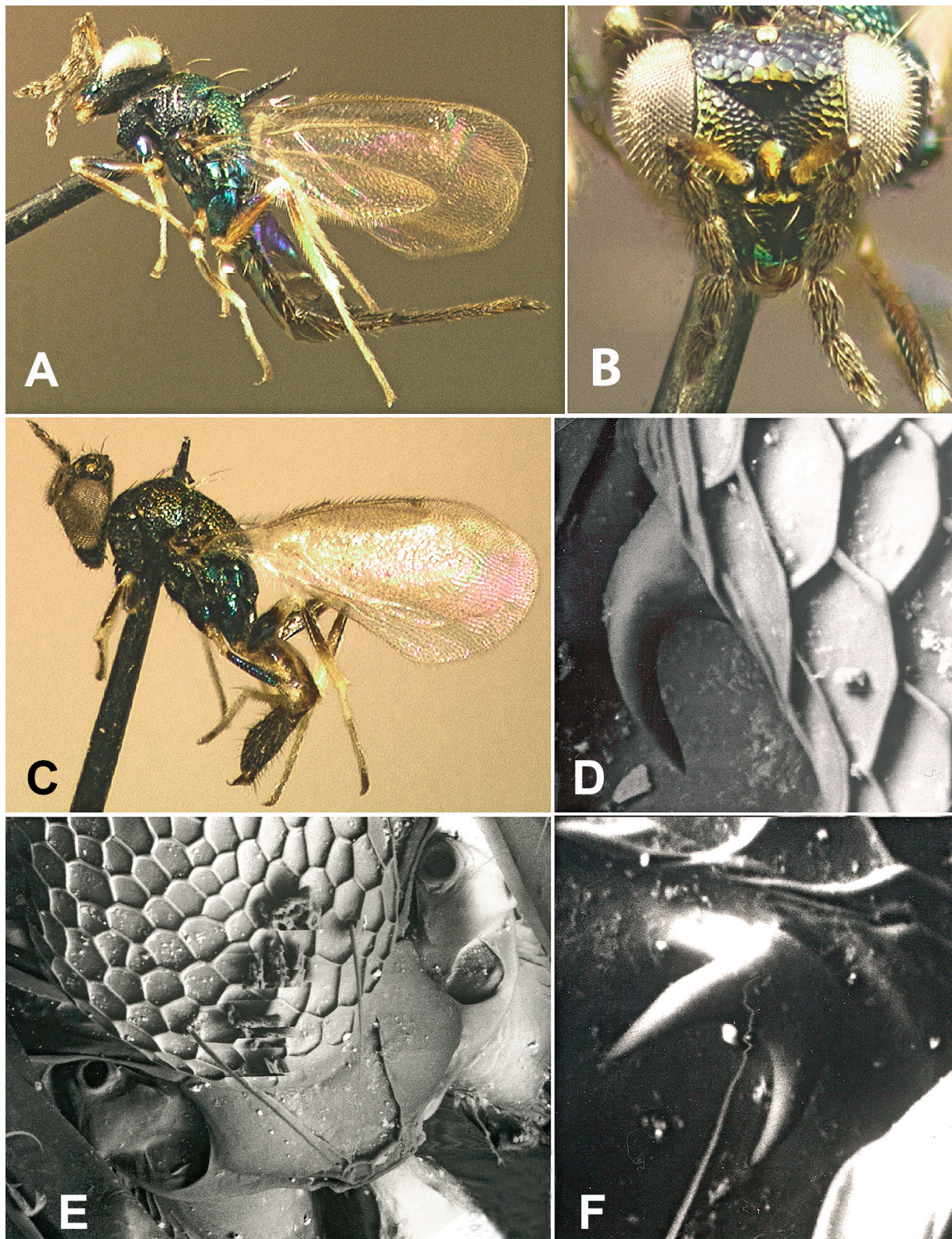


Fig. 12. *Xiphentedon kayovei* Risbec, 1957. **A–B.** ♀, holotype (Rwanda; MRAC). **C–F.** ♂ (Rwanda; MRAC). **A, C.** Habitus in lateral view. **B.** Head in frontal view. **D, F.** Axillula. **E.** Propodeum.

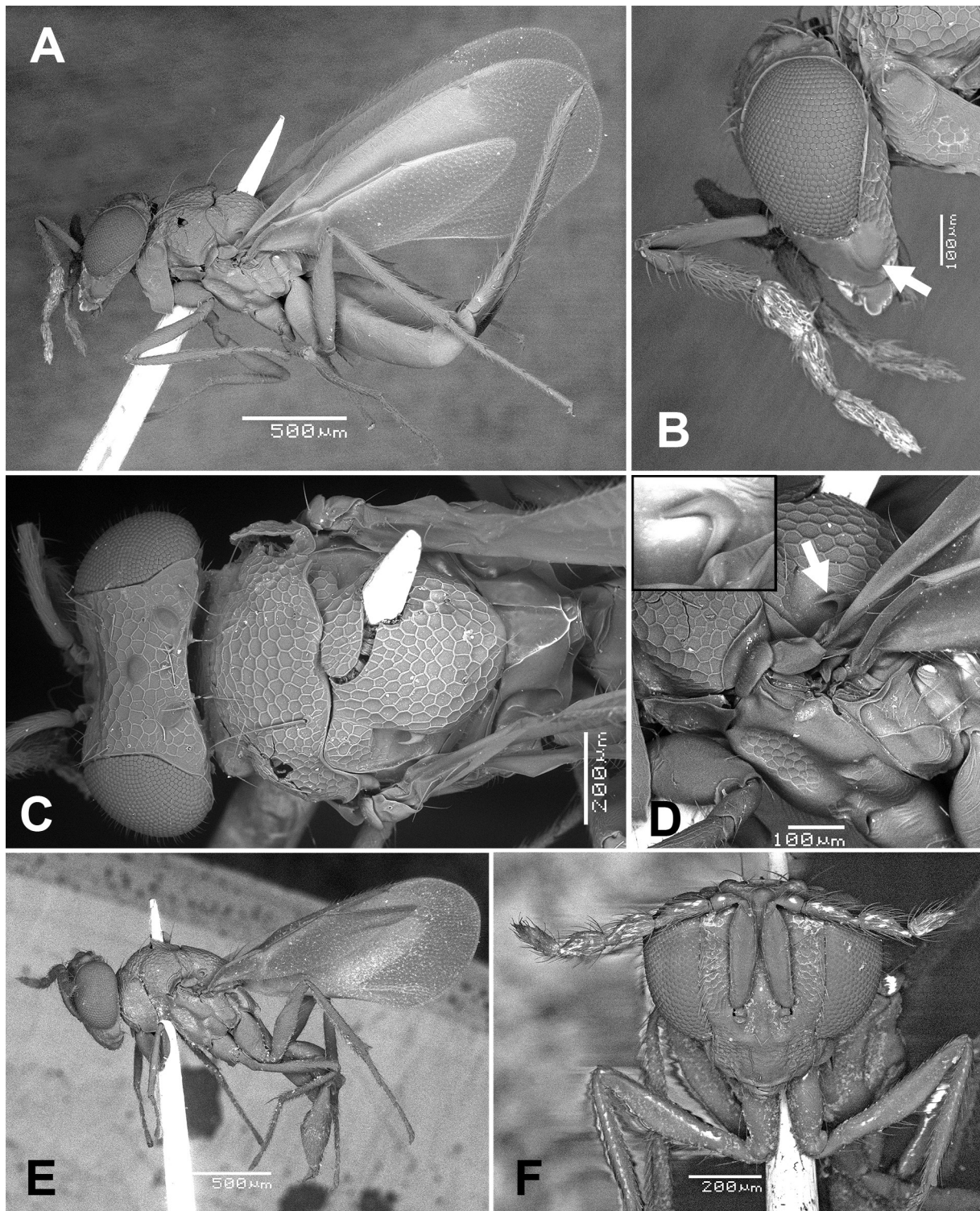


Fig. 13. *Xiphentedon kayovei* Risbec, 1957. **A–D.** ♀, holotype (Rwanda; MRAC). **E–F.** ♂ (Rwanda; MRAC). **A, E.** Habitus in lateral view. **B.** Head enlarged. **C.** Head and mesosoma in dorsal view. **D.** Part of mesosoma in lateral view, axillula is arrowed and is shown in inset. **F.** Head in frontal view.

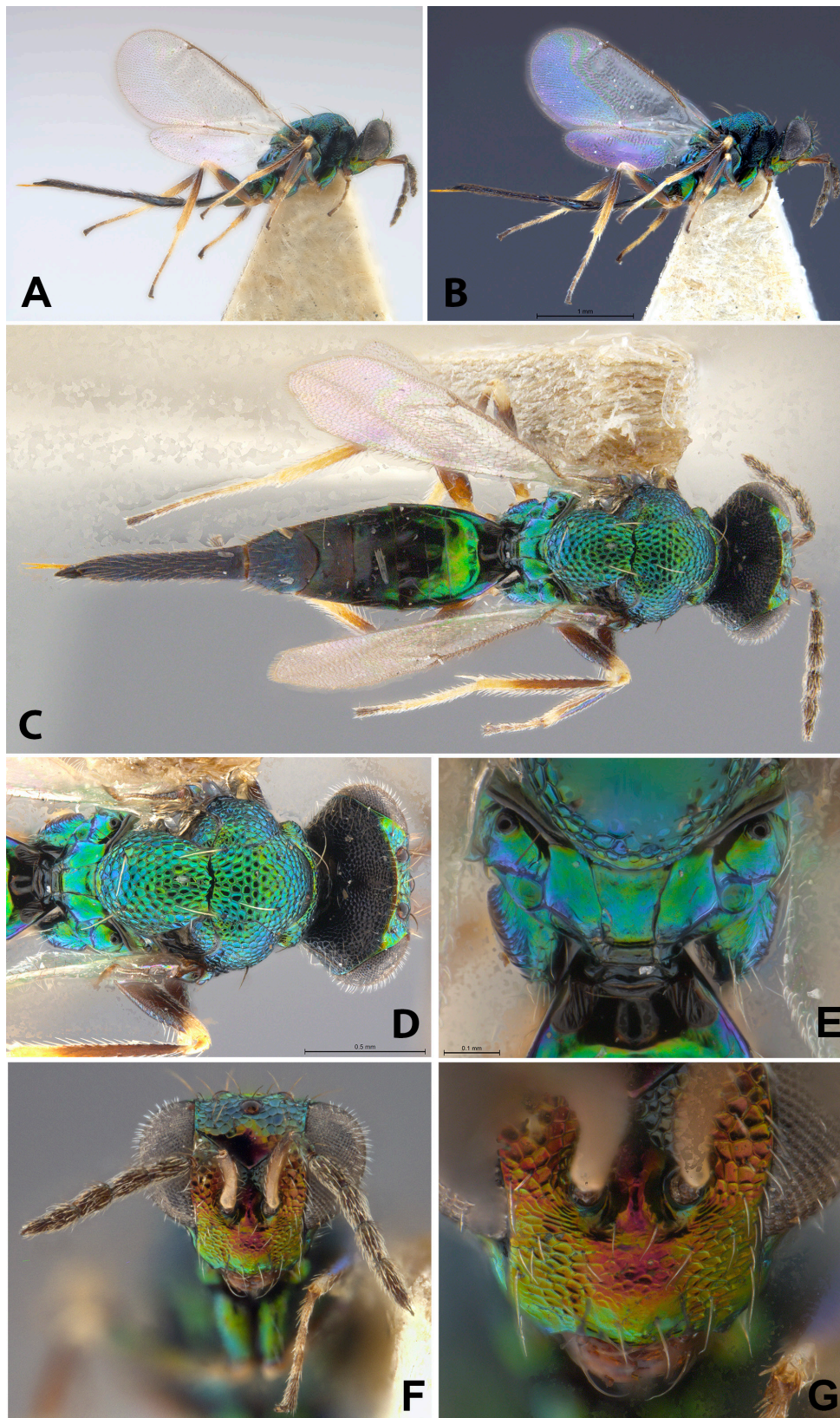


Fig. 14. *Xiphentedon kayovei* Risbec, 1957, ♀ (Rwanda; MRAC). **A–B.** Habitus in lateral view. **C.** Habitus in dorsal view. **D.** Head and mesosoma. **E.** Propodeum. **F–G.** Head in frontal view. **F.** General view. **G.** Lower face enlarged.

Remarks

The species is somewhat confusable with *X. nesororum* sp. nov., but differs in having a longer syntergum in the female (about $5.0\times$ as long as wide, whereas about $3.0\times$ in *X. nesororum*); different dark coloration of mid and hind tibiae (the tibiae darkened similarly in *X. nesororum*), and in the longer metasomal petiole of the male (nearly $2.8\times$ as long as wide, whereas it is slightly longer than broad in *X. nesororum*).

Xiphentedon nesororum sp. nov.

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Figs 15–16

Diagnosis

As for the group and also: scape pale, pedicel and flagellum dark; head dorsally nearly $3.0\times$ as wide as long; interantennal space without a process; gena moderately bulging; fore tibia with two pale stripes, mid and hind tibiae darkened similarly, both not more than on basal half (Fig. 15A–B); axillular projection bidentate, situated on a short ‘neck’ (Fig. 16C); median propodeal strip broad and smooth (Fig. 1D).

Female

Pedicel plus flagellum about $2.0\times$ as long as scape; funicular segments with short peduncles; gaster about $3.2\times$ as long as wide, syntergum $3.6\times$ as long as wide (Fig. 16D); costal cell with three setae on ventral margin; WIP with broad violet field along apical margin, followed by narrow yellow and violet fields (Fig. 15B).

Male

Metasomal petiole slightly longer than broad, with calliform anterior collar.

Etymology

This species is named in honour of the collectors, Stefan and Otilie Nesor. The species epithet is a Latin noun in the genitive case plural, not changing with the gender of the genus.

Type material examined

Holotype

REPUBLIC OF SOUTH AFRICA • ♀; “South Africa, Transvaal” [now in Limpopo Province], NE of Penge, Sekororo Kloof; 24°25' S, 30°27' E; “ex leaf roll of curculionid on *Syzgium cordatum*; AcSN 1431”; 2 Apr. 1988; S. and O. Nesor leg.; SANC.

Paratypes

REPUBLIC OF SOUTH AFRICA • 7 ♀♀, 4 ♂♂ (pinned); same collection data as for holotype; SANC • 1 ♀, 1 ♂ (pinned); same collection data as for holotype; NHMUK • 10 ♀♀, 6 ♂♂ (gelatin capsule; 1 ♀ was used for SEM and slide mounting); same collection data as for holotype; SANC.

Description

Female

Length 3.3–3.5 mm. Body dark with gaster bluish and coxae green, face bronze-gold; trochanters pale to transparent, femora pale brown, more intensely dark dorsally, fore tibia with two pale stripes; mid and hind tibiae darkened similarly, both not more than on basal half; fore tarsi brownish, mid and hind tarsi pale, except for darker pretarsi; antennal scape pale brown with small dark area apically, pedicel and flagellum dark; wings hyaline, venation pale; metasoma brown with green-violet tint, OMA dark, traced mainly by sculpture.

Head in dorsal view about $2.8\text{--}3.0\times$ as wide as long. Ocelli moderate in size, MDO : OOL : OCL in ratio 5 : 6 : 2, POL $3.6\times$ OOL. Occipital margin traced as a sharp carina raised laterally into very small peaks.

Head in frontal view about $2.5\times$ as wide as high. Smooth area above frontal sutures reaching at most half distance between cross point of frontal sutures and level of their junction with eye orbits. Eye height and interocular distance in ratio 43 : 40. Eye densely pubescent along its posterior margin, eye height about $3.0\times$ malar space. Surface between traceable scrobal depressions weakly raised. Width of oral fossa $1.8\text{--}1.9\times$ malar space. Antenna inserted at a distance slightly longer than major diameter of torulus above level of ventral eye margin.

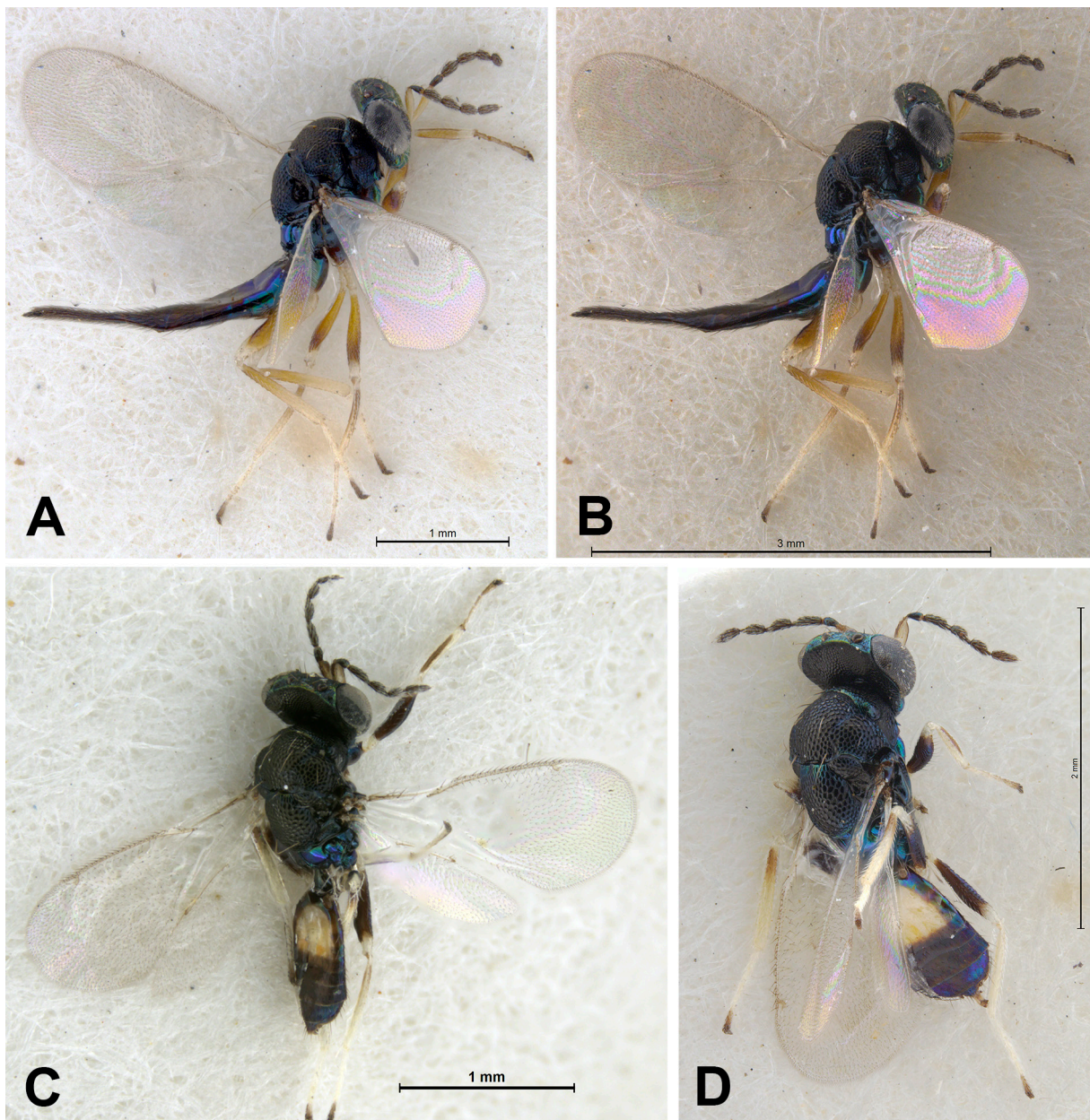


Fig. 15. *Xiphentedon nesororum* sp. nov., paratypes (RSA; SANC). A–B. ♀, habitus. C–D. ♂, habitus.

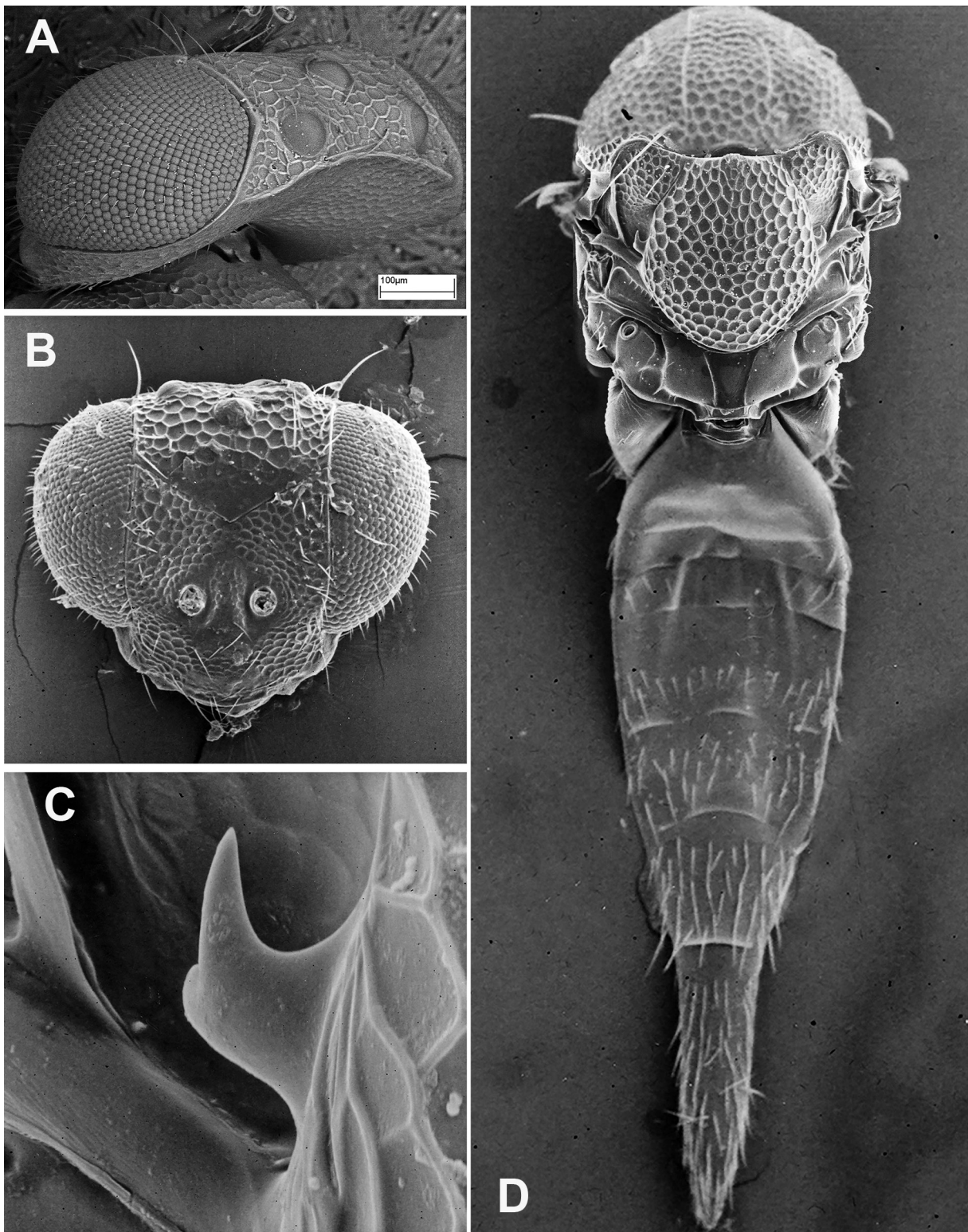


Fig. 16. *Xiphentedon neserorum* sp. nov., ♀ (RSA; NHMUK). **A.** Head in latero-dorsal view. **B.** Head in frontal view. **C.** Axillula. **D.** Meso- and metasoma.

Scape about $5.0\times$ as long as wide, $0.7\times$ eye height, with ventral margin slightly flattened; combined length of pedicel and flagellum $0.8\times$ width of head; pedicel $1.7\times$ as long as wide, nearly $0.8\times$ F1, which is slightly longer than F2, and both slightly less than $2.0\times$ as long as wide, F3 $1.6\times$ as long as wide, clava $2.2\text{--}2.3\times$ as long as wide, with short terminal spine.

