



Revision of the world species of the genus *Fusicornia* Risbec (Hymenoptera: Platygasteridae, Scelioninae)

CHARUWAT TAEKUL¹, NORMAN F. JOHNSON², LUBOMÍR MASNER³, RAJMOHANA K.⁴ &
CHEN SHU-PEI⁵

¹Department of Entomology, The Ohio State University, 1315 Kinnear Road, Columbus, Ohio 43212, U.S.A.
E-mail: taekul.1@osu.edu; urn:lsid:zoobank.org:author:COE50988-A280-4F6E-ACC8-ADD75444C56A

²Department of Entomology, The Ohio State University, 1315 Kinnear Road, Columbus, Ohio 43212, U.S.A.
E-mail: johnson.2@osu.edu; urn:lsid:zoobank.org:author:3508C4FF-F027-445F-8417-90AB4AB8FE0D

³Agriculture and Agri-Food Canada, K.W. Neatby Bldg., Ottawa, Ontario K1A 0C6, Canada;
urn:lsid:zoobank.org:author:FA505310-F606-4F6C-A1DF-74B9A0055B2E

⁴Zoological Survey of India, Western Ghats Field Research Station, Jafarkhan Colony, Calicut – 673006, Kerala, India;
urn:lsid:zoobank.org:author:32162F96-0051-473E-A54F-229E1E75520C

⁵Taiwan Agricultural Research Institute, 189 Chung-cheng Road, Wufeng, 413 Taichung, Taiwan, Republic of China;
urn:lsid:zoobank.org:author:9CE9D5CA-07ED-4E61-ABE8-730C15130769

Table of contents

Abstract	2
Introduction	2
Material and methods	2
<i>Fusicornia</i> Risbec	6
Key to species of <i>Fusicornia</i>	8
<i>Fusicornia ardis</i> Taekul & Johnson, new species	10
<i>Fusicornia aulacis</i> Taekul & Johnson, new species	11
<i>Fusicornia bambeyi</i> Risbec	13
<i>Fusicornia collaris</i> Taekul & Johnson, new species	17
<i>Fusicornia crista</i> Taekul & Johnson, new species	19
<i>Fusicornia dissita</i> Taekul & Johnson, new species	20
<i>Fusicornia eos</i> Taekul & Johnson, new species.....	22
<i>Fusicornia episcopus</i> Taekul & Johnson, new species	24
<i>Fusicornia fax</i> Taekul & Johnson, new species	26
<i>Fusicornia fortuna</i> Taekul & Johnson, new species	28
<i>Fusicornia indica</i> Mani & Sharma	29
<i>Fusicornia koreica</i> Choi & Kozlov.....	33
<i>Fusicornia paradisa</i> Taekul & Johnson, new species.....	35
<i>Fusicornia plicata</i> Taekul & Johnson, new species.....	38
<i>Fusicornia sabrina</i> Taekul & Johnson, new species	40
<i>Fusicornia skopelos</i> Taekul & Johnson, new species	42
<i>Fusicornia speculum</i> Taekul & Johnson, new species	44
<i>Fusicornia spinosa</i> (Risbec)	46
<i>Fusicornia tehrii</i> Mukerjee	48
Acknowledgments	51
References	51

Abstract

The genus *Fusicornia* Risbec (Hymenoptera: Platygasteridae, Scelioninae) is a widespread group in the tropics of the Eastern Hemisphere, distributed from West Africa to Vanuatu. All scelionines are egg parasitoids of arthropods, but the host of *Fusicornia* is not yet known. The species concepts are revised and a key to world species is presented. The genus is comprised of 19 species, including five known species which are redescribed: *F. bambeyi* Risbec (sub-Saharan Africa, Madagascar, Yemen); *F. indica* Mani & Sharma (Australia, India, Philippines, Sri Lanka, Thailand); *F. koreica* Choi & Kozlov (China, Japan, Korea, Philippines); *F. spinosa* (Risbec) (sub-Saharan Africa, Saudi Arabia, United Arab Emirates, Yemen); and *F. tehrii* Mukerjee (Brunei, Indonesia, Japan, Laos, Malaysia, Papua New Guinea, Philippines, Sri Lanka, Taiwan, Thailand). *Fusicornia noonae* Buhl is considered to be a junior synonym of *F. tehrii* Mukerjee, **n. syn.**, and *F. bambeyi* var. *inermis* Risbec is considered to be a junior synonym of *F. spinosa* (Risbec), **n. syn.** The following species are hypothesized and described as new taxa: *F. ardis* Taekul & Johnson, **n. sp.** (West Africa, Kenya, Tanzania); *F. aulacis* Taekul & Johnson, **n. sp.** (Madagascar); *F. collaris* Taekul & Johnson, **n. sp.** (New Guinea); *F. crista* Taekul & Johnson, **n. sp.** (Somalia, Tanzania); *F. dissita* Taekul & Johnson, **n. sp.** (Vanuatu); *F. eos* Taekul & Johnson, **n. sp.** (West Africa, Tanzania, Yemen); *F. episcopus* Taekul & Johnson, **n. sp.** (Thailand); *F. fax* Taekul & Johnson, **n. sp.** (Papua New Guinea); *F. fortuna* Taekul & Johnson, **n. sp.** (Madagascar, Yemen); *F. paradisa* Taekul & Johnson, **n. sp.** (sub-Saharan Africa, Madagascar); *F. plicata* Taekul & Johnson, **n. sp.** (Sri Lanka); *F. skopelos* Taekul & Johnson, **n. sp.** (Madagascar); *F. sabrina* Taekul & Johnson, **n. sp.** (Somalia) and *F. speculum* Taekul & Johnson, **n. sp.** (Central African Republic, Madagascar, Nigeria, Uganda).

Key words: biodiversity informatics, egg parasitoids, Scelionidae

Introduction

The genus *Fusicornia* was originally described by Risbec (1950) with only a single species, *F. bambeyi*. In total, seven species-group taxa have been described, and published records document the distribution of the genus from West Africa east to Australia, and north to the Korean peninsula. *Fusicornia* remained unplaced within the subfamily Scelioninae until Masner (1976) classified it in the tribe Psilanteridini. Austin & Field (1997) examined the ovipositor structure and concluded that the genus was misplaced within that tribe. They did not, however, provide an alternate classification. *Fusicornia* was not included as a taxon in the most comprehensive attempt to infer relationships within the Platygasteridae published to date (Murphy *et al.* 2007).

In the 58 years since the original description, *Fusicornia* has never been comprehensively reviewed or revised. The only known hosts of parasitic wasps of the family Scelioninae are the eggs of insects and spiders (Austin, Johnson and Downton 2005). No hosts are yet known for any species of *Fusicornia*. Our goal in this paper is to present a systematic revision of the world species of genus *Fusicornia*. The taxonomic history of the genus is summarized and existing concepts are reviewed. Fourteen new species are proposed on the basis of substantially increased collections, twice the number of previously described species-group taxa. The placement of *Fusicornia* within the family is outside the scope of this contribution and is the subject of an ongoing combined morphological and molecular analysis.

Material and methods

This work is based upon specimens in the following collections, with abbreviations used in the text: ANIC, Australian National Insect Collection, CSIRO, Canberra, ACT, Australia¹; BMNH, The Natural History Museum, London, England²; BPBM, Bishop Museum, Honolulu, HI³; CASC, California Academy of Sci-

1. <http://biocol.org/urn:lsid:biocol.org:col:32981>
2. <http://biocol.org/urn:lsid:biocol.org:col:1009>

ences, San Francisco, CA⁴; CNCI, Canadian National Collection of Insects, Ottawa, Canada⁵; MNHN, Muséum National d'Histoire Naturelle, Paris, France⁶; OSUC, C. A. Triplehorn Insect Collection, Columbus, OH⁷; MZLU, Museum of Zoology, Lund University, Lund, Sweden⁸; PPRI, Plant Protection Research Institute, Pretoria, South Africa⁹; SAMC, Iziko Museums of South Africa, Cape Town, South Africa¹⁰; TARI, Taiwan Agricultural Research Institute, Wufong, Taiwan¹¹; UCRC, University of California, Riverside, CA¹²; USNM, National Museum of Natural History, Washington, DC¹³; North Regional Station, Zoological Survey of India, Dehra Dun, Uttarakhand, India¹⁴; ZMUC, Zoologisk Museum, Copenhagen, Denmark¹⁵.

Abbreviations and morphological terms used in text: A1, A2, ... A12: antennomere 1, 2, ... 12; Ar1, Ar2, ..., Ar 5: area 1...area 5 on metapleuron (Figs. 1, 2); claval formula: distribution of the large, multiporous basiconic sensilla on the underside of apical antennomeres of the female, with the segment interval specified followed by the number of sensilla per segment (Bin, 1981); OOL: ocular ocellar line, the shortest distance from inner orbit and outer margin of lateral ocellus (Masner, 1980); T1, T2, ... T7: metasomal tergite 1, 2, ... 7. Morphological terminology follows Masner (1980) and Mikó *et al.* (2007).

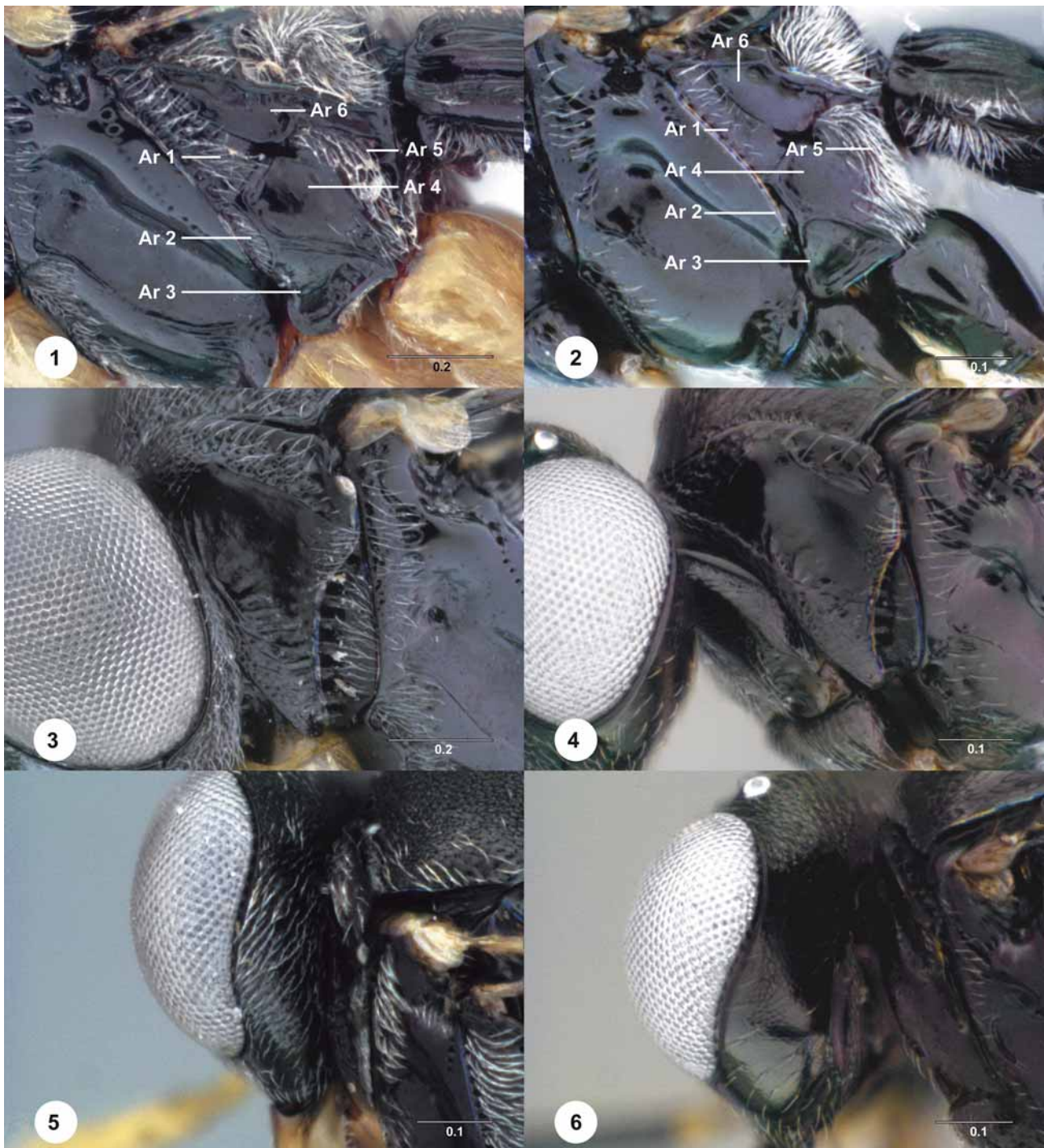
In the Material Examined the numbers prefixed with "OSUC", "CASENT", or "ANIC DB" are unique identifiers for the individual specimens. Since the label data for all specimens have been georeferenced and recorded in the Hymenoptera On-Line database, details on the data associated with these specimens can be accessed at the following link, purl.oclc.org/NET/hymenoptera/hol, and entering the identifier in the form. Note the space between the acronym and the number.

Data associated with specimens can be accessed at <http://purl.oclc.org/NET/hymenoptera/hol?id=485>. Species descriptions were generated using a database application, vSysLab¹⁶, designed to facilitate the production of a taxon by data matrix, and to integrate this with the existing taxonomic and specimen-level database. Data are exported in both text format and as input files for other applications. The text output for descriptions is in the format of "Character: Character state (s). Images and measurements were made using AutoMontage and Cartograph extended-focus software, using JVC KY-F75U digital camera, Leica Z16 APOA microscope, and 1X objective lens. Images are archived at Specimage¹⁷, the image database at The Ohio State University, and Morphbank¹⁸.

In this article we have followed the precedent of Pyle *et al.* (2008) and Johnson *et al.* (2008) in the implementation of biodiversity informatics standards within a taxonomic publication. The electronic version of the paper contains hyperlinks to external resources. Insofar as possible the external information conforms to standards developed and maintained through the organization Biodiversity Information Standards¹⁹ (Taxonomic Database Working Group). All new species have been prospectively registered with Zoobank (Polaszek *et al.*

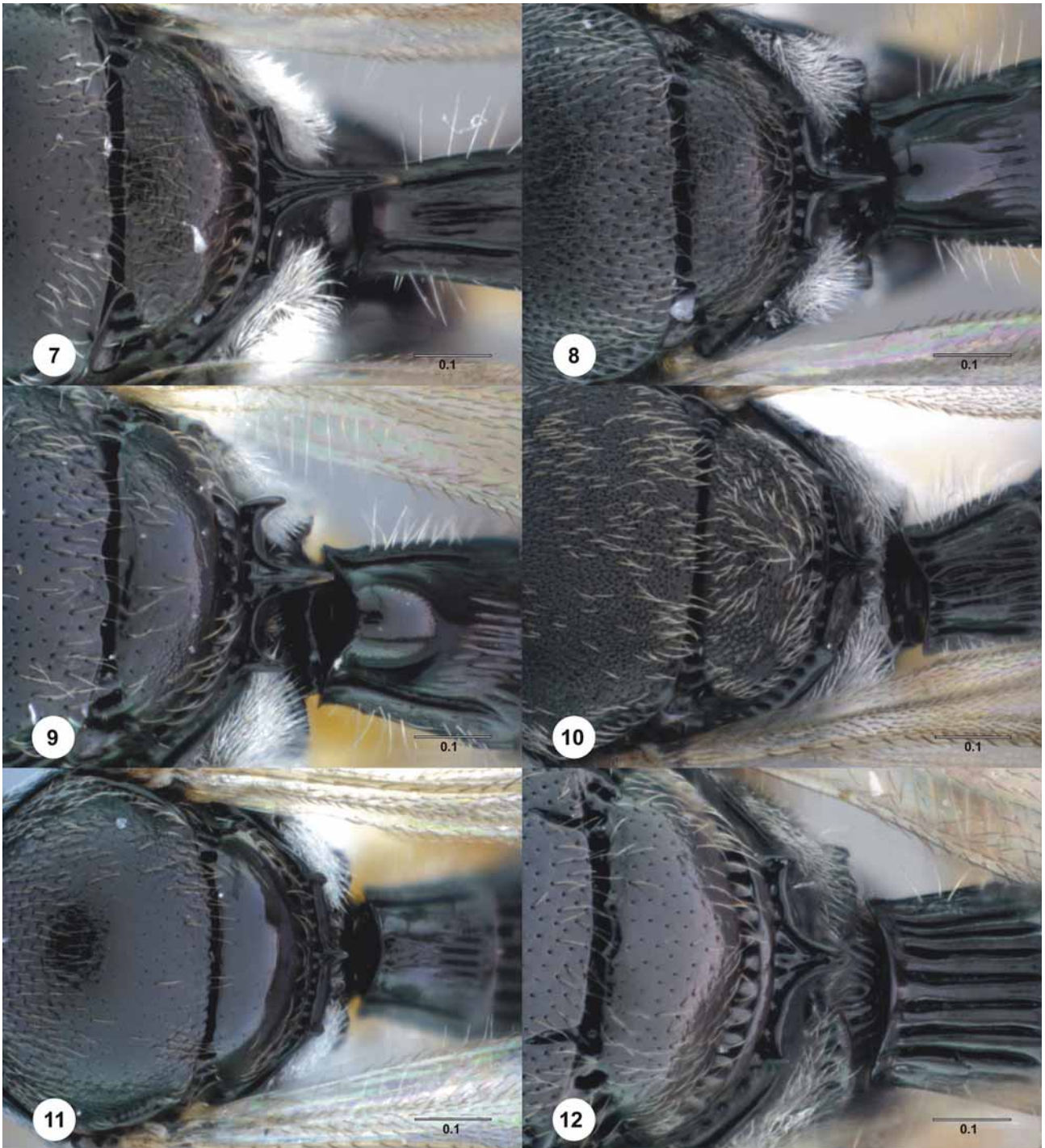
3. <http://biocol.org/urn:lsid:biocol.org:col:1010>
4. <http://biocol.org/urn:lsid:biocol.org:col:1011>
5. <http://biocol.org/urn:lsid:biocol.org:col:1012>
6. <http://biocol.org/urn:lsid:biocol.org:col:33864>
7. <http://biocol.org/urn:lsid:biocol.org:col:1014>
8. <http://biocol.org/urn:lsid:biocol.org:col:33943>
9. <http://biocol.org/urn:lsid:biocol.org:col:1015>
10. <http://biocol.org/urn:lsid:biocol.org:col:1018>
11. <http://biocol.org/urn:lsid:biocol.org:col:34337>
12. <http://biocol.org/urn:lsid:biocol.org:col:34423>
13. <http://biocol.org/urn:lsid:biocol.org:col:1019>
14. <http://biocol.org/urn:lsid:biocol.org:col:35039>
15. <http://biocol.org/urn:lsid:biocol.org:col:34644>
16. <http://purl.oclc.org/NET/hymenoptera/vsyslab>
17. <http://purl.oclc.org/NET/hymenoptera/specimage>
18. <http://www.morphbank.net>
19. <http://www.tdwg.org>

2005), and other taxonomic names, where appropriate, have been retrospectively registered. The external hyperlinks are explicitly cited in the footnotes so that users of the printed version of this article have access to the same resources. Life sciences identifiers, LSIDs, may be resolved at the specified URLs or at <http://lsid.tdwg.org>.



FIGURES 1–6.²⁰ Metapleuron, pronotum and gena, lateral view; 1, *Fusicornia koreica* Choi & Kozlov, female (OSUC 206225); 2, *Fusicornia paradisa*, **n. sp.**, female (OSUC 206278); 3, *Fusicornia koreica* Choi & Kozlov, female (OSUC 206225); 4, *Fusicornia spinosa* (Risbec), female (OSUC 211169); 5, *Fusicornia eos*, **n. sp.**, holotype female (OSUC 206174); 6, *Fusicornia spinosa* (Risbec), female (OSUC 211169). Scale bars in millimeters.

20. <http://www.morphbank.net/?id=304895>



FIGURES 7–12.²¹ Mesonotum, metanotal spine and T1, dorsal view; 7, *Fusicornia ardis*, **n. sp.**, holotype female (OSUC 148952); 8, *Fusicornia indica* Mani & Sharma, female (OSUC 149027); 9, *Fusicornia bambeyi* Risbec, female (OSUC 206302); 10, *Fusicornia eos*, **n. sp.**, holotype female (OSUC 206174); 11, *Fusicornia paradisa*, **n. sp.**, holotype female (OSUC 206350); 12, *Fusicornia aulacis*, **n. sp.**, holotype female (CASENT 2042841). Scale bars in millimeters.

This work is conducted as part of the Platygastridae Planetary Biodiversity Inventory. The contributions of the authors are as follows: C. Taekul: character definition, species concept development, imaging, measurement, key development, manuscript preparation; N.F. Johnson: character definition, generic concept development, species concept development, imaging, key development, manuscript preparation; L. Masner: generic

21. <http://www.morphbank.net/?id=304896>

concept development, species concept development, character definition; Rajmohana K.: study of holotype of *F. tehrii* Mukerjee; Chen S.-P.: study of TARI material.

***Fusicornia* Risbec**

Fusicornia Risbec, 1950: 606. Original description. Type: *Fusicornia bambeyi* Risbec, by monotypy. Muesebeck & Walkley, 1956: 354 (citation of type species); Masner, 1976: 42 (description); Mani & Sharma, 1982: 183 (description); Galloway & Austin, 1984: 8, 46 (diagnosis, keyed); Johnson, 1992: 373 (catalog of world species); Austin & Field, 1997: 27, 68 (structure of ovipositor system, discussion of phylogenetic relationships, genus misplaced in Psilanteridini); Choi & Kozlov, 2001: 100 (description).

Original concept: urn:lsid:zoobank.org:act:3B1039FA-8D2B-4D2C-8EAF-7F6DD153CD26

Current concept: urn:lsid:biosci.ohio-state.edu:osuc:concepts:485

Diagnosis: Masner (1976) and Galloway & Austin (1984) both compared *Fusicornia* directly with *Opisthacantha* Ashmead. The two genera are similar in the armed metascutellum, the lack of a margined frontal scrobe, and a well-developed postmarginal vein. *Opisthacantha* probably is not closely related to *Fusicornia*: it is easily distinguished by the presence of a skaphion and the well-defined 5-merous antennal clava of the female. The concept of *Opisthacantha* of Masner (1976) encompasses a number of heterogeneous elements, some of which lack the skaphion. From these, *Fusicornia* may be distinguished by the elongate and poorly defined female antennal clava (Figs. 14, 26, 32, 72), and the very elongate marginal vein of the fore wing. Some species of *Trimorus* Förster are extremely similar to *Fusicornia* in size, setation, and body shape. The latter may be distinguished by the elongate and narrow clava, the bidentate mandible, the broad netrion, and the presence of a long postmarginal vein in the fore wing.

Description: Small, length 1.3–3.8 mm; slender, female antenna with clava at most slightly wider than funicular segments; body black; macropterous.

Head in dorsal view strongly transverse; vertex smooth, reticulate or reticulate punctate; hyperoccipital carina absent; occipital carina well-developed, continuous medially; lateral ocellar position variable; compound eye large, appearing glabrous; frons convex; interantennal process well-developed, narrow; submedian carina absent; orbital carina absent; lower frons, including cheek, without fanlike striae; interocular space shorter than eye height dorsally; inner orbits weakly diverging ventrally; clypeus very short, strongly transverse, truncate apically, lateral corner not produced, divided by transverse carina into flat postclypeus and concave anteclypeus; malar sulcus present; gena variably expanded, smooth to reticulate punctate; labrum external, visible below clypeus, transverse; mandible short, apex with two apical, acute, subequal teeth; maxillary palpus 2-segmented, all segments cylindrical; labial palpus 1-segmented; antenna 12-merous in both sexes; radicle inserted apically into A1, nearly parallel to longitudinal axis of A1; A1 more or less cylindrical; A3 distinctly longer than A2; gustatory sensilla on female antenna arranged in longitudinal pairs on apical antennomeres; claval formula A12–A7:1-2-2-2-2, A12–A7:1-2-2-2-2-1, A12–A8:1-2-2-2-2; male antenna without visible tyloids.

Mesosoma in dorsal view longer than wide, in lateral view slightly longer than high; pronotum in dorsal view strongly narrowed laterally, anterolateral corner weakly angulate; transverse pronotal carina present laterally, obsolete medially; vertical epomial carina variable; dorsal epomial carina present; anterior face of pronotum strongly constricted laterally, short, visible in dorsal view; lateral face of pronotum concave below dorsal epomial carina; netrion present, wide medially, fusiform, closed ventrally; anterior margin of mesoscutum strongly flexed ventrally to meet pronotum; mesoscutum semicircular in outline, posterolateral corner rounded; parapsidal lines sometimes visible; notauli usually absent, rarely (*F. aulacis*) present, very short; skaphion absent; transscutal articulation well-developed, crenulate; mesoscutellum semicircular in outline, usually evenly, strongly convex, sculpture smooth to reticulate punctate; axilla small, dorsal margin sinuate; metanotum narrow, metascutellum clearly differentiated, produced into three spines, length of spines variable;

dorsal surface of propodeum deeply excavate medially, densely setose; keels of propodeum well-developed, propodeal projections not developed; mesopleural depression well-developed; mesopleural carina variably developed; anteroventral portion of mesopleuron smooth or finely sculptured; sternaulus present, short; mesopleural pit present, distinct; anterior margin of ventral portion of mesopleuron straight, not extended forward between fore coxae; mesepimeral sulcus variably developed; dorsal corner of mesepimeron rounded, not produced posteriorly into sharp tooth; mesopleuron below subalar pit broadly convex; anteroventral portion of metapleuron clearly delimited posteriorly by carina, variably setose; metapleural pit present, distinct; posterior margin of metapleuron not lamellate; legs elongate; posterior surface of hind coxa smooth, sparsely setose to glabrous; trochantellus present; tibial spur formula 1-1-1; tarsal formula 5-5-5; tarsomeres cylindrical, tapering in width apically; pretarsal claw simple.

Apex of fore wing extending slightly beyond apex of metasoma, hyaline, infusate, or sometimes distinctly banded; R straight, extending slightly beyond basal half of length of wing, without strong, elongate bristles, gradually approaching costal margin apically, contiguous with costal margin for distance clearly exceeding length of r-rs (i.e., marginal vein elongate); r-rs straight; R₁ continuing along costal margin beyond origin of r-rs (i.e., postmarginal vein long); bulla absent; Rs+M (basal vein) weakly to clearly indicated, nebulous; hind wing with R extending from base of wing to hamuli; three hamuli present.

Metasoma fusiform, weakly convex dorsally and ventrally; female with seven visible terga, six visible sterna, male with eight visible terga, seven visible sterna; second and third segments clearly longest and widest, subequal to each other in size; submarginal ridge well-developed, defined by narrow laterotergites to form deep submarginal rim; no spiracles visible; T1, T2 with deep longitudinal striae, basal rows of crenulae present only on T1 and T2, continuous with striae; base of T1 with deep sublateral pit, extending into longitudinal furrow posteriorly; T6 without median raised field of microsetae or secretion; S1 not laterally compressed; anterior margin of S2 straight; felt field present on S2 as narrow line of short setae.

Comments. *Fusicornia* has a number of unusual character states. The male antenna has no visible modifications of the basal flagellomeres, i.e., it has no differentiated sex segment. The labrum is strongly sclerotized and clearly visible below the clypeus. The ovipositor system has the ventral membranous plate greatly elongated, a character state found elsewhere only in the genera *Leptoteleia* Kieffer and *Baryconus* Förster, neither of which is thought to be particularly closely related to *Fusicornia*. Finally, the medial apodeme is absent on S6 (Austin & Field 1997), a state shared with only six other platygastriid genera. The classification of *Fusicornia* within the Psilanteridini is problematic because the monophyly of that tribe has been questioned (Austin & Field, 1997). The phylogenetic position of the genus remains uncertain.

