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A review of the genus *Enicospilus* Stephens (Ichneumonidae: Ophioninae) from Vietnam, with descriptions of ten new species

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Abstract. *Enicospilus* Stephens, 1835 is the largest genus of subfamily Ophioninae (Ichneumonidae) with more than 700 extant species worldwide that are mostly nocturnal and parasitoids of larvae of Lepidoptera. In this paper, the Vietnamese species of *Enicospilus* are reviewed for the first time. Of the total 82 recorded species, 10 species are described as new: *E. aequiscleritalis* sp. nov., *E. bulbipennis* sp. nov., *E. centraliscleritiger* sp. nov., *E. circuliscleritalis* sp. nov., *E. gialaiensis* sp. nov., *E. hiepi* sp. nov., *E. melanothoracicus* sp. nov., *E. nigristernalis* sp. nov., *E. trui* sp. nov., and *E. tuani* sp. nov. Fifty-two species are recorded for the first time from the country: *E. abdominalis* (Szépligeti, 1906), *E. acutus* Shimizu, 2020, *E. argus* Gauld & Mitchell, 1981, *E. atoponeus* Cushman, 1947, *E. bacillaris* Wang, 1997, *E. bakerielli* Gauld & Mitchell, 1981, *E. bifasciatus* (Uchida, 1928), *E. biharensis* Townes, Townes & Gupta, 1961, *E. concentralis* Cushman, 1937, *E. corculus* (Tosquinet, 1903), *E. dasychirae* Cameron, 1905, *E. eastopi* Gauld & Mitchell, 1981, *E. enicospilus* Nikam, 1972, *E. exaggeratus* Chiu, 1954, *E. fittoni* Nikam, 1980, *E. flavocephalus* (Kirby, 1900), *E. formosensis* (Uchida, 1928), *E. fusiformis* Chiu, 1954, *E. gasteralis* Nikam, 1980, *E. grandis* (Cameron, 1905), *E. hamatus* Gauld & Mitchell, 1981, *E. hedilis* Gauld & Mitchell, 1981, *E. iapetus* Gauld & Mitchell, 1981, *E. insinuator* (Smith, 1860), *E. ixion* Gauld & Mitchell, 1981, *E. javanus* (Szépligeti, 1910), *E. laqueatus* (Enderlein, 1921), *E. longitarsis* Tang, 1990, *E. mythrus* Gauld & Mitchell, 1981, *E. nathani* Gauld & Mitchell, 1981, *E. nigribasalis* (Uchida, 1928), *E. nigristigma* Cushman, 1937, *E. nigriventris* Nikam, 1975, *E. nigronotatus* Cameron, 1903,

E. nigropectus Cameron, 1905, *E. pallidistigma* Cushman, 1937, *E. pantanae* Tang, 1990, *E. pinguivena* (Enderlein, 1921), *E. pseudoconspersae* (Sonan, 1927), *E. purifenestratus* (Enderlein, 1921), *E. rhetus* Gauld & Mitchell, 1981, *E. riukiuensis* (Matsumura & Uchida, 1926), *E. sauteri* (Enderlein, 1921), *E. selmatos* Chiu, 1954, *E. strigilatus* Tang, 1990, *E. teleus* Gauld & Mitchell, 1981, *E. transversus* Chiu, 1954, *E. tripartitus* Chiu, 1954, *E. urus* Gauld & Mitchell, 1981, *E. verticinus* (Roman, 1913), *E. yonezawanus* (Uchida, 1928), and *E. zebrus* Gauld & Mitchell, 1981. A key to all Vietnamese species of *Enicospilus* is provided.

Keywords. Fauna, new record, nocturnal, parasitoid, taxonomy.

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Introduction

Enicospilus Stephens, 1835 is the largest genus of the subfamily Ophioninae Shuckard, 1840 with more than 700 valid species found all over the world (Shimizu *et al.* 2020). As with other genera of ophionines, *Enicospilus* are solitary koinobiont endoparasitoids of larvae of Lepidoptera Linnaeus, 1758 and are mostly nocturnal (Gauld & Mitchell 1981; Broad & Shaw 2016).

The diversity and biology of *Enicospilus* have been of interest to many researchers, with particularly important works including Chiu (1954), who studied *Enicospilus* from Taiwan, Viktorov (1957) published on *Enicospilus* from the USSR; Rao & Nikam (1969, 1971) and Nikam (1980) studied this genus from India, Gauld & Michell (1978, 1981) published important revisional works on *Enicospilu*s and other ophionine genera from the African and Indo-Papuan regions, respectively, Gauld (1988) studied the Ophioninae from tropical Mesoamerica with a special focus on Costa Rica, Tang (1990) published a monograph of Chinese *Enicospilus*, Broad & Shaw (2016) studied the British *Enicospilus*, followed by Johansson's (2018) study of the Swedish fauna, Shimizu & Konishi (2018) listed 14 species of this genus from Laos and most recently Shimizu (2020) studied *Enicospilus* from Nepal, Shimizu *et al.* (2020) published an integrative taxonomic study of this genus from Japan, and Johansson *et al.* (2021) studied Ophioninae from Iran with descriptions of four new species of *Enicospilus*.

Enicospilus is a predominantly tropical genus, for example 12 species are known from Northern Europe (Broad & Shaw 2016; Johansson 2018) but over 140 species are from Indonesia (Gauld & Mitchell 1981; Gupta 1987). Shimizu *et al.* (2020) also demonstrated that species richness decreases significantly toward higher latitudes across the Japanese archipelago. Until now, only about 20 species of *Enicospilus* were reported from Vietnam (Gauld & Mitchell 1981; Pham & Khuat 2016). This is a low number in comparison with totals of more northern (e.g., 55 species from Japan, 107 species from China) and neighbouring countries (i.e., 74 from Philippines): our knowledge of the true diversity of *Enicospilus* is lacking, as for many other taxa of Darwin wasps (Ichneumonidae Latreille, 1802) (Klopfstein *et al.* 2019). We herein taxonomically review the genus *Enicospilus* from Vietnam for the first time and provide an identification key to all currently known Vietnamese species of the genus.

Material and methods

Specimens examined and repositories

Specimens from Vietnam were collected at light traps and by Malaise traps from 1996 to 2022 and deposited at the Institute of Ecology and Biological Resources (IEBR), Hanoi, Vietnam and the Osaka Museum of Natural History (OMNH), Japan.

Abbreviations for collections referred to in this paper are as follows:

ANIC = Australian National Insect Collection, Canberra, Australia
CNC = Canadian National Collection of Insects, Ottawa, Canada
DEI = Senckenberg Deutsches Entomologisches Institut, Müncheberg, Germany
EMUS = Utah State University Insect Collection (= American Entomological Institute: AEI), Department of Biology, Utah State University, Logan, Utah, USA
FAFU = Fujian Agriculture and Forestry University, Fujian, China
GPTA = Gupta Collection, University of Florida, Gainesville, USA
HNHM = Hungarian Natural History Museum, Budapest, Hungary
IEBR = Institute of Ecology and Biological Resources, Hanoi, Vietnam
IZCAS = Institute of Zoology, Chinese Academy of Sciences, Beijing, China
IZPAN = Instytut Zoologiczny Polska Akademia Nauk, Warsaw, Poland
MLUH = Zoologische Sammlung, Zentralmagazin Naturwissenschaftlicher Sammlungen, Martin-Luther-Universität, Halle (Saale), Germany
MNHA = Museum of Nature and Human Activities, Sanda, Japan
MRSN = Museo Regionale di Scienze Naturali, Turin, Italy
MUC = Marathwada University Collection, Aurangabad, India
NHMUK = Natural History Museum, London (formerly BMNH), UK
NHMW = Naturhistorisches Museum Wien, Vienna, Austria
NHRS = Naturhistoriska Riksmuseet, Stockholm, Sweden
NMNH = National Museum of Natural History, Washington DC, USA
NZSI = National Zoological Collection, Zoological Survey of India, West Bengal, India
OMNH = Osaka Museum of Natural History, Osaka, Japan
OUMNH = University Museum of Natural History, Oxford, UK
RMNH = Naturalis Centre for Biodiversity, Leiden, the Netherlands
RBINS = Royal Belgian Institute of Natural Sciences, Brussels, Belgium
SEHU = The Laboratory of Systematic Entomology (= Entomological Institute: EIHU), Hokkaido University, Sapporo, Japan
TARI = Taiwan Agricultural Research Institute, Taichung, Taiwan
ZAUC = Zhejiang Agricultural University, Hangzhou, Zhejiang, China
ZMHB = Museum für Naturkunde der Humboldt-Universität, Berlin, Germany
ZMUC = Zoological Museum, University of Copenhagen, Copenhagen, Denmark

Terms and indices

The styles of description mainly follow Shimizu *et al.* (2020). Morphological terminology mainly follows Broad *et al.* (2018). The following abbreviations were used: F1, F2, F3, etc. = 1st, 2nd, 3rd flagellomeres, etc.; T1, T2, T3, T4, T5 = metasomal tergite 1, 2, 3, 4, 5 respectively; and S1, S2, S3, S4, S5 = metasomal sternite 1, 2, 3, 4, 5 respectively; NP = National Park; NR = Nature Reserve. Indices follow those of Gauld & Mitchell (1981), Shimizu & Lima (2018), and Shimizu *et al.* (2020) as below:

AI = Alar Index for fore wing = length of 1m-cu&M between 2m-cu and bulla/length of 2rs-m (Fig. 1)
CI = Cubital Index for fore wing = length of CU between 1m-cu&M and 2cu-a/length of 2cu-a (Fig. 1)
DI = Discoidal Index for fore wing = maximum vertical distance between CU (between 2cu-a and 2m-cu) and 1m-cu&M/length of CU between 2cu-a and 2m-cu (Fig. 1)
DMI = Dorsal Metasomal Index = length of dorsum of T2/length of dorsum of T3 (Fig. 2)
FI = Frontal Index for head = maximum diameter of median ocellus/distance between eyes (Fig. 2)
GOI = Geno-Orbital Index = maximum breadth of eye in lateral view/maximum breadth of gena in the same line

ICI = Intercubital Index for fore wing = length of 2rs-m/length of M between 2m-cu and 2rs-m (Fig. 1)
NI = Nervellar Index for hind wing = length of CU between M and cu-a/length of cu-a
PI = Petiolar Index for T1 = distance between base of T1 and anterior margin of spiracle/distance between posterior margin of spiracle and apex of T1
SDI = Second Discoidal Index for fore wing = length of CU between 2cu-a and 2m-cu/length of CU between M&RS and 1m-cu&M (Fig. 1)
SI = Sinuousness Index for fore wing = maximum length between 1m-cu&M and a straight line connecting the intersection of M, 2m-cu, and 1m-cu&M and the intersection of 1m-cu&M and CU/ distance between the intersection of M, 2m-cu, and 1m-cu&M and the intersection of 1m-cu&M and CU (Fig. 1)

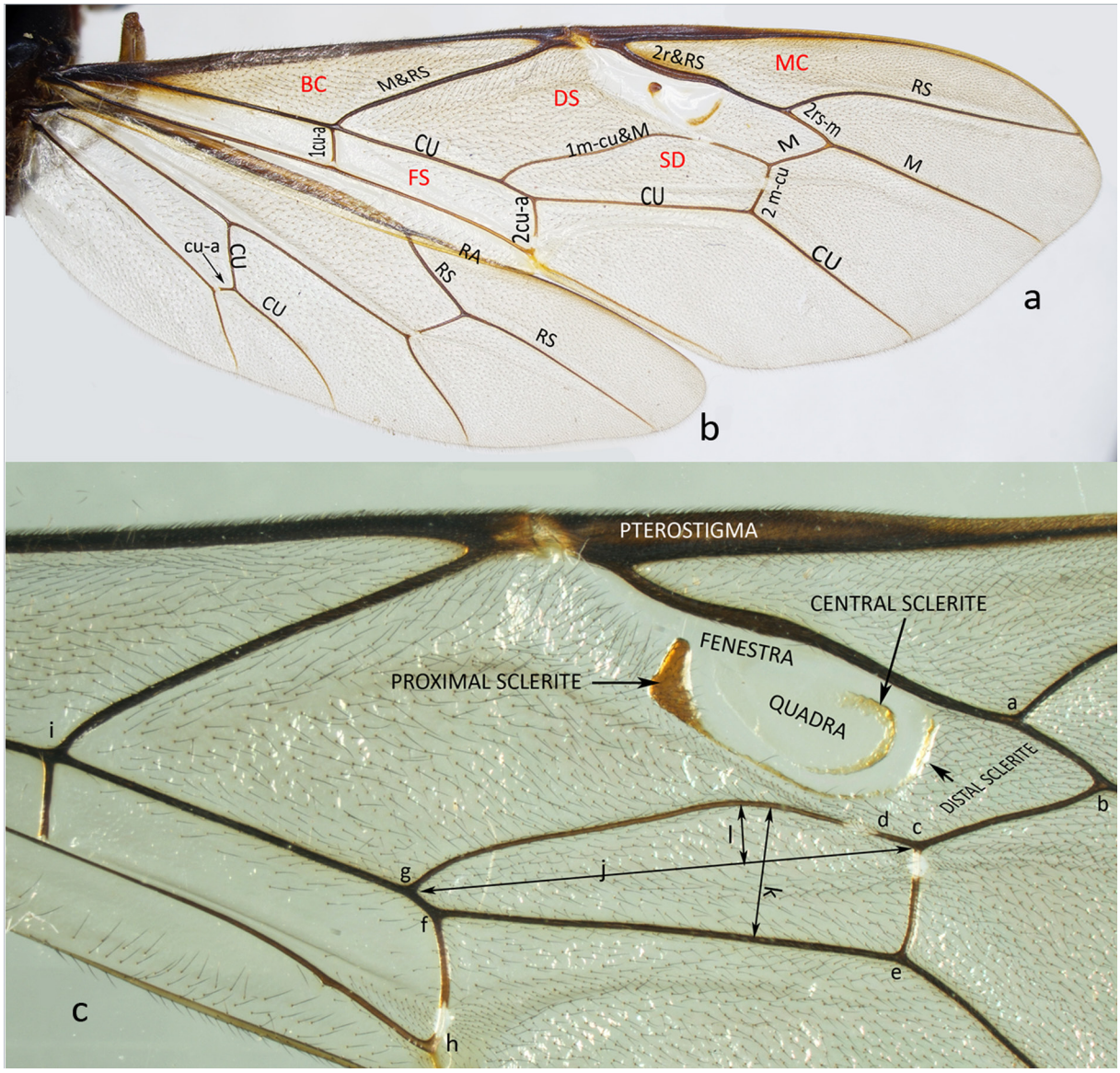

Fig. 1. Morphological terms and measurement characters for wings. **a**. Fore wing (BC = basal cell; DS = discosubmarginal cell; FS = first subdiscal cell; MC = marginal cell; SD = second discal cell). **b**. Hind wing. **c**. Central part of fore wing (AI = cd/ab; CI = gf/fh; DI = k/fe; ICI = ab/cb; SDI = fe/ig; SI = l/j; SRI = ce/fe).

SRI = Second Recurrent Index for fore wing = length of 2m-cu/length of CU between 2cu-a and 2m-cu (Fig. 1)

THI = Thyridium Index for T2 = distance between anterior margin of T2 and anterior margin of thyridium/ maximum diameter of thyridium (Fig. 2)

Photographs

Digital images of specimens were taken with a Nikon SMZ800N M80 stereo microscope and a Canon 700D camera. Photographs were stacked with Combine ZP, Helicon Focus and subsequently edited with Photoshop CS2.

Fig. 2. Measurement characters for metasoma (DMI = e/f, PI = a/b, THI = c/d).

Results

Taxonomy

Class Insecta Linnaeus, 1758
Order Hymenoptera Linnaeus, 1758
Superfamily Ichneumonoidea Latreille, 1802
Family Ichneumonidae Latreille, 1802
Subfamily Ophioninae Shuckard, 1840

Genus ***Enicospilus*** Stephens, 1835

Enicospilus Stephens, 1835: 126; type species: *Ophion combustus* Gravenhorst, 1829, by subsequent designation (Horstmann 2005: 1264).

Henicospilus Agassiz, 1846: 138; unjustified emendation.

Allocamptus Förster, 1869: 150; type species: *Ophion undulatus* Gravenhorst, 1829, by subsequent designation (Thomson 1888: 1189).

Dispilus Kriechbaumer, 1894: 309; type species: *Ophion* (*Dispilus*) *natalensis* Kriechbaumer, 1894, by monotypy.
Pleuroneurophion Ashmead, 1900: 86; type species: *Pleuroneurophion hawaiiensis* Ashmead, 1900, by original designation.
Banchogastra Ashmead, 1900: 87; type species: *Banchogastra niger* Ashmead, 1900, by original designation.
Pycnophion Ashmead, 1900: 87; type species: *Pycnophion molokaiensis* Ashmead, 1900, by original designation.
Cymatoneura Kriechbaumer, 1901a: 22; type species: *Ophion undulatus* Gravenhorst, 1829, by subsequent designation (Viereck 1914: 8).
Pterospilus Kriechbaumer, 1901b: 156; type species: *Ophion* (*Enicospilus*) *dubius* Tosquinet, 1896, by subsequent designation (Viereck 1914: 126); junior homonym of *Pterospilus* Rondani, 1856.
Trispilus Kriechbaumer, 1901b: 156; type species: *Ophion* (*Enicospilus*) *trimaculatus* Tosquinet, 1896, by monotypy.
Abanchogastra Perkins, 1902: 141; type species: *Abanchogastra debilis* Perkins, 1902, by monotypy.
Metophion Szépligeti, 1905: 28; type species: *Metophion bicolor* Szépligeti, 1905, by subsequent designation (Viereck 1914: 94).
Ceratospilus Szépligeti, 1905: 28; type species: *Ceratospilus biroi* Szépligeti, 1905, by monotypy.
Atoponeura Szépligeti, 1905: 34; type species: *Atoponeura concolor* Szépligeti, 1905 (= *Enicospilus atoponeurus* Cushman, 1947), by monotypy.
Ophiomorpha Szépligeti, 1905: 34; type species: *Ophion curvinervis* Cameron, 1886 (= *Enicospilus cameronii* Dalla Torre, 1901), by subsequent designation (Hooker 1912): 134; junior homonym of *Ophiomorpha* Nilsson, 1836.
Cryptocamptus Brèthes, 1909: 230; unnecessary replacement name for *Allocamptus* Förster, 1869.
Amesospilus Enderlein, 1914: 222; type species: *Ophion unicallosus* Vollenhoven, 1878, by original designation.
Eremotyloides Perkins, 1915: 530; type species, *Eremotylus orbitalis* Ashmead, 1901, by monotypy.
Schizospilus Seyrig, 1935: 79; type species: *Schizospilus divisus* Seyrig, 1935, by original designation.

Diagnosis

Species of *Enicospilus* can be distinguished from other Ophioninae by the following characters: fore wing discosubmarginal cell usually with extensive glabrous area (referred to as a 'fenestra'), often with one or more sclerites, and sometimes with a 'quadra' in the middle of the fenestra (Fig. 1), of more or less different texture from the outer margins; mandibles apically more or less tapered and slightly to strongly twisted; inner surface of fore tibial spur without membranous flange. Species of *Enicospilu*s can be confused with the genus *Dicamptus* Szépligeti, 1905 and some species of *Leptophion* Cameron, 1901 because they share the characteristic fore wing fenestra and sclerites, but they can easily be distinguished by the weakly to strongly tapered and twisted mandible (mandible very weakly tapered and never strongly twisted in *Dicamptus* and *Leptophion*).

Key to the Vietnamese species of Enicospilus

This key is modified after Gauld & Mitchell (1981) and Shimizu *et al.* (2020). Supporting characters are given in square brackets.

1. Fore wing fenestra without sclerites, at very most with an indistinct yellowish thickening or quadra in membrane 2
– Fore wing fenestra with more or less distinct sclerites, sometimes also with quadra 6

2. Fore wing fenestra virtually occluded by large and elongate quadra (Fig. 26f); clypeus in profile strongly convex, subnasute (Fig. 26b, d) ..... ***E. exaggeratus*** Chiu, 1954
– Fore wing fenestra without quadra; clypeus weakly to moderately convex 3

3. Fore wing 1m-cu&M centrally widened; 2r&RS rather stout, distally fairly abruptly tapered (Fig. 9f) ..... ***E. atoponeus*** Cushman, 1947
– Fore wing 1m-cu&M not at all widened; 2r&RS less stout, more evenly tapered distally 4

4. Fore wing 1m-cu&M angled medially, with short ramellus ..... ***E. plicatus*** Brullé, 1846 (in part)
– Fore wing 1m-cu&M evenly curved, without short ramellus 5

5. Mandible strongly twisted by ca 80° (Fig. 24b); fore wing 1st subdiscal cell with sparse setae (Fig. 24f); fore wing length 12.5–15.0 mm ..... ***E. erythrocerus*** (Cameron, 1905)
– Mandible twisted by 20°–30° (Fig. 35b); fore wing 1st subdiscal cell generally with denser setae at least on anterior 0.4 (Fig. 35f); fore wing length 19.0–23.0 mm ..... ***E. grandis*** (Cameron, 1905)

6. Fore wing with SDI < 0.94 7
– Fore wing with SDI ≥ 0.95 10

7. Hind tarsal claws simple, distal pecten not projecting; fore wing without any darkened patches, marginal cell sparsely setose proximally, proximal and distal sclerites confluent (Fig. 22f) .... ***E. eastopi*** Gauld & Mitchell, 1981
– Hind tarsal claws with distal pecten projecting beyond apical tooth; fore wing marginal cell proximally darkened, evenly setose, proximal and distal sclerites separated 8

8. Interocellar area yellow to weakly darkened (Fig. 11c); mandible outer surface with a weak diagonal setose groove or with a tuft of long setae; fore wing fenestra darkened between proximal and distal sclerites (Fig. 11f) ..... ***E. bakerielli*** Gauld & Mitchell, 1981
– Interocellar area black (Figs 17c, 78c); mandible outer surface without a diagonal setose groove or tuft of long setae; fore wing fenestra without any darkened patches between proximal and distal sclerites (Figs 17f, 78f) 9

9. Fore wing proximal sclerite larger, distance from proximal sclerite to vein 2r&RS less than its maximum diameter (Fig. 17f); DMI = 1.2 ..... ***E. circuliscleritalis*** sp. nov.
– Fore wing proximal sclerite smaller, distance from proximal sclerite to vein 2r&RS about 1.9 × its maximum diameter (Fig. 78f); DMI = 1.3–1.4 ..... ***E. trui*** sp. nov.

10. Fore wing fenestra with central sclerite entirely absent, at most with a quadra discernible 11
– Fore wing fenestra with central sclerite present, usually strongly pigmented 38

11. Proximal sclerite narrow, linear, weakly pigmented (Figs 14f, 19f, 37f, 39f, 47f, 61f, 76f) or entirely absent (Figs 31f, 64f) 12
– Proximal sclerite quite widened, usually triangular (other shapes in *E. dasychirae*, *E. nigronotatus* and *E. pseudoconspersae*) and usually strongly pigmented 21

12. Fore wing with CI less than 0.5 13
– Fore wing with CI at least 0.5 14

13. Fore vein 2r&RS virtually straight, vein 1m-cu&M evenly arcuate, AI less than 0.9; fore wing length 10–16 mm (Fig. 14f) ..... ***E. biharensis*** Townes, Townes & Gupta, 1961
– Fore wing vein 2r&RS moderately sinuous, vein 1m-cu&M strongly sinuous, AI more than 0.9; fore wing length 18–20 mm (Fig. 19f) ..... ***E. corculus*** (Tosquinet, 1903)

14. Proximal alar sclerite entirely absent 15
– Proximal alar sclerite discernible, weakly to moderately pigmented 16

15. Fore wing vein 1m-cu&M centrally angulate and broadened, ICI = 0.62–0.74 (Fig. 31f); metasoma from T5 onwards blackish ..... ***E. fusiformis*** Chiu, 1954
– Fore wing vein 1m-cu&M sinuous and more or less uniformly thickened, ICI = 0.75–1.09 (Fig. 64f); metasomal tergites reddish brown, sometimes from T3 onwards with dorsal line and ventral parts blackish ..... ***E. pungens*** (Smith, 1874)

16. Hind tarsal claws lacking pecten proximally 17
– Hind tarsal claws with pecten extending proximally 18

17. Marginal cell of fore wing proximally with a glabrous area, quadra moderately large, ICI = 0.71–0.83 (Fig. 39f) ..... ***E. iapetus*** Gauld & Mitchell, 1981
– Marginal cell of fore wing uniformly setose, without quadra, ICI = 0.65 or less ..... ***E. pudibundae*** (Uchida, 1928)
18. Marginal cell of fore wing proximally with a glabrous area (Figs 37f, 47f) 19
– Marginal cell of fore wing proximally at most sparsely but uniformly setose, without a glabrous area (Fig. 61f) 20

19. Fore wing vein 2r&RS relatively straight, relatively uniformly thickened, AI = 0.9 (Fig. 37f); mesopleuron puncto-striate ventrally (Fig. 37e); fore wing length 18.7 mm ..... ***E. hedilis*** Gauld & Mitchell, 1981
– Fore wing vein 2r&RS sinuous, abruptly narrowed distally, AI = 1.36 (Fig. 47f); mesopleuron striate ventrally (Fig. 47e); fore wing length 12.8 mm ..... ***E. maritus*** Roman, 1913

20. Fore wing vein 1m-cu&M and 2r&RS strongly sinuous (Fig. 61f) ..... ***E. plicatus*** (Brullé, 1846) (in part)
– Fore wing vein 1m-cu&M evenly arcuate, 2r&RS weakly sinuous (Fig. 76f) ..... ***E. transversus*** Chiu, 1954

21. Proximal margin of proximal sclerite of fore wing fenestra distinctly separated from proximal margin of fenestra by more than width of proximal sclerite (except separated 0.75–1.0× in *E. dasychirae*) (Figs 42f, 56f, 63f) 22
– Proximal margin of proximal sclerite of fore wing fenestra joining or close to proximal margin of fenestra, if separated then by less than half width of proximal sclerite 26

22. Fore wing with both ICI and CI greater than 0.65; very large insects, fore wing length 20 mm or more 23
– Fore wing with either or both ICI and CI less than 0.65; variously sized insects 24

23. Distal sclerite present, not confluent with proximal sclerite, SRI = 0.2 (Fig. 56f); body dark reddish brown with black markings (Fig. 56a) ..... ***E. nigronotatus*** Cameron, 1903
– Distal sclerite absent, SRI = 0.3; body reddish brown without black markings ..... ***E. pseudoconspersae*** (Sonan, 1927) (in part)

24. Proximal and distal sclerites of fore wing fenestra strongly confluent and distal sclerite strongly sclerotised; confluent proximal and distal sclerites of fore wing fenestra usually shaped like a letter ‘P’, as in Fig. 42f; SDI = 0.90–1.05 ..... ***E. javanus*** (Szépligeti, 1910)
– Proximal sclerite of fore wing fenestra isolated and distal sclerite absent or vestigial; proximal sclerite of fore wing fenestra half-moon or drop-shaped, as in Figs 20f, 63f; SDI at least 1.30 25

25. Proximal sclerite of fore wing fenestra usually entirely weakly pigmented and half-moon-shaped (Fig. 63f) ..... ***E. pseudoconspersae*** (Sonan, 1927) (in part)

– Proximal sclerite of fore wing fenestra partly to entirely strongly pigmented and drop-shaped (Fig. 20f) ..... ***E. dasychirae*** Cameron, 1905

26. Hind tarsal claws with distal pecten projecting beyond apical tooth .....
..... ***E. mythrus*** Gauld & Mitchell, 1981
– Hind tarsal claws simple, distal pecten not projecting 27

27. Interocellar area uniformly black (Figs 21c, 57c) 28
– Interocellar area yellowish-brown to orange (Figs 27c, 45c, 83c) 29

28. Fore wing with SDI = 1.07 or less, ICI = 0.35–0.36, vein 2r&RS centrally incrassate (Fig. 57f); metapleuron reticulate, at least on posterior 0.5 (Fig. 57e); mesoscutum and mesopleuron with black markings (Fig. 57e) ..... ***E. nigropectus*** Cameron, 1905
– Fore wing with SDI = 1.28–1.37, ICI = 0.53–0.59, vein 2r&RS more or less evenly thickened (Fig. 21f); metapleuron striate (Fig. 21e); mesoscutum and mesopleuron without black markings ..
..... ***E. dolosus*** (Tosquinet, 1896)

29. Outer mandibular surface with a diagonal groove extending from dorsal proximal corner to between base of teeth (Figs 27b, 45b) 30
– Outer mandibular surface without a diagonal groove (Figs 40b, 75b) 32

30. Fore wing length 17.5 mm, proximal sclerite evenly tapered to join distal sclerite (Fig. 45f); antenna with 73 flagellomeres; metapleuron finely punctate (Fig. 45e) ..... ***E. longitarsis*** Tang, 1990
– Fore wing length 10.2–14.5 mm, proximal sclerite not confluent with distal sclerite or with point of confluence narrow and indistinct (Figs 27f, 83f); antenna with 54–61 flagellomeres; metapleuron puncto-striate (Fig. 27e) 31

31. Fore wing vein M&RS interstitial to 1cu-a, fenestra about 2.0 × area of proximal sclerite, distal sclerite stout, strong (Fig. 27f) ..... ***E. fittoni*** Nikam, 1980
– Fore wing vein M&RS postfurcal to 1cu-a, fenestra about 3.0 × area of proximal sclerite, distal sclerite vestigial or weak and narrow (Fig. 83f) ..... ***E. yonezawanus*** (Uchida, 1928)

32. Margin of propodeal spiracle joined to lateral carina by a raised flange 33
– Margin of propodeal spiracle not joined to lateral carina by a raised flange 36

33. Large body size, fore wing length 21.2–22.3 mm with fenestra short, about 3.0 × proximal sclerite (Fig. 75f); mesoscutum with three black stripes ..... ***E. teleus*** Gauld & Mitchell, 1981
– Smaller body size, fore wing length not exceed 21 mm with fenestra much longer, at least 4.5 × proximal sclerite (Figs 40f, 46f, 68f); mesoscutum with posterior 0.5 black or with a median black stripe 34

34. Mesoscutum with a median black stripe; tegula reddish brown; metapleuron from punctate to puncto-striate (Fig. 40e) ..... ***E. insinuator*** (Smith, 1860)
– Mesoscutum with posterior 0.5 black; tegula with posterior half black; metapleuron coarsely strigose (Figs 46e, 68e) 35

35. Mandible twisted by about 80° (Fig. 68b); metasomal tergites exceptionally long, T4 in profile 1.4 × as long as high; metasoma from T3 onwards entirely black (Fig. 68a) .....
..... ***E. rogus*** Gauld & Mitchell, 1981
– Mandible twisted by about 20° (Fig. 46b); metasomal tergites not exceptionally long, T4 in profile less than 1.2 × as long as high; T4 with pale yellow patch (Fig. 46a) ..... ***E. maai*** Chiu, 1954

36. Metapleuron puncto-striate (Fig. 71e); fore wing length 10.5–12.5 mm, ICI = 0.41–0.62 ..... ***E. shinkanus*** (Uchida, 1928)
– Metapleuron striate to strigose (Fig. 23e); fore wing length 13.8–18.6 mm, ICI = 0.68–0.85 37

37. Lower face 0.71–0.74 × as wide as long; fore wing with distal sclerite strong, joining proximal sclerite, AI = 0.41–0.58 (Fig. 65f) ..... ***E. purifenestratus*** (Enderlein, 1921)
– Lower face 0.75–0.82 × as wide as long; fore wing with distal sclerite indistinct, AI = 0.59–0.76 (Fig. 23f) ..... ***E. enicospilus*** Nikam, 1972

38. Interocellar area black or dark brown, contrasting with vertex (Figs 32c, 67c) 39
– Interocellar area yellowish-brown to orange 45

39. Clypeus nasute, strongly convex (Fig. 67b, d) .....***E. riukiuensis*** (Matsumura & Uchida, 1926)
– Clypeus not nasute, flat to moderately convex 40

40. Lower face 0.8 × as wide as long (Fig. 32b); clypeus strongly convex; mandible wide and long, medially 0.6 × as broad as base, two teeth equal in length (Fig. 32b); fore wing with SDI = 1.0, CI = 0.72; metasomal tergites long and narrow, T5 1.5–1.6 × as long as high (Fig. 32a) ....***E. gasteralis*** Nikam, 1980
– Lower face narrower, about 0.6–0.7 × as wide as long; clypeus convex; mandible narrow, medially less than 0.6 × as wide as base, upper tooth longer than lower; fore wing with SDI = 1.0–1.27, CI less than 0.55; metasomal tergites shorter and wider, T5 less than 1.2 × as long as high 41

41. Fore wing length 17.6–23.0 mm, central sclerite weak, C-shaped, formed from the distal periphery of an extensive quadra, ICI = 0.8–1.0 (Fig. 54f); mesosoma reddish with black markings (Fig. 54e) .....***E. nigristigma*** Cushman, 1937
– Fore wing length 7.5–23.5 mm, central sclerite weak to strong, varied in shaped, fenestra without quadra, ICI less than 0.5; mesosoma yellow with or without black markings black markings 42

42. Fore wing entirely hyaline; marginal cell proximally evenly and densely setose; AI = 1.55–2.32 (Figs 6f, 49f) 43
– Fore wing with darkened patches; marginal cell proximally sparsely setose to glabrous; AI = 0.60–0.82 (Figs 13f, 18f) 44

43. Face and mesosoma entirely reddish brown (Fig. 6b, e); mesopleuron puncto-striate to finely striate; metapleuron coriaceous to finely striate (Fig. 6e); fore wing with central sclerite of similar size and shape to proximal sclerite, positioned in distal half of fenestra (Fig. 6f) ....***E. aequiscleritalis*** sp. nov.
– Face and mesosoma with black markings (Fig. 49b, e); mesopleuron and metapleuron coarsely striate (Fig. 49e); fore wing with central sclerite much smaller than proximal sclerite and positioned in center of fenestra (Fig. 49f) .....***E. melanothoracicus*** sp. nov.

44. Antenna with 55–57 flagellomeres; fore wing darkened in marginal cell, marginal cell proximally glabrous, central sclerite linear, curved, subparallel to distal sclerite, SDI = 1.16–1.22 (Fig. 18f) ... . ***E. concentralis*** Cushman, 1937
– Antenna with 49–53 flagellomeres; fore wing darkened in marginal and discosubmarginal cells, marginal cell proximally sparsely setose, central sclerite transverse with proximal part broadened and distal part narrow (Fig. 13f) .....***E. bifasciatus*** (Uchida, 1928)

45. Outer mandibular surface with a diagonal groove extending from upper proximal corner to between base of teeth (Figs 51b, 69b) 46

– Outer mandibular surface without a diagonal groove (Figs 52b, 73b) 54

46. Central sclerite linear, more or less parallel to distal sclerite (Fig. 51f); metapleuron strongly rugose (Fig. 51e) ..... ***E. nathani*** Gauld & Mitchell, 1981
– Central sclerite varied in shaped, but never parallel to distal sclerite; metapleuron punctate to puncto-striate 47

47. Proximal and distal sclerites confluent (Figs 10f, 48f, 69f, 74f) 48
– Proximal sclerite not confluent with distal sclerite (Figs 4f, 12f, 44f) 52

48. Lower face 0.82× as wide as long (Fig. 38b); lateral longitudinal carina of scutellum present on anterior 0.6; central sclerite shaped almost as a footprint with distal end broadened (Fig. 38f) .... ***E. hiepi*** sp. nov.
– Lower face less than 0.76× as wide as long; lateral longitudinal carina of scutellum present on at least anterior 0.8; central sclerite oval, elongate to linear or crescentic 49

49. Mandible with a conspicuous brush of long stout setae on diagonal groove; fore wing with central sclerite crescentic, fenestra with distinct quadra (Fig. 74f); metapleuron shiny with fine punctures (Fig. 74e) ..... ***E. strigilatus*** Tang, 1990
– Mandible with fine pubescence in diagonal groove; fore wing with central sclerite oval, elongate to linear, fenestra without distinct quadra; metapleuron less shiny to mat, densely punctate to diagonally striate 50

50. Fore wing with marginal cell glabrous proximally (Fig. 69f) ..... ***E. sauteri*** (Enderlein, 1921)
– Fore wing with marginal cell uniformly setose, without any glabrous area (Figs 10f, 48f) 51

51. Central sclerite oval (Fig. 48f); terminal metasomal tergites black (Fig. 48a) .... ***E. melanocarpus*** Cameron, 1905
– Central sclerite elongately oval (Fig. 10f); metasomal tergites reddish brown, without black markings (Fig. 10a) ..... ***E. bacillaris*** Wang, 1997

52. Central sclerite moderately large, weakly sclerotized (Fig. 4f); upper mandibular tooth about 2.0× as long as lower tooth (Fig. 4b); metapleuron with diagonal striae (Fig. 4e) .... ***E. aciculatus*** (Taschenberg, 1875)
– Central sclerite small to large, strongly pigmented; upper mandibular tooth about 1.3–1.6× as long as lower tooth; metapleuron punctate with isolated striae to puncto-striae or coriaceous 53

53. Central sclerite fairly large, D-shaped, separated from proximal sclerite by less than 2.0× its own maximum diameter (Fig. 44f) ..... ***E. laqueatus*** (Enderlein, 1921)
– Central sclerite moderately small, circular to oval, separated from proximal sclerite by more than 3.0× its own maximum diameter (Fig. 12f) ..... ***E. bharatensis*** Nikam, 1980

54. Proximal sclerite entirely absent (Figs 16f, 60f) 55
– Proximal sclerite present, usually strongly pigmented 56

55. Fore wing with vein 2r&RS strongly sinuous, abruptly narrow and straight at distal 0.15; fenestra with two medium-sized sclerites in distal part ..... ***E. pinguivena*** (Enderlein, 1921)
– Fore wing with vein 2r&Rs weakly sinuous, distal 0.4 narrow and straight; fenestra with one small sclerite in distal part ..... ***E. centraliscleritiger*** sp. nov.