Mesosoma nearly $1.6\times$ as long as wide. Pronotal collar not carinate; mesoscutum $1.5\text{--}1.6\times$ as broad as long, mesoscutellum slightly longer than broad, slightly longer than mesoscutum. Axillula bearing bidentate projection sitting on a ‘neck’.

Propodeum with smooth trapeziform median strip delimited by two nearly straight carinae; submedian areas smooth and shiny. Spiracular elevation of propodeum nearly flat, with very short tubercle posteriad. Lateral propodeal sulcus complete. Supracoxal flange of moderate width. Spur of hind tibia as long as width of tibia.

Fore wing about $2.0\times$ as long as wide. CC with three setae moved from ventral margin of SC, about $6.5\times$ as long as wide, SC with two setae on dorsal margin; MV about $1.3\times$ CC, PMV as long as STV. Speculum open below. Apical marginal fringe slightly shorter than width of PR in its widest part.

Metasomal petiole transverse, reduced to a narrow band. Gaster $3.2\text{--}3.4\times$ as long as wide, syntergum elongate, about $3.5\times$ as long as wide, almost $\frac{1}{3}$ of length of gaster.

Male

Differs from female as follows: face, propodeum, and coxae blue, scape $3.7\text{--}3.8\times$, pedicel $1.7\text{--}1.8\times$, F1 $3.0\text{--}3.5\times$, F2 and F3 about $1.5\text{--}1.6\times$, clava $2.5\text{--}3.5\times$ (depending upon flattening as a result of drying) as long as wide. Metasomal petiole pyriform, slightly longer than broad, without a distinct collar.

Biology

The type series was reared from a curculionid (? brentid) leaf roll on *Syzigium cordatum* (umdoni: isi-Zulu).

Distribution

RSA.

Remarks

Xiphentedon neserorum sp. nov. is similar to *X. kayovei*, but differs as described above for the latter species.

Xiphentedon halli (Gumovsky, 1997) comb. nov.

Fig. 17

Entedon (Cederholmia) halli Gumovsky, 1997: 26.

Diagnosis

As for the group and also: scape pale, pedicel and flagellum dark; head dorsally nearly $3.0\times$ as wide as long (Fig. 17H); interantennal space without a process; gena bulging; fore tibia pale brown with two dark stripes, mid and hind tibiae darkened similarly, both not more than on basal half; axillular projection bidentate; median propodeal strip broad and smooth (Fig. 17H).

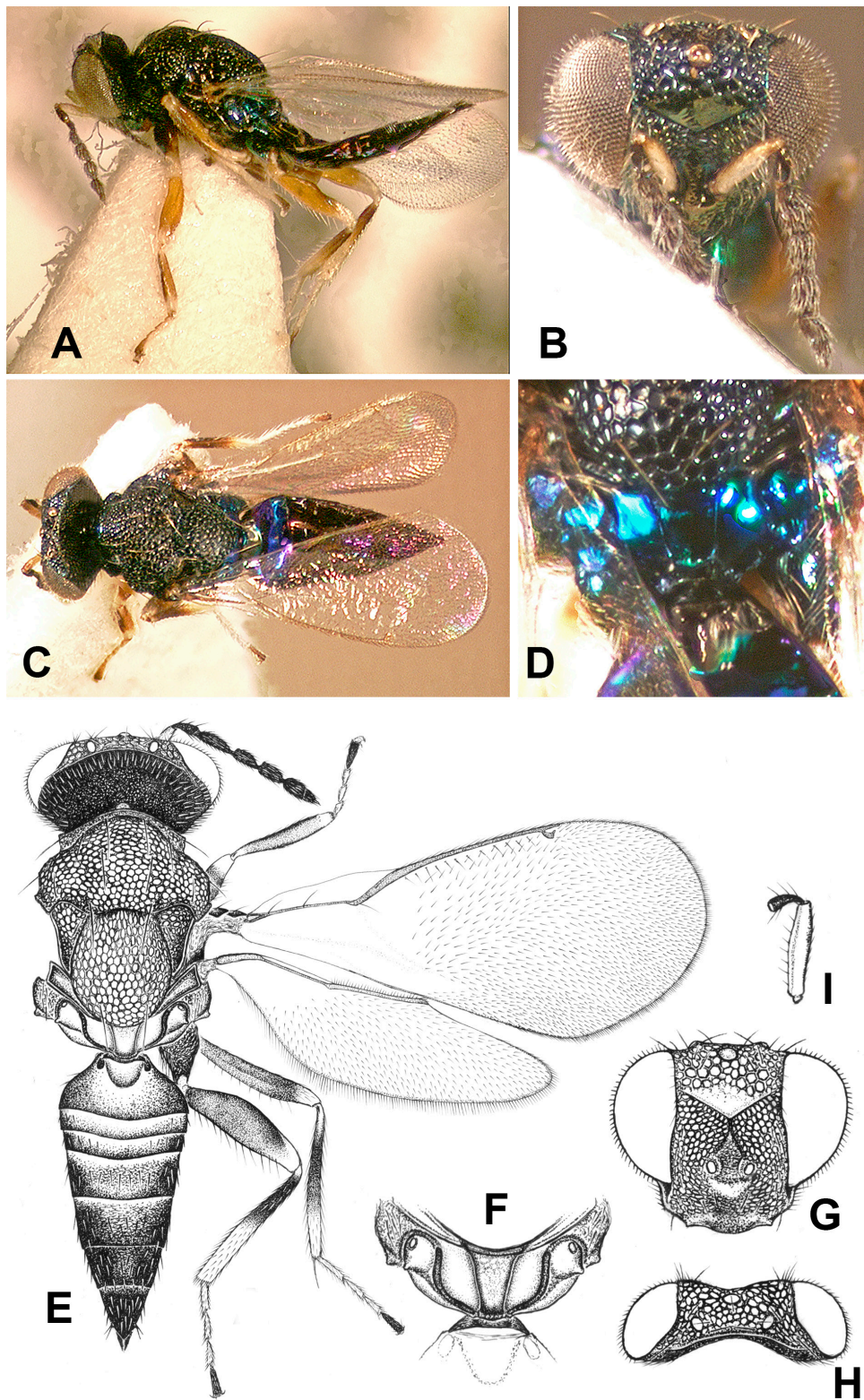


Fig. 17. *Xiphentedon halli* (Gumovsky, 1997) comb. nov., ♀, holotype (Sierra-Leone; MZLU). A–D. Color images. E–I. Line drawings from Gumovsky (1997). A, C, E. Habitus. A. Lateral view. C, E. Dorsal view. B, G. Head in frontal view. D, F. Propodeum. H. Head in dorsal view. I. Antennal scape and pedicel.

Type material examined

Holotype

SIERRA LEONE • ♀; Karina distr., at Makeni-Kabala road; 11°57' W, 9°17' N; 28 Nov. 1993; L. Cederholm, R. Danielsson and R. Hall leg.; loc. 10; Lund University Sierra Leone Expedition 1993; MZLU.

Description

Female

Pedicle plus flagellum about $2.7\times$ as long as scape, gaster about $4.0\times$ as long as wide, syntergum at least $6.6\times$ as long as wide (Fig. 17C, E); CC asetose.

Male

Unknown.

Biology

Unknown.

Distribution

Sierra Leone (Gumovsky, 1997).

Remarks

This species is so far only known from the holotype; there are some male specimens from other Afrotropical areas which may or may not be conspecific; however, this is difficult to infer solely from the morphology. The female of *X. halli* comb. nov. differs from those of the similar species *X. kayovei* and *X. neserorum* sp. nov. in having a shorter gaster and shorter antennal segments, and also in the asetose costal cell of the fore wing.

Xiphentedon musimba sp. nov.

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Fig. 18

Diagnosis

As for the group and also: scape, pedicel and flagellum dark, head dorsally nearly $3.0\times$ as wide as long (Fig. 18F); interantennal space slightly elevated, but without a process, coarsely reticulate, gena weakly bulging (Fig. 18E); all legs dark, with just tips of tibiae and femora and two basal tarsomeres paler (Fig. 18A); axillular projection with jagged margin bearing four to five teeth, sitting on a ‘neck’ (Fig. 18D); median propodeal strip broad Y-shaped, light coriaceous (Fig. 18C).

Female

Pedicle plus flagellum about $2.7\text{--}2.8\times$ as long as scape, flagellum with relatively robust segments, clavate (Fig. 18B); gaster about $1.2\times$ as long as wide, syntergum broader than long (Fig. 18A); CC asetose; WIP with broad violet field along apical margin, followed by narrow green and violet stripes (Fig. 18B).

Etymology

The species name is derived from the locality, Mt. Musimba (Tshiaberimu), situated at $0^{\circ}9'\text{--}0^{\circ}11'\text{ S}$, $29^{\circ}24'\text{--}29^{\circ}31'\text{ E}$, near the Musavaki River, a tributary of the North Talya River, Virunga National Park (formerly Albert National Park) in North Kivu Province, DRC – one of the world’s most biodiverse and

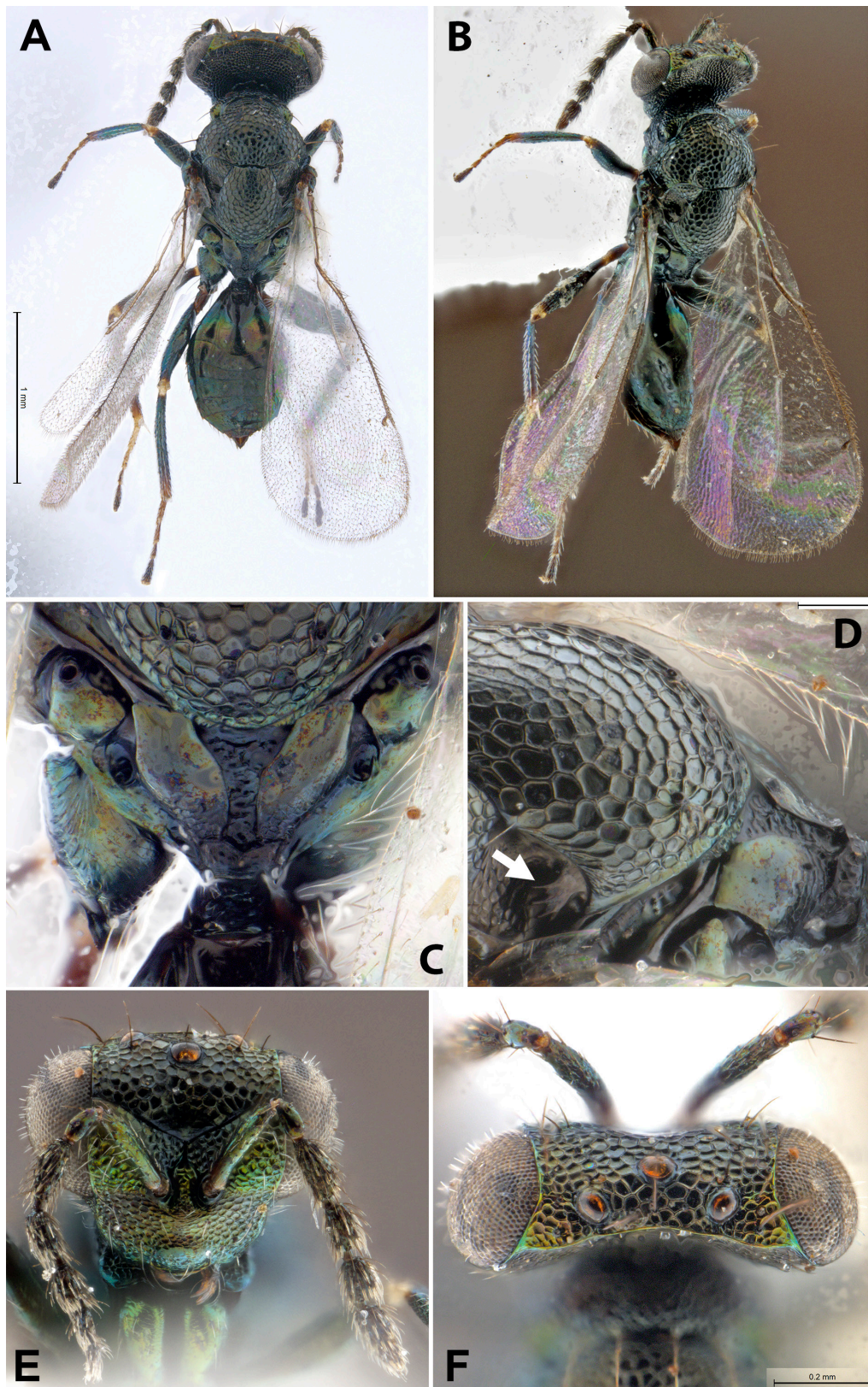


Fig. 18. *Xiphentedon musimba* sp. nov., ♀, holotype (DRC; MRAC). **A–B.** Habitus. **A.** Dorsal view. **B.** Dorso-lateral view. **C.** Propodeum. **D.** Posterior mesosoma in dorso-lateral view (axillula is arrowed). **E.** Face. **F.** Head in dorsal view.

threatened tropical forests. The specific epithet is a noun that does not change with changing generic gender.

Type material examined

Holotype

DEMOCRATIC REPUBLIC OF THE CONGO • ♀; “‘Congo Belge’: P.N.A. (Albert Nat. Park), 12.806-12, Secteur Tshiaberimu, Mont Musimba, 2.450 m, près riv. Musavaki”; 18 Apr. 1955; P. Vanschuytbroeck and R. Fonteyn leg.; MRAC.

Description

Female

Length 2.4 mm. Body dark green, face and first metasomal tergum bright metallic; trochanters dark brown, femora dark metallic, tibiae dark metallic except for paler extreme tips; fore tarsi and two terminal tarsomeres of mid and hind tarsi dark brown, first two tarsomeres of mid and hind legs paler; antenna dark metallic; wings hyaline, venation dark brown; metasoma dark green, OMA dark, traced mainly by sculpture.

Head in dorsal view about $3.0\times$ as wide as long. Ocelli large, MDO:OOL:OCL in ratio 4.2:4.0:1.7, POL $2.7\times$ OOL. Occipital margin traced as a sharp carina raised laterally into small peaks.

Head in frontal view about $1.3\times$ as wide as high. Smooth area above frontal sutures reaching at most half the distance between cross point of frontal sutures and level of their junction with eye orbits. Eye height about $0.8\times$ interocular distance and nearly $2.0\times$ malar space. Interantennal space weakly raised, but without a process. Width of oral fossa $1.4\times$ malar space. Antenna inserted at level of ventral eye margin.

Scape about $5.0\times$ as long as wide, $0.7\times$ eye height; combined length of pedicel and flagellum about as long as width of head; pedicel $1.8\times$ as long as wide, nearly $0.7\times$ F1, which is slightly more than $2.0\times$, F2 about $1.6\times$, F3 $1.3\times$, clava about $2.2\times$ as long as wide, with short terminal spine.

Mesosoma about $1.7\times$ as long as wide. Pronotal collar not carinate; mesoscutum $1.5\times$ as broad as long; mesoscutellum slightly longer than broad, slightly longer than mesoscutum. Axillula with a projection sitting on a ‘neck’, with four to five spines.

Propodeum with slightly sunken, coriaceous median strip, of broad Y shape; submedian areas mostly flat, smooth anteriorly but with light reticulation near nucha. Spiracular elevation of propodeum convex, with short blunt tubercle posteriad. Lateral propodeal sulcus complete, narrower apically, wider posteriorly. Supracoxal flange relatively narrow.

Fore wing $2.0\times$ as long as wide; CC asetose, nearly $7.0\times$ as long as wide, SC with two setae on dorsal margin; MV slightly longer than CC, PMV about as long as STV. Speculum open below. Apical marginal fringe as long as or slightly longer than width of PR at its widest part.

Metasomal petiole robust, long, about $2.0\times$ as long as wide (may look shorter in dorsal view due to its abrupt position to axis of mesosoma), about as long as propodeum. Gaster $1.5\times$ as long as wide, syntergum transverse, nearly $4.0\times$ as broad as long, about $\frac{1}{2}$ of length of entire gaster.

Male

Unknown.

Biology

Unknown.

Distribution

DRC.

Remarks

This species is reminiscent of *X. dewittei* sp. nov. in having a Y-shaped median strip of the propodeum and a multidentate axillular projection. However, it differs from *X. dewittei* in having an entirely dark antennal scape (half pale in *X. dewittei*), a long and robust metasomal petiole (short conical in *X. dewittei*) and a nearly evenly curved genae (bulging in *X. dewittei*).

Xiphentedon simoni sp. nov.

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Fig. 19

Diagnosis

As for the group, but propodeal median strip sculptured and anterior margin of mesoscutellum with very short median paired indentation (Fig. 19D); and also: scape, pedicel and flagellum dark; head dorsally almost $3.0\times$ as wide as long (Fig. 19E); interantennal space without a process; gena weakly bulging (Fig. 19F); all legs dark, just tips of tibiae and femora and three basal tarsomeres pale (Fig. 19A–B); axillular projection nearly sessile, with six teeth (Fig. 19G); median propodeal strip broad V-shaped, light coriaceous, posterior part of propodeal submedian areas (near nucha) light coriaceous (Fig. 19D).

Female

Pedicel plus flagellum about $2.4\times$ as long as scape; gaster about $2.3\times$ as long as wide, syntergum about $1.3\text{--}1.4\times$ as long as wide (Fig. 19A); CC with three setae on ventral margin; WIP with broad red field along apical margin followed by narrow blue, green and violet stripes (Fig. 19C).

Etymology

This species is named in honour of the South African entomologist Simon van Noort, who collected the holotype. The species epithet is a Latin noun in the genitive case, not changing with the gender of the genus.

Type material examined

Holotype

TANZANIA • ♀; Nakombo River, base of Pare Mtns, above Kisiwani, riverine forest; 4.10° S, 37.57° E; 29 Nov. 1995; S. van Noort leg.; sweep; SAM-HYM-P015112; SAMC.

Description

Female

Length 3.0 mm. Body dark blue, face with green tint; trochanters dark brown, femora dark metallic, tibiae dark metallic except for paler extreme tips; fore tarsi and pretarsi of mid and hind legs dark brown, other tarsomeres paler; antenna dark metallic; wings hyaline, venation pale brown; metasoma blue green, OMA dark, traced mainly by sculpture.

Head in dorsal view about $2.8\times$ as wide as long. Ocelli large, POL $2.5\times$ OOL, MDO : OOL : OCL in ratio 34 : 38 : 22. Occipital margin traced as a sharp carina raised laterally into small peaks.

Head in frontal view nearly $3.0\times$ as wide as high. Smooth area above frontal sutures reaching to slightly less than half the distance between cross point of frontal sutures and level of their junction with eye

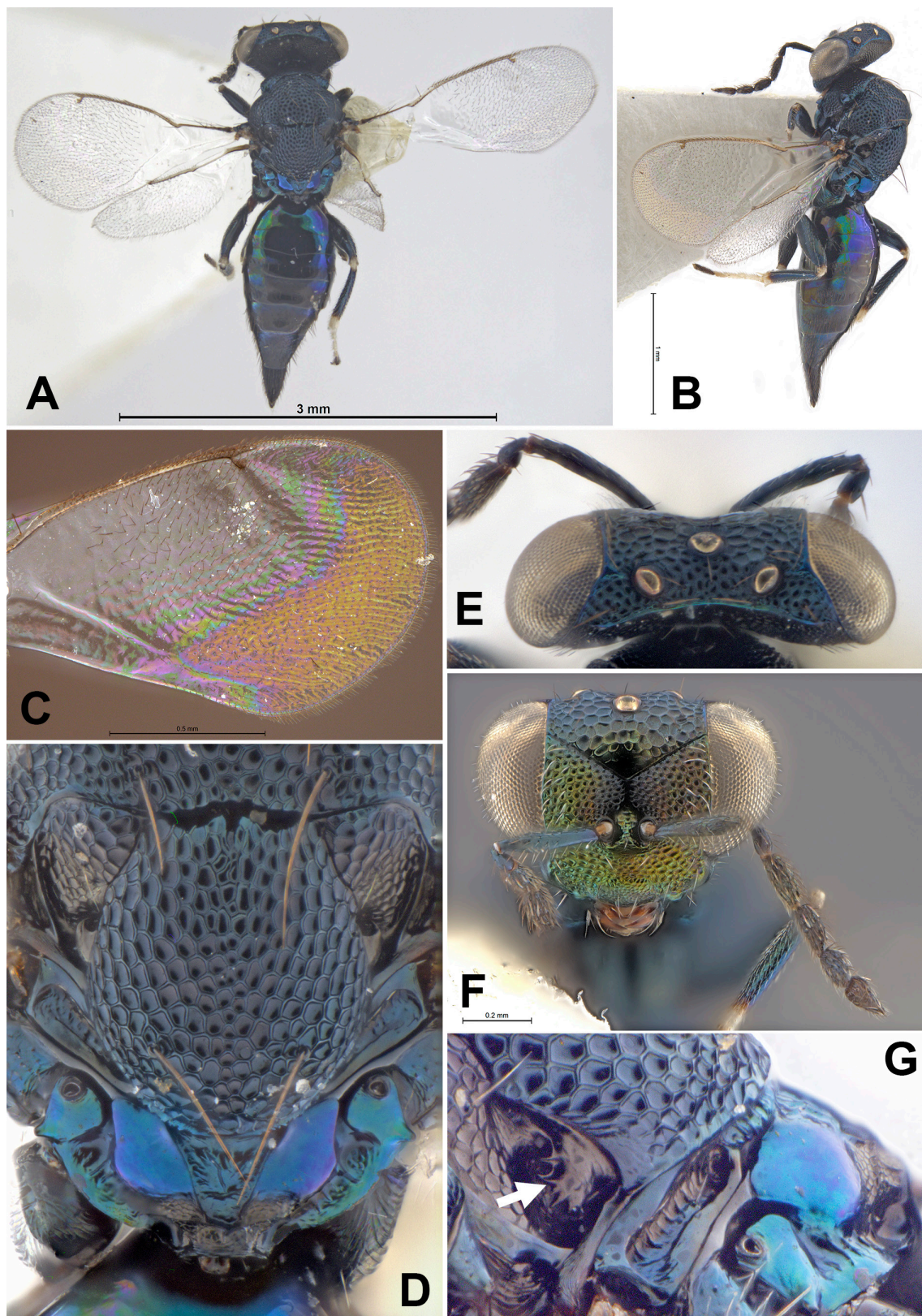


Fig. 19. *Xiphentedon simoni* sp. nov. ♀, holotype (Tanzania; SAMC). **A–B.** Habitus. **A.** Dorsal view. **B.** Dorso-lateral view. **C.** Fore wing, WIP. **D.** Mesosoma. **E–F.** Head. **E.** Dorsal view. **F.** Frontal view. **G.** Posterior part of mesosoma, the axillula is arrowed.

orbits. Eye height slightly shorter than interocular distance. Eye only pubescent along its posterior margin, eye height almost $2.8\times$ malar space. Surface between traceable scrobal depressions weakly raised. Width of oral fossa $1.8\times$ malar space. Antenna inserted at a distance equal to major diameter of torulus above level of ventral eye margin.

Scape about $5.0\times$ as long as wide, $0.7\times$ eye height, with ventral margin slightly flattened; combined length of pedicel and flagellum $1.3\times$ width of head; pedicel $1.7\times$ as long as wide, $0.5\times$ F1, which is $3.2\times$ as long as wide, F2 and F3 $1.6\times$ as long as wide, clava about $1.2\times$ F3 and $2.0\times$ as long as wide, with short terminal spine.

Mesosoma nearly $1.5\times$ as long as wide. Pronotal collar not carinate; mesoscutum nearly $2.0\times$ as broad as long; mesoscutellum slightly longer than broad, and than mesoscutum. Anterior margin of mesoscutellum with small paired indentation medially (but much smaller than in *forceps* group). Axillula broadly sessile, with a dentate projection with about six teeth.

Propodeum with median strip of broad V shape, coriaceous; submedian areas relatively flat, smooth anteriorly, lightly reticulate posteriorly. Spiracular elevation of propodeum convex, with short tubercle posteriad of spiracle. Lateral propodeal sulcus complete and wide, roughly coriaceous. Supracoxal flange wide.

Fore wing $2.4\times$ as long as wide. CC with three small setae on ventral margin, $8.0\times$ as long as wide, SC with two setae on dorsal margin; MV about $1.4\times$ CC, PMV as long as STV. Speculum open below. Apical marginal fringe about as long as width of PR at its widest part. WIP with broad red field along apical margin followed by narrow blue, green and violet stripes.