The hosts of *Fusicornia* have not yet been discovered. Specimens of these wasps have been commonly collected in both Malaise traps and yellow pan traps. NFJ recently collected over 200 specimens of *F. spinosa* in nama karoo in the Eastern Cape Province of South Africa. The collections were made using yellow pan traps placed along the edge of the limited standing, permanent water in the semiarid habitat. Several platygastriid genera, such as *Tiphodytes* Bradley and *Thoron* Haliday, do parasitize the eggs of semiaquatic and truly aquatic Hemiptera. We cannot yet assert whether *Fusicornia* is a member of this guild of parasitoids, or if it is simply attracted to water in a dry environment.

Link to Distribution Map.²² *Fusicornia* is primarily a tropical group of Africa, Asia, and Australasia, extending into the temperate zones in southern Africa, Korea, Taiwan, and Japan. The genus is most diverse in the Afrotropical region, particularly in West Africa. Some species are quite widespread, e.g., *F. bambeyi*, *F. paradisa*. *Fusicornia aulacis* appears to be endemic to Madagascar; although some other taxa seem to be restricted in distribution, such as the species of New Guinea, the data are insufficient to confidently state that they are endemic to those areas.

Key to species of *Fusicornia*

22. <http://atbi.biosci.ohio-state.edu/HymOnline/map-large.html?id=485&view=all>

1. Frons entirely and evenly sculptured (Figs. 23, 29, 35, 47); sculpture of gena behind lower half of eye with reticulate to coriaceous microsculpture (Fig. 5)2
- Frons at least partly smooth or sculpture considerably effaced medially (Figs. 41, 53, 71, 149); sculpture of gena behind lower half of eyes smooth, rarely with reticulate to coriaceous microsculpture (Figs. 6, 54, 138).....13
2. Medial metanotal spine very elongate, distinctly longer than distance between medial and lateral spines (Figs. 7, 8), usually significantly longer than lateral spines3
- Medial metanotal spine short to moderately long, at most as long as distance between medial and lateral spines (Figs. 9, 10, 11, 12).....8
3. Upper gena flat to weakly concave, therefore in lateral view compound eye appearing to reach posterior margin of head (Figs. 16, 45, 46); female fore wing with distinct infuscation at level of marginal vein (Figs. 13, 43); mesepimeral sulcus usually absent, rarely abbreviated ventrally (Figs. 16, 46)4
- Upper gena expanded, convex, therefore in lateral view compound eye separated from posterior margin by gena (Figs. 82, 100); female fore wing hyaline or with slight infuscation below marginal vein (as in Figs. 19, 25, 115); mesepimeral sulcus usually complete, sometimes abbreviated ventrally (Figs. 58, 102)6
4. Mesoscutal humeral sulcus smooth (Figs. 15, 18); central frons moderately setose throughout, reticulate punctate (Fig. 17); length of T1 ≥ 1.4 times width; inner orbits in female strongly diverging ventrally (Figs. 16, 18); West Africa, Kenya, Tanzania..... *Fusicornia ardis* Taekul & Johnson, **n. sp.**
- Mesoscutal humeral sulcus foveolate (Figs. 45, 123); central frons glabrous, with transversely arcuate striae (Figs. 47, 125); length of T1 ≤ 1 times width; inner orbits parallel or weakly diverging ventrally (Figs. 47, 125).....5
5. Scutellum bilobate (Fig. 48); posterior half of mesoscutum longitudinally striate (Figs. 45, 48); inner orbits in frontal view more or less parallel (Fig. 47); scutellum reticulate punctate laterally (Fig. 45); Somalia, Tanzania *Fusicornia crista* Taekul & Johnson, **n. sp.**
- Scutellum evenly rounded (Fig. 123); longitudinal sculpture in posterior half of mesoscutum absent (Fig. 123, 126); inner orbits in frontal view diverging ventrally (Fig. 125); scutellum almost entirely smooth (Fig. 123); Somalia..... *Fusicornia sabrina* Taekul & Johnson, **n. sp.**
6. Coxae yellow (Fig. 100); mesepimeral sulcus complete, foveate throughout (Fig. 100, 102); propodeum anterior to spiracle densely setose (>10 setae) (Fig. 102) China, Japan, Korea, Philippines *Fusicornia koreica* Choi & Kozlov
- Coxae brown to black (Figs. 82, 86, 92); mesepimeral sulcus abbreviated (Figs. 86, 130); propodeum anterior to spiracle sparsely setose (< 10 setae) to glabrous (Figs. 82, 90)7
7. A1 in female yellow to orange-brown (Figs. 80, 88, 96); lateral metanotal spine moderately elongate, length distinctly greater than width (Figs. 8, 87; 93); propodeal nucha smooth to weakly sculptured (Figs. 89); mesoscutal humeral sulcus foveolate (Figs. 81, 87, 93); India, Philippines, Sri Lanka, Thailand *Fusicornia indica* Mani & Sharma
- A1 in female dark brown to black (Figs. 128, 130); lateral metanotal spine very short, only slightly longer than wide (Figs. 129); propodeal nucha strongly foveolate to longitudinally striate; mesoscutal humeral sulcus coarsely crenulate (Figs. 129, 132); Madagascar *Fusicornia skopelos* Taekul & Johnson, **n. sp.**
8. Mesoscutum densely coriaceous throughout (Figs. 10, 57, 58); T1 densely setose laterally (>20 setae/side) (Fig. 58); gena behind compound eye densely setose (Figs. 5, 58); female A5 bright yellow (Fig. 60); Burkina Faso, Mali, Nigeria, Tanzania, Yemen..... *Fusicornia eos* Taekul & Johnson, **n. sp.**
- Mesoscutum varying from smooth to reticulate, sometimes with superimposed punctures (Figs. 21, 117); T1 sparsely to moderately setose laterally (6–15 setae/side) (Figs. 7, 8, 9); setation of gena behind compound eye variable; female A5 dark brown to black (Figs. 20, 26)9

9. Notaulus present, indicated by short groove on posterior mesonotum (Figs. 12, 24); female A1 dark brown to black (Fig. 20); Madagascar *Fusicornia aulacis* Taekul & Johnson, **n. sp.**
 - Notaulus absent (Figs. 7–11); female A1 yellow to orange brown (Figs. 26, 104, 106, 111)10
10. Scutellum almost entirely covered by microsculpture (Fig. 117); medial metanotal spine short to moderately long, as long as distance between medial and lateral spines (Fig. 120); gena densely setose (Fig. 118); Sri Lanka *Fusicornia plicata* Taekul & Johnson, **n. sp.**
 - Scutellum almost entirely smooth or with broad smooth area medially, reticulate punctate laterally (Figs. 9, 11); medial metanotal spine short to moderately long, shorter than distance between medial and lateral spines (Figs. 9, 11, 63); gena moderately to sparsely setose (Figs. 28, 34).....11
11. Scutellum with broad smooth area medially, reticulate punctate laterally (Figs. 9, 27, 33); lateral metanotal spine moderately elongate, length distinctly greater than width (Figs. 9, 30, 33); sub-Saharan Africa, Madagascar, Yemen*Fusicornia bambeyi* Risbec
 - Scutellum almost entirely smooth (Figs. 11, 112, 114); lateral metanotal spine very short, only slightly longer than wide (Fig. 11)12
12. Mesepimeral sulcus absent (Figs. 106, 109, 111); mesopleural carina present dorsally, interrupted or absent ventrally (Figs. 109, 111, 113); propodeal nucha smooth to weakly sculptured (Fig. 114); sub-Saharan Africa, Madagascar *Fusicornia paradisa* Taekul & Johnson, **n. sp.**
 - Mesepimeral sulcus complete, foveate throughout (Fig. 64, 66); mesopleural carina absent (Fig. 66); propodeal nucha strongly foveolate to longitudinally striate; Thailand
 *Fusicornia episcopus* Taekul & Johnson, **n. sp.**
13. All coxae brown to black (Figs. 40, 140)14
 - Mid and hind coxa yellow, fore coxa color variable (Figs. 52, 148)16
14. Female antennal clava yellow; radicle yellow (Figs. 68, 72); lower pronotum longitudinally striate (Figs. 70); Papua New Guinea *Fusicornia fax* Taekul & Johnson, **n. sp.**
 - Female antennal clava dark brown to black (Figs. 38, 140); radicle color variable; lower pronotum reticulate to weakly rugulose (Figs. 4, 142)15
15. Pronotal cervical sulcus present (Fig. 42); propodeal nucha strongly foveolate to longitudinally striate; mesopleural carina complete (Fig. 40); mesoscutal humeral sulcus coarsely foveolate (Fig. 39); Papua New Guinea*Fusicornia collaris* Taekul & Johnson, **n. sp.**
 - Pronotal cervical sulcus absent (Fig. 141); propodeal nucha smooth to weakly sculptured; mesopleural carina present dorsally, interrupted or absent ventrally (Figs. 142, 144); mesoscutal humeral sulcus foveolate (Fig. 141); sub-Saharan Africa, Arabian Peninsula *Fusicornia spinosa* (Risbec)
16. Mesepimeral sulcus complete or briefly interrupted medially, foveate above, appearing as fold ventrally (Figs. 52, 148); propodeal nucha strongly foveolate to longitudinally striate; area 4 of metapleuron setose ventrally, area 2 polygonal, setose17
 - Mesepimeral sulcus absent or indicated only in dorsal extreme (Figs. 76, 136); propodeal nucha smooth to weakly sculptured; area 4 of metapleuron glabrous, area 2 linear, glabrous (Fig. 136)18
17. Fore coxa brown, mid and hind coxae yellow (Fig. 52); scutellum with broad smooth area medially, reticulate punctate laterally (Fig. 54); lateral metanotal spine moderately elongate, length distinctly greater than width (Fig. 51); Vanuatu*Fusicornia dissita* Taekul & Johnson, **n. sp.**
 - All coxae yellow (Fig. 148); scutellum almost entirely smooth (Fig. 150); lateral metanotal spine very short, only slightly longer than wide (Fig. 150); Brunei, Indonesia, Japan, Laos, Malaysia, Papua New Guinea, Philippines, Sri Lanka, Taiwan, Thailand *Fusicornia tehrii* Mukerjee
18. Mesepimeral sulcus present dorsally, abbreviated ventrally (Figs. 76, 78); gena behind lower half of eye with reticulate to coriaceous microsculpture (Fig. 76); Madagascar, Yemen
 *Fusicornia fortuna* Taekul & Johnson, **n. sp.**

- Mesepimeral sulcus absent (Figs. 136, 138); gena behind lower half of eye smooth (Fig. 138); Central African Republic, Madagascar, Nigeria, Uganda *Fusicornia speculum* Taekul & Johnson, **n. sp.**

***Fusicornia ardis* Taekul & Johnson, new species**

urn:lsid:zoobank.org:act:72C6DA11-D3D5-450F-9690-5CD010C694C2

urn:lsid:biosci.ohio-state.edu:osuc_concepts:229136

Figures 13–18; Morphbank²³

Description. Female body length: 2.43–2.81 mm (n=7). Male body length: 2.04–2.28 mm (n=20).

Head: Vertex between posterior ocelli: rounded. Female OOL: less than or equal one ocellar diameter. Frontal sculpture: entirely and evenly sculptured. Sculpture of central frons: reticulate punctate. Setation of central frons: moderately setose throughout. Inner orbit in frontal view: converging dorsally. Upper gena in dorsal view of female: flat to weakly concave, therefore in lateral view compound eye appearing to reach posterior margin of head. Sculpture of gena behind lower half of eye: with reticulate to coriaceous microsculpture. Setation of gena: moderately setose. Antenna: Radicle color: yellow to orange brown. Color of female A1: yellow to orange-brown. Color of female funicle (A3–A6): dark brown. Claval formula: 1-2-2-2-2. Claval color: dark brown to black.

Mesosoma: Pronotal cervical sulcus: absent. Mesoscutum sculpture: reticulate. Longitudinal sculpture in posterior half of mesoscutum: absent. Admedian line: present. Mesoscutal humeral sulcus: smooth. Notauli: absent. Mesoscutellum shape: rounded. Sculpture of mesoscutellum: almost entirely covered by microsculpture. Length of medial metascutellar spine: medial spine very elongate, distinctly longer than distance between median and lateral spines. Length of lateral metascutellar spine: lateral corner of metascutellum angulate, not or weakly produced into spine. Sculpture of propodeal nucha: smooth to weakly sculptured. Sculpture of suprahumeral area of pronotum: punctulate. Sculpture in lower pronotum: reticulate to weakly rugulose. Netrion setation: sparsely setose to glabrous. Mesopleural carina: absent. Mesepimeral sulcus: absent, abbreviated. Area 2 on metapleuron: polygonal, setose. Setation of area 4 of metapleuron: setose nearly throughout. Setation in anteroventral metapleural triangle: present. Setation of propodeum anterior to spiracle: sparsely setose (less than 10) or absent. Legs: Coxae color: all coxae brown to black, fore coxa brown, mid and hind coxa yellow.

Wings: Female fore wing maculation: with distinct infuscation at level of marginal vein.

Metasoma: Length of T1: equal or more than 1.4 times width. Horn on T1 of female: absent, T1 longitudinally furrowed throughout length. Lateral setation of T1: sparsely to moderately setose (6–15/side). Medial sculpture on T3: smooth and shiny.

Diagnosis. *Fusicornia ardis* is distinguishable on the basis of the elongate medial and weakly produced lateral metascutellar spines (Figs. 7, 18), the elongate T1 (length 1.4 times width), the smooth mesoscutal humeral sulcus, and the convergent inner orbits in the female (Figs. 15–18).

Etymology. The epithet *ardis*, Greek for the point of an arrow, refers to the medial metanotal spine.

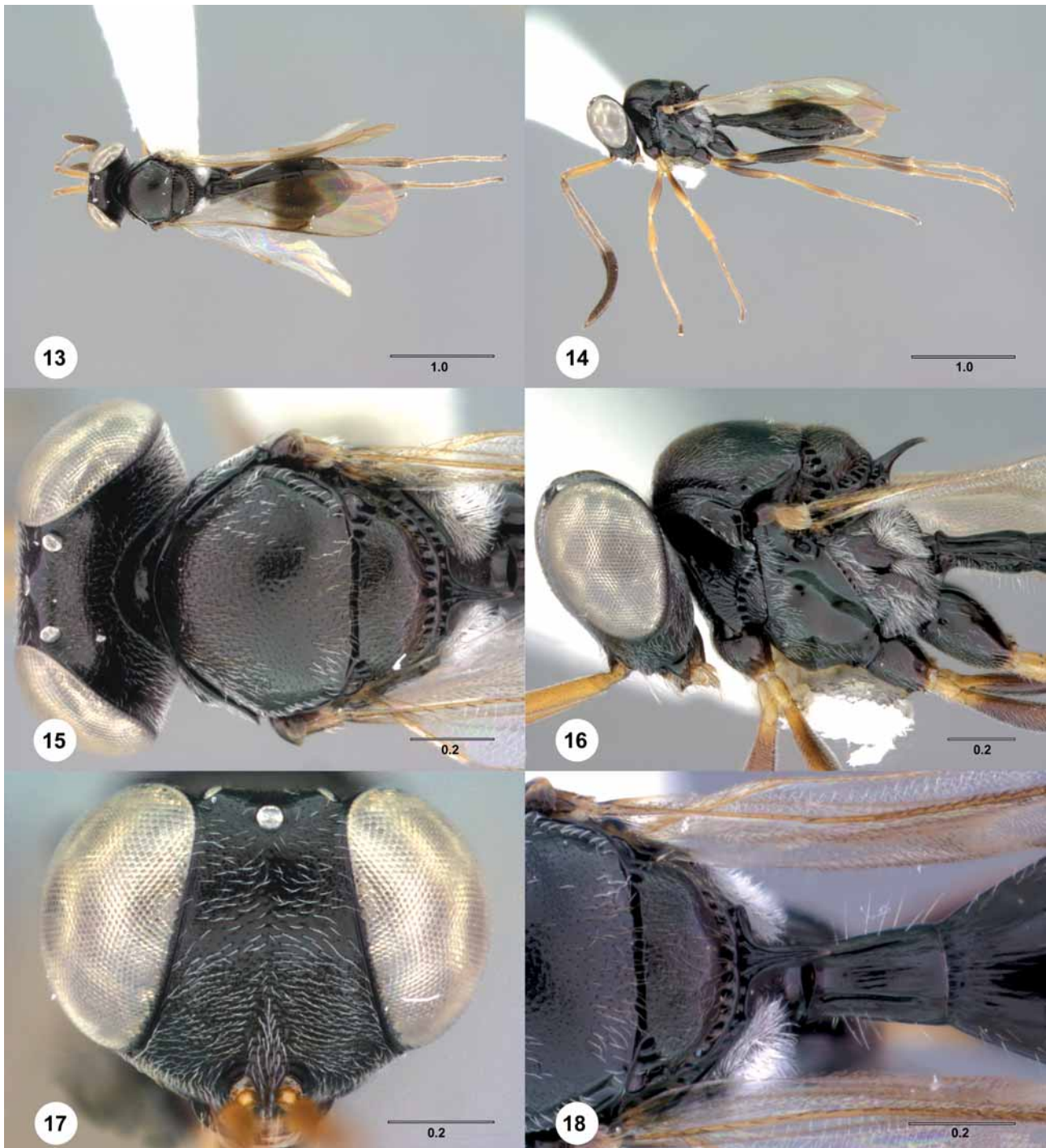
Link to Distribution Map.²⁴

Material Examined. Holotype female: **NIGERIA:** Ife, Osun St., IX.1974, J.T. Medler, OSUC 148952 (deposited in CNCI).

Paratypes: **BENIN:** 1 female, OSUC 206107 (CNCI). **BURKINA FASO:** 33 males, 4 females, OSUC 148942–148943, 148950, 164011–164014, 206108–206133 (CNCI). **IVORY COAST:** 2 males, OSUC 148954–148955 (CNCI). **KENYA:** 1 female, OSUC 148951 (CNCI). **NIGERIA:** 1 female, OSUC 148956 (CNCI). **TANZANIA:** 4 males, 1 female, OSUC 232470, 248228–248230, 248232 (SAMC).

23. <http://www.morphbank.net/?id=226357>

24. <http://atbi.biosci.ohio-state.edu/HymOnline/map-large.html?id=229136>



FIGURES 13–18.²⁵ *Fusicornia ardis*, n. sp., holotype female (OSUC 148952). 13, Dorsal habitus; 14, Lateral habitus; 15, Head and mesosoma, dorsal view; 16, Head and mesosoma, lateral view; 17, Head, anterior view; 18, Metanotal spine and T1, dorsal view. Scale bars in millimeters.

***Fusicornia aulacis* Taekul & Johnson, new species**

urn:lsid:zoobank.org:act:1275C741-17C3-4215-A61A-0C970A19E367

urn:lsid:biosci.ohio-state.edu:osuc_concepts:230094

Figures 19–24; Morphbank²⁶

25. <http://www.morphbank.net/?id=226357>

Description. Female body length: 2.55–2.75 mm (n=18). Male body length: 2.53–2.69 mm (n=11).

Head: Vertex between posterior ocelli: rounded. Female OOL: more than one ocellar diameter. Frontal sculpture: entirely and evenly sculptured. Sculpture of central frons: reticulate punctate. Setation of central frons: moderately setose throughout. Inner orbit in frontal view: more or less parallel. Upper gena in dorsal view of female: expanded, convex, therefore in lateral view compound eye separated from posterior margin by gena. Sculpture of gena behind lower half of eye: with reticulate to coriaceous microsculpture. Setation of gena: moderately setose. Antenna: Radicle color: yellow to orange brown. Color of female A1: dark brown to black. Color of female funicle (A3–A6): dark brown. Claval formula: 1-2-2-2-1. Claval color: dark brown to black.

Mesosoma: Pronotal cervical sulcus: absent. Mesoscutum sculpture: reticulate. Longitudinal sculpture in posterior half of mesoscutum: absent. Admedian line: present. Mesoscutal humeral sulcus: very coarsely foveolate. Notauli: present, indicated by short groove on posterior mesonotum. Mesoscutellum shape: rounded. Sculpture of mesoscutellum: almost entirely covered by microsculpture. Length of medial metascutellar spine: medial spine short to moderately long, as long as distance between median and lateral spines. Length of lateral metascutellar spine: moderately elongate, length distinctly greater than width. Sculpture of propodeal nucha: strongly foveolate to longitudinally striate. Sculpture of suprahumeral area of pronotum: punctulate. Sculpture in lower pronotum: reticulate to weakly rugulose. Netrion setation: sparsely setose to glabrous. Mesopleural carina: present dorsally, interrupted or absent ventrally. Mesepimeral sulcus: complete, foveate throughout. Area 2 on metapleuron: linear, glabrous. Setation of area 4 of metapleuron: glabrous. Setation in anteroventral metapleural triangle: absent. Setation of propodeum anterior to spiracle: sparsely setose (less than 10) or absent. Legs: Coxae color: all coxae brown to black.

Wings: Female fore wing maculation: hyaline or with slight infuscation below marginal vein.

Metasoma: Length of T1: less than or equal to one times width. Horn on T1 of female: absent, T1 longitudinally furrowed throughout length. Lateral setation of T1: sparsely to moderately setose (6–15/side). Medial sculpture on T3: shallowly longitudinal rugulose and reticulate.

Diagnosis. *Fusicornia aulacis* is unique in the genus in the possession of short, but distinct notauli (Figs. 12, 21, 24).

Etymology. The epithet *aulacis*, Latin for furrow, refers to the notauli.

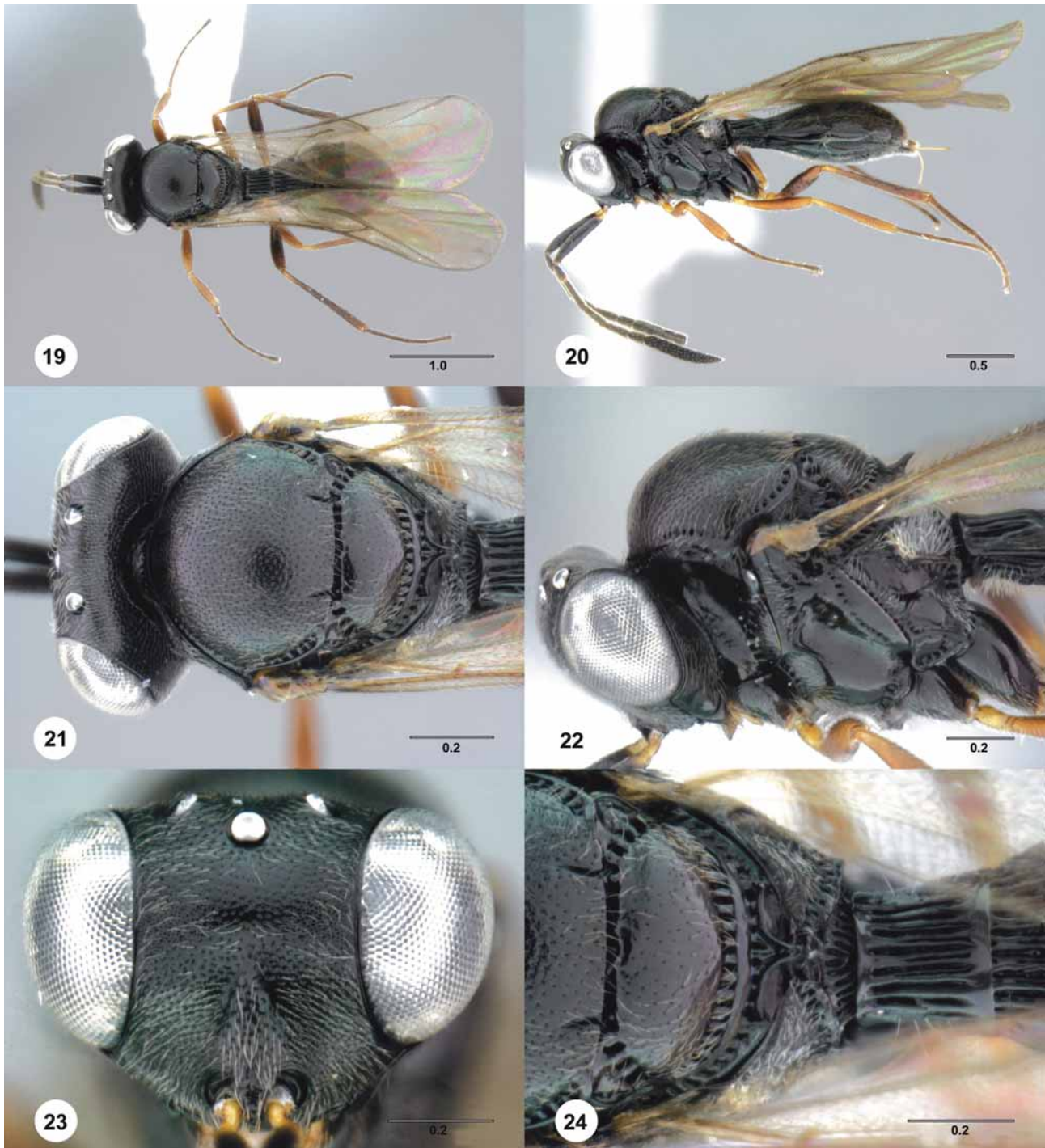
Link to Distribution Map.²⁷

Material examined. Holotype female: **MADAGASCAR:** Ranomafana National Park, 21°15.99'S 47°25.21'E, 1020 m, MA-02-09C-60, secondary tropical forest, Bellevue, Talatakely, Fianarantsoa Auto. Prov., 4–16.V.2003, Malaise trap, R. Harin'Hala, CASENT 2042841 (deposited in CASC).

Paratypes: **MADAGASCAR:** 14 males, 23 females, CASENT 2042836, 2042963, 2043531, 2043961, 2043963–2043995, 2132080, 2132083, 2132521–2132523, 2132733, 2132735, 2132756, 2132828, 2132837, 2134148, 2134149, 2134168, 2134237, 2134283, 2134735, 2134756, 2134781, 2134793 (CASC); OSUC 148982–148983, 164023, 206235–206242 (CNCI).

26. <http://www.morphbank.net/?id=226358>

27. <http://atbi.biosci.ohio-state.edu/HymOnline/map-large.html?id=230094>



FIGURES 19–24.²⁸ *Fusicornia aulacis*, n. sp., holotype female (CASENT 2042841). 19, Dorsal habitus; 20, Lateral habitus; 21, Head and mesosoma, dorsal view; 22, Head and mesosoma, lateral view; 23, Head, anterior view; 24, Notauli, mesoscutellum, and T1, dorsal view. Scale bars in millimeters.

***Fusicornia bambeyi* Risbec**

Original concept: urn:lsid:zoobank.org:act:AEEDF4ED-FEF3-4850-809E-6C43CFAA2CFA

Current concept: urn:lsid:biosci.ohio-state.edu:osuc_concepts:8577

Figures 25–36; Morphbank²⁹

28. <http://www.morphbank.net/?id=226358>

29. <http://www.morphbank.net/?id=226359>

Fusicornia bambeyi Risbec, 1950: 606 (original description); Risbec, 1956: 264 (description).

Description. Female body length: 2.31–2.81 mm (n=20). Male body length: 2.39–2.74 mm (n=20).

Head: Vertex between posterior ocelli: rounded. Female OOL: less than or equal one ocellar diameter, or more than one ocellar diameter. Frontal sculpture: entirely and evenly sculptured. Sculpture of central frons: reticulate punctate. Setation of central frons: moderately setose throughout. Inner orbit in frontal view: more or less parallel. Upper gena in dorsal view of female: expanded, convex, therefore in lateral view compound eye separated from posterior margin by gena. Sculpture of gena behind lower half of eye: with reticulate to coriaceous microsculpture. Setation of gena: moderately setose. Antenna: Radicle color: yellow to orange brown. Color of female A1: yellow to orange-brown, dark brown to black. Color of female funicle (A3–A6): dark brown. Claval formula: 1-2-2-2-2-1. Claval color: dark brown to black.