56. Fore wing fenestra long and anterodistal corner (sub) interstitial to postfurcal to RS (Figs 52f, 58f, 73f, 84f) 57
– Fore wing fenestra short to moderately long and anterodistal corner antefurcal to RS more than 0.4 × length of 2rs-m (Figs 5f, 29f, 34f, 59f) 60

57. Margin of propodeal spiracle not joined to lateral carina by a raised flange; fore wing ICI about 0.41–0.43; [body yellow orange with mesoscutum, T3–4 ventrally and T5–8 entirely darkish brown to black] ..... ***E. nigribasalis*** (Uchida, 1928)
– Margin of propodeal spiracle joined to lateral carina by a raised flange; fore wing ICI at least 0.47 58

58. Fore wing with darkened areas (Fig. 84f); [mesosoma and metasomal tergites with yellow and black pattern] .....***E. zebrus*** Gauld & Mitchell, 1981
– Fore wing hyaline, without darkened areas 59

59. Metapleuron puncto-striate; fore wing with central sclerite small, weak, circular to oval (Fig. 73f); metasoma from T5 onwards black ..... ***E. stenophleps*** Cushman, 1937
– Metapleuron strigose (Fig. 58e); fore wing with central sclerite C-shaped, formed from the distal periphery of an extensive quadra (Fig. 58f); T3–4 dorsally and T5 onwards entirely black .... ***E. pallidistigma*** Cushman, 1937

60. Fore wing vein 1m-cu&M centrally angled, CI = 0.73–0.84 (Fig. 29f) .... ***E. flavocephalus*** (Kirby, 1900)
– Fore wing vein 1m-cu&M sinuous or evenly arcuate, CI at most 0.65 61

61. Fore wing vein 2r&RS with a weak, central, anterior angulation (Fig. 34f); [sclerites weak to moderately strong, central sclerite linear, situated in the middle of fenestra and subparallel to 2r&RS] .... ***E. grammospilus*** (Enderlein, 1921)
– Fore wing vein 2r&RS without a central, anterior angulation, sometimes with posterior bulb 62

62. Fore wing with proximal sclerite moderately weak, blade-like in shape (Fig. 59f) ....***E. pantanae*** Tang, 1990
– Fore wing with proximal sclerite strongly pigmented, triangular 63

63. Mandible very strongly twisted by ca 85°, two teeth equal in length (Fig. 5b); median lobe and posterior part of mesoscutum black .....***E. acutus*** Shimizu, 2020
– Mandible torsion various, not very strongly twisted, upper tooth more or less longer than lower tooth; colour of mesoscutum various 64

64. Propodeum with distinct posterior transverse carina arising from pleural carina and centrally incomplete (Fig. 72e) ..... ***E. signativentris*** (Tosquinet, 1903)
– Propodeum without even a lateral vestige of posterior transverse carina 65

65. Fore wing basal and discosubmarginal cells with short and sparse setae, separated by more than their own length, marginal cell sparsely setose to glabrous proximally, vein 2r&RS with posterior bulb medially, vein M&RS interstitial to 1cu-a (Figs 15f, 66f) 66
– Fore wing basal and discosubmarginal cells with longer and denser setae, separated by less than their own length, marginal cell uniformly setose; vein 2r&RS without posterior bulb, M&RS interstitial to or postfurcal to 1cu-a 67

66. Mesoscutum entirely reddish brown; central sclerite circular to oval (Fig. 66f) ..... ***E. rhetus*** Gauld & Mitchell, 1981
– Mesoscutum reddish brown with three black stripes; central sclerite elongate oval (Fig. 15f) ..... ***E. bulbipennis*** sp. nov.

67. Fore wing with both ICI and CI smaller than 0.5 (Fig. 53f) ..... ***E. nigristernalis*** sp. nov.
– Fore wing with ICI greater than 0.5, CI various 68

68. Fore wing CI = 0.45 or more 69
– Fore wing CI less than 0.40 71

69. Fore wing with central sclerite C-shaped and parallel to distal sclerite, discosubmarginal cell with conspicuous long line of setae (Fig. 30f); [lower face 0.82–0.87 × as broad as long] ..... ***E. formosensis*** (Uchida, 1928)
– Fore wing with central sclerite subtriangular to circular, discosubmarginal cell without conspicuous long line of setae (Figs 33f, 70f) 70

70. Lower face 0.82 × as wide as long (Fig. 33b); fore wing with proximal sclerite about 0.5 × as high as maximum width, central sclerite oval (Fig. 33f); S6–8 of male without long stout erect setae on posterior margins ..... ***E. gialaiensis*** sp. nov.
– Lower face 0.67–0.75 × as wide as long (Fig. 70b); fore wing with proximal sclerite about 0.7 × as high as maximum width, central sclerite subtriangular to circular (Fig. 70f); S6–8 of male with long stout erect setae on posterior margins ..... ***E. selmatos*** Chiu, 1954

71. Fore wing partly darkened, central sclerite oval, with maximum diameter smaller than distance from central sclerite to vein 2r&RS (Fig. 79f) ..... ***E. tuani*** sp. nov.
– Fore wing hyaline (except somewhat darkened in case of *E. abdominalis*), central sclerite various, if oval or subtriangular then its maximum diameter larger than distance from central sclerite to vein 2r&RS 72

72. Central sclerite linear or crescentic, formed from the sclerotized anterior, antero-distal or distal margin of large quadra; quadra occluding much of fenestra (Figs 28f, 36f, 43f, 55f, 80f) 73
– Central sclerite more or less oval or subtriangular; quadra, if present, smaller 80

73. Fore wing with AI = 0.29–0.53 74
– Fore wing with AI = 0.59–1.0 76

74. Metapleuron punctate or puncto-granulate, without any diagonal strigose ridges (Fig. 80e); fore wing with proximal sclerite high and narrow, about 2.2 × as high as median width (Fig. 80f) ..... ***E. urus*** Gauld & Mitchell, 1981
– Metapleuron with conspicuous diagonal strigose ridges (Figs 28e, 43e); fore wing with proximal sclerite moderately high and wider, about 1.5–1.7 × as high as median width (Figs 28f, 43f) 75

75. Central sclerite long and slender (Fig. 28f) ..... ***E. flavicaput*** (Morley, 1912)
– Central sclerite short and stout (Fig. 43f) ..... ***E. kanshirensis*** (Uchida, 1928)

76. Margin of propodeal spiracle connected to lateral carina by a raised flange, mesoscutum always with black markings 77
– Margin of propodeal spiracle not connected to lateral carina by a raised flange or rarely the two connected by weak creases; mesoscutum entirely reddish brown or with median black stripe 78

77. Mandible twisted by ca 75° (Fig. 55b); mesoscutum with posterior half black .... ***E. nigriventris*** Nikam, 1975
– Mandible twisted by 10–15° (Fig. 36b); mesoscutum with three black stripes .... ***E. hamatus*** Gauld & Mitchell, 1981

78. Body large, entirely reddish yellow; fore wing length 18.5–19.3 mm, central sclerite strongly sclerotized (Fig. 7f); hind wing vein RA with 9 hamuli; metapleuron with conspicuous diagonal strigose ridges (Fig. 7e) ..... ***E. argus*** Gauld & Mitchell, 1981
– Body smaller, reddish yellow to reddish brown with at least fore wing costal vein black; fore wing length 12.7–17.2 mm, central sclerite weakly to strongly sclerotized; hind wing vein RA with 6–8 hamuli; metapleuron from puncto-striate to striate 79

79. Central sclerite strongly pigmented as an ellipse parallel to vein 2r&RS, formed from antero-distal margin of quadra (Fig. 8f) ..... ***E. ashbyi*** Ashmead, 1904
– Central sclerite weakly to moderately strongly pigmented, C-shaped, formed from distal margin of quadra (Fig. 81f) ..... ***E. verticinus*** (Roman, 1913)

80. Mesosoma with black markings; T1–4 anteriorly pale yellow, posteriorly black; hind wing distally darkened ..... ***E. abdominalis*** (Szépligeti, 1906)
– Mesosoma entirely reddish brown; T1–4 without alternative light and dark banding; hind wing entirely hyaline 81

81. Fore wing with SRI = 0.33, posterodistal corner of second discal cell acute to right- angled (Figs 62f, 77f); propodeum finely and closely wrinkled; clypeus with apical margin impressed 82
– Fore wing with SRI = 0.25 or less, posterodistal corner of second discal cell obtuse, at least 95° or more (Figs 41f, 82f); propodeum coarsely wrinkled to concentrically striate; clypeus with apical margin never impressed 83

82. Mandible with a brush of closely spaced fine setae on outer surface (Fig. 77b); lower face uniformly orange-yellow, at most grading to yellow towards orbits (Fig. 77b); central sclerite oval (Fig. 77f) ..... ***E. tripartitus*** Chiu, 1954
– Mandible with sparse scattered setae on outer surface; lower face reddish brown with discrete white-yellow orbital bands (Fig. 62b); central sclerite more or less circular (Fig. 62f) .... ***E. pseudantennatus*** Gauld, 1977

83. Distal side of central sclerite conspicuously angulate (Fig. 41f) .... ***E. ixion*** Gauld & Mitchell, 1981
– Distal side of central sclerite evenly rounded (Fig. 82f) ..... ***E. vestigator*** (Smith, 1858)

Taxonomic accounts

Enicospilus abdominalis (Szépligeti, 1906)

Fig. 3

Henicospilus abdominalis Szépligeti, 1906: 138; holotype ♀ from Sri Lanka (HNHM).
Ophion semiopacus Matsumura, 1912: 114; holotype ♀ from Taiwan (SEHU); synonymised by Gauld & Mitchell (1981): 429.

Enicospilus abdominalis – Nikam 1980: 189.

Diagnosis

Interocellar area reddish brown; clypeus weakly convex, ventral margin subblunt; mandible twisted ca 40°, outer surface without a diagonal setose groove; fore wing fenestra with proximal and central sclerites large and sclerotized, distal sclerite weakly present; mesosoma with black markings; metasomal tergites

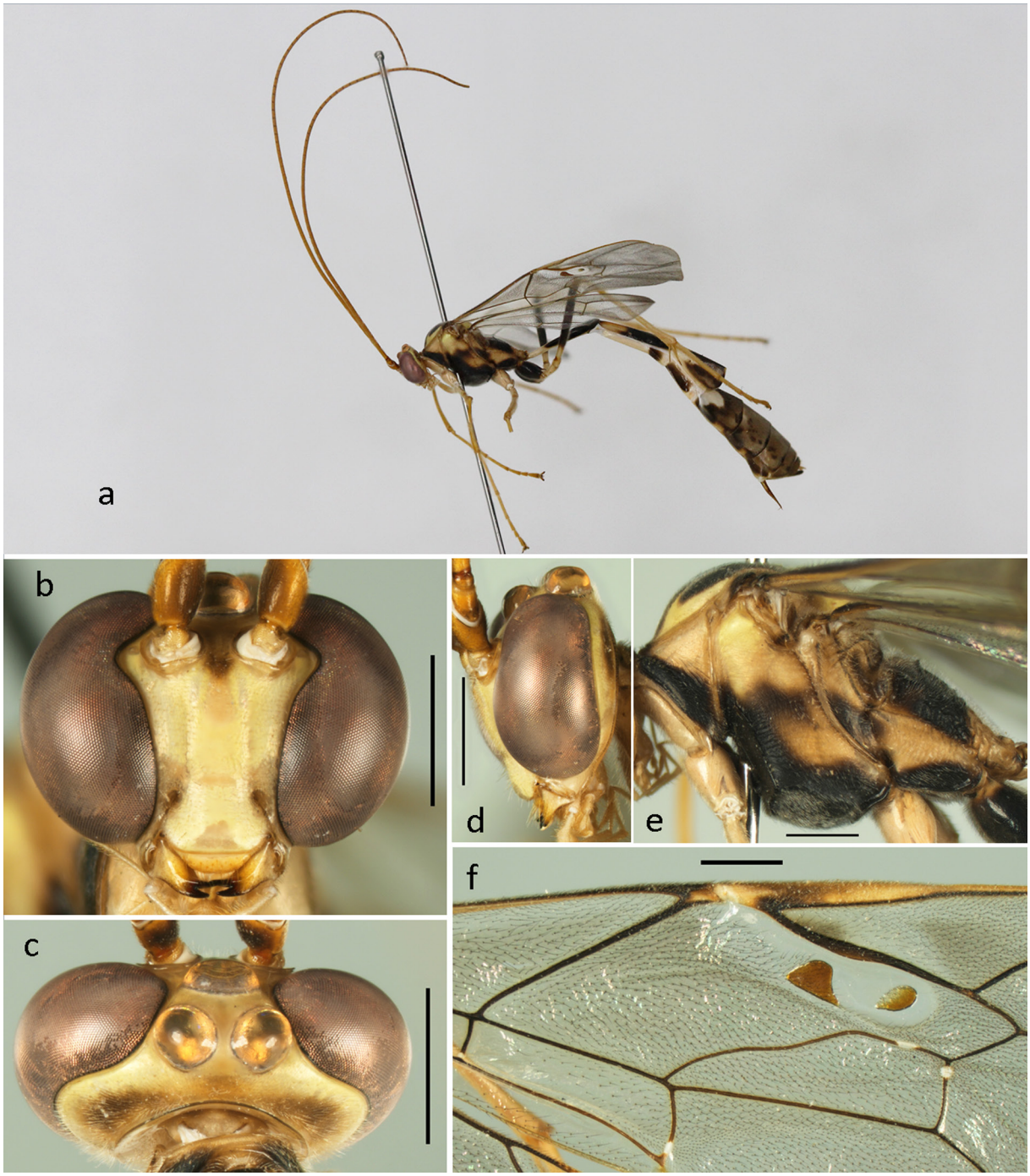

Fig. 3. *Enicospilus abdominalis* (Szépligeti, 1906), ♀ (IEBR). **a**. Habitus. **b**. Head, frontal view. **c**. Head, dorsal view. **d**. Head, lateral view. **e**. Mesosoma, lateral view. **f**. Central part of fore wing. Scale bars = 1.0 mm.

1–4 anteriorly pale yellow, posteriorly black; hind wing distally darkened; metapleuron with diagonal striae.

Material examined

VIETNAM • 1 ♀; Lam Dong Province, Bidoup - Nui Ba NP; 4 May 2022; Nguyen D.H. leg.; light trap; IEBR • 1 ♂; Lao Cai Province, Bat Xat NR; 22°37′37″ N, 103°37′32″ E; 1840 m a.s.l.; 28 May 2022; Pham T.N. & Dang T.H. leg; light trap; IEBR.

Distribution

China (including Taiwan), India, Korea, Japan, Laos, Malaysia, Myanmar, Papua New Guinea, Philippines, Sri Lanka and Thailand (Gauld & Mitchell 1981; Shimizu & Konishi 2018; Shimizu *et al.* 2020). These are the first records of this species from Vietnam.

Enicospilus aciculatus (Taschenberg, 1875)
Fig. 4

Ophion aciculatus Taschenberg, 1875: 434; lectotype ♀ from Java (MLUH), designated by Townes *et al.* (1961).

Enicospilus aciculatus – Townes *et al.* 1961: 296.

Diagnosis

Interocellar area reddish brown; clypeus moderately convex, ventral margin blunt; mandible twisted ca 40°, outer surface with a diagonal setose groove, upper tooth about 2.0× as long as lower tooth; fore wing fenestra with proximal, central and distal sclerites present, central sclerite moderately large, weakly sclerotized, distal sclerite stout, narrowly separated from proximal sclerite; metapleuron with diagonal striae.

Material examined

VIETNAM • 1 ♂; Tuyen Quang Province, Na Hang, Trung Phin; 22°30′86″ N, 105°23′49.2″ E; 956 m a.s.l.; 17 Sep. 2017; Pham T.N. leg.; light trap; IEBR • 1 ♂; Gia Lai Province, Kon Ka Kinh NP; 28 Apr. 2022; Pham V.P. leg.; IEBR • 1 ♀; Lao Cai Province, Bat Xat NR; 22°37′37″ N, 103°37′32″ E; 1840 m a.s.l.; 28 May 2022; Pham T.N. and Dang T.H. leg.; light trap; IEBR.

Distribution

China (including Taiwan), India, Indonesia, Japan, Myanmar, Philippines, Solomon Islands, Sri Lanka, Vanuatu, and Vietnam (Gauld & Mitchell 1981; Shimizu *et al.* 2020).

Enicospilus acutus Shimizu, 2020
Fig. 5

Enicospilus acutus Shimizu in Shimizu *et al.*, 2020: 36; holotype ♀ from Japan (MNHA).

Diagnosis

Interocellar area yellowish brown; clypeus weakly convex, ventral margin acute; mandible twisted 80°–85°, outer surface without a diagonal setose groove, two teeth equal in length, upper tooth stouter than lower one; fore wing darkened anteriorly, fenestra with proximal, central and distal sclerites; mesoscutum with median lobe and posterior half black.

Material examined

VIETNAM • 1 ♂; Dong Nai Province, Vinh Cuu, Ma Da; 18 May 2007; Hoang V.T. leg.; light trap; IEBR • 1 ♀; Vinh Phuc Province, Me Linh Station for Biodiversity; 4 Jun. 2010; Hoang V.T. leg.; light trap; IEBR • 1 ♀; Lam Dong Province, Bidoup - Nui Ba NP; 3 Jun. 2013; Hoang V.T. leg.; light trap; IEBR • 1 ♀; Quang Ninh Province, Dong Son - Ky Thuong NR; 26 Jul. 2020; Hoang V.T. leg.; light trap;

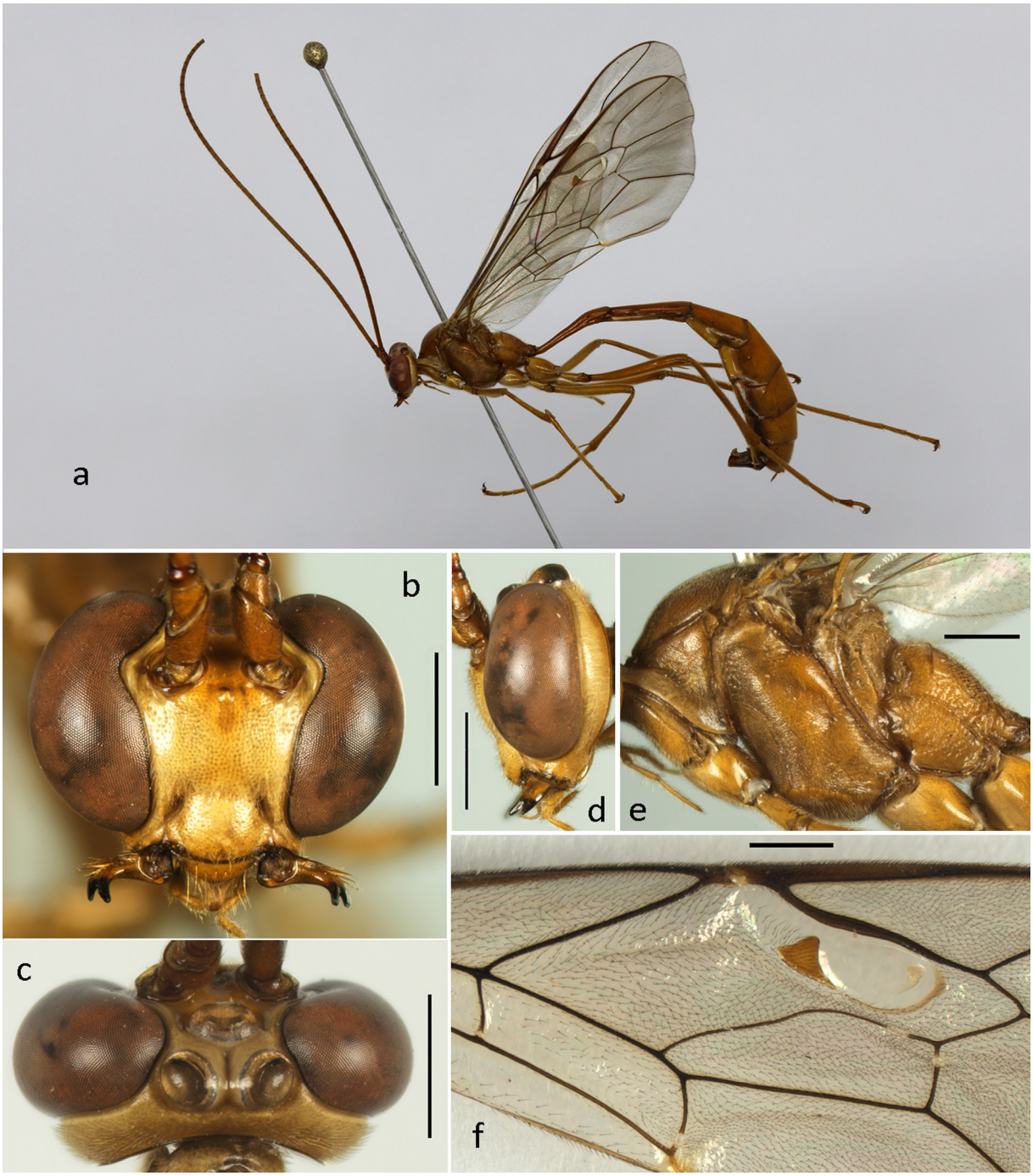

Fig. 4. *Enicospilus aciculatus* (Taschenberg, 1875), ♂ (IEBR). **a**. Habitus. **b**. Head, frontal view. **c**. Head, dorsal view. **d**. Head, lateral view. **e**. Mesosoma, lateral view. **f**. Central part of fore wing. Scale bars = 1.0 mm.

IEBR • 1 ♀; Cao Bang Province, Phia Oac - Phia Den NP; 22°35′18.2″ N, 105°52′33.2″ E; 1200 m a.s.l.; 22 May 2020; Hoang V.T. and Pham V.P. leg.; light trap; IEBR • 2 ♀♀; same locality as for preceding; 22°35.305′ N, 105°52.552′ E; 1216 m a.s.l.; 23 May 2020; Hoang V.T. and Pham V.P. leg.; light trap; IEBR

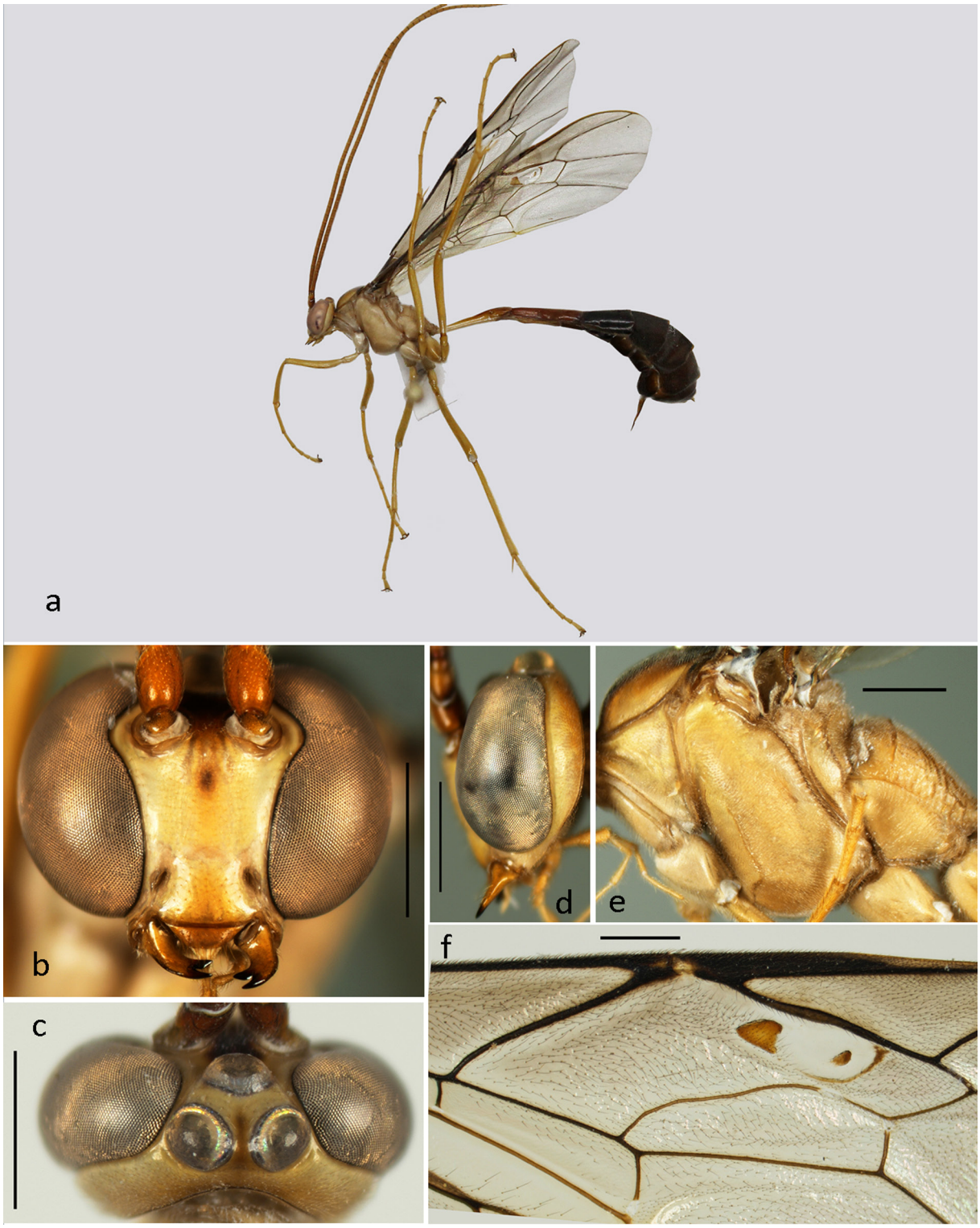

Fig. 5. *Enicospilus acutus* Shimizu, 2020, ♀ (IEBR). **a**. Habitus. **b**. Head, frontal view. **c**. Head, dorsal view. **d**. Head, lateral view. **e**. Mesosoma, lateral view. **f**. Central part of fore wing. Scale bars = 1.0 mm.

• 2 ♀♀; same collection data as for preceding; 24 May 2020; IEBR • 1 ♀; same locality as for preceding; 3 Jun. 2020; Nguyen Q.C. leg.; light trap; IEBR • 1 ♀; Cao Bang Province, Nguyen Binh, Tinh Tuc; 3 Jun. 2020; Nguyen D.H. leg.; light trap; IEBR • 2 ♀♀; Lao Cai Province, Bat Xat NR; 22°37′37″ N, 103°37′32″ E; 1840 m a.s.l.; 29 May 2022; Pham T.N. and Dang T.H. leg.; light trap; IEBR • 1 ♀; Lai Chau Province, Sin Ho, Sa De Phin, 22°18′18″ N, 103°13′37″ E; 1760 m a.s.l.; 31 May 2022; Pham T.N. and Dang T.H. leg.; light trap; IEBR • 1 ♀; Lang Son Province, Huu Lien NR; 1 Jun. 2022; Pham V.P. leg.; light trap; IEBR • 1 ♀; Ninh Binh Province, Cuc Phuong NP; 8 Jun. 2022; Pham V.P. leg.; light trap; IEBR • 1 ♀; Hoa Binh Province, Mai Chau, Bao La; 20.7046° N, 104.9720° E; 830 m a.s.l.; 3 Jul. 2022; Phan Q.T. leg.; light trap; IEBR.

Remarks

Vietnamese specimens have the fore wing length from 14.2 to 17.0 mm, slightly shorter than Japanese specimens (16.5–18.0 mm), CI = 0.28–0.34 (vs 0.40). Otherwise, specimens agree with the description by Shimizu *et al.* (2020).

Distribution

Previously known from Japan and Taiwan (Shimizu *et al.* 2020). These are the first records of this species from Vietnam.

Enicospilus aequiscleritalis sp. nov.

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Fig. 6

Diagnosis

Interocellar area black; clypeus convex, ventral margin acute; mandible short, twisted 80°–85°, outer surface without a diagonal setose groove; fore wing fenestra with proximal, central and distal sclerites, central sclerite elongate, of nearly similar size and shape to proximal sclerite; mesopleuron puncto-striate to finely striate; metapleuron coriaceous to finely striate.

Differential diagnosis

The new species can be distinguished from *E. xanthocephalus* Cameron, 1905 by the acute ventral margin of the clypeus, the proximal sclerite joining the proximal margin of fenestra, the larger central sclerite, and the presence of a distal sclerite joining the proximal sclerite.

Etymology

The Latin adjective '*aequus*' means 'the same'. Combined with the sclerite, the specific epithet '*aequiscleritalis*' referred to the similar size and shape of the proximal and central sclerites.

Material examined

Holotype

VIETNAM • ♀; Hoa Binh Province, Yen Thuy, Lac Thinh; 15–30 Aug. 2002; Khuat D.L leg.; Malaise trap; IEBR.

Paratypes

VIETNAM • 1 ♀; same collection data as holotype; 1–10 Apr. 2002; IEBR • 1 ♀; same collection data as holotype; 1–10 Sep. 2002; IEBR • 1 ♀; same collection data as holotype; 1–10 Oct. 2002; IEBR • 1 ♀; Hoa Binh Province, Yen Thuy, Da Phuc; 10–20 Nov. 2003; Khuat D.L. leg.; Malaise trap; IEBR • 1 ♀; same collection data as for preceding; 20–30 Nov. 2003; IEBR • 1 ♀; Hanoi, Chuong My, Thuy Xuan Tien; 20.8833° N, 105.5765° E; 30 Apr. 2019; Nguyen D.H. leg.; Malaise trap; IEBR.

Description

Female (holotype)

Measurements. Body length 11.3 mm, fore wing length 9.8 mm.

Head with FI = 0.6, GOI = 3.0 (Fig. 6d). Lower face 0.7 × as wide as high, moderately shiny (Fig. 6b). Clypeus 1.4 × as wide as high, convex in profile, shiny, ventral margin acute (Fig. 6b). Malar space 0.3 × as long as basal mandibular width (Fig. 6b). Mandible twisted by ca 85°, short, strongly narrowed apically, outer surface without diagonal setose groove (Fig. 6b). Upper tooth of mandible about 1.2 ×

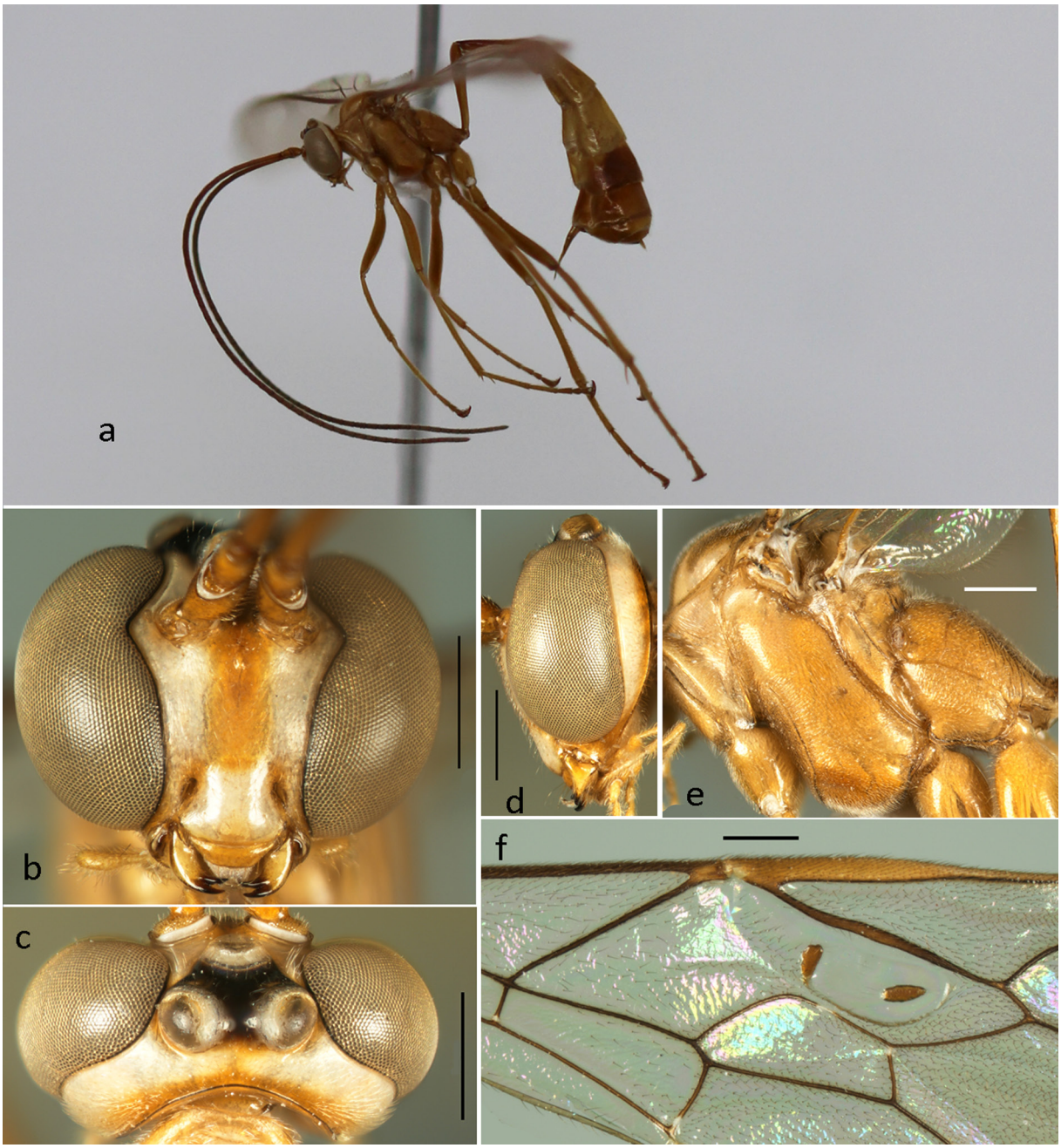

Fig. 6. *Enicospilus aequiscleritalis* sp. nov., holotype, ♀ (IEBR). **a**. Habitus. **b**. Head, frontal view. **c**. Head, dorsal view. **d**. Head, lateral view. **e**. Mesosoma, lateral view. **f**. Central part of fore wing. Scale bars = 0.5 mm.

as long as lower tooth (Fig. 6b). Frons and vertex shiny, gena shiny with fine setae (Fig. 6c). Posterior ocellus close to eye (Fig. 6c). Occipital carina complete, ventral end meeting hypostomal carina at about 0.7 × basal mandible width from base of mandible. Antenna with 43 flagellomeres; F1 1.7 × as long as F2; F20 2.2 × as long as wide.

Mesosoma. Moderately shiny (Fig. 6e). Pronotum finely striate medially (Fig. 6e). Mesoscutum 1.5 × as long as maximum width, evenly rounded in profile. Notaulus absent. Scutellum moderately convex, shiny with small punctures anteriorly, posteriorly with several rugae, lateral longitudinal carinae present along entire length of scutellum. Epicnemium matt, densely punctate (Fig. 6e). Epicnemial carina moderately strong, present on ventral half of mesopleuron, dorsal end weakly bent towards anterior margin of mesopleuron (Fig. 6e). Mesopleuron finely striate ventrally, dorsally finely punctate (Fig. 6e). Submetapleural carina broadened anteriorly (Fig. 6e). Metapleuron finely striate dorsally (Fig. 6e). Propodeum evenly rounded in profile; anterior transverse carina complete; anterior area shiny, with several rugae; spiracular area smooth; posterior area with concentric fine striae; propodeal spiracle elliptical and joining pleural carina by ridge (Fig. 6e).

Wings (Fig. 6f). Fore wing with AI = 1.5, CI = 0.33, DI = 0.43, ICI = 0.31, SDI = 0.97, SI = 0.26, SRI = 0.30; vein 1m-cu&M strongly arcuate; vein 2r&RS weakly sinuous; vein RS strongly curved; fenestra and sclerites of discosubmarginal cell as in Fig. 6f; proximal sclerite elongate, strongly pigmented, confluent with weak distal sclerite; central sclerite elongate, positioned at posterodistal area of fenestra; proximal corner of marginal cell evenly setose; posterodistal corner of second discal cell ca 85° and of subbasal cell ca 90°; vein 1cu-a interstitial to M&RS. Hind wing with NI = 2.1; vein RS straight; vein RA with 5 uniform hamuli on right wing and with 6 uniform hamuli on left wing.

Legs. Hind leg with coxa in profile 1.6 × as long as high; basitarsus 1.9 × as long as second tarsomere; fourth tarsomere 2.2 × as long as wide; tarsal claw with proximal pecten longer than distal ones.

Metasoma. With DMI = 1.3, PI = 2.7, THI = 3.6; thyridium oval; ovipositor sheath not longer than posterior height of metasoma.

Colour (Fig. 6a). Reddish brown except for apex of mandible and interocellar area black, and metasoma from T5 onwards brown. Wings hyaline; sclerites pigmented and amber; veins dark brown, pterostigma reddish brown.

Variation in female

Antenna with 43–45 flagellomeres. Fore wing length 7.7–11.0 mm, AI = 1.55–2.38, CI= 0.26–0.33, DI = 0.42–0.46, ICI = 0.26–0.34, SDI = 1.02–1.09, SI = 0.23–0.26, SRI = 0.32–0.33. Hind wing with NI = 1.70–2.50. Mesosoma with mesoscutum entirely reddish brown sometimes with blackish marking in front of scuto-scutellar groove. Metasoma from T5 onwards brown to black.

Male

Unknown.

Distribution

Currently known from Hoa Binh Province in the northwest and Hanoi City in the Red River Delta of Vietnam.

Enicospilus argus Gauld & Mitchell, 1981
Fig. 7

Enicospilus argus Gauld & Mitchell, 1981: 425; holotype ♀ from Papua New Guinea (NHMUK).

Diagnosis

Interocellar area reddish brown; clypeus weakly convex, ventral margin subacute to acute; mandible twisted ca 20°, outer surface without a diagonal setose groove; fore wing fenestra with proximal, central and distal sclerites present, central sclerite with the proximal weakly sclerotized region large, distally strongly sclerotized, more or less bar-shaped and subparallel to vein 2r&RS.

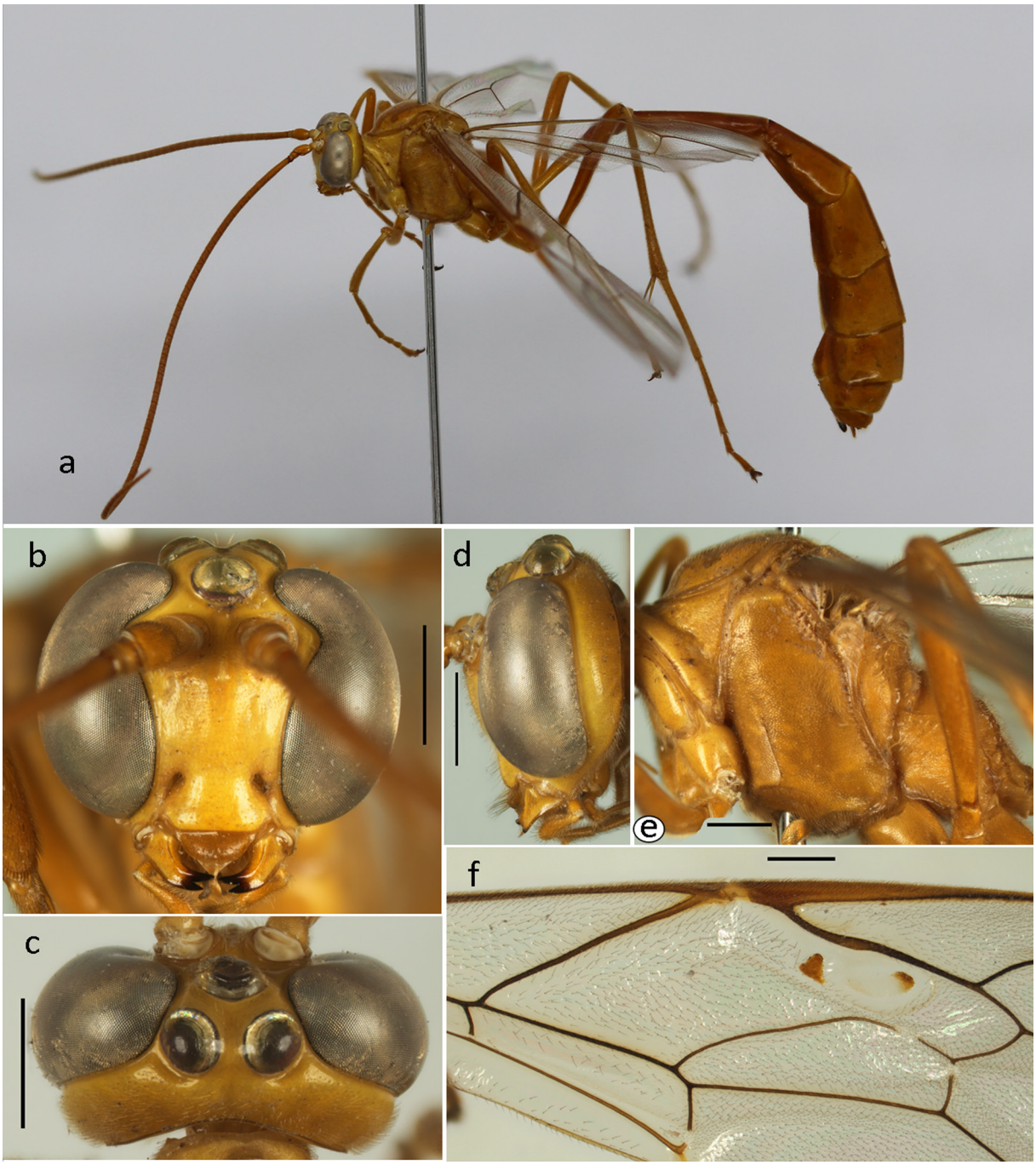

Fig. 7. *Enicospilus argus* Gauld & Mitchell, 1981, ♀ (IEBR). **a**. Habitus. **b**. Head, frontal view. **c**. Head, dorsal view. **d**. Head, lateral view. **e**. Mesosoma, lateral view. **f**. Central part of fore wing. Scale bars = 1.0 mm.