Metasomal petiole transverse, about $1.3\times$ as long as propodeum. Gaster $2.2\times$ as long as wide, syntergum elongate, about $1.7\times$ as long as wide, about $\frac{1}{5}$ of length of entire gaster.

Male

Unknown.

Biology

Unknown.

Distribution

Tanzania.

Remarks

This species is isolated within the *kayovei* group in having a V-shaped coarsely sculptured median strip of the propodeum. This character and also the longer gaster of the female separate *X. simoni* sp. nov. from the similar *X. musimba* sp. nov. and *X. dewittei* sp. nov.

Xiphentedon dewittei sp. nov.

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Fig. 20

Diagnosis

As for the group and also: scape pale basally and dark terminally (Fig. 20D), pedicel and flagellum dark; head in dorsal view nearly $3.0\times$ as wide as long; interantennal space without a process (Fig. 20D); gena

evenly curved; all legs dark, just tips of tibiae and femora and two basal tarsomeres paler (Fig. 20A–B); axillular projection nearly sessile, with six teeth (Fig. 20F); median propodeal strip intermediate between Y- or broad V-shaped, the strip and posterior part of submedian areas (near nucha) lightly coriaceous (Fig. 20E).

Female

Pedicle plus flagellum about $2.6\times$ as long as scape; gaster about $2.0\times$ as long as wide, syntergum wider than broad (Fig. 20B); CC with two to three short setae on ventral surface; WIP with broad red field along apical margin followed by narrow blue, green and violet stripes (Fig. 20C).

Etymology

This species is named in honour of the collector, Gaston-François de Witte (1897–1980), a Belgian herpetologist who explored the Albert National Park (now Virunga National Park in North Kivu Province) in 1933–1935, when the holotype specimen was also collected. The species epithet is a Latin noun in the genitive case, not changing with the gender of the genus.

Type material examined

Holotype

DEMOCRATIC REPUBLIC OF THE CONGO • ♀; “Congo belge : P.N.A., Kanyabayongo (Kabasha), 1760 m, 7 Dec. 1934, G.F. de Witte : 876”; MRAC.

Description

Female

Length 2.0 mm. Body bright blue-green, face and propodeum bright metallic; trochanters dark, femora dark metallic, tibiae dark metallic except for paler extreme tips; fore tarsi and two terminal tarsomeres of mid and hind tarsi dark brown, rest of tarsi pale; antenna with scape pale on its proximal $\frac{2}{3}$ – $\frac{3}{4}$, rest of antenna dark; wings hyaline, venation pale brown; gaster green metallic, OMA dark, traced mainly by sculpture.

Head in dorsal view nearly $3.0\times$ as wide as long. Ocelli large, MDO:OOL:OCL in ratio 70:80:40, POL $2.6\times$ OOL. Occipital margin traced as a sharp carina raised laterally into small peaks.

Head in frontal view about $1.3\times$ as wide as high. Smooth area above frontal sutures small, reaching less than half distance between cross point of frontal sutures and level of their junction with eye orbits. Eye height just slightly longer than interocular distance. Eye weakly pubescent along its posterior margin, eye height about $2.8\times$ malar space. Surface between traceable scrobal depressions weakly raised (without a process). Width of oral fossa about $2.0\times$ as long as malar space. Gena evenly curved. Antenna inserted slightly above a distance slightly longer than major diameter of torulus above level of ventral eye margin.

Scape about $6.0\times$ as long as wide, $1.3\times$ eye height; combined length of pedicel and flagellum $0.9\times$ as long as width of head; pedicel about $1.6\times$ as long as wide, $0.5\times$ F1, this and other funiculars are $1.5\times$ as long as wide, clava about $2.2\times$ as long as wide, with short terminal spine.

Mesosoma about $1.5\times$ as long as wide. Pronotal collar not carinate; mesoscutum nearly $2.0\times$ as broad as long, posteriorly as shallow depressions; mesoscutellum nearly $2.0\times$ as long as wide, $1.3\times$ as long as mesoscutum. Axillula with a sessile jagged projection bearing six teeth.

Propodeum with median strip of broad Y shape; submedian areas flat, smooth anteriorly, lightly reticulate posteriorly. Spiracular elevation of propodeum convex, with short tubercle posteriad. Lateral propodeal sulcus complete, with wide fovea in its mid part. Supracoxal flange of moderate width.

Fore wing about $2.0\times$ as long as wide. CC with two to three short setae on ventral side, moved from SC, $7.0\times$ as long as wide, SC with two setae on dorsal margin; MV about as long as CC, PMV slightly shorter than STV. Speculum open below. Apical marginal fringe slightly shorter than width of PR at its widest part.

Metasomal petiole conical, slightly wider than long, about $0.7\times$ as long as propodeum. Metasoma about $0.8\times$ as long as mesosoma, $1.8\times$ as long as wide, syntergum wide, about $2.0\times$ as long as wide, almost $0.1\times$ length of entire gaster.

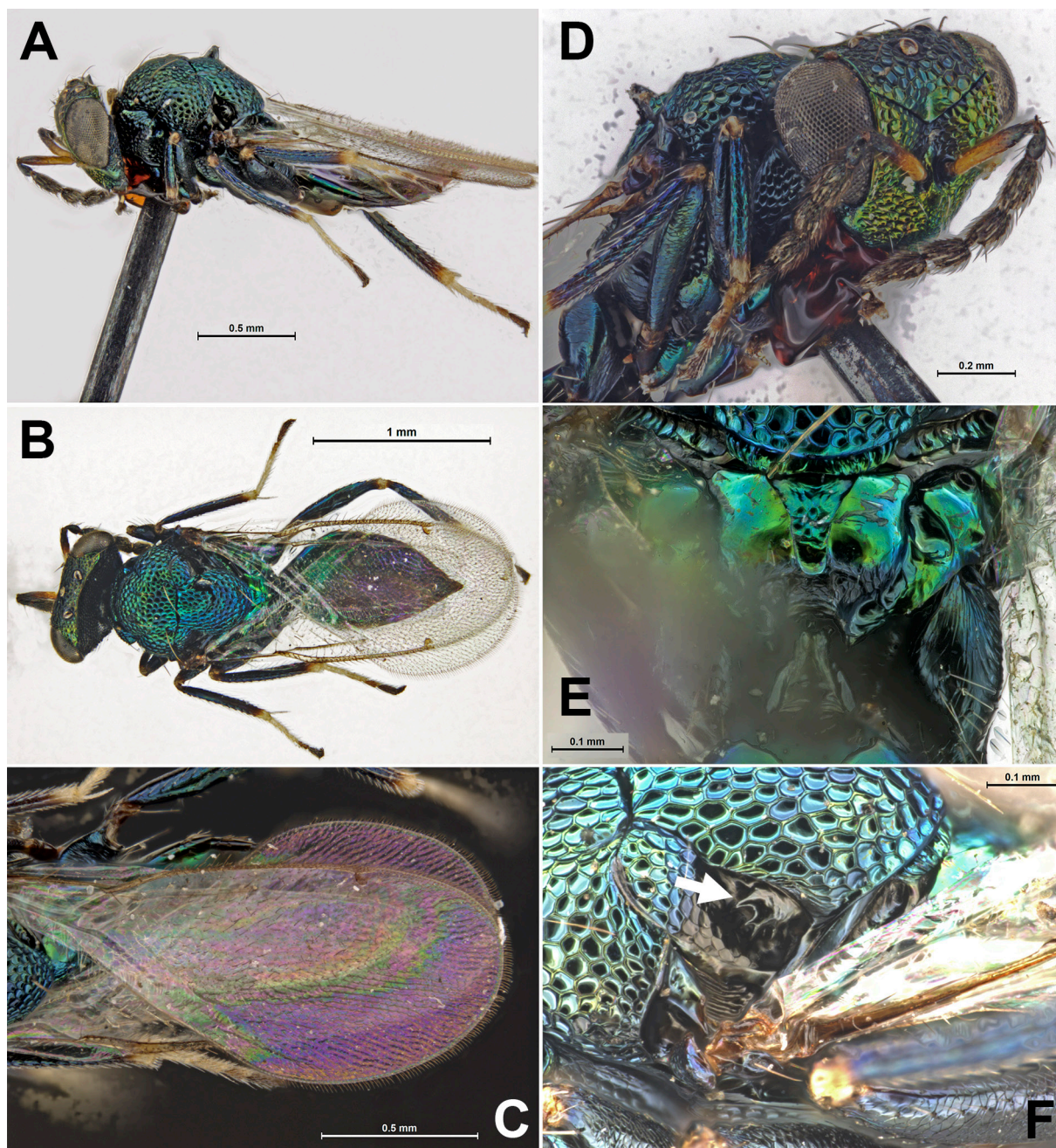


Fig. 20. *Xiphentedon dewittei* sp. nov., ♀, holotype (DRC; MRAC). **A–B.** Habitus. **A.** Lateral view. **B.** Dorsal view. **C.** Fore wing, WIP. **D.** Head and anterior part of mesosoma. **E.** Propodeum. **F.** Part of mesosoma (axillula is arrowed).

Male

Unknown.

Biology

Unknown.

Distribution

DRC.

Remarks

This species is similar, to some extent, to *X. musimba* sp. nov., but is easily distinguishable in having a half pale scape, a short conical metasomal petiole and a shorter gaster with a transverse syntergum.

***danielssoni* species group**

Diagnosis

Anterior margin of mesoscutellum nearly straight, without a paired anteromedian protrusion. Generally, smaller species: up to about 2.0 mm in length.

***Xiphentedon danielssoni* (Gumovsky, 1997) comb. nov.**

Figs 21–23

Entedon (Cederholmia) danielssoni Gumovsky, 1997: 28.

Diagnosis

As for the group and also: entire antenna dark; head dorsally about $2.0 \times$ as wide as long, dorsal interorbital distance nearly $1.5 \times$ median vertexal distance (Fig. 22F); interantennal space with a short sharp process (Fig. 22F); gena notably bulging (Fig. 22A–B); all legs dark at more than proximal $\frac{1}{2}$, just tips of tibiae and femora and three basal tarsomeres of mid and hind legs pale (Fig. 22A); axillular projection bidentate; median propodeal strip Y-shaped, lightly coriaceous, nucha with carinulae (Fig. 21C).

Female

Length about 1.5 mm. Dorsal interorbital distance $1.33 \times$ median vertexal distance; pedicel plus flagellum about $2.0 \times$ as long as scape; scape narrow-pear shaped: wide basally, then narrowed and then slightly wider; flagellum with short-ovate segments; eye height $3.5 \times$ malar space; gaster about as long as or slightly longer than broad, syntergum wider than broad; CC without setae on ventral surface; WIP with broad red field along apical margin followed by narrow blue, green and violet stripes.

Male

Length about 1.5 mm. Dorsal interorbital distance $1.4 \times$ median vertexal distance; eye height about $5.0 \times$ malar space; scape nearly evenly widened, slightly wider basally, with very narrow tip, $3.3 \times$ as long as wide; flagellar joints small rounded; F1 about $2.0 \times$ as long as wide; clava $2.3 \times$ as long as wide with short apical spine; body bright copper to bronze green.

Type material examined

Holotype

REPUBLIC OF SOUTH AFRICA • ♂; Kwa-Zulu Natal, Richards Bay; $28^{\circ}46' S$, $32^{\circ}04' E$; loc. 31; 24 Oct. 1994; R. Danielsson leg.; MZLU.

Paratypes

REPUBLIC OF SOUTH AFRICA • 5 ♂♂, 1 ♀; same collection data as for holotype; MZLU.

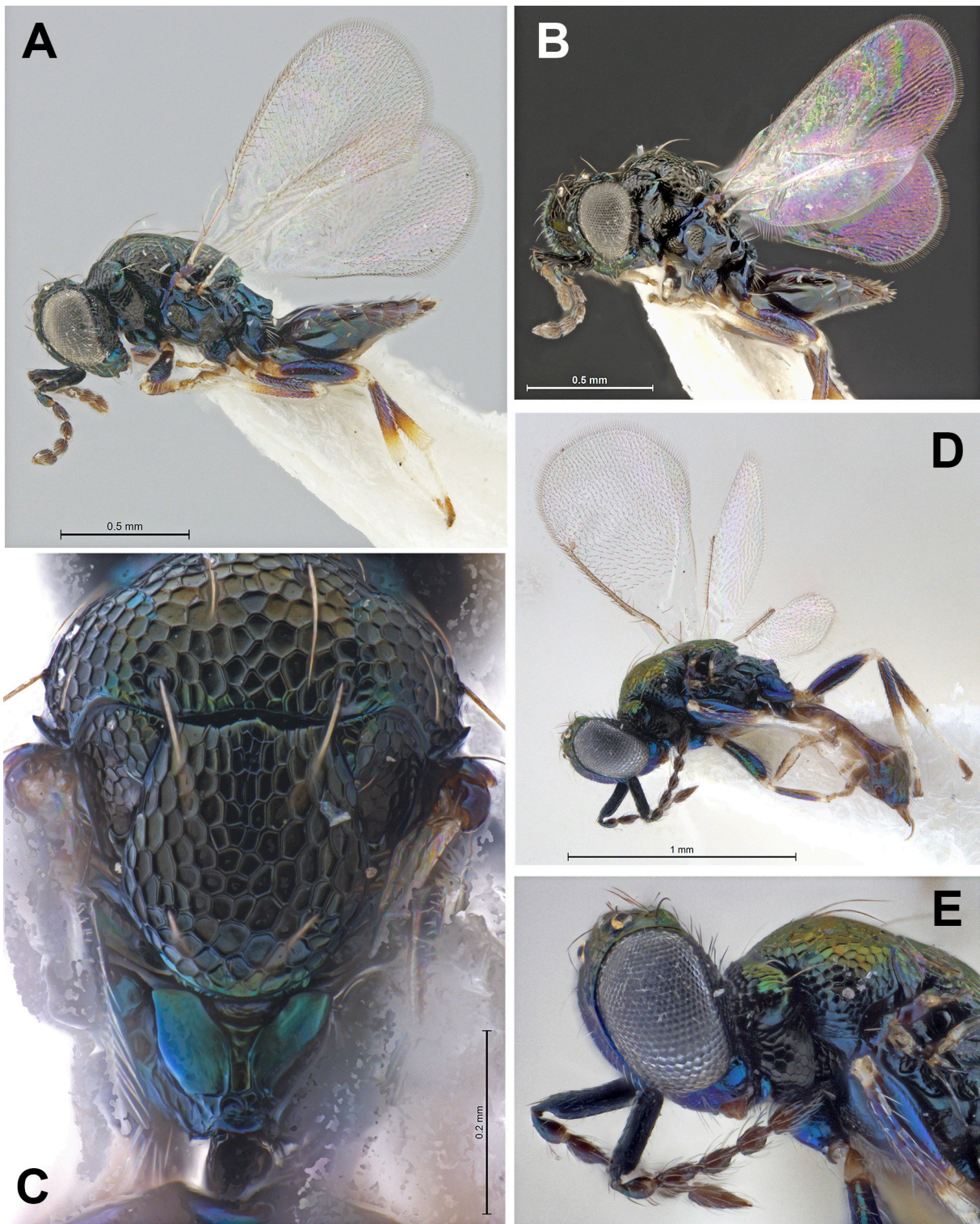


Fig. 21. *Xiphentedon danielssoni* (Gumovsky, 1997) comb. nov., paratypes (RSA; MZLU). **A–C.** ♀. **D–E.** ♂. **A–B, D.** Habitus in lateral view. **C.** Mesosoma. **E.** Head and anterior part of mesosoma.

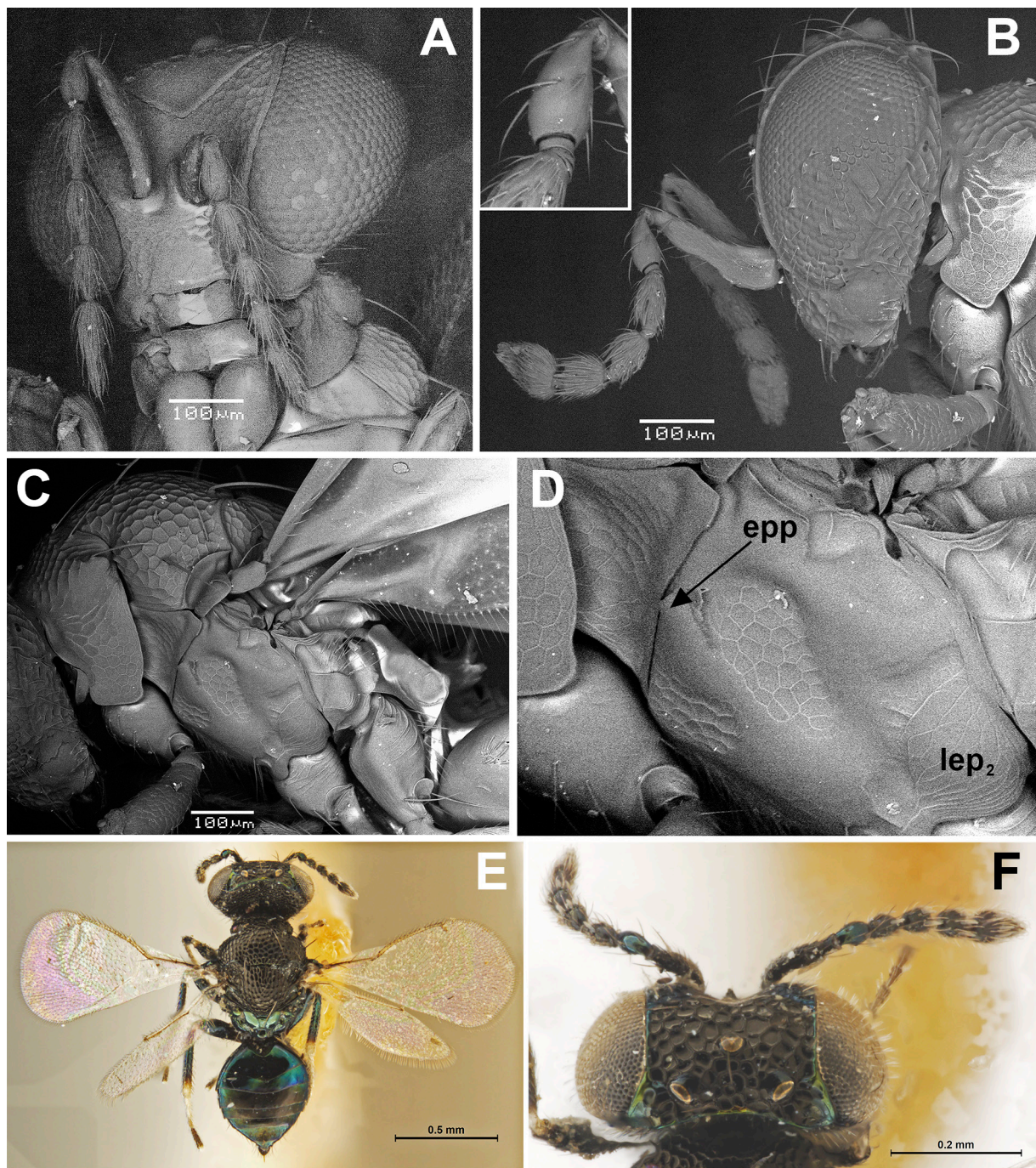


Fig. 22. *Xiphentedon danielssoni* (Gumovsky, 1997) comb. nov. **A–D.** ♀, paratype (RSA; MZLU). **E–F.** ♀, from DRC (Mongbwalu; SIZK). **A–B.** Head and prothorax. **A.** Fronto-ventral view. **B.** Lateral view; pedicel and anelli in inset (B). **C–D.** Mesosoma. **E.** Habitus. **F.** Head in dorsal view. Abbreviations: epp = mesepisternal projection; lep₂ = lower mesepimeron.

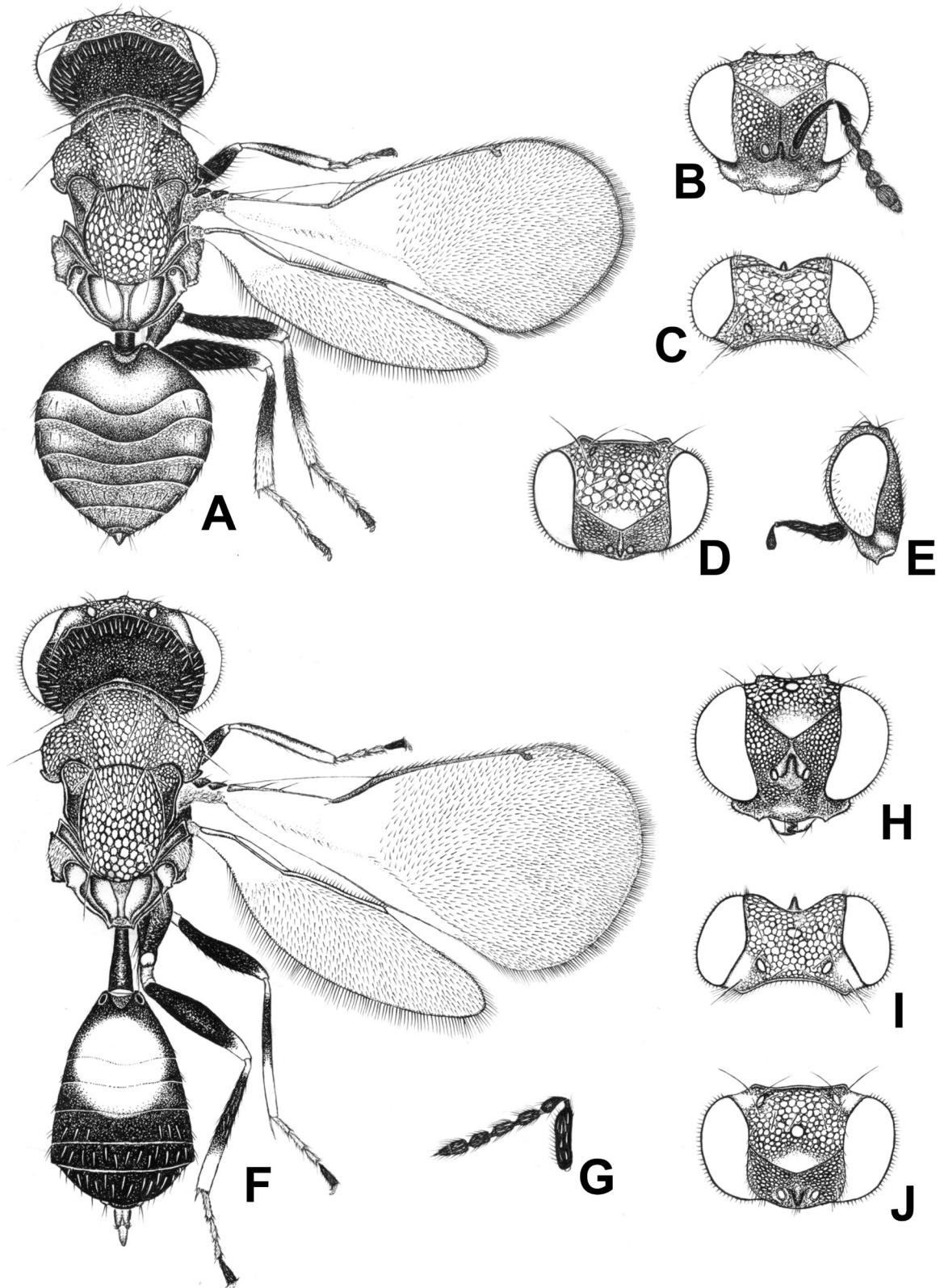


Fig. 23. *Xiphentedon danielssoni* (Gumovsky, 1997), comb. nov., line drawings from Gumovsky (1997). A–E. ♀. F–J. ♂. A, F. Habitus. C, I. Head in dorsal view. B, H. Head in frontal view. D, J. Head in fronto-dorsal view. E. Head in lateral view. G. Antenna.