Mesosoma: Pronotal cervical sulcus: absent. Mesoscutum sculpture: reticulate with superimposed punctures. Longitudinal sculpture in posterior half of mesoscutum: absent. Admedian line: present or absent. Mesoscutal humeral sulcus: foveolate. Notauli: absent. Mesoscutellum shape: rounded. Sculpture of mesoscutellum: almost entirely smooth, with broad smooth area medially, reticulate punctate laterally. Length of medial metascutellar spine: medial spine short to moderately long, distinctly shorter than distance between medial and lateral spines. Length of lateral metascutellar spine: moderately elongate, length distinctly greater than width. Sculpture of propodeal nucha: smooth to weakly sculptured. Sculpture of suprahumeral area of pronotum: punctulate. Sculpture in lower pronotum: longitudinally striate. Netrion setation: sparsely setose to glabrous. Mesopleural carina: complete, present dorsally, interrupted or absent ventrally. Mesepimeral sulcus: abbreviated, complete or briefly interrupted, foveate above, appearing as fold ventrally. Area 2 on metapleuron: polygonal, setose, or linear, setose. Setation of area 4 of metapleuron: setose ventrally, glabrous. Setation in anteroventral metapleural triangle: absent. Setation of propodeum anterior to spiracle: sparsely setose (less than 10) or absent. Legs: Coxae color: all coxae brown to black, all coxae yellow, fore coxa brown, mid and hind coxa yellow.

Wings: Female fore wing maculation: hyaline or with slight infuscation below marginal vein, with distinct infuscation at level of marginal vein.

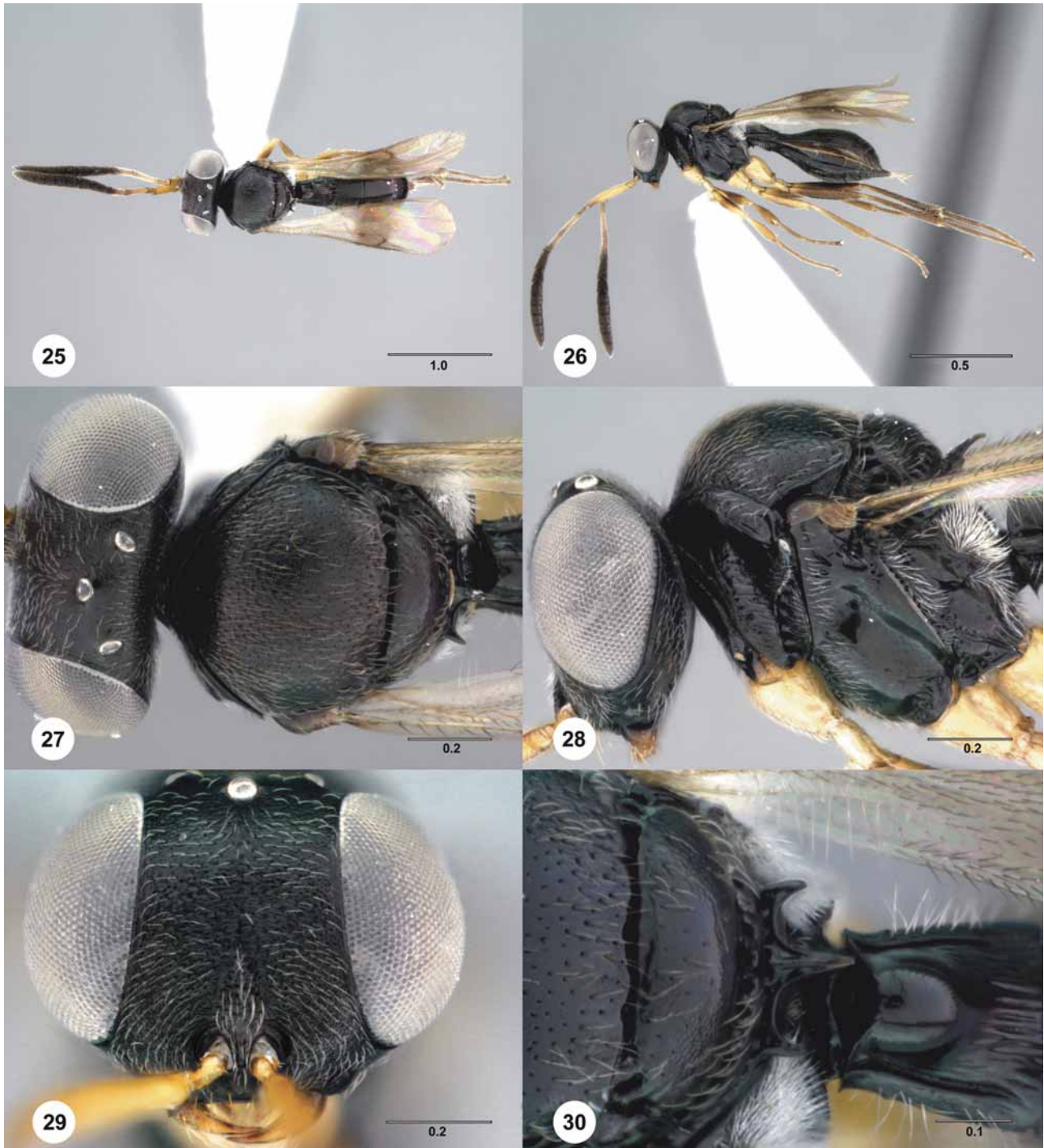
Metasoma: Length of T1: less than or equal to one times width. Horn on T1 of female: well developed, sculpture on horn very weak or absent, present as low elevation, sculpture on horn variable. Lateral setation of T1: sparsely to moderately setose (6–15/side). Medial sculpture on T3: smooth and shiny.

Diagnosis. *Fusicornia bambeyi* is most similar to *F. paradisa* and may be distinguished from it on the basis of the sculpture of scutellum and shape of the metanotal spines. The scutellum of *F. bambeyi* has a broad smooth area medially, and is reticulate punctate laterally; the lateral metanotal spine is moderately elongate, its length distinctly greater than its width and it is confluent with the medial spine (Figs. 9, 27, 30, 33).

Link to Distribution Map.³⁰

Material Examined. *Fusicornia bambeyi*, holotype female: **SENEGAL:** M'Bambey (deposited in MNHN). *Other material:* **BENIN:** 1 female, OSUC 148978 (CNCI). **BOTSWANA:** 4 females, OSUC 162177–162179 (OSUC); OSUC 148980 (CNCI). **BURKINA FASO:** 31 males, 26 females, OSUC 148958–148959, 148971–148972, 148990, 164009–164010, 164018–164020, 206134–206138, 206292–206321, 208104, 208108, 208110, 208112–208120 (CNCI). **CAMEROON:** 2 males, 4 females, OSUC 148975, 208030, 208101, 208144 (CNCI); OSUC 211152, 211153 (BMNH). **CENTRAL AFRICAN REPUBLIC:**

30. <http://atbi.biosci.ohio-state.edu/HymOnline/map-large.html?id=4311>

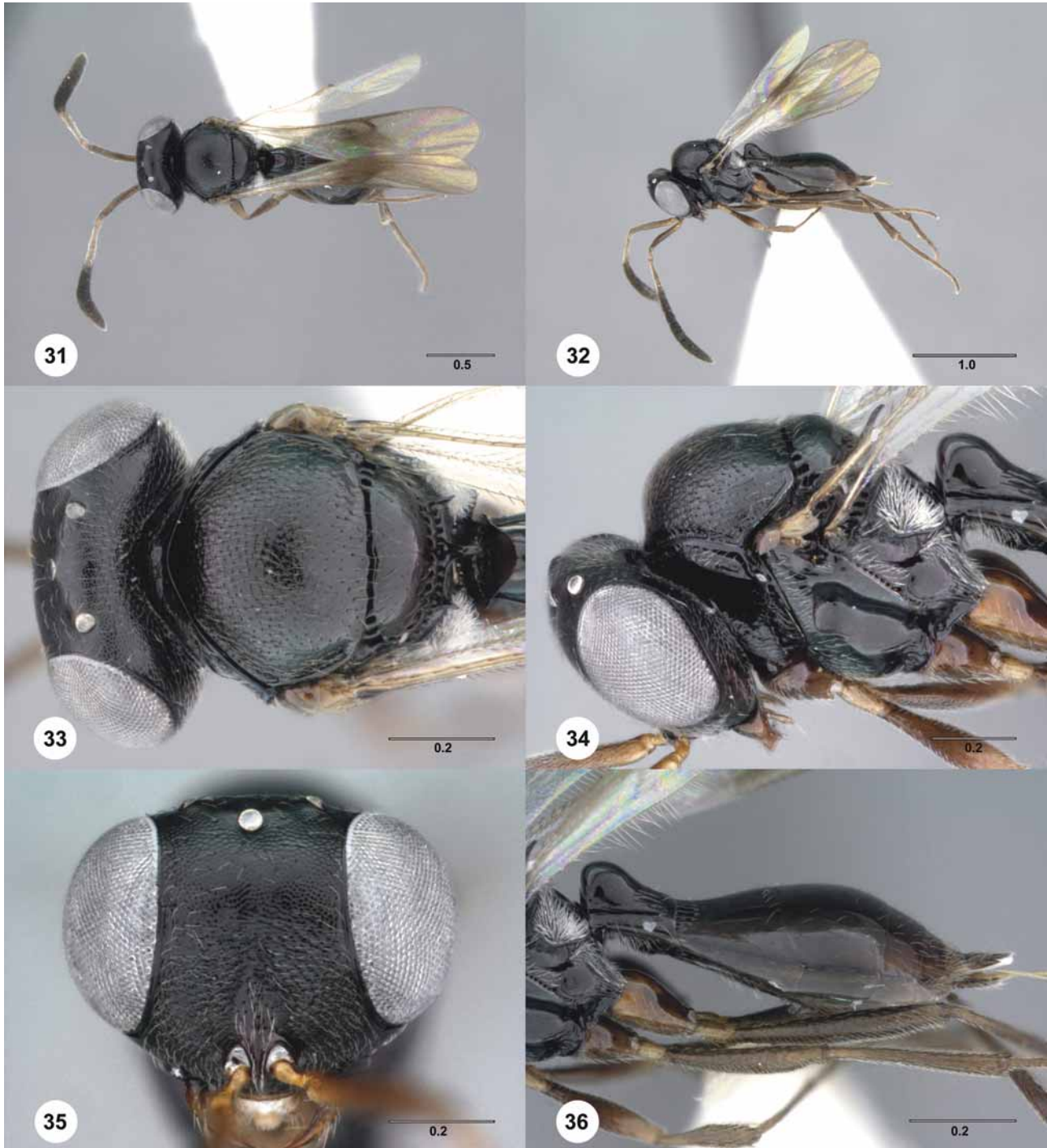


FIGURES 25–30.³¹ *Fusicornia bambeyi* Risbec, female (OSUC 164019). 25, Dorsal habitus; 26, Lateral habitus; 27, Head and mesosoma, dorsal view; 28, Head and mesosoma, lateral view; 29, Head, anterior view; 30, Mesoscutellum, metanotal spine, and T1, dorsal view. Scale bars in millimeters.

11 males, 2 females, OSUC 211070, 253756 (OSUC); OSUC 180738–180740, 180935, 211044, 211050–211052, 211069, 248294 (SAMC); OSUC 208105 (CNCI). **GABON:** 23 males, 2 females, OSUC 148974, 149015, 206183–206186, 206188–206205, 208031 (CNCI). **GAMBIA:** 1 female, OSUC 206187 (CNCI). **GHANA:** 1 male, OSUC 211064 (OSUC). **GUINEA-BISSAU:** 1 male, OSUC 148977 (CNCI). **IVORY COAST:** 1 female, OSUC 148976 (CNCI). **KENYA:** 1 male, 5 females, OSUC 148973, 206272,

31. <http://www.morphbank.net/?id=305733>

211154–211156, 211160 (CNCI). **MADAGASCAR:** 7 males, 35 females, CASENT 2043727–2043736, 2043813–2043821, 2043966, 2132526, 2132746–2132755, 2134112–2134115, 2134119–2134125 (CASC); OSUC 207691 (OSUC). **MOZAMBIQUE:** 1 male, 1 female, OSUC 206276, 206279 (CNCI). **SOMALIA:** 3 males, OSUC 148979, 208102, 208103 (CNCI). **SOUTH AFRICA:** 1 male, 2 females, OSUC 148993 (CNCI);



FIGURES 31–36.³² *Fusicornia bambeyi* Risbec, female (OSUC 148981). 31, Dorsal habitus; 32, Lateral habitus; 33, Head and mesosoma, dorsal view; 34, Head and mesosoma, lateral view; 35, Head, anterior view; 36, Metasoma and T1, lateral view. Scale bars in millimeters.

32. <http://www.morphbank.net/?id=305732>

OSUC 211048–211049 (SAMC). **TANZANIA**: 1 male, OSUC 248226 (SAMC). **YEMEN**: 5 males, OSUC 206250–206251, 206255, 206257, 206260 (CNCI). **ZIMBABWE** 2 females: OSUC 148981, 208107 (CNCI).

Comments. Some specimens show variability in coxal color, in which the fore coxae are dark, and the mid and hind coxae yellow: OSUC 148980, 148981, 162177, 162179, 206137, 208107. Because of the uniformity of the principal characters, the sculpture of scutellum, the configuration of the median and lateral metanotal spines, and the setation of areas 2 and 4 of metapleuron, these specimens are hypothesized to be conspecific with *F. bambeyi*.

***Fusicornia collaris* Taekul & Johnson, new species**

urn:lsid:zoobank.org:act:934C027A-CFFE-4834-9BA9-6B91C3A77F22

urn:lsid:biosci.ohio-state.edu:osuc_concepts:230116

Figures 37–42; Morphbank³³

Description. Female body length: 1.42–2.03 mm (n=3). Male body length: unknown.

Head: Vertex between posterior ocelli: rounded. Female OOL: more than one ocellar diameter. Frontal sculpture: at least partly smooth or considerably effaced. Sculpture of central frons: smooth or with shallowly impressed reticulate microsculpture. Setation of central frons: glabrous. Inner orbit in frontal view: more or less parallel. Upper gena in dorsal view of female: expanded, convex, therefore in lateral view compound eye separated from posterior margin by gena. Sculpture of gena behind lower half of eye: smooth. Setation of gena: sparsely setose. Antenna: Radicle color: yellow to orange brown. Color of female A1: dark brown to black. Color of female funicle (A3–A6): dark brown. Claval formula: 1-2-2-2-1. Claval color: dark brown to black.

Mesosoma: Pronotal cervical sulcus: present. Mesoscutum sculpture: smooth and shining. Longitudinal sculpture in posterior half of mesoscutum: absent. Admedian line: absent. Mesoscutal humeral sulcus: very coarsely foveolate. Notauli: absent. Mesoscutellum shape: rounded. Sculpture of mesoscutellum: almost entirely smooth. Length of medial metascutellar spine: medial spine short to moderately long, distinctly shorter than distance between medial and lateral spines. Length of lateral metascutellar spine: short, only slightly longer than wide. Sculpture of propodeal nucha: strongly foveolate to longitudinally striate. Sculpture of suprahumeral area of pronotum: punctulate. Sculpture in lower pronotum: reticulate to weakly rugulose. Netrion setation: sparsely setose to glabrous. Mesopleural carina: complete. Mesepimeral sulcus: complete, foveate throughout. Area 2 on metapleuron: polygonal, setose. Setation of area 4 of metapleuron: glabrous. Setation in anteroventral metapleural triangle: absent. Setation of propodeum anterior to spiracle: sparsely setose (less than 10) or absent. Legs: Coxae color: all coxae brown to black.

Wings: Female fore wing maculation: hyaline or with slight infuscation below marginal vein.

Metasoma: Length of T1: less than or equal to one times width. Horn on T1 of female: absent, T1 longitudinally furrowed throughout length. Lateral setation of T1: sparsely to moderately setose (6–15/side). Medial sculpture on T3: smooth and shiny.

Diagnosis. *Fusicornia collaris* is most similar to *F. spinosa* and may be distinguished from it by the presence of a pronotal cervical sulcus and the strongly foveolate to longitudinally striate sculpture of the propodeal nucha (Figs. 39, 42).

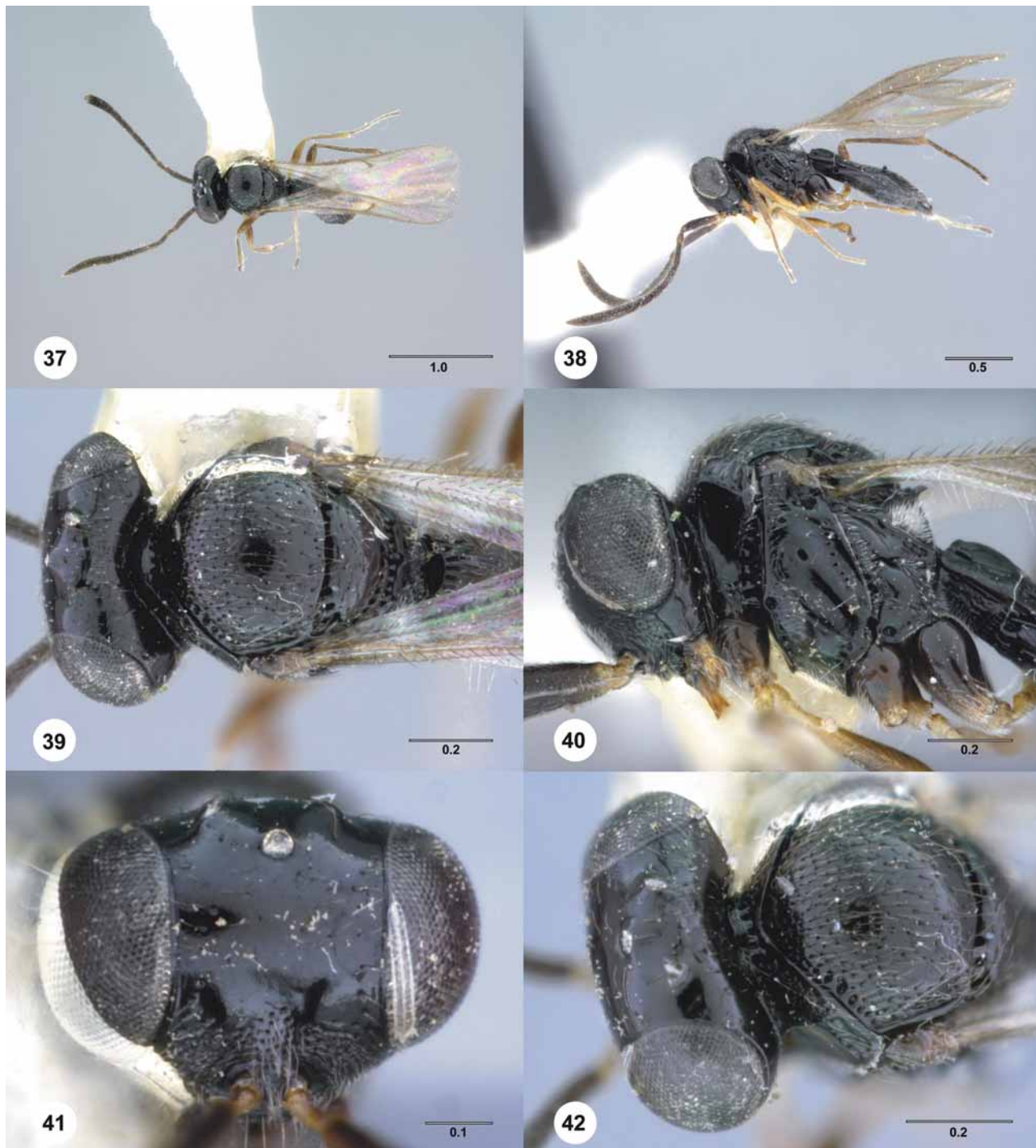
Etymology. The epithet *collaris*, Latin for collar, refers to the pronotal cervical sulcus (Fig. 42).

Link to Distribution Map.³⁴

33. <http://www.morphbank.net/?id=226360>

34. <http://atbi.biosci.ohio-state.edu/HymOnline/map-large.html?id=230116>

Material Examined. Holotype female: **INDONESIA:** Waris, S of Jayapura (Hollandia), 450–500m, New Guinea Isl., Papua Prov., 1.VIII.1959–2.VIII.1959, T.C Maa, OSUC 179115 (deposited in BPBM). *Paratypes:* **PAPUA NEW GUINEA:** 2 females, OSUC 179117, 179118 (BPBM).



FIGURES 37–42.³⁵ *Fusicornia collaris*, n. sp., holotype female (OSUC 179115). 37, Dorsal habitus; 38, Lateral habitus; 39, Head and mesosoma, dorsal view; 40, Head and mesosoma, lateral view; 41, Head, anterior view; 42, Pronotal cervical sulcus, dorsal view. Scale bars in millimeters.

35. <http://www.morphbank.net/?id=226360>

***Fusicornia crista* Taekul & Johnson, new species**

urn:lsid:zoobank.org:act:5A849EFE-9F12-4B71-832F-3F24C694B868

urn:lsid:biosci.ohio-state.edu:osuc_concepts:230111

Figures 43–48; Morphbank³⁶

Description. Female body length: 2.04–2.89 mm (n=4). Male body length: unknown.

Head: Vertex between posterior ocelli: carinate. Female OOL: less than or equal one ocellar diameter. Frontal sculpture: entirely and evenly sculptured. Sculpture of central frons: with transversely arcuate striae. Setation of central frons: glabrous. Inner orbit in frontal view: more or less parallel. Upper gena in dorsal view of female: flat to weakly concave, therefore in lateral view compound eye appearing to reach posterior margin of head. Sculpture of gena behind lower half of eye: with reticulate to coriaceous microsculpture. Setation of gena: moderately setose. Antenna: Radicle color: yellow to orange brown. Color of female A1: yellow to orange-brown. Color of female funicle (A3–A6): dark brown. Claval formula: 1-2-2-2-2. Claval color: dark brown to black.

Mesosoma: Pronotal cervical sulcus: absent. Mesoscutum sculpture: longitudinal sculpture throughout. Longitudinal sculpture in posterior half of mesoscutum: present. Admedian line: present. Mesoscutal humeral sulcus: foveolate. Notauli: absent. Mesoscutellum shape: bilobate. Sculpture of mesoscutellum: with broad smooth area medially, reticulate punctate laterally. Length of medial metascutellar spine: medial spine very elongate, distinctly longer than distance between median and lateral spines. Length of lateral metascutellar spine: short, only slightly longer than wide. Sculpture of propodeal nucha: smooth to weakly sculptured. Sculpture of suprahumeral area of pronotum: punctulate. Sculpture in lower pronotum: longitudinally striate. Neutron setation: sparsely setose to glabrous. Mesopleural carina: present dorsally, interrupted or absent ventrally. Mesepimeral sulcus: absent. Area 2 on metapleuron: linear, glabrous. Setation of area 4 of metapleuron: setose ventrally. Setation in anteroventral metapleural triangle: absent. Setation of propodeum anterior to spiracle: sparsely setose (less than 10) or absent. Legs: Coxae color: all coxae brown to black.

Wings: Female fore wing maculation: with distinct infuscation at level of marginal vein.

Metasoma: Length of T1: less than or equal to one times width. Horn on T1 of female: absent, T1 longitudinally furrowed throughout length. Lateral setation of T1: sparsely to moderately setose (6–15/side). Medial sculpture on T3: smooth and shiny.

Diagnosis. *Fusicornia crista* is most similar to *F. sabrina*, which was collected from the same locality in Somalia. *Fusicornia crista* may be distinguished by the bilobate scutellum and the longitudinally striate sculpture of the posterior half of mesoscutum (Fig. 45, 48). In Tanzania, it occurs sympatrically with *F. ardis*, from which it may be distinguished by the mesoscutal sculpture and the shorter T1.

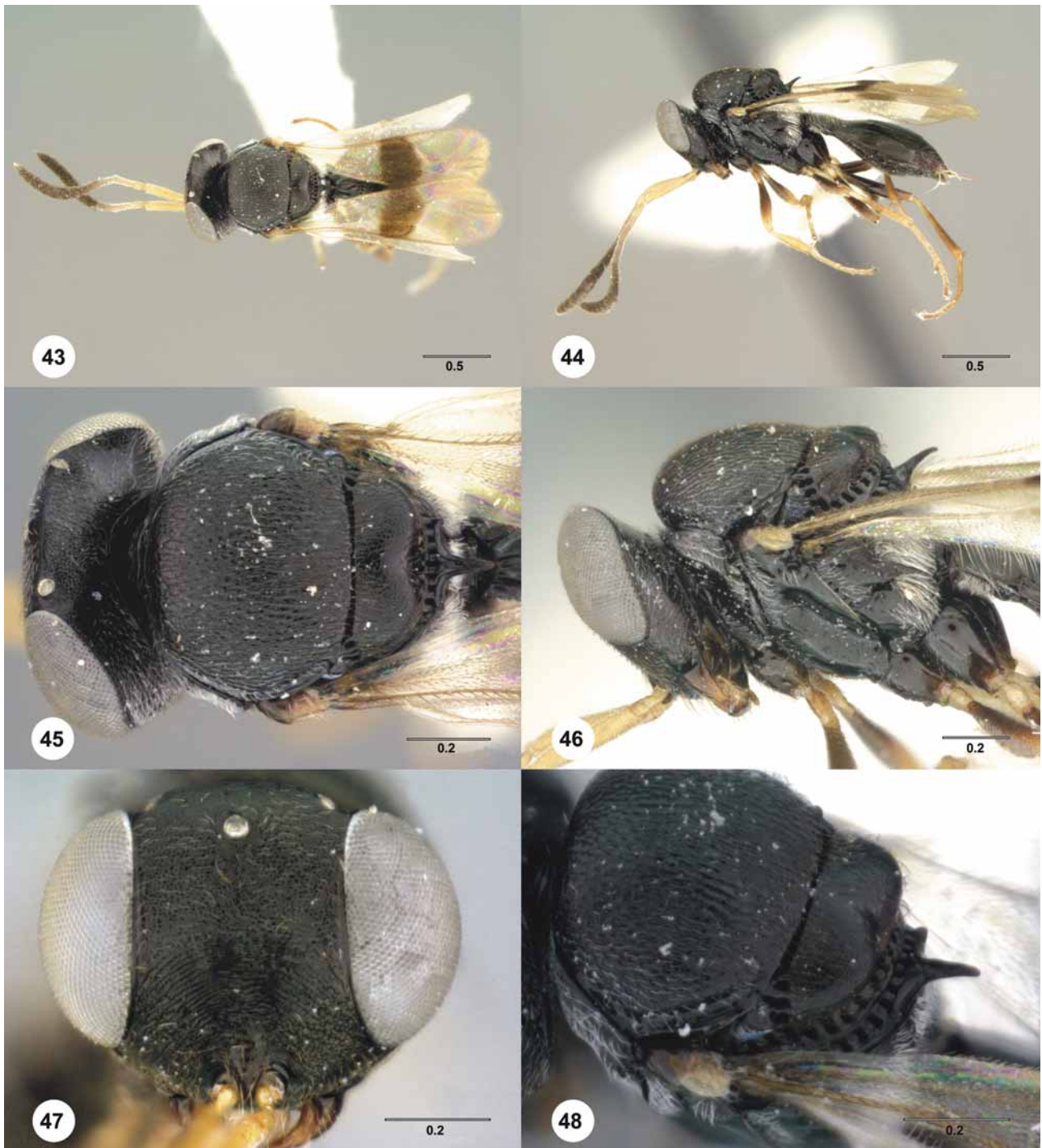
Etymology. The epithet *crista*, Latin for ridge, refers to the carina on the vertex between posterior ocelli (Fig. 47).