Material examined

VIETNAM • 2 ♀♀; Soc Trang Province, My Tu, My Phuoc; 9°34′15.6″ N, 105°45′1.6″ E; 8 Apr. 2018; Dang T.H. leg.; light trap; IEBR • 1 ♀; Cao Bang Province, Phia Oac - Phia Den NP; 8 May 2021; Nguyen D.H. leg.; light trap; IEBR.

Remarks

Vietnamese specimens have the mandible torsion ca 20°, less twisted in comparison with the specimens from Papua New Guinea and the Philippines (40°–45°) (Gauld & Mitchell 1981).

Distribution

Previously known from Indonesia, Papua New Guinea, and Philippines (Gauld & Mitchell 1981). These are the first records of this species from Vietnam.

Enicospilus ashbyi Ashmead, 1904
Fig. 8

Enicospilus ashbyi Ashmead, 1904: 17: holotype ♂ from Philippines (NMNH).

Diagnosis

Interocellar area reddish brown; antenna with flagellomeres short, F20 about 1.5–1.6 × as long as broad; clypeus weakly convex, ventral margin blunt; mandible twisted ca 30°, outer surface without a diagonal setose groove; fore wing fenestra with proximal, central and distal sclerites present, central sclerite more or less elliptic, parallel to vein 2r&RS, formed from antero-distal margin of quadra.

Material examined

VIETNAM • 1 ♀; Lao Cai Province, Sapa; 1600 m a.s.l.; 27 May 1997; R. Matsumoto leg.; OMNH • 1 ♀; Vinh Phuc Province, Tam Dao NP; 8 May 2012; Hoang V.T. leg.; light trap; IEBR • 1 ♀; Ninh Binh Province, Trang An Landscape Complex, Tran Temple; 20°15.516′ N, 105°53.271′ E; 32 m a.s.l.; 11 Jun. 2018; Pham T.N., Dang T.H. and Nguyen H.N. leg.; light trap; IEBR • 1 ♂, 1 ♀; Lao Cai Province, Bat Xat NR; 22°37′37″ N, 103°37′32″ E; 1840 m a.s.l; 28 May 2022; Pham T.N. and Dang T.H. leg.; light trap; IEBR • 2 ♀♀; Hoa Binh Province, Mai Chau, Bao La; 20.7046° N, 104.9720° E; 830 m a.s.l.; 3 Jul. 2022; Phan Q.T. leg.; light trap; IEBR.

Distribution

China (including Taiwan), India, Indonesia, Malaysia, Papua New Guinea, Philippines, Singapore, and Vietnam (Yu *et al.* 2016).

Enicospilus atoponeus Cushman, 1947
Fig. 9

Atoponeura concolor Szépligeti, 1905: 34; holotype ♀ from Sulawesi (HNHM); junior secondary homonym of *Enicospilus concolor* (Cresson, 1865).
Enicospilus atoponeus Cushman, 1947: 466, 472. [Replacement name for *A. cocolor* Szépligeti, 1905.]

Diagnosis

Interocellar area reddish brown; clypeus flat to weakly convex, ventral margin acute; mandible twisted 30°–40°, outer surface without a diagonal setose groove; fore wing fenestra without any sclerites, vein 1m-cu&M centrally broadened, 2r&RS rather stout, distally abruptly tapered.

Material examined

VIETNAM • 1 ♀; Thua Thien-Hue Province, Bach Ma NP; 400 m a.s.l.; 13 Aug. 2005; Truong X.L. leg.; hand net; IEBR • 1 ♀; Gia Lai Province, Kon Chu Rang NP; 26 Apr. 2016; Nguyen T.P.L. and Nguyen Q.C. leg.; light trap; IEBR • 1 ♂; Gia Lai Province, Kon Ka Kinh NP; 10 Jun. 2011; Nguyen Q.T. leg.; light trap; IEBR • 1 ♀; same locality as for preceding; 14 Mar. 2019; Pham V.P. leg.; light trap; IEBR.

Distribution

Previously known from Brunei, China, Indonesia, Malaysia, and Philippines (Yu *et al.* 2016). These are the first records of this species from Vietnam.

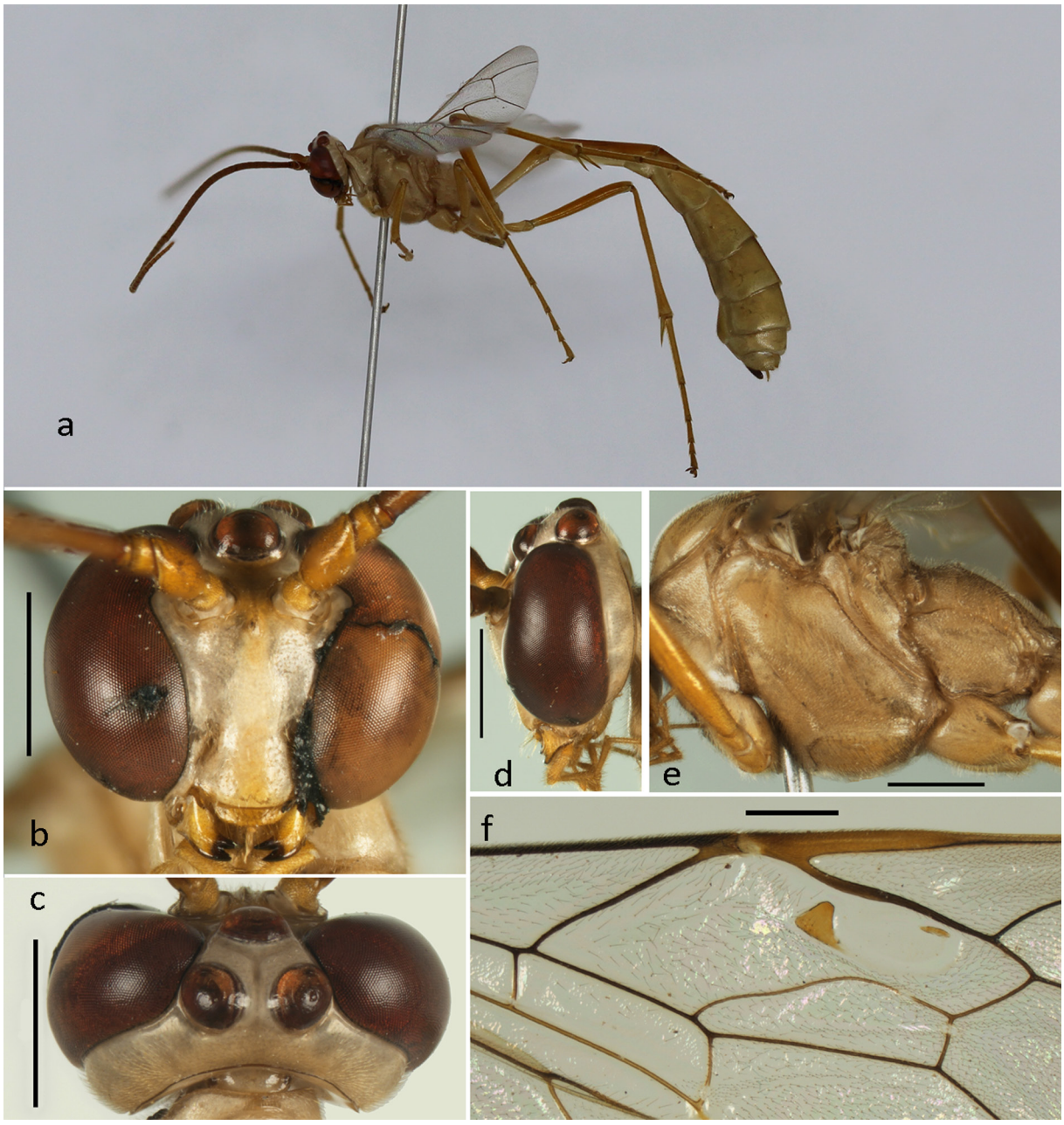

Fig. 8. *Enicospilus ashbyi* Ashmead, 1904, ♀ (IEBR). **a**. Habitus. **b**. Head, frontal view. **c**. Head, dorsal view. **d**. Head, lateral view. **e**. Mesosoma, lateral view. **f**. Central part of fore wing. Scale bars = 1.0 mm.

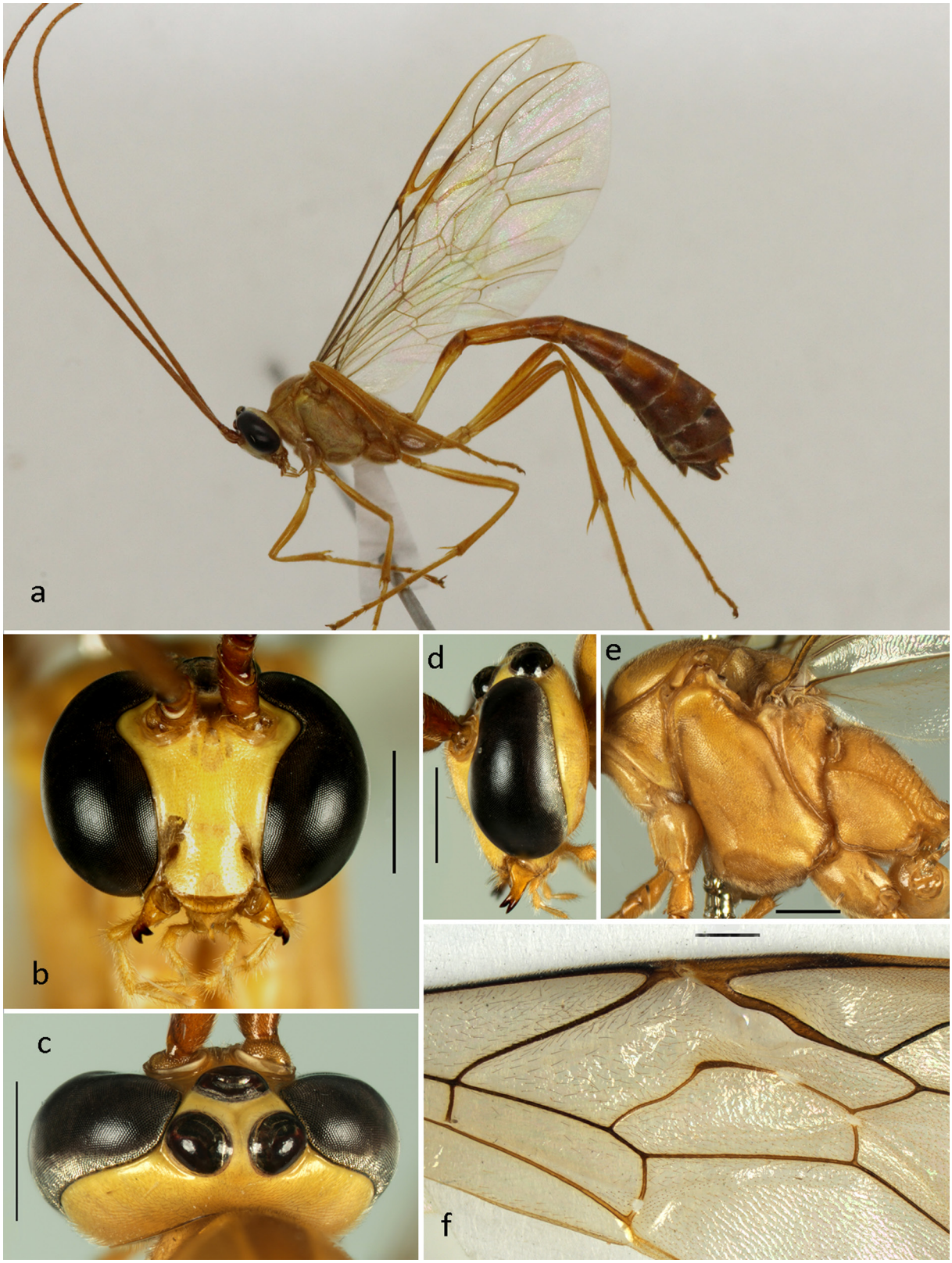

Fig. 9. *Enicospilus atoponeus* Cushman, 1947, ♀ (IEBR). **a**. Habitus. **b**. Head, frontal view. **c**. Head, dorsal view. **d**. Head, lateral view. **e**. Mesosoma, lateral view. **f**. Central part of fore wing. Scale bars = 1.0 mm.

Enicospilus bacillaris Wang, 1997
Fig. 10

Enicospilus bacillaris Wang, 1997: 1634; holotype ♀ from China (IZCAS).

Diagnosis

Interocellar area reddish brown; clypeus moderately convex, ventral margin impressed, acute; mandible twisted 20°–30°, outer surface with a diagonal setose groove; fore wing fenestra with proximal, central and distal sclerites present, central sclerite elongately oval, positioned in centrodistal part of fenestra; metasomal tergites without black markings.

Material examined

VIETNAM • 1 ♀; Vinh Phuc Province, Tam Dao NP; 1 May 1997; R. Matsumoto leg.; OMNH • 1 ♀; Lao Cai Province, Sapa; 1500 m a.s.l.; 25 May 1997; R. Matsumoto leg.; OMNH • 1 ♀; same collection data as for preceding; 27 May 1997; OMNH • 1 ♀; Hoa Binh Province, Yen Thuy, Lac Thinh; 10–20 Jun. 2002; Khuat D.L. leg.; Malaise trap; IEBR • 3 ♂♂; same collection data as for preceding; 1–10 Sep. 2002; IEBR • 1 ♀; Kon Tum Provincce, Kon Plong, Hieu; 14°41.447′ N, 108°22.376′ E; 1170 m a.s.l.; 12 May 2006; Nguyen Q.T. leg.; light trap; IEBR • 1 ♀, 1 ♂; Lao Cai Province, Hoang Lien NP; 28 Sep. 2013; Pham T.N. leg.; light trap; IEBR • 1 ♀; same locality as for preceding; 5 Jul. 2013; Hoang V.T. leg.; light trap; IEBR • 1 ♀; Son La Province, Thuan Chau, Co Ma; 28 Apr. 2016; Hoang V.T. and Nguyen V.B. leg.; light trap; IEBR • 1 ♀; Kon Tum Province, Mang Den, Mang Canh; 5 Jun. 2019; Nguyen V.T. leg.; light trap; IEBR • 1 ♀; Cao Bang Province, Phia Oac - Phia Den NP; 22°35.305′ N, 105°52.552′ E; 1216 m a.s.l.; 24 May 2020; Hoang V.T. and Pham V.P. leg.; light trap; IEBR • 1 ♀; Cao Bang Province, Ha Quang, Thanh Long; 22.76852° N, 105.9687° E; 590 m a.s.l.; 24 May 2022; Pham T.N., Hoang V.T. and Pham V.P. leg.; light trap; IEBR • 2 ♀♀; Lai Chau Province, Sin Ho, Sa De Phin; 22°18′18″ N, 103°13′37″ E; 1760 m a.s.l.; 31 May 2022; Pham T.N. and Dang T.H. leg.; light trap; IEBR • 6 ♀♀; Lai Chau Province, Sin Ho, Ta Ngao; 22°16′19″ N, 103°14′54″ E; 1520 m a.s.l.; 1 Jun. 2022; Pham T.N. and Dang T.H. leg.; IEBR.

Remarks

Wang (1997) described *E. bacillaris* on the basis of the male holotype from Sichuan (China). Shimizu *et al.* (2020) subsequently discovered *E. phulchokiensis* Shimizu, 2020 based on the female holotype from Phulcho (Nepal). The Vietnamese specimens are similar to both species in the size and shapes of the fore wing sclerites as well as colour pattern of the body. The Vietnamese specimens have the fore wing length from 12.2–15.1 mm, AI = 0.39–0.53, CI = 0.33–0.48, DI = 0.35–0.40, ICI = 0.45–0.59, SDI = 1.23–1.38, SI= 0.17, SRI = 0.28–0.30 and hind wing NI = 1.43–2.12, all similar to those of *E. phulchokiensis* (fore wing length 13.5 mm, AI = 0.4, CI = 0.4, DI = 0.4, ICI = 0.5, SDI = 1.2, SI = 0.1, SRI = 0.3; hind wing NI = 1.3). The number of flagellomeres of Vietnamese specimens varies from 62 to 65 flagellomeres and the 20th flagellomere 2.4–2.5 × as long as wide, resembling *E. phulchokiensis* (64 flagellomeres and the 20th flagellomere 2.2 × as long as wide), whereas the male holotype of *E. bacillaris* has 72 flagellomeres and the 20th flagellomere 1.7 × as long as wide. Although Wang (1997) did not mention the wing indices of *E. bacillaris* the illustration of its fore wing showed that its wing could match the indices of both taxa from Nepal and Vietnam. In addition, the number of flagellomeres as well as the size of the 20th flagellomere can vary within a species, especially the size of the 20th flagellomere may vary between females and males. Because the type specimen of *E. bacillaris* is not available for morphological examination in this study, we therefore provisionally assign the Vietnamese specimens to *E. bacillaris*. Further studies are required to verify the taxonomic position of the Chinese, Nepal and Vietnamese taxa.

Distribution

Previously known from China (Wang *et al.* 1997). These are the first records of this species from Vietnam.

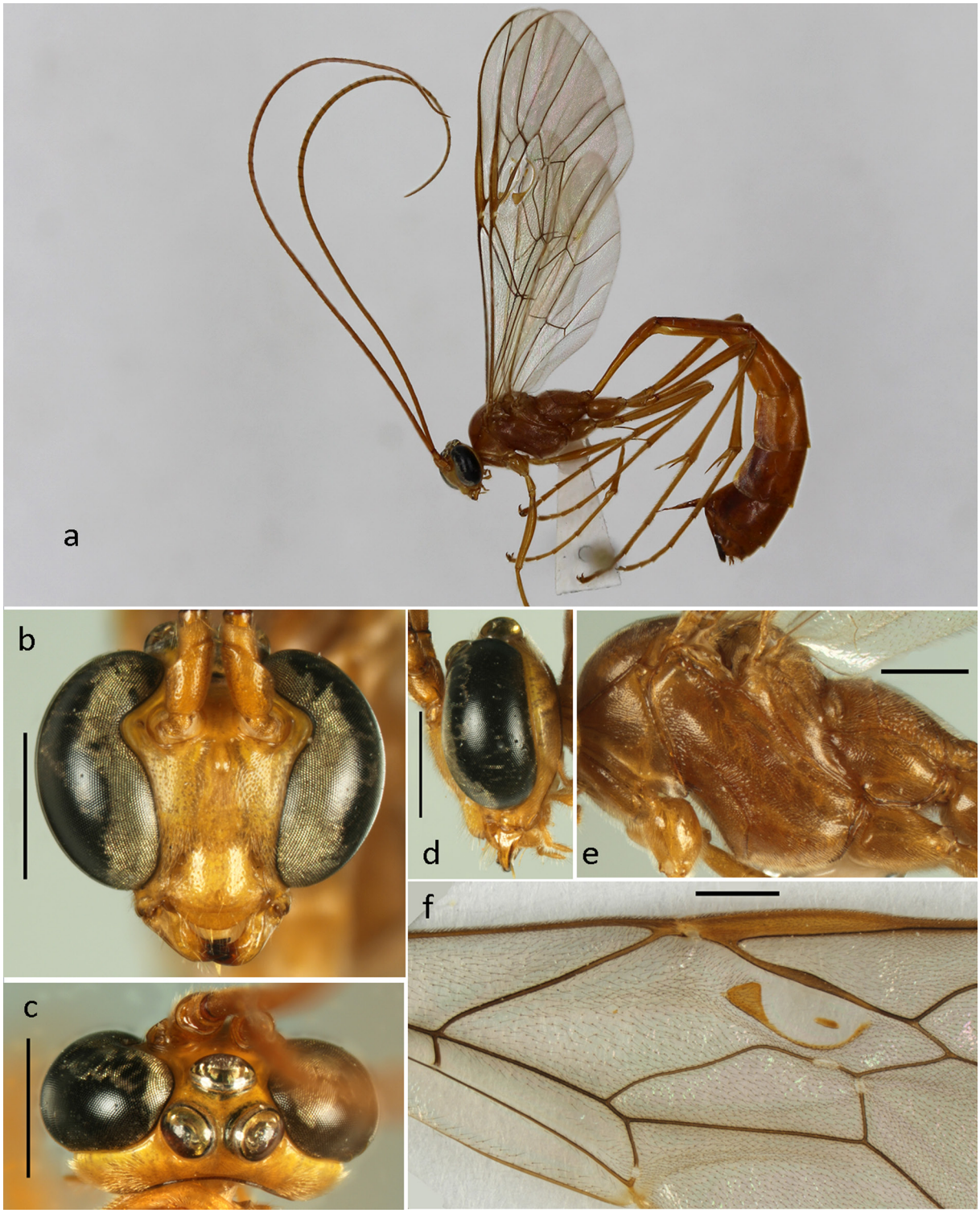

Fig. 10. *Enicospilus bacillaris* Wang, 1997, ♀ (OMNH). **a**. Habitus. **b**. Head, frontal view. **c**. Head, dorsal view. **d**. Head, lateral view. **e**. Mesosoma, lateral view. **f**. Central part of fore wing. Scale bars = 1.0 mm.

Enicospilus bakerielli Gauld & Mitchell, 1981
Fig. 11

Enicospilus bakerielli Gauld & Mitchell, 1981: 203; holotype ♀ from Philippines (NMNH).

Diagnosis

Interocellar area yellowish brown (or black in one specimen from Philippines); clypeus weakly convex, ventral margin acute; mandible twisted 30°–45°, outer surface with a weak diagonal setose groove or with a tuft of long setae; fore wing darkened at marginal cell proximally and between proximal and distal sclerites in Vietnamese specimens, only a little darkened around vein 2r&RS in examined material from Philippines, proximal sclerite strongly pigmented, more or less triangular (Vietnamese specimens) with anterior corner acute to D-shaped, SDI = 0.66–0.75; hind tarsal claws with distal pecten projecting beyond apical tooth.

Material examined

PHILIPPINES • 1 ♀, 1 ♂, 1 unsexed [metasoma missing]; Dapitan; P.I. Baker leg.; NHMUK • 1 ♀; Los Banos; P.I. Baker leg.; NHMUK. Specimens in NHMUK were identified as *E. bakerielli* by I.D. Gauld in 1980 and labelled as paratypes, but were not listed under the material examined section in Gauld & Mitchell (1981).

VIETNAM • 1 ♀; Thai Nguyen Province, Dinh Hoa, Phu Dinh; 100 m a.s.l., 2 Apr. 2004; Hoang V.T. leg.; hand net; IEBR • 1 ♀; Dong Nai Province, Vinh Cuu, Phu Ly; 1 Aug. 2008; Ta H.T. and Hoang V.T. leg.; light trap; IEBR • 1 ♀; Cao Bang Province, Phia Oac - Phia Den NP; 22°35.305′ N, 105°52.552′ E; 1216 m a.s.l.; 23 May 2020; Hoang V.T. and Pham V.P. leg.; light trap; IEBR • 1 ♀; same locality as for preceding; 8 May 2021; Nguyen D.H. leg.; light trap; IEBR.

Remarks

There is some minor variation between examined material from Philippines, and the Vietnamese specimens, and these might not be conspecific.

Distribution

Previously known from Papua New Guinea and Philippines (Yu *et al.* 2016). These are the first records of this species from Vietnam.

Enicospilus bharatensis Nikam, 1980
Fig. 12

Enicospilus indicus Rao & Nikam, 1969: 14; holotype ♀ from India (MUC); junior primary homonym of *Enicospilus indica* Rao & Grover, 1960.
Enicospilus bharatensis Nikam, 1980: 182. [Replacement name for *E. indicus* Rao & Nikam, 1969.]

Diagnosis

Interocellar area reddish brown; clypeus convex, ventral margin subblunt; mandible twisted ca 30°, outer surface with a diagonal setose groove; fore wing fenestra with proximal, central and distal sclerites present, central sclerite moderately small, more or less circular; metapleuron densely punctate to puncto-striate.

Material examined

VIETNAM • 1 ♂; Vinh Phuc Province, Me Linh Station for Biodiversity; 10 May 2021; Tran D.D. leg.; Malaise trap; IEBR • 1 ♀; Hoa Binh Province, Mai Chau, Bao La; 20.7046° N, 104.9720° E; 830 m a.s.l.; 3 Jul. 2022; Phan Q.T. leg.; light trap; IEBR.

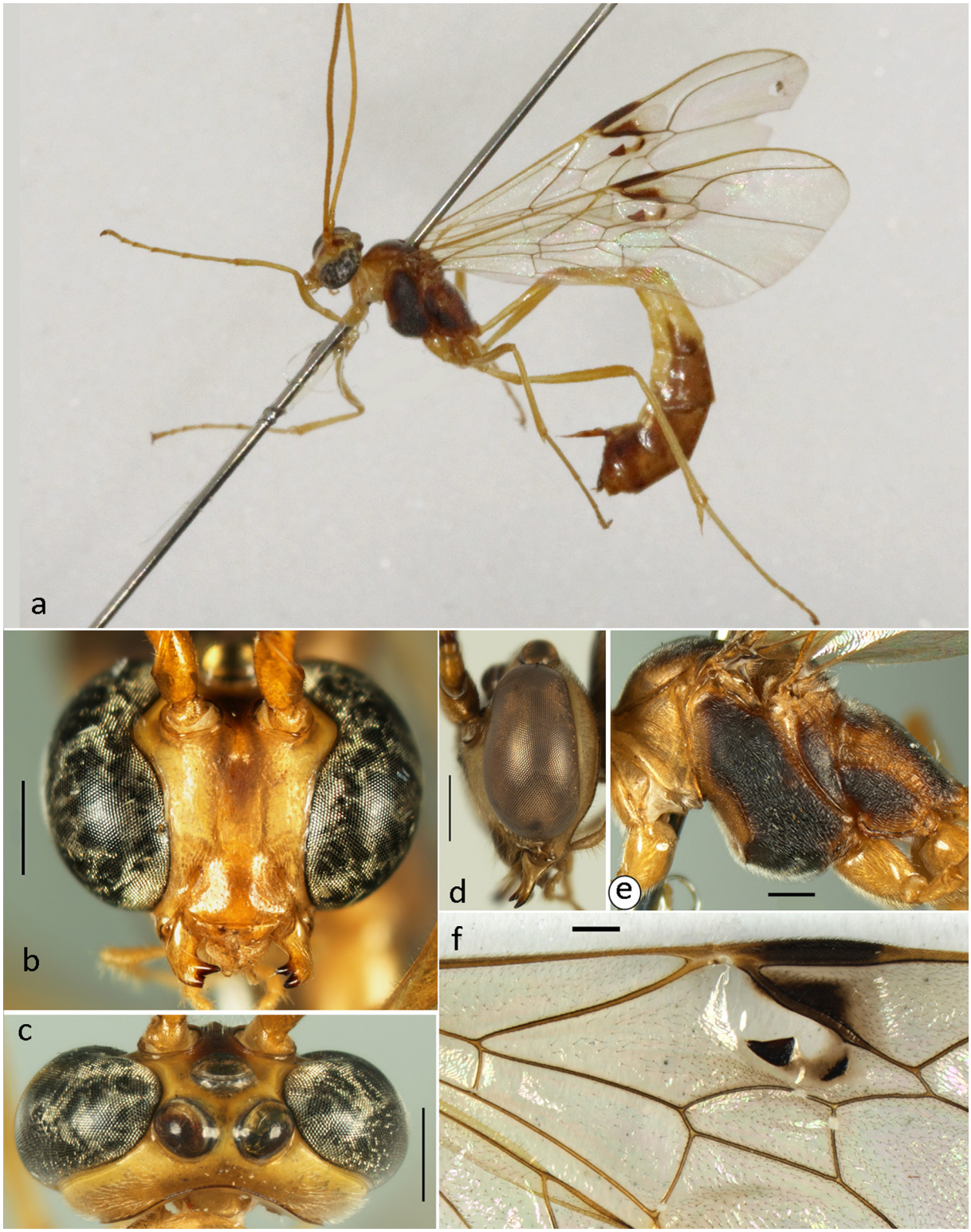

Fig. 11. *Enicospilus bakerielli* Gauld & Mitchell, 1981, ♀ (IEBR). **a**. Habitus. **b**. Head, frontal view. **c**. Head, dorsal view. **d**. Head, lateral view. **e**. Mesosoma, lateral view. **f**. Central part of fore wing. Scale bars = 0.5 mm.

Distribution

China, India, Indonesia, New Caledonia, Papua New Guinea, Philippines, Sri Lanka, Vanuatu, and Vietnam (Gauld & Mitchell 1981; Yu *et al.* 2016).

Enicospilus bifasciatus (Uchida, 1928)
Fig. 13

Henicospilus bifasciatus Uchida, 1928: 222; holotype ♀ from Taiwan (SEHU).

Enicospilus bifasciatus – Cushman, 1937: 304.

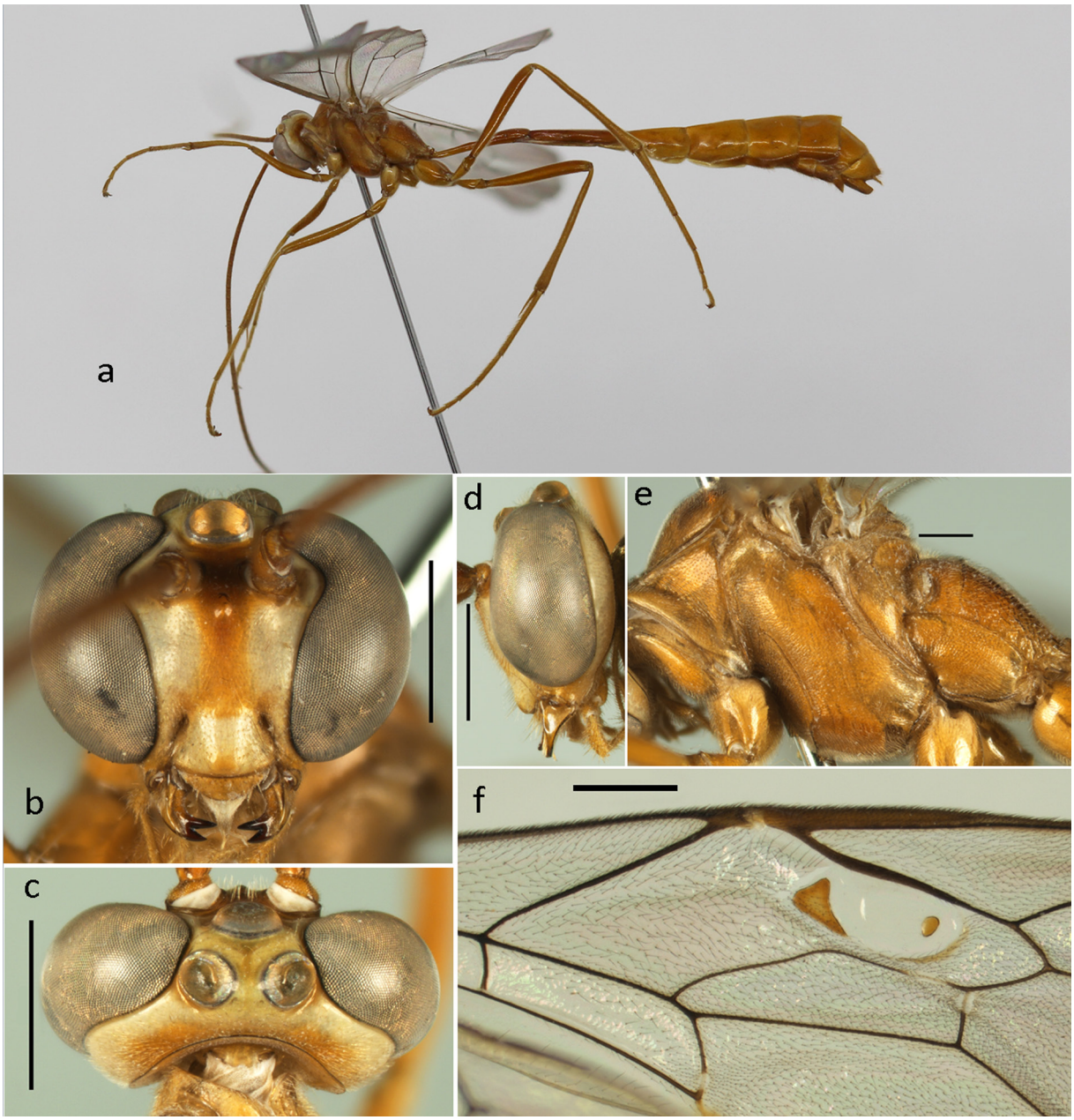

Fig. 12. *Enicospilus bharatensis* Nikam, 1980, ♂ (IEBR). **a**. Habitus. **b**. Head, frontal view. **c**. Head, dorsal view. **d**. Head, lateral view. **e**. Mesosoma, lateral view. **f**. Central part of fore wing. Scale bars = 1.0 mm.

Diagnosis

Interocellar area black; clypeus moderately convex, ventral margin subblunt; mandible moderately short, twisted ca 50°, outer surface without a diagonal setose groove; fore wing darkened in marginal

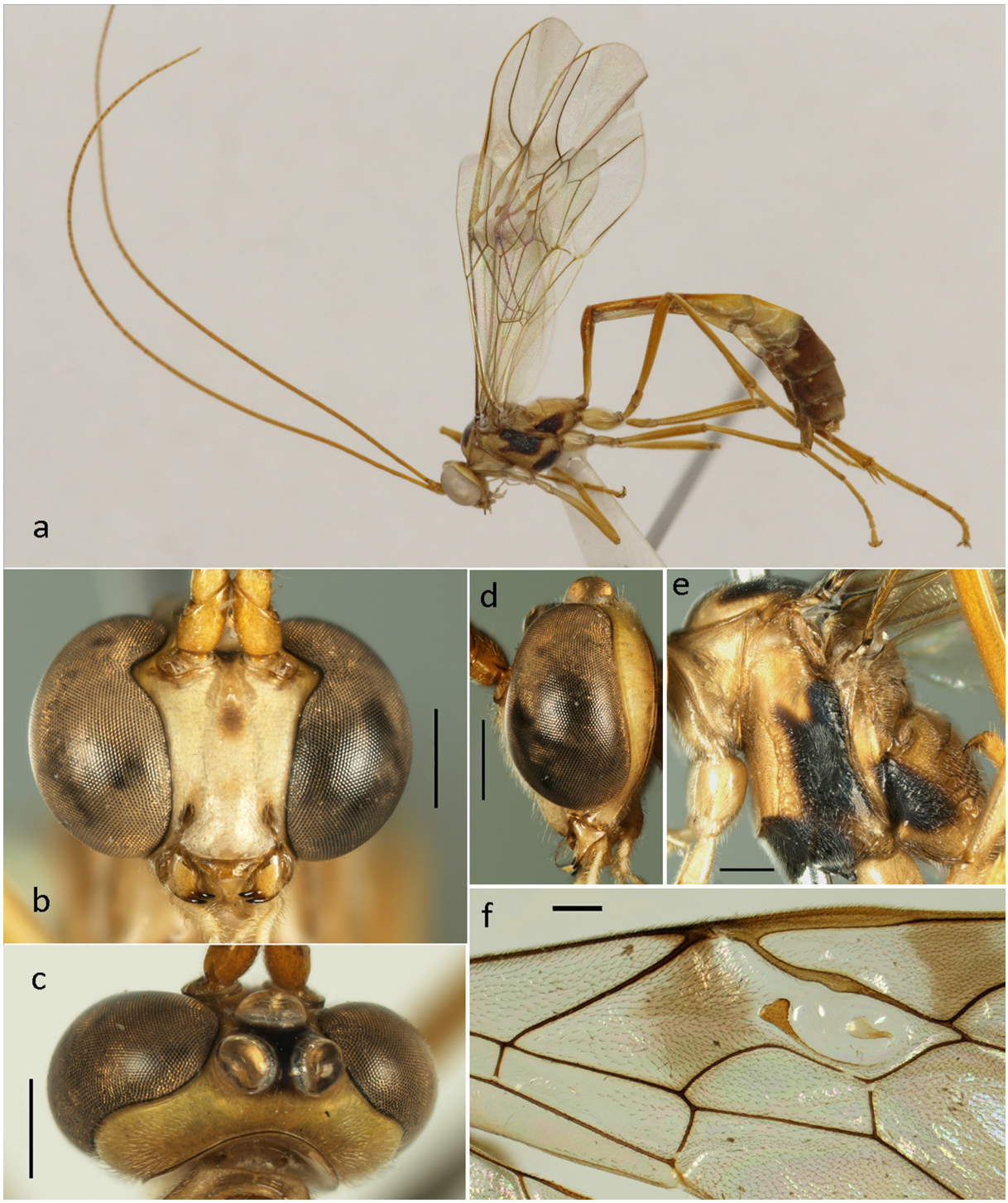

Fig. 13. *Enicospilus bifasciatus* (Uchida, 1928), ♂ (IEBR). **a**. Habitus. **b**. Head, frontal view. **c**. Head, dorsal view. **d**. Head, lateral view. **e**. Mesosoma, lateral view. **f**. Central part of fore wing. Scale bars = 0.5 mm.

and discosubmarginal cells, fenestra with proximal, central and distal sclerites present, central sclerite transverse with proximal part broadened and distal part narrow, vein 2r&Rs with posterior bulb; mesosoma extensively black.