Other material examined

DEMOCRATIC REPUBLIC OF THE CONGO • 1 ♀; Ituri Province, Mongbwalu mine camp; 1°56'34" N, 30°02'23" E; 1224 m a.s.l.; 6–8 Mar. 2015; A. Gumovsky and P. Zaboni leg.; gazebos overnight under *Ficus craterostoma* (mulumba, in Swahili, strangler fig tree) encircling *Mangifera indica* after 15 minutes fogging with 0.02% pyrethrum; SIZK • 1 ♀ (scape slightly narrower than in type series); “Congo belge : Kivu, Rutshuru, 1265 m, vii-1935, G.F. de Witte : 1671”; MRAC.

IVORY COAST • 1 ♂; Katiola-Forêt; 4 Jan. 1981; J.W. Everts leg.; Malaise trap; NHMUK.

REPUBLIC OF GUINEA • 1 ♀; Nimba Mountain, Gouan Camp, gallery forest of Zié; 07°40'23" N, 08°22'24" W; 3 Oct. 2011; A. Hernard and D. Van den Spiegel leg.; canopy of trees, under-story shrub layer; 1250 m a.s.l.; fogging 01; DNA-extract A06; MRAC.

Male and female descriptions

See Gumovsky (1997).

Biology

Unknown.

Distribution

RSA (Gumovsky 1997), Ivory Coast, Republic of Guinea, DRC (new record).

Remarks

This species is very close in appearance to *X. jeanyvesi* sp. nov. and differs from it as described in the key above, and in the remarks on *X. jeanyvesi*.

Xiphentedon jeanyvesi sp. nov.

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Figs 24–25

Diagnosis

As for the group and also: entire antenna dark; head dorsally about 2.5× as wide as long, dorsal interorbital distance nearly 2.0× median vertexal distance (Fig. 24D); interantennal space with a short sharp process (process small, but still present in the smaller specimens from CAR); gena short, bulging; all legs predominantly dark (on at least proximal 2/3), just tips of tibiae and femora and two (holotype) or three (other specimens) basal tarsomeres of mid and hind legs pale; axillular projection with three teeth (one larger and two smaller) which fuse basally (holotype, Fig. 24G) or two teeth (in the smaller specimen from CAR, Fig. 25E); median propodeal strip Y-shaped, lightly coriaceous (Figs 24E, H, 25D); WIP with broad red field along apical margin followed by narrow blue, green and violet stripes (Fig. 25A).

Male

Scape nearly evenly widened, just slightly wider basally, with very narrow tip, about 3.6× as long as wide, flagellar joints small, rounded (Fig. 24A); body bright copper to bronze green.

Female

Pedical plus flagellum about 2.0× as long as scape, scape narrow-pear shaped: wide basally, then narrowed and then again slightly wider; flagellum with short-ovate segments; gaster about as long as or slightly longer than broad, syntergum wider than broad; costal cell asetose.

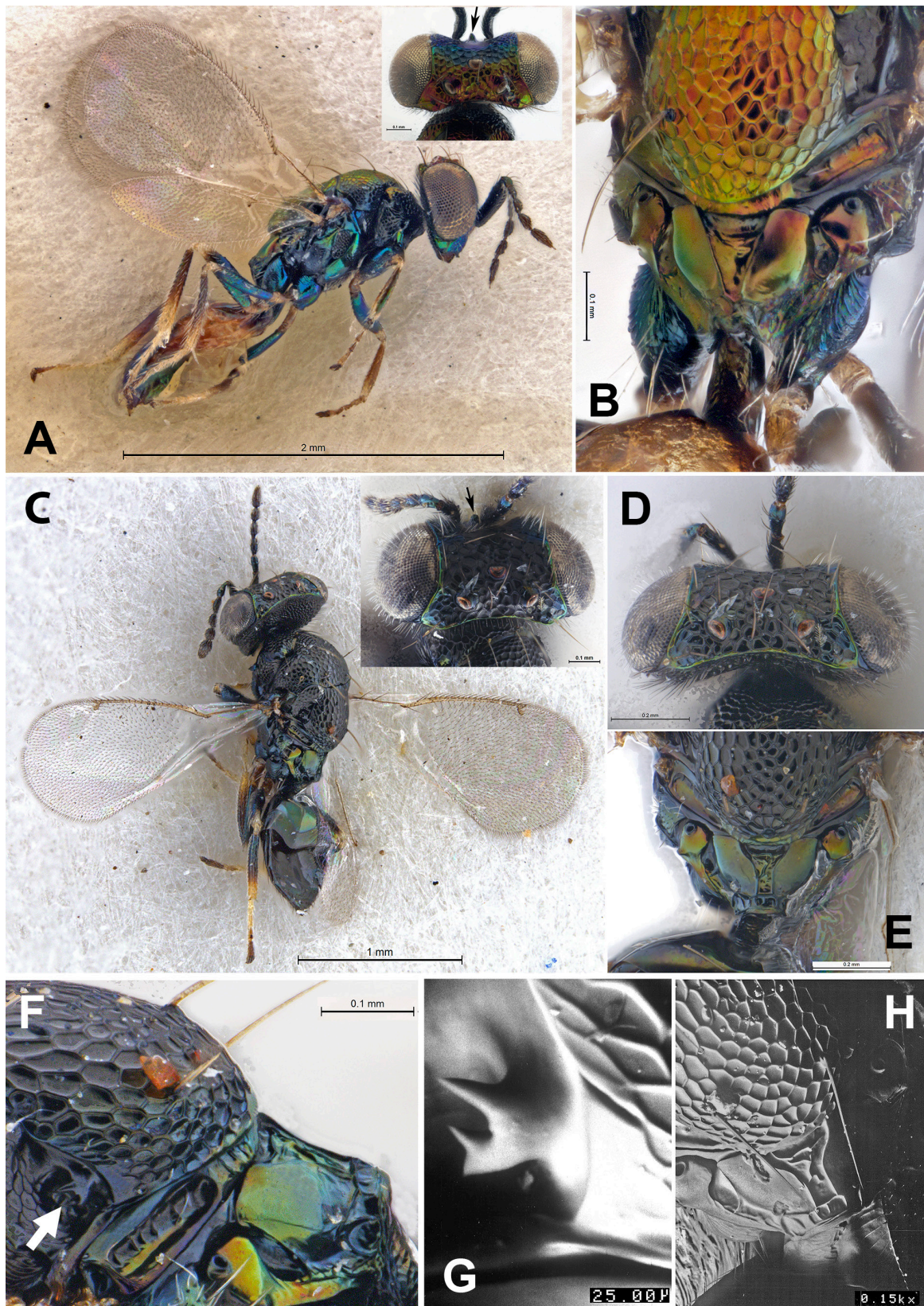


Fig. 24. *Xiphentedon jeanyvesi* sp. nov. A–B. ♂, holotype (Tanzania; CBGP). C–H. ♀, paratype (Tanzania; CBGP). A, C. Habitus. B. Mesosoma. D (and insets A, C). Head in dorsal view. E, H. Propodeum. F. Posterior part of mesosoma; the axillula is arrowed. G. Axillula.

Etymology

The species is named in honour of one of the collectors of the holotype, the French entomologist Jean-Yves Rasplus. The species epithet is a Latin noun in the genitive case, not changing with the gender of the genus.

Type material examined

Holotype

TANZANIA • ♂; Amani; 10 Mar. 1996; J.-Y. Rasplus and C. Kerdelhué leg.; CBGP.

Paratype

TANZANIA • ♀; same collection data as for holotype; CBGP.

Other material examined

CAMEROON • 1 ♂; Mt. Cameroon, near Buea; 27 Dec. 1981; S.G. Compton leg.; sweep; SAM-HYM-P011882; SAMC.

CENTRAL AFRICAN REPUBLIC • 1 ♂; Prefecture Sangha-Mbaéré, Parc National de Dzanga-Ndoki, 38.6 km 173° S of Lidjombo; 2°21.60' N, 16°03.20' E; 350 m a.s.l.; 23 May 2001; S. van Noort leg.; sweep; lowland rainforest; CAR01-S269; SAM-HYM-P065302; SAMC • 1 ♀; *ibid.*; Réserve Spéciale de Forêt Dense de Dzanga-Sangha, 12.7 km 326° NW of Bayanga; 3°00.27' N, 16°11.55' E; 420 m a.s.l.; 12 May 2001; S. van Noort leg.; sweep; lowland rainforest; CAR01-S118; SAM-HYM-P065301; SAMC.

Description

Male

Length about 1.6 mm (CAR) to 2.0 mm (holotype). Body bright copper dorsally, propodeum and face green, coxae greenish blue, trochanters pale brown, wings transparent, venation of wings pale yellow, femora dark metallic green with white tips, hind tibia darkened on about its proximal $\frac{2}{3}$, mid tibia darkened on its proximal $\frac{3}{5}$, remaining parts pale, fore tibia with two pale longitudinal stripes, first three tarsomeres of all legs pale, pretarsi dark, antenna black, OMA darkened.

Head in dorsal view about $2.5 \times$ as wide as long; ocelli of moderate size; POL nearly $3.0 \times$ OOL. Occipital margin marked by sharp carina with moderate lateral projections. MDO : OOL : OCL in ratio 75 : 73 : 60. Dorsal interorbital distance $1.65 \times$ median vertexal distance.

Dorsal surface of head with light reticulation throughout, space along posterior eye orbit somewhat smoothed. Eye moderately pubescent. Occiput comparatively densely setose below occipital margin and posterior orbit of eye.

Head in frontal view $1.36 \times$ as wide as high. Frons with smooth area medially above frontal sutures. Eye height/interocular distance in ratio 252 : 211, eye height slightly more than $5.0 \times$ malar space. Surface between toruli bearing short acute process. Width of oral fossa slightly more than $3.0 \times$ malar space.

Gena curved, with bulging callus below eye. Distance between ventral eye margin and antennal torulus as long as diameter of torulus. Scape about $3.6 \times$ as long as wide, with apical 'neck', $0.7 \times$ eye height; combined length of pedicel plus flagellum $0.7 \times$ width of head; pedicel bulb-shaped, $2.0 \times$ as long as wide, about as long as F1, the latter $2.0 \times$, F2 $2.3 \times$ and F3 $1.9 \times$ as long as wide, separated by moderate, but distinct peduncles, clava about $2.5 \times$ as long as wide, with distinct terminal spine. Funicular segments slightly longer in smaller non-type specimen from CAR than in holotype from Tanzania.

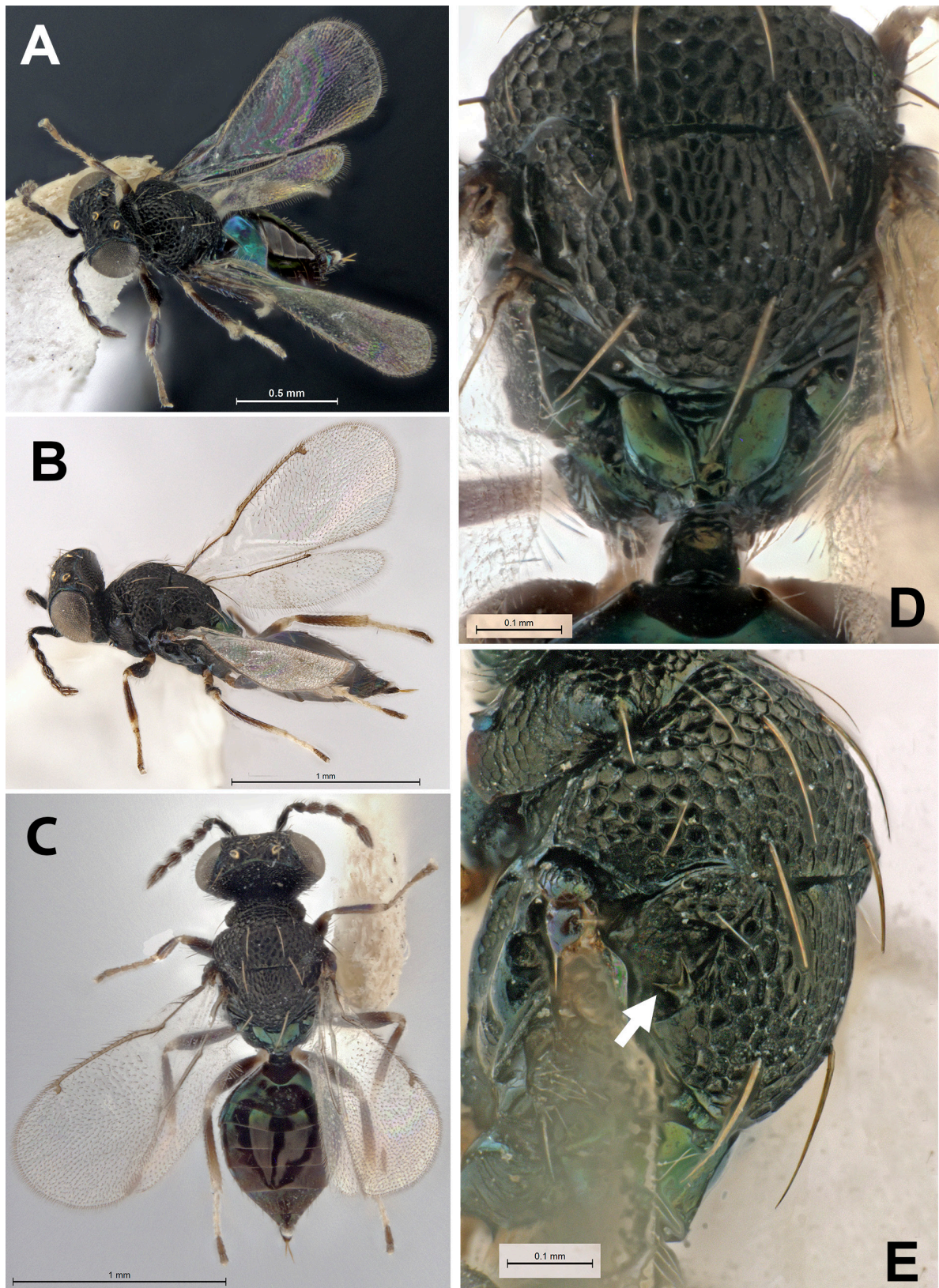


Fig. 25. *Xiphentedon jeanyvesi* sp. nov., ♀, from CAR (SAM-HYM-P065301). **A–C.** Habitus. **A.** Fronto-dorsal view. **B.** Lateral view. **C.** Dorsal view. **D.** Mesosoma and posterior part of metasoma. **E.** Mesosoma in lateral view; the axillula is arrowed.

Mesosoma about $1.7\times$ as long as wide. Pronotal collar somewhat carinate; mesoscutum about $1.7\times$ as broad as long, mesoscutellum about $1.2\times$ as long as wide, about as long as mesoscutum. Axillula bearing tridentate projection with one bigger tooth and two smaller ones which fuse basally; axillular projection bidentate in smaller non-type specimen from CAR.

Propodeum with somewhat sunken median strip delimited by straight carinae diverging anteriorly, with a transverse coriaceous area on anterior part. Submedian areas weakly convex and smooth. Spiracular elevation of propodeum weakly convex, somewhat conical in shape, with very short tubercle posteriad. Supracoxal flange narrow, with posterior margins bent ventrally. Propodeal callus with 15 to 17 setae.

Fore wing nearly $2.0\times$ as long as wide, CC asetose, about $7.0\times$ as long as wide, SC with two dorsal setae; MV about $1.2\times$ CC; PMV and STV short, equal in length; apical marginal fringe 1.2 to $1.3\times$ average width of PR.

Ventral surface of prosternum and median ventral area of mesopectus with dense pubescence.

Metasomal petiole elongate, almost $3.0\times$ as long as wide; slightly widening posteriorly. Gaster slightly less than $2.0\times$ as long as wide.

Female

Length about 1.8 mm (CAR) to 2.0 mm (paratype, Tanzania). Differs from male in general black colour, with weak green reflection, mainly in smooth parts. Dorsal interorbital distance $1.6\times$ median vertexal distance; antennal scape about $5.5\times$ as long as wide, about $0.7\times$ eye height, expanded basally, with apical 'neck'; eye height $3.8\times$ malar space, combined length of pedicel plus flagellum constitutes slightly more than half of head width; pedicel elongate, nearly $2.0\times$ as long as wide, slightly longer than F1, and nearly $2.0\times$ as long as wide; both F2 and F3 slightly shorter than F1, about $1.3\times$ as long as wide; together about $1.5\times$ as long as F1; funicular segments separated by moderate, but distinct peduncles. Clava about $2.5\times$ as long as wide, with short terminal spine. Fore wing almost $2.0\times$ as long as wide. Metasomal petiole conical, slightly longer than broad, gaster short ovate, about $1.3\times$ as long as wide. Median propodeal strip with one curved carinula medially.

Biology

Unknown.

Distribution

Tanzania, CAR, Cameroon.

Remarks

This species resembles *X. danielssoni* comb. nov. but differs mainly in having a wider head, being about $2.5\times$ as wide as long in dorsal view (about $2.0\times$ in *X. danielssoni*) and the larger ($2.0\times$) ratio of the dorsal interorbital distance to the median vertexal distance ($1.5\times$ in *X. danielssoni*). Although there are few doubts about the conspecificity of the smaller specimens from CAR, they are not included in the type series due to the above-mentioned morphological differences, chiefly the smaller process on the interantennal space.

Xiphentedon wieringai sp. nov.

urn:lsid:zoobank.org:act:C46D749F-7576-428D-8EBA-583041ED6314

Figs 26–28

Diagnosis

As for the group and also: entire antenna dark, head dorsally slightly more than 2.0× as wide as long, ocelli larger than in *X. danielssoni* comb. nov. (Fig. 27A); interantennal space without a process (Fig. 27C, F); gena considerably bulging (Fig. 27C, F) fore tibiae with two stripes, femora dark, mid and hind tibiae dark only basally (Fig. 26A–C) or entirely pale (Fig. 26D), just tips of tibiae, femora and two basal tarsomeres paler; axillular projection bidentate (Fig. 28); median propodeal strip Y-shaped, lightly coriaceous, with fine carinulae (Figs 26E, 27D, 28A, C); metasomal petiole about 2.0× as long as wide (Figs 26E, 27D, 28A); CC asetose; without setae on ventral margin; WIP with broad red field along apical margin followed by narrow blue, green and violet stripes (Fig. 26B).

Female

Pedicele plus flagellum about 2.0× as long as scape, nearly evenly wide, with narrow thin ‘neck’; flagellars short, robust, connected by long peduncles (Fig. 27B); spur of hind tibia 1.2× width of tibia; gaster about as long as wide, syntergum strongly transverse (Fig. 26B).

Etymology

The species is named in honour of the collector, Jan Wieringa, who contributed much to our understanding of the African flora and entomofauna. The species epithet is a Latin noun in the genitive case, not changing with the gender of the genus.

Type material examined

Holotype

GABON • ♀; Tchimbélé, Woleu-Ntem, Monts de Cristal; 0°37' N, 10°24' E; 600 m a.s.l.; 24 Jan. 1990; J. Wieringa leg.; piège malaise [Malaise trap]; RMNH.

Paratypes

CENTRAL AFRICAN REPUBLIC • 1 ♀; Prefecture Sangha-Mbaéré, Parc National de Dzanga-Ndoki, 38.6 km 173° S of Lidjombo; 2°21.60' N, 16°03.20' E; 350 m a.s.l.; 22 May 2001; S. van Noort leg.; sweep; lowland rainforest; CAR01-S236; SAM-HYM P067747; SAMC • 1 ♀; same collection data as for preceding; CAR01-S218, SAM-HYM P065300; SAMC • 1 ♀; same collection data as for preceding; 23 May 2001; CAR01-S266; SAM-HYM P067746; SAMC.

DEMOCRATIC REPUBLIC OF THE CONGO • 1 ♀; Tshopo Province, Kisangani Region, Yoko Forest Reserve, Block B; 4 Feb. 2013; A. Gumovsky leg.; extraction from debris in a sweep net; SIZK.

Other material examined

IVORY COAST • 1 ♀ (mentioned below as FCI, i.e., “Female from Côte d’Ivoire”); Lamto; 23 May 1986; J.-Y. Rasplus leg.; fauchage [sweeping]; CBGP.

Description

Female

Length 1.38 (FCI) to 2.0 (holotype) mm. Body dark with blue or green tint, face with weak golden (holotype) or blue (FCI) tint; trochanters pale, all femora dark metallic, fore tibia with two pale stripes; mid and hind tibiae slightly darkened proximally or entirely pale (CAR), if the tibiae somewhat darkened, then mid and hind tibiae dark on their proximal 1/3 (holotype) or in 2/3 (FCI); fore tarsi brown, mid and

hind basitarsi paler than following tarsal segments (holotype) or just pretarsi of mid and hind legs darker than preceding tarsomeres; antenna entirely dark; wings transparent, venation pale brown; OMA dark in most specimens, but pale in SAM-HYM-P067746 from CAR (SAMC).

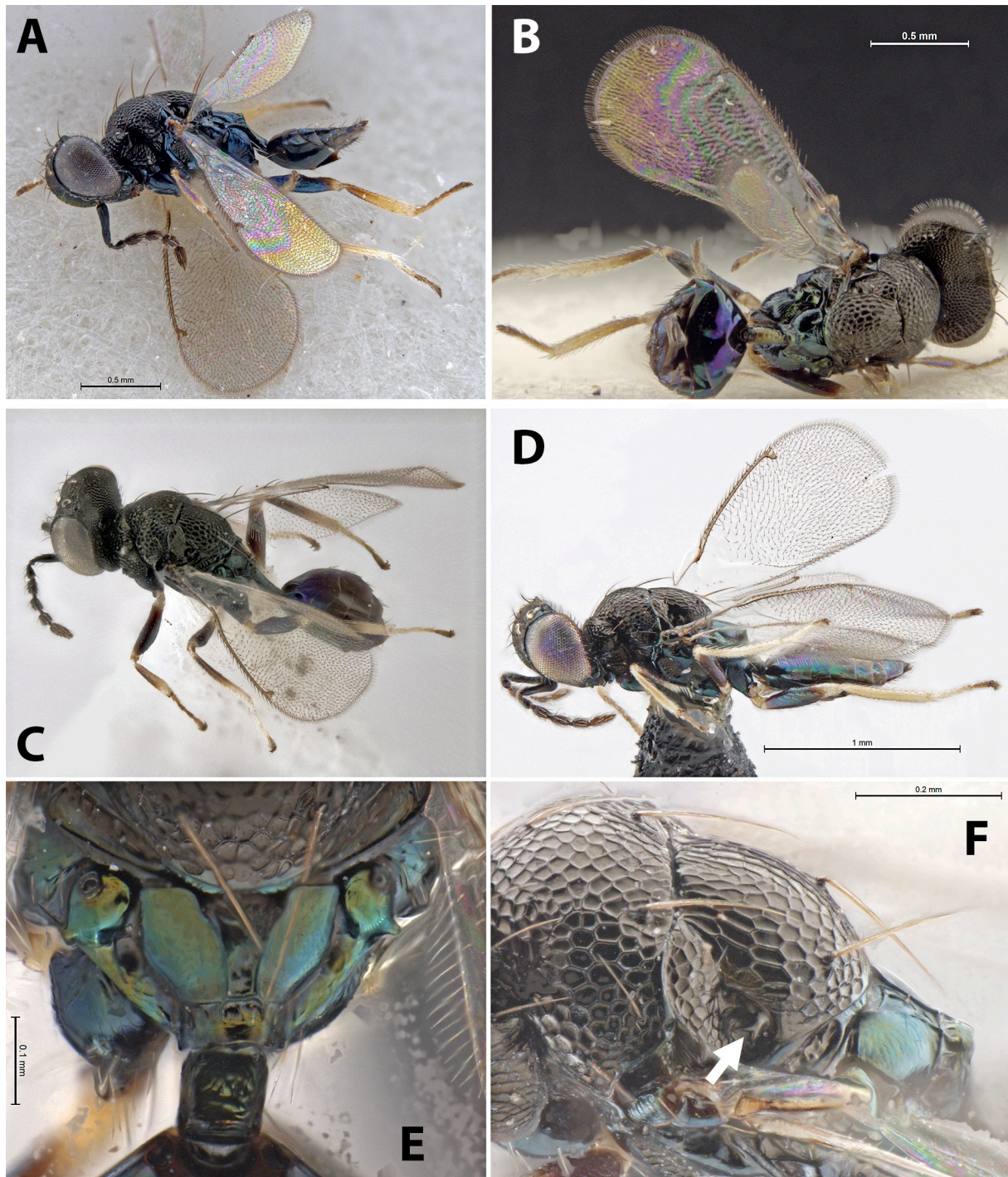


Fig. 26. *Xiphentedon wieringai* sp. nov. **A–B.** ♀, holotype (Gabon; RMNH). **C–F.** ♀, paratypes (CAR; SAMC). **A–D.** Habitus in lateral (A, D), dorsal (B) and dorso-lateral (C) views. **E.** Propodeum. **F.** Mesosoma in dorso-lateral view; the axillula is arrowed.