Link to Distribution Map.³⁷

Material Examined. Holotype female: **SOMALIA:** Afgoi Shabelli Valley, Mogadishu, 7–14 IV.1977, Malaise trap, F. Bin, OSUC 148957 (deposited in CNCI). *Paratypes:* **TANZANIA:** 3 females, OSUC 248231, 248233, 248244 (SAMC).

36. <http://www.morphbank.net/?id=226361>

37. <http://atbi.biosci.ohio-state.edu/HymOnline/map-large.html?id=230119>



FIGURES 43–48.³⁸ *Fusicornia crista*, n. sp., holotype female (OSUC 148957). 43, Dorsal habitus; 44, Lateral habitus; 45, Head and mesosoma, dorsal view; 46, Head and mesosoma, lateral view; 47, Head, anterior view; 48, Mesoscutellum, dorsal view. Scale bars in millimeters.

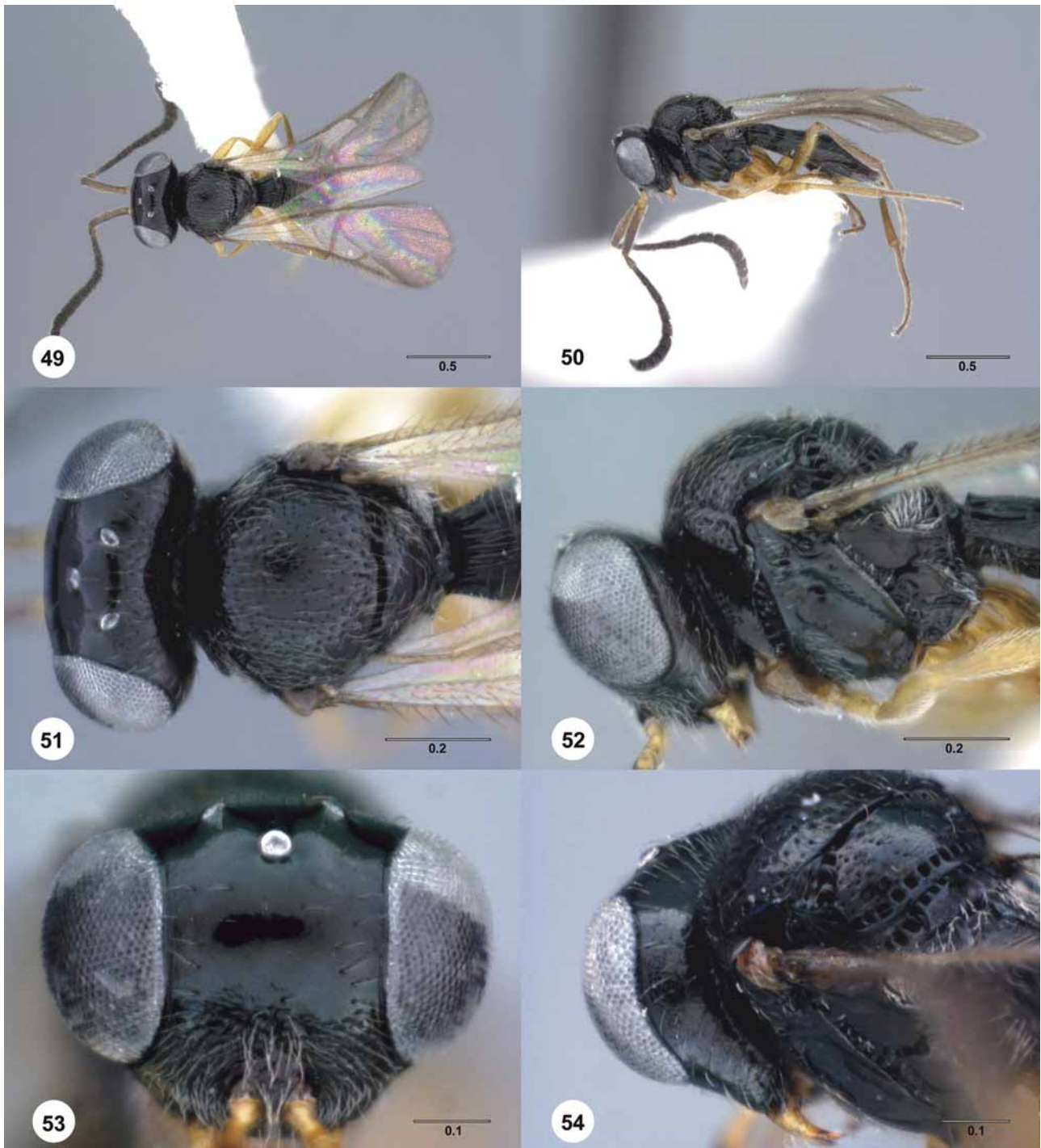
***Fusicornia dissita* Taekul & Johnson, new species**

urn:lsid:zoobank.org:act:C6B2D149-D287-4ACA-B83E-BBD66E074D8A

urn:lsid:biosci.ohio-state.edu:osuc_concepts:230119

Figures 49–54; Morphbank³⁹

38. <http://www.morphbank.net/?id=226361>



FIGURES 49–54.⁴⁰ *Fusicornia dissita*, n. sp., holotype female (OSUC 149012). 49, Dorsal habitus; 50, Lateral habitus; 51, Head and mesosoma, dorsal view; 52, Head and mesosoma, lateral view; 53, Head, anterior view; 54, Gena, lateral view. Scale bars in millimeters.

Description. Female body length: 1.69–1.81 mm (n=2). Male body length: unknown.

Head: Vertex between posterior ocelli: rounded. Female OOL: more than one ocellar diameter. Frontal sculpture: at least partly smooth or considerably effaced. Sculpture of central frons: smooth or with shallowly impressed reticulate microsculpture. Setation of central frons: glabrous. Inner orbit in frontal view: more or

39. <http://www.morphbank.net/?id=226362>

40. <http://www.morphbank.net/?id=226362>

less parallel. Upper gena in dorsal view of female: expanded, convex, therefore in lateral view compound eye separated from posterior margin by gena. Sculpture of gena behind lower half of eye: smooth. Setation of gena: sparsely setose. Antenna: Radicle color: yellow to orange brown. Color of female A1: dark brown to black. Color of female funicle (A3–A6): dark brown. Claval formula: 1-2-2-2-2. Claval color: dark brown to black.

Mesosoma: Pronotal cervical sulcus: absent. Mesoscutum sculpture: reticulate with superimposed punctures. Longitudinal sculpture in posterior half of mesoscutum: absent. Admedian line: absent. Mesoscutal humeral sulcus: foveolate. Notauli: absent. Mesoscutellum shape: rounded. Sculpture of mesoscutellum: with broad smooth area medially, reticulate punctate laterally. Length of medial metascutellar spine: medial spine short to moderately long, distinctly shorter than distance between medial and lateral spines. Length of lateral metascutellar spine: moderately elongate, length distinctly greater than width. Sculpture of propodeal nucha: strongly foveolate to longitudinally striate. Sculpture of suprahumeral area of pronotum: punctulate. Sculpture in lower pronotum: reticulate to weakly rugulose. Netrion setation: sparsely setose to glabrous. Mesopleural carina: present dorsally, interrupted or absent ventrally. Mesepimeral sulcus: complete or briefly interrupted, foveate above, appearing as fold ventrally. Area 2 on metapleuron: polygonal, setose. Setation of area 4 of metapleuron: setose ventrally. Setation in anteroventral metapleural triangle: absent. Setation of propodeum anterior to spiracle: sparsely setose (less than 10) or absent. Legs: Coxae color: fore coxa brown, mid and hind coxa yellow.

Wings: Female fore wing maculation: hyaline or with slight infuscation below marginal vein.

Metasoma: Length of T1: less than or equal to one times width. Horn on T1 of female: absent, T1 longitudinally furrowed throughout length. Lateral setation of T1: sparsely to moderately setose (6–15/side). Medial sculpture on T3: smooth and shiny.

Diagnosis. *Fusicornia dissita* is similar to *F. speculum*, *F. fortuna*, and *F. tehrii* in smooth sculpture of the central frons; it may be distinguished by the moderately elongate lateral metanotal spine and the brown fore coxa (Figs. 50, 52).

Etymology. The epithet *dissita*, Latin for remote or far, is a reference to the distance of the collecting locality, Vanuatu, from the distribution of the other species of the genus.

Link to Distribution Map.⁴¹

Material Examined. Holotype female: VANUATU: Lenakel, 0–200 m, Tanna, Tafea Prov., III.1980, N.L.H., Krauss, OSUC 149012 (deposited in CNCI). *Paratypes*: VANUATU: 1 female, OSUC 164015 (CNCI).

***Fusicornia eos* Taekul & Johnson, new species**

urn:lsid:zoobank.org:act:BBED57CA-3E05-49EE-A703-A9A810BE2042

urn:lsid:bioisci.ohio-state.edu:osuc_concepts:230120

Figures 55–60; Morphbank⁴²

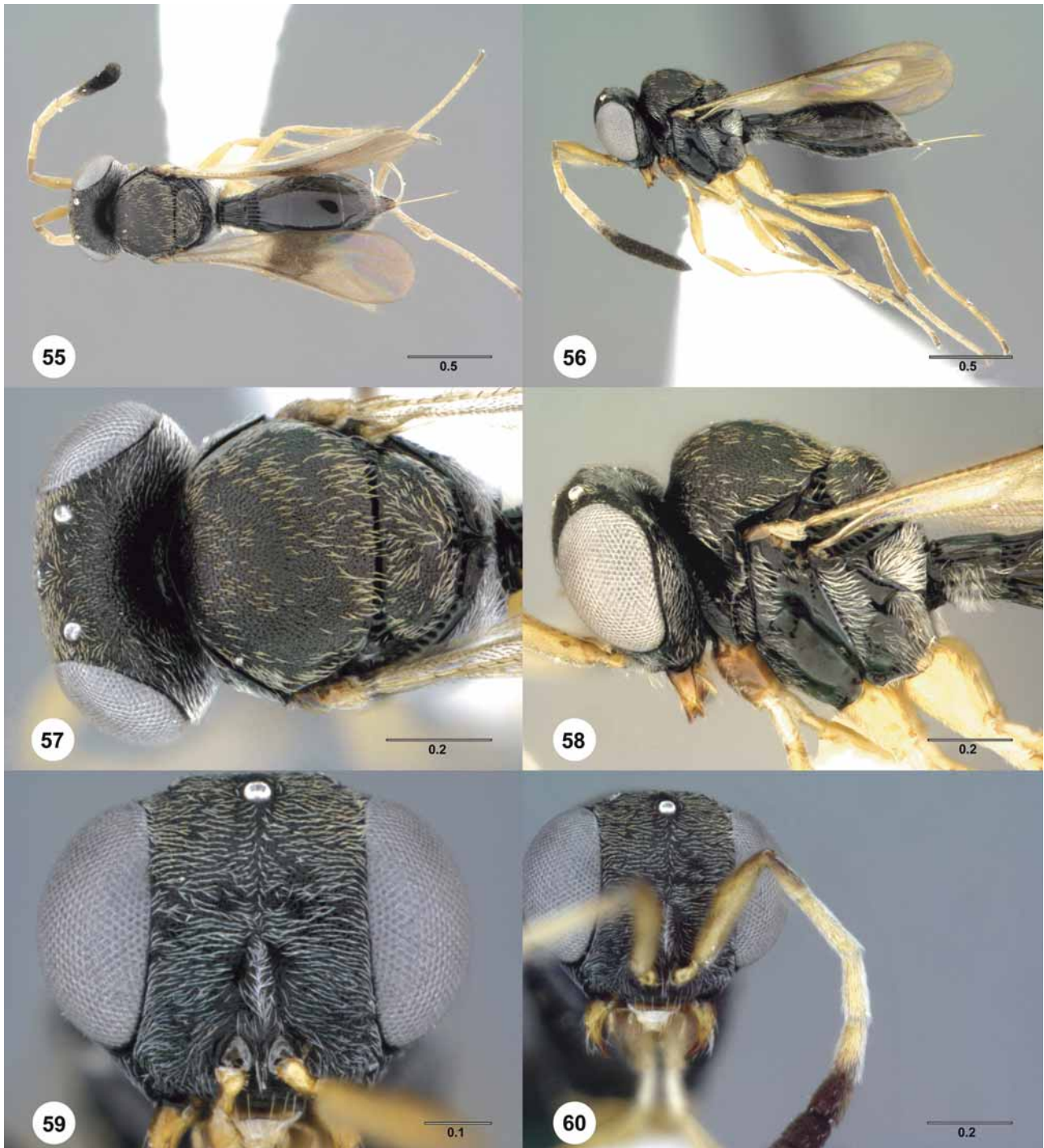
Description. Female body length: 1.72–1.98 mm (n=15). Male body length: 1.54–1.68 mm (n=4).

Head: Vertex between posterior ocelli: rounded. Female OOL: less than or equal one ocellar diameter. Frontal sculpture: entirely and evenly sculptured. Sculpture of central frons: punctate. Setation of central frons: with dense, decumbent silvery setae. Inner orbit in frontal view: more or less parallel. Upper gena in dorsal view of female: expanded, convex, therefore in lateral view compound eye separated from posterior margin by gena. Sculpture of gena behind lower half of eye: with reticulate to coriaceous microsculpture.

41. <http://atbi.bioisci.ohio-state.edu/HymOnline/map-large.html?id=230119>

42. <http://www.morphbank.net/?id=226376>

Setation of gena: very densely setose. Antenna: Radicle color: yellow to orange brown. Color of female A1: yellow to orange-brown. Color of female funicle (A3–A6): A3, A4, base of A5 yellow, apex of A5, A6 dark brown. Claval formula: 1-2-2-2-2-1. Claval color: dark brown to black.



FIGURES 55–60.⁴³ *Fusicornia eos*, n. sp., holotype female (OSUC 206174). 55, Dorsal habitus; 56, Lateral habitus; 57, Head and mesosoma, dorsal view; 58, Head and mesosoma, lateral view; 59, Head, anterior view; 60, Antenna. Scale bars in millimeters.

43. <http://www.morphbank.net/?id=226376>

Mesosoma: Pronotal cervical sulcus: absent. Mesoscutum sculpture: densely coriaceous. Longitudinal sculpture in posterior half of mesoscutum: absent. Admedian line: present. Mesoscutal humeral sulcus: foveolate. Notauli: absent. Mesoscutellum shape: rounded. Sculpture of mesoscutellum: almost entirely covered by microsculpture, with broad smooth area medially, reticulate punctate laterally. Length of medial metascutellar spine: medial spine short to moderately long, distinctly shorter than distance between medial and lateral spines. Length of lateral metascutellar spine: short, only slightly longer than wide. Sculpture of propodeal nucha: smooth to weakly sculptured. Sculpture of suprahumeral area of pronotum: densely punctate. Sculpture in lower pronotum: reticulate to weakly rugulose. Netrion setation: densely setose. Mesopleural carina: present dorsally, interrupted or absent ventrally. Mesepimeral sulcus: abbreviated, complete or briefly interrupted, foveate above, appearing as fold ventrally. Area 2 on metapleuron: polygonal, setose. Setation of area 4 of metapleuron: setose ventrally. Setation in anteroventral metapleural triangle: absent. Setation of propodeum anterior to spiracle: sparsely setose (less than 10) or absent. Legs: Coxae color: all coxae yellow.

Wings: Female fore wing maculation: with distinct infuscation at level of marginal vein.

Metasoma: Length of T1: less than or equal to one times width. Horn on T1 of female: absent, T1 longitudinally furrowed throughout length. Lateral setation of T1: densely setose (>20/side). Medial sculpture on T3: smooth and shiny.

Diagnosis. *Fusicornia eos* can be distinguished in both sexes by the mesoscutum and scutellum which are almost entirely covered by densely coriaceous microsculpture (Figs. 10, 57, 58). In the female, *F. eos* is immediately recognized by the bright yellow color of A 5 (Fig. 60).

Etymology. The epithet *eos*, meaning dawn, refers to the bright yellow A5 of the female antenna, a distinctive character for this species.

Link to Distribution Map.⁴⁴

Material Examined. Holotype female: **BURKINA FASO:** Kompienga, 25 km SE Pama, savanna/edge of river, Kompienga Prov., 3–24.IX.1988, interception trap, Sanborne, Genier & Tou, OSUC 206174 (deposited in CNCI). *Paratypes:* **BURKINA FASO:** 1 male, 6 females, OSUC 148966, 148967, 206172, 206173, 206175, 206176, 206182 (CNCI). **MALI:** 2 males, 4 females, OSUC 148970, 164024, 164025, 206179–206181(CNCI). **NIGERIA:** 1 male, 3 females, OSUC 148968–148969, 206177–206178 (CNCI). **TANZANIA:** 8 males, 2 females, OSUC 248234–248243 (SAMC). **YEMEN:** 2 females, OSUC 206249, 206259 (CNCI).

Fusicornia episcopus Taekul & Johnson, new species

urn:lsid:zoobank.org:act:EE7D352E-D0AB-40E0-B444-B288EBD3A2BB

urn:lsid:biosci.ohio-state.edu:osuc_concepts:230113

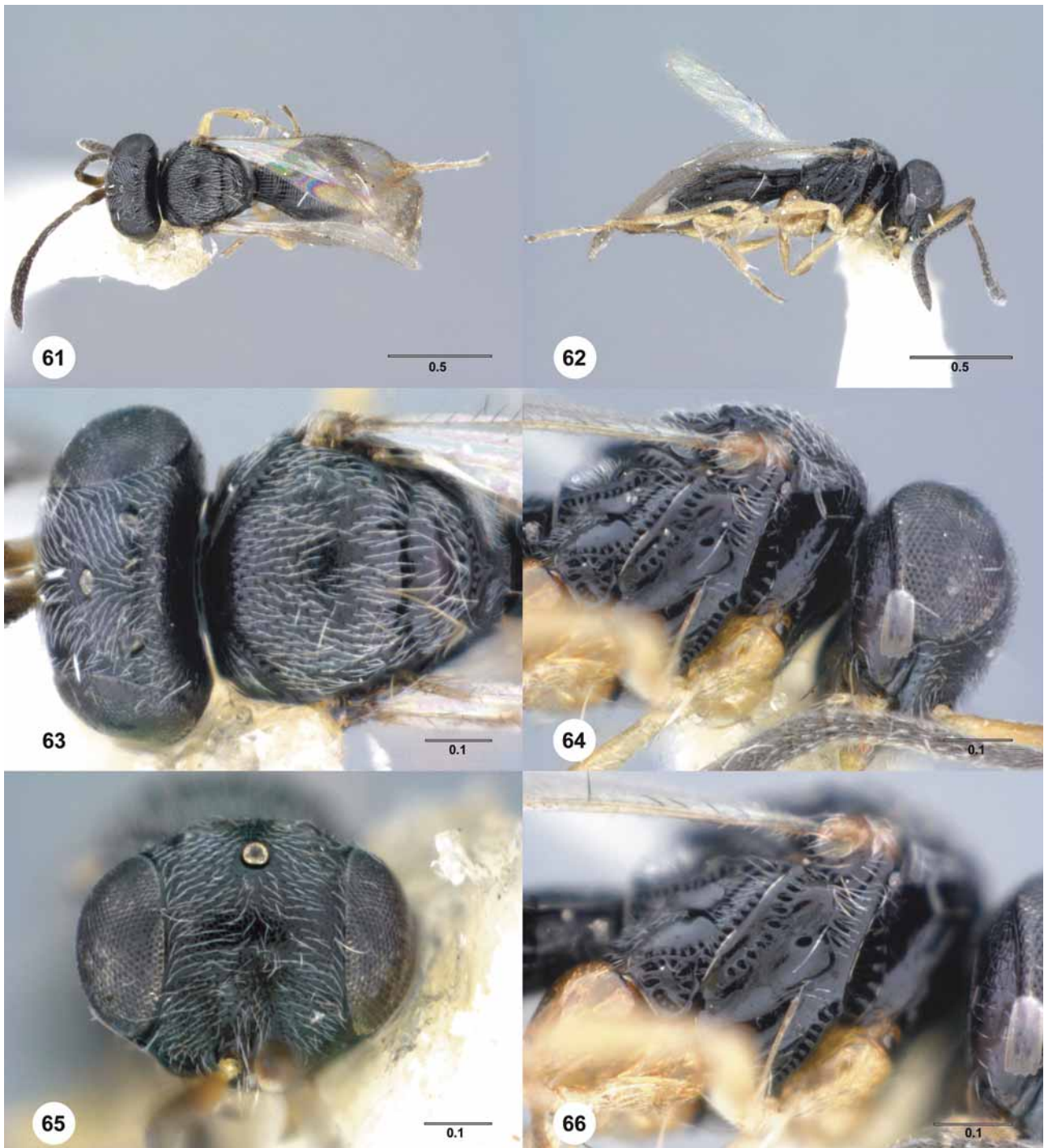
Figures 61–66; Morphbank⁴⁵

Description. Female body length: 1.35 mm (n=1). Male body length: unknown.

Head: Vertex between posterior ocelli: rounded. Female OOL: more than one ocellar diameter. Frontal sculpture: entirely and evenly sculptured. Sculpture of central frons: punctate. Setation of central frons: moderately setose throughout. Inner orbit in frontal view: more or less parallel. Upper gena in dorsal view of female: expanded, convex, therefore in lateral view compound eye separated from posterior margin by gena. Sculpture of gena behind lower half of eye: with reticulate to coriaceous microsculpture. Setation of gena: sparsely setose. Antenna: Radicle color: yellow to orange brown. Color of female A1: yellow to orange-brown. Color of female funicle (A3–A6): dark brown. Claval formula: 1-2-2-2-1. Claval color: dark brown to black.

44. <http://atbi.biosci.ohio-state.edu/HymOnline/map-large.html?id=230120>

45. <http://www.morphbank.net/?id=226363>



FIGURES 61–66.⁴⁶ *Fusicornia episcopus*, n. sp., holotype female (OSUC 179113). 61, Dorsal habitus; 62, Lateral habitus; 63, Head and mesosoma, dorsal view; 64, Head and mesosoma, lateral view; 65, Head, anterior view; 66, Mesopleuron, lateral view. Scale bars in millimeters.

Mesosoma: Pronotal cervical sulcus: absent. Mesoscutum sculpture: reticulate. Longitudinal sculpture in posterior half of mesoscutum: absent. Admedian line: absent. Mesoscutal humeral sulcus: foveolate. Notauli: absent. Mesoscutellum shape: rounded. Sculpture of mesoscutellum: almost entirely smooth. Length of medial metascutellar spine: medial spine short to moderately long, distinctly shorter than distance between medial and lateral spines. Length of lateral metascutellar spine: short, only slightly longer than wide. Sculp-

46. <http://www.morphbank.net/?id=226363>

ture of propodeal nucha: strongly foveolate to longitudinally striate. Sculpture of suprahumeral area of pronotum: punctulate. Sculpture in lower pronotum: reticulate to weakly rugulose. Netrion setation: sparsely setose to glabrous. Mesopleural carina: absent. Mesepimeral sulcus: complete, foveate throughout. Area 2 on metapleuron: linear, setose. Setation of area 4 of metapleuron: glabrous. Setation in anteroventral metapleural triangle: absent. Setation of propodeum anterior to spiracle: sparsely setose (less than 10) or absent. Legs: Coxae color: all coxae yellow.

Wings: Female fore wing maculation: hyaline or with slight infuscation below marginal vein.

Metasoma: Length of T1: less than or equal to one times width. Horn on T1 of female: absent, T1 longitudinally furrowed throughout length. Lateral setation of T1: sparsely to moderately setose (6–15/side). Medial sculpture on T3: shallowly longitudinal rugulose and reticulate.

Diagnosis. *Fusicornia episcopus* is most similar to *F. paradisa* and may be distinguished from it by the completeness of mesepimeral sulcus and the strongly foveolate to longitudinally striate sculpture of the propodeal nucha (Figs. 64, 66).

Etymology. The epithet *episcopus*, Latin for bishop, refers to the depository of the holotype of this species.

Link to Distribution Map.⁴⁷

Material Examined. Holotype female: **THAILAND:** Trang Prov, Khao Phap Pha Mountain, 200–400 m, Khao Chong Mt., 3.I.1964, G.A., Samuelson, OSUC 179113 (deposited in BPBM).

***Fusicornia fax* Taekul & Johnson, new species**

urn:lsid:zoobank.org:act:75A0396D-F46C-44A1-A3CE-64D90F21509A

urn:lsid:biosci.ohio-state.edu:osuc_concepts:230114

Figures 67–72; Morphbank⁴⁸

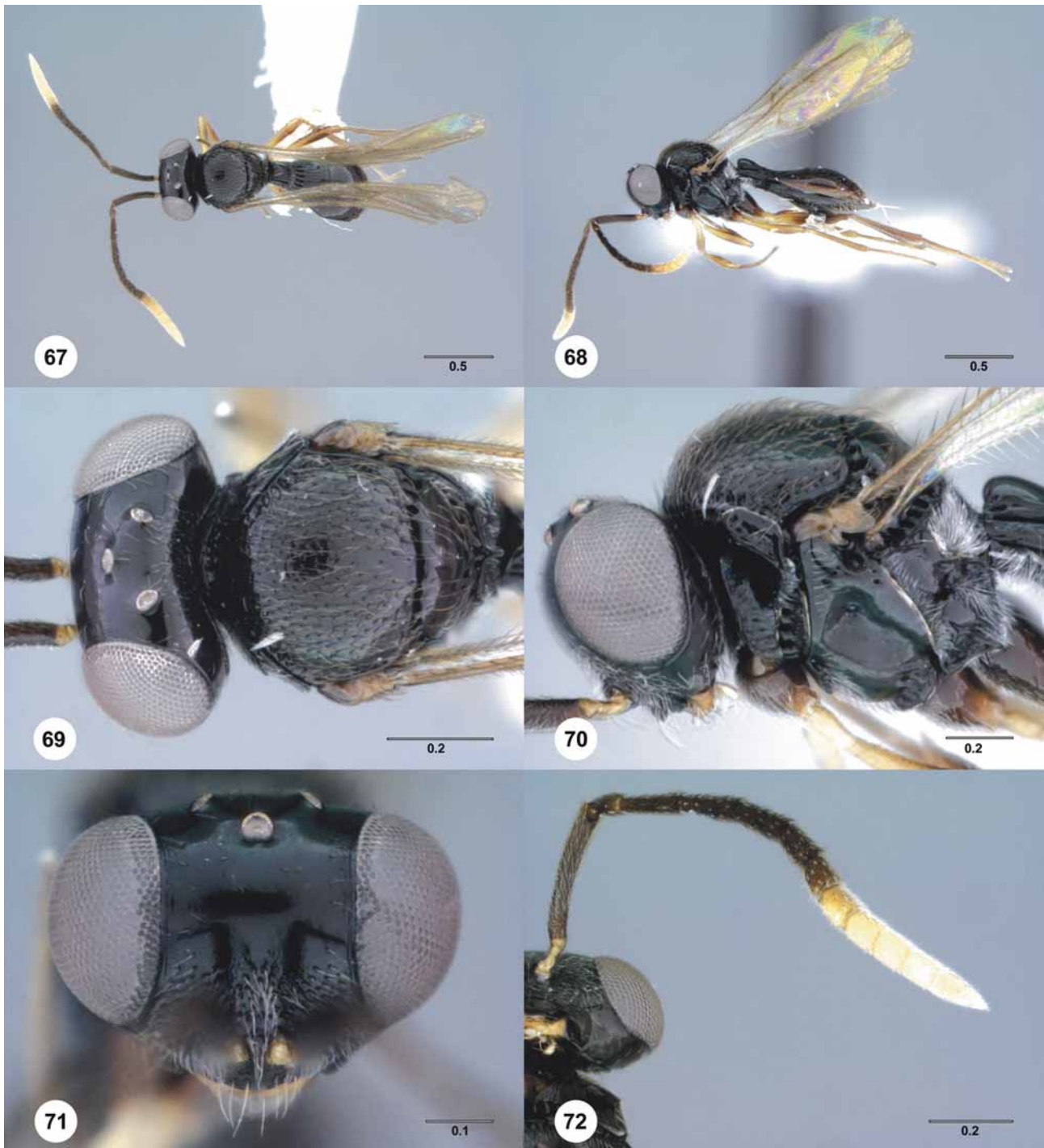
Description. Female body length: 1.68 mm (n=1). Male body length: unknown.