Material examined

VIETNAM • 1 ♀; Lao Cai Province, Sapa; 18 May 2003; Ta H.T. and Hoang V.T. leg.; light trap; IEBR • 2 ♀♀; Gia Lai Province, Kon Ka Kinh NP; 8 Jun. 2011; Nguyen Q.T. leg.; light trap; IEBR • 1 ♂; Lam Dong Province, Bidoup - Nui Ba NP; 3 Jun. 2013; Hoang V.T. leg.; light trap; IEBR • 1 ♀; same locality as for preceding; 12°10.915′ N, 108°40.822′ E; 1434 m a.s.l.; Aug.–Oct. 2017; Pham T.N. leg.; Malaise trap; IEBR • 1 ♀; Lao Cai Province, Hoang Lien NP; 15 May 2015; Hoang V.T. leg.; light trap; IEBR • 1 ♀; Tuyen Quang Province, Na Hang, Son Phu; 22°07′32″ N, 105°28′19″ E; 573 m a.s.l.; 10–20 Nov. 2017; Khuat D.L. leg.; IEBR • 1 ♀; Quang Nam Province, Bac Tra My, Tra Doc; 15°25′47″ N, 108°6′52″ E; 250 m a.s.l.; 16 Mar. 2020; Pham V.P. leg.; light trap; IEBR • 1 ♀, 1 ♂; Cao Bang Province, Phia Oac - Phia Den NP; 22°36.477′ N, 105°52.186′ E; 1605 m a.s.l.; 25 May 2020; Hoang V.T. and Pham V.P. leg.; light trap; IEBR • 1 ♀; same locality as for preceding; 5 Jun. 2020; Nguyen D.H. leg.; light trap; IEBR • 1 ♀; same collection data as for preceding; 8 May 2021; light trap; IEBR • 1 ♀; Lam Dong Province, Cat Tien, Dong Nai Thuong; 11.725922° N, 107.4789° E; 505 m a.s.l.; 22 Apr. 2021; Phan Q.T. leg.; light trap; IEBR • 1 ♀, 1 ♂; Cao Bang Province, Ha Quang, Thanh Long; 22.76852° N, 105.9687° E; 590 m a.s.l., 24 May 2022; Pham T.N., Hoang V.T. and Pham V.P. leg.; light trap; IEBR • 2 ♂♂; Ha Giang Province, Vi Xuyen, Phong Quang; 22.89996° N, 104.91559° E; 609 m a.s.l.; 26 May 2022; Pham T.N. and Pham V.P. leg.; light trap; IEBR • 2 ♀♀; Lao Cai Province, Bat Xat NR; 22°37′37″ N, 103°37′32″ E; 1840 m a.s.l.; 28 May 2022; Pham T.N. and Dang T.H. leg.; light trap; IEBR • 1 ♀; Lai Chau Province, Sin Ho, Sa De Phin; 22°18′18″ N, 103°13′37″ E; 1760 m a.s.l.; 31 May 2022; Pham T.N. and Dang T.H. leg.; light trap; IEBR • 1 ♀; Lai Chau Province, Sin Ho, Ta Ngao; 22°16′19″ N, 103°14′54″ E; 1520 m a.s.l.; 1 Jun. 2022; Pham T.N. and Dang T.H. leg.; light trap; IEBR.

Remarks

In comparison with the specimens examined by Gauld & Mitchell (1981), Vietnamese specimens have shorter fore wings (10.3–12.1 mm vs 14.0–16.0 mm), shorter antennae (49–53 flagellomeres vs 54–56), and shorter SDI (1.01–1.11 vs 1.10–1.16).

Distribution

Previously known from Taiwan (Yu *et al.* 2016). These are the first records of this species from Vietnam.

Enicospilus biharensis Townes, Townes & Gupta, 1961
Fig. 14

Henicospilus horsfieldi var. *glabratus* Morley, 1913: 395; holotype ♀ from India (NHMUK); junior secondary homonym of *Enicospilus glabratus* (Say).

Enicospilus biharensis – Townes *et al.* 1961: 271. [Replacement name for *H. horsfieldi* var. *glabratus* Morley.]

Diagnosis

Interocellar area reddish brown; clypeus flat to weakly convex, ventral margin blunt to subacute; mandible twisted 40–60°, outer surface without a diagonal setose groove; fore wing fenestra with proximal and distal sclerites present, weak and elongate, CI less than 0.5, AI = 0.5–0.7.

Material examined

VIETNAM • 1 ♀; Hanoi, Thach That, Tan Xa; 10–20 Mar. 2002; Khuat D.L. leg.; Malaise trap; IEBR • 1 ♀; Hoa Binh Province, Yen Thuy, Lac Thinh; 10–20 May 2002; Khuat D.L. leg.; Malaise trap; IEBR •

1 ♀; same collection data as for preceding; 1–10 Aug. 2002; IEBR • 1 ♂; Nghe An Province, Con Cuong, Kem waterfall; 300 m a.s.l.; 25 Apr. 2006; Le X.H. leg.; hand net; IEBR • 1 ♀; Thai Nguyen Province, Dai Tu, Cat Ne; 15–20 Nov. 2007; Khuat D.L. leg.; Malaise trap; IEBR • 1 ♀; Gia Lai Province, Kon Ka Kinh NP; 8 Jun. 2011; Nguyen Q.T. leg.; light trap; IEBR • 1 ♀; Gia Lai Province, Kbong, Kon Pne; 15 Jul. 2012; Ta H.T. and Hoang V.T. leg.; light trap; IEBR• 1 ♀; Ninh Thuan Province, Phuoc Binh NP;

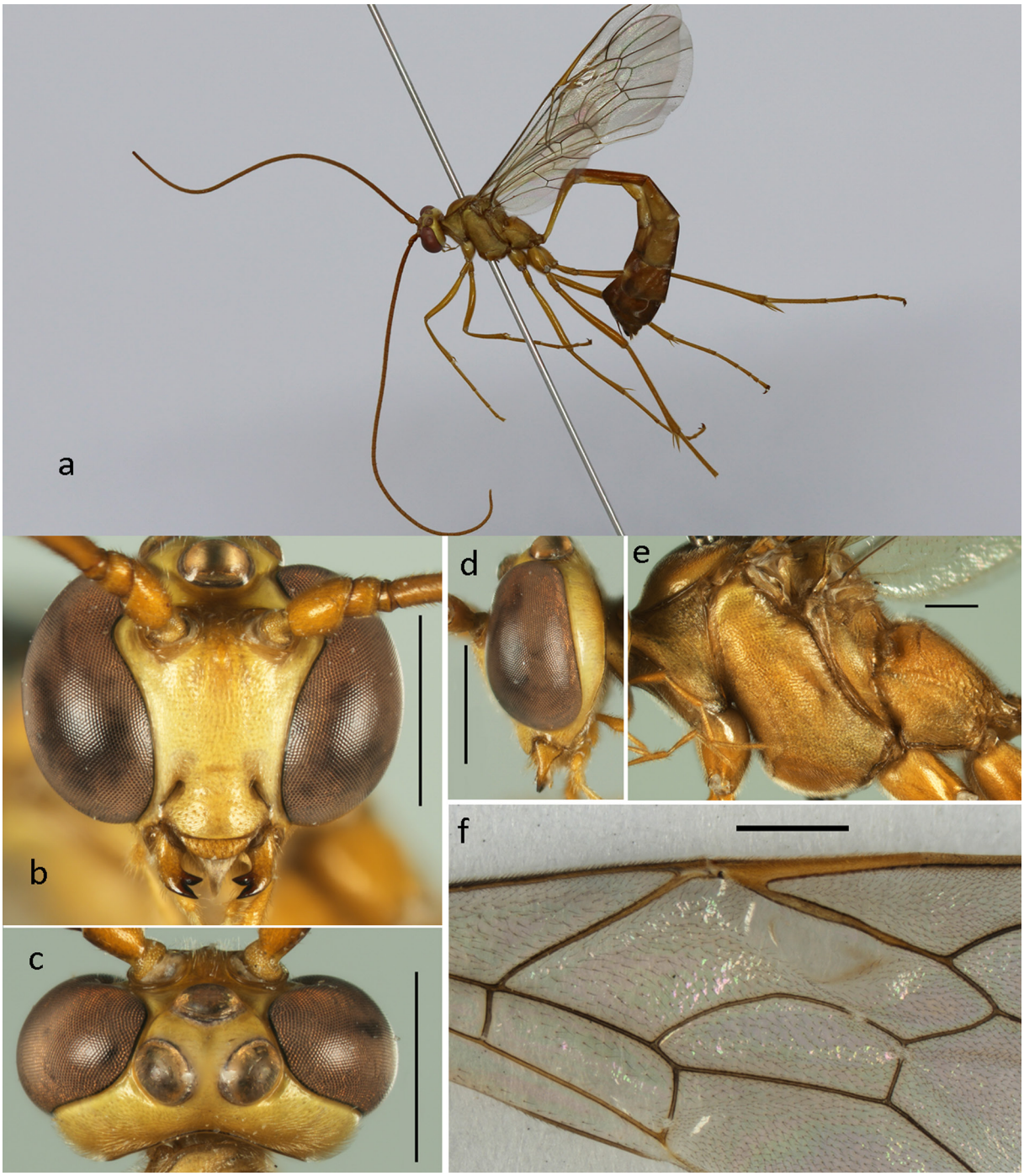

Fig. 14. *Enicospilus biharensis* Townes, Townes & Gupta, 1961, ♀ (IEBR). **a**. Habitus. **b**. Head, frontal view. **c**. Head, dorsal view. **d**. Head, lateral view. **e**. Mesosoma, lateral view. **f**. Central part of fore wing. Scale bars = 1.0 mm.

26 Jul. 2014; Hoang V.T. leg.; light trap; IEBR • 1 ♀; Ninh Thuan Province, Nui Chua NP; 5 Aug. 2014; Hoang V.T. leg.; light trap; IEBR • 2 ♀♀; Kon Tum Province, Chu Mom Ray NP; Feb. 2015; Hoang T.P. leg.; UV light trap; IEBR • 1 ♀; same locality as for preceding; 23 Apr. 2022; Pham V.P. leg.; light trap; IEBR • 1 ♂; Son La Province, Thuan Chau, Chieng Bom; 3 Sep. 2016; Pham V.P. leg.; light trap; IEBR • 1 ♂; Son La Province, Thuan Chau, Co Ma; 5 Sep. 2016; Pham V.P. leg.; light trap; IEBR • 1 ♀; Tuyen Quang Province, Lam Binh, Na Tong; 22°29.735′ N, 105°19.308′ E; 174 m a.s.l.; 20 Sep. 2017; Pham T.N. and Pham V.P. leg.; light trap; IEBR • 4 ♀♀, 5 ♂♂; Kon Tum Province, Ngoc Linh, Xop; 15°07′0.5″ N, 107°48′5.9″ E; 940 m a.s.l.; 10 Mar. 2019; Pham V.P. leg.; light trap; IEBR • 2 ♀♀; Gia Lai Province, Kon Chu Rang NP; 27 May 2019; Nguyen V.T. leg.; light trap; IEBR • 1 ♂; Gia Lai Province, Kon Ka Kinh NP; 15°25′37″ N, 108°7′5.5″ E; 221 m a.s.l.; 15 Mar. 2019; Nguyen D.H. leg.; light trap; IEBR • 2 ♂♂; same collection data as for preceding; 16 Mar. 2019; IEBR • 1 ♀; Kon Tum Province, Mang Den, Mang Canh; 5 Jun. 2019; Nguyen V.T. leg.; light trap; IEBR • 3 ♀♀; same collection data as for preceding; 6 Jun. 2019; IEBR • 1 ♂; Quang Nam Province, Tay Giang, Tr'Hy; 15°48′59″ N, 107°22′23″ E; 1210 m a.s.l.; 24 Jul. 2019; Phan Q.T. leg.; light trap; IEBR • 1 ♀; Cao Bang Province, Phia Oac - Phia Den NP; 22°35.305′ N, 105°52.552′ E; 1216 m a.s.l.; 24 May 2020; Hoang V.T. and Pham V.P. leg.; light trap; IEBR • 2 ♀♀; Lam Dong Province, Cat Tien, Dong Nai Thuong; 11.725922° N, 107.4789° E; 505 m a.s.l.; 22 Apr. 2021; Phan Q.T. leg.; light trap; IEBR • 1 ♂; Lam Dong Province, Bidoup - Nui Ba NP; 25 Apr. 2022; Nguyen D.H. leg.; light trap; IEBR • 1 ♀; Ninh Binh Province, Cuc Phuong NP; 8 Jun. 2022; Pham V.P. leg.; light trap; IEBR • 1 ♀; Dien Bien Province, Muong Nhe; 22.38560° N, 102.23854° E; 750 m a.s.l.; 25 Jun. 2022; Pham V.P. leg.; light trap; IEBR.

Remarks

Vietnamese specimens have the fore wing length from 9.0–15.0 mm, shorter than the specimens examined by Gauld & Mitchell (1981) (12.0–17.0 mm).

Distribution

Previously known from China (including Taiwan), India, Indonesia, Japan, Malaysia, Myanmar, Nepal, Pakistan, Philippines, Singapore, Sri Lank, and Thailand (Yu *et al.* 2016). These are the first records of this species from Vietnam.

Enicospilus bulbipennis sp. nov.

urn:lsid:zoobank.org:act:C8C9D2D4-6942-4254-B52C-B42127AE3FCE

Fig. 15

Diagnosis

Interocellar area reddish brown; clypeus convex, ventral margin blunt; mandible twisted ca 30°, outer surface without a diagonal setose groove; fore wing fenestra with proximal, central and distal sclerites present, central sclerite close to distal sclerite, elongate oval, basal, discosubmarginal and marginal cells with short and sparse setae, vein 2r&RS with posterior bulb; mesoscutum with three black stripes.

Differential diagnosis

The new species can be distinguished from *E. rhetus* Gauld & Mitchell, 1981 by its mesoscutum with three black stripes, central sclerite elongate oval, close and parallel to distal sclerite.

Etymology

The specific epithet '*bulbipennis*' means 'with a bulb on the wing', referring to the posterior bulb on the fore wing vein 2r&RS.

Material examined

Holotype

VIETNAM • ♀; Quang Nam Province, Bac Tra My, Tra Doc; 15°25′47″ N, 108°6′52″ E; 250 m a.s.l.; 16 Mar. 2020; Pham V.P. leg.; light trap; IEBR.

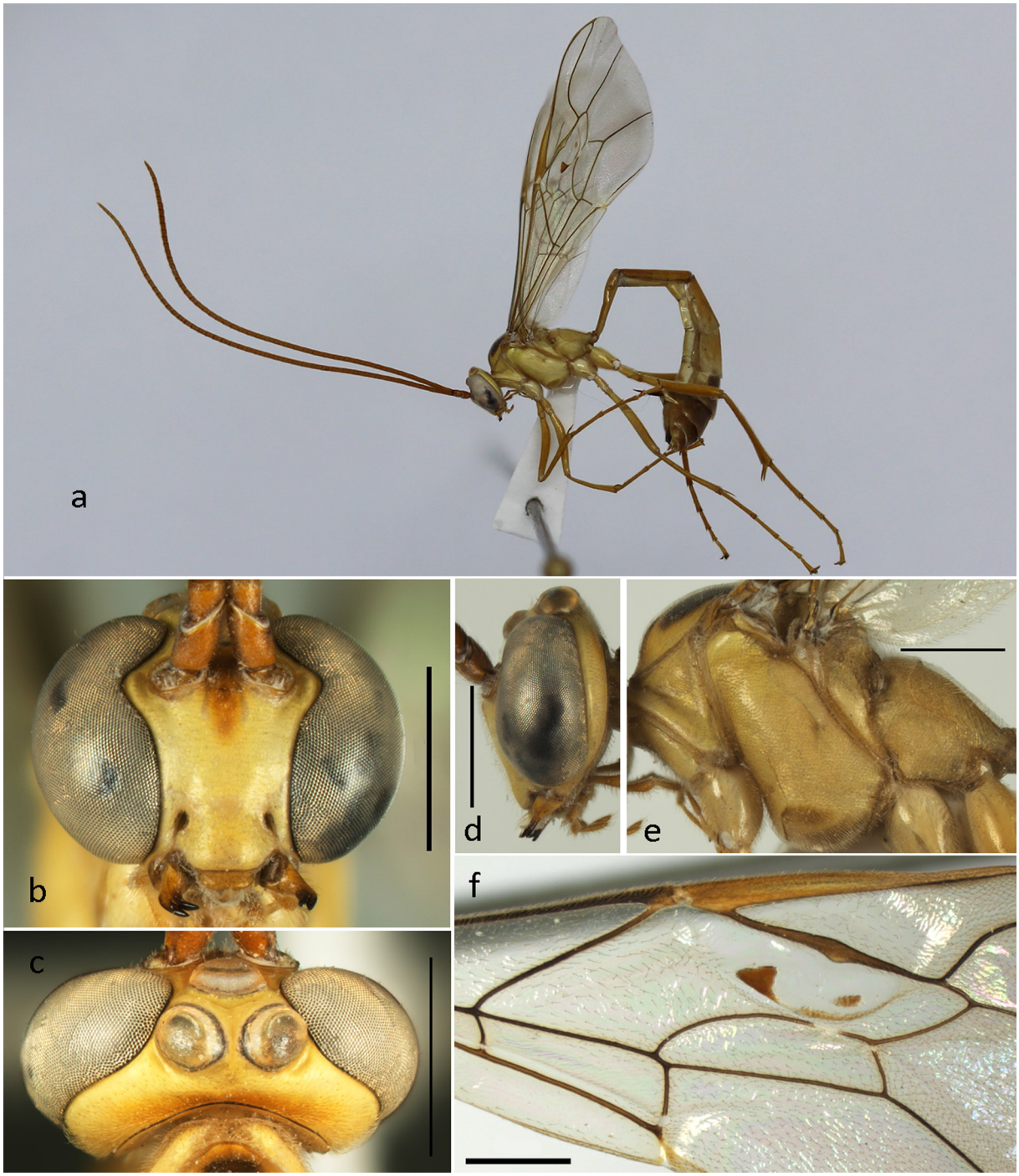

Fig. 15. *Enicospilus bulbipennis* sp. nov., holotype, ♀ (IEBR). **a**. Habitus. **b**. Head, frontal view. **c**. Head, dorsal view. **d**. Head, lateral view. **e**. Mesosoma, lateral view. **f**. Central part of fore wing. Scale bars = 1.0 mm.

Description

Female (holotype)

Measurements. Body length 16.7 mm, fore wing length 11.5 mm.

Head with FI = 0.7, GOI = 4.2 (Fig. 15d). Lower face 0.7 × as wide as high, shiny (Fig. 15b). Clypeus 1.6 × as wide as high, similarly sculptured as face, convex in profile, ventral margin blunt (Fig. 15b). Malar space 0.2 × as long as basal mandibular width (Fig. 15b). Mandible twisted by ca 30°, moderately short, evenly narrowed, outer surface without diagonal setose groove (Fig. 15b). Upper tooth of mandible depressed, about 1.4 × as long as lower tooth (Fig. 15b). Frons and vertex shiny, vertex with sparse setae (Fig. 15c). Gena moderately shiny, with dense fine setae (Fig. 15d). Posterior ocellus close to eye (Fig. 15c). Occipital carina complete, ventral end meeting hypostomal carina at about 0.7 × basal mandible width from base of mandible. Antenna with 48 flagellomeres; F1 1.6 × as long as F2; F20 2.0 × as long as wide.

Mesosoma. Moderately shiny (Fig. 15e). Pronotum coriaceous (Fig. 15e). Mesoscutum 1.4 × as long as maximum width, evenly rounded in profile. Notaulus absent. Scutellum moderately convex, punctate anteriorly, with fine rugae posteriorly, lateral longitudinal carinae present along entire length of scutellum. Epicnemium densely punctate (Fig. 15e). Epicnemial carina moderately weak, present on ventral half of mesopleuron, dorsal end bent towards anterior margin of mesopleuron (Fig. 15e). Mesopleuron densely punctate, ventrally puncto-striate (Fig. 15e). Submetapleural carina broadened anteriorly (Fig. 15e). Metapleuron densely striate (Fig. 15e). Propodeum evenly rounded in profile; anterior transverse carina complete; anterior area coriaceous; spiracular area smooth; posterior area concentrically striate; propodeal spiracle elliptical and joining pleural carina by ridge.

Wings (Fig. 15f). Fore wing with AI = 0.96, CI = 0.26, DI = 0.27, ICI = 0.39, SDI = 1.26, SI = 0.16, SRI = 0.21; vein 1m-cu&M evenly arcuate; vein 2r&RS relatively straight, with posterior bulb at about distal 0.4; vein RS strongly curved; fenestra and sclerites of discosubmarginal cell as in Fig. 15f; proximal sclerite strong, triangle, distal sclerite thick, moderately strong, connection between proximal and distal sclerites narrow and weakly pigmented; central sclerite strongly pigmented, more or less elongate, positioned closer to distal sclerite than to vein 2r&RS; proximal corner of marginal cell with sparse setae; posterodistal corner of second discal cell and that of subbasal cell ca 70°; vein 1cu-a sub-interstitial to M&RS. Hind wing with NI = 3.9; vein RS weakly curved; vein RA with 6 uniform hamuli.

Legs. Hind leg with coxa in profile 1.7 × as long as high; basitarsus 1.6 × as long as second tarsomere; fourth tarsomere 2.7 × as long as wide; tarsal claws simply pectinate.

Metasoma. With DMI = 1.4, PI = 2.5, THI = 3.4; thyridium oval; ovipositor sheath not longer than posterior height of metasoma.

Colour (Fig. 15a). Reddish brown except for apex of mandible, three longitudinal stripes on mesoscutum and a black spot in front of scutellar groove, metasoma from T5 onwards black. Wings hyaline; sclerites light brown to amber; veins reddish brown to dark brown, pterostigma reddish brown.

Variation in female

Unknown.

Male

Unknown.

Distribution

Currently known only from Quang Nam Province, Central Vietnam.

Enicospilus centralisclerititiger sp. nov.
urn:lsid:zoobank.org:act:EC337820-8FBE-4ED4-B8C9-F0E9494E83C1
Fig. 16

Diagnosis

Interocellar area reddish brown; clypeus convex, ventral margin blunt; mandible twisted ca 20°, outer surface without a diagonal setose groove; fore wing fenestra with only central sclerite present, small, circular to oval, vein 1m-cu&M sinuate, angled medially.

Differential diagnosis

The new species has only one circular to oval central sclerite similar to *E. abessyniensis* (Szépligeti, 1907) from the Afrotropical region and Sri Lanka. It differs from the latter by the position of the central sclerite (centrodistal vs central), vein 2r&RS less sinuate and vein 1m-cu&M strongly sinuate, angled medially.

Etymology

The adjective belonging to the Latin neuter noun '*centrum*' is '*centralis*, *-is*, *-e*'. Combined with the sclerite, the specific epither '*centralisclerititiger*' meaning 'bearing a central sclerite', referring to the appearance of the fore wing, which has only a central sclerite.

Material examined

Holotype

VIETNAM • ♀; Tuyen Quang Province, Na Hang, Son Phu; 10 Jun. 2017; Khuat D.L. leg.; Malaise trap; IEBR.

Paratype

VIETNAM • 1 ♂; Gia Lai Province, Kon Chu Rang NP; 27 Apr. 2016; Nguyen T.P.L. leg.; light trap; IEBR.

Description

Female (holotype)

Measurements. Body length 26.1 mm, fore wing length 17.5 mm.

Head with FI = 0.7, GOI = 4.0 (Fig. 16d). Lower face 0.7 × as wide as high, shiny, finely punctate (Fig. 16b). Clypeus 1.4 × as wide as high, moderately convex in profile, sparsely punctate, ventral margin blunt (Fig. 16b). Malar space 0.3 × as long as basal mandibular width (Fig. 16b). Mandible twisted by ca 20°, evenly narrowed, outer surface without diagonal setose groove. Upper tooth of mandible about 1.3 × as long as lower tooth (Fig. 16b). Frons, vertex and gena shiny with fine setae (Fig. 16c). Posterior ocellus close to eye (Fig. 16c). Occipital carina complete, ventral end meeting hypostomal carina at about 1.0 × basal mandible width from base of mandible. Antenna with 65 flagellomeres; F1 1.9 × as long as F2; F20 2.3 × as long as wide.

Mesosoma. Moderately shiny (Fig. 16e). Pronotum finely striate (Fig. 16e). Mesoscutum 1.4 × as long as maximum width, evenly rounded in profile. Notaulus absent. Scutellum moderately convex, with irregular rugae, lateral longitudinal carinae along entire length of scutellum. Epicnemium matt, densely punctate (Fig. 16e). Epicnemial carina moderately strong, dorsal end bent to reach anterior margin of

mesopleuron (Fig. 16e). Mesopleuron entirely transversely striate (Fig. 16e). Submetapleural carina broadened anteriorly (Fig. 16e). Metapleuron strigose (Fig. 16e). Propodeum evenly rounded in profile; anterior transverse carina complete; anterior area longitudinally striate; spiracular area smooth; posterior area coarsely rugose; propodeal spiracle elliptical, joined by ridge to pleural carina (Fig. 16e).

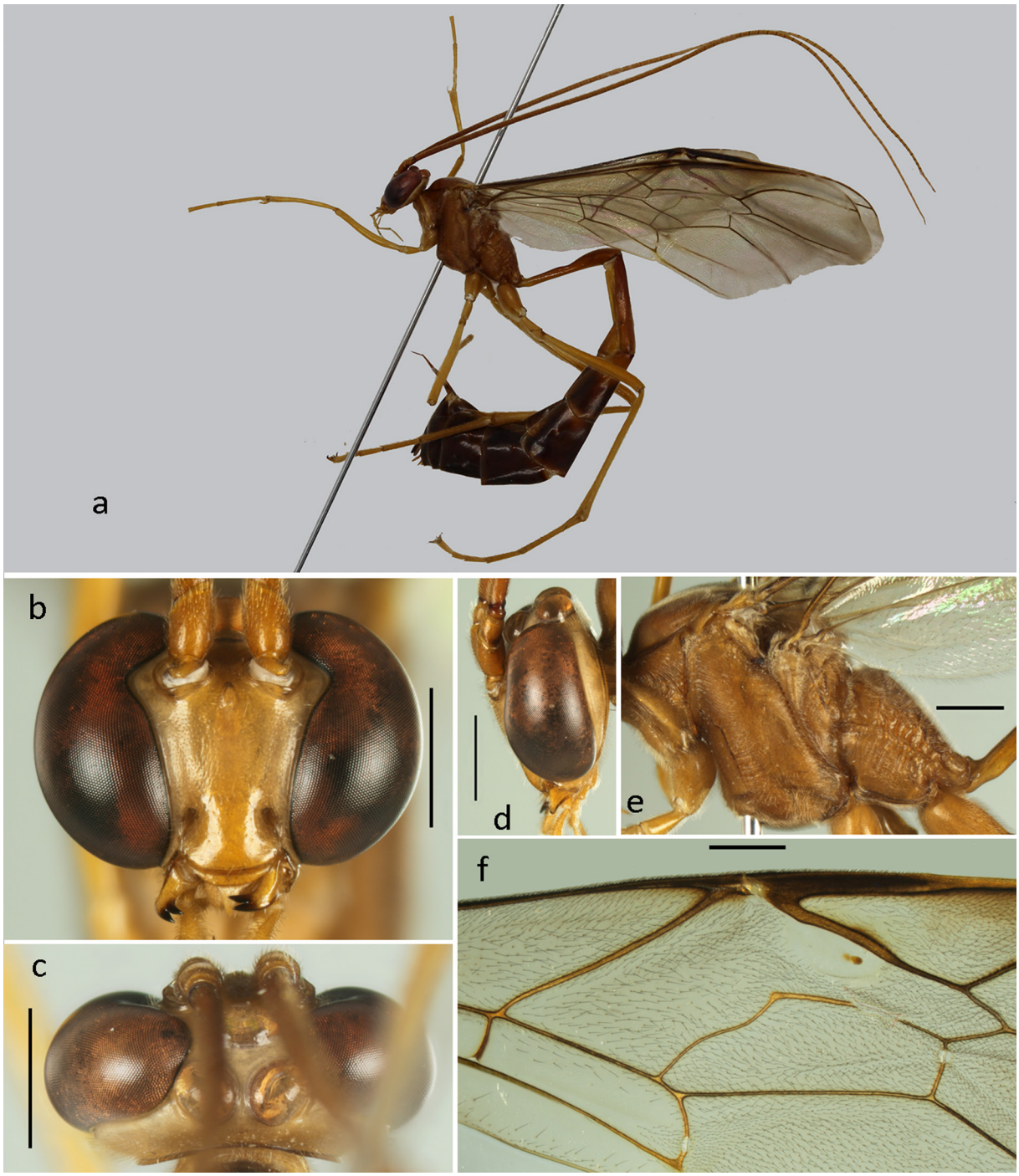

Fig. 16. *Enicospilus centraliscleritiger* sp. nov., holotype, ♀ (IEBR). **a**. Habitus. **b**. Head, frontal view. **c**. Head, dorsal view. **d**. Head, lateral view. **e**. Mesosoma, lateral view. **f**. Central part of fore wing. Scale bars = 1.0 mm.

Wings (Fig. 16f). Fore wing with AI = 0.83, CI = 0.40, DI = 0.39, ICI = 0.83, SDI = 1.43, SI = 0.24, SRI = 0.34; vein 1m-cu&M strongly sinuate, angled medially; vein 2r&RS slightly sinuate; vein RS rather evenly curved; fenestra and sclerites of discosubmarginal cell as in Fig. 16f; proximal and distal sclerites absent; central sclerite nearly oval in shape, pigmented, positioned in centrodistal part of fenestra; proximal corner of marginal cell evenly setose; posterodistal corner of second discal cell ca 100° and of subbasal cell ca 95°; vein 1cu-a antefurcal to M&RS by 0.2 × length of 1cu-a. Hind wing with NI = 2.0; vein RS relatively straight; vein RA with 9 uniform hamuli.

Legs. Hind leg with coxa in profile 1.8 × as long as high; basitarsus 2.0 × as long as second tarsomere; fourth tarsomere 2.6 × as long as wide; tarsal claws simply pectinate.

Metasoma. With DMI = 1.4, PI = 2.8, THI = 2.7; thyridium oval; ovipositor sheath not longer than posterior height of metasoma.

Colour (Fig. 16a). Reddish brown except for apex of mandible and posterior 0.6 of T3 onwards black. Wings hyaline; central sclerite pigmented and amber; veins and pterostigma dark brown.

Variation in female

Unknown.

Male

Similar to female, except for following characters: F1 2.0 × as long as F2, F20 1.8 × as long as wide, FI = 0.7; fore wing length 15.8 mm, AI = 0.90, CI = 0.44, DI = 0.40, ICI = 0.90, SDI = 1.60, SI = 0.23, SRI = 0.27, vein 1m-cu&M with short ramellus, central sclerite circular; metasoma with DMI = 1.3, PI = 2.6, THI = 3.0.

Distribution

Currently known from Tuyen Quang Province in the northeast and Gia Lai Province, the Central Highlands of Vietnam.

Enicospilus circuliscleritalis sp. nov.

urn:lsid:zoobank.org:act:D21A2F3C-3395-4F62-8DE4-6B61F62453EB

Fig. 17

Diagnosis

Interocellar area black; clypeus convex, ventral margin blunt; mandible twisted ca 20°, outer surface without a diagonal setose groove; fore wing marginal cell darkened proximally, fenestra with proximal and distal sclerites present, proximal sclerite moderately large, strongly pigmented, nearly round, separated from vein 2r&RS by less than its maximum width, SDI = 0.7; hind tarsal claws with distal pecten projecting beyond apical tooth.

Differential diagnosis

The new species can be distinguished from *E. bakerielli* Gauld & Mitchell, 1981 by its black interocellar area (usually testaceous in *E. bakerielli* but variable), and mandible outer surface without a diagonal setose groove or tuft of long setae. The fore wing of *E. circuliscleritalis* sp. nov. lacks darkened patches between the proximal and distal sclerites, differing from Vietnamese specimens identified as *E. bakerielli* (see above, under *E. bakerielli*). The new species can be recognized from *E. trui* sp. nov. by its larger proximal sclerite and the distance from the proximal sclerite to vein 2r&RS less than its maximum diameter, as mentioned in the key.

Etymology

The specific epithet '*circuliscleritalis*' means 'circle-shaped sclerite', referring to the nearly round shape of the proximal sclerite.

Material examined

Holotype

VIETNAM • ♂; Cao Bang Province, Trung Khanh, Tra Linh; 22°45′29.89″ N, 106°17′47.10″ E; 640 m a.s.l.; 17 Oct. 2018; Pham V.P. leg.; light trap; IEBR.

Description

Male (holotype)

Measurements. Body length 14.6 mm and fore wing length 9.3 mm.

Head with FI = 0.5, GOI = 4.2 (Fig. 17d). Lower face 0.7 × as wide as high, moderately shiny, densely and finely punctate (Fig. 17b). Clypeus 1.4 × as wide as high, convex in profile, finely punctate, except ventral 0.2 smooth, impunctate, ventral margin blunt (Fig. 17b). Malar space 0.2 × as long as basal mandibular width (Fig. 17b). Mandible twisted by ca 20°, moderately long, evenly narrowed, outer surface without diagonal setose groove (Fig. 17b). Upper tooth of mandible about 1.4 × as long as lower tooth (Fig. 17b). Frons coriaceous, vertex shiny, with sparse setae (Fig. 17c). Gena moderately shiny, with dense fine setae (Fig. 17d). Posterior ocellus close to eye (Fig. 17c). Occipital carina complete, ventral end meeting hypostomal carina at about 0.7 × basal mandible width from base of mandible. Antenna with 52 flagellomeres; F1 1.72 × as long as F2; F20 2.5 × as long as wide.

Mesosoma. Moderately shiny (Fig. 17e). Pronotum finely striate (Fig. 17e). Mesoscutum 1.4 × as long as maximum width, evenly rounded in profile. Notaulus absent. Scutellum moderately convex, punctate anteriorly, with rugae posteriorly, lateral longitudinal carinae present along entire length of scutellum. Epicnemium densely punctate (Fig. 17e). Epicnemial carina moderately strong, present on ventral half of mesopleuron, dorsal end bent towards anterior margin of mesopleuron (Fig. 17e). Mesopleuron densely punctate dorsally, ventrally puncto-striate (Fig. 17e). Submetapleural carina slightly broadened anteriorly (Fig. 17e). Metapleuron matt, densely rugose (Fig. 17e). Propodeum evenly rounded in profile; anterior transverse carina complete; anterior area punctate; spiracular area smooth; posterior area rugose; propodeal spiracle elliptical and not joined to pleural carina by ridge (Fig. 17e).

Wings (Fig. 17f). Fore wing with AI = 1.0, CI = 0.25, DI = 0.47, ICI = 0.21, SDI = 0.7, SI = 0.19, SRI = 0.49; vein 1m-cu&M evenly arcuate; proximal 0.7 of vein 2r&RS strongly sinuate and thickened, abruptly narrowed and straight distally; vein RS strongly curved; fenestra and sclerites of discosubmarginal cell as in Fig. 17f; proximal sclerite extremely strong, nearly round in shape; distal sclerite strongly pigmented, not connecting to proximal sclerite; proximal corner of marginal cell evenly setose; posterodistal corner of second discal cell ca 90° and of subbasal cell ca 60°; vein 1cu-a antefurcal to M&RS by 0.3 × length of 1cu-a. Hind wing with NI = 3.1; vein RS relatively straight; vein RA with 5 uniform hamuli.

Legs. Hind leg with coxa in profile 1.6 × as long as high; basitarsus 1.9 × as long as second tarsomere; fourth tarsomere 2.6 × as long as wide; tarsal claws with distal pecten projecting beyond apical tooth.

Metasoma. With DMI = 1.2, PI = 3.1, THI = 5.0; thyridium oval; S4–8 with dense tuft of long setae on posterior margins.

Colour (Fig. 17a). Reddish brown with many black markings as follows: apex of mandible, median line of face extending ventrally to entire clypeus and dorsally to frons, interocellar area, ventral half of gena and occiput, mesosoma (except prothorax), metasoma from T4 onwards (except a yellow spot on T4 dorsally). Wings hyaline with darkened area at proximal corner of marginal cell, sclerites dark brown, veins reddish brown to dark brown, pterostigma black.

Female

Unknown.

Distribution

Currently known only from the holotype collected in Cao Bang Province, Northeast Vietnam.

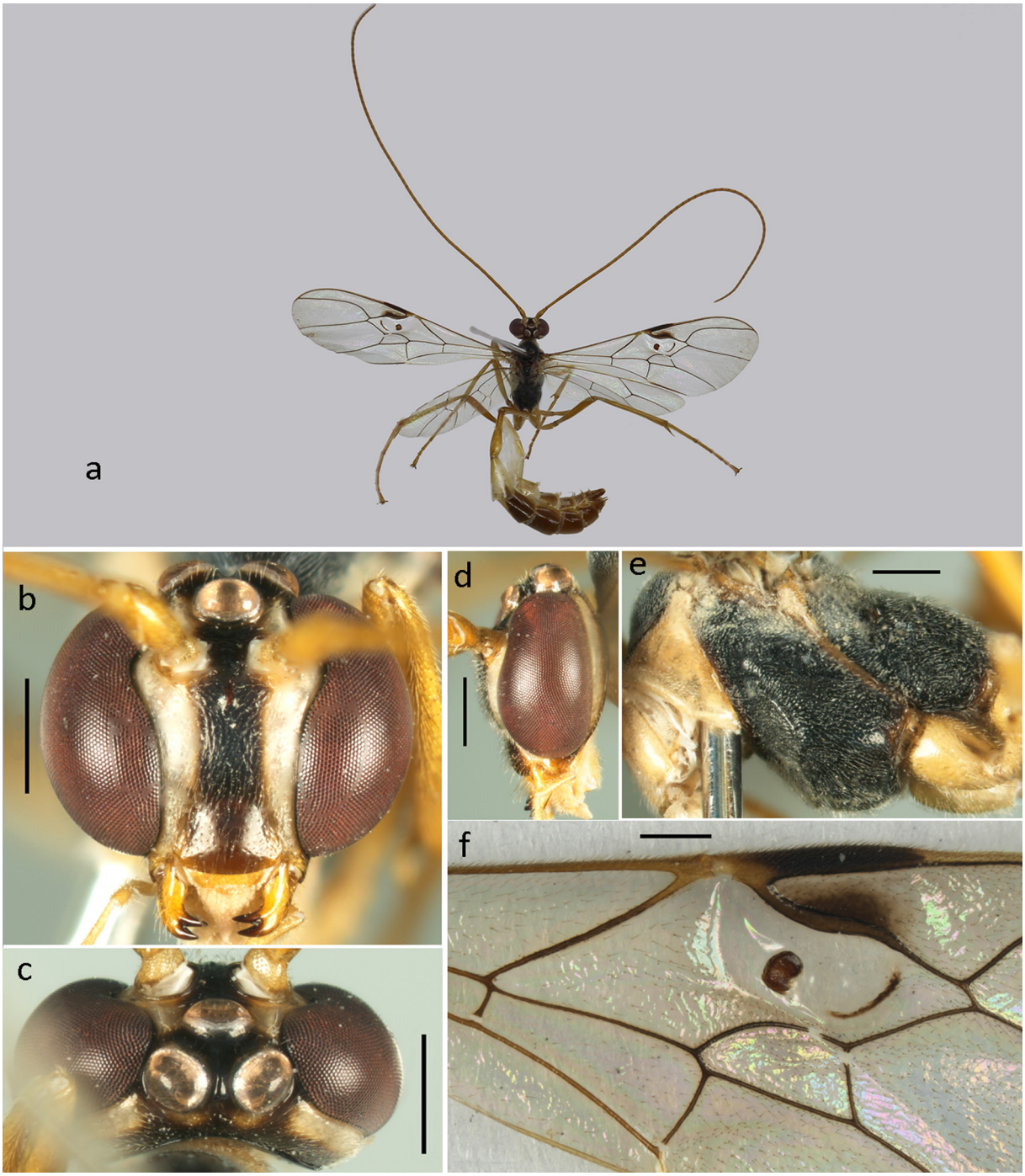

Fig. 17. *Enicospilus circuliscleritalis* sp. nov., holotype, ♂ (IEBR). **a**. Habitus. **b**. Head, frontal view. **c**. Head, dorsal view. **d**. Head, lateral view. **e**. Mesosoma, lateral view. **f**. Central part of fore wing. Scale bars = 0.5 mm.