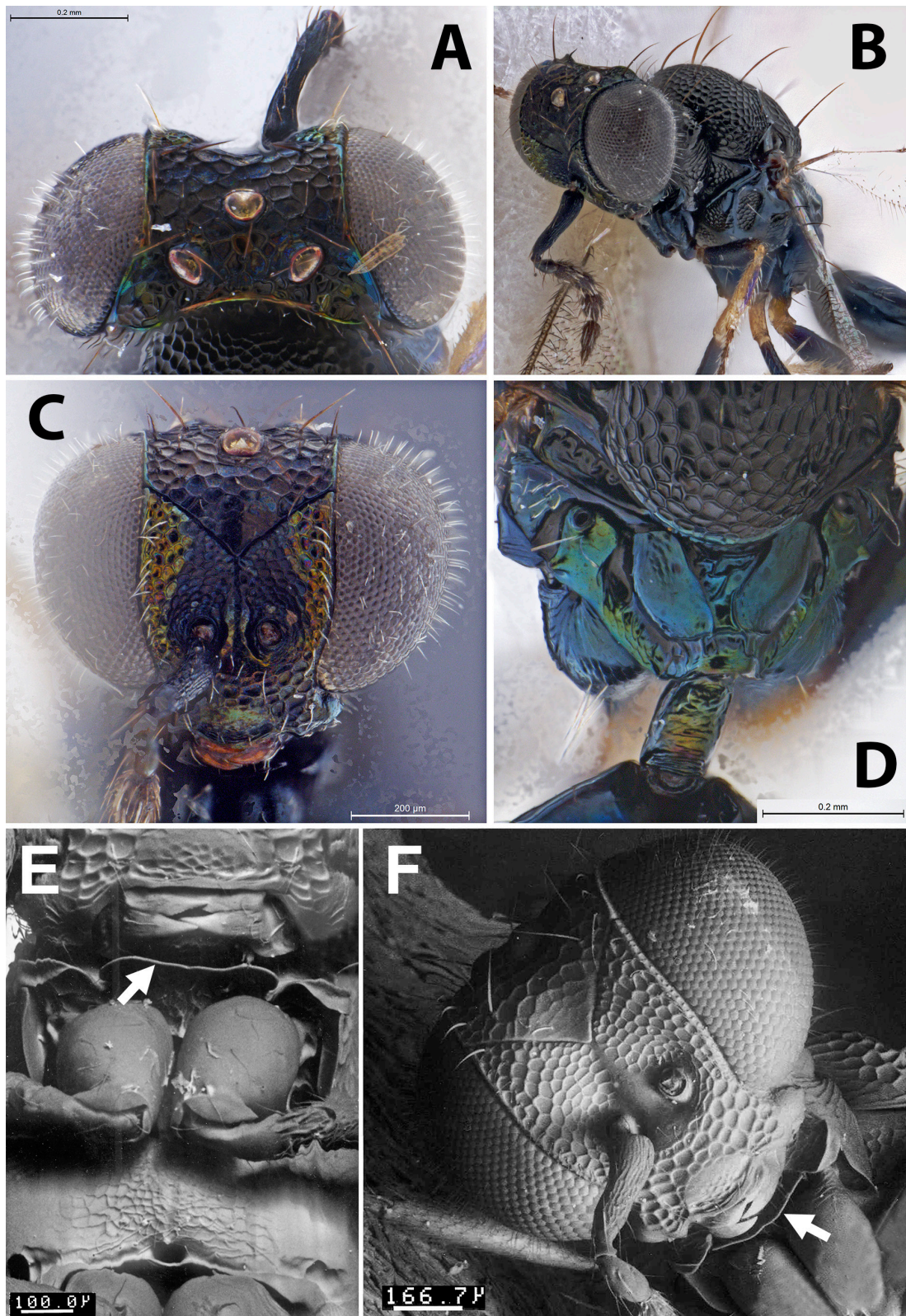


Fig. 27. *Xiphentedon wieringai* sp. nov., ♀, holotype (Gabon; RMNH). **A, C, F.** Head in dorsal (A) and frontal (C, F) views. **B.** Head, mesosoma and anterior part of metasoma. **D.** Propodeum and petiole. **E.** Mesosoma, ventral view. The flange on the arc of the prosternum is arrowed in E–F.

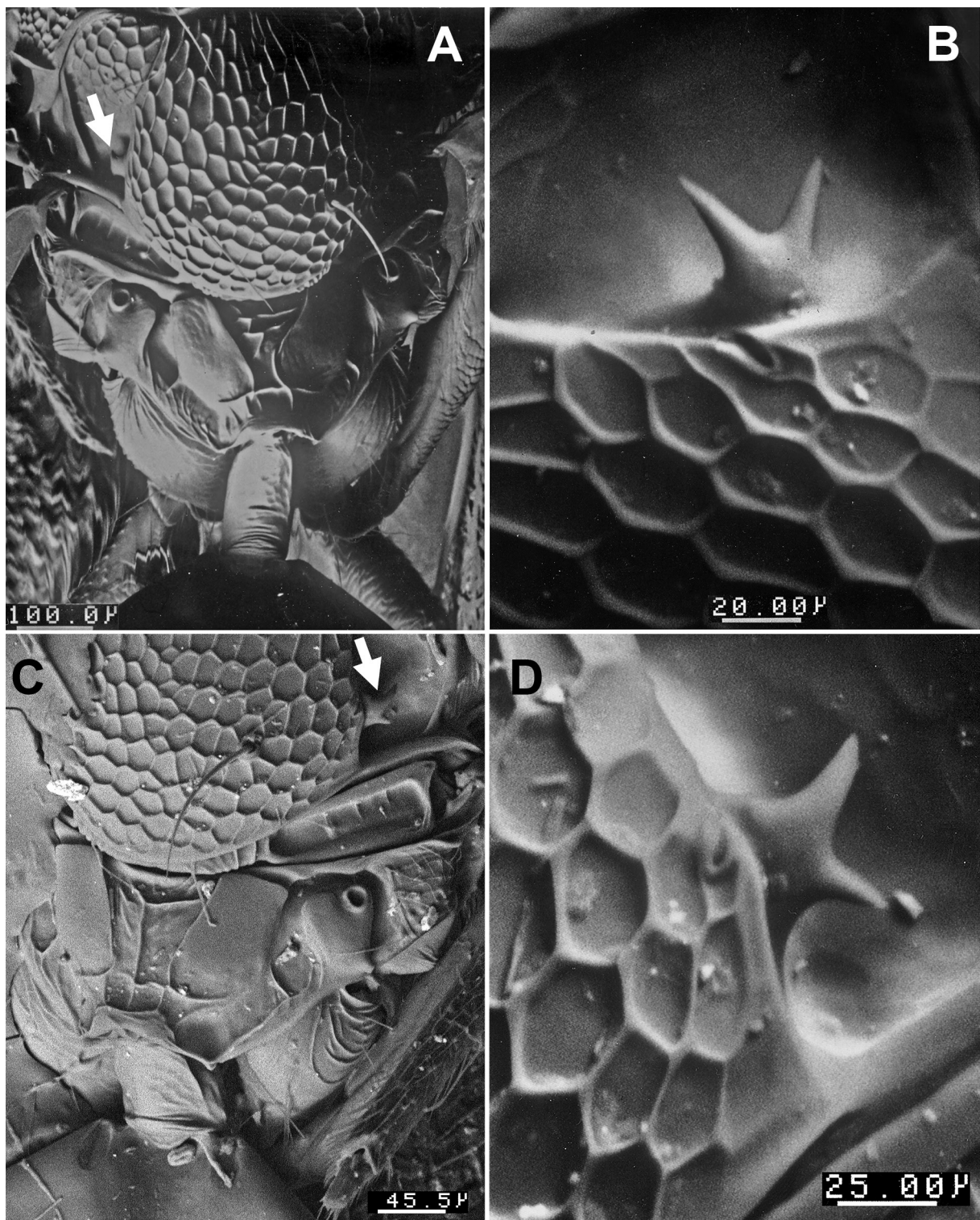


Fig. 28. *Xiphentedon wieringai* sp. nov. A–B. ♀, holotype (Gabon; RMNH). C–D. ♀, 'FCI' specimen (CBGP). A, C. Propodeum (arrows indicate axillula). B, D. Axillula.

Head in dorsal view slightly more than $2.0\times$ as broad as long; ocelli large, MDO:OOL:OCL in ratio 41:29:23 (holotype) or 40:30:30 (FCI); POL $2.2\times$ (FCI) – $2.5\times$ (holotype) OOL. Occipital margin marked off by sharp carina extending laterally into small projections. Dorsal surface of head evenly reticulate. Eye and occiput moderately pubescent.

Head in frontal view about $1.3\times$ as wide as high. Frons with very lightly reticulate area just above bifurcation of frontal sutures. Eye height and interocular distance in ratio 23:17 (holotype) or 21:17 (FCI). Eye densely pubescent, about $4.5\times$ malar space. Face with slightly raised border along eye margin, and with row of setae along this border. Surface between scrobal depressions just slightly raised, without process. Width of oral fossa slightly more than $2.0\times$ (holotype) or about $2.5\times$ (FCI) as long as malar space. Gena curved with traced callus below eye. Distance between lower eye margin and antennal torulus as long as or slightly longer than major diameter of torulus.

Antennal scape about $3.3\times$ as long as wide, $0.5\text{--}0.6\times$ eye height, with basal part expanded but apex narrow; combined length of pedicel and flagellum $0.8\times$ width of head and about as long as antennal scape; pedicel $1.6\times$ as long as wide, $0.8\times$ F1, which is about $2.0\times$, F2 $1.7\times$, F3 about $1.6\times$ as long as wide in holotype; F1 and F2 about $1.2\text{--}1.3\times$ as long as wide, F3 as long as wide in FCI. Clava two-segmented, about $2.0\times$ (holotype) as long as wide, with short terminal spine.

Mesosoma $1.4\times$ (FCI) – $1.6\times$ (holotype) as long as wide. Pronotal collar not carinate. Prosternum with notable protruding flange, propleuron with lateral posterior inflation visible as a narrow flange. Mesoscutum $2.0\times$ as broad as long. Mesoscutellum $1.3\times$ as long as wide and $1.3\times$ as long as mesoscutum. Axillula with a bidentate projection.

Propodeum with trapeziform (Y-shaped) median strip delimited by two submedian carinae which somewhat diverge anteriorly. Surface of median strip with irregular carinulae (holotype) or with tiny longitudinal carinula interrupted anteriorly by a transverse carinula (FCI). Posterior part of median strip with another transverse carinula continued to the exterior. Submedian areas of propodeum nearly smooth, poorly convex. Spiracular elevation of propodeum weakly convex, with short sharp tubercle posteriad, lateral propodeal sulcus complete; supracoxal flange wide (holotype) or moderate (FCI). Spur of hind tibia as wide as width of tibia.

Fore wing nearly $2.0\times$ as long as wide, CC asetose, slightly more than $7.0\times$ as long as wide, SC with two dorsal setae; MV $1.3\text{--}1.4\times$ as long as (holotype, paratypes) or just slightly longer than (FCI) CC, PMV as long as STV; speculum open below; apical marginal fringe slightly longer than width of PR in its widest part.

Metasomal petiole $2.0\times$ as long as wide. Gaster about as long as wide, syntergum strongly transverse.

Male

Unknown.

Biology

Unknown.

Distribution

Gabon, Ivory Coast, CAR, DRC.

Remarks

This species is very similar to *X. danielssoni* comb. nov., but differs mainly in having the interantennal space without an acute process (the process is distinct in *X. danielssoni*). The FCI differs from the holotype in size and some characters. The main difference between them is the sculpture of the propodeal median strip: irregular carinula in the holotype, and the single thin longitudinal carinula interrupted anteriorly by the transverse carinulae in FCI. The other differences concern the coloration of the mid and hind tibiae (more broadly darkened in smaller specimen, FCI), the length of the metasomal petiole (shorter in FCI), the length of the flagellar segments (shorter in FCI) and the width of the mesoscutum (slightly wider in FCI). The difference in the sculpture of the propodeal median strip is likely associated with size variation (a similar variation is mentioned below for *X. forceps* sp. nov.). However, I consider a low, but reasonable possibility that the smaller specimen (FCI) is not conspecific; thus, it is not included in the type material.

Xiphentedon kivuensis sp. nov.

[urn:lsid:zoobank.org:act:1C78F23A-6352-41D8-91BF-AAC583F961CB](https://zoobank.org/act:1C78F23A-6352-41D8-91BF-AAC583F961CB)

Fig. 29

Diagnosis

As for the group and also: entire antenna dark; head about $2.5\times$ as wide as long in dorsal view (Fig. 29D); interantennal space without a process; gena bulging; all tibiae predominantly dark (Fig. 29A–B); axillular projection with at least four teeth (Fig. 29E); median propodeal strip Y-shaped, light coriaceous, with fine carinulae, other areas smooth (Fig. 29F); metasomal petiole nearly $2.0\times$ as long as wide, gaster about as long as or slightly longer than broad, syntergum wider than broad; CC asetose; WIP with broad red field along apical margin, followed by narrow blue, green and violet stripes (Fig. 29B).

Female

Pedicle plus flagellum slightly more than $2.0\times$ as long as scape, which is evenly wide, slightly narrowed apically; flagellum with short robust segments (Fig. 29C); spur of hind tibia $1.2\times$ width of hind tibia; gaster about as long as or slightly longer than broad, syntergum wider than long.

Male

Antenna similar, with wider scape and more hairy flagellar segments; body coppery bronze (Fig. 29G–H).

Etymology

The species epithet is a Latin adjective meaning ‘from Kivu’ and referring to the type locality, the Province of Kivu and the shores of Lake Kivu, a biodiversity-rich tropical forest area of DRC, impacted by anthropogenic activities and deforestation.

Type material examined

Holotype

DEMOCRATIC REPUBLIC OF THE CONGO • ♀ (impaled on a minute pin, but largely intact); “Congo belge : P.N.A., N’Zulu (Lac Kivu), 1500 m. 6–7 Feb. 1934, G.F. de Witte : 221”; MRAC.

Paratypes

DEMOCRATIC REPUBLIC OF THE CONGO • 1 ♀ (impaled on a minute pin, part of antenna and most legs lost); “Congo belge : P.N.G., Miss H. De Saeger, Pidigala, 23 Apr. 1952, H. de Saeger : 3328”; MRAC • 1 ♂ (largely intact, glued to a triangle tip); “COLL. MUS. CONGO : N. Lac Kivu : Rwankwi, Dec. 1951, J. V. Leroy”; MRAC • 2 ♂♂ (pinned, without metasoma); “Congo belge : Kivu, Rutshuru, 1285 m, 15 Jul. 1935, G.F. de Witte : 1661”; MRAC • 1 ♂ (pinned, without metasoma); “Congo belge : Kivu, Rutshuru (riv. Kanzarue), 1200 m, 16 Jul. 1935, G.F. de Witte : 1654”; MRAC.

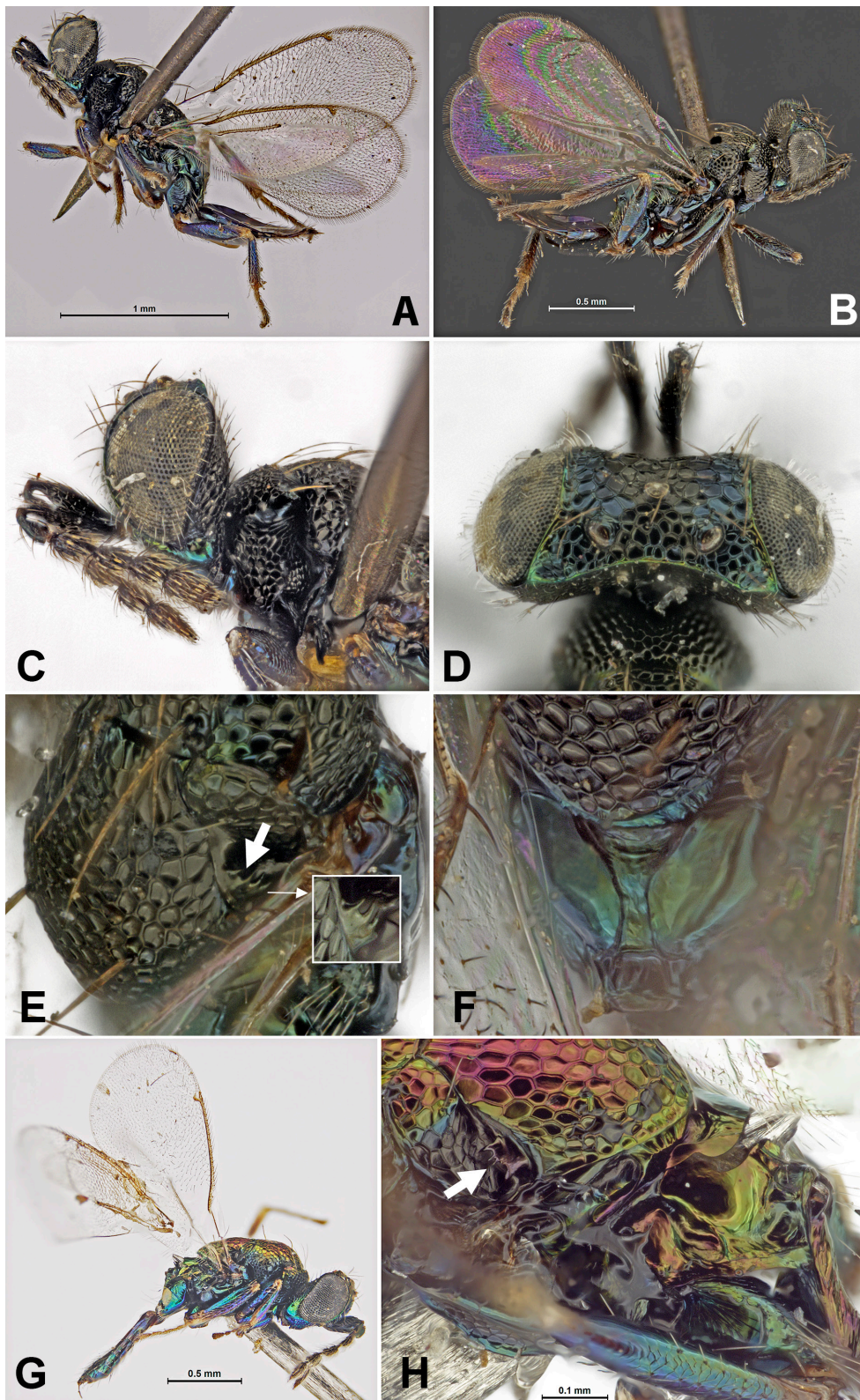


Fig. 29. *Xiphentedon kivuensis* sp. nov. **A–F.** ♀, holotype (DRC; MRAC). **A–B.** Habitus in lateral view. **C.** Head and anterior part of mesosoma. **D.** Head in dorsal view. **E.** Mesosoma in dorso-lateral view. **F.** Propodeum. **G–H.** ♂, paratype (DRC; MRAC). **G.** Habitus in lateral view. **H.** Posterior part of mesosoma. The axillula is arrowed in E and H, and shown in inset in E.

Description

Female

Length 1.8–1.9 mm. Body dark green, with violet tint in places, tibiae dark metallic except for slightly paler extreme tips; fore tarsi and two terminal tarsomeres of mid and hind tarsi dark brown, first two tarsomeres of mid and hind tarsi paler; antenna dark metallic; wings hyaline, venation pale brown; metasoma dark green, OMA dark, traced mainly by sculpture.

Head in dorsal view about $2.5\times$ as wide as long. Ocelli large, MDO : OOL : OCL in ratio 43 : 37 : 29, POL $2.5\times$ OOL. Occipital margin traced as a sharp carina raised laterally into small peaks.

Head in frontal view about $1.3\times$ as wide as high. Smooth area above frontal sutures reaching at most half distance between cross point of frontal sutures and level of their junction with eye orbits. Eye height slightly exceeds interocular distance (in ratio 263 : 248). Eye densely pubescent along its posterior margin, eye height almost $3.6\times$ malar space. Surface between toruli without a process. Width of oral fossa $2.0\times$ malar space. Antenna inserted at a distance slightly above level of ventral eye margin.

Scape about $3.5\times$ as long as wide, about $0.8\times$ eye height; combined length of pedicel and flagellum slightly more than $2.0\times$ width of head; pedicel nearly $2.0\times$ as long as wide, slightly longer than F1; F1 and F2 $1.7\text{--}1.8\times$, F3 $1.5\times$, funiculars subequal, clava almost $1.7\times$ as long as wide, with short terminal spine.

Mesosoma about $1.7\times$ as long as wide. Pronotal collar not carinate; mesoscutum about $1.8\times$ as broad as long, mesoscutellum about $1.2\times$ as long as wide. Axilla with one seta. Axillula with a sessile projection with about four teeth.

Propodeum with median propodeal strip Y-shaped, lightly coriaceous, with fine carinulae; submedian areas smooth. Spiracular elevation of propodeum merely convex, with short projection beneath spiracle. Lateral propodeal sulcus complete. Supracoxal flange of moderate width. Spur of hind tibia $1.2\times$ width of tibia.

Fore wing about $2.0\times$ as long as wide. CC asetose, about $5.5\times$ as long as wide, SC with two setae on dorsal margin; MV $1.3\times$ CC, PMV as long as STV. Speculum open below. Apical marginal fringe nearly $2.0\times$ width of PR at its widest part.

Metasomal petiole $1.3\text{--}1.4\times$ as long as wide, about $1.2\times$ as long as propodeum. Metasoma $1.3\times$ as long as wide, syntergum transverse, about $1.4\times$ as broad as long, about $\frac{1}{10}$ of length of entire gaster.

Male

Differs from female as follows: face, propodeum and coxae blue, dorsum bronze; scape $2.0\times$, pedicel about $1.8\times$, F1 $2.7\times$, F2 $1.7\times$ and F3 $1.5\times$ as long as wide, clava $2.0\times$ as long as wide. Metasomal petiole elongate, about $3.0\times$ as long as wide, gaster subpentagonal.

Biology

Unknown.

Distribution

DRC.

Remarks

This species differs from other species of the group, which have predominantly darkened hind and mid tibiae (*X. danielssoni* comb. nov. and *X. jeanyvesi* sp. nov.), in having the hindtibial spur $1.2\times$ as long as width of tibia and the axillular projection with at least four teeth.

Xiphentedon palabora sp. nov.

[urn:lsid:zoobank.org:act:2B095248-CE6B-4201-B911-038BE7FEC9CE](https://doi.org/10.2307/2B095248-CE6B-4201-B911-038BE7FEC9CE)

Fig. 30

Diagnosis

As for the group and also: entire antenna dark; head dorsally nearly $3.0\times$ as wide as long; interantennal space without a process, gena bulging (Fig. 30F–G); pedicel plus flagellum about $2.0\times$ as long as scape, which is wider basally, but narrowing apicad (Fig. 30F–G); fore tibia with two pale stripes, mid tibia dark on about proximal $\frac{2}{3}$ and hind tibia on about half (Fig. 30A, C); axillular projection with at least three teeth (Fig. 30D); median propodeal strip Y-shaped, coriaceous, with fine carinulae, other areas smooth; metasomal petiole robust but transverse, $1.6\times$ as broad as long (Fig. 30E); gaster nearly $2.0\times$ as long as wide, syntergum slightly longer than broad (Fig. 30C); CC asetose; WIP with broad red field along apical margin, followed by narrow blue, green and violet stripes (Fig. 30B).

Etymology

The species name corresponds to the name of the locality, Palabora or Phalaborwa (meaning ‘better than the south’, and considered to allude to the district being more favorable to settlement than southerly areas), where the Ba-Phalaborwa tribe commenced mining and smelting of iron and copper around AD 400, followed in the mid-1950s by the industrial era of extraction of copper ore, vermiculite and other minerals. The specific epithet is a noun that does not change with changing generic gender.