Head: Vertex between posterior ocelli: rounded. Female OOL: more than one ocellar diameter. Frontal sculpture: at least partly smooth or considerably effaced. Sculpture of central frons: smooth or with shallowly impressed reticulate microsculpture. Setation of central frons: glabrous. Inner orbit in frontal view: more or less parallel. Upper gena in dorsal view of female: expanded, convex, therefore in lateral view compound eye separated from posterior margin by gena. Sculpture of gena behind lower half of eye: smooth. Setation of gena: sparsely setose. Antenna: Radicle color: bright yellow. Color of female A1: dark brown to black. Color of female funicle (A3–A6): dark brown. Claval formula: 1-2-2-2-2. Claval color: bright yellow.

Mesosoma: Pronotal cervical sulcus: absent. Mesoscutum sculpture: reticulate. Longitudinal sculpture in posterior half of mesoscutum: absent. Admedian line: absent. Mesoscutal humeral sulcus: foveolate. Notauli: absent. Mesoscutellum shape: rounded. Sculpture of mesoscutellum: almost entirely smooth. Length of medial metascutellar spine: medial spine short to moderately long, distinctly shorter than distance between medial and lateral spines. Length of lateral metascutellar spine: short, only slightly longer than wide. Sculpture of propodeal nucha: smooth to weakly sculptured. Sculpture of suprahumeral area of pronotum: smooth. Sculpture in lower pronotum: longitudinally striate. Netrion setation: sparsely setose to glabrous. Mesopleural carina: complete. Mesepimeral sulcus: abbreviated. Area 2 on metapleuron: polygonal, setose. Setation of area 4 of metapleuron: setose ventrally. Setation in anteroventral metapleural triangle: absent. Setation of propodeum anterior to spiracle: sparsely setose (less than 10) or absent. Legs: Coxae color: all coxae brown to black.

47. <http://atbi.biosci.ohio-state.edu/HymOnline/map-large.html?id=230113>

48. <http://www.morphbank.net/?id=226380>



FIGURES 67–72.⁴⁹ *Fusicornia fax*, n. sp., holotype female (OSUC 149013). 67, Dorsal habitus; 68, Lateral habitus; 69, Head and mesosoma, dorsal view; 70, Head and mesosoma, lateral view; 71, Head, anterior view; 72, Antennae. Scale bars in millimeters.

Wings: Female fore wing maculation: hyaline or with slight infuscation below marginal vein.

Metasoma: Length of T1: less than or equal to one times width. Horn on T1 of female: well developed, sculpture on horn very weak or absent. Lateral setation of T1: sparsely to moderately setose (6–15/side). Medial sculpture on T3: smooth and shiny.

49. <http://www.morphbank.net/?id=226380>

Diagnosis. The bright yellow clava is unique to *Fusicornia fax* and will immediately distinguish this species (Figs. 67, 68, 72).

Etymology. The specific epithet *fax*, torch or firebrand, refers to the unique bright color of the clava.

[Link to Distribution Map.](#)⁵⁰

Material Examined. Holotype female: **PAPUA NEW GUINEA:** Laing Isl., 16.VIII.1982, P. Grootaert, OSUC 149013 (deposited in CNCI).

***Fusicornia fortuna* Taekul & Johnson, new species**

urn:lsid:zoobank.org:act:7AC0CD3C-8D72-4562-A177-72E7548B07B5

urn:lsid:biosci.ohio-state.edu:osuc_concepts:230117

Figures 73–78; Morphbank⁵¹

Description. Female body length: 1.23–1.73 mm (n=2). Male body length: 1.71 mm (n=1).

Head: Vertex between posterior ocelli: rounded. Female OOL: less than or equal one ocellar diameter. Frontal sculpture: at least partly smooth or considerably effaced. Sculpture of central frons: smooth or with shallowly impressed reticulate microsculpture. Setation of central frons: glabrous. Inner orbit in frontal view: more or less parallel. Upper gena in dorsal view of female: expanded, convex, therefore in lateral view compound eye separated from posterior margin by gena. Sculpture of gena behind lower half of eye: with reticulate to coriaceous microsculpture. Setation of gena: sparsely setose. Antenna: Radicle color: yellow to orange brown. Color of female A1: yellow to orange-brown. Color of female funicle (A3–A6): dark brown. Claval formula: 1-2-2-2-2. Claval color: dark brown to black.

Mesosoma: Pronotal cervical sulcus: absent. Mesoscutum sculpture: reticulate. Longitudinal sculpture in posterior half of mesoscutum: absent. Admedian line: present or absent. Mesoscutal humeral sulcus: foveolate. Notauli: absent. Mesoscutellum shape: rounded. Sculpture of mesoscutellum: almost entirely smooth. Length of medial metascutellar spine: medial spine short to moderately long, distinctly shorter than distance between medial and lateral spines. Length of lateral metascutellar spine: short, only slightly longer than wide. Sculpture of propodeal nucha: smooth to weakly sculptured. Sculpture of suprahumeral area of pronotum: punctulate, pustulate. Sculpture in lower pronotum: reticulate to weakly rugulose. Netrion setation: sparsely setose to glabrous. Mesopleural carina: present dorsally, interrupted or absent ventrally. Mesepimeral sulcus: abbreviated. Area 2 on metapleuron: linear, glabrous, linear, setose. Setation of area 4 of metapleuron: glabrous. Setation in anteroventral metapleural triangle: absent. Setation of propodeum anterior to spiracle: sparsely setose (less than 10) or absent. Legs: Coxae color: all coxae yellow.

Wings: Female fore wing maculation: hyaline or with slight infuscation below marginal vein.

Metasoma: Length of T1: less than or equal to one times width. Horn on T1 of female: absent, T1 longitudinally furrowed throughout length, well developed, sculpture on horn very weak or absent. Lateral setation of T1: sparsely to moderately setose (6–15/side). Medial sculpture on T3: smooth and shiny.

Diagnosis. *Fusicornia fortuna* is most similar to *F. speculum* with which it shares the absence of setation on area 2 and 4 on metapleuron and smooth to weakly sculptured propodeal nucha (Fig. 78). It may be distinguished by gena behind lower half of the eye with reticulate to coriaceous microsculpture (Fig. 76).

Etymology. The epithet *fortuna*, is an arbitrary name, inspired by the code originally used for this species, F-8.

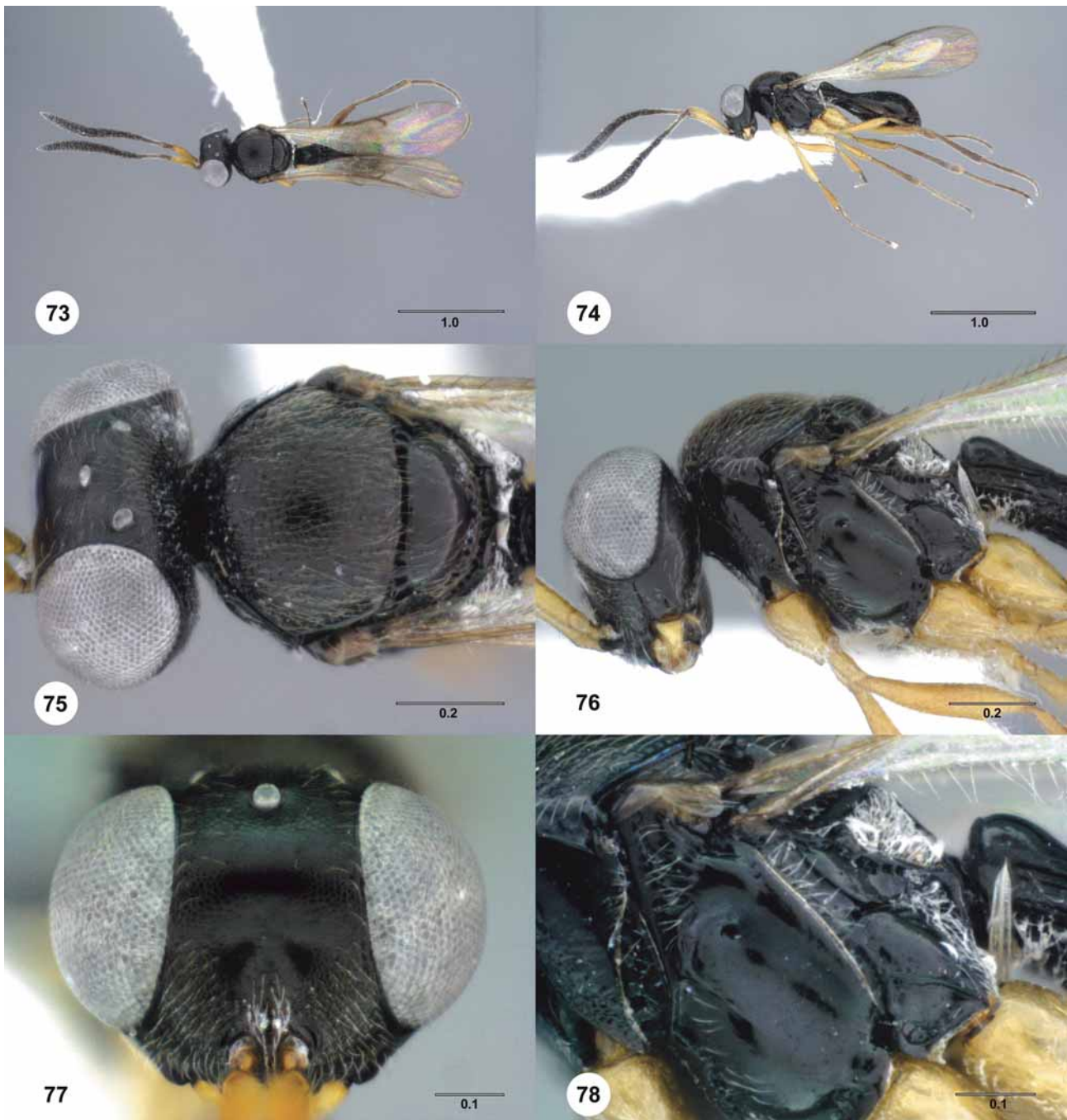
[Link to Distribution Map.](#)⁵²

50. <http://atbi.biosci.ohio-state.edu/HymOnline/map-large.html?id=230114>

51. <http://www.morphbank.net/?id=226364>

52. <http://atbi.biosci.ohio-state.edu/HymOnline/map-large.html?id=230117>

Material Examined. Holotype female: **YEMEN:** Ta'izz, Ta'izz Gov., IX.1999, light trap, A. van Harten, OSUC 149017 (deposited in CNCI). *Paratypes:* **MADAGASCAR:** 1 male, 1 female, OSUC 148997, 206215 (CNCI). **KENYA:** 1 female, OSUC 211159 (CNCI).



FIGURES 73–78.⁵³ *Fusicornia fortuna*, n. sp., holotype female (OSUC 149017). 73, Dorsal habitus; 74, Lateral habitus; 75, Head and mesosoma, dorsal view; 76, Head and mesosoma, lateral view; 77, Head, anterior view; 78, Mesopleuron, lateral view. Scale bars in millimeters.

***Fusicornia indica* Mani & Sharma**

Original concept: urn:lsid:zoobank.org:act:CE5B9BC8-F874-4AE4-9131-5708205B9F69

Current concept: urn:lsid:biosci.ohio-state.edu:osuc_concepts:4312

Figures 79–96; Morphbank⁵⁴

53. <http://www.morphbank.net/?id=226364>

Fusicornia indica Mani & Sharma, 1980:47 (original description); Mani & Sharma, 1982:184 (description).

Description. Female body length: 2.19–2.58 mm (n=11). Male body length: 2.25–2.47 mm (n=7).

Head: Vertex between posterior ocelli: rounded. Female OOL: less than or equal one ocellar diameter. Frontal sculpture: entirely and evenly sculptured. Sculpture of central frons: punctate. Setation of central frons: moderately setose throughout. Inner orbit in frontal view: more or less parallel. Upper gena in dorsal view of female: expanded, convex, therefore in lateral view compound eye separated from posterior margin by gena. Sculpture of gena behind lower half of eye: with reticulate to coriaceous microsculpture. Setation of gena: moderately setose. Antenna: Radicle color: yellow to orange brown. Color of female A1: yellow to orange–brown. Color of female funicle (A3–A6): A3, base of A4 yellow, apex of A4, A5–A6 dark brown. Claval formula: 1-2-2-2-2-1. Claval color: dark brown to black.

Mesosoma: Pronotal cervical sulcus: absent. Mesoscutum sculpture: reticulate with superimposed punctures. Longitudinal sculpture in posterior half of mesoscutum: absent. Admedian line: present or absent. Mesoscutal humeral sulcus: foveolate. Notauli: absent. Mesoscutellum shape: rounded. Sculpture of mesoscutellum: almost entirely covered by microsculpture. Length of medial metascutellar spine: medial spine very elongate, distinctly longer than distance between median and lateral spines. Length of lateral metascutellar spine: moderately elongate, length distinctly greater than width. Sculpture of propodeal nucha: smooth to weakly sculptured. Sculpture of suprahumeral area of pronotum: densely punctate. Sculpture in lower pronotum: longitudinally striate. Netrion setation: densely setose. Mesopleural carina: complete. Mesepimeral sulcus: abbreviated. Area 2 on metapleuron: polygonal, setose. Setation of area 4 of metapleuron: glabrous. Setation in anteroventral metapleural triangle: absent. Setation of propodeum anterior to spiracle: sparsely setose (less than 10) or absent. Legs: Coxae color: all coxae brown to black.

Wings: Female fore wing maculation: hyaline or with slight infuscation below marginal vein.

Metasoma: Length of T1: less than or equal to one times width. Horn on T1 of female: well developed, sculpture on horn very weak or absent. Lateral setation of T1: densely setose (>20/side). Medial sculpture on T3: smooth and shiny.

Diagnosis. *Fusicornia indica* is most similar to *F. skopelos* by sharing the black color of coxae and the abbreviated mesepimeral sulcus. It may be immediately distinguished from this species by yellow to orange-brown color of A1 in female and color of female funicle (A3–A6): A3, base of A4 yellow, apex of A4, A5–A6 dark brown (Figs. 80, 88, 96). In both sex, lateral metanotal spine is moderately elongate, length distinctly greater than width and propodeal nucha is smooth to weakly sculpture (Figs. 81, 87, 89).

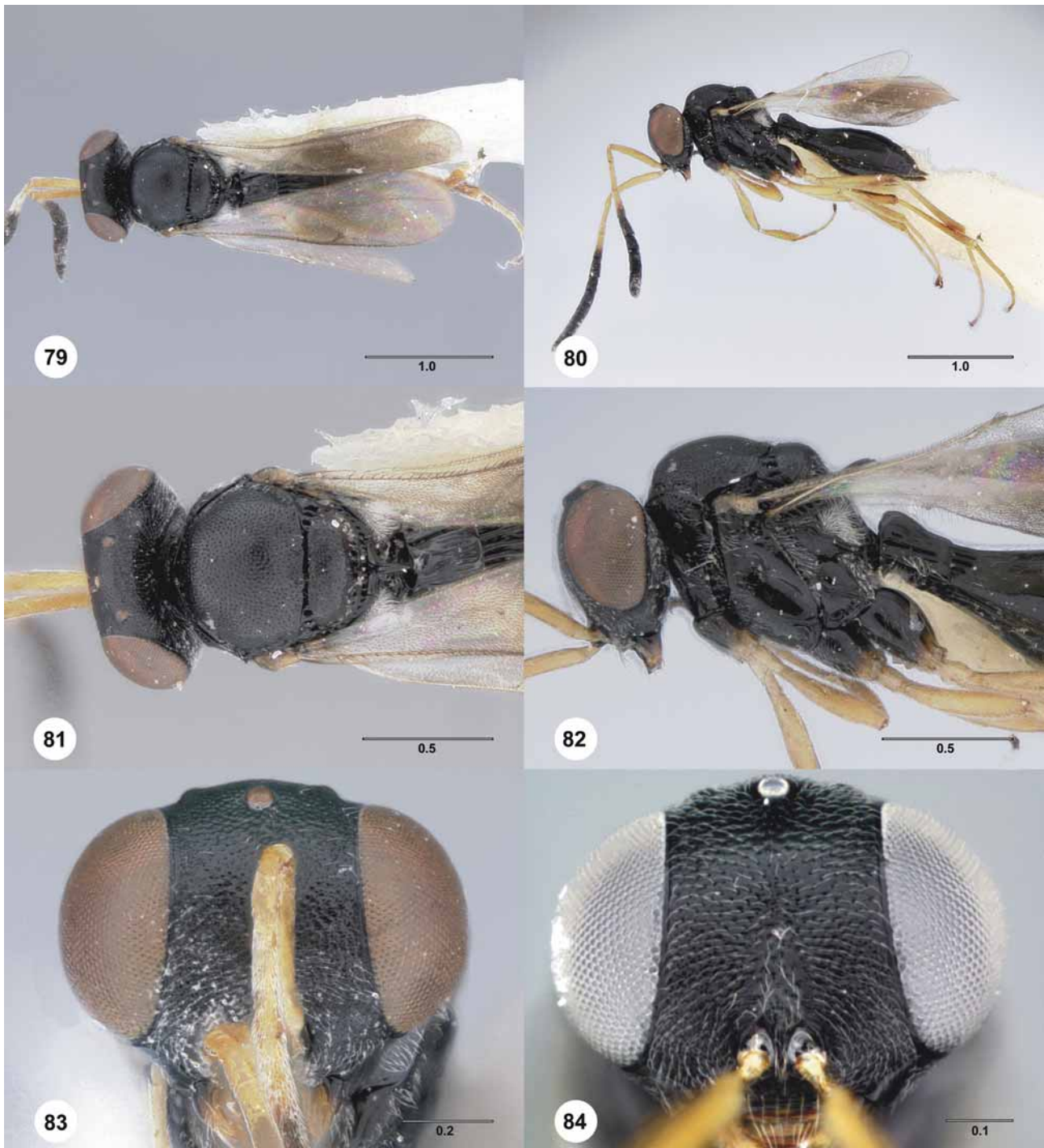
Link to Distribution Map.⁵⁵

Material examined. Holotype: **INDIA:** Vindhya Survey, 9–10.IX.1979, M.S. Mani & party (deposited in USNM). *Paratypes:* **INDIA:** 6 males, 4 females, OSUC 148939, 148940, 164008, 206243 (CNCI); OSUC 232308–232313 (USNM). *Other material:* **AUSTRALIA:** 1 male, 2 females, OSUC 210367 (OSUC), 211065 (ANIC), ANIC DB 32–20455 (ANIC). **INDIA:** 2 females, OSUC 148941 (CNCI); OSUC 210294 (USNM). **PHILIPPINES:** 1 female, OSUC 179112 (BPBM). **SRI LANKA:** 3 females, OSUC 149021–149022 (CNCI); OSUC 210292 (USNM). **THAILAND:** 5 males, 6 females, OSUC 149004, 149027–149028, 206282, 206284, 206287, 206288, 206289, 206290, 206291 (CNCI); OSUC 253758 (OSUC).

Comments: The specimens of *F. indica* from Australia differ from those from India and Southeast Asia by the absence of a horn on T1 in the female (Fig. 89) (OSUC 210367) and the color of the female funicle (A3–A6): A3, A4, and the base of A5 are yellow, while apex of A5 and A6 are dark brown (Fig. 96; ANIC DB

54. <http://www.morphbank.net/?id=226365>

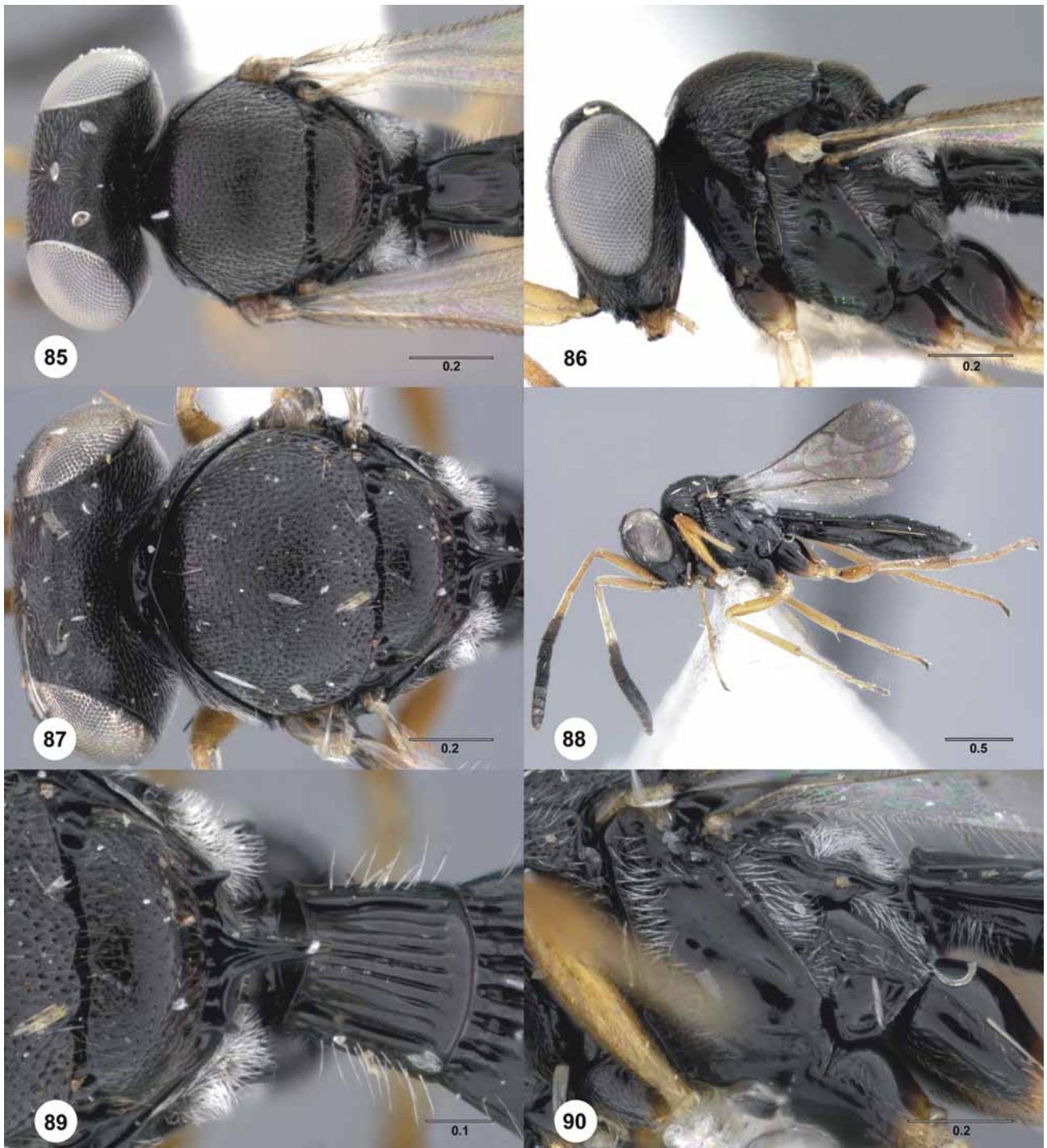
55. <http://atbi.biosci.ohio-state.edu/HymOnline/map-large.html?id=4312>



FIGURES 79–84.⁵⁶ *Fusicornia indica* Mani & Sharma. 79, Dorsal habitus, holotype female; 80, Lateral habitus, holotype female; 81, Head and mesosoma, dorsal view, holotype female; 82, Head and mesosoma, lateral view, holotype female; 83, Head, anterior view, holotype female; 84, Head, anterior view, female (OSUC 149027). Scale bars in millimeters.

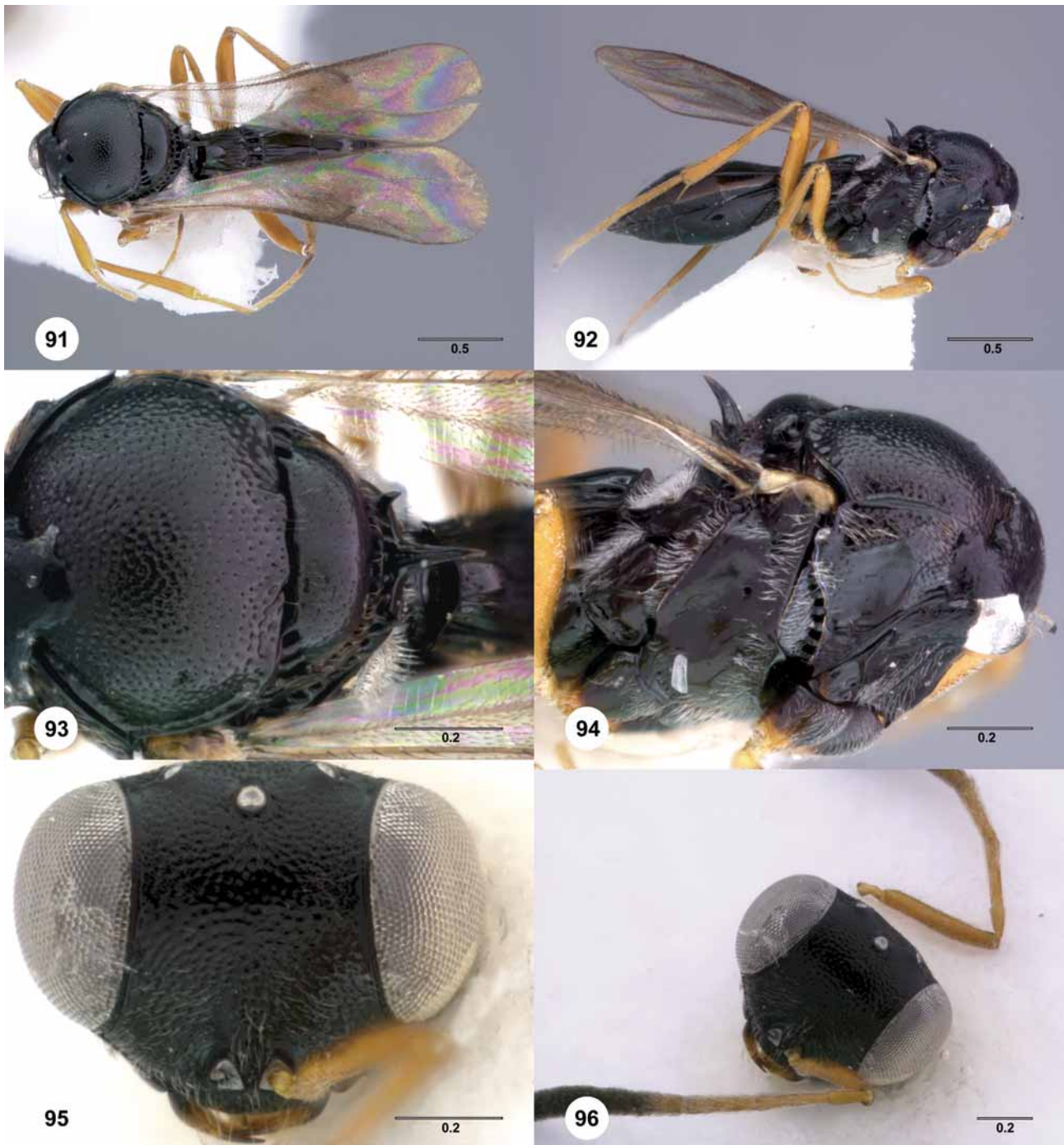
32–20455, OSUC 211065). However, they share the most significant characters, including the sculpture of the scutellum, coxal color, the relative lengths of the medial and lateral metanotal spines, and the shape and setation of the metapleural areas. Therefore, we consider the Australian specimens to be conspecific with *F. indica*.