Enicospilus concentralis Cushman, 1937
Fig. 18

Enicospilus concentralis Cushman, 1937: 305; holotype ♀ from Taiwan (DEI).

Diagnosis

Interocellar area reddish brown, partly black; clypeus flat, ventral margin subblunt; mandible twisted ca 50°, outer surface without a diagonal setose groove; fore wing fenestra with proximal sclerite broadly triangular, joining distal sclerite, central sclerite long, parallel along almost entire length of distal sclerite, marginal cell largely glabrous proximally and darkened outside the glabrous area, vein 2r&RS with posterior bulb; mesosoma extensively black.

Material examined

VIETNAM • 2 ♀♀; Vinh Phuc Province, Tam Dao NP; 30 Apr. 1996; Y. Okushima leg.; OMNH • 1 ♂; Gia Lai Province, Kon Ka Kinh NP; 14 Mar. 2019; Pham V.P. leg.; light trap; IEBR • 1 ♀; Lam Dong Province, Bidoup - Nui Ba NP; 4 May 2022; Nguyen D.H. leg.; light trap; IEBR • 1 ♀; Ha Giang Province, Vi Xuyen, Phong Quang; 22.89996° N, 104.91559° E; 609 m a.s.l.; 26 May 2022; Pham T.N. and Pham V.P. leg.; light trap; IEBR • 1 ♂; Lao Cai Province, Bat Xat NR; 22°37′37″ N, 103°37′32″ E; 1840 m a.s.l.; 28 May 2022; Pham T.N. and Dang T.H. leg.; light trap; IEBR.

Remarks

In comparison with the specimens examined by Gauld & Mitchell (1981), Vietnamese specimens have longer antennae (55–57 flagellomeres vs 51–53) and greater CI (0.38–0.41 vs 0.14–0.30).

Distribution

Previously known from Brunei, China (including Taiwan), India, Indonesia, Japan, Myanmar, Papua New Guinea, and Philippines (Yu *et al.* 2016). These are the first records of this species from Vietnam.

Enicospilus corculus (Tosquinet, 1903)
Fig. 19

Ophion (*Allocamptus*) *corculus* Tosquinet, 1903: 35; holotype ♀ from Indonesia (RBINS).

Enicospilus corculus – Townes *et al.* 1961: 273.

Diagnosis

Interocellar area reddish brown; clypeus flat, ventral margin subacute; mandible twisted ca 20°, outer surface without a diagonal setose groove; fore wing fenestra with weak proximal and distal sclerites, CI less than 0.5, AI more than 0.9; metasoma from T3 onwards dark brown.

Material examined

VIETNAM • 1 ♀; Cao Bang Province, Phia Oac - Phia Den NP; 22°35′18.2″ N, 105°52′33.2″ E; 1200 m a.s.l.; 22 May 2020; Hoang V.T. and Pham V.P. leg.; light trap; IEBR • 1 ♀; Cao Bang Province, Nguyen Binh, Tinh Tuc; 3 Jun. 2020; Nguyen D.H. leg.; light trap; IEBR.

Remarks

In comparison with the specimens examined by Gauld & Mitchell (1981), Vietnamese specimens have longer antenna (64 flagellomeres vs 62), shorter lower face (0.65–0.70× as broad as long vs 0.70–0.75×), shorter fore wing (18–20 mm vs 20–22 mm), and shorter ICI (0.78–0.81 vs 0.90–0.95).

Distribution

Previously known from Indonesia (Gauld & Mitchell 1981). These are the first records of this species from Vietnam.

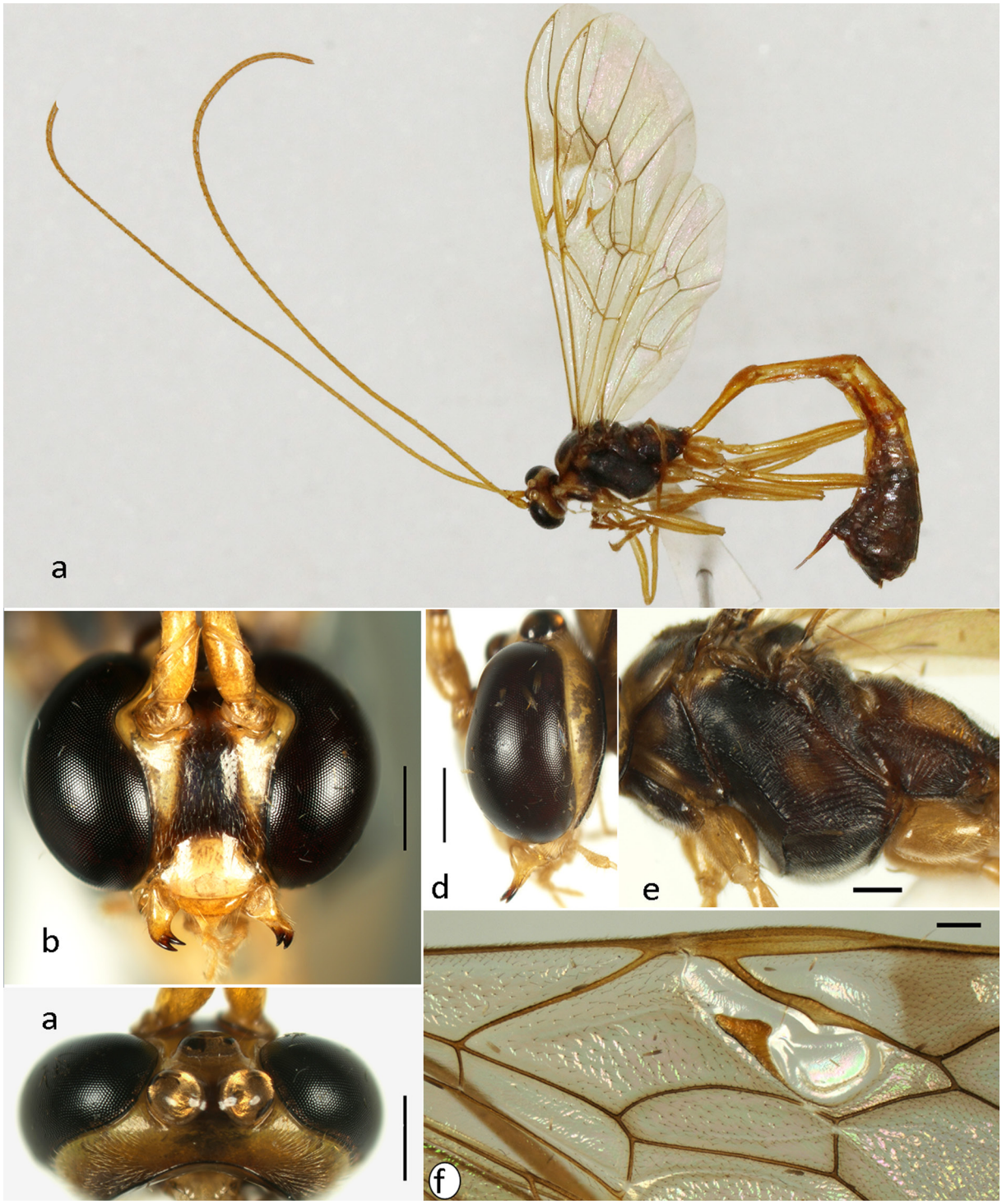

Fig. 18. *Enicospilus concentralis* Cushman, 1937, ♀ (OMNH). **a**. Habitus. **b**. Head, frontal view. **c**. Head, dorsal view. **d**. Head, lateral view. **e**. Mesosoma, lateral view. **f**. Central part of fore wing. Scale bars = 0.5 mm.

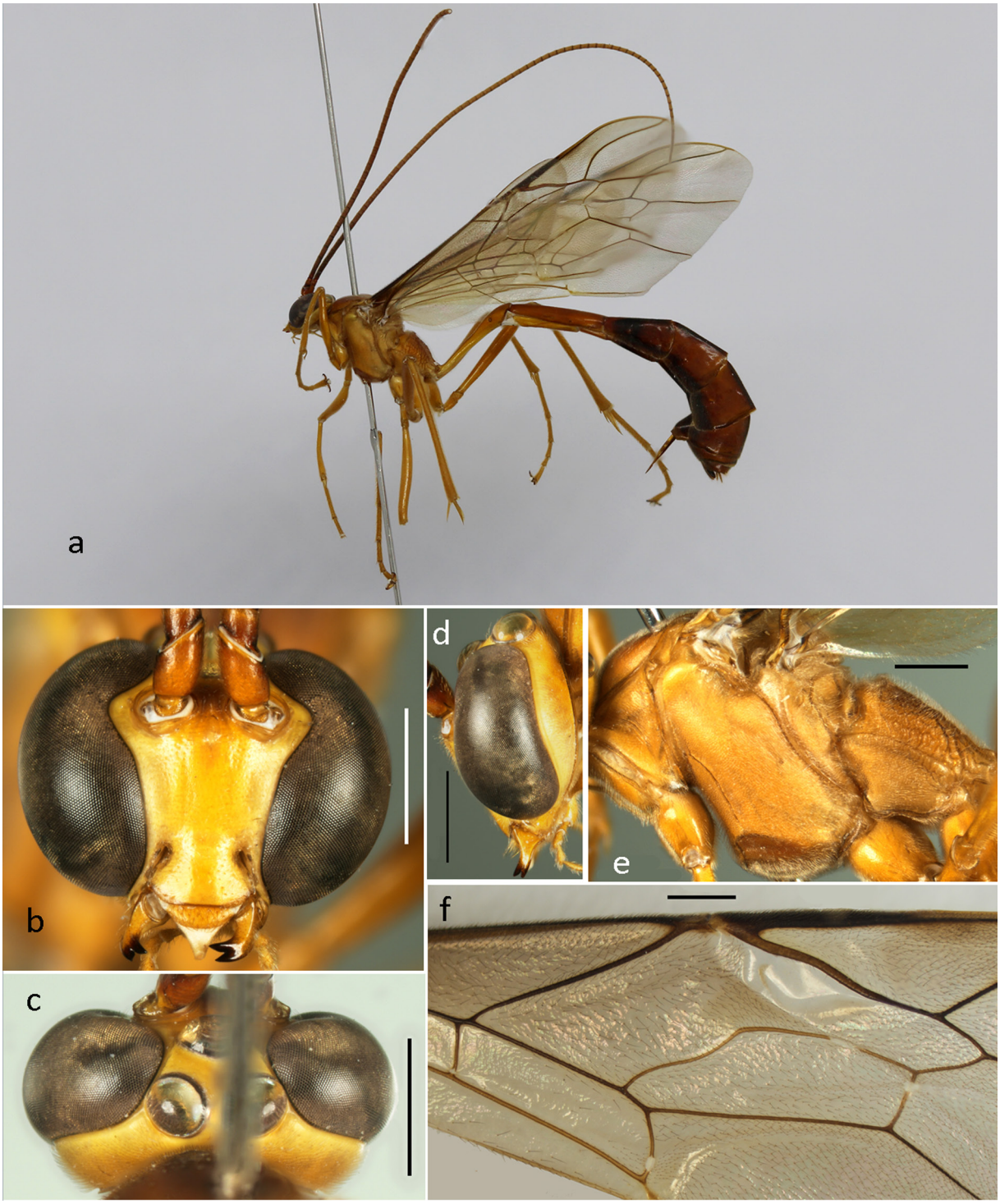

Fig. 19. *Enicospilus corculus* (Tosquinet, 1903), ♀ (IEBR). **a**. Habitus. **b**. Head, frontal view. **c**. Head, dorsal view. **d**. Head, lateral view. **e**. Mesosoma, lateral view. **f**. Central part of fore wing. Scale bars = 1.0 mm.

Enicospilus dasychirae Cameron, 1905
Fig. 20

Enicospilus dasychirae Cameron, 1905a: 123; holotype ♀ from Sri Lanka (NHMUK).

Diagnosis

Interocellar area reddish brown; clypeus weakly to moderately convex, ventral margin blunt to subacute; mandible twisted 20°–30°, outer surface without a diagonal setose groove; fore wing fenestra with only proximal sclerite present, drop-shaped, separated from proximal margin of fenestra by about 0.75–1.00× width of proximal sclerite.

Material examined

VIETNAM • 1 ♀; Vinh Phuc Province, Phuc Yen, Ngoc Thanh; 25 Oct.–16 Nov. 2000; Khuat D.L. leg.; Malaise trap; IEBR • 1 ♀; Hoa Binh Province, Yen Thuy, Lac Thinh; 20–30 Jul. 2002; Khuat D.L. leg.; Malaise trap; IEBR • 1 ♀; same collection data as for preceding; 15–30 Aug. 2002; IEBR • 1 ♀; Nghe An Province, Con Cuong, Kem waterfall; 300 m a.s.l.; 25 Apr. 2006; Le X.H. leg.; hand net; IEBR • 1 ♀; Phu Tho Province, Xuan Son, Xuan Dai; 24–29 Jun. 2009; Khuat D.L. leg.; Malaise trap; IEBR • 1 ♂; Cao Bang Province, Nguyen Binh, Thanh Cong; 720 m a.s.l.; 11 May 2010; Hoang V.T. leg.; light trap; IEBR • 1 ♀; Thanh Hoa Province, Thuong Xuan, Van Xuan; 25 Aug. 2012; Hoang V.T. leg.; light trap; IEBR • 1 ♂; Vinh Phuc Province, Tam Dao NP; May 2013; Hoang V.T. leg.; light trap; IEBR • 1 ♀; Vinh Phuc Province, Me Linh Station for Biodiversity; Apr. 2015; Pham T.N. leg.; Malaise trap; IEBR • 1 ♂; Son La Province, Thuan Chau, Long He; 2 May 2016; Hoang V.T. and Nguyen V.B. leg.; light trap; IEBR • 1 ♀; Tuyen Quang Province, Na Hang, Son Phu; 22°07′32″ N, 105°28′19″ E; 573 m a.s.l.; 1–10 Jun. 2017; Khuat D.L. leg.; IEBR • 1 ♀; same collection data as for preceding; 10–20 Oct. 2017; IEBR • 1 ♀; same collection data as for preceding; 1–10 Dec. 2017; IEBR • 1 ♀; same collection data as for preceding; 1–10 Jan. 2018; IEBR • 1 ♂; Hanoi, Tu Liem, Minh Khai; 11–20 Jul. 2018; Nguyen D.H. leg.; Malaise trap; IEBR • 1 ♀; Gia Lai Province, Kon Chu Rang NP; 27 May 2019; Nguyen V.T. leg.; light trap; IEBR • 1 ♀; Ha Giang Province, Bac Me, Minh Ngoc; 22°43′47.2″ N, 105°12′21.3″ E; 207 m a.s.l.; 21 Jul. 2019; Dang T.H. leg.; light trap; IEBR • 1 ♀; Cao Bang Province, Phia Oac - Phia Den NP; 22°35.305′ N, 105°52.552′ E; 1216 m a.s.l.; 24 May 2020; Hoang V.T. and Pham V.P. leg.; light trap; IEBR • 1 ♀; Kon Tum Province, Chu Mom Ray NP; 14°26′1″ N, 107°43′14″ E; 707 m a.s.l.; 24 Apr. 2022; Pham V.P. leg.; light trap; IEBR • 1 ♀; Ninh Binh Province, Cuc Phuong NP; 8 Jun. 2022; Pham V.P. leg.; light trap; IEBR • 1 ♂; Dien Bien Province, Muong Nhe; 22.38560° N, 102.23854° E; 750 m a.s.l.; 25 Jun. 2022; Pham V.P. leg.;light trap; IEBR.

Distribution

Previously known from Brunei, China (including Taiwan), India, Indonesia, Japan, Malaysia, Papua New Guinea, Philippines, and Sri Lanka (Yu *et al.* 2016). These are the first records of this species from Vietnam.

Enicospilus dolosus (Tosquinet, 1896)
Fig. 21

Ophion (*Enicospilus*) *dolosus* Tosquinet, 1896: 389; holotype ♀ from Egypt (ZMHB).

Enicospilus dolosus – Townes & Townes 1973: 176.

Diagnosis

Interocellar area black; clypeus weakly to moderately convex, ventral margin blunt to subacute; mandible moderately short, twisted 40°–50°, outer surface without a diagonal setose groove; fore wing fenestra with proximal and distal sclerites, distal sclerite expanded posteriorly; metasoma from T5 onwards black.

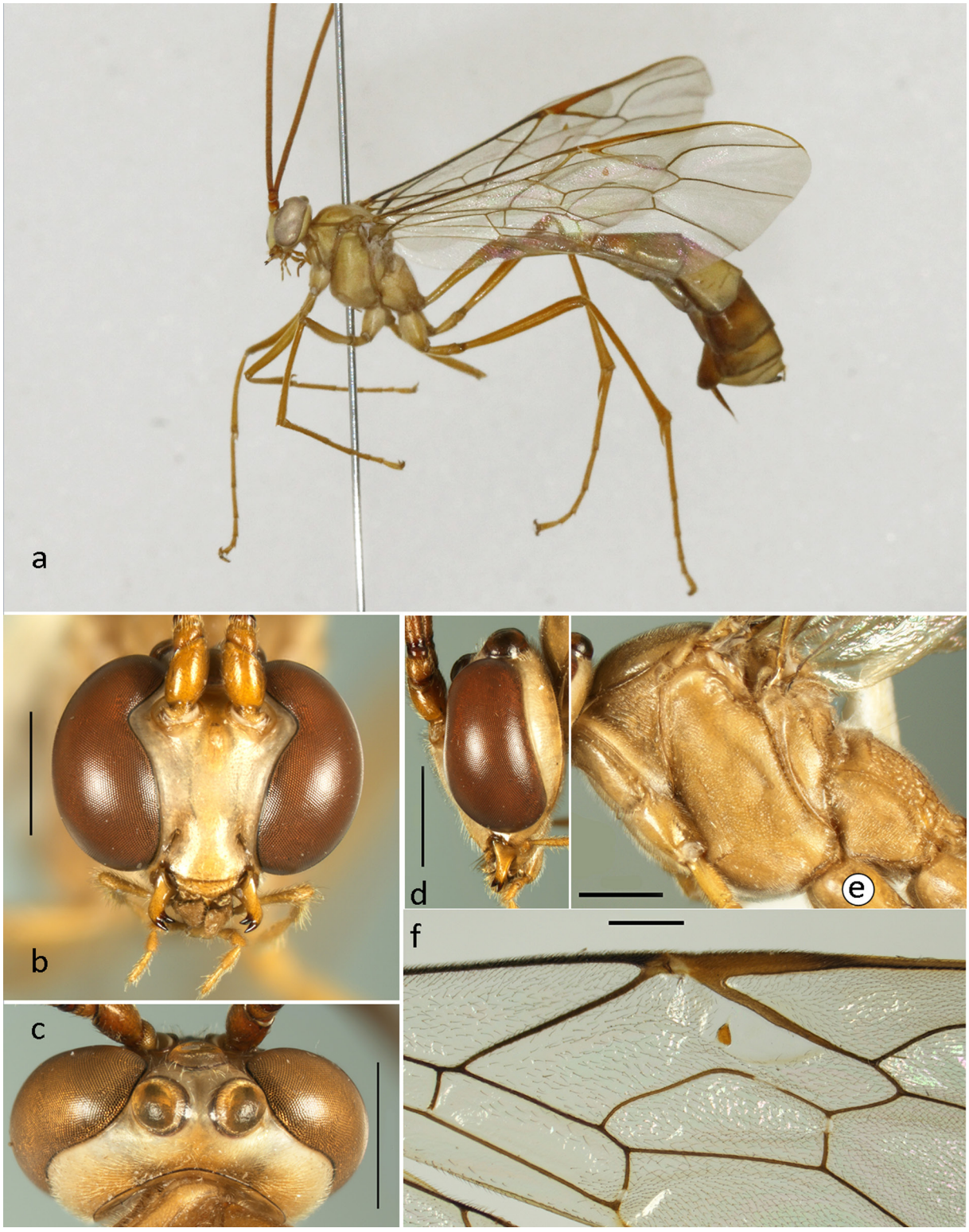

Fig. 20. *Enicospilus dasychirae* Cameron, 1905, ♀ (IEBR). **a**. Habitus. **b**. Head, frontal view. **c**. Head, dorsal view. **d**. Head, lateral view. **e**. Mesosoma, lateral view. **f**. Central part of fore wing. Scale bars = 1.0 mm.

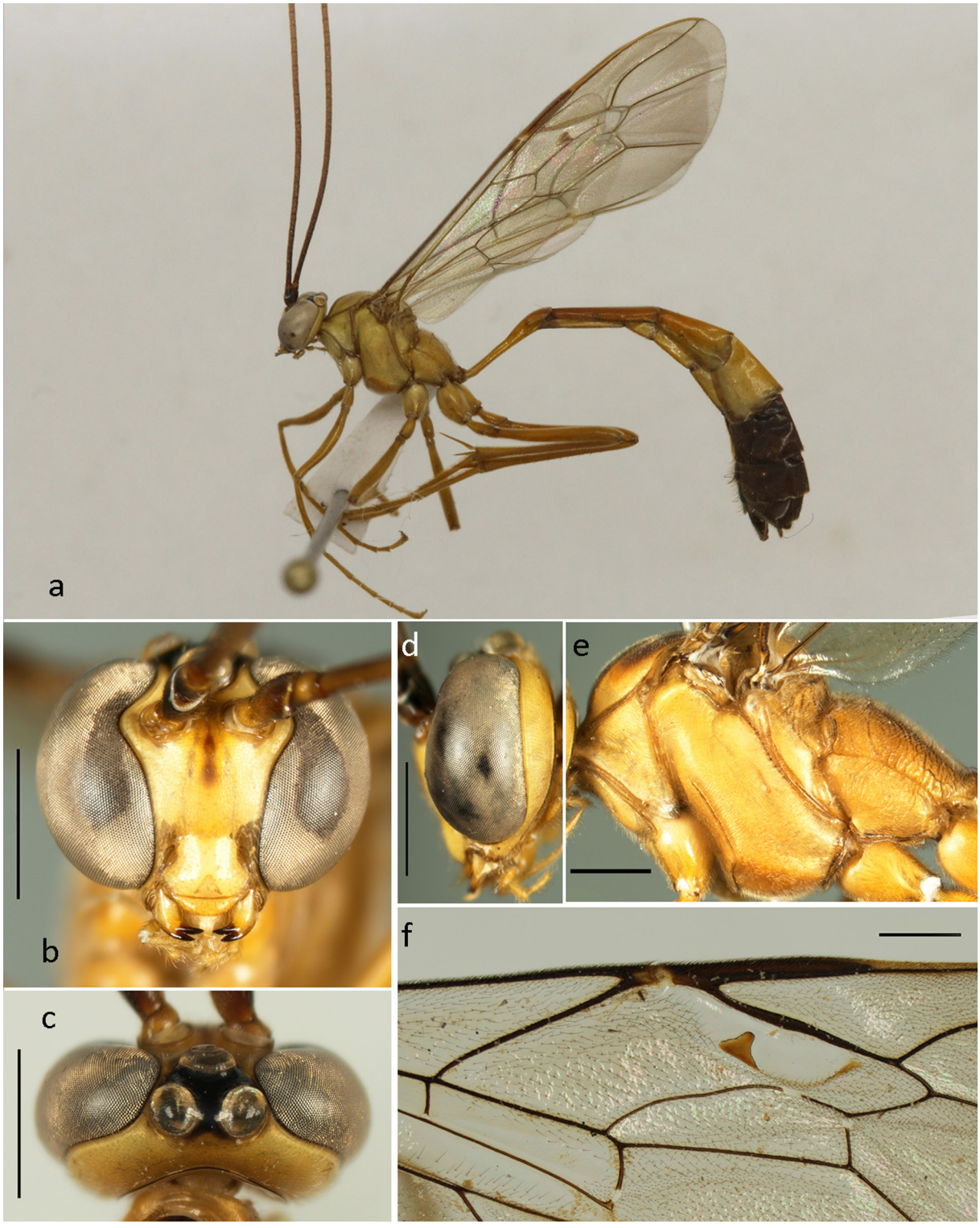

Fig. 21. *Enicospilus dolosus* (Tosquinet, 1896), ♂ (IEBR). **a**. Habitus. **b**. Head, frontal view. **c**. Head, dorsal view. **d**. Head, lateral view. **e**. Mesosoma, lateral view. **f**. Central part of fore wing. Scale bars = 1.0 mm.

Material examined

VIETNAM • 1 ♀, 1 ♂; Lao Cai Province, Sapa; 8 Oct. 2004; Nguyen T.T.H. leg.; light trap; IEBR • 2 ♀♀; same locality as for preceding; 28 Sep. 2013; Pham T.N. leg.; light trap; IEBR • 1 ♀; Dong Nai Province, Vinh Cuu, Hieu Liem; 17 May 2007; Hoang V.T. leg.; light trap; IEBR • 1 ♀; Kon Tum Province, Sa Thay, Sac Li; 20 Jun. 2008; Hoang V.T. leg.; light trap; IEBR • 1 ♀; Gia Lai Province, Kon Chu Rang NP; 27 Apr. 2016; 1091 m a.s.l.; Nguyen T.P.L. leg.; light trap; IEBR • 1 ♀; Cao Bang Province, Phia Oac - Phia Den NP; 22°35.305′ N, 105°52.552′ E; 1216 m a.s.l.; 24 May 2020; Hoang V.T. and Pham V.P. leg.; light trap; IEBR • 1 ♀; Nghe An Province, Con Cuong, Kem waterfall; 30 Aug. 2020; Pham V.P. leg.; light trap; IEBR • 1 ♀; Quang Nam Province, Bac Tra My, Tra Doc; 15°25′37″ N, 108°7′5.5″ E; 221 m a.s.l.; 15 Mar. 2020; Pham V.P. leg.; light trap; IEBR • 1 ♂; Dong Nai Province, Vinh Cuu, Phu Ly; 11°26.517′ N, 107°06.182′ E; 178 m a.s.l.; 17 Jun. 2021; Pham T.N., Hoang V.T. and Pham V.P. leg.; light trap; IEBR • 1 ♀; same collection data as for preceding; 18 Jun. 2021; light trap; IEBR • 1 ♀; Cao Bang Province, Ha Quang, Thanh Long; 22.76852° N, 105.9687° E; 590 m a.s.l.; 24 May 2022; Pham T.N., Hoang V.T. and Pham V.P. leg.; light trap; IEBR • 3 ♀♀, Lao Cai Province, Bat Xat NR; 22°37′37″ N, 103°37′32″ E; 1840 m a.s.l.; 28 May 2022; Pham T.N. and Dang T.H. leg.; light trap; IEBR• 1 ♀; Hoa Binh Province, Mai Chau, Bao La; 20.7046° N, 104.9720° E; 830 m a.s.l.; 3 Jul. 2022; Phan Q.T. leg.; light trap; IEBR.

Distribution

Widely distributed in the Afrotropical, Australasian, Oceanic and Oriental regions (Yu *et al.* 2016).

Enicospilus eastopi Gauld & Mitchell, 1981
Fig. 22

Enicospilus eastopi Gauld & Mitchell, 1981: 266; holotype ♀ from Malaysia (NHMUK).

Diagnosis

Interocellar area reddish brown; clypeus weakly to moderately convex, ventral margin acute; mandible twisted ca 20°, outer surface without a diagonal setose groove; fore wing fenestra short, with proximal and distal sclerites, proximal sclerite separated from proximal margin of fenestra by more than its maximum width, marginal cell sparsely setose proximally, vein 2r&RS strongly sinuous and thickened proximally, abruptly narrowed and straight distally, SDI less than 0.9.

Material examined

VIETNAM • 1 ♀; Vinh Phuc Province, Tam Dao NP; 8 May 2012; Hoang V.T. leg.; light trap; IEBR • 1 ♀; Lam Dong Province, Bidoup - Nui Ba NP; 3 Jun. 2013; Hoang V.T. leg.; light trap; IEBR • 1 ♀; Gia Lai Province, Kon Chu Rang NP; 27 May 2019; Nguyen V.T. leg.; light trap; IEBR • 1 ♀; Gia Lai Province, Kon Ka Kinh NP; 28 Apr. 2022; Pham V.P. leg.; light trap; IEBR.

Distribution

Previously known from Brunei, India, Indonesia, Malaysia, and Philippines (Gauld & Mitchell 1981; Yu *et al.* 2016). These are the first records of this species from Vietnam.

Enicospilus enicospilus Nikam, 1972
Fig. 23

Enicospilus (*Unicorniata*) *enicospilus* Nikam, 1972: 193; holotype ♀ from India (MUC).

Enicospilus enicospilus – Nikam 1980: 166.

Diagnosis

Interocellar area reddish brown; clypeus flat to weakly convex, ventral margin blunt; mandible twisted 15–20°, outer surface without a diagonal setose groove; fore wing fenestra with proximal and distal sclerites present, distal sclerite weak, not joining proximal sclerite; metapleuron strigose.

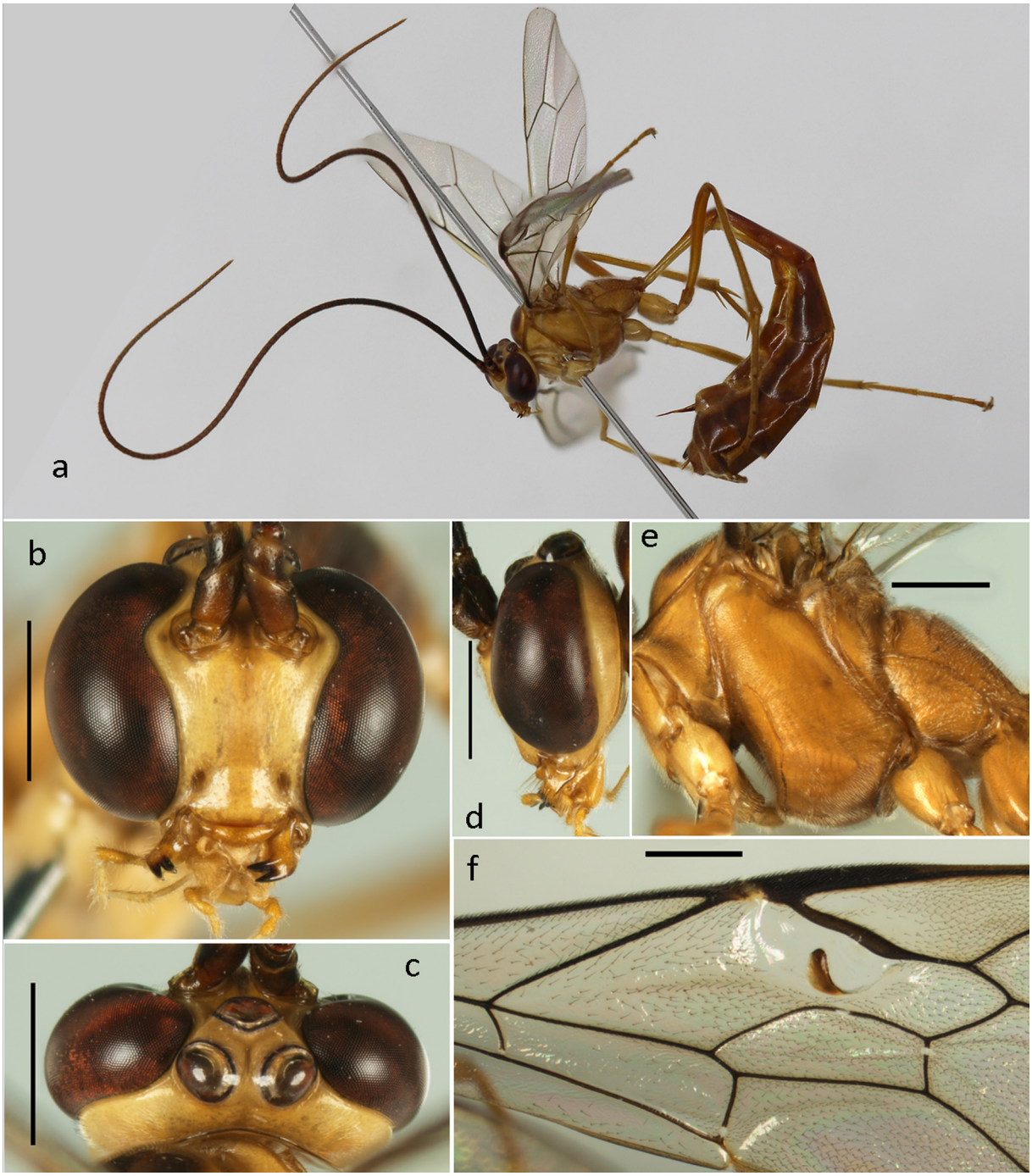

Fig. 22. *Enicospilus eastopi* Gauld & Mitchell, 1981, ♀ (IEBR). **a**. Habitus. **b**. Head, frontal view. **c**. Head, dorsal view. **d**. Head, lateral view. **e**. Mesosoma, lateral view. **f**. Central part of fore wing. Scale bars = 1.0 mm.

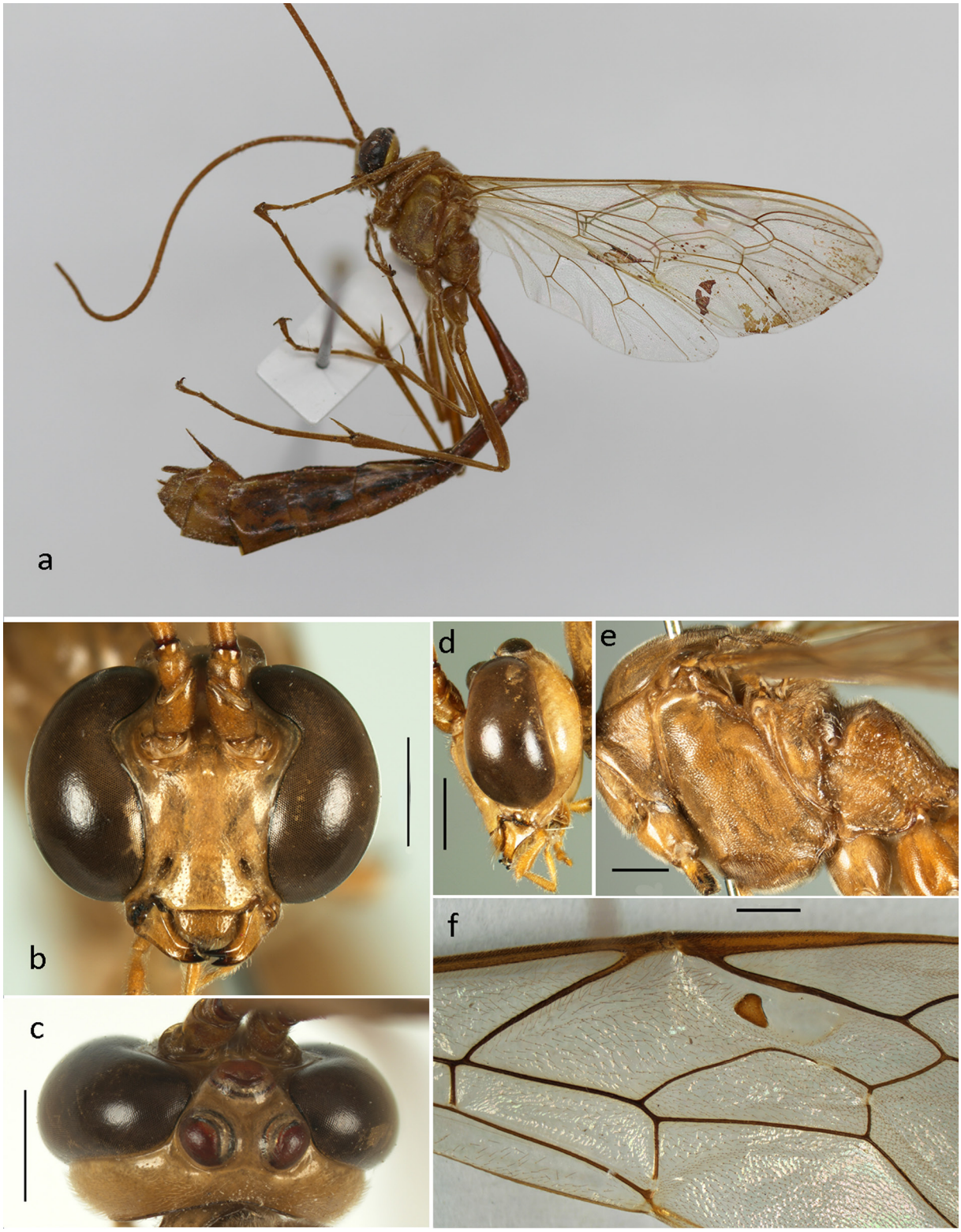

Fig. 23. *Enicospilus enicospilus* Nikam, 1972, ♀ (IEBR). **a**. Habitus. **b**. Head, frontal view. **c**. Head, dorsal view. **d**. Head, lateral view. **e**. Mesosoma, lateral view. **f**. Central part of fore wing. Scale bars = 1.0 mm.

Material examined

VIETNAM • 1 ♀; Hoa Binh Province, Yen Thuy, Lac Thinh; 20–30 Sep. 2002; Khuat D.L. leg.; Malaise trap; IEBR • 1 ♀; Vinh Phuc Province, Tam Dao NP; 2 Jul. 2003; Hoang V.T. leg.; light trap; IEBR • 1 ♂; Gia Lai Province, Kon Chu Rang NP; 27 May 2019; Nguyen V.T. leg.; light trap; IEBR • 1 ♀; Lao Cai Province, Bat Xat NR; 22°37′37″ N, 103°37′32″ E; 1840 m a.s.l.; 28 May 2022; Pham T.N. and Dang T.H. leg.; light trap; IEBR.

Remarks

In comparison with specimens examined by Gauld & Mitchell (1981), Vietnamese specimens have slightly broader lower face (0.75–0.82 × as wide as long vs 0.72–0.74 ×); fore wing index ICI varies from 0.7–0.85 (vs 0.65–0.7), AI = 0.59–0.76 (vs 0.78–1.1) and SDI = 1.22 (vs 1.3–1.35).

Distribution

Previously known from China, India, and Sri Lanka (Yu *et al.* 2016). These are the first records of this species from Vietnam.

Enicospilus erythrocerus (Cameron, 1905)
Fig. 24

Pleuconeurophion erythrocerus Cameron, 1905a: 121; holotype ♀ from Sri Lanka (NHMUK).
Allocamptus orientalis Uchida, 1928: 230; lectotype ♀ from Okinawa, designated by Gauld & Mitchell 1981: 175 (SEHU), examined; synonymised by Townes *et al.* 1961: 275; junior secondary homonym of *Enicospilus orientalis* (Morley, 1913).
Enicospilus hirayamai Uchida, 1955: 120; replacement name for *Enicospilus orientalis* (Uchida, 1928).