Type material examined

Holotype

REPUBLIC OF SOUTH AFRICA • ♀; Limpopo Province, Mopani District, Phalaborwa municipality, Palabora Copper Mining Company’s Cleveland Game Reserve; $24^{\circ}01'48.4''$ S, $31^{\circ}11'39.5''$ E; 12 Dec. 2014; A. Gumovsky and I.M. Weiersbye leg.; fogging a *Trichilia emetica* (umathunzini: isi-Zulu, Natal mahogany tree) with 0.02% pyrethrum for 15 minutes; DNA extract F8; SAMC.

Description

Female

Length 2.0 mm. Body dark bronze green, face and first gastral tergum brighter; trochanters pale, femora dark metallic except for paler extreme tips, fore tibiae with traceable pale stripes, mid tibia about $\frac{2}{3}$ dark on proximal part, hind tibia dark on about $\frac{1}{2}$, fore tarsi and pretarsi of mid and hind legs dark brown, first three tarsomeres of mid and hind legs pale; antenna dark metallic; wings hyaline, venation pale brown; metasoma dark blue, OMA dark, traced mainly by sculpture.

Head in dorsal view nearly $3.0\times$ as wide as long. Ocelli small, MDO:OOL:OCL in ratio 42:40:30, POL $3.3\times$ OOL. Occipital margin traced as a fine, not sharp carina.

Head in frontal view about $1.3\times$ as wide as high. Smooth area above frontal sutures reaching at most half distance between cross point of frontal sutures and level of their junction with eye orbits. Eye height slightly exceeds interocular distance. Eye densely pubescent along its posterior margin, eye height almost $3.5\times$ malar space. Surface between traceable scrobal depressions weakly raised. Width of oral fossa $2.3\times$ malar space. Antenna inserted slightly above level of ventral eye margin.

Scape slightly less than $5.0\times$ as long as wide, $0.7\times$ eye height; pedicel plus flagellum about $2.0\times$ as long as scape and $0.7\times$ head width; pedicel $2.0\times$ as long as wide, about $1.2\times$ F1. The latter and F2 $1.6\text{--}1.7\times$, F3 $1.2\times$, clava two-segmented, about $2.0\times$ as long as wide, with short terminal spine.

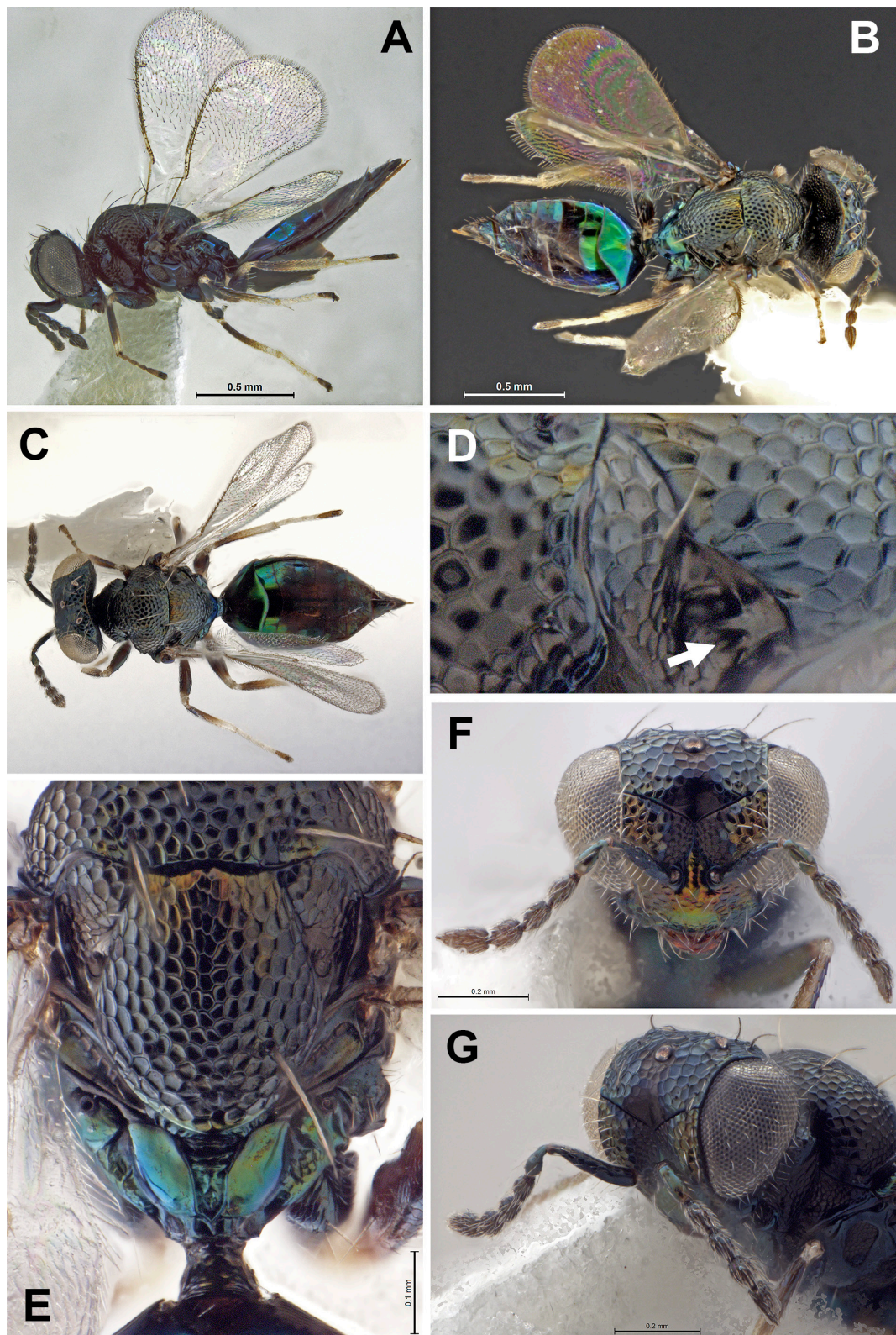


Fig. 30. *Xiphentedon palabora* sp. nov., ♀, holotype (RSA; SAMC). A–C. Habitus, in lateral (A), dorso-lateral (B) and dorsal (C) views. D. Part of mesosoma, the axillula is arrowed. E. Mesosoma and anterior part of metasoma. F. Head in frontal view. G. Head and anterior part of mesosoma in fronto-lateral view.

Mesosoma nearly 1.6× as long as wide. Pronotal collar not carinate; mesoscutum 1.5× as broad as long, notaular depressions shallow; mesoscutellum slightly longer than broad, about 1.4× as long as mesoscutum. Axillula with a projection with at least three teeth.

Propodeum with Y-shaped median strip, coriaceous, with fine carinulae, submedian areas smooth. Spiracular elevation of propodeum weakly convex, with short tubercle posteriad of spiracle. Lateral propodeal sulcus complete, coriaceous. Supracoxal flange of moderate width. Spur of hind tibia slightly shorter than width of tibia.

Fore wing 2.0× as long as wide. CC asetose, about 5.5× as long as wide, SC with two setae on dorsal margin; MV slightly longer than CC, PMV as long as STV. Speculum open below. Apical marginal fringe slightly longer than width of PR at its widest part.

Metasomal petiole short, robust, slightly wider than long, 0.7× as long as propodeum. Metasoma 1.9× as long as wide, syntergum elongate, about 1.3× as long as wide, about 1/10 of length of entire metasoma.

Male

Unknown.

Biology

Unknown.

Distribution

RSA.

Remarks

This species is recognizable within the *danielssoni* group by a dark antennal scape and a short transverse petiole.

Xiphentedon sangha sp. nov.

[urn:lsid:zoobank.org:act:0299B4AF-E10D-40EE-BBA5-231C2BAFA914](https://doi.org/10.21203/rs.3.rs-1029924/v1)

Fig. 31

Diagnosis

As for the group and also: scape pale, narrow, pedicel plus flagellum dark (Fig. 31D–E); head dorsally about 2.5× as wide as long (Fig. 31E); interantennal space without a process; gena moderately bulging; pedicel plus flagellum 2.2–2.3× as long as scape; fore tibia with two pale stripes, all tibiae darkened on proximal 1/2; axillular projection bidentate, anterior margin of mesoscutellum with very short anteromedian indentation (Fig. 31F); median propodeal strip Y-shaped, lightly coriaceous, other areas smooth (Fig. 31F); metasomal petiole cylindrical; gaster slightly longer than broad, ovate, syntergum triangular, slightly broader than long (Fig. 31A–B); CC asetose; WIP with broad red field along apical margin, followed by narrow blue, green and violet stripes (Fig. 31C).

Etymology

The species name reflects the locality name and the Sangha River. The specific epithet is a noun that does not change with a changing generic gender.

Type material examined

Holotype

CENTRAL AFRICAN REPUBLIC • ♀; Prefecture Sangha-Mbaéré, Réserve Spéciale de Forêt Dense de Dzanga-Sangha, 12.7 km 326° NW of Bayanga; 3°00.27' N, 16°11.55' E; 420 m a.s.l.; sweep in lowland rainforest; 13 May 2001; S. van Noort leg.; CAR01-S170; SAM-HYM-P067745; SAMC.

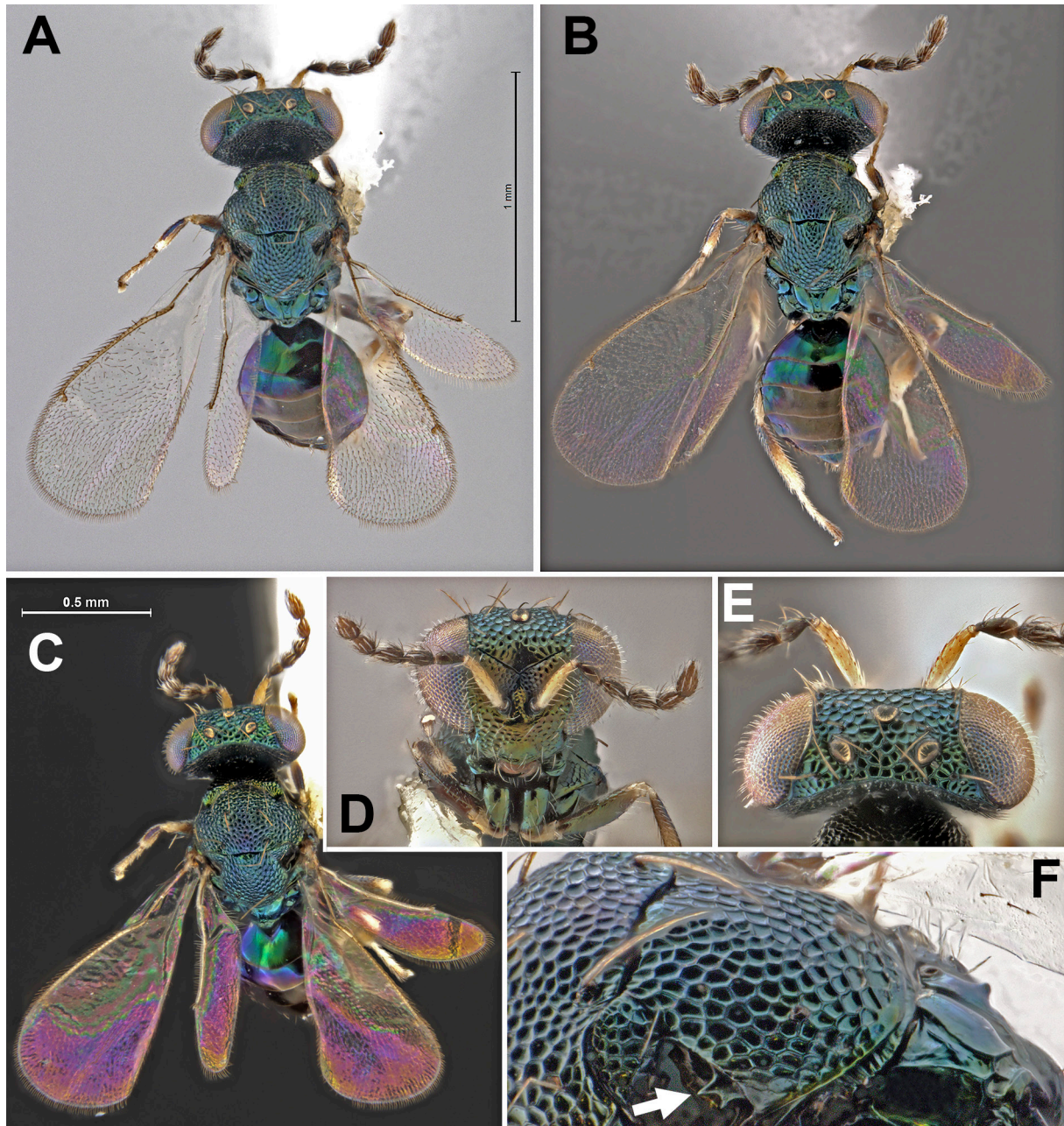


Fig. 31. *Xiphentedon sangha* sp. nov., ♀, holotype (CAR; SAM-HYM-P067745). A–C. Habitus in dorsal view. D–E. Head in frontal (D) and dorsal (E) views. F. Mesosoma, dorso-lateral view, the axillula is arrowed.

Description

Female

Length 1.6 mm. Body dark green, face and first gastral tergum bright metallic; trochanters paler, femora dark metallic, fore tibia with two pale stripes, mid and hind tibiae dark metallic on proximal $\frac{1}{2}$; fore tarsi and pretarsi of mid and hind legs dark brown; antenna with pale scape, rest dark; wings hyaline, venation pale brown; metasoma bright green, OMA dark, traced mainly by sculpture.

Head in dorsal view about $2.5\times$ as wide as long. Ocelli large, POL about $2.5\times$ OOL, MDO:OOL:OCL in ratio 40:81:26. Occipital margin traced as a blunt carina poorly raised laterally.

Head in frontal view about $1.3\times$ as wide as high. Smooth area above frontal sutures reaching at most half distance between cross point of frontal sutures and level of their junction with eye orbits. Eye height and interocular distance in ratio 212:194. Gena with shallow depression under lower eye margin. Eye merely pubescent along its posterior margin, eye height almost $3.6\times$ malar space. Surface between toruli weakly raised. Width of oral fossa $1.8\times$ malar space. Antenna inserted at a distance as long as major diameter of torulus above level of ventral eye margin.

Scape about $5.0\times$ as long as wide, $1.4\times$ eye height; pedicel plus flagellum $2.2\text{--}2.3\times$ as long as scape; combined length of pedicel and flagellum $0.8\times$ width of head; pedicel $1.5\times$ as long as wide, as long as F1. The latter $1.5\times$ and F2 $1.8\times$, F3 $1.5\times$, clava about $2.0\times$ as long as wide, with short terminal spine.

Mesosoma nearly $1.7\times$ as long as wide. Pronotal collar not carinate; mesoscutum $1.7\times$ as broad as long; mesoscutellum slightly longer than broad, slightly longer than mesoscutum, with weak indentation anteriorly. Axillula with a sessile bidentate projection.

Propodeum with Y-shaped median propodeal strip, lightly coriaceous, other areas smooth. Spiracular elevation of propodeum weakly convex, with short projection beneath spiracle. Lateral propodeal sulcus complete, with regular carinulae. Supracoxal flange of moderate width. Spur of hind tibia slightly shorter than width of tibia.

Fore wing about $2.2\times$ as long as wide. CC asetose, about $7.0\times$ as long as wide, SC with two setae on dorsal margin; MV slightly longer than CC, PMV as long as STV. Speculum open below. Apical marginal fringe slightly longer than width of PR at its widest part.

Metasomal petiole cylindrical, about $1.2\times$ as long as wide, with a collar, about $1.3\times$ as long as propodeum. Gaster slightly longer than broad, syntergum transverse, about $3.0\times$ as broad as long, about $\frac{1}{10}$ of length of entire metasoma.

Male

Unknown

Biology

Unknown.

Distribution

CAR.

Remarks

This species is isolated within the *danielssoni* group in the possession of a pale antennal scape.

Xiphentedon nimba sp. nov.

urn:lsid:zoobank.org:act:D2132D04-A94A-4313-91E2-79F244CB2D4B

Fig. 32

Diagnosis

As for the group and also: scape pale basally, pedicel plus flagellum dark (Fig. 32E); flagellars short, robust and connected by very short peduncles, moderately clavate and hairy; head dorsally $2.3 \times$ as wide as long, head width $1.2 \times$ pedicel plus flagellum; interantennal space without a process (Fig. 32D); gena moderately bulging; pedicel plus flagellum $2.6 \times$ as long as scape; fore tibiae with two pale stripes, mid and hind tibiae darkened only on about basal $\frac{1}{2}$, first three tarsomeres pale and pretarsi dark (Fig. 32A); axillular projection bidentate (Fig. 32B); anterior margin of mesoscutellum evenly curved (Fig. 32C); median propodeal strip wide Y-shaped, with tiny carinulae; propodeal submedian areas smooth (Fig. 32C); metasomal petiole short, robust, slightly wider than long (Fig. 32C); gaster only slightly longer than broad, ovate, syntergum triangular, slightly broader than long (Fig. 32A); CC asetose; WIP with broad red field along apical margin, followed by narrow blue, green and violet stripes.

Etymology

The species is named after the Nimba Mountain, the forested area where it was collected. The specific epithet is a noun that does not change with a changing generic gender.

Type material examined

Holotype

REPUBLIC OF GUINEA • ♀; Mt Nimba, Zié forest, gallery forest of Zié, near ‘Station de Pompage Zié’, Gouan Camp; 1250 m a.s.l.; 07°40'23" N, 08°22'24" W; 3 Oct. 2011; A. Hernard and D. Van den Spiegel leg.; canopy of trees, under-story shrub layer, Nimba 050, fogging 01; MRAC.

Paratypes

REPUBLIC OF GUINEA • 4 ♀♀; same collection data as for holotype; MRAC.

Description

Female

Length 1.7 mm. Mesosoma dark green, face with bronze tint, metasoma bright metallic; trochanters pale, femora mostly dark, fore tibia with two pale stripes, mid tibia dark in about proximal $\frac{1}{2}$ – $\frac{2}{3}$ and hind tibia in about proximal $\frac{1}{2}$ – $\frac{1}{3}$, rest of tibiae pale; fore tarsi and two terminal tarsomeres of mid and hind legs dark brown, first three tarsomeres of mid and hind tarsi pale; antenna with scapus pale on proximal half, rest of antenna dark metallic; wings hyaline, venation pale brown; OMA dark, traced mainly by sculpture.

Head in dorsal view about $2.3 \times$ as wide as long. Ocelli of moderate size, MDO:OOL:OCL in ratio 32.5:33:19, POL nearly $2.7 \times$ OOL. Occipital margin traced as a sharp carina raised laterally into small peaks.

Head in frontal view about $1.2 \times$ as wide as high. Smooth area above frontal sutures reaching nearly distance between cross point of frontal sutures and level of their junction with eye orbits. Eye height and interocular distance in ratio 162:150. Eye densely pubescent along its posterior margin, eye height nearly $3.0 \times$ malar space. Surface between traceable scrobal depressions weakly raised. Width of oral fossa $1.6 \times$ malar space. Antenna inserted at level of ventral eye margin.

Scape sub-cylindrical, about $4.5 \times$ as long as wide, about $1.6 \times$ eye height; head width $1.2 \times$ pedicel plus flagellum; pedicel plus flagellum $2.6 \times$ as long as scape; pedicel about $2.0 \times$ as long as wide, slightly longer than F1. The latter and F2 $1.8 \times$, F3 $1.2 \times$, clava about $2.0 \times$ as long as wide, with short terminal spine.

Mesosoma nearly $1.6\times$ as long as wide. Pronotal collar not carinate; mesoscutum $2.4\times$ as broad as long, notaular depressions hardly recognizable; mesoscutellum slightly longer than broad, $1.6\times$ as long as mesoscutum. Axillula with a sessile bidentate projection.

Propodeum with median propodeal strip wide Y-shaped, with tiny carinulae, other areas smooth; submedian areas nearly flat, smooth and shiny. Spiracular elevation of propodeum weakly convex, with short tubercle posteriad. Lateral propodeal sulcus complete, with a fovea in middle. Supracoxal flange relatively narrow. Spur of hind tibia as long as width of tibia.

Fore wing $2.0\times$ as long as wide. CC asetose, about $5.0\times$ as long as wide, SC with two setae on dorsal margin; MV slightly longer than CC, PMV as long as STV. Speculum open below. Apical marginal fringe as long as width of PR at its widest part.

Metasomal petiole short, robust, slightly wider than long, about $\frac{1}{3}$ of propodeum. Gaster $1.6\times$ as long as wide, syntergum about $1.6\times$ as long as wide, about $\frac{1}{8}$ of length of entire metasoma.

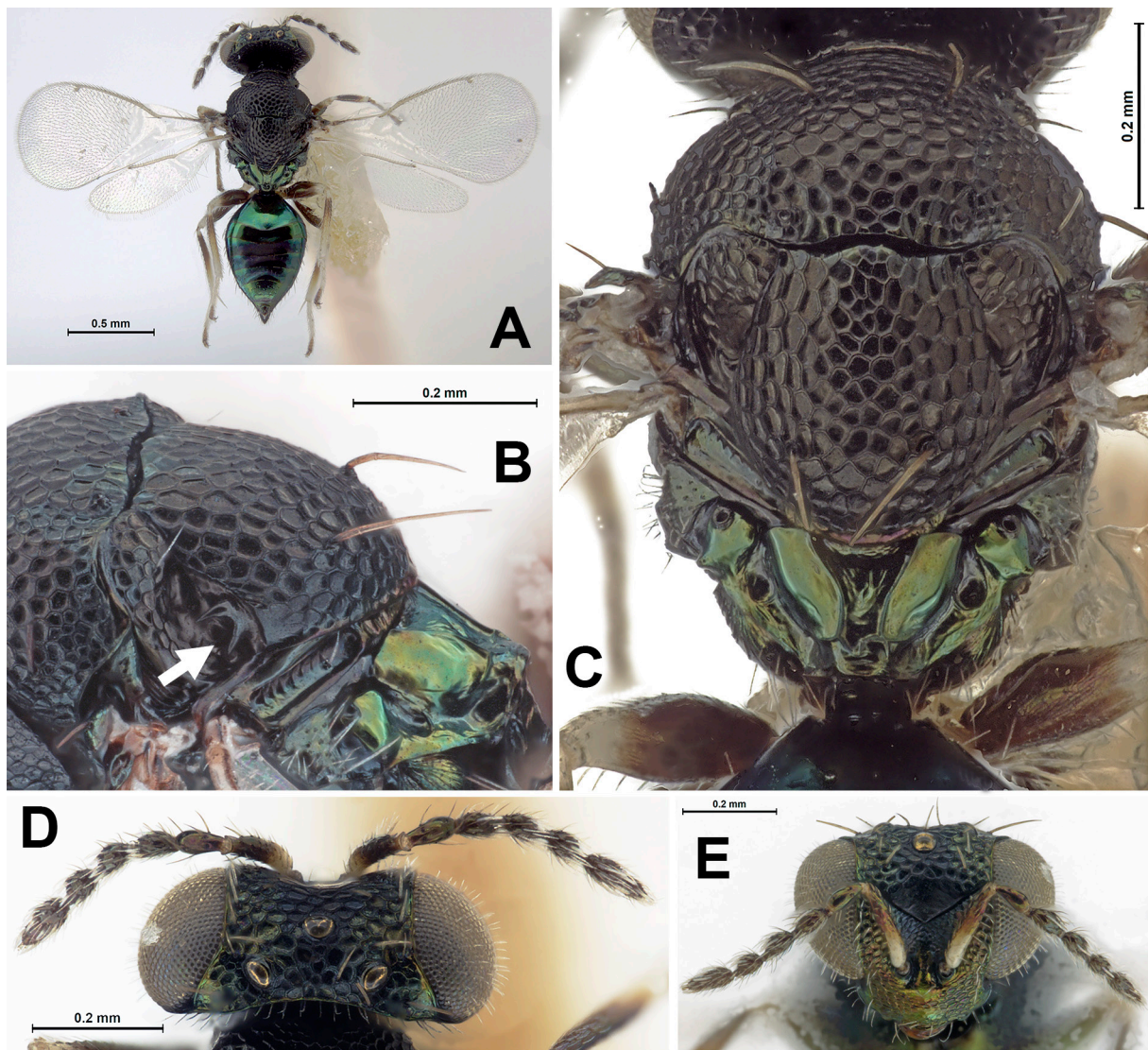


Fig. 32. *Xiphentedon nimba* sp. nov., ♀, holotype (Guinea; MRAC). **A.** Habitus in dorsal view. **B–C.** Mesosoma in dorso-lateral (**B**, the axillula is arrowed) and dorsal (**C**) views. **D–E.** Head in dorsal (**D**) and frontal (**E**) views.