56. <http://www.morphbank.net/?id=306287>



FIGURES 85–90.⁵⁷ *Fusicornia indica* Mani & Sharma, female. 85, Head and mesosoma, dorsal view (OSUC 149027); 86, Head and mesosoma, lateral view (OSUC 149027); 87, Head and mesosoma, dorsal view (OSUC 210367); 88, Lateral habitus (OSUC 210367); 89, Scutellum and metanotal spines (OSUC 210367); 90, Metapleuron (OSUC 210367). Scale bars in millimeters.

57. <http://www.morphbank.net/?id=306368>



FIGURES 91–96.⁵⁸ *Fusicornia indica* Mani & Sharma, female (OSUC 211065). 91, Dorsal habitus; 92, Lateral habitus; 93, Mesosoma, dorsal view; 94, Mesosoma, lateral view; 95, Head, anterior view; 96, Antennae. Scale bars in millimeters.

***Fusicornia koreica* Choi & Kozlov**

Original concept: urn:lsid:zoobank.org:act:86AA96E0-4AE7-4820-92D0-30B46DB2203B

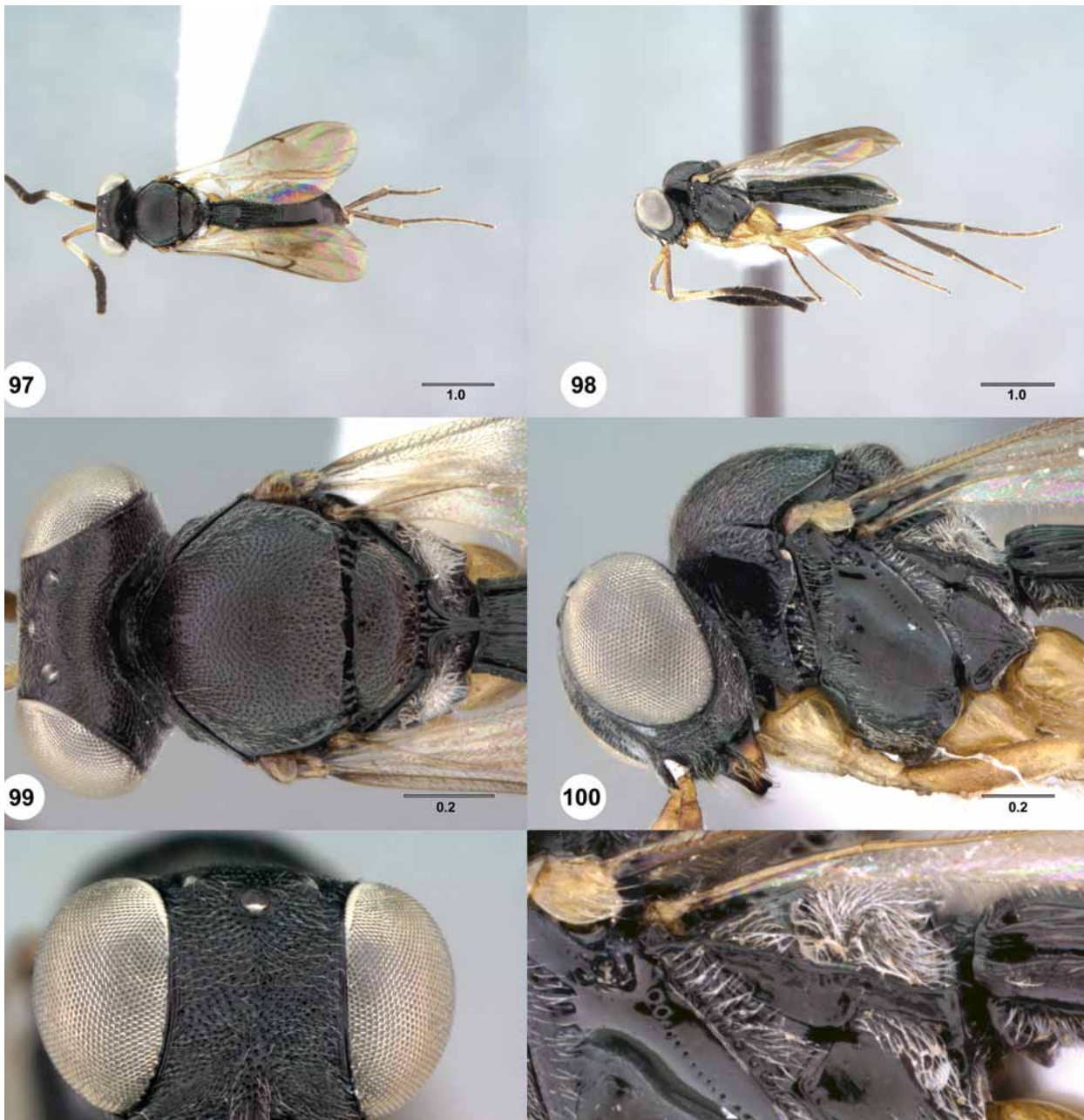
Current concept: urn:lsid:biosci.ohio-state.edu:osuc_concepts:182494

Figures 97–102; Morphbank⁵⁹

Fusicornia koreica Choi & Kozlov, 2001: 100 (original description).

58. <http://www.morphbank.net/?id=306416>

59. <http://www.morphbank.net/?id=226366>



FIGURES 97–102.⁶⁰ *Fusicornia koreica* Choi & Kozlov, female (OSUC 206225). 97, Dorsal habitus; 98, Lateral habitus; 99, Head and mesosoma, dorsal view; 100, Head and mesosoma, lateral view; 101, Head, anterior view; 102, Metapleuron, lateral view. Scale bars in millimeters.

Description. Female body length: 3.55–3.83 mm (n=12). Male body length: 3.47–3.52 mm (n=2).

Head: Vertex between posterior ocelli: rounded. Female OOL: less than or equal one ocellar diameter. Frontal sculpture: entirely and evenly sculptured. Sculpture of central frons: reticulate punctate. Setation of central frons: moderately setose throughout. Inner orbit in frontal view: more or less parallel. Upper gena in dorsal view of female: expanded, convex, therefore in lateral view compound eye separated from posterior margin by gena. Sculpture of gena behind lower half of eye: with reticulate to coriaceous microsculpture. Setation of gena: moderately setose. Antenna: Radicle color: yellow to orange brown. Color of female A1:

60. <http://www.morphbank.net/?id=226366>

dark brown to black. Color of female funicle (A3–A6): A3, base of A4 yellow, apex of A4, A5–A6 dark brown. Claval formula: 1-2-2-2-2. Claval color: dark brown to black.

Mesosoma: Pronotal cervical sulcus: absent. Mesoscutum sculpture: reticulate with superimposed punctures. Longitudinal sculpture in posterior half of mesoscutum: absent. Admedian line: present. Mesoscutal humeral sulcus: foveolate. Notauli: absent. Mesoscutellum shape: rounded. Sculpture of mesoscutellum: almost entirely covered by microsculpture. Length of medial metascutellar spine: medial spine very elongate, distinctly longer than distance between median and lateral spines. Length of lateral metascutellar spine: moderately elongate, length distinctly greater than width. Sculpture of propodeal nucha: strongly foveolate to longitudinally striate. Sculpture of suprahumeral area of pronotum: densely punctate. Sculpture in lower pronotum: longitudinally striate. Netrion setation: densely setose. Mesopleural carina: complete. Mesepimeral sulcus: complete, foveate throughout. Area 2 on metapleuron: polygonal, setose. Setation of area 4 of metapleuron: setose ventrally. Setation in anteroventral metapleural triangle: absent. Setation of propodeum anterior to spiracle: densely setose (more than 10). Legs: Coxae color: all coxae yellow.

Wings: Female fore wing maculation: hyaline or with slight infuscation below marginal vein.

Metasoma: Length of T1: less than or equal to one times width. Horn on T1 of female: absent, T1 longitudinally furrowed throughout length. Lateral setation of T1: sparsely to moderately setose (6–15/side). Medial sculpture on T3: smooth and shiny.

Diagnosis. *Fusicornia koreica* is most similar to *F. indica* and *F. skopelos* and it may be immediately recognized by the intense setation on propodeum anterior to spiracle area, a unique character among the species in this genus (Figs. 1, 100, 102).

[Link to Distribution Map.](#)⁶¹

Material Examined. **PEOPLES REPUBLIC OF CHINA:** 1 female, OSUC 232499 (TARI). **JAPAN:** 3 males, 13 females, OSUC 148999–149003, 164021, 206220–206229 (deposited in CNCI). **PHILIPPINES:** 1 female OSUC 149025 (CNCI).

Comments. The holotype and paratype could not be examined. Both are male specimens. The locality data for the holotype cited in the original description is: **KOREA:** Seongpo-ri, Sadeung-myeon, Geojesi, Gyeongsangnam-do, 4.VI.1994, D.S. Ku (Is. Geojedo).

***Fusicornia paradisa* Taekul & Johnson, new species**

urn:lsid:zoobank.org:act:4B8F4FFF-5B80-49EF-BAF3-BA86D2A27314

urn:lsid:bioisci.ohio-state.edu:osuc_concepts:231061

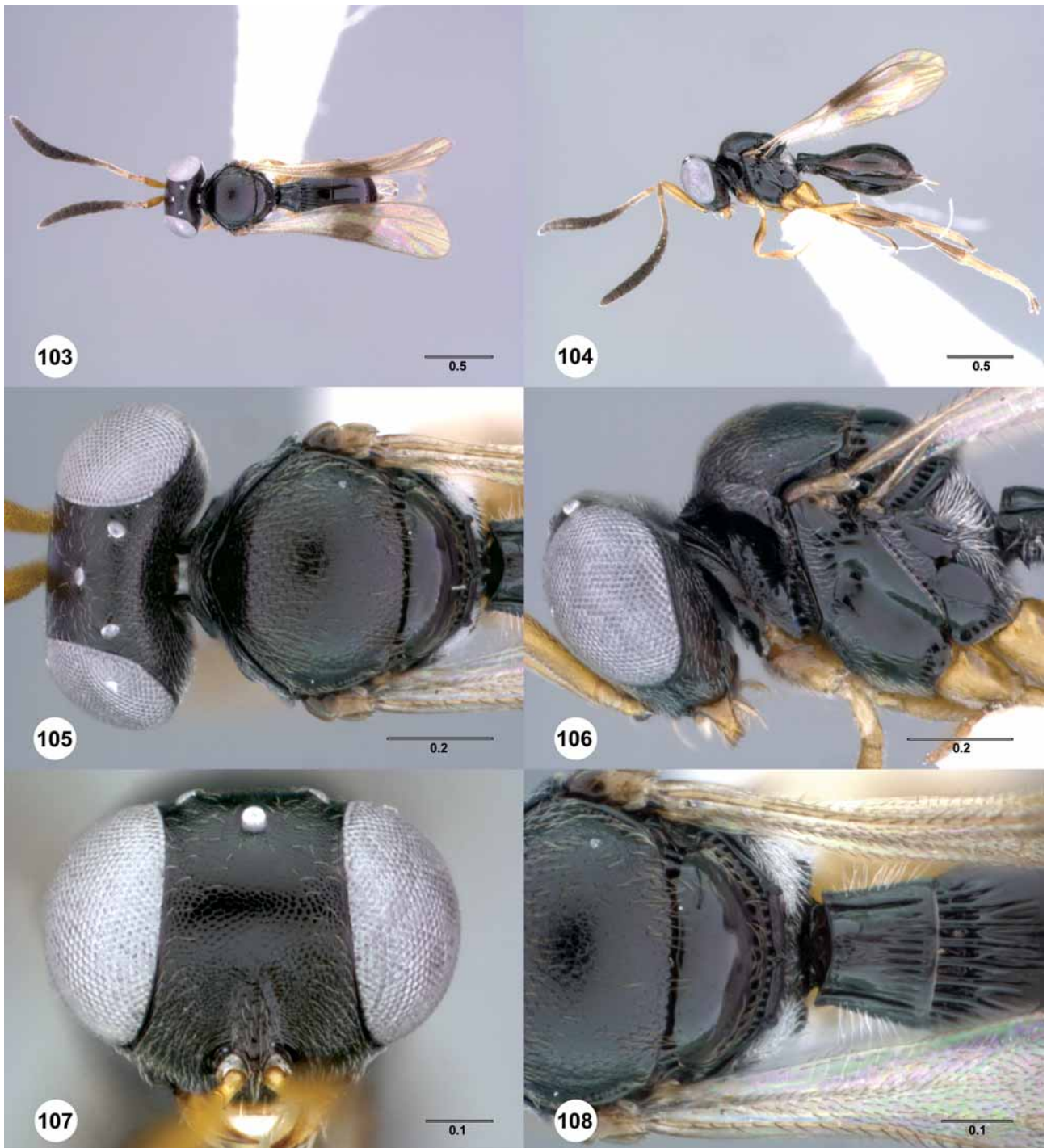
Figures 103–114; Morphbank⁶²

Description. Female body length: 1.71–2.05 mm (n=20). Male body length: 1.59–1.85 mm (n=20).

Head: Vertex between posterior ocelli: rounded. Female OOL: less than or equal one ocellar diameter. Frontal sculpture: entirely and evenly sculptured. Sculpture of central frons: smooth or with shallowly impressed reticulate microsculpture. Setation of central frons: glabrous. Inner orbit in frontal view: more or less parallel. Upper gena in dorsal view of female: expanded, convex, therefore in lateral view compound eye separated from posterior margin by gena. Sculpture of gena behind lower half of eye: with reticulate to coriaceous microsculpture. Setation of gena: sparsely setose. Antenna: Radicle color: yellow to orange brown. Color of female A1: yellow to orange-brown. Color of female funicle (A3–A6): dark brown. Claval formula: 1-2-2-2-2. Claval color: dark brown to black.

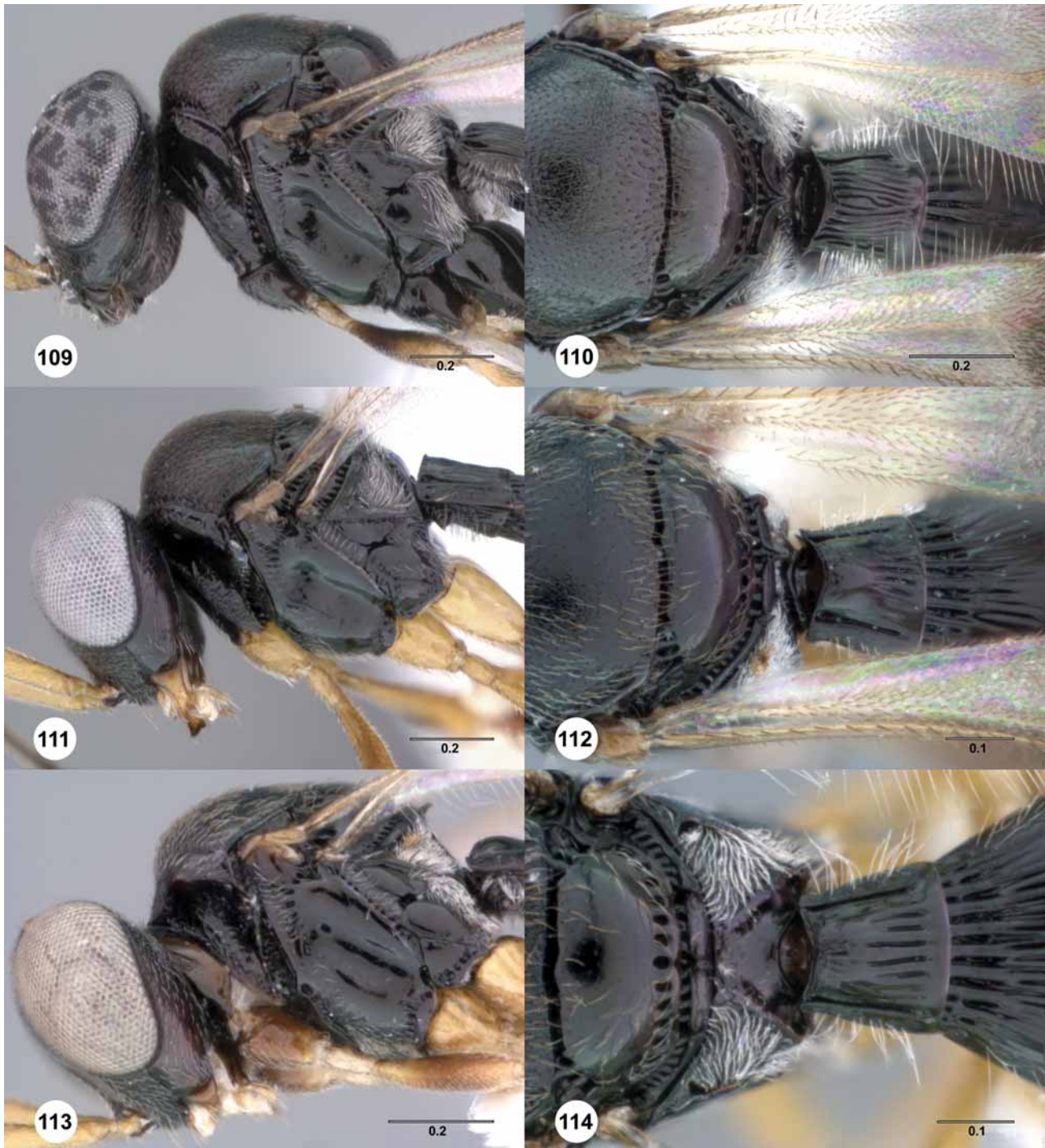
61. <http://atbi.bioisci.ohio-state.edu/HymOnline/map-large.html?id=182494>

62. <http://www.morphbank.net/?id=226367>



FIGURES 103–108.⁶³ *Fusicornia paradisa*, n. sp., holotype female (OSUC 206350). 103, Dorsal habitus; 104, Lateral habitus; 105, Head and mesosoma, dorsal view; 106, Head and mesosoma, lateral view; 107, Head, anterior view; 108, Mesoscutellum and T1, dorsal view. Scale bars in millimeters.

63. <http://www.morphbank.net/?id=306639>



FIGURES 109–114.⁶⁴ *Fusicornia paradisa*, n. sp. 109, Lateral habitus, female (OSUC 206278); 110, Mesoscutellum and T1, female (OSUC 206278); 111, Lateral habitus, female (OSUC 148989); 112, Mesoscutellum and T1, female (OSUC 206274); 113, Lateral habitus, female (OSUC 206274); 114, Mesoscutellum and T1, female (OSUC 148986). Scale bars in millimeters.

Mesosoma: Pronotal cervical sulcus: absent. Mesoscutum sculpture: reticulate. Longitudinal sculpture in posterior half of mesoscutum: absent. Admedian line: absent. Mesoscutal humeral sulcus: foveolate. Notauli: absent. Mesoscutellum shape: rounded. Sculpture of mesoscutellum: almost entirely smooth. Length of medial metascutellar spine: medial spine short to moderately long, distinctly shorter than distance between

64. <http://www.morphbank.net/?id=306689>

medial and lateral spines. Length of lateral metascutellar spine: short, only slightly longer than wide. Sculpture of propodeal nucha: smooth to weakly sculptured. Sculpture of suprahumeral area of pronotum: punctulate. Sculpture in lower pronotum: longitudinally striate. Netrion setation: sparsely setose to glabrous. Mesopleural carina: present dorsally, interrupted or absent ventrally. Mesepimeral sulcus: absent, abbreviated. Area 2 on metapleuron: linear, glabrous, polygonal, glabrous. Setation of area 4 of metapleuron: setose ventrally. Setation in anteroventral metapleural triangle: absent. Setation of propodeum anterior to spiracle: sparsely setose (less than 10) or absent. Legs: Coxae color: all coxae yellow.

Wings: Female fore wing maculation: hyaline or with slight infuscation below marginal vein, with distinct infuscation at level of marginal vein.

Metasoma: Length of T1: less than or equal to one times width. Horn on T1 of female: absent, T1 longitudinally furrowed throughout length. Lateral setation of T1: sparsely to moderately setose (6–15/side). Medial sculpture on T3: smooth and shiny.

Diagnosis. *Fusicornia paradisa* is most similar to *F. bambeyi* and may be distinguished by the smooth and shining scutellum and the short lateral metanotal spine which is distinctly separated from the medial spine. Additionally, the setation in area 2 on metapleuron is absent, although the shape of this area is variable (Figs. 106, 108, 109, 111, 113).

Etymology. The epithet *paradisa*, inspired by the English common name bird of paradise, refers to the attractive maculation of the fore wing.

Link to Distribution Map.⁶⁵

Material examined. Holotype female: **ZIMBABWE:** Harare, III.1980, pan trap, A. Watsham, OSUC 206350 (deposited in CNCI). **Paratypes:** **BENIN:** 1 male, 1 female, OSUC 206213, 206214 (CNCI). **BURKINA FASO:** 2 males, 1 female, OSUC 148984, 208109, 208111 (CNCI). **CAMEROON:** 2 females, OSUC 148986, 148987 (CNCI). **GABON:** 6 males, 2 females, OSUC 206212, 206252, 206263–206265, 206267–206269 (CNCI). **GHANA:** 2 females, OSUC 181467, 211063 (OSUC). **IVORY COAST:** 1 male, OSUC 148995 (CNCI). **KENYA:** 3 females, OSUC 148994, 206258, 211067 (CNCI). **MADAGASCAR:** 1 male, 5 female, CASENT 2133271, 8106181 (CASC), OSUC 210368, 210369, 210370, 210371 (OSUC). **MALAWI:** 1 male, 3 females, OSUC 149014, 206209–206211 (CNCI). **MOZAMBIQUE:** 1 male, 2 females, OSUC 148996, 206277–206278 (CNCI). **NIGERIA:** 8 males, 2 females, OSUC 148985, 149016, 206206–206208, 208125–208127, 208141, 208143 (CNCI). **SIERRA LEONE:** 2 males, OSUC 226882, 226883 (MZLU). **SOMALIA:** 2 females, OSUC 148992, 208142 (CNCI). **SOUTH AFRICA:** 4 females, OSUC 148988, 148989, 206244, 211045 (CNCI). **UGANDA:** 1 female, OSUC 148953 (CNCI). **ZIMBABWE:** 173 males, 30 females, 1 unknown, OSUC 148991, 149018, 164003–164004, 206261–206262, 206266, 206270–206271, 206273–206275, 206322–206349, 206351–206406, 208008–208029, 208032–208100, 208121–208123, 208128–208140 (CNCI); OSUC 248225 (SAMC).

***Fusicornia plicata* Taekul & Johnson, new species**

urn:lsid:zoobank.org:act:8B4A9E49-E7FE-4076-9647-94F102868D78

urn:lsid:biosci.ohio-state.edu:osuc_concepts:230112

Figures 116–120; Morphbank⁶⁶

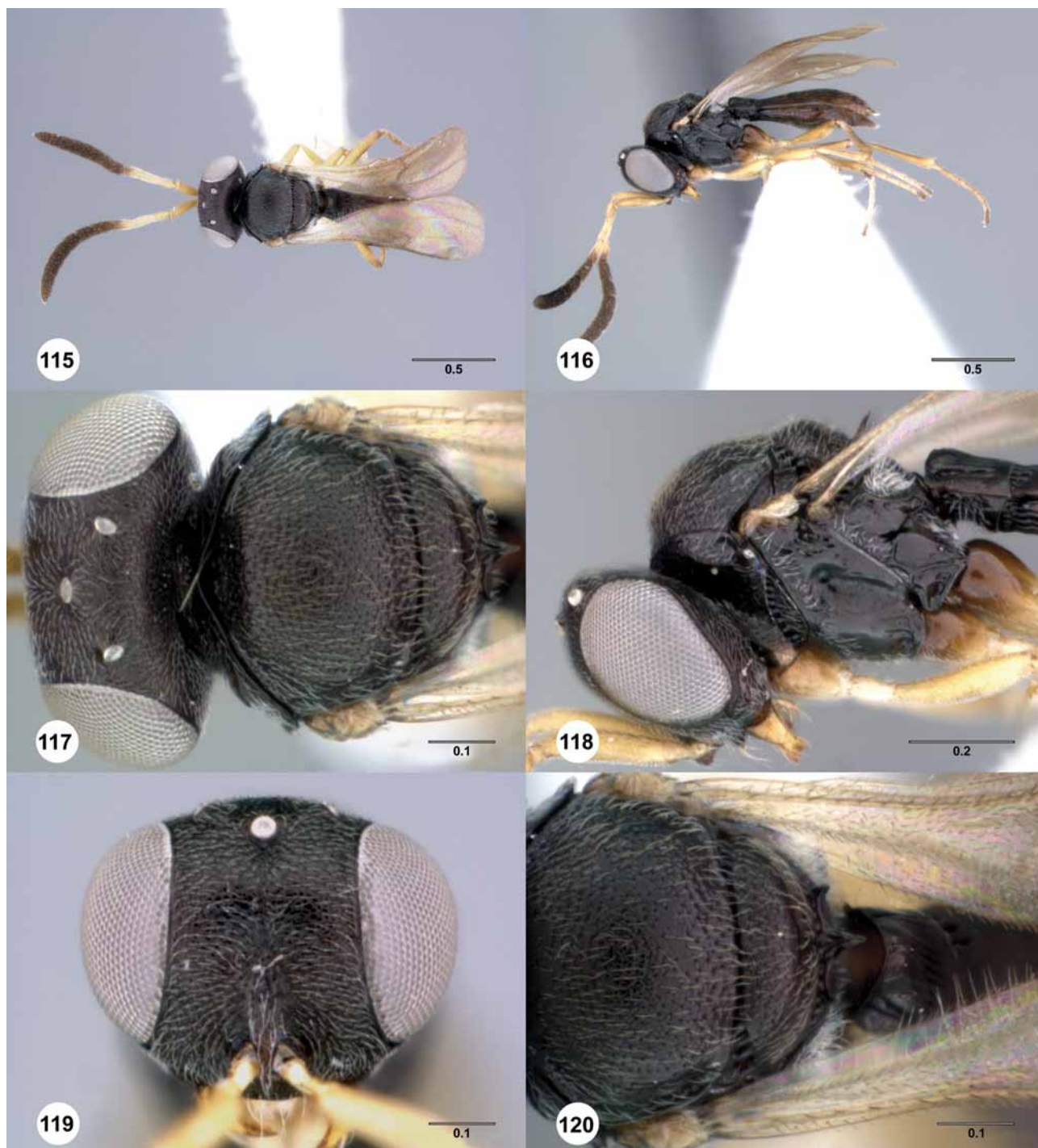
Description. Female body length: 1.59 mm (n=1). Male body length: unknown.

Head: Vertex between posterior ocelli: rounded. Female OOL: more than one ocellar diameter. Frontal sculpture: entirely and evenly sculptured. Sculpture of central frons: reticulate punctate. Setation of central

65. <http://atbi.biosci.ohio-state.edu/HymOnline/map-large.html?id=231061>

66. <http://www.morphbank.net/?id=226368>

frons: with dense, decumbent silvery setae. Inner orbit in frontal view: more or less parallel. Upper gena in dorsal view of female: expanded, convex, therefore in lateral view compound eye separated from posterior margin by gena. Sculpture of gena behind lower half of eye: with reticulate to coriaceous microsculpture. Setation of gena: very densely setose. Antenna: Radicle color: yellow to orange brown. Color of female A1: yellow to orange-brown. Color of female funicle (A3–A6): A3, base of A4 yellow, apex of A4, A5–A6 dark brown. Claval formula: 1-2-2-2-2. Claval color: dark brown to black.