Enicospilus erythrocerus – Townes *et al.* 1961: 277.

Diagnosis

Interocellar area reddish brown; clypeus flat to weakly convex, ventral margin subacute to blunt; mandible short, twisted ca 80°, outer surface without a diagonal setose groove; fore wing fenestra without any sclerites, vein 2r&RS sinuous.

Material examined

VIETNAM • 1 ♂; Thai Nguyen Province, Dai Tu, Cat Ne; 25–30 Sep. 2007; Khuat D.L. leg; Malaise trap; IEBR • 1 ♀; same collection data as for preceding; 15–20 Nov. 2007; Malaise trap; IEBR • 1 ♀; same collection data as for preceding; 5–10 Dec. 2007; Malaise trap; IEBR • 3 ♀♀, 1 ♂; Phu Tho Province, Xuan Son, Xuan Dai; 5–10 Apr. 2009; Khuat D.L. leg.; Malaise trap; IEBR • 1 ♂; same collection data as for preceding; 10–15 May 2009; Malaise trap; IEBR • 1 ♀; same collection data as for preceding; 15–20 Jul. 2009; Malaise trap; IEBR • 1 ♀; same collection data as for preceding; 20–25 Jul. 2009; Malaise trap; IEBR • 1 ♀; same collection data as for preceding; 1–5 Aug. 2009; Malaise trap; IEBR • 1 ♀, 1 ♂; Bac Giang Province, Tay Yen Tu NR; 3–5 Jul 2010; Pham T.N. leg.; Malaise trap; IEBR • 1 ♂; Vinh Phuc Province, Tam Dao NP; 21°26.5′ N, 105°37′ E; 400 m a.s.l.; emerged from an Arctiid larva on 25 May 2013; Dang T.H. leg.; IEBR • 1 ♀; Nghe An Province, Khe Choang; 18°57′20.7″ N, 104°41′1.4″ E; 192 m a.s.l.; 8 May 2017; Hoang V.T. leg.; light trap; IEBR • 1 ♀; Vinh Phuc Province, Me Linh Station for Biodiversity; Jun.–Jul. 2018; Pham H.P. leg.; Malaise trap; IEBR • 1 ♂; same locality as for preceding; 10 May 2020; Tran D.D. leg.; Malaise trap; IEBR • 1 ♀; same collection data as for preceding; 20 May 2020; Malaise trap; IEBR • 1 ♀; Hoa Binh Province, Luong Son, Thanh Lap; 25 Feb.–5 Mar. 2019; Nguyen D.H. leg.; Malaise trap; IEBR • 1 ♀; Lao Cai Province, Bat Xat NR; 22°37′37″ N, 103°37′32″ E; 1840 m a.s.l.; 28 May 2022; Pham T.N. and Dang T.H. leg.; light trap; IEBR.

Remarks

Vietnamese specimens have mandible torsion ca 80°, more strongly twisted than the specimens examined by Gauld & Mitchell (1981) (40°–45°). One specimen from Tam Dao NP, Vinh Phuc Province was reared from an unidentified arctiine caterpillar (Lepidoptera: Erebidae: Arctiinae) (Fig. 25).

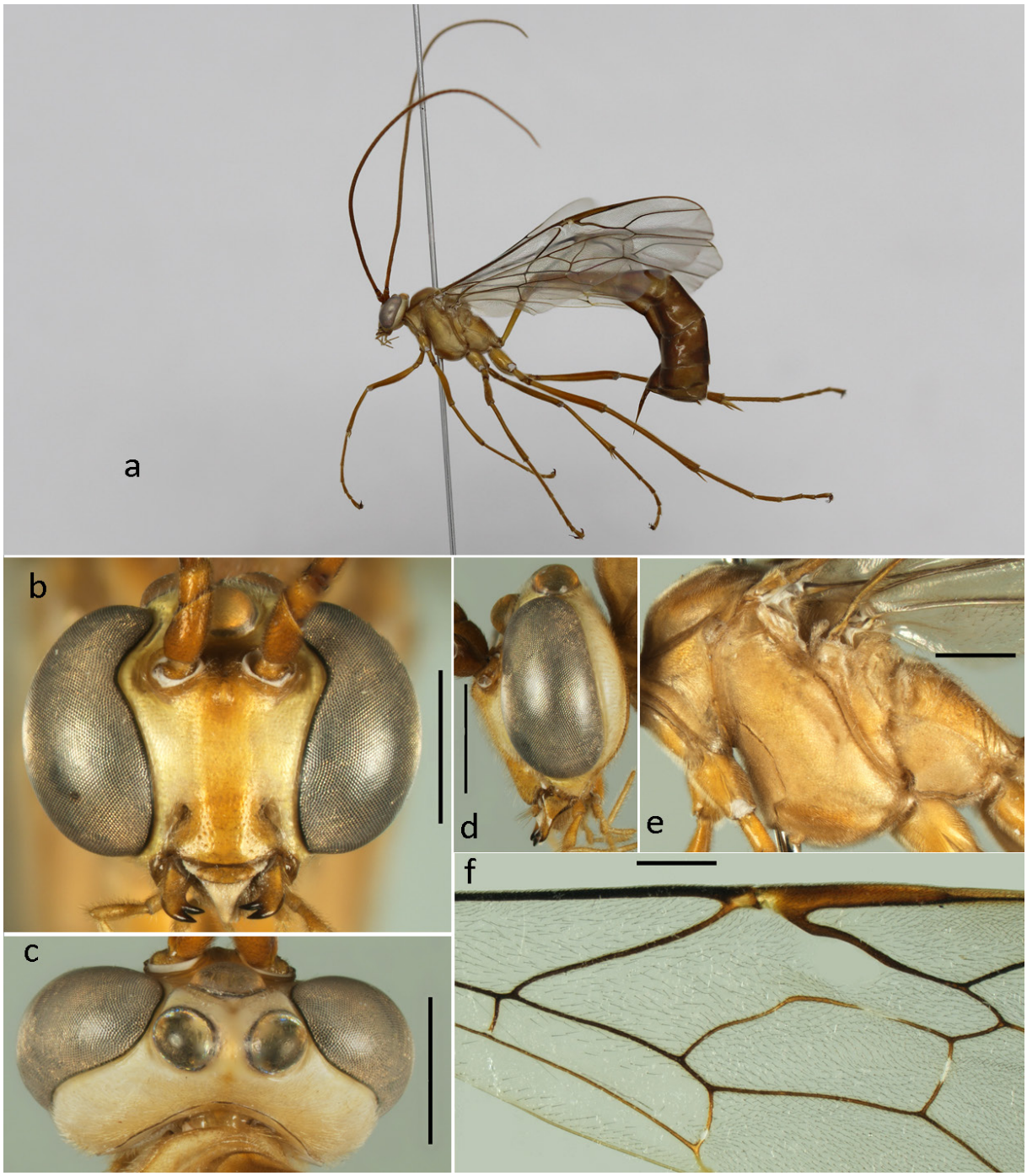

Fig. 24. *Enicospilus erythrocerus* (Cameron, 1905), ♀ (IEBR). **a**. Habitus. **b**. Head, frontal view. **c**. Head, dorsal view. **d**. Head, lateral view. **e**. Mesosoma, lateral view. **f**. Central part of fore wing. Scale bars = 1.0 mm.

Distribution

Previously known from Brunei, China (including Taiwan), India, Indonesia, Japan, Malaysia, Myanmar, Philippines, Singapore, Sri Lanka, and Vietnam (Yu *et al.* 2016; Pham & Khuat 2016).

Enicospilus exaggeratus Chiu, 1954
Fig. 26

Enicospilus exaggeratus Chiu, 1954: 28; holotype ♀ from Taiwan (TARI).

Diagnosis

Interocellar area reddish brown; clypeus moderately convex with central part produced to form a small angular promontory, margin impressed, acute; mandible moderately long, twisted 10°–15°, outer surface without a diagonal setose groove; fore wing fenestra without any sclerites, most of fenestra occluded by a large quadra.

Material examined

VIETNAM • 1 ♀; Son La Province, Thuan Chau, Long He; 2 May 2016; Hoang V.T. and Nguyen V.B. leg.; light trap; IEBR • 1 ♀; Son La Province, Thuan Chau, Co Ma; 17 May 2017; Pham V.P. leg.; light trap; IEBR • 1 ♀; Gia Lai Province, Kon Chu Rang NP; 21 Sep. 2017; Nguyen T.P.L. and Nguyen Q.C. leg.; light trap; IEBR • 1 ♀; Lam Dong Province, Bidoup - Nui Ba NP; 4 May 2022; Nguyen D.H. leg.; light trap; IEBR • 1 ♀, 1 ♂; Lao Cai Province, Bat Xat NR; 22°37′37″ N, 103°37′32″ E; 1840 m a.s.l.; 29 May 2022; Pham T.N. and Dang T.H. leg.; light trap; IEBR • 2 ♀♀; Lai Chau Province, Sin Ho, Ta Ngao; 22°16′19″ N, 103°14′54″ E; 1520 m a.s.l.; 1 Jun. 2022; Pham T.N. and Dang T.H. leg.; light trap; IEBR• 1 ♀; Hoa Binh Province, Mai Chau, Bao La; 20.7046° N, 104.9720° E; 830 m a.s.l.; 3 Jul. 2022; Phan Q.T. leg.; light trap; IEBR.

Remarks

In comparison with the specimens examined by Gauld & Mitchell (1981), Vietnamese specimens have longer antenna (65–69 flagellomeres vs 63–65), slightly greater ICI (0.50–0.55 vs 0.45–0.50) and CI (0.35–0.48 vs 0.30–0.40).

Fig. 25. A cocoon of *Enicospilus erythrocerus* (Cameron, 1905) from Tam Dao NP, Vinh Phuc Province, Vietnam. Photo: Hoa Dang.

Distribution

Previously known from China (including Taiwan), Papua New Guinea, and Thailand (Yu *et al.* 2016). These are the first records of this species from Vietnam.

Fig. 26. *Enicospilus exaggeratus* Chiu, 1954, ♀ (IEBR). **a**. Habitus. **b**. Head, frontal view. **c**. Head, dorsal view. **d**. Head, lateral view. **e**. Mesosoma, lateral view. **f**. Central part of fore wing. Scale bars = 1.0 mm.

Enicospilus fittoni Nikam, 1980
Fig. 27

Enicospilus fittoni Nikam, 1980: 155; holotype ♀ from India (GPTA).

Diagnosis

Interocellar area reddish brown; clypeus convex, ventral margin acute; mandible moderately long, twisted ca 10°, outer surface with a diagonal setose groove; fore wing fenestra short, about 2.0× as broad as proximal sclerite, proximal and distal sclerites present, distal sclerite stout and strong, not joining proximal sclerite.

Material examined

VIETNAM • 1 ♀; Kon Tum Province, Chu Mom Ray NP; 14°26′1″ N, 107°43′14″ E; 707 m a.s.l.; 25 Sep. 2019; Pham T.N. and Dang T.H. leg.; light trap; IEBR.

Distribution

Previously known from India and Laos (Yu *et al.* 2016). This is the first record of this species from Vietnam.

Enicospilus flavicaput (Morley, 1912)
Fig. 28

Enicospilus xanthocephalus Cameron, 1907: 178; holotype ♀ from Myanmar (NHMUK); junior primary homonym of *Enicospilus xanthocephalus* Cameron, 1905a.
Henicospilus flavicaput Morley, 1912: 45; replacement name for *E. xanthocephalus* Cameron, 1907.

Enicospilus flavicaput – Dammerman, 1948: 385.

Diagnosis

Interocellar area reddish brown; clypeus weakly convex, ventral margin blunt to subacute; mandible moderately twisted 20°–30°, outer surface without a diagonal setose groove; fore wing fenestra with proximal, central and distal sclerites, proximal sclerite triangular, moderately high and wide, about 1.5–1.7× as high as median width, central sclerite long and slender, formed from antero-distal margin of fenestra.

Material examined

VIETNAM • 1 ♂; Ha Tinh Province, Huong Son, Son Hong; 25 May 2004; Truong X.L. leg.; hand net; IEBR • 1 ♀; Phu Tho Province, Xuan Son NP; 17 Oct. 2004; Truong X.L. leg.; hand net; IEBR • 1 ♀; Nghe An Province, Tuong Duong Tam Quang; 200–300 m a.s.l.; 12 Jun. 2006; Pham N.T. leg.; IEBR • 1 ♀; Thai Nguyen Province, Dai Tu, Cat Ne; 5–10 Dec. 2007; Khuat D.L. leg.; Malaise trap; IEBR • 2 ♀♀; Kon Tum Province, Chu Mom Ray NP; 24 Jun. 2008; Ta H.T. and Hoang V.T. leg.; light trap; IEBR • 1 ♀; Phu Tho Province, Xuan Son, Xuan Dai; 5–10 Apr. 2009; Khuat D.L. leg.; Malaise trap; IEBR • 1 ♀, 1 ♂; same collection data as for preceding; 29 Jun.–5 Jul. 2009; Malaise trap; IEBR • 1 ♀; same collection data as for preceding; 20–25 Jul. 2009; Malaise trap; IEBR • 2 ♀♀; same collection data as for preceding; 1–5 Aug. 2009; Malaise trap; IEBR • 1 ♂; Vinh Phuc Province, Me Linh Station for Biodiversity; 4 Jun. 2010; Ta H.T. and Hoang V.T. leg.; light trap; IEBR • 5 ♀♀, 1 ♂; Gia Lai Province, Kon Ka Kinh NP; 8 Jun. 2011; Nguyen Q.T. leg.; light trap; IEBR • 1 ♀; Lam Dong, Bidoup - Nui Ba NP; 3 Jun. 2013; Hoang V.T. leg.; light trap; IEBR • 2 ♀♀; same locality as for preceding; 27 Apr. 2022; Nguyen D.H. leg.; light trap; IEBR • 1 ♀; Bac Kan Province, Ba Be NP; 12 May 2014; Hoang V.T. leg.; light trap; IEBR • 1 ♀; Son La Province, Phu Yen, Gia Phu; 18 Jun. 2015; Hoang V.T. leg.; hand net; IEBR • 1 ♀; Tuyen Quang Province, Na Hang, Giang Chi; 11 Sep. 2017; Hoang V.T., Pham V.P. and

Nguyen H.N. leg.; light trap; IEBR • 1 ♀; Tuyen Quang Province, Lam Binh, Na Tong; 22°29.735′ N, 105°19.308′ E; 174 m a.s.l.; 20 Sep. 2017; Pham T.N. and Pham V.P. leg.; light trap; IEBR • 1 ♂; Gia Lai Province, Kon Chu Rang NP; 28 Mar. 2016; Truong X.L. leg.; light trap; IEBR • 1 ♂; Ninh Binh, Cuc Phuong NP; 6 May 2019; Nguyen D.H. leg.; light trap; IEBR • 1 ♀; Kon Tum Province, Mang Den, Mang Canh; 6 Jun. 2019; Nguyen V.T. leg.; light trap; IEBR.

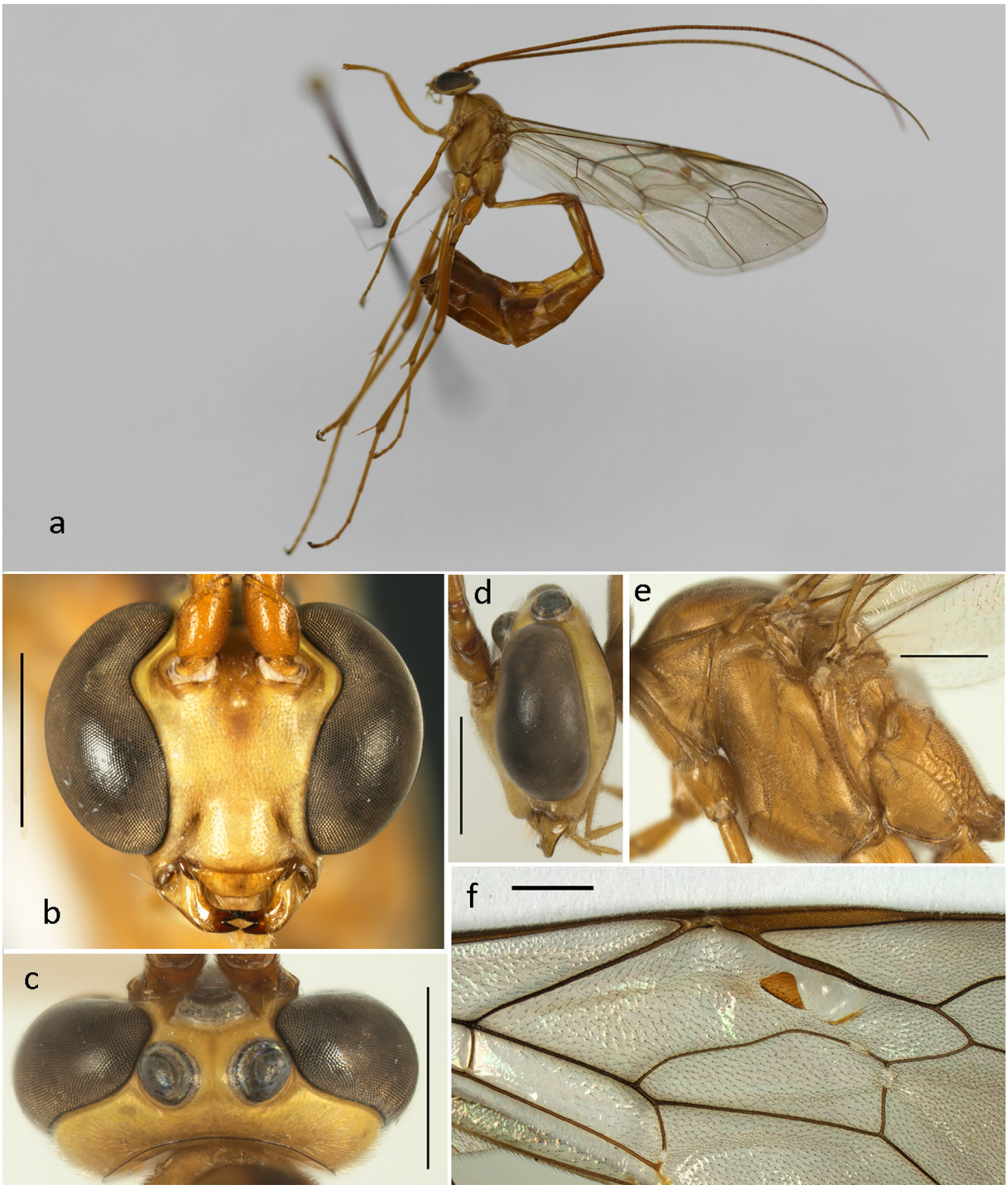

Fig. 27. *Enicospilus fittoni* Nikam, 1980, ♀ (IEBR). **a**. Habitus. **b**. Head, frontal view. **c**. Head, dorsal view. **d**. Head, lateral view. **e**. Mesosoma, lateral view. **f**. Central part of fore wing. Scale bars = 1.0 mm.

Distribution

Brunei, China, India, Indonesia, Japan, Laos, Malaysia, Myanmar, Nepal, Philippines, Sri Lanka, and Vietnam (Yu *et al.* 2016; Shimizu & Konishi 2018).

Fig. 28. *Enicospilus flavicaput* (Morley, 1912), ♂ (IEBR). **a**. Habitus. **b**. Head, frontal view. **c**. Head, dorsal view. **d**. Head, lateral view. **e**. Mesosoma, lateral view. **f**. Central part of fore wing. Scale bars = 1.0 mm.

Enicospilus flavocephalus (Kirby, 1900)
Fig. 29

Ophion flavocephalus Kirby, 1900: 82; lectotype ♂ from Christmas Is. (Indian Ocean) (NHMUK).

Enicospilus flavocephalus – Cushman 1937: 306.

Diagnosis

Interocellar area reddish brown; clypeus weakly convex, ventral margin bunt; mandible twisted ca 30°, outer surface without a diagonal setose groove; fore wing fenestra with proximal, central and distal sclerites, central sclerite strong, linear, parallel to weak distal sclerite, vein 1m-cu&M centrally angled.

Material examined

VIETNAM • 1 ♂; Kien Giang Province, Kien Luong, Hon Chong; 18 Jun. 2005; Ta H.T. and Hoang V.T. leg.; light trap; IEBR • 2 ♂♂; Son La Province, Thuan Chau, Chieng Bom; 3 Sep. 2016; Pham V.P. leg.; light trap; IEBR • 1 ♀; Hoa Binh Province, Luong Son, Thanh Lap; 25 Feb.–5 Mar. 2019; Nguyen D.H. leg.; Malaise trap; IEBR • 1 ♀; Cao Bang Province, Phia Oac - Phia Den NP; 22°35.305′ N, 105°52.552′ E; 1216 m a.s.l.; 24 May 2020; Hoang V.T. and Pham V.P. leg.; light trap; IEBR • 1 ♀; same locality as for preceding; 3 Jun. 2020; Nguyen D.H. leg.; light trap; IEBR • 1 ♂; Cao Bang Province, Ha Quang, Thanh Long; 22.76852° N, 105.9687° E; 590 m a.s.l.; 24 May 2022; Pham T.N., Hoang V.T. and Pham V.P. leg.; light trap; IEBR.

Remarks

In comparison with the specimens examined by Gauld & Mitchell (1981), Vietnamese specimens have shorter fore wings (8.2–12.0 mm vs 10.0–13.0 mm) and greater SDI (0.98–1.20 vs 0.76–1.10).

Distribution

Previously known from Australia, Brunei, China (including Taiwan), India, Indonesia, Japan, Malaysia, New Caledonia, Papua New Guinea, Philippines, Singapore, Solomon Islands, and Sri Lanka (Yu *et al.* 2016). These are the first records of this species from Vietnam.

Enicospilus formosensis (Uchida, 1928)
Fig. 30

Henicospilus formosensis Uchida, 1928: 223; holotype ♀ from Taiwan (SEHU).

Enicospilus formosensis – Townes *et al.* 1961: 276.

Diagnosis

Interocellar area reddish brown; lower face broad, about 0.82–0.87× as wide as long; clypeus weakly convex, ventral margin blunt to subacute; mandible stout, twisted 20°–30°, outer surface without a diagonal setose groove; fore wing length about 18.0–22.0 mm, fenestra with proximal, central and distal sclerites, central sclerite C-shaped, parallel to distal sclerite, discosubmarginal cell with conspicuous long line of setae.

Material examined

VIETNAM • 1 ♀; Vinh Phuc Province, Tam Dao NP; 30 Apr. 1996; Y. Okushima leg.; light trap; OMNH • 1 ♀; same collection data as for preceding; 1 May 1996; light trap; OMNH • 1 ♀; same collection data as for preceding; 3 May 1996; light trap; OMNH • 1 ♀; Lao Cai, Sapa; 21 Oct. 2008; Khuat D.L. leg.; hand net; IEBR • 1 ♀, 1 ♂; Cao Bang Province, Phia Oac - Phia Den NP; 25 May 2011; Hoang V.T. leg.;

light trap; IEBR • 1 ♂; Son La Province, Thuan Chau, Co Ma; 27 Apr. 2016; Hoang V.T. leg.; light trap; IEBR • 1 ♀; Thua Thien-Hue Province, A Luoi, Sao La; 10 Jun. 2018; Nguyen V.T. leg.; light trap; IEBR.

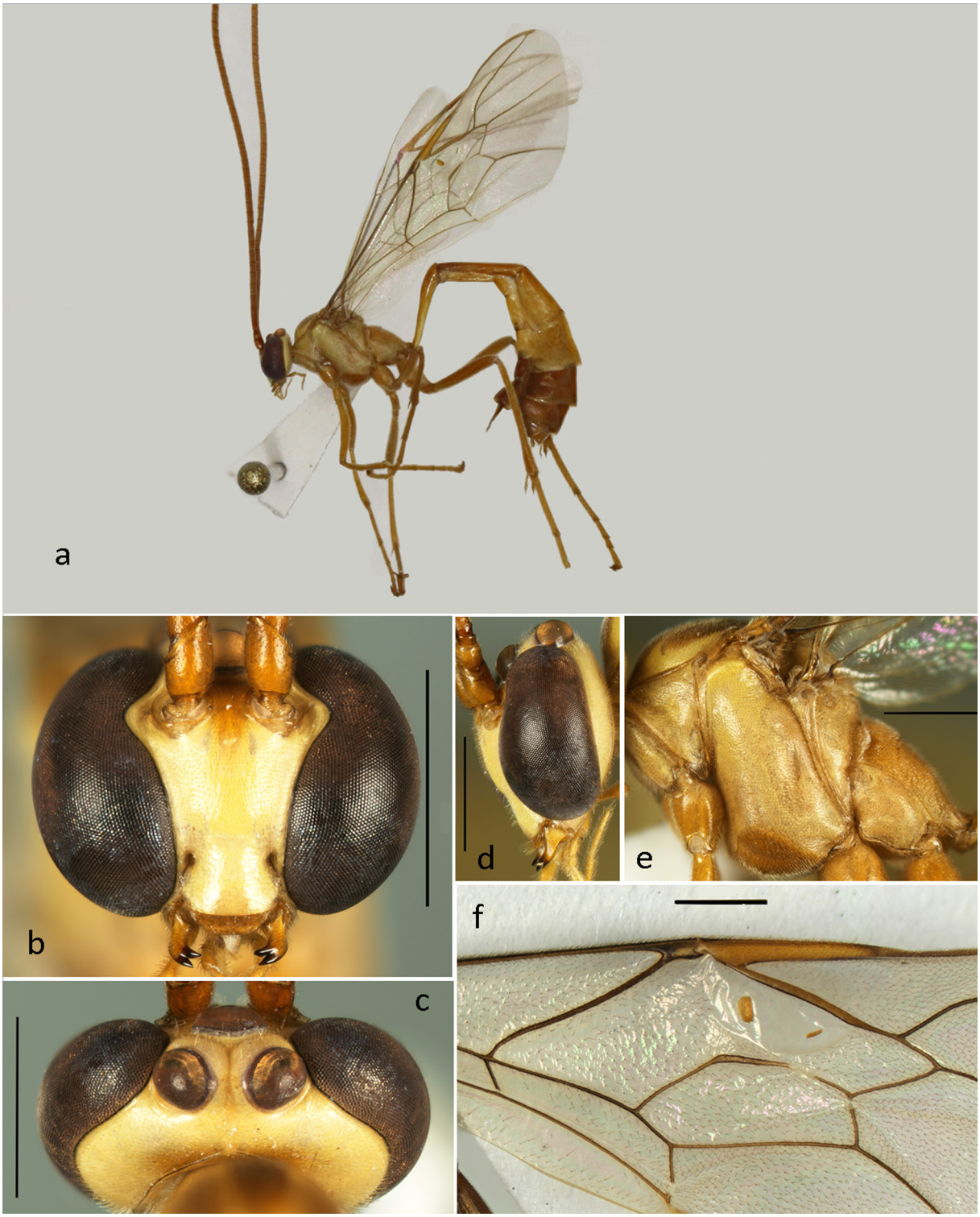

Fig. 29. *Enicospilus flavocephalus* (Kirby, 1900), ♀ (IEBR). **a**. Habitus. **b**. Head, frontal view. **c**. Head, dorsal view. **d**. Head, lateral view. **e**. Mesosoma, lateral view. **f**. Central part of fore wing. Scale bars = 1.0 mm.

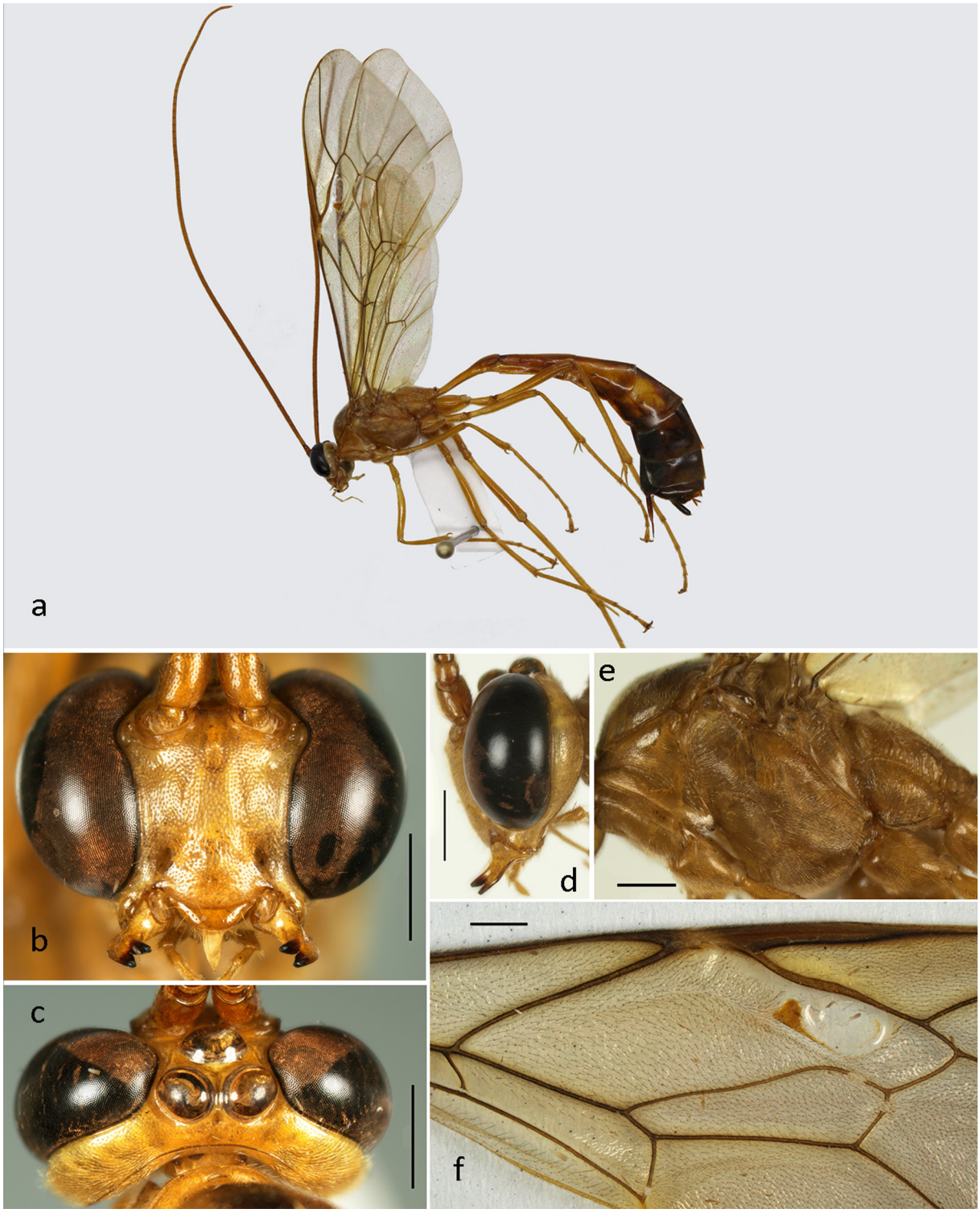

Fig. 30. *Enicospilus formosensis* (Uchida, 1928), ♀ (OMNH). **a**. Habitus. **b**. Head, frontal view. **c**. Head, dorsal view. **d**. Head, lateral view. **e**. Mesosoma, lateral view. **f**. Central part of fore wing. Scale bars = 1.0 mm.

Remarks

In comparison with the specimens examined by Gauld & Mitchell (1981), Vietnamese specimens have greater ICI (0.54–0.65 vs 0.46–0.49), and smaller SDI (1.07–1.18 vs 1.10–1.25).

Distribution

Previously known from Brunei, China (including Taiwan), India, and Japan (Yu *et al.* 2016). These are the first records of this species from Vietnam.

Enicospilus fusiformis Chiu, 1954
Fig. 31

Enicospilus fusiformis Chiu, 1954: 27; holotype ♀ from Taiwan (TARI).

Diagnosis

Interocellar area reddish brown; clypeus weakly convex, ventral margin subacute; mandible twisted ca 20°, outer surface without a diagonal setose groove; fore wing fenestra with only distal sclerite present, vein 1m-cu&M centrally angled and broadened; metasoma from T5 onwards black.

Material examined

VIETNAM • 1 ♀; Vinh Phuc Province, Tam Dao NP; 20 Apr. 1996; Y. Okushima leg.; light trap; OMNH • 1 ♂; same collection data as for preceding; 20 May 1996; light trap; OMNH • 1 ♀; Thai Nguyen Province, Dai Tu, Cat Ne; 15–20 Nov. 2006; Khuat D.L. leg.; Malaise trap; IEBR.

Remarks

In comparison with the specimens examined by Gauld & Mitchell (1981), Vietnamese specimens have shorter fore wings (12.0–14.7 mm vs 15.0–17.0 mm), greater ICI (0.62–0.74 vs 0.53–0.58), and smaller AI (0.53–0.64 vs 0.82–1.13).

Distribution

Previously known from Australia, China (including Taiwan), and India (Yu *et al.* 2016). These are the first records of this species from Vietnam.

Enicospilus gasteralis Nikam, 1980
Fig. 32

Enicospilus gasteralis Nikam, 1980: 188; holotype ♀ from India (NZSI).

Diagnosis

Interocellar area black; lower face about 0.84 × as wide as long; clypeus convex, ventral margin acute; mandible wide and long, not at all narrow proximally, twisted ca 10°, outer surface without a diagonal setose groove; fore wing fenestra with proximal, central and distal sclerites, SDI = 1.0; metasomal tergites exceptionally long and narrow.

Material examined

VIETNAM • 1 ♀; Gia Lai Province, Kon Ka Kinh NP; 1060 m a.s.l.; 22 Feb. 2012; Hoang V.T. leg.; light trap; IEBR • 1 ♀; Lai Chau Province, Sin Ho, Sa De Phin; 22°18′18″ N, 103°13′37″ E; 1760 m a.s.l.; 31 May 2022; Pham T.N. and Dang T.H. leg.; light trap; IEBR.

Remarks

Fore wing lengths of the two Vietnamese specimens are 16.7 mm and 13.5 mm; the holotype from India has a fore wing of 15.0 mm. The female specimen from Gia Lai Province has greater fore wing indices as follows: AI = 1.29, CI = 0.72 and ICI = 0.42 (vs 1.15, 0.46 and 0.38, respectively in the holotype).

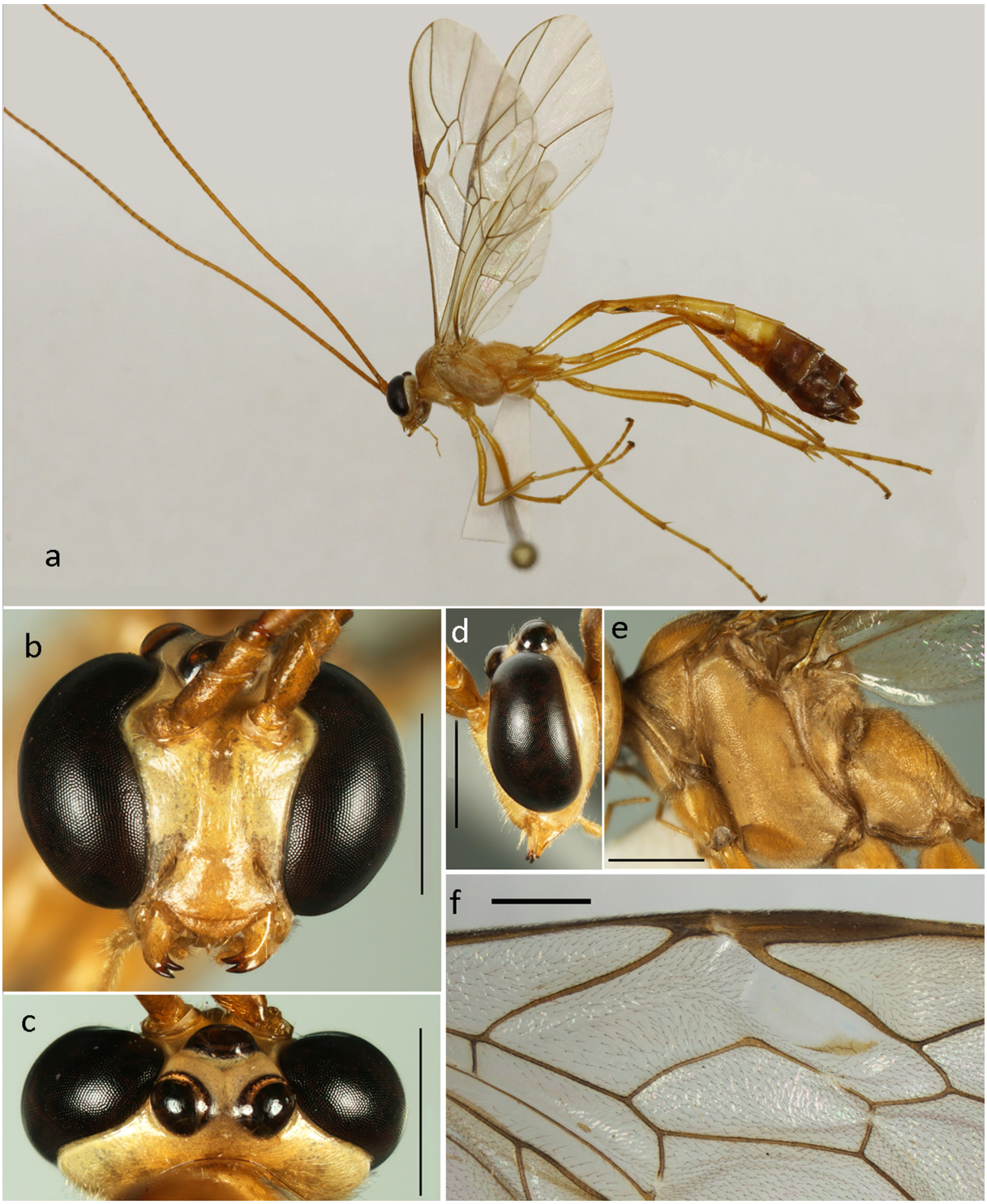

Fig. 31. *Enicospilus fusiformis* Chiu, 1954, ♂ (OMNH). **a**. Habitus. **b**. Head, frontal view. **c**. Head, dorsal view. **d**. Head, lateral view. **e**. Mesosoma, lateral view. **f**. Central part of fore wing. Scale bars = 1.0 mm.

Distribution

Previously known from India (Nikam 1980; Yu *et al.* 2016). These are the first records of this species from Vietnam.