Male

Unknown.

Biology

Unknown.

Distribution

Guinea (Conakry).

Remarks

This species resembles *X. sangha* sp. nov., but is easily distinguishable, mainly by the color of the scape (pale basally, not entirely as in *X. sangha*).

***forceps* species group**

Diagnosis

Upper margin of mesoscutellum with a paired anteromedian protrusion; gena evenly convex, not bulging; median strip of propodeum coriaceous or lightly reticulate (rarely smooth), widening anteriorly and delimited by fine carinae or pliciform borders. Generally, smaller species: mostly up to and just occasionally slightly larger than 2.0 mm.

***Xiphentedon forceps* sp. nov.**

[urn:lsid:zoobank.org:act:1D9FA7CD-075F-4D5C-8389-F18491055981](https://zoobank.org/act:1D9FA7CD-075F-4D5C-8389-F18491055981)

Figs 33–34

Diagnosis

As for the group, and also: entire antenna dark (Fig. 33E); head about $2.3\times$ as wide as long in dorsal view; interantennal space without a process, gena not bulging (Figs 33E, 34C); fore tibiae with two pale stripes, mid and hind legs with tibiae darkened only basally, their first three tarsomeres pale, pretarsi dark (Fig. 33A, C, F); axillular projection sessile and bidentate (Figs 33B, 34D); median propodeal strip very wide Y-shaped, coriaceous, areas near nucha reticulate (Figs 33D, 34B).

Female

Pedichel plus flagellum about $2.0\text{--}2.3\times$ as long as scape; flagellum with ovate-elongate segments; gaster $1.2\text{--}1.3\times$ as long as wide, ovate, syntergum transverse (Fig. 34A); metasomal petiole short, robust, slightly wider than long ($1.2\times$), about $\frac{3}{5}$ or $\frac{1}{2}$ of propodeum (Fig. 33D); propodeum $1.6\times$ as long as petiole; CC without setae on ventral side; WIP with broad red field along apical margin, followed by narrow blue, green and violet stripes, large red smoothly rounded patch (Fig. 33G).

Male (Fig. 33F)

Antenna with funicular joints elongate, slightly more than $2.0\times$ as long as wide, scape about $4.0\times$ as long as wide.

Etymology

The specific name is associated with a conserved diagnostic character, the forceps-shaped projection on the axillula. The specific epithet is a noun that does not change with a changing generic gender.

Type material examined

Holotype

IVORY COAST • ♀; Lamto; 28 Aug. 1985; J.Y. Rasplus leg.; fauchage [sweeping]; CBGP.

Paratypes

IVORY COAST • 20 ♀♀; same collection data as for holotype; 1 Jun.–15 Nov. 1985; CBGP, MNHN
• 1 ♂; same collection data as for holotype; 28 Aug. 1985; CBGP • 1 ♂; same collection data as for
holotype; 29 Aug. 1985; MNHN.

BENIN • 1 ♀; Sékou; 13. Nov. 1993; G. Delvare leg.; CIRAD.

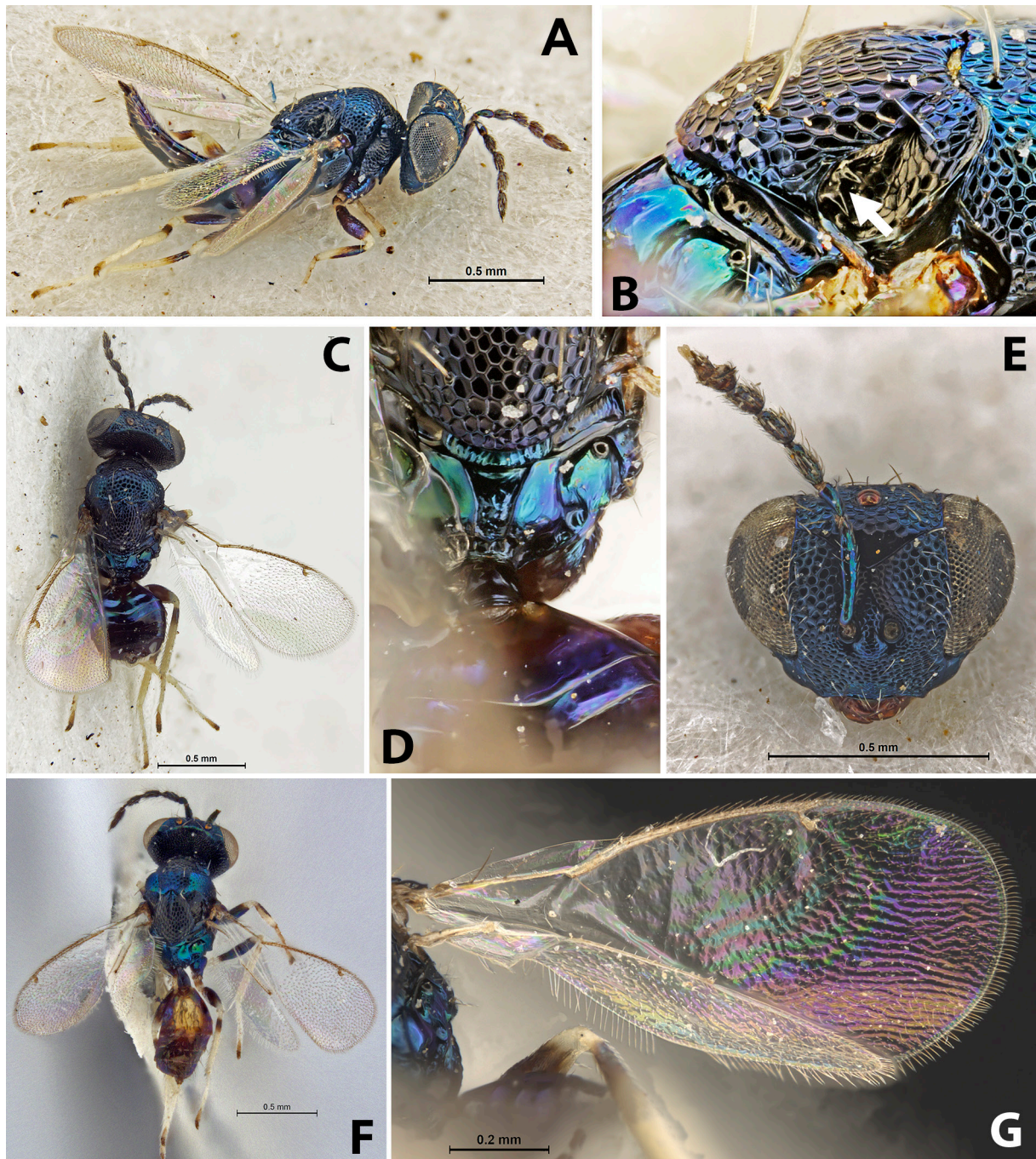


Fig. 33. A–B. *Xiphentedon forceps* sp. nov. A–D, H. ♀, holotype (Ivory Coast; CBGP). E. ♀, paratype (Ivory Coast; CBGP). F. ♂, paratype (Ivory Coast; CBGP). A, C, F. Habitus in lateral (A) and dorsal (C, F) views. B. Mesosoma in lateral view, the axillula is arrowed. D. Propodeum. E. Head in frontal view. G. Wings, WIP.

REPUBLIC OF SOUTH AFRICA • 1 ♀, 1 ♂; Pretoria, “Tvl, ex twig galls on *Plectranthus cylindraceus*, SANC Pretoria”; 10 Nov. 1985; S. Nesor leg.; Database No. HYMC02755; SANC.

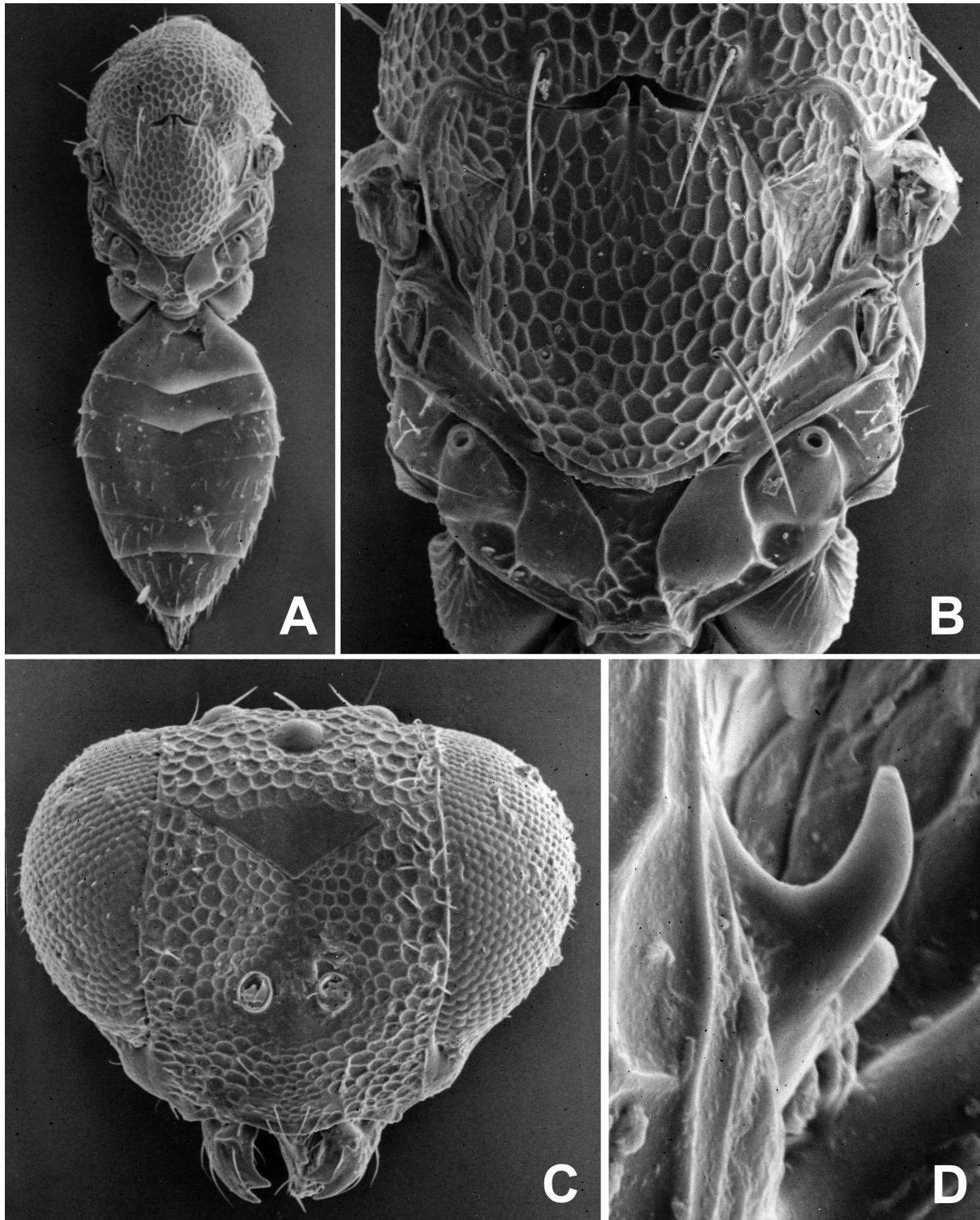


Fig. 34. *Xiphentedon forceps* sp. nov., ♀ (SANC, used for SEM). A. Body. B. Mesosoma. C. Head in frontal view. D. Axillula.

Description**Female**

Length 1.6–1.8 mm. Dark green with blue tint at places. Legs: coxa black, mid trochanter pale, fore trochanter brownish, hind trochanter with dark metallic spot, femora dark, fore tibia with two pale stripes, which darken anteriorly; mid and hind tibiae narrowly darkened basally (on about $\frac{1}{4}$ – $\frac{1}{5}$); fore tarsi pale brown, first three tarsi of mid and hind legs pale and pretarsi of all legs darkened; entire antenna dark; wings transparent, venation pale brown; OMA dark, but paler (pale brown) than rest of gaster.

Head in dorsal view slightly more than $2.0\times$ as wide as long; ocelli small; POL about $2.2\times$ OOL. Occipital margin carinate, not very sharp. MDO : OOL : OCL in ratio 80 : 99 : 64.5. Eye poorly pubescent.

Head in frontal view about $1.3\times$ as wide as high. Face smooth above frontal sutures: upper border of this smooth area not quite reaching level of posterior ends of frontal sutures. Eye height/interocular distance in ratio 34 : 30 or 35 : 31; eye height 3.1 – $3.4\times$ malar space. Surface between toruli poorly elevated. Width of oral fossa 2.2 – $2.4\times$ malar space. Distance between lower eye margin and antennal torulus slightly shorter than diameter of torulus. Scape about $5.0\times$ as long as wide, $0.7\times$ eye height; combined length of pedicel plus flagellum slightly more than $0.8\times$ width of head; pedicel $2.0\times$ as long as wide, 0.8 – $0.9\times$ F1. F1 and F2 about $2.5\times$, F3 1.7 – $1.8\times$ as long as wide, clava $2.6\times$ as long as wide, with a short terminal spine.

Mesosoma 1.5 – $1.6\times$ as long as wide. Pronotal collar not carinate, pronotal shoulders wide, blunt. Prosternum bearing fine complete median groove on ventral surface, with protruding flange, anterior margin of which is bilobed. Mesoscutum about $2.0\times$ as broad as long; mesoscutellum slightly longer than broad, 1.3 – $1.4\times$ as long as mesoscutum. Axillula with bidentate, forceps-shaped projection.

Propodeum with coriaceous median strip (smooth in smaller specimens), delimited by sharp pliciform borders, which diverge anteriorly and subparallel posteriorly; submedian areas smoothly convex; lateral propodeal sulcus complete.

Spur of hind tibia as long as or slightly longer than width of tibia, spur of fore tibia about as long as width of tibia.

Fore wing about $2.0\times$ as long as wide; CC asetose, $7.0\times$ as long as wide, SC with 2 dorsal setae; MV slightly longer than CC, PMV as long as or slightly longer than STV; speculum broadly open below; apical marginal fringe just slightly longer than width of PR.

Metasomal petiole transverse, conical, its dorsal surface weakly sculptured. Gaster 1.5 – $1.7\times$ as long as wide.

Male

Similar to female, except: metasomal petiole nearly $2.0\times$, scape 3.0 – $3.5\times$, pedicel about $1.5\times$, F1 (without peduncle) slightly more than $2.0\times$, F2 and F3 about $2.0\times$, clava about $3.0\times$ as long as wide; combined length of pedicel plus flagellum slightly longer than width of head, which is about $2.5\times$ as broad as long in dorsal view.

Biology

Associated with a gall former on *Plectranthus cylindraceus* in RSA.

Distribution

Ivory Coast, Benin, RSA.

Remarks

This species is distinguishable from *X. gerardi* sp. nov. in the possession of the narrowly basally darkened mid and hind tibiae (predominantly dark in *X. gerardi*).

Xiphentedon gerardi sp. nov.

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Figs 35–36

Diagnosis

As for the group, and also: entire antenna dark, all legs predominantly dark, fore tarsi and terminal two tarsomeres of mid and hind legs dark (Fig. 35A, F); head dorsally $\sim 2.5\times$ as wide as long; interantennal space with a short blunt process; gena not bulging, without a spine (Fig. 36C); axillular projection bi- or tridentate (Figs 35B, 36F); median propodeal strip wide Y-shaped, coriaceous, submedian areas coriaceous to reticulate near nucha and on basal half of propodeum; lateral propodeal sulcus light, complete, but disappears within posterior reticulation (Figs 35D, 36E); metasomal petiole robust conical, but slightly wider than long, with robust raised neck (Figs 35D, 36E).

Female

Pedicele plus flagellum about $2.0\times$ as long as scape, which is generally slender or very slightly widened, flagellum not clavate, gaster as long as or $1.2\text{--}1.3\times$ as long as wide, ovate, syntergum transverse; CC without setae on ventral side; WIP with broad red field along apical margin, followed by narrow blue, green and violet stripes (Fig. 36B).

Male

Antennal scape widened apically, about $3.3\times$ as long as wide; body bright green, head brighter than in female.

Etymology

The species is named in honour of Gérard Delvare, a French entomologist and the collector of the holotype. The species epithet is a Latin noun in the genitive case, not changing with the gender of the genus.

Type material examined

Holotype

BENIN • ♀; Sékou; 13 Nov. 1993; G. Delvare leg.; MNHN.

Paratypes

BENIN • 4 ♀♀; same collection data as for holotype; MNHN, CIRAD.

DEMOCRATIC REPUBLIC OF THE CONGO • 1 ♀ (small variety); “Congo Belge: Kivu, Rutshuru, 1285 m., 22 May – 4 Jun. 1934, G.F. de Witte : 427”; MRAC.

REPUBLIC OF SOUTH AFRICA • 1 ♂; “Dukuduku Forest. Res., Ntl.”; Apr. 1977; G.L. Prinsloo leg.; SANC.

Description

Female

Length 1.2–1.7 mm. Dark green, paler in smooth areas; legs predominantly dark, just extreme apices of femora and tibiae paler, tarsi brownish, terminal tarsus of mid and hind legs darker; entire antenna dark; wings transparent, venation pale brown; OMA dark, but occasionally paler than rest of gaster.

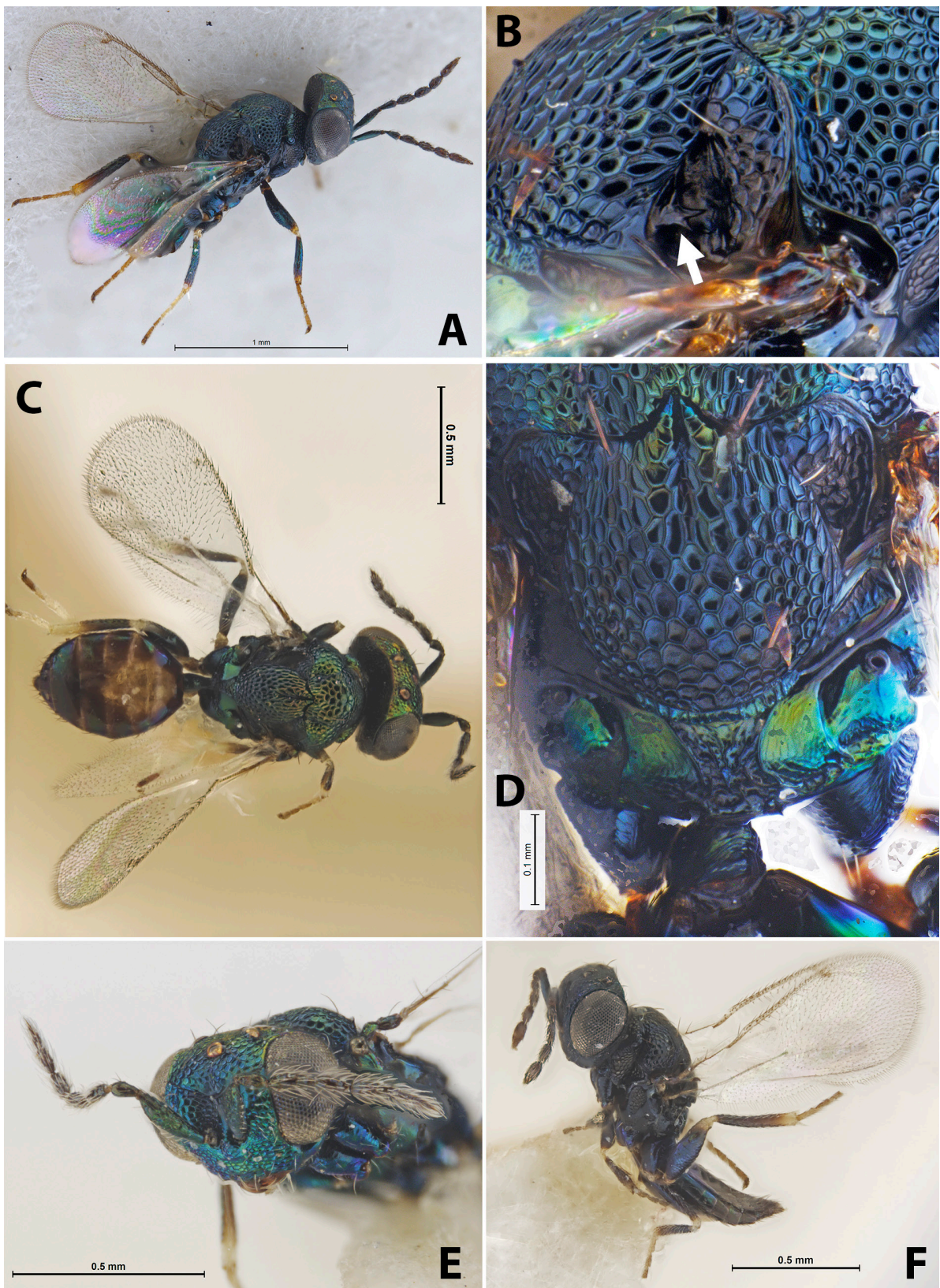


Fig. 35. *Xiphentedon gerardi* sp. nov. A–B, D. ♀, holotype (Benin; MNHN). C, E. ♂, paratype (RSA; SANC). F. ♀, paratype (DRC; MRAC). A, C, F. Habitus. B, D. Mesosoma in lateral (B: the axillular projection is arrowed) and dorsal (D) views. E. Head and anterior part of mesosoma, fronto-lateral view.

Head in dorsal view $2.3\times$ as wide as long; ocelli of moderate size; POL slightly more than $2.0\times$ OOL. Occipital margin traced, but not sharply carinate. MDO:OOL:OCL in ratio 5:6:3. Eye poorly pubescent.

Head in frontal view about $1.4\times$ as wide as high. Area above frontal sutures evenly lightly reticulate. Eye height equates interocular distance; eye height about $3.5\times$ malar space.

Surface between toruli (interantennal space) weakly elevated as a short blunt process. Width of oral fossa nearly $3.0\times$ malar space. Distance between lower eye margin and antennal torulus about as long as diameter of torulus. Scape about $5.5\times$ as long as wide, $0.6\text{--}0.7\times$ eye height; combined length of pedicel plus flagellum about $0.9\times$ as long as width of head; pedicel about $2.0\times$ as long as wide and as long as each of equilong funicular segments, which are all slightly more than $2.0\times$ as long as wide; clava two-segmented, about $2.3\times$ as long as wide, with short terminal spine.

Mesosoma $1.4\text{--}1.5\times$ as long as wide. Pronotal collar not carinate, pronotal shoulders blunt. Prosternum with protruding flange, bearing fine complete median groove, anterior margin of this flange bilobed and with a carina extending underneath. Mesoscutum almost $2.0\times$ as broad as long, mesoscutellum slightly longer than broad (if apical protrusion is excluded), slightly longer than mesoscutum. Axillula with bidentate, almost sessile projection; occasionally a bifurcation of one tooth occurs (so, virtually tridentate).

Propodeum with wide confused-rugulose median strip, distinctly delimited anteriorly by sharp pliciform borders, which merge posteriorly with propodeal reticulation; submedian areas flat, smooth anteriorly, striate-reticulate posteriorly; lateral propodeal sulcus complete, but supracoxal groove less distinct within posterior reticulation of propodeum.

Spur of hind tibia as long as width of tibia.

Fore wing about $2.0\times$ as long as wide, CC asetose, about $7.0\text{--}8.0\times$ as long as wide, SMV with two setae on SC; MV $1.2\text{--}1.3\times$ CC; PMV as long as or slightly longer than STV; speculum broadly open below; apical marginal fringe as long as width of PR.