FIGURES 115–120.⁶⁷ *Fusicornia plicata*, n. sp., holotype female (OSUC 206285). 115, Dorsal habitus; 116, Lateral habitus; 117, Head and mesosoma, dorsal view; 118, Head and mesosoma, lateral view; 119, Head, anterior view; 120, Mesoscutellum and T1, dorsal view. Scale bars in millimeters.

67. <http://www.morphbank.net/?id=226368>

Mesosoma: Pronotal cervical sulcus: absent. Mesoscutum sculpture: reticulate with superimposed punctures. Longitudinal sculpture in posterior half of mesoscutum: absent. Admedian line: absent. Mesoscutal humeral sulcus: foveolate. Notauli: absent. Mesoscutellum shape: rounded. Sculpture of mesoscutellum: almost entirely covered by microsculpture. Length of medial metascutellar spine: medial spine short to moderately long, as long as distance between median and lateral spines. Length of lateral metascutellar spine: short, only slightly longer than wide. Sculpture of propodeal nucha: strongly foveolate to longitudinally striate. Sculpture of suprahumeral area of pronotum: punctulate. Sculpture in lower pronotum: reticulate to weakly rugulose. Netrion setation: sparsely setose to glabrous. Mesopleural carina: present dorsally, interrupted or absent ventrally. Mesepimeral sulcus: abbreviated. Area 2 on metapleuron: polygonal, setose. Setation of area 4 of metapleuron: glabrous. Setation in anteroventral metapleural triangle: absent. Setation of propodeum anterior to spiracle: sparsely setose (less than 10) or absent. Legs: Coxae color: all coxae brown to black.

Wings: Female fore wing maculation: hyaline or with slight infuscation below marginal vein.

Metasoma: Length of T1: less than or equal to one times width. Horn on T1 of female: present as low elevation, sculpture on horn variable. Lateral setation of T1: sparsely to moderately setose (6–15/side). Medial sculpture on T3: smooth and shiny.

Diagnosis. *Fusicornia plicata* is most similar to *F. tehrii*, probably the most common tropical Asian species, and may be distinguished from it by the punctate reticulate sculpture on the central frons and scutellum which is almost entirely covered by microsculpture (Figs. 117, 119, 120).

Etymology. The epithet *plicata*, Latin for folded, refers to the intricate sculpture of central frons and mesoscutellum.

Link to Distribution Map.⁶⁸

Material Examined. Holotype female: **SRI LANKA:** Mahailupallama, dry zone, North Central Prov., XII.1987, A. Wijesekara, OSUC 206285 (deposited in CNCI).

***Fusicornia sabrina* Taekul & Johnson, new species**

urn:lsid:zoobank.org:act:F32FAFEB-EB1C-471A-B01E-E3306865104F

urn:lsid:biosci.ohio-state.edu:osuc_concepts:230115

Figures 121–126; Morphbank⁶⁹

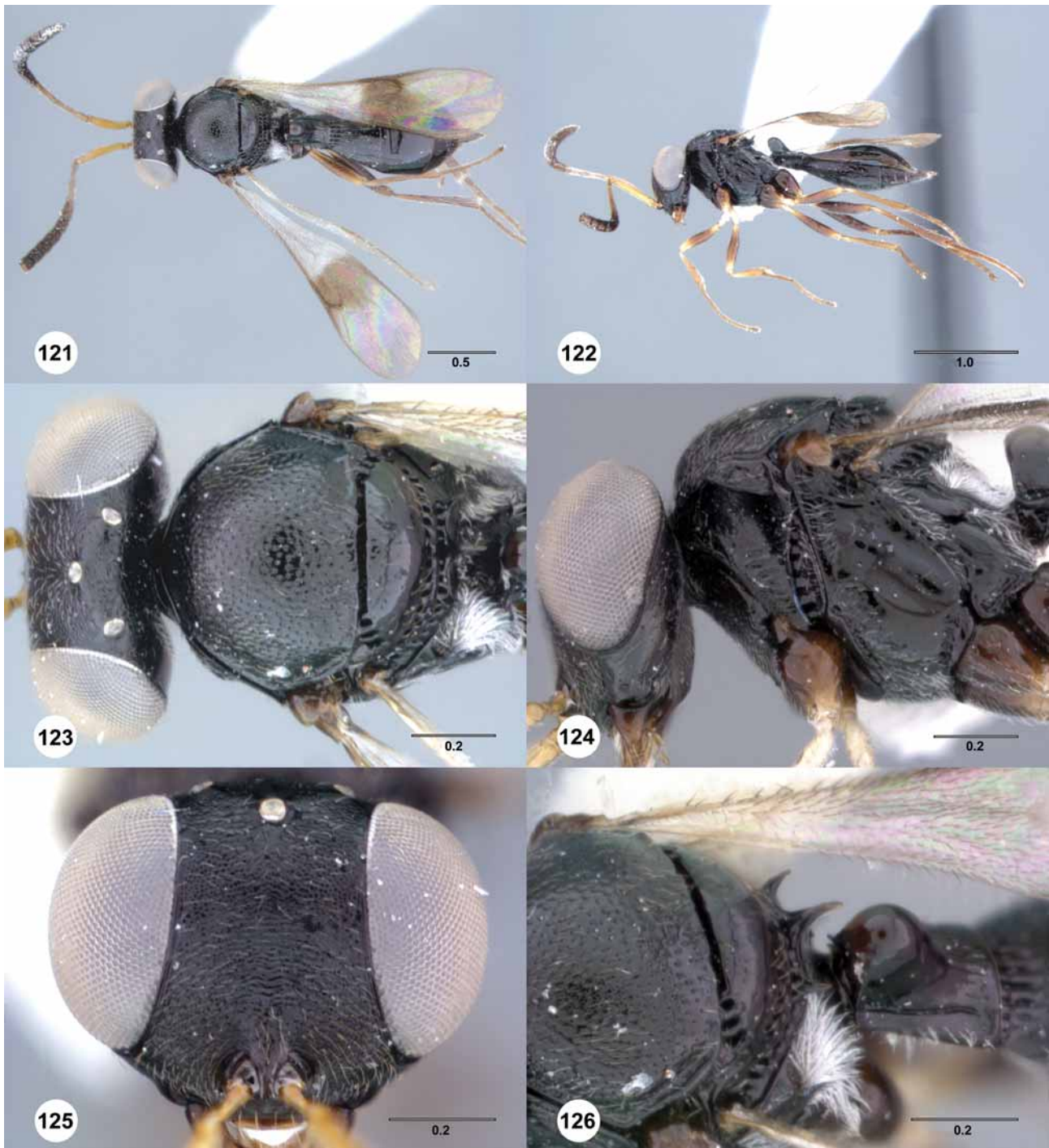
Description. Female body length: 2.68 mm (n=1). Male body length: unknown.

Head: Vertex between posterior ocelli: rounded. Female OOL: less than or equal one ocellar diameter. Frontal sculpture: entirely and evenly sculptured. Sculpture of central frons: with transversely arcuate striae. Setation of central frons: glabrous. Inner orbit in frontal view: converging dorsally. Upper gena in dorsal view of female: flat to weakly concave, therefore in lateral view compound eye appearing to reach posterior margin of head. Sculpture of gena behind lower half of eye: with reticulate to coriaceous microsculpture. Setation of gena: sparsely setose. Antenna: Radicle color: yellow to orange brown. Color of female A1: yellow to orange-brown. Color of female funicle (A3–A6): A3, base of A4 yellow, apex of A4, A5–A6 dark brown. Claval formula: 1-2-2-2-1. Claval color: dark brown to black.

Mesosoma: Pronotal cervical sulcus: absent. Mesoscutum sculpture: reticulate. Longitudinal sculpture in posterior half of mesoscutum: absent. Admedian line: absent. Mesoscutal humeral sulcus: foveolate. Notauli: absent. Mesoscutellum shape: rounded. Sculpture of mesoscutellum: almost entirely smooth. Length of medial metascutellar spine: medial spine very elongate, distinctly longer than distance between median and lateral spines. Length of lateral metascutellar spine: moderately elongate, length distinctly greater than width.

68. <http://atbi.biosci.ohio-state.edu/HymOnline/map-large.html?id=230112>

69. <http://www.morphbank.net/?id=226369>



FIGURES 121–126.⁷⁰ *Fusicornia sabrina*, n. sp., holotype female (OSUC 208106). 121, Dorsal habitus; 122, Lateral habitus; 123, Head and mesosoma, dorsal view; 124, Head and mesosoma, lateral view; 125, Head, anterior view; 126, Metanotal spine and T1. Scale bars in millimeters.

Sculpture of propodeal nucha: smooth to weakly sculptured. Sculpture of suprahumeral area of pronotum: smooth. Sculpture in lower pronotum: longitudinally striate. Netrion setation: sparsely setose to glabrous. Mesopleural carina: complete. Mesepimeral sulcus: absent. Area 2 on metapleuron: polygonal, setose. Setation of area 4 of metapleuron: glabrous. Setation in anteroventral metapleural triangle: absent. Setation of propodeum anterior to spiracle: sparsely setose (less than 10) or absent. Legs: Coxae color: all coxae brown to black.

70. <http://www.morphbank.net/?id=226369>

Wings: Female fore wing maculation: with distinct infuscation at level of marginal vein.

Metasoma: Length of T1: less than or equal to one times width. Horn on T1 of female: well developed, sculpture on horn very weak or absent. Lateral setation of T1: sparsely to moderately setose (6–15/side). Medial sculpture on T3: smooth and shiny.

Diagnosis. *Fusicornia sabrina* is very similar to *F. crista* in having transversely arcuate striae on the central frons. The former can be identified by the rounded shape of the scutellum and the lack of longitudinal sculpture on the posterior half of mesoscutum (Figs. 123, 125, 126).

Etymology. The epithet *sabrina* refers to the water nymph and to the collecting locality along the river valley.

Link to Distribution Map.⁷¹

Material Examined. Holotype female: **SOMALIA:** Mogadishu, Afgoi Shabelli Valley, 1–12.V.1977, Malaise trap, F. Bin, OSUC 208106 (deposited in CNCI).

***Fusicornia skopelos* Taekul & Johnson, new species**

urn:lsid:zoobank.org:act:0D97CD34-0566-456F-9D5E-221DAA95ECCE

urn:lsid:biosci.ohio-state.edu:osuc_concepts:230118

Figures 127–132; Morphbank⁷²

Description. Female body length: 2.53–2.79 mm (n=2). Male body length: 2.32mm (n=1).

Head: Vertex between posterior ocelli: rounded. Female OOL: less than or equal one ocellar diameter. Frontal sculpture: entirely and evenly sculptured. Sculpture of central frons: reticulate punctate. Setation of central frons: moderately setose throughout. Inner orbit in frontal view: more or less parallel. Upper gena in dorsal view of female: expanded, convex, therefore in lateral view compound eye separated from posterior margin by gena. Sculpture of gena behind lower half of eye: with reticulate to coriaceous microsculpture. Setation of gena: moderately setose. Antenna: Radicle color: yellow to orange brown. Color of female A1: dark brown to black. Color of female funicle (A3–A6): A3, base of A4 yellow, apex of A4, A5–A6 dark brown. Claval formula: 1-2-2-2-2-2. Claval color: dark brown to black.

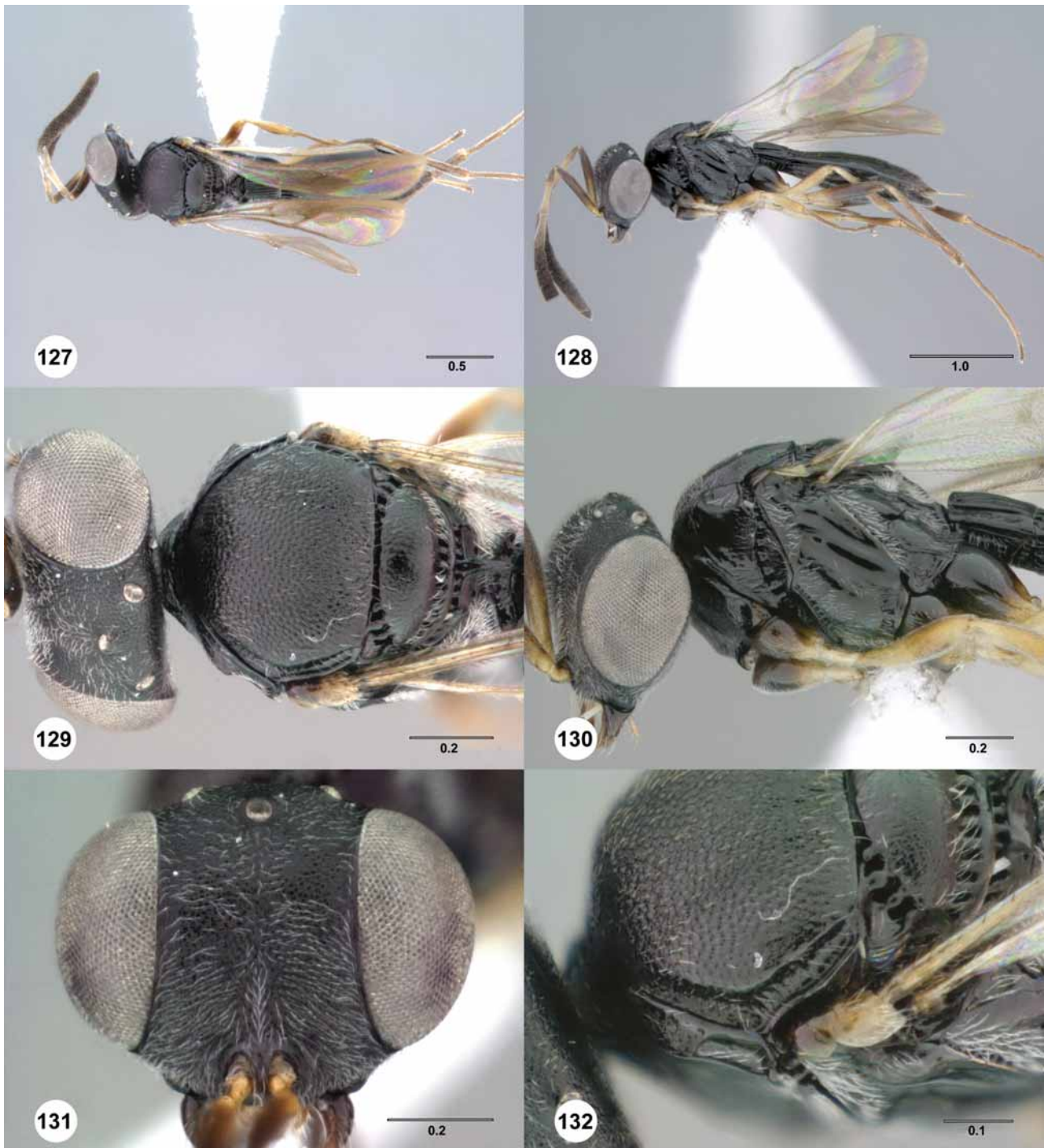
Mesosoma: Pronotal cervical sulcus: absent. Mesoscutum sculpture: reticulate. Longitudinal sculpture in posterior half of mesoscutum: absent. Admedian line: present. Mesoscutal humeral sulcus: coarsely crenulate. Notauli: absent. Mesoscutellum shape: rounded. Sculpture of mesoscutellum: almost entirely covered by microsculpture. Length of medial metascutellar spine: medial spine very elongate, distinctly longer than distance between median and lateral spines. Length of lateral metascutellar spine: short, only slightly longer than wide. Sculpture of propodeal nucha: strongly foveolate to longitudinally striate. Sculpture of suprahumeral area of pronotum: pustulate. Sculpture in lower pronotum: longitudinally striate. Netrion setation: sparsely setose to glabrous. Mesopleural carina: complete. Mesepimeral sulcus: abbreviated. Area 2 on metapleuron: polygonal, setose. Setation of area 4 of metapleuron: setose ventrally. Setation in anteroventral metapleuron triangle: absent. Setation of propodeum anterior to spiracle: sparsely setose (less than 10) or absent. Legs: Coxae color: all coxae brown to black.

Wings: Female fore wing maculation: hyaline or with slight infuscation below marginal vein.

Metasoma: Length of T1: less than or equal to one times width. Horn on T1 of female: absent, T1 longitudinally furrowed throughout length. Lateral setation of T1: sparsely to moderately setose (6–15/side). Medial sculpture on T3: smooth and shiny.

71. <http://atbi.biosci.ohio-state.edu/HymOnline/map-large.html?id=230115>

72. <http://www.morphbank.net/?id=226370>



FIGURES 127–132.⁷³ *Fusicornia skopelos*, n. sp., holotype female (CASENT 2042207). 127, Dorsal habitus; 128, Lateral habitus; 129, Head and mesosoma, dorsal view; 130, Head and mesosoma, lateral view; 131, Head, anterior view; 132, Mesoscutal humeral sulcus. Scale bars in millimeters.

Diagnosis. *Fusicornia skopelos* is similar to *F. indica*, having the same coxal color and the abbreviated mesepimeral sulcus. It is distinguished from *F. indica* by the coarsely crenulate appearance of the mesoscutal humeral sulcus (Figs. 129, 132).

73. <http://www.morphbank.net/?id=226370>

Etymology. The epithet *skopelos*, Greek for projecting rock or cliff, refers to the deeply incised mesoscutal humeral sulcus.

[Link to Distribution Map.](#)⁷⁴

Material Examined. Holotype female: **MADAGASCAR:** Toliara Auto. Prov., Bezaha Mahafaly Special Reserve, 23°41.19'S 44°35.46'E, 165 m, MA-02-14A-11, dry deciduous forest, parcel I, nr. research station, 16.I.2002–18.I.2002, Malaise trap, R. Harin'Hala, CASENT 2042207 (deposited in CASC). *Paratypes:* **MADAGASCAR:** 1 male, 2 females, CASENT 2029780, 2029781, 2043965 (CASC).

***Fusicornia speculum* Taekul & Johnson, new species**

urn:lsid:zoobank.org:act:3BFAA2BD-EAF6-411B-8358-1CCA0BD91E1E

urn:lsid:biosci.ohio-state.edu:osuc_concepts:230121

Figures 133–138; Morphbank⁷⁵

Description. Female body length: 1.36–1.70 mm (n=4). Male body length: 1.45–1.66 mm (n=5).

Head: Vertex between posterior ocelli: rounded. Female OOL: less than or equal one ocellar diameter. Frontal sculpture: at least partly smooth or considerably effaced. Sculpture of central frons: smooth or with shallowly impressed reticulate microsculpture. Setation of central frons: glabrous. Inner orbit in frontal view: more or less parallel. Upper gena in dorsal view of female: expanded, convex, therefore in lateral view compound eye separated from posterior margin by gena. Sculpture of gena behind lower half of eye: smooth. Setation of gena: sparsely setose. Antenna: Radicle color: yellow to orange brown. Color of female A1: yellow to orange-brown. Color of female funicle (A3–A6): dark brown. Claval formula: 1-2-2-2-2. Claval color: dark brown to black.

Mesosoma: Pronotal cervical sulcus: absent. Mesoscutum sculpture: reticulate. Longitudinal sculpture in posterior half of mesoscutum: absent. Admedian line: absent. Mesoscutal humeral sulcus: foveolate. Notauli: absent. Mesoscutellum shape: rounded. Sculpture of mesoscutellum: almost entirely smooth. Length of medial metascutellar spine: medial spine short to moderately long, distinctly shorter than distance between medial and lateral spines. Length of lateral metascutellar spine: short, only slightly longer than wide. Sculpture of propodeal nucha: smooth to weakly sculptured. Sculpture of suprahumeral area of pronotum: punctulate. Sculpture in lower pronotum: reticulate to weakly rugulose. Netrion setation: sparsely setose to glabrous. Mesopleural carina: absent, present dorsally, interrupted or absent ventrally. Mesepimeral sulcus: absent. Area 2 on metapleuron: linear, glabrous. Setation of area 4 of metapleuron: glabrous. Setation in anteroventral metapleural triangle: absent. Setation of propodeum anterior to spiracle: sparsely setose (less than 10) or absent. Legs: Coxae color: all coxae yellow.

Wings: Female fore wing maculation: hyaline or with slight infuscation below marginal vein.

Metasoma: Length of T1: less than or equal to one times width. Horn on T1 of female: well developed, sculpture on horn very weak or absent. Lateral setation of T1: sparsely to moderately setose (6–15/side). Medial sculpture on T3: smooth and shiny.

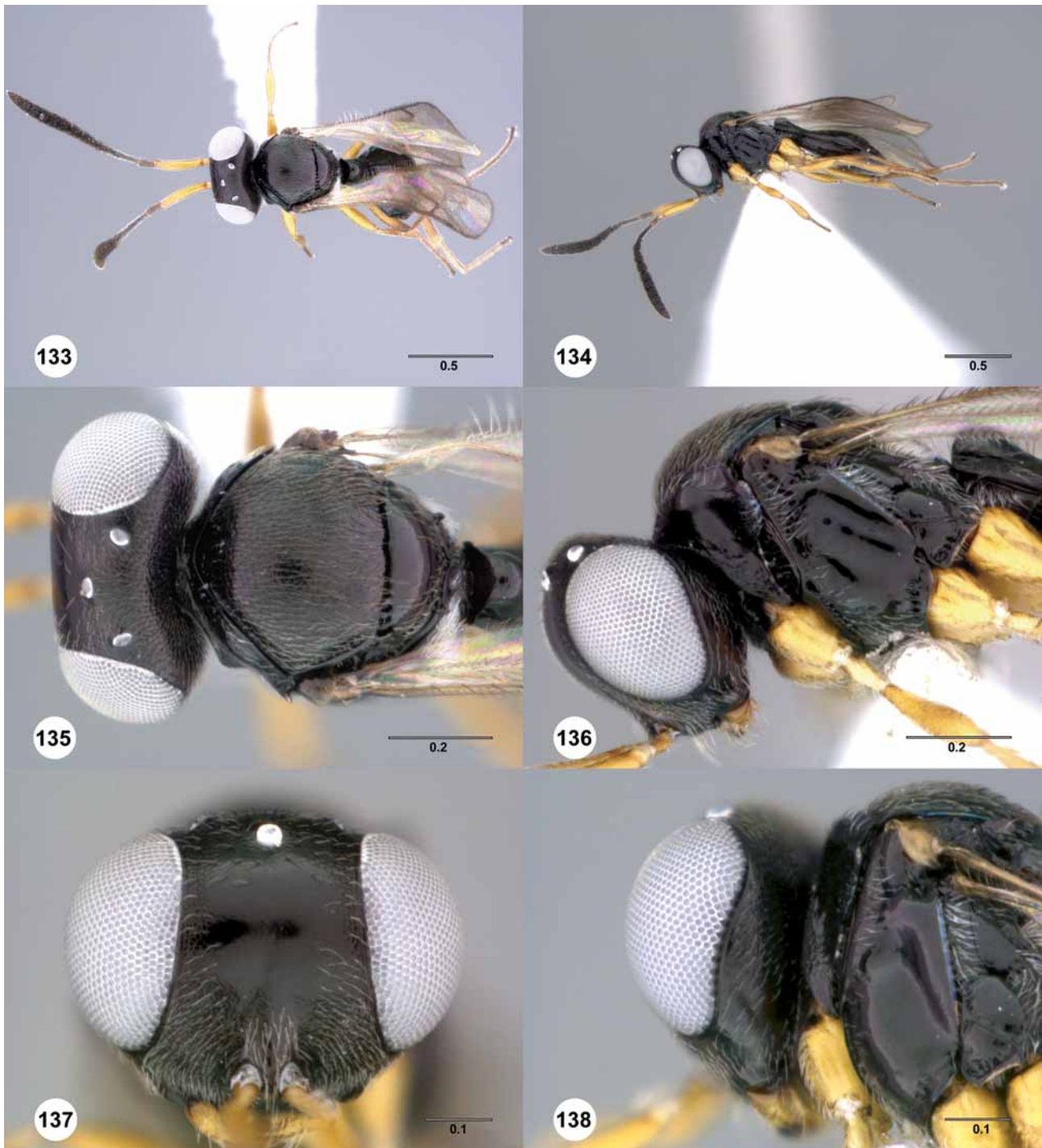
Diagnosis. *Fusicornia speculum* is most similar to the cluster of species consisting of *F. fortuna*, *F. disita*, and *F. tehrii*. It is distinguished by the absence of setation in area 2 and 4 of the metapleuron, the absence of the mesepimeral sulcus, and by the smooth sculpture of the gena behind lower half of the eye (Figs. 136, 138).

Etymology. The epithet *speculum*, Latin for mirror, refers to the smooth and shining sculpture of the scutellum.

[Link to Distribution Map.](#)⁷⁶

74. <http://atbi.biosci.ohio-state.edu/HymOnline/map-large.html?id=230118>

75. <http://www.morphbank.net/?id=226371>



FIGURES 133–138.⁷⁷ *Fusicornia speculum*, n. sp., holotype female (CASENT 8106183). 133, Dorsal habitus; 134, Lateral habitus; 135, Head and mesosoma, dorsal view; 136, Head and mesosoma, lateral view; 137, Head, anterior view; 138, Gena, lateral view. Scale bars in millimeters.

Material examined. Holotype female: **MADAGASCAR:** Toliara Prov., gallery forest, 23°31'39"S 44°09'16"E, 70m, Frontier Project MT in gallery forest MGF024, 7-9.iii.02, Malaise trap, CASENT 8106183 (deposited in CASC).⁷⁸ *Paratypes:* **CENTRAL AFRICAN REPUBLIC:** 1 female, OSUC 248293 (SAMC).

76. <http://atbi.biosci.ohio-state.edu/HymOnline/map-large.html?id=230121>

77. <http://www.morphbank.net/?id=226371>

78. <http://zoobank.org/urn:lsid:zoobank.org:specimen:XXXX>

MADAGASCAR: 3 males, 4 females, CASENT 2043726, 2134117 (CASC); OSUC 148998, 206216–206219 (CNCI). **NIGERIA:** 1 male, OSUC 208124 (CNCI). **UGANDA:** 1 male, OSUC 206247 (CNCI).

***Fusicornia spinosa* (Risbec)**

Original concept: urn:lsid:zoobank.org:act:00C6FB1F-09BB-4FF7-8A09-72A90AAEB4FF

Current concept: urn:lsid:biosci.ohio-state.edu:osuc_concepts:4313

Figures 139–144; Morphbank⁷⁹

Procacus spinosus Risbec, 1953: 575 (original description).

Fusicornia spinosa: Masner, 1976: 42 (generic transfer, type information).

Fusicornia bambeyi var. *inermis* Risbec, 1957: 529 (original description), **new synonymy**. Original concept: urn:lsid:zoobank.org:act:42260D8E-74DE-4461-995A-A6524074504F; urn:lsid:biosci.ohio-state.edu/osuc_concepts:8577

Description. Female body length: 1.44–1.90 mm (n=20). Male body length: 1.44–1.69 mm (n=20).

Head: Vertex between posterior ocelli: rounded. Female OOL: less than or equal one ocellar diameter. Frontal sculpture: at least partly smooth or considerably effaced. Sculpture of central frons: smooth or with shallowly impressed reticulate microsculpture. Setation of central frons: glabrous. Inner orbit in frontal view: more or less parallel. Upper gena in dorsal view of female: expanded, convex, therefore in lateral view compound eye separated from posterior margin by gena. Sculpture of gena behind lower half of eye: smooth, with reticulate to coriaceous microsculpture. Setation of gena: sparsely setose. Antenna: Radicle color: dark brown to black. Color of female A1: dark brown to black. Color of female funicle (A3–A6): dark brown. Claval formula: 1-2-2-2-1. Claval color: dark brown to black.