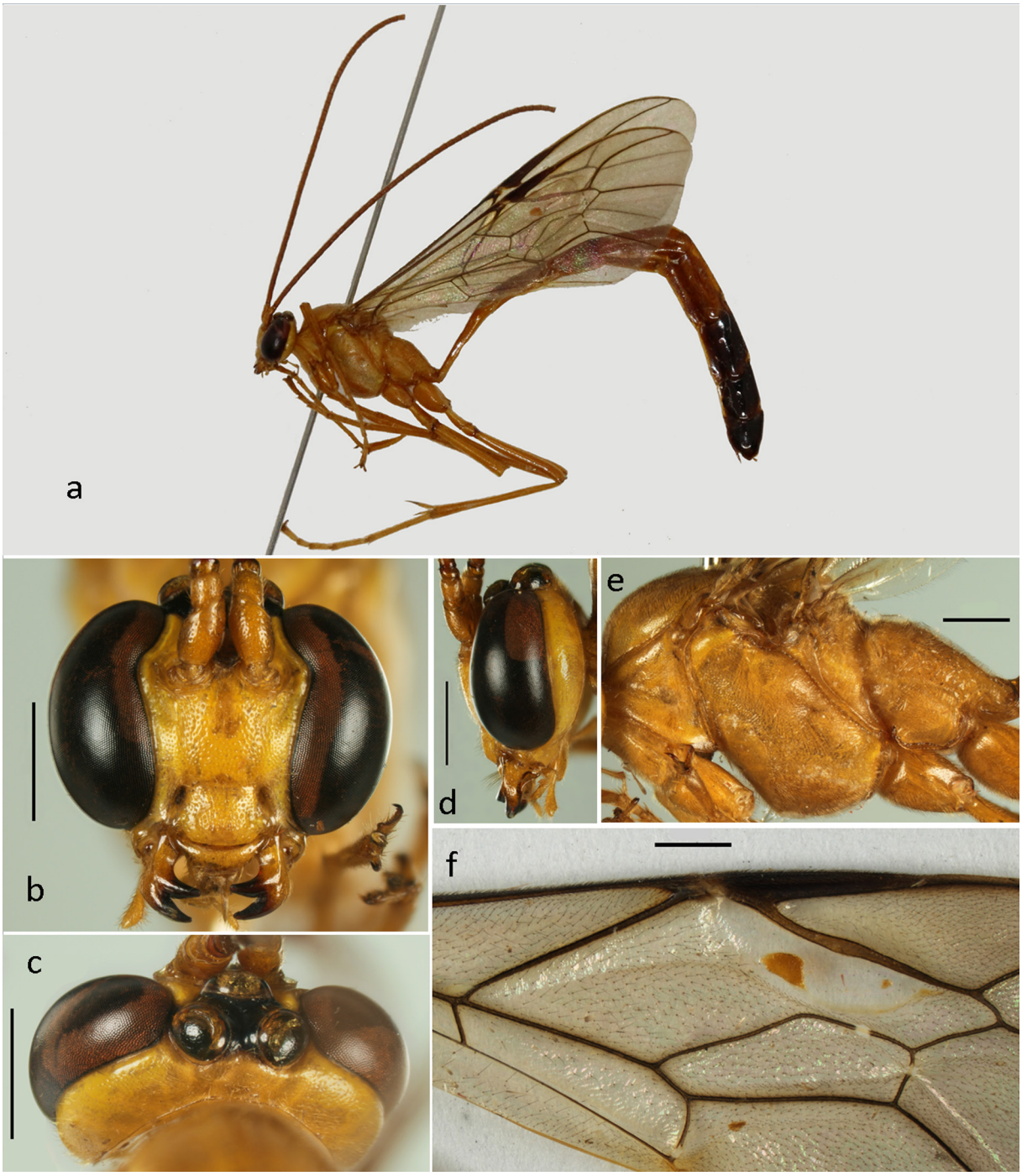

Fig. 32. *Enicospilus gasteralis* Nikam, 1980, ♀ (IEBR). **a**. Habitus. **b**. Head, frontal view. **c**. Head, dorsal view. **d**. Head, lateral view. **e**. Mesosoma, lateral view. **f**. Central part of fore wing. Scale bars = 1.0 mm.

Enicospilus gialaiensis sp. nov.
urn:lsid:zoobank.org:act:96580CD1-745C-42A6-A21B-CB86D0ADE825
Fig. 33

Diagnosis

Interocellar area yellow; clypeus flat, ventral margin subblunt; mandible moderately stout, twisted ca 20°, outer surface without a diagonal setose groove; fore wing fenestra with proximal, central and distal sclerites, proximal sclerite large, triangular, connected to distal sclerite; S6–8 of male without long stout erect setae on posterior margins.

Differential diagnosis

The new species can be distinguished from *E. selmatos* Chiu, 1954 by the wider lower face (0.82 × as wide as high vs 0.67–0.75 ×), the shape of fore wing fenestra sclerites, and the S6–8 of the male lacking long stout erect setae on posterior margins. The new species resembles to *E. helena* Gauld & Mitchell, 1981 in the shapes of the sclerites. It differs from the latter by its propodeum lacking any vestiges of the posterior transverse carina.

Etymology

Named after the type locality, Gia Lai Province.

Material examined

Holotype

VIETNAM • ♂; Gia Lai Province, Kon Ka Kinh NP; 14.29675° N, 108.44949° E; 578 m a.s.l.; 28 Apr. 2022; Pham V.P. leg; light trap; IEBR.

Description

Male (holotype)

Measurements. Body length 20.2 mm, fore wing length 13.7 mm.

Head with FI = 0.5, GOI = 2.0 (Fig. 33d). Lower face 0.82 × as wide as high, densely finely punctate (Fig. 33b). Clypeus 1.6 × as wide as high, flat in profile, finely punctate, ventral margin subblunt (Fig. 33b). Malar space 0.3 × as long as basal mandibular width (Fig. 33b). Mandible twisted by ca 20°, moderately stout, outer surface without diagonal setose groove (Fig. 33b). Upper tooth of mandible about 1.4 × as long as lower tooth (Fig. 33b). Frons and vertex shiny, with sparse setae (Fig. 33c). Gena moderately shiny, with dense, fine setae (Fig. 33d). Posterior ocellus close to eye (Fig. 33c). Occipital carina complete, ventral end meeting hypostomal carina at about 1.0 × basal mandible width from base of mandible. Antenna with 53 flagellomeres; F1 1.7 × as long as F2; F20 1.8 × as long as wide.

Mesosoma. Moderately shiny (Fig. 33e). Pronotum coriaceous (Fig. 33e). Mesoscutum 1.5 × as long as maximum width, evenly rounded in profile. Notaulus absent. Scutellum moderately convex, punctate anteriorly, rugose posteriorly, lateral longitudinal carinae present along entire length of scutellum. Epicnemium matt, densely punctate (Fig. 33e). Epicnemial carina moderately strong, present on ventral half of mesopleuron, dorsal end bent towards anterior margin of mesopleuron (Fig. 33e). Mesopleuron puncto-striate (Fig. 33e). Submetapleural carina distinctly broadened anteriorly (Fig. 33e). Metapleuron coriaceous (Fig. 33e). Propodeum evenly rounded in profile; anterior transverse carina complete; anterior area with striations; spiracular area smooth; posterior area concentrically striate; propodeal spiracle elliptical and not joined to pleural carina by ridge (Fig. 33e).

Wings (Fig. 33f). Fore wing with AI = 0.83, CI = 0.53, DI = 0.27, ICI = 0.54, SDI = 1.37, SI = 0.10, SRI = 0.24; vein 1m-cu&M evenly arcuate; vein 2r&RS weakly sinuous; vein RS strongly curved; fenestra and sclerites of discosubmarginal cell as in Fig. 33f; proximal sclerite strongly pigmented, broadly triangular, 0.5 × as high as maximum width, distal sclerite connecting to proximal sclerite, central sclerite oval,

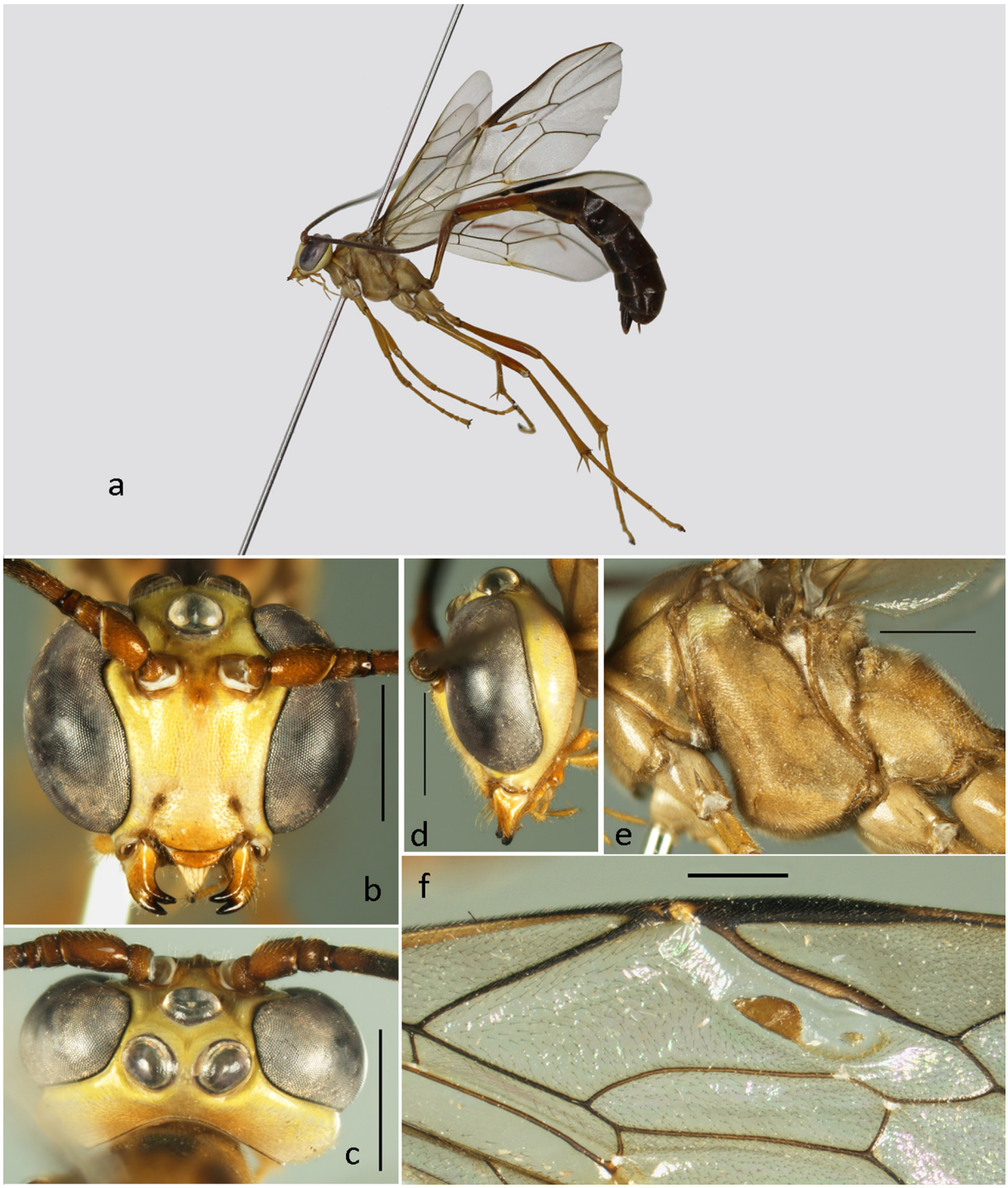

Fig. 33. *Enicospilus gialaiensis* sp. nov., holotype, ♂ (IEBR). **a**. Habitus. **b**. Head, frontal view. **c**. Head, dorsal view. **d**. Head, lateral view. **e**. Mesosoma, lateral view. **f**. Central part of fore wing. Scale bars = 1.0 mm.

positioned in centro-distal part of fenestra, proximal corner of marginal cell evenly setose; posterodistal corner of second discal cell ca 110° and that of subbasal cell ca 70°; vein 1cu-a slightly antefurcal to M&RS. Hind wing with NI = 2.9; vein RS relatively straight; vein RA with 6 uniform hamuli.

Legs. Hind leg with coxa in profile 1.6 × as long as high; basitarsus 1.6 × as long as second tarsomere; fourth tarsomere 2.1 × as long as wide; tarsal claws simply pectinate.

Metasoma. With DMI = 1.5, PI = 3.0, THI = 2.9; thyridium oval; sternites without long stout erect setae on posterior margins.

Colour (Fig. 33a). Reddish brown, metasoma from T3 onwards black. Wings hyaline, sclerites pigmented and amber, veins and pterostigma black.

Variation in male

Unknown.

Female

Unknown.

Distribution

Currently known only from Gia Lai Province, the Central Highlands of Vietnam.

Enicospilus grammospilus (Enderlein, 1921)
Fig. 34

Dicamptus grammospilus Enderlein, 1921: 17; holotype ♂ from Sumatra (IZPAN).

Enicospilus grammospilus – Nikam 1980: 190

Diagnosis

Interocellar area yellowish brown; clypeus weakly convex, ventral margin acute; mandible moderately long, twisted 20°–30°, outer surface without a diagonal setose groove; fore wing fenestra with proximal, central and distal sclerites, all sclerites weak to moderately strong, central sclerite transversely linear, situated in the middle of fenestra, vein 2r&RS with a weak, central, anteriorly deflected angulation.

Material examined

VIETNAM • 1 ♀; Hanoi, Thach That, Tan Xa; 10–20 Mar. 2002; Khuat D.L. leg.; Malaise trap; IEBR • 1 ♀; Phu Tho Province, Thanh Son, Kiet Son; 6–10 Apr. 2009; Khuat D.L. leg.; Malaise trap; IEBR • 1 ♀; Vinh Phuc Province, Me Linh Station for Biodiversity; 3 Jun. 2010; Pham T.N. leg.; light trap; IEBR • 1 ♀; Gia Lai Province, Kon Ka Kinh NP; 8 Jun. 2011; Nguyen Q.T. leg.; light trap; IEBR • 1 ♂; Cao Bang Province, Phia Oac - Phia Den NP; 6 May 2013; Hoang V.T. leg.; light trap; IEBR • 1 ♀; Son La Province, Phu Yen, Gia Phu; 18 Jun. 2015; Hoang V.T. leg.; light trap; IEBR • 1 ♂; Bac Kan Province, Ba Be NP; 6 Jul. 2015; Hoang V.T. leg.; hand net; IEBR • 1 ♀; Cao Bang Province, Phia Oac - Phia Den NP; 22°35.305′ N, 105°52.552′ E; 1216 m a.s.l.; 23 May 2020; Hoang V.T. and Pham V.P. leg.; light trap; IEBR • 2 ♀♀; same collection data as for preceding; 24 May 2020; IEBR • 1 ♀; same locality as for preceding; 3 Jun. 2020; Nguyen D.H. leg.; light trap; IEBR.

Remarks

In comparison with the specimens examined by Gauld & Mitchell (1981), Vietnamese specimens have the fore wing length 11.7–19.2 mm (vs 15.0–17.0 mm), CI = 0.38–0.5 (vs 0.5–0.58), ICI = 0.47–0.74 (vs 0.43–0.51). Their lower faces are narrower (0.63–0.71 × as wide as high vs 0.72–0.76 ×) and antennae with 53–63 flagellomeres (vs 58–63).

Distribution

Brunei, China (including Taiwan), India, Indonesia, Malaysia, Philippines, and Vietnam (Yu *et al.* 2016).

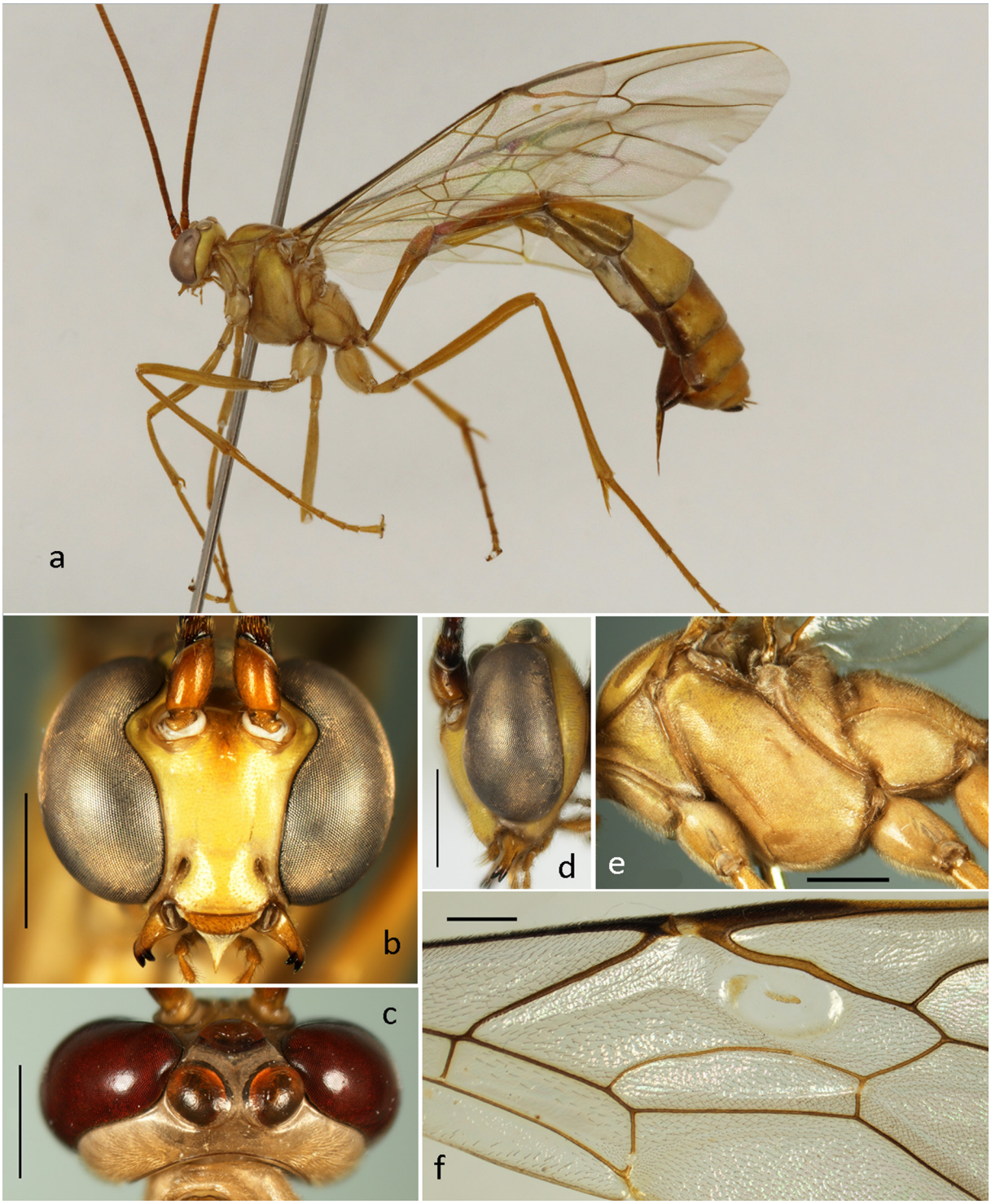

Fig. 34. *Enicospilus grammospilus* (Enderlein, 1921), ♀ (IEBR). **a**. Habitus. **b**. Head, frontal view. **c**. Head, dorsal view. **d**. Head, lateral view. **e**. Mesosoma, lateral view. **f**. Central part of fore wing. Scale bars = 1.0 mm.

Enicospilus grandis (Cameron, 1905)
Fig. 35

Pleuroneurophion grandis Cameron, 1905b: 123; holotype ♀ from India (NHMUK).

Enicospilus grandis – Townes *et al.* 1961: 277.

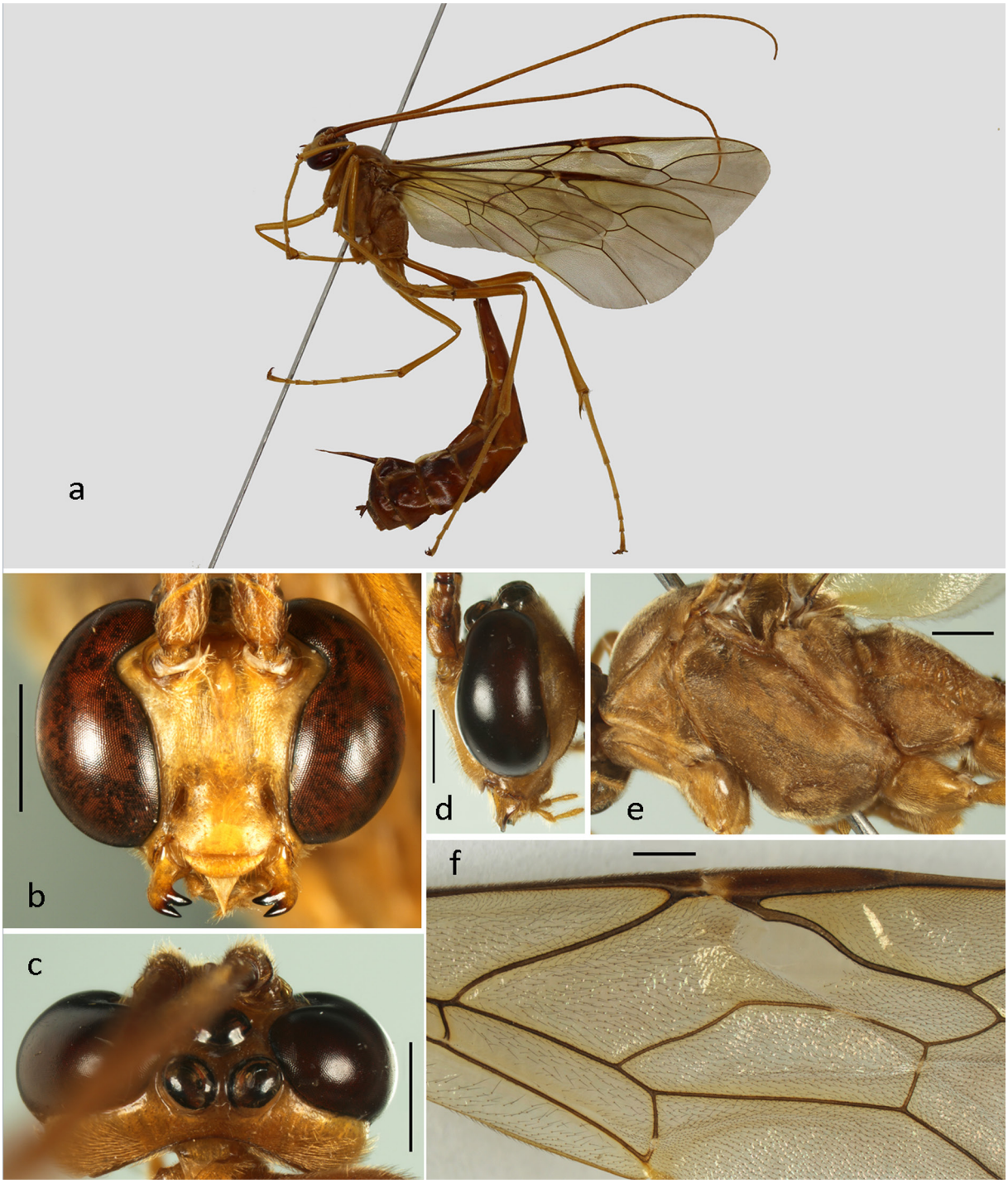

Fig. 35. *Enicospilus grandis* (Cameron, 1905), ♀ (IEBR). **a**. Habitus. **b**. Head, frontal view. **c**. Head, dorsal view. **d**. Head, lateral view. **e**. Mesosoma, lateral view. **f**. Central part of fore wing. Scale bars = 1.0 mm.

Diagnosis

Interocellar area reddish brown; clypeus weakly convex, ventral margin sub-acute; mandible long, weakly narrowed proximally, twisted 20°–30°, outer surface without a diagonal setose groove; fore wing length 19.0–23.0 mm, fenestra without any sclerites.

Material examined

VIETNAM • 1 ♀; Lai Chau Province, Hoang Lien NP; 3 Jul. 2013; Hoang V.T. leg.; light trap; IEBR • 1 ♀; Son La Province, Thuan Chau, Co Ma; 5 Sep. 2016; Pham V.P. leg.; light trap; IEBR • 1 ♀; Cao Bang Province, Phia Oac - Phia Den NP; 22°35′18.2″ N, 105°52′33.2″ E; 1200 m a.s.l.; 22 May 2020; Hoang V.T. and Pham V.P. leg.; light trap; IEBR.

Distribution

Previously known from China (including Taiwan), India, Japan, Malaysia, Myanmar, and Sri Lanka (Gauld & Mitchell 1981; Yu *et al.* 2016). These are the first records of this species from Vietnam.

Enicospilus hamatus Gauld & Mitchell, 1981
Fig. 36

Enicospilus hamatus Gauld & Mitchell, 1981: 441; holotype ♀ from Philippines (EMUS).

Diagnosis

Interocellar area reddish brown; clypeus weakly convex, ventral margin subblunt; mandible moderately large, weakly narrow proximally, twisted ca 30°, outer surface without a diagonal setose groove; fore wing fenestra with proximal, central and distal sclerites, central sclerite stout crescentic, formed from antero-distal margin of large quadra, AI ca 0.7; mesoscutum with three black stripes.

Material examined

VIETNAM • 1 ♀; Gia Lai Province, Kon Chu Rang NP; 27 May 2019; Nguyen V.T. leg.; light trap; IEBR.

Distribution

Previously known from Philippines (Gauld & Mitchell 1981). It is the first record of this species from Vietnam.

Enicospilus hedilis Gauld & Mitchell, 1981
Fig. 37

Enicospilus hedilis Gauld & Mitchell, 1981: 301; holotype ♀ from Indonesia (RMNH).

Diagnosis

Interocellar area reddish brown; clypeus more or less flat, ventral margin subacute; mandible twisted ca 30°, outer surface without a diagonal setose groove; fore wing fenestra with proximal and distal sclerites, both weak and elongate, vein 2r&RS relatively straight, CI more than 0.5, marginal cell with glabrous area proximally.

Material examined

VIETNAM • 1 ♀, 1 ♂; Cao Bang Province, Phia Oac - Phia Den NP; 22°35′18.2″ N, 105°52′33.2″ E; 1200 m a.s.l.; 22 May 2020; Hoang V.T. and Pham V.P. leg.; light trap; IEBR.

Distribution

Previously known from China, India, Indonesia, and Sri Lanka (Gauld & Mitchell 1981; Yu *et al.* 2016). These are the first records of this species from Vietnam.

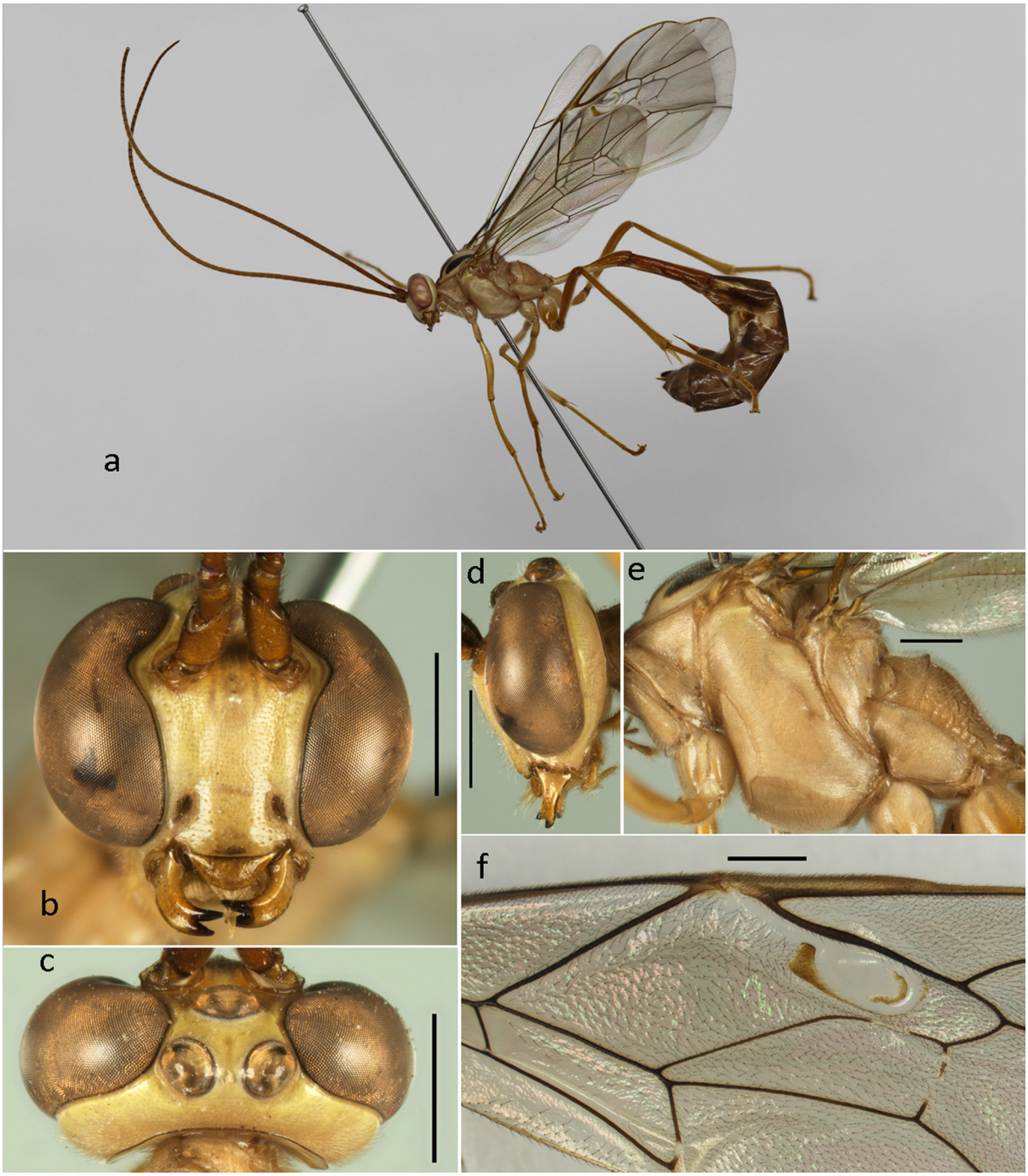

Fig. 36. *Enicospilus hamatus* Gauld & Mitchell, 1981, ♀ (IEBR). **a**. Habitus. **b**. Head, frontal view. **c**. Head, dorsal view. **d**. Head, lateral view. **e**. Mesosoma, lateral view. **f**. Central part of fore wing. Scale bars = 1.0 mm.

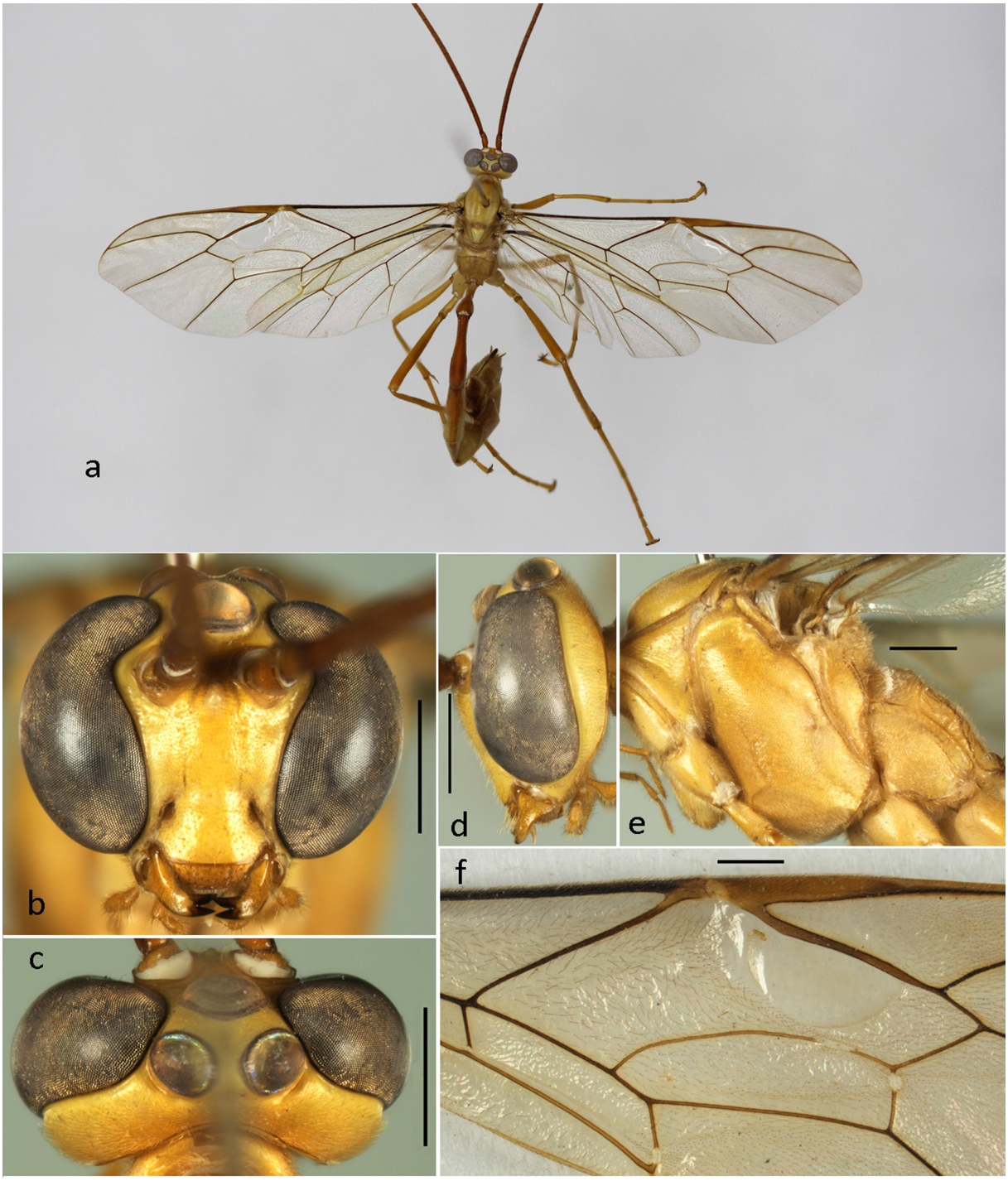

Fig. 37. *Enicospilus hedilis* Gauld & Mitchell, 1981, ♀ (IEBR). **a**. Habitus. **b**. Head, frontal view. **c**. Head, dorsal view. **d**. Head, lateral view. **e**. Mesosoma, lateral view. **f**. Central part of fore wing. Scale bars = 1.0 mm.

Enicospilus hiepi sp. nov.
urn:lsid:zoobank.org:act:85F24F01-1A78-46EB-BE6C-9A0DEA4C3767
Fig. 38

Diagnosis

Interocellar area reddish brown; clypeus convex, ventral margin impressed, acute; mandible twisted ca 30°, outer surface with a diagonal setose groove; scutellum with lateral longitudinal carina present on anterior 0.6; fore wing fenestra with proximal, central and distal sclerites, central sclerite large, shaped resembling footprint, pigmented, positioned in upper half of distal part of fenestra; mesoscutum with three black stripes.

Differential diagnosis

The new species can be recognised from all other species by the combination of the shape of the alar sclerites and the short lateral carinae of the scutellum.

Etymology

Named after MSc. Nguyen Duc Hiep, an entomologist from IEBR, who collected the type specimen.

Material examined

Holotype

VIETNAM • ♀; Cao Bang Province, Phia Oac - Phia Den NP; 791 m a.s.l.; 8 May 2021; Nguyen D.H. leg.; light trap; IEBR.

Description

Female (holotype)

Measurements. Body length 25.4 mm, fore wing length 18.0 mm.

Head with FI = 0.7, GOI = 2.0 (Fig. 38d). Lower face 0.8 × as wide as high, densely punctate (Fig. 38b). Clypeus 1.4 × as wide as high, convex in profile, more densely punctate than face, ventral margin impressed, acute (Fig. 38b). Malar space 0.2 × as long as basal mandibular width (Fig. 38b). Mandible twisted by ca 30°, moderately long, evenly narrowed, outer surface with diagonal setose groove (Fig. 38b). Upper tooth of mandible depressed, about 2 × as long as lower tooth (Fig. 38b). Frons short, vertex and gena with fine setae (Fig. 38c–d). Posterior ocellus close to eye (Fig. 38c). Occipital carina complete, ventral end meeting hypostomal carina at about 0.2 × basal mandible width from base of mandible. Antenna with 70 flagellomeres; F1 1.9 × as long as F2; F20 2.4 × as long as wide.

Mesosoma. Moderately shiny (Fig. 38e). Pronotum finely punctate (Fig. 38e). Mesoscutum 1.4 × as long as maximum width, evenly rounded in profile. Notaulus absent. Scutellum strongly convex, punctate, without any rugae, lateral longitudinal carinae present on anterior 0.6. Epicnemium densely punctate (Fig. 38e). Epicnemial carina moderately strong, dorsal end bent to reach anterior margin of mesopleuron (Fig. 38e). Mesopleuron punctate and puncto-striate (Fig. 38e). Submetapleural carina slightly broadened anteriorly (Fig. 38e). Metapleuron finely punctate (Fig. 38e). Propodeum evenly rounded in profile; anterior transverse carina complete; anterior area longitudinally striate; spiracular area smooth; posterior area rugose; propodeal spiracle elliptical and not joining pleural carina by ridge (Fig. 38e).

Wings (Fig. 38f). Fore wing with AI = 0.59, CI = 0.50, DI = 0.35, ICI = 0.51, SDI = 1.31, SI = 0.13, SRI = 0.23; vein 1m-cu&M strongly sinuate, angled medially; vein 2r&RS slightly sinuate, abruptly narrow distally; vein RS curved; fenestra and sclerites of discosubmarginal cell as in Fig. 38f; proximal sclerite triangular, confluent with distal sclerite, strongly pigmented; central sclerite large, somewhat resembling footprint in shape, pigmented, positioned in upper half of distal part of fenestra; distal sclerite pigmented; proximal corner of marginal cell sparsely setose; posterodistal corner of second discal cell ca 80° and

that of subbasal cell ca 70°; vein 1cu-a antefurcal to M&RS by 0.3 × length of 1cu-a. Hind wing with NI = 1.7; vein RS straight; vein RA with 7 uniform hamuli.

Legs. Hind leg with coxa in profile 2.0 × as long as high; basitarsus 2.1 × as long as second tarsomere; fourth tarsomere 3.3 × as long as wide; tarsal claw simply pectinate.

Metasoma. With DMI = 1.2, PI = 3.1, THI = 2.8; thyridium oval; ovipositor sheath not longer than posterior height of metasoma.