Metasomal petiole $1.2\text{--}1.3\times$ as long as wide, conical, with narrow striate ‘roof’, about $0.6\times$ as long as propodeum. Gaster about $1.3\times$ as long as wide.

Male

Differs from female as follows: body bright green, antennal scape $3.3\times$, pedicel about $1.8\times$ as long as wide, F1 $3.5\times$, F2 and F3 $2.0\times$, clava about $3.0\times$ as long as wide; combined length of pedicel plus flagellum $1.2\times$ as long as width of head; oral fossa about $3.3\times$ as long as malar space; metasomal petiole $1.8\times$ as long as wide, $1.4\times$ as long as propodeum.

Biology

Unknown.

Distribution

Benin, DRC, RSA.

Remarks

This species is distinguishable from *X. forceps* sp. nov. in the predominantly dark mid and hind tibiae (narrowly darkened in *X. forceps*).

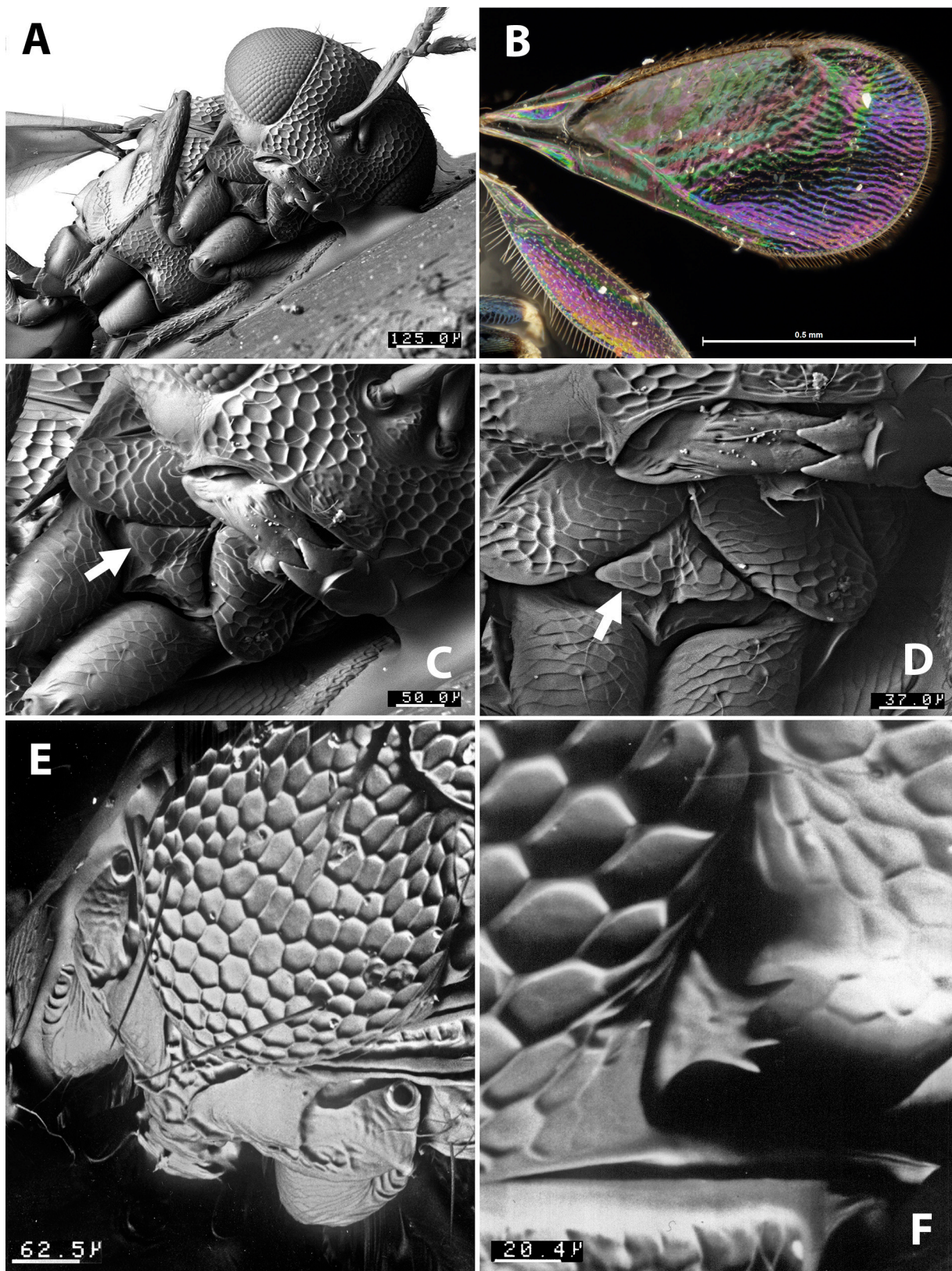


Fig. 36. *Xiphentedon gerardi* sp. nov., ♀, paratype (Benin; CIRAD). **A.** Head and mesosoma in ventral view. **B.** Wings, WIP. **C–D.** Lower face and prothorax, ventral view, the flange on the arc of the prosternum is arrowed. **E.** Mesoscutellum and propodeum. **F.** Axillula.

Xiphentedon acutigena sp. nov.

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Figs 37–38

Diagnosis

Habitus mostly as for the group, and: fore tibia with two pale stripes (largely fused into large pale area with only lateral dark stripe), coxae, most part of fore and mid femora, posterior-dorsal ½ of hind femur (but hind femur paler in RSA and Tanzanian females, up to entirely pale legs), pretarsi of all legs dark, the rest of legs pale, but fore tarsi pale brown (Fig. 37A, C); head dorsally about 2.5 × as wide as long, interantennal space without a process; gena not bulging, but with acute spike (very tiny in smaller specimens) (Figs 37E, 38A); mandible with two large teeth; axillular projection lamellate and multidentate (Fig. 38E); median strip of propodeum of wide Y shape (Fig. 37B, D); lateral propodeal sulcus reduced, represented just by adspiracular groove, metasomal petiole robust conical, 1.2–1.3 × as long as wide (Figs 37B, D, 38D); WIP with red/violet field, followed by blue and green stripes.

Female

Pedichel plus flagellum about 2.2–2.5 × as long as scape; flagellum merely clavate, gaster as long as or 1.2–1.3 × as long as wide, ovate, syntergum transverse; weak reticulation of anterior part of median strip of propodeum merges with coarse reticulation of submedian areas posteriorly (Fig. 37D); CC with 1–3 setae on ventral side.

Male

Sharp spike on gena longer than in female (Figs 37F); antenna with elongate flagellars; scape widened, about 3.0–3.5 × as long as wide; clava with a deep constriction between its segments (Fig. 37H); median strip of propodeum roughly scrobiculate (Fig. 38D).

Etymology

The species name is associated with a conserved diagnostic character, i.e., the specific shape of the malar projection. The name is a Latin noun, a combination of ‘*acutus*’ (‘sharp, acute’) and ‘*gena*’ (‘cheek’), not changing with the gender of the genus.

Type material examined

Holotype

IVORY COAST • ♀; Lamto; 29 Jul. 1985; J.Y. Rasplus leg.; Malaise trap; CBGP.

Paratypes

DEMOCRATIC REPUBLIC OF THE CONGO • 1 ♂ (small malar spine, flagella lost); “Congo Belge, P.N.G., Miss H. De Saeger, Ndelele/R, 24 Sep. 1952, 4075”; MRAC • 1 ♂ (large malar spine); “Congo Belge: Kivu, Rutshuru, 1285 m., Jul. 1935, G.F. de Witte : 1671”; MRAC.

IVORY COAST • 4 ♀♀; same collection data as for holotype; 17 Jun.–19 Aug. 1985; CBGP, MNHN.

TANZANIA • 1 ♀; Amani; 10 Mar. 1996; J.-Y. Rasplus and C. Kerdelhué leg.; CBGP • 1 ♀ (small spike on gena); Mkomazi Game Reserve, Ngurunga Plot; 4°01.15' S, 37°52.79' E; 19 Apr. 1996; S. van Noort leg.; sweep, mk 28, open disturbed *Acacia/Commiphora* bushland, burnt Aug. 1993; SAM-HYM P017006; SAMC • 1 ♀; same collection data as for preceding; Pangaro Plot; 3°53.61' S, 37°46.65' E; 23 Apr. 1996; S. van Noort leg.; sweep, mk 30, open disturbed *Acacia/Grewia* bushland; SAM-HYM P018595; SAMC.

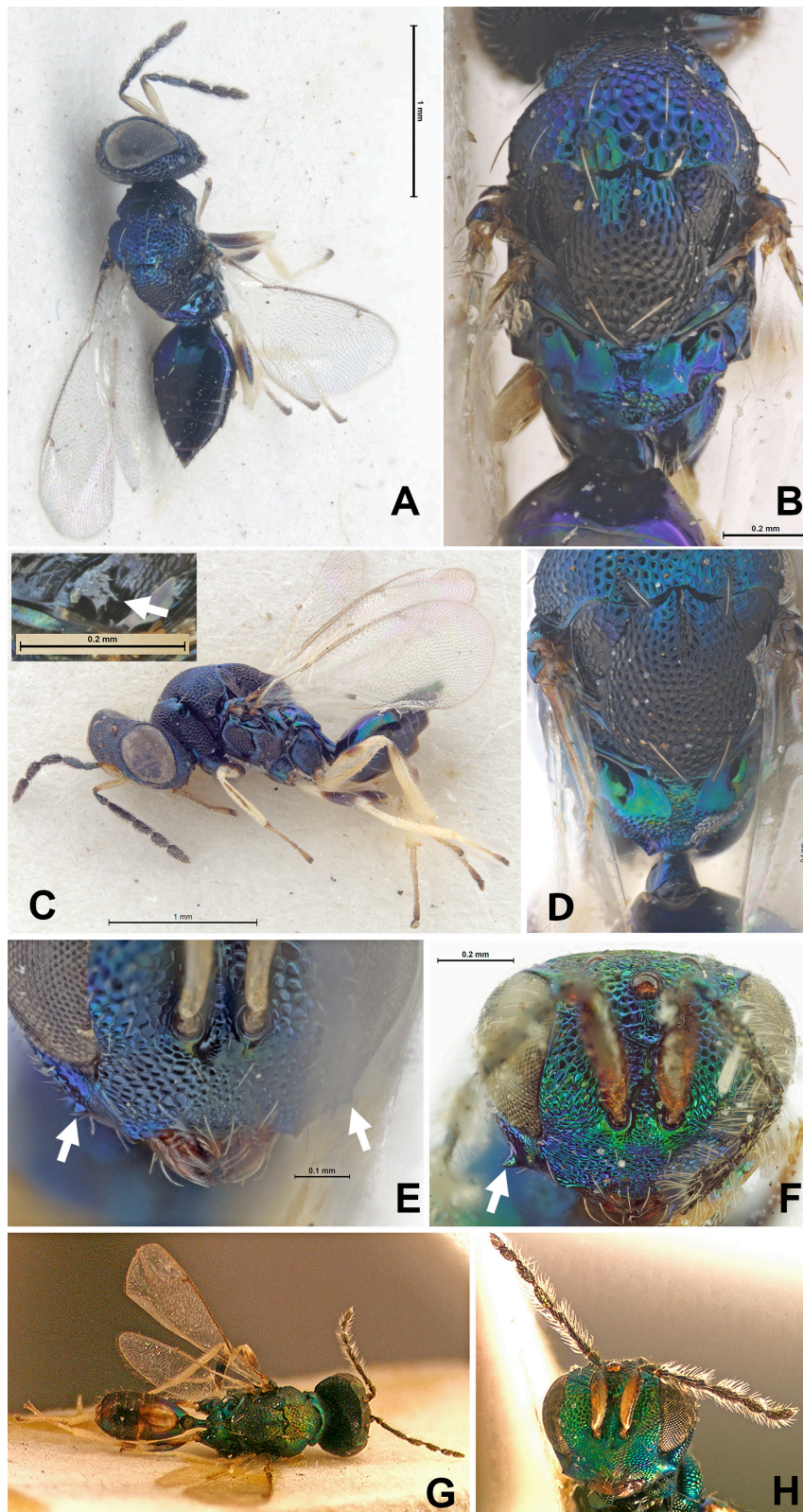


Fig. 37. *Xiphentedon acutigena* sp. nov. **A–B.** ♀, holotype (Ivory Coast; CBGP). **C–E.** ♀♀, paratypes from Tanzania (C–D; CBGP) and RSA (E; SANC). **F–H.** ♂♂, paratypes from DRC (F; MRAC) and from RSA (G–H; NHMUK). **A, C, G.** Habitus (inset C: axilla). **B, D.** Mesosoma and petiole. **E–F.** Face, the genal spike is arrowed. **H.** Head.

REPUBLIC OF SOUTH AFRICA • 1 ♂; “South Africa, Port St. John, Pondoland, Brit. Mus. 1923-510”, Sep. 1923, R.E. Turner leg.; NHMUK • 1 ♀; “Transvaal” [Mpumalanga Province], Kruger Nat. Park, Skukuza; 24°59' S, 31°35' E; 292 m a.s.l.; 14–17 Jan. 1985; G.L. Prinsloo leg.; SANC • 1 ♀; Pretoria; Oct. 1976; R.P. Brown leg.; by sweeping; SANC.

Description

Female

Length 2.3–2.5 mm. Body dark blue or green, paler on smooth areas. Legs mostly with dark coloration, but occasionally entirely pale: coxae dark metallic, trochanters pale, femora mostly with dark coloration, fore femur mainly brownish, mid femur mostly brown in mid part, hind femur mostly with wide metallic-brown spot posteriorly, tibiae pale, just hind tibia slightly dark anteriorly; all tarsi pale brown; antennal scape mostly pale with dorsal margin and extreme apex brown, pedicel and flagellum dark; wings transparent, venation pale brown; OMA dark.

Head in dorsal view slightly more than $2.0\times$ as wide as long; ocelli of moderate size, MDO:OOL:OCL in ratio of about 71:65:65; POL about $2.6\text{--}2.7\times$ OOL. Occipital margin traced, but not carinate. Eye very moderately pubescent.

Head in frontal view $1.3\times$ as wide as high. Face evenly reticulate. Eye height and interocular distance in ratio 43:46; eye height $3.0\times$ malar space. Surface between toruli poorly elevated. Width of oral fossa $2.3\times$ malar space. Gena with a small acute spike. Distance between lower eye margin and antennal torulus about as long as diameter of torulus. Scape slightly more than $5.0\times$ as long as wide, nearly $0.7\times$ eye height, its anterior margin somewhat flattened; combined length of pedicel plus flagellum slightly shorter than width of head; pedicel about $2.0\times$ as long as wide, about $0.5\times$ F1, which is about $4.0\times$ as long as wide, F2 about $2.3\times$, F3 slightly less than $2.0\times$ as long as wide, clava about $2.0\times$ as long as wide, with short terminal spine.

Mesosoma $1.6\times$ as long as wide. Pronotal collar not carinate, pronotal shoulders blunt. Prosternum with medium-sized protruding flange, bearing fine complete median groove, anterior margin of this flange bilobed. Mesoscutum about $1.8\times$ as broad as long. Mesoscutellum slightly longer than broad (if apical protrusion is excluded) and $1.3\text{--}1.6\times$ as long as mesoscutum (depending on angle of measurement). Axilla with one seta. Axillula with lamellate broad projection bearing short irregular indentation.

Metascutellum reduced to a narrow bar, hardly visible in dorsal view. Propodeum with wide, weakly sunken on coriaceous median strip delimited anteriorly by sharp, pliciform borders, posteriorly these borders merging with reticulation of propodeal sculpture; submedian areas flat, smooth anteriorly, alveolate posteriorly; lateral propodeal sulcus incomplete (interrupted medially).

Spur of hind tibia about $\frac{2}{3}$ of width of tibia.

Fore wing $2.2\text{--}2.4\times$ as long as wide; CC bearing 1–3 short setae on ventral side (left wing with 3 setae, right wing with 1 seta), $6.0\text{--}8.0\times$ as long as wide; SC with 2 setae; MV $1.3\times$ CC; PMV as long as or slightly longer than STV; speculum broadly open below; apical marginal fringe as long as or slightly longer than mean width of PR.

Metasomal petiole conical, $1.2\text{--}1.3\times$ as long as wide, with weakly striate surface; $0.6\times$ as long as propodeum. Gaster about $1.7\times$ as long as wide, syntergum subtriangular.

Male

Similar to female, but differs as follows: body bright green, ventral part (line of sensory pores) and apex of antennal scape darkened, darkened area wider than in female; antennal scape $3.3\text{--}3.5\times$, pedicel about

1.8× as long as wide, F1–F3 separated by thin peduncles, F1 (without peduncle) about 3.5–4.5×, F2 and F3 2.2–2.4×, clava nearly 4.0× as long as wide with deep constriction between clavomeres; combined length of pedicel plus flagellum 1.2× width of head; head in dorsal view slightly more than 2.0× as wide

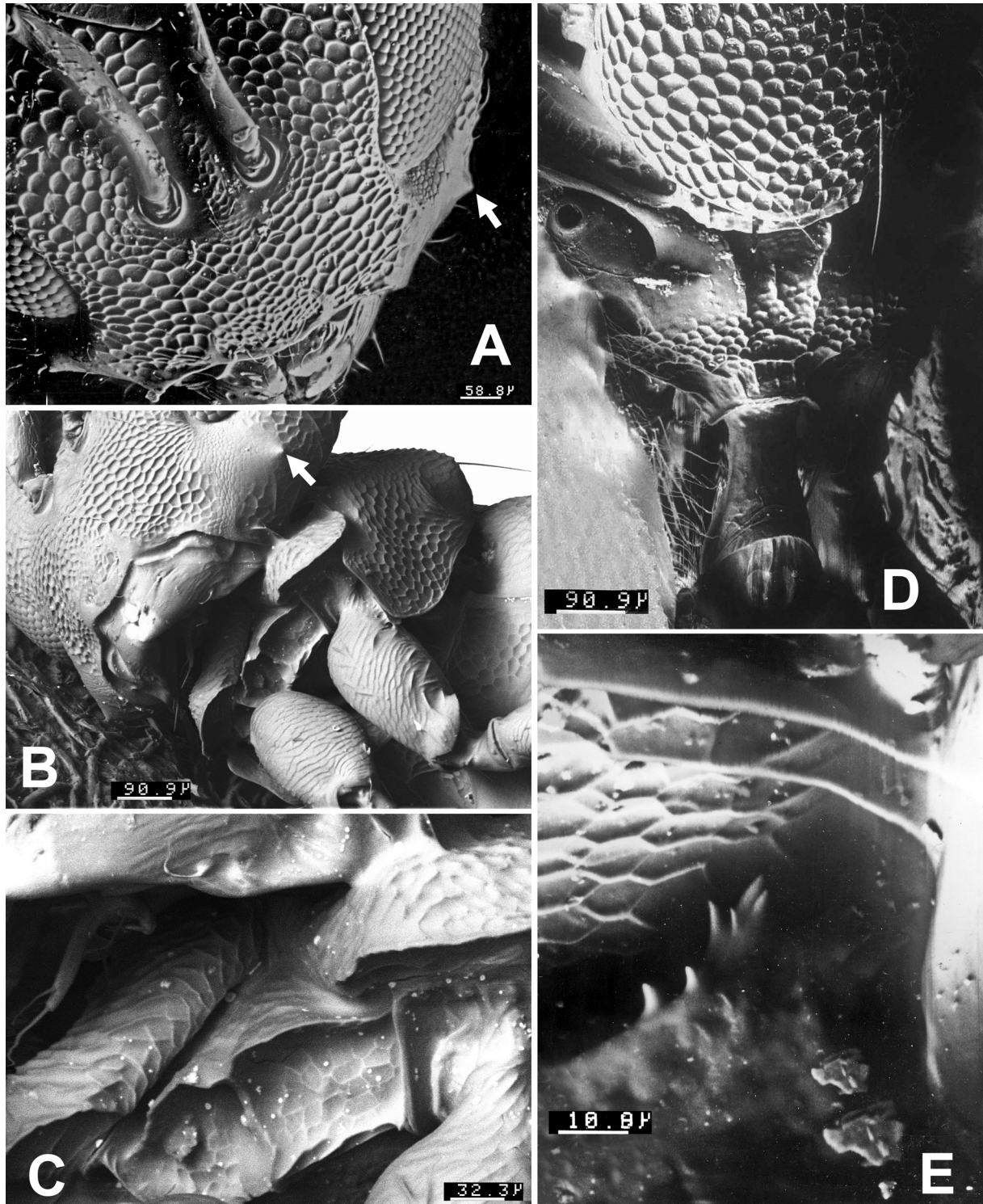


Fig. 38. *Xiphentedon acutigena* sp. nov. **A.** ♀, paratype (Ivory Coast; CBGP). **B–E.** ♂, paratype (RSA; NHMUK). **A.** Face. **B.** Head and anterior part of mesosoma. **C.** Prosternum. **D.** Propodeum. **E.** Axillula. The genal spike is arrowed in A and B.

as long, oral fossa about $1.8 \times$ malar space, genal spike larger than in female, prosternal flange more notably produced than in female; metasomal petiole $1.6 \times$ as long as wide.

Biology

Unknown.

Distribution

Ivory Coast, DRC, Tanzania, RSA.

Remarks

This species is easily recognizable by the shape of the gena (with a short acute spike) and the wide median strip of propodeum disappearing posteriorly in coarse reticulation. The specimens from Mkomazi Game Reserve are characterized by a very short spike on the gena. However, these specimens are smaller in size than the others, so this morphological feature I consider an intraspecific variation. Another remarkable character distinguishing this species within the genus is the incomplete lateral propodeal sulcus. However, the other characters, chiefly the reduced metascutellum and the advanced anteromedian protrusion of the mesoscutellum, allow recognition of *X. acutigena* sp. nov. as a representative of the *forceps* group of *Xiphentedon*.

Discussion

This revision incorporates an assessment of the placement of hitherto described and new species among *Colpixys* and *Xiphentedon*. The entedonines classified here in these two genera are rare in old and new collections. The genera can be distinguished based on a number of characters, among which the most critical are: 1) the shape of the propodeal median area (a furrow with subparallel margins in *Colpixys* and anteriorly widened strip in *Xiphentedon*); 2) the shape of the axillula (indentate projection in *Xiphentedon* and nearly flat rugulose area in *Colpixys*); 3) the completeness of the lateral propodeal sulcus (mostly complete in *Xiphentedon* and interrupted in *Colpixys*); 4) the size of the metascutellum (reduced to a narrow bar in *Xiphentedon* and semi-circular, visible in dorsal view in *Colpixys*); 5) the small but traceable epicnemial protrusion in *Xiphentedon* (absent in *Colpixys*).

The genus *Xiphentedon*, known previously from its type species and type specimen only, proved to be rather species diverse across the African continent. Some species demonstrate virtually intermediate forms between *Colpixys* and *Xiphentedon*, and this may cause confusion in their affiliation with either genus. The newly described species of *Colpixys*, *C. eburnus* sp. nov., has a comparatively short, although semi-circular, metascutellum, making it very similar to the representatives of *Xiphentedon*. The incomplete lateral propodeal sulcus, being diagnostic for *Colpixys*, occurs in one of the newly described species of *Xiphentedon*, *X. acutigena* sp. nov. However, both species share a number of other diagnostic characters with their congeners, and therefore can be confidently attributed to their genera.

Further studies are expected to reveal more accurate phylogenetic relationships between *Entedon*, *Xiphentedon*, *Colpixys* and other genera. The diversity of the states of some of the discussed characters suggests their prospective phylogenetic value. For example, the axillula was reported as an area being weakly defined anatomically and consequently of limited value in phylogenetic analyses by Krogmann & Vilhelmsen (2006). However, this character appears more morphologically advanced in *Xiphentedon* and some other entedonines. Also, the morphology of the prosternum is generally discussed based on its position relative to the propleurae (Gauthier *et al.* 2000; Krogmann & Vilhelmsen 2006; Burks *et al.* 2011), whereas its flange or carinate arc may serve as a separate character of systematic value. In conclusion, the species diversity of the *Xiphentedon* and *Colpixys* reported here, combined with the ongoing transformation of many habitats, emphasizes the need for representative sampling to further phylogenetic analyses and the biodiversity record.

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