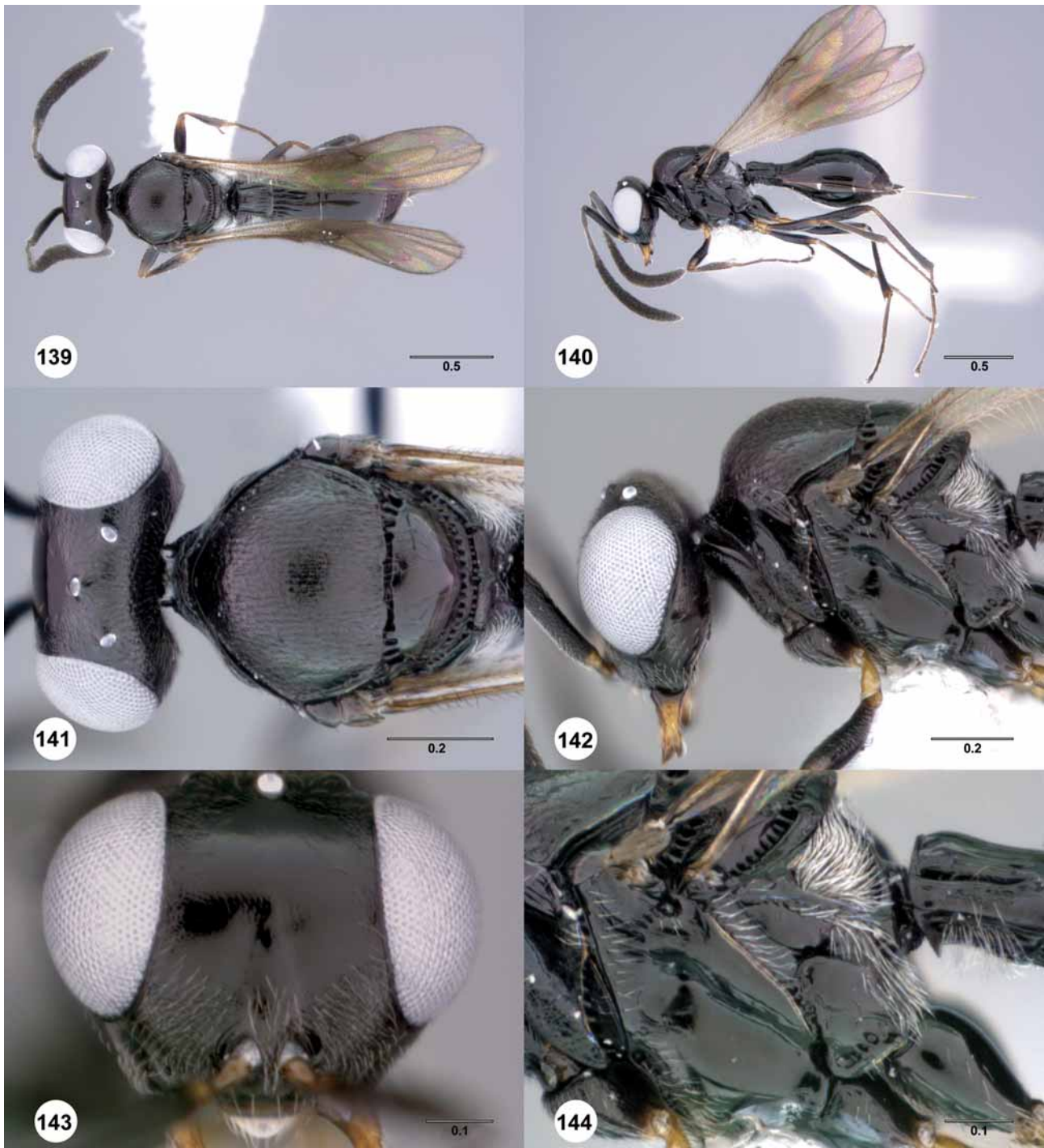
Mesosoma: Pronotal cervical sulcus: absent. Mesoscutum sculpture: reticulate. Longitudinal sculpture in posterior half of mesoscutum: absent. Admedian line: absent. Mesoscutal humeral sulcus: foveolate. Notauli: absent. Mesoscutellum shape: rounded. Sculpture of mesoscutellum: almost entirely smooth. Length of medial metascutellar spine: medial spine short to moderately long, distinctly shorter than distance between medial and lateral spines. Length of lateral metascutellar spine: short, only slightly longer than wide. Sculpture of propodeal nucha: smooth to weakly sculptured. Sculpture of suprahumeral area of pronotum: punctulate. Sculpture in lower pronotum: reticulate to weakly rugulose. Netrion setation: sparsely setose to glabrous. Mesopleural carina: present dorsally, interrupted or absent ventrally. Mesepimeral sulcus: absent. Area 2 on metapleuron: linear, glabrous. Setation of area 4 of metapleuron: setose ventrally. Setation in anteroventral metapleural triangle: absent. Setation of propodeum anterior to spiracle: sparsely setose (less than 10) or absent. Legs: Coxae color: all coxae brown to black.

Wings: Female fore wing maculation: hyaline or with slight infuscation below marginal vein.

Metasoma: Length of T1: less than or equal to one times width. Horn on T1 of female: absent, T1 longitudinally furrowed throughout length. Lateral setation of T1: sparsely to moderately setose (6–15/side). Medial sculpture on T3: smooth and shiny.

Diagnosis. *Fusicornia spinosa* is most similar to *F. collaris* and may be distinguished by the absence of the pronotal cervical sulcus, the presence of mesopleural carina, and the smooth to weak sculpture of the propodeal nucha (Figs. 142–144).

79. <http://www.morphbank.net/?id=226372>



FIGURES 139–144.⁸⁰ *Fusicornia spinosa* (Risbec), female (OSUC 211169). 139, Dorsal habitus; 140, Lateral habitus; 141, Head and mesosoma, dorsal view; 142, Head and mesosoma, lateral view; 143, Head, anterior view; 144, Mesopleuron lateral view. Scale bars in millimeters.

Link to Distribution Map.⁸¹

Material examined. Holotype male: **IVORY COAST**: Adiopodommé, 17.ii.1950 (deposited in MNHN). *Fusicornia bambeyi* var. *inermis*, holotype female: **SENEGAL**: M’Boro (deposited in MNHN). *Other mate-*

80. <http://www.morphbank.net/?id=226372>

81. <http://atbi.biosci.ohio-state.edu/HymOnline/map-large.html?id=4313>

rial: **BENIN**: 1 male, OSUC 206151 (deposited in CNCI). **BOTSWANA**: 1 female, OSUC 148963 (CNCI). **BURKINA FASO**: 3 females, OSUC 148960, 206170–206171 (CNCI). **IVORY COAST**: 4 females, OSUC 148965, 164017, 206168, 206169 (CNCI). **KENYA**: 2 females, OSUC 211157, 211158 (CNCI). **NIGERIA**: 4 males, 1 female, OSUC 206142, 206144–206147 (CNCI). **SAUDI ARABIA**: 1 female, OSUC 206143 (CNCI). **SOUTH AFRICA**: 80 males, 141 females, OSUC 174831 (SANC); OSUC 148961, 206139, 206140, 206141, 206150, 206152–206155 (CNCI); OSUC 181484, 181678, 208156–208207, 211001–211043, 211060–211061, 211071–211151, 211165–211198 (OSUC). **UNITED ARAB EMIRATES**: 2 females, OSUC 207853–207854 (CNCI). **YEMEN**: 1 male, 4 females, 1 unknown, OSUC 206149, 206248, 206254, 206256, 206148, 206253 (CNCI). **ZIMBABWE**: 5 males, 10 females, OSUC 148962, 148964, 164016, 206156, 206157, 206161–206167, 206158–206164, 206166.

Fusicornia tehrii Mukerjee

Original concept: urn:lsid:zoobank.org:act:C4EBD53B-8089-4F25-9FC3-8A5AFBBCB728

Current concept: urn:lsid:biosci.ohio-state.edu:osuc_concepts:223991

Figures 139–144; Morphbank⁸²

Fusicornia tehrii Mukerjee, 1993: 75, 77 (original description).

Fusicornia noonae Buhl, 1998: 271 (original description), **new synonymy**. urn:lsid:zoobank.org:act: 81B4D5C1-EC6E-4667-9E6D-EE886748B3B9; urn:lsid:biosci.ohio-state.edu:osuc_concepts: 152819

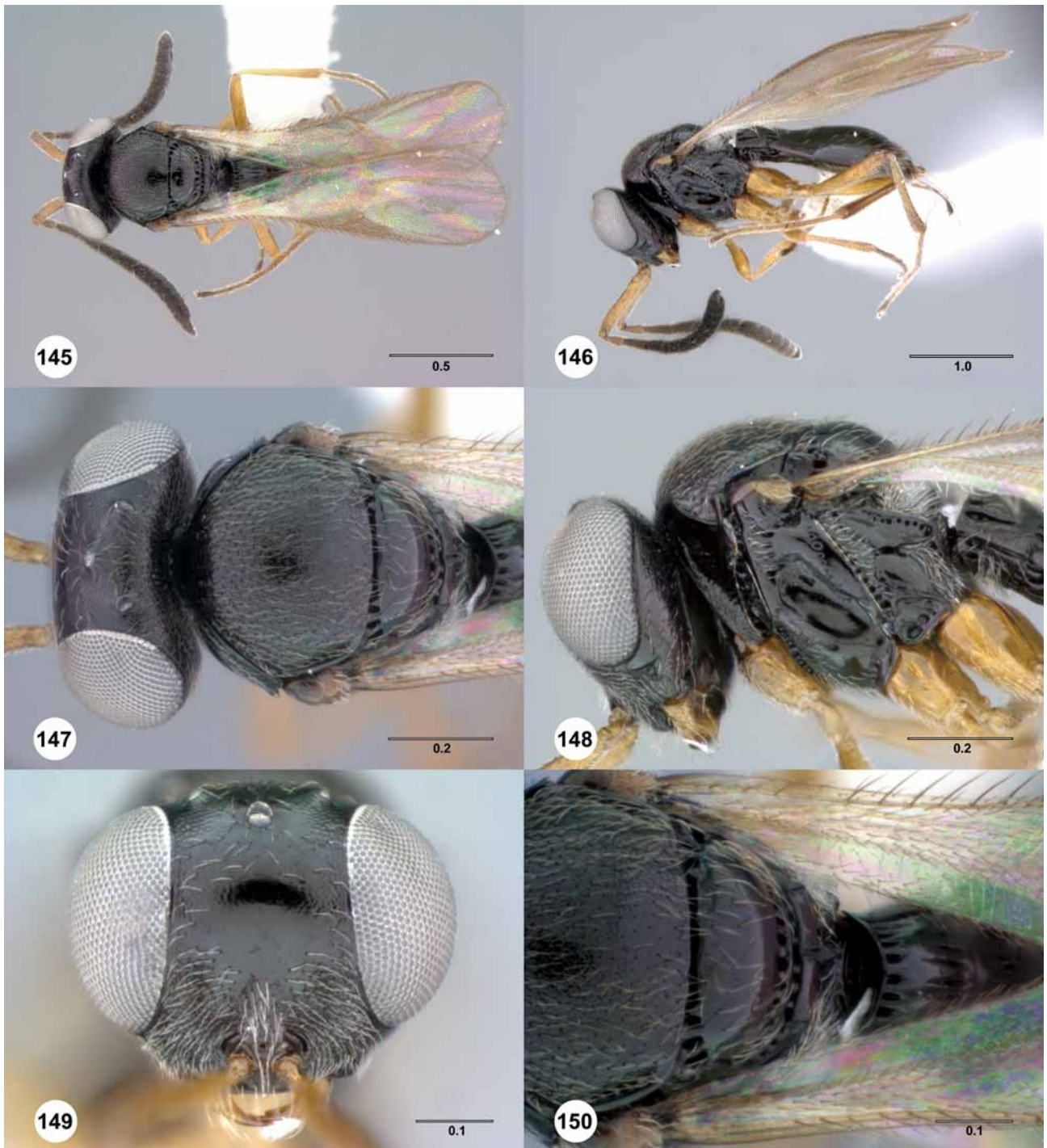
Description. Female body length: 1.55–1.87 mm (n=20). Male body length: 1.38–1.56 mm (n=11).

Head: Vertex between posterior ocelli: rounded. Female OOL: less than or equal one ocellar diameter. Frontal sculpture: at least partly smooth or considerably effaced. Sculpture of central frons: smooth or with shallowly impressed reticulate microsculpture. Setation of central frons: glabrous. Inner orbit in frontal view: more or less parallel. Upper gena in dorsal view of female: expanded, convex, therefore in lateral view compound eye separated from posterior margin by gena. Sculpture of gena behind lower half of eye: smooth, with reticulate to coriaceous microsculpture. Setation of gena: sparsely setose. Antenna: Radicle color: yellow to orange brown. Color of female A1: yellow to orange-brown. Color of female funicle (A3–A6): dark brown. Claval formula: 1-2-2-2-2. Claval color: dark brown to black.

Mesosoma: Pronotal cervical sulcus: absent. Mesoscutum sculpture: reticulate. Longitudinal sculpture in posterior half of mesoscutum: absent. Admedian line: absent. Mesoscutal humeral sulcus: foveolate. Notauli: absent. Mesoscutellum shape: rounded. Sculpture of mesoscutellum: almost entirely smooth. Length of medial metascutellar spine: medial spine short to moderately long, distinctly shorter than distance between medial and lateral spines. Length of lateral metascutellar spine: short, only slightly longer than wide. Sculpture of propodeal nucha: strongly foveolate to longitudinally striate. Sculpture of suprahumeral area of pronotum: punctulate. Sculpture in lower pronotum: reticulate to weakly rugulose. Netrion setation: sparsely setose to glabrous. Mesopleural carina: present dorsally, interrupted or absent ventrally. Mesepimeral sulcus: complete or briefly interrupted, foveate above, appearing as fold ventrally. Area 2 on metapleuron: polygonal, setose. Setation of area 4 of metapleuron: setose ventrally. Setation in anteroventral metapleural triangle: absent. Setation of propodeum anterior to spiracle: sparsely setose (less than 10) or absent. Legs: Coxae color: all coxae yellow.

Wings: Female fore wing maculation: hyaline or with slight infuscation below marginal vein.

82. <http://www.morphbank.net/?id=226373>



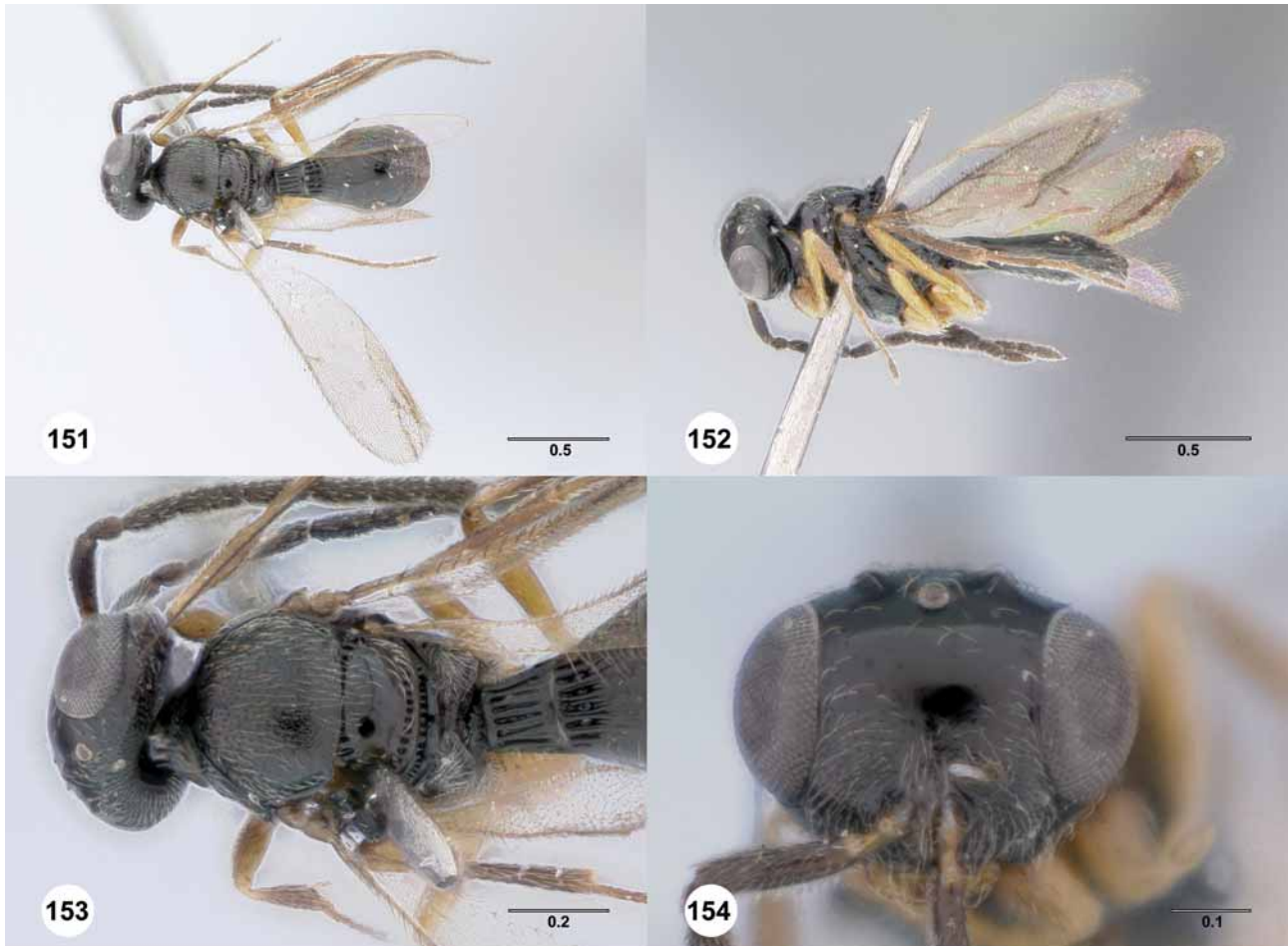
FIGURES 145–150.⁸³ *Fusicornia tehrii* Mukerjee, female (OSUC 149008). 145, Dorsal habitus; 146, Lateral habitus; 147, Head and mesosoma, dorsal view; 148, Head and mesosoma, lateral view; 149, Head, anterior view; 150, Mesoscutellum and metanotal spine dorsal view. Scale bars in millimeters.

Metasoma: Length of T1: less than or equal to one times width. Horn on T1 of female: absent, T1 longitudinally furrowed throughout length. Lateral setation of T1: sparsely to moderately setose (6–15/side). Medial sculpture on T3: smooth and shiny.

83. <http://www.morphbank.net/?id=226373>

Diagnosis. The smooth or with shallowly impressed reticulate microsculpture on the central portion of the frons distinguishes *Fusicornia tehrii* from the cohort of the species from Asia, *F. koreica*, *F. indica*, and *F. episcopus*. This species is also immediately distinguished by the very short lateral metanotal spine and the almost entirely smooth mesoscutellum (Figs. 147–150).

Link to Distribution Map.⁸⁴



FIGURES 151–154.⁸⁵ *Fusicornia noonae* Buhl, holotype male. 151, Dorsal habitus; 152, Lateral habitus; 153, Head and mesosoma, dorsal view; 154, Head, anterior view. Scale bars in millimeters.

Material examined. *Fusicornia tehrii*, holotype female: **INDIA**: Narendra Nagar (Tehri), M.K. Mukerjee & party (deposited in North Regional Station, Zoological Survey of India). *Fusicornia noonae*, holotype male: **PHILIPPINES**: Mindanao, Sapamoro, Curuan District, 20.XII.1961 (deposited in ZMUC). **BANGLADESH**: 2 females, OSUC 211161–211162 (deposited in CNCI). **Brunei**: 3 females, OSUC 149020, 206280–206281 (CNCI). **INDIA**: 1 male, OSUC 149007 (CNCI). **INDONESIA**: 1 male, 5 females, OSUC 149005, 149008, 149019, 149026, 206231 (CNCI); UCRC ENT 171070 (UCRC). **JAPAN**: 1 female OSUC 179124 (BPBM). **LAOS**: 1 male, 1 female, OSUC 179119, 179120 (BPBM). **MALAYSIA**: 5 males, 2 females, OSUC 179114 (BPBM); OSUC 149011, 149030, 164022, 206230, 206232, 206234 (CNCI). **PAPUA NEW GUINEA**: 1 female, OSUC 179116 (BPBM). **PHILIPPINES**: 4 females, OSUC 179111, 179121, 179122, 211164 (BPBM). **SINGAPORE**: 1 male, OSUC 149006 (CNCI). **SRI LANKA**: 3 male, 2 females, OSUC 149023, 149024, 206283, 206286 (CNCI); OSUC 210293 (USNM). **TAIWAN**: 6 males, 7

84. <http://atbi.biosci.ohio-state.edu/HymOnline/map-large.html?id=223991>

85. <http://www.morphbank.net/?id=309743>

females, OSUC 232488–232497, 232501–232503 (TARI) **THAILAND**: 1 male, 6 females, OSUC 211163 (BPBM); OSUC 149009, 149010, 149029, 206233 (CNCI); OSUC 211200, 253757 (OSUC).

Comments: *F. tehrii* was originally described by Mukerjee (1993) on the basis of a single male specimen from Narendra Nagar (Tehri), India. Subsequently, Buhl (1998) described *F. noonae* from the Philippines, also on the basis of a single male specimen (Figs. 150–154). The characters of *F. noonae* presented by Buhl (1998) are identical to the description of *F. tehrii*. These characters comprise the smooth sculpture of the central frons, sparse setation of the gena, the smooth and shining sculpture of the scutellum, and smooth and shining sculpture on T3 (Figs. 147–150). Buhl (1998) compared his species with *F. indica*, *F. bambeyi*, and *F. spinosa*, presumably on the basis of the literature. No mention was made of *F. tehrii*. Dr. Rajmohana K. (Zoological Survey of India, Calicut) kindly examined the holotype of *F. tehrii* and compared it with the species concepts developed in this paper.

Acknowledgments

Thanks to A. Bennett, M. Buffington, R. Danielsson, J. LaSalle, S. Myers, D. Notton, T. Nuhn, W. Pulawski, S. van Noort, L. Vilhelmsen, C. Villemant, and R. Zuparko for access to and loans of material for this study; and to L. Musetti for review of the manuscript; and to L. Musetti, M. Yoder, J. Cora, S. Hemly, and E. Talamas for much valued assistance in this work. This material is based upon work supported in part by the National Science Foundation under grant No. DEB-0614764. C.T. was supported by a fellowship from the Agricultural Research Development Agency, Ministry of Agriculture and Cooperatives, Thailand.

References

- Austin, A.D. & Field, S.A. (1997) The ovipositor system of scelionid and platygastriid wasps (Hymenoptera: Platygastroidea): comparative morphology and phylogenetic implications. *Invertebrate Taxonomy*, 11, 1–87.
- Austin, A.D., Johnson, N.F. & Downton, M. (2005) Systematics, evolution, and biology of scelionid and platygastriid wasp (Hymenoptera). *Annual Review of Entomology*, 50, 553–582.
- Bin, F. (1981) Definition of female antennal clava based on its plate sensilla in Hymenoptera Scelionidae Telenominae. *Redia*, 64, 245–261.
- Buhl, P.N. (1998) Four new species of Scelionidae from the Oriental and Australasian regions (Hymenoptera, Scelionidae). *Entomofauna, Zeitschrift für Entomologie*, 19(16), 271–276.
- Choi, J.-Y. & Kozlov, M.A. (2001) New species of the genus *Fusicornia* Risbec (Hymenoptera: Scelionidae) from Korea. *Journal of Asia-Pacific Entomology*, 4(2), 99–103.
- Galloway, I.D. & Austin, A.D. (1984) Revision of the Scelioninae (Hymenoptera: Scelionidae) in Australia. *Australian Journal of Zoology Supplementary Series*, 99, 1–138.
- Johnson, N.F. (1992) Catalog of world species of Proctotrupeoidea, exclusive of Platygastriidae (Hymenoptera). *Memoirs of the American Entomological Institute*, 51, 331–640.
- Johnson, N. F., L. Masner, L. Musetti, S. van Noort, Rajmohana K., D. C. Darling, A. Guidotti, & A. Polaszek. (2008) Revision of world species of the genus *Heptascelio* Kieffer (Hymenoptera: Platygastroidea, Scelionidae). *Zootaxa*, 1776, 1–51.
- Mani, M.S. & Sharma, S.K. (1980) A new species of *Fusicornia* Risbec (Hymenoptera: Proctotrupeoidea) from India. *Oriental Insects*, 14, 47–50.
- Mani, M.S. & Sharma, S.K. (1982) Proctotrupeoidea (Hymenoptera) from India. A review. *Oriental Insects*, 16, 135–258.
- Masner, L. (1976) Revisionary notes and keys to world genera of Scelionidae (Hymenoptera: Proctotrupeoidea). *Memoirs of the Entomological Society of Canada*, 97, 1–87.
- Masner, L. (1980) Key to genera of Scelionidae of the Holarctic region, with descriptions of new genera and species (Hymenoptera: Proctotrupeoidea). *Memoirs of the Entomological Society of Canada*, 113, 1–54.
- Mikó, I., Vilhelmsen, L., Johnson, N.F., Masner, L. & Péntzes, Z. (2007) Skeletomusculature of Scelionidae (Hymenoptera: Platygastroidea): head and mesosoma. *Zootaxa*, 1571, 1–78.
- Muesebeck, C.F.W. & Walkley, L.M. (1956) Type species of the genera and subgenera of parasitic wasps comprising the superfamily Proctotrupeoidea (order Hymenoptera). *Proceedings of the U. S. National Museum*, 105, 319–419.

- Mukerjee, M.K. (1993) On a collection of Scelionidae (Proctotrupeoidea: Hymenoptera) from Garhwal Himalayas, India. *Hexapoda*, 5, 75–105.
- Murphy, N. P., Carey, D., Castro, L.R., Dowton, M. & Austin, A.D. (2007) Phylogeny of the platygastroid wasps (Hymenoptera) based on sequences from the 18S rRNA, 28S rRNA and cytochrome oxidase I genes: implications for the evolution of the ovipositor system and host relationships. *Biological Journal of the Linnean Society*, 91(4), 653–669.
- Polaszek, A., Agosti, D., Alonso-Zarazaga, M., Beccaloni, G., de Place Bjørn, P., Bouchet, P., Brothers, D.J., Earl of Cranbrook, Evenhuis, N.L., Godfray, H.C.J., Johnson, N.F., Krell, F.T., Lipscomb, D., Lyal, C.H.C., Mace, G.M., Mawatari, S.F., Miller, S.E., Minelli, A., Morris, S., Ng, P.K.L., Patterson, D.J., Pyle, R.L., Robinson, N., Rogo, L., Taverne, J., Thompson, F.C., van Tol, J., Wheeler, Q.D. & Wilson, E.O. (2005) Commentary: A universal register for animal names. *Nature*, 437, 477.
- Pyle, R.L., Earle, J.L. & Greene, B.D. (2008) Five new species of the damselfish genus *Chromis* (Perciformes: Labroidae: Pomacentridae) from deep coral reefs in the tropical western Pacific. *Zootaxa*, 1671, 3–31.
- Risbec, J. (1950) Contribution à l'étude des Proctotrupidae (Serphiidae). Pages 511–639 in Risbec, J., Travaux du Laboratoire d'Entomologie du Secteur Soudanais de Recherches Agronomiques. Gouvernement Général de l'Afrique Occidentale Française, Paris.
- Risbec, J. (1953) Chalcidoïdes et Proctotrupoïdes de l'Afrique occidentale française. *Bulletin de l'Institut Français d'Afrique Noire*, 15, 548–609.
- Risbec, J. (1957) Chalcidoïdes et Proctotrupides de l'Afrique occidentale française (6e Supplément). *Bulletin de l'Institut Français d'Afrique Noire*, (A)19, 520–538.