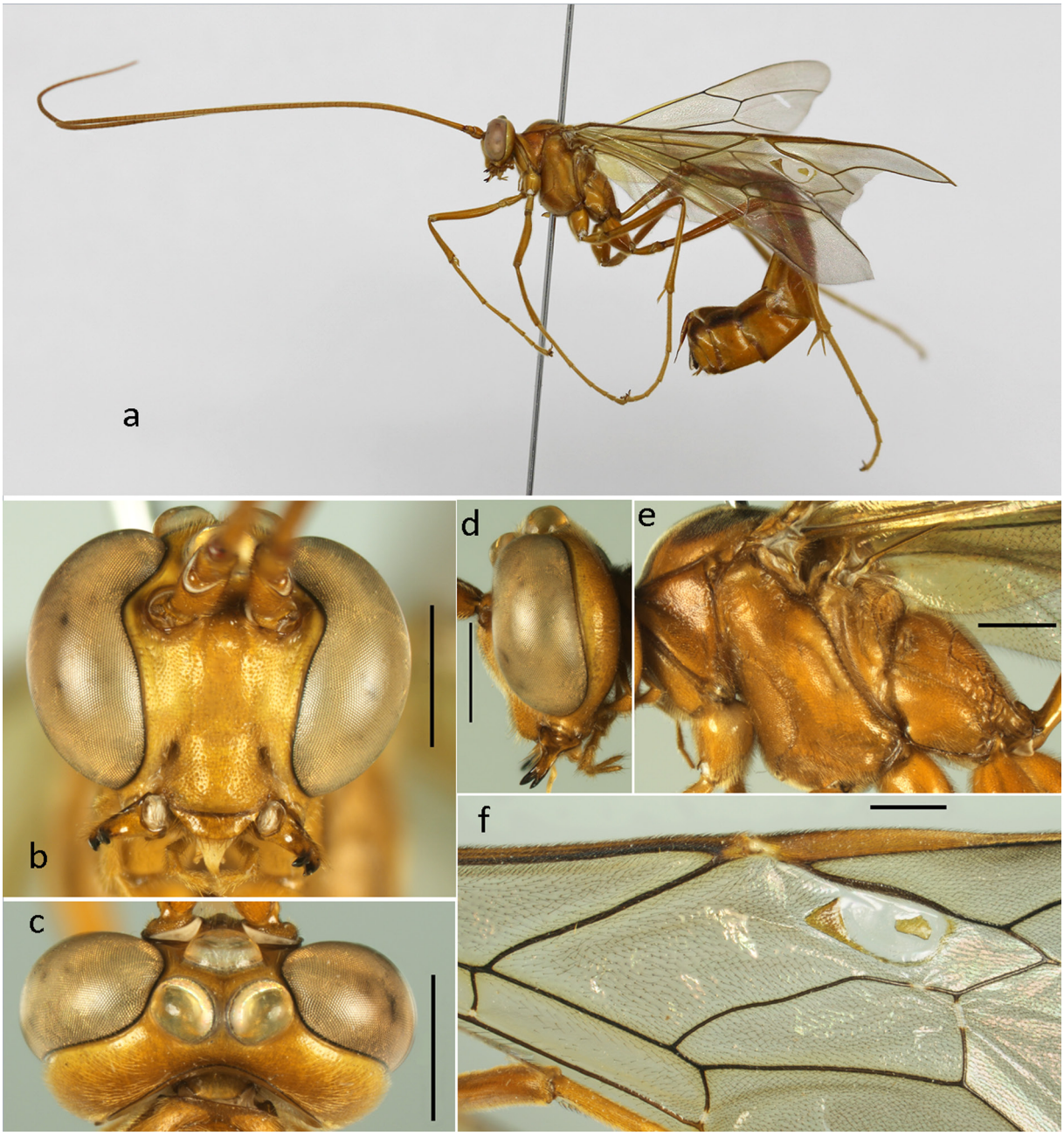

Fig. 38. *Enicospilus hiepi* sp. nov., holotype, ♀ (IEBR). **a**. Habitus. **b**. Head, frontal view. **c**. Head, dorsal view. **d**. Head, lateral view. **e**. Mesosoma, lateral view. **f**. Central part of fore wing. Scale bars = 1.0 mm.

Colour (Fig. 38a). Reddish brown except for apex of mandible, three longitudinal stripes of mesoscutum, and ventral parts of T5 onwards black. Wings hyaline; sclerites pigmented and amber; veins dark brown, pterostigma reddish brown.

Male

Unknown.

Distribution

Currently known only from Cao Bang Province, Northeast Vietnam.

Enicospilus iapetus Gauld & Mitchell, 1981

Fig. 39

Enicospilus iapetus Gauld & Mitchell, 1981: 371; holotype ♀ from Indonesia (EMUS).

Diagnosis

Interocellar area reddish brown; clypeus weakly convex, ventral margin acute; mandible twisted ca 30°, outer surface without a diagonal setose groove; fore wing fenestra with proximal and distal sclerites present, linear, quadra large, crescentic, marginal cell with a glabrous area proximally; tarsal claws lacking pecten proximally.

Material examined

VIETNAM • 1 ♀; Lam Dong Province, Bidoup - Nui Ba NP; 21 Jul. 2014; Hoang V.T. leg.; light trap; IEBR • 1 ♀; Kon Tum Province, Mang Den, Mang Canh; 6 Jun. 2019; Nguyen V.T. leg.; light trap; IEBR • 3 ♀♀; Cao Bang Province, Phia Oac - Phia Den NP; 22°35′18.2″ N, 105°52′33.2″ E; 1200 m a.s.l.; 22 May 2020; Hoang V.T. and Pham V.P. leg.; light trap; IEBR • 1 ♀; Lao Cai Province, Bat Xat NR; 22°37′37″ N, 103°37′32″ E; 1840 m a.s.l.; 28 May 2022; Pham T.N. and Dang T.H. leg.; light trap; IEBR • 1 ♀; Lai Chau Province, Sin Ho, Sa De Phin; 22°18′18″ N, 103°13′37″ E; 1760 m a.s.l.; 31 May 2022; Pham T.N. and Dang T.H. leg.; light trap; IEBR.

Distribution

Previously known from Brunei, China, India, Indonesia, and Philippines (Yu *et al.* 2016). These are the first records of this species from Vietnam.

Enicospilus insinuator (Smith, 1860)

Fig. 40

Ophion insinuator Smith, 1860: 141; holotype ♀ from Moluccas (OUMNH)

Enicospilus insinuator – Townes *et al.* 1961: 294.

Diagnosis

Interocellar area reddish brown; clypeus weakly convex, ventral margin blunt to subacute; mandible twisted ca 40°, outer surface without a diagonal setose groove; fore wing fenestra with proximal and distal sclerites present, quadra large; mesoscutum with a median black stripe.

Material examined

VIETNAM • 1 ♂; Ha Giang Province, Vi Xuyen, Phong Quang; 22.89996° N, 104.91559° E; 609 m a.s.l.; 26 May 2022; Pham T.N. and Pham V.P. light trap; IEBR • 1 ♀; Lao Cai Province, Bat Xat NR; 22°37′37″ N, 103°37′32″ E; 1840 m a.s.l.; 28 May 2022; Pham T.N. and Dang T.H. leg.; light trap; IEBR • 1 ♂; Lai Chau Province, Sin Ho, Ta Ngao; 22°16′19″ N, 103°14′54″ E; 1520 m a.s.l.; 1 Jun. 2022; Pham T.N. and Dang T.H. leg.; light trap; IEBR.

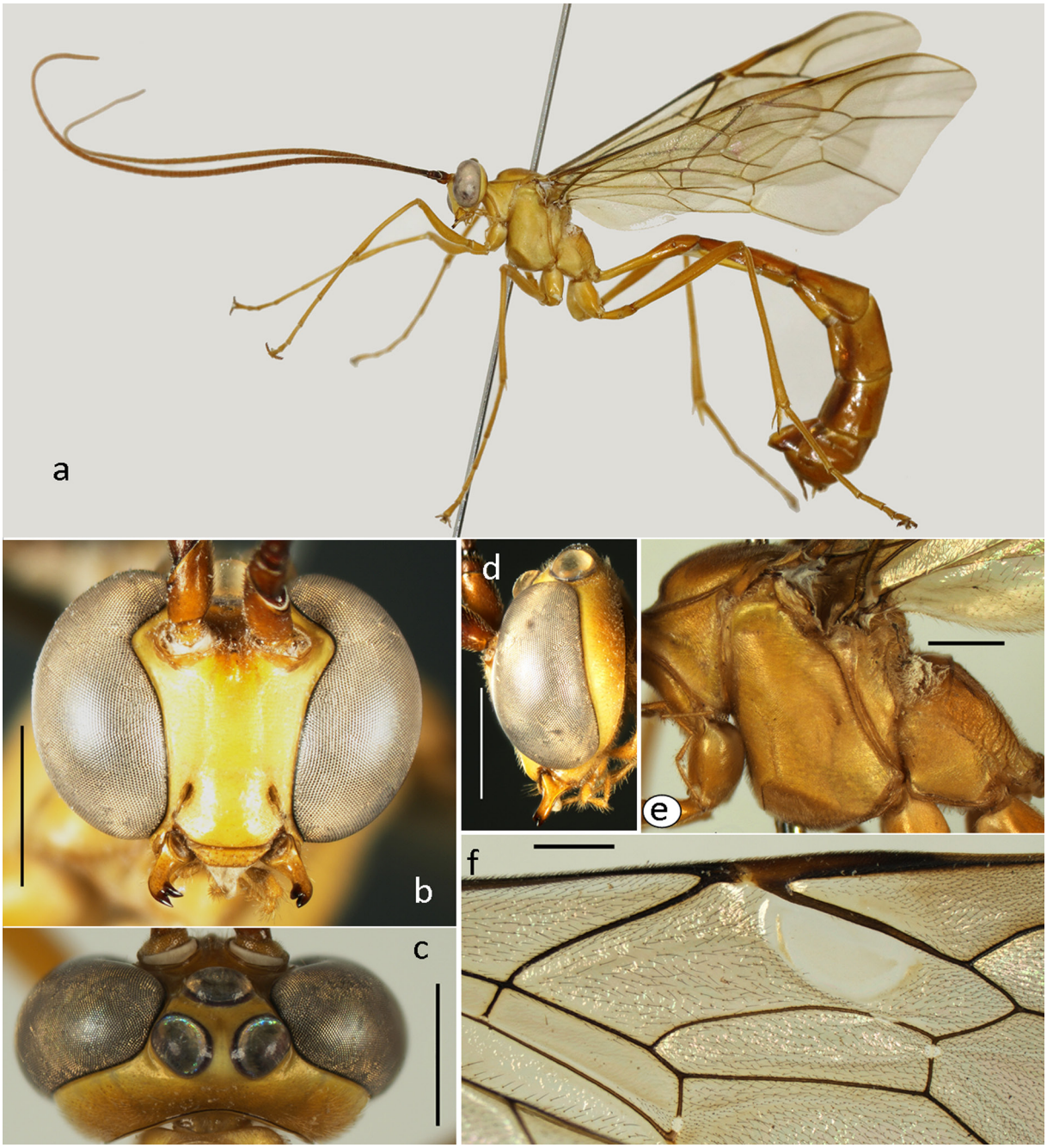

Fig. 39. *Enicospilus iapetus* Gauld & Mitchell, 1981, ♀ (IEBR). **a**. Habitus. **b**. Head, frontal view. **c**. Head, dorsal view. **d**. Head, lateral view. **e**. Mesosoma, lateral view. **f**. Central part of fore wing. Scale bars = 1.0 mm.

Distribution

Previously known Brunei, China, India, Indonesia, Japan, Sri Lanka, and Thailand (Gauld & Mitchell 1981; Tang 1990; Yu *et al.* 2016). These are the first records of this species from Vietnam.

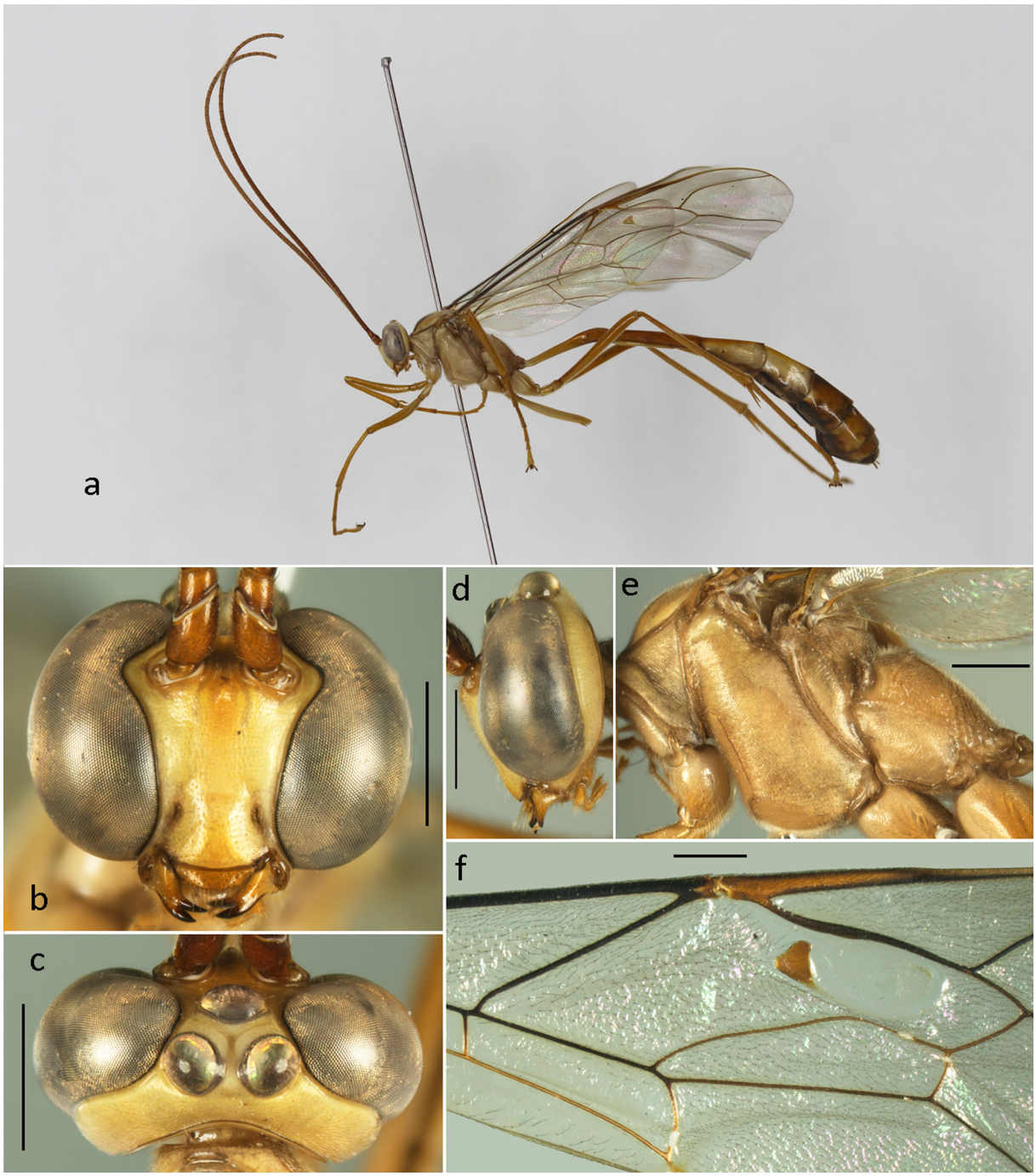

Fig. 40. *Enicospilus insinuator* (Smith, 1860), ♀ (IEBR). **a**. Habitus. **b**. Head, frontal view. **c**. Head, dorsal view. **d**. Head, lateral view. **e**. Mesosoma, lateral view. **f**. Central part of fore wing. Scale bars = 1.0 mm.

Enicospilus ixion Gauld & Mitchell, 1981
Fig. 41

Enicospilus ixion Gauld & Mitchell, 1981: 466; holotype ♀ from Malaysia (NHMUK).

Diagnosis

Interocellar area reddish brown; clypeus weakly to moderately convex, ventral margin subblunt; mandible twisted ca 40°, outer surface without a diagonal setose groove; fore wing with proximal, central and distal sclerites, strongly pigmented, distal side of central sclerite conspicuously angulate, ICI = 0.7–0.8.

Material examined

VIETNAM • 1 ♀; Dong Nai Province, Cat Tien NP; 29 May 2002; Le X.H. leg.; hand net; IEBR.

Remarks

The single known specimen from Vietnam has ICI = 0.8, slightly greater than in the holotype female (ICI = 0.7). Note that the holotype has the mandibles twisted by about 20° from the vertical, not twisted by 70°–80° as stated in the description.

Distribution

Previously known from Malaysia and Philippines (Gauld & Mitchell 1981; Yu *et al.* 2016). It is the first record of this species from Vietnam.

Enicospilus javanus (Szépligeti, 1910)
Fig. 42

Henicospilus javanus Szépligeti, 1910: 93; holotype ♀ from Java (HNHM).

Enicospilus javanus – Townes *et al.* 1961: 278.

Diagnosis

Interocellar area reddish brown; clypeus weakly to moderately convex, ventral margin impressed, acute; mandible twisted 10°–20°, outer surface without a diagonal setose groove; fore wing with proximal and distal sclerites, strongly pigmented, joining together, SDI = 0.90–1.05.

Material examined

VIETNAM • 1 ♀; Lam Dong Province, Bidoup - Nui Ba NP; 28 Mar. 2008; Nguyen D.H. leg.; hand net; IEBR • 2 ♀♀; same locality as for preceding; 3 Jun. 2013; Hoang V.T. leg.; light trap; IEBR • 1 ♀; same locality as for preceding; 4 Jun. 2013; Hoang V.T. leg.; light trap; IEBR • 1 ♀, 1 ♂; Cao Bang Province, Tra Linh, Quoc Toan; 22°45′29.89″ N, 106°17′47.1″ E; 640 m a.s.l.; 17 Oct. 2017; Pham V.P. leg.; light trap; IEBR • 1 ♀; Kon Tum Province, Mang Den, Mang Canh; 6 Jun. 2019; Nguyen V.T. leg.; light trap; IEBR • 1 ♂; Dong Nai Province, Vinh Cuu, Phu Ly; 11°20.848′ N, 107°08.514′ E; 95 m a.s.l.; 9 Jun. 2021; Pham T.N., Hoang V.T. and Pham V.P. leg.; light trap; IEBR • 1 ♀; Dong Nai Province, Vinh Cuu, Bu Dang; 11°26.517′ N, 107°06.182′ E; 178 m a.s.l.; 11 Jun. 2021; Pham T.N., Hoang V.T. and Pham V.P. leg.; light trap; IEBR • 1 ♀, 1 ♂; Kon Tum Province, Chu Mom Ray NP; 23 Apr. 2022; Pham V.P. leg.; light trap; IEBR.

Remarks

Vietnamese specimens seem to occur in two morphotypes: one with the mesosoma extensively black, metasoma from T3 onwards black, fore wing with proximal sclerite rather triangular, the conjunction

between proximal and distal sclerites strong, without any constrictions; whereas the other has the mesosoma largely reddish yellow, terminal metasomal tergites entirely reddish brown to blackish, fore wing with proximal sclerite rather P-shaped, the conjunction between proximal and distal sclerites with a constriction. The slight differences in form of the proximal sclerite might be a consequence of differences in melanisation, associated with the colour differences, or could be indicative of separate species.

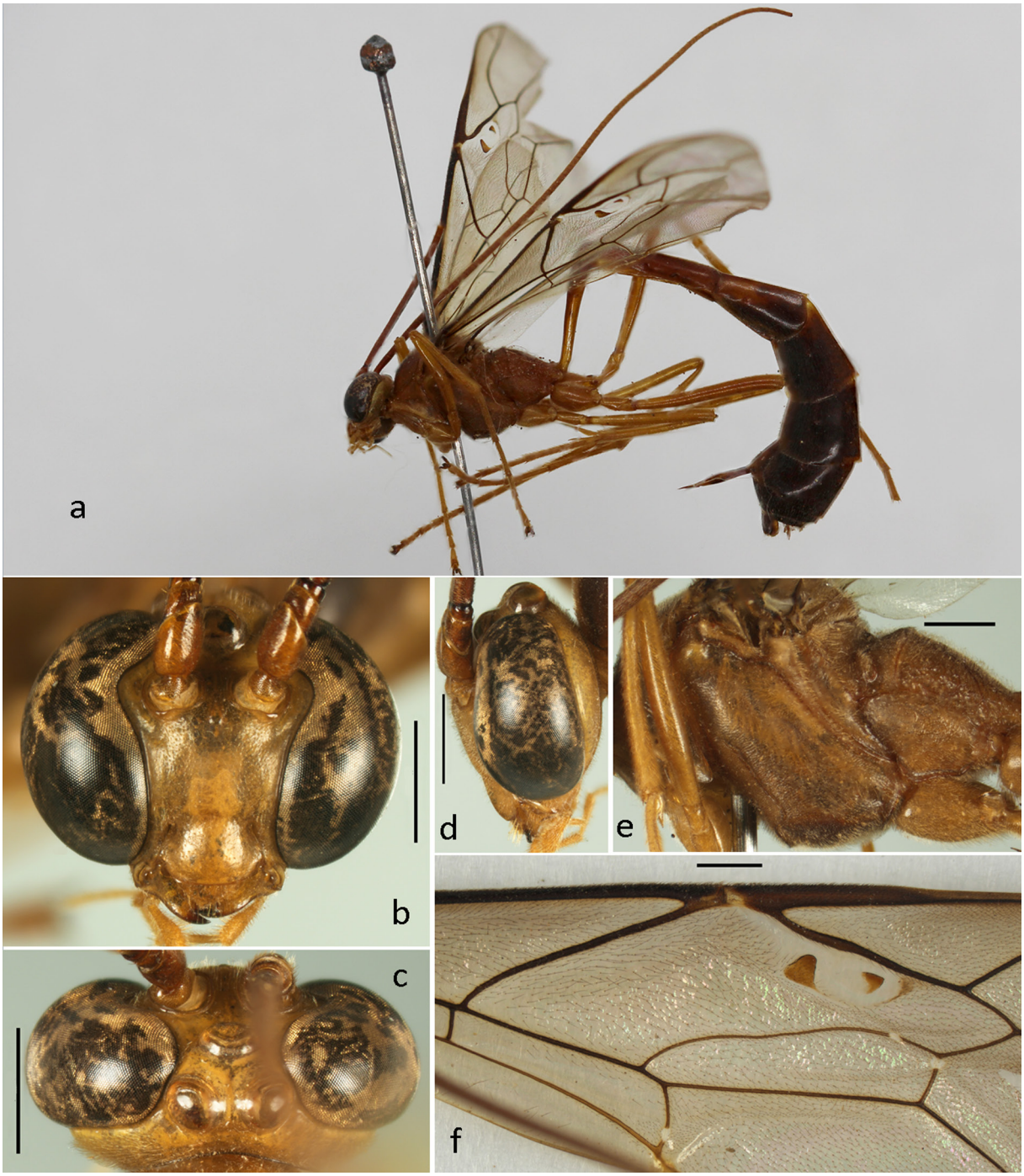

Fig. 41. *Enicospilus ixion* Gauld & Mitchell, 1981, ♀ (IEBR). **a**. Habitus. **b**. Head, frontal view. **c**. Head, dorsal view. **d**. Head, lateral view. **e**. Mesosoma, lateral view. **f**. Central part of fore wing. Scale bars = 1.0 mm.

Distribution

Previously known from Australia, Brunei, China, India, Indonesia, Japan, Malaysia, Myanmar, and Nepal (Yu *et al.* 2016). These are the first records of this species from Vietnam.

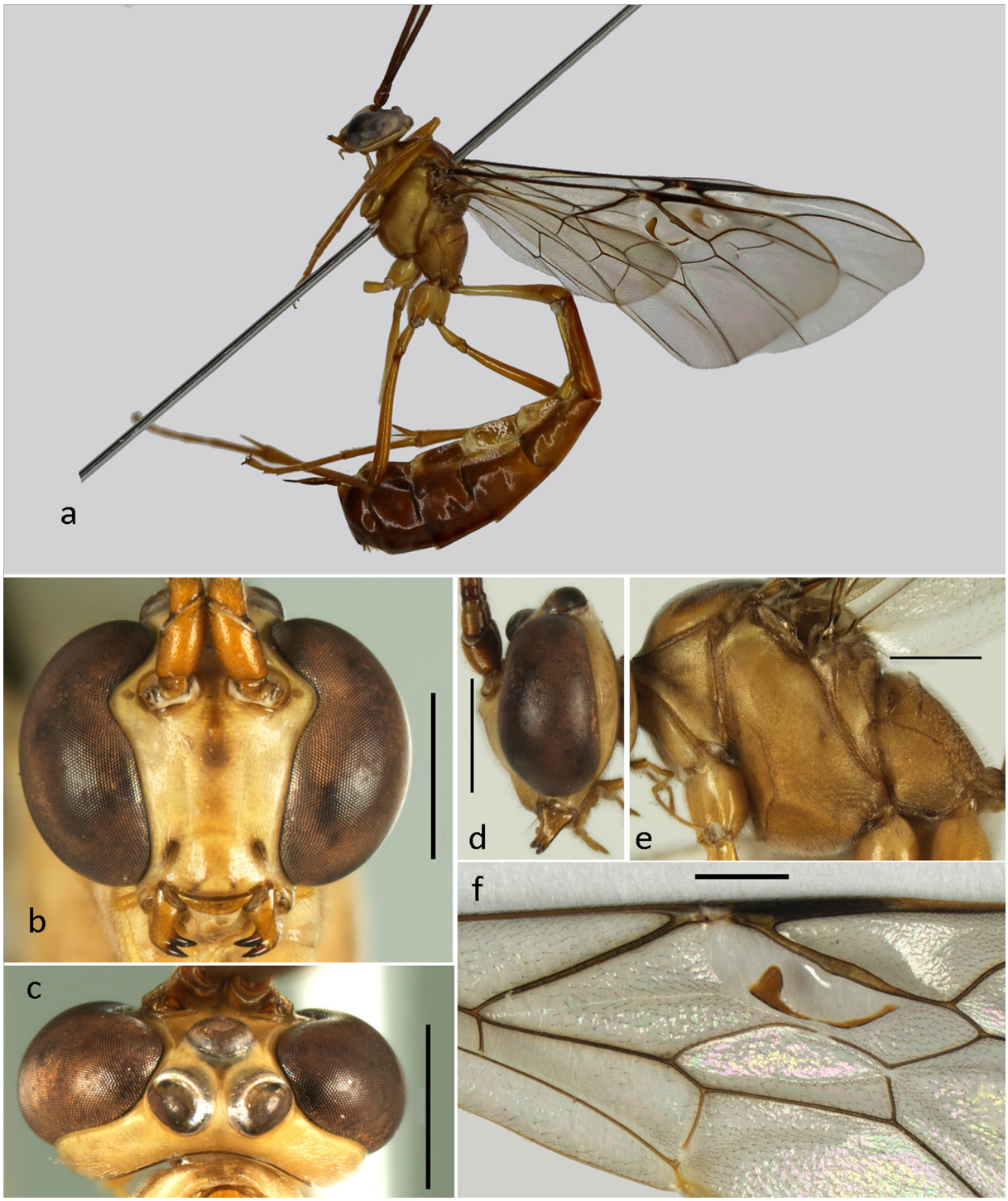

Fig. 42. *Enicospilus javanus* (Szépligeti, 1910), ♀ (IEBR). **a**. Habitus. **b**. Head, frontal view. **c**. Head, dorsal view. **d**. Head, lateral view. **e**. Mesosoma, lateral view. **f**. Central part of fore wing. Scale bars = 1.0 mm.

Enicospilus kanshirensis (Uchida, 1928)
Fig. 43

Henicospilus kanshirensis Uchida, 1928: 226; holotype ♂ from Taiwan (SEHU).

Enicospilus kanshirensis – Townes *et al.* 1961: 278.

Diagnosis

Interocellar area reddish brown; clypeus weakly convex, ventral margin subacute; mandible twisted 20–30°, outer surface without a diagonal setose groove; fore wing with proximal, central and distal sclerites, central sclerite stout, crescentic, formed from antero-distal margin of large quadra, more or less parallel to vein 2r&RS.

Material examined

VIETNAM • 1 ♀; Ninh Binh Province, Cuc Phuong NP; 27 Apr. 1996; Y. Okushima leg.; OMNH • 1 ♀; Lao Cai Province, Sapa; 1600 m a.s.l.; 27 May 1997; R. Matsumoto leg.; OMNH • 1 ♂; Thai Nguyen Province, Dai Tu, Cat Ne; 25–30 Sep. 2007; Khuat D.L. leg.; Malaise trap; IEBR • 1 ♀; same collection data as for preceding; 25–30 Oct. 2007; Malaise trap; IEBR • 1 ♂; Dak Lak Province, Ea So NR; 12°55′93″ N, 108°37′964″ E; 310 m a.s.l.; 27 Jul. 2008; Ngo T.H. leg.; Malaise trap; IEBR • 1 ♀; Phu Tho Province, Xuan Son, Xuan Dai; 1–5 Aug. 2009; Khuat D.L. leg.; Malaise trap; IEBR • 1 ♀; Bac Giang Province, Son Dong, Thanh Son; 5 Jul. 2010; Pham T.N. leg.; light trap; IEBR • 1 ♀; Vinh Phuc Province, Phuc Yen, Ngoc Thanh; 1–10 Apr. 2021; Tran D.D. leg.; Malaise trap; IEBR.

Distribution

Brunei, China (including Taiwan), India, Indonesia, Myanmar, Nepal, Philippines, and Vietnam (Yu *et al.* 2016).

Enicospilus laqueatus (Enderlein, 1921)
Fig. 44

Henicospilus laqueatus Enderlein, 1921: 26; holotype ♂ from Taiwan (IZPAN).

Enicospilus laqueatus – Townes *et al.* 1961: 278.

Diagnosis

Interocellar area reddish brown; clypeus weakly convex, ventral margin acute; mandible twisted 20°–30°, outer surface with a diagonal setose groove; fore wing fenestra with proximal, central and distal sclerites, central sclerite fairly large, D-shaped.

Material examined

VIETNAM • 1 ♀; Hoa Binh Brovince, Yen Thuy, Lac Thinh; 10–20 Jun. 2002; Khuat D.L. leg.; Malaise trap; IEBR • 1 ♀; Ninh Binh Province, Cuc Phuong NP; 1–10 Oct. 2002; Khuat D.L. leg.; Malaise trap; IEBR • 1 ♂; Vinh Phuc Province, Tam Dao NP; 27 May 2004; Hoang V.T. leg.; light trap; IEBR • 1 ♀; Hoa Binh Province, Ngoc Son-Ngo Luong NR; 28 Aug. 2020; Pham V.P. leg.; light trap; IEBR • 1 ♀; Cao Bang Province, Phia Oac - Phia Den NP; 22°35′18.2″ N, 105°52′33.2″ E; 1200 m a.s.l.; 22 May 2020; Hoang V.T. and Pham V.P. leg.; light trap; IEBR • 1 ♂; Kon Tum Province, Chu Mom Ray NP; 23 Apr. 2022; Pham V.P. leg.; light trap; IEBR • 1 ♂; Lam Dong Province, Bidoup - Nui Ba NP; 25 Apr. 2022; Nguyen D.H. leg.; light trap; IEBR.

Remarks

The specimens from Vietnam have fore wing length 12.1–13.3 mm (vs 13–16 mm), AI = 0.24–0.67 (vs 0.44–0.55), CI = 0.27–0.42 (vs 0.35–0.42). Otherwise, they agree with the description of Gauld & Mitchell (1981).

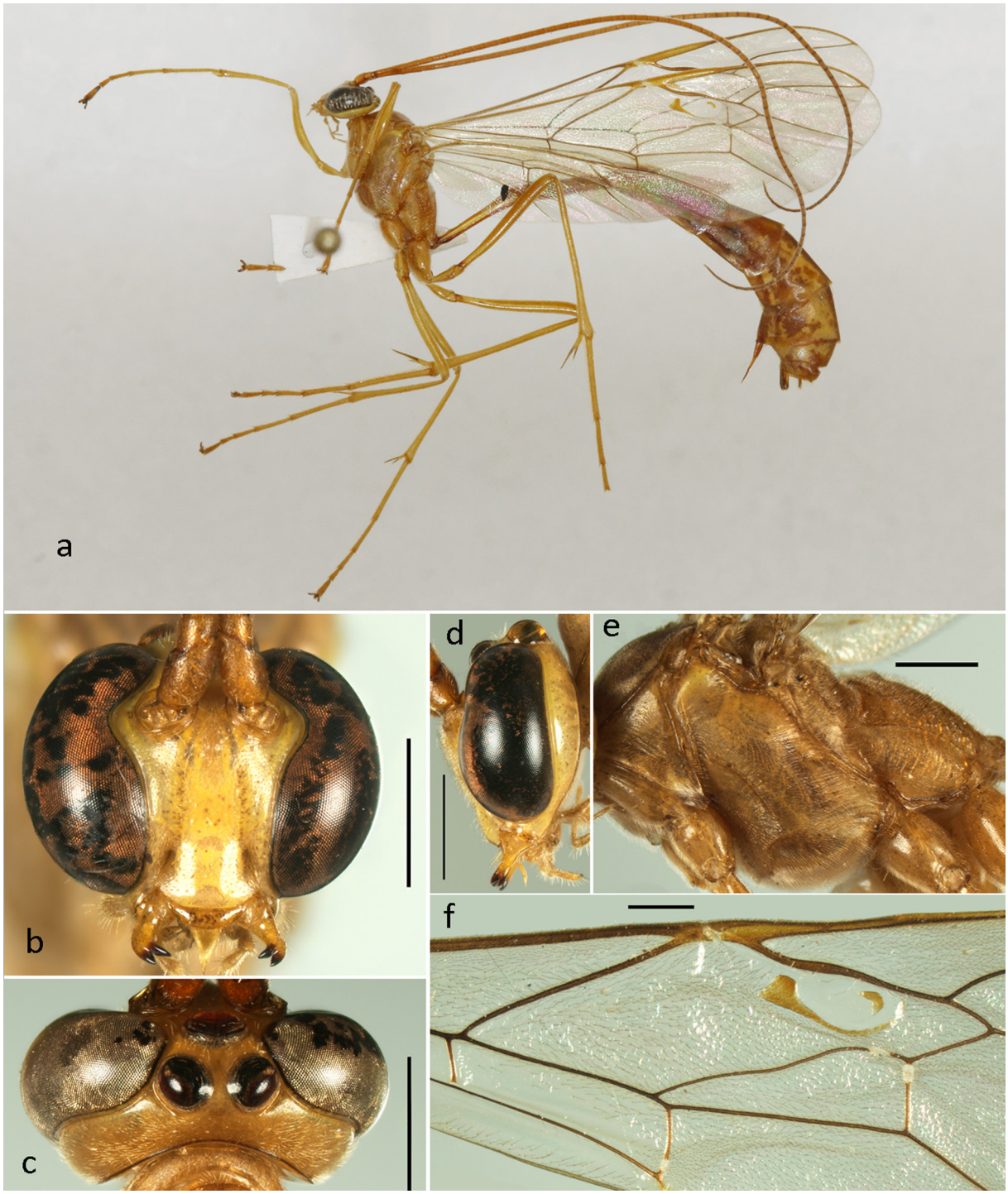

Fig. 43. *Enicospilus kanshirensis* (Uchida, 1928), ♀ (OMNH). **a**. Habitus. **b**. Head, frontal view. **c**. Head, dorsal view. **d**. Head, lateral view. **e**. Mesosoma, lateral view. **f**. Central part of fore wing. Scale bars = 1.0 mm.

Distribution

Previously known from China (including Taiwan), India, Japan, Nepal, Philippines, Sri Lanka, and Zambia (Yu *et al.* 2016; Shimizu *et al.* 2020). These are the first records of this species from Vietnam.

Fig. 44. *Enicospilus laqueatus* (Enderlein, 1921), ♀ (IEBR). **a**. Habitus. **b**. Head, frontal view. **c**. Head, dorsal view. **d**. Head, lateral view. **e**. Mesosoma, lateral view. **f**. Central part of fore wing. Scale bars = 1.0 mm.

Enicospilus longitarsis Tang, 1990
Fig. 45

Enicospilus longitarsis Tang, 1990: 82; holotype ♀ from China (IZCAS).

Diagnosis

Interocellar area reddish brown; clypeus moderately convex, ventral margin acute; mandible moderately long, twisted ca 20°, outer surface with a diagonal setose groove; fore wing fenestra with proximal and distal sclerites, distal sclerite stout, connected to proximal sclerite; epicnemial carina strong, bent towards anterior margin of mesopleuron; fore tibia with many long spines on outer surface.

Material examined

VIETNAM • 1 ♀; Cao Bang Province, Phia Oac - Phia Den NP; 22°35′18.2″ N, 105°52′33.2″ E; 1200 m a.s.l.; 22 May 2020; Hoang V.T. and Pham V.P. leg.; light trap; IEBR.

Remarks

The Vietnamese specimen has the fore wing length 17.5 mm, slightly shorter than the holotype specimen (18.0 mm), with SDI = 1.53 (vs 1.38 in the holotype) and hind wing NI = 1.5 (vs 2.0). Its antenna has 73 flagellomeres (vs 76 in the holotype). Otherwise agreeing with the description of Tang (1990).

Distribution

Previously known from China (Tang 1990; Yu *et al.* 2016). It is the first record of this species from Vietnam.

Enicospilus maai Chiu, 1954
Fig. 46

Enicospilus maai Chiu, 1954: 22; holotype ♀ from Taiwan (TARI).

Diagnosis

Interocellar area reddish brown; clypeus weakly to moderately convex, ventral margin blunt; mandible twisted ca 20°, outer surface without a diagonal setose groove; fore wing fenestra with proximal and distal sclerites, fenestra long, distal margin interstitial or postfurcal to RS; mesoscutum posteriorly black; T4 in profile 1.2× or less as long as high, pale yellow.

Material examined

VIETNAM • 1 ♀; Vinh Phuc Province, Tam Dao NP; 900 m a.s.l.; 18 Mar. 2003; Truong X.L. leg.; hand net; IEBR • 1 ♀; same locality as for preceding; May 2013; Hoang V.T. leg.; light trap; IEBR • 3 ♀♀; Gia Lai Province, Kon Ka Kinh NP; 8 Jun. 2011; Nguyen Q.T. leg.; light trap; IEBR • 1 ♂; same locality as for preceding; 26 Apr. 2022; Pham V.P. leg.; light trap; IEBR • 1 ♀; Thua Thien-Hue Province, Bach Ma NP; 12 Jul. 2011; Hoang V.T. leg.; light trap; IEBR • 1 ♀; Cao Bang Province, Phia Oac - Phia Den NP; 7 May 2013; Hoang V.T. leg.; light trap; IEBR • 1 ♀; same collection data as for preceding; 11 May 2014; IEBR • 1 ♀; same locality as for preceding; 5 Jun. 2020; Nguyen D.H. leg; IEBR • 1 ♀; same collection data as for preceding; 8 May 2021; light trap; IEBR • 1 ♀; Tuyen Quang Province, Na Hang, Trung Phin; 22°30′13.68″ N, 105°23′23.82″ E; 909 m a.s.l.; 18 Sep. 2017; Pham T.N., Hoang V.T., Pham V.P. and Nguyen H.N. leg.; light trap; IEBR • 1 ♂; Cao Bang Province; Phia Oac - Phia Den NP; 22°35.305′ N, 105°52.552′ E; 1216 m a.s.l.; 24 May 2020; Hoang V.T. and Pham V.P. leg.; light trap; IEBR • 1 ♂; Lam Dong Province, Bidoup - Nui Ba NP; 27 Apr. 2022; Nguyen D.H. leg.; light trap; IEBR • 1 ♀; same collection data as for preceding; 4 May 2022; light trap; IEBR • 1 ♀; Ha Giang Province, Vi

Xuyen, Phong Quang; 22.89996° N, 104.91559° E; 609 m a.s.l.; 26 May 2022; Pham T.N. and Pham V.P. leg.; light trap; IEBR • 1 ♀; Lao Cai Province, Bat Xat NR; 22°37′37″ N, 103°37′32″ E; 1840 m a.s.l.; 28 May 2022; Pham T.N. and Dang T.H. leg.; light trap; IEBR • 1 ♀; Hoa Binh Province, Mai Chau, Bao La; 20.7046° N, 104.9720° E; 830 m a.s.l.; 3 Jul. 2022; Phan Q.T. leg.; light trap; IEBR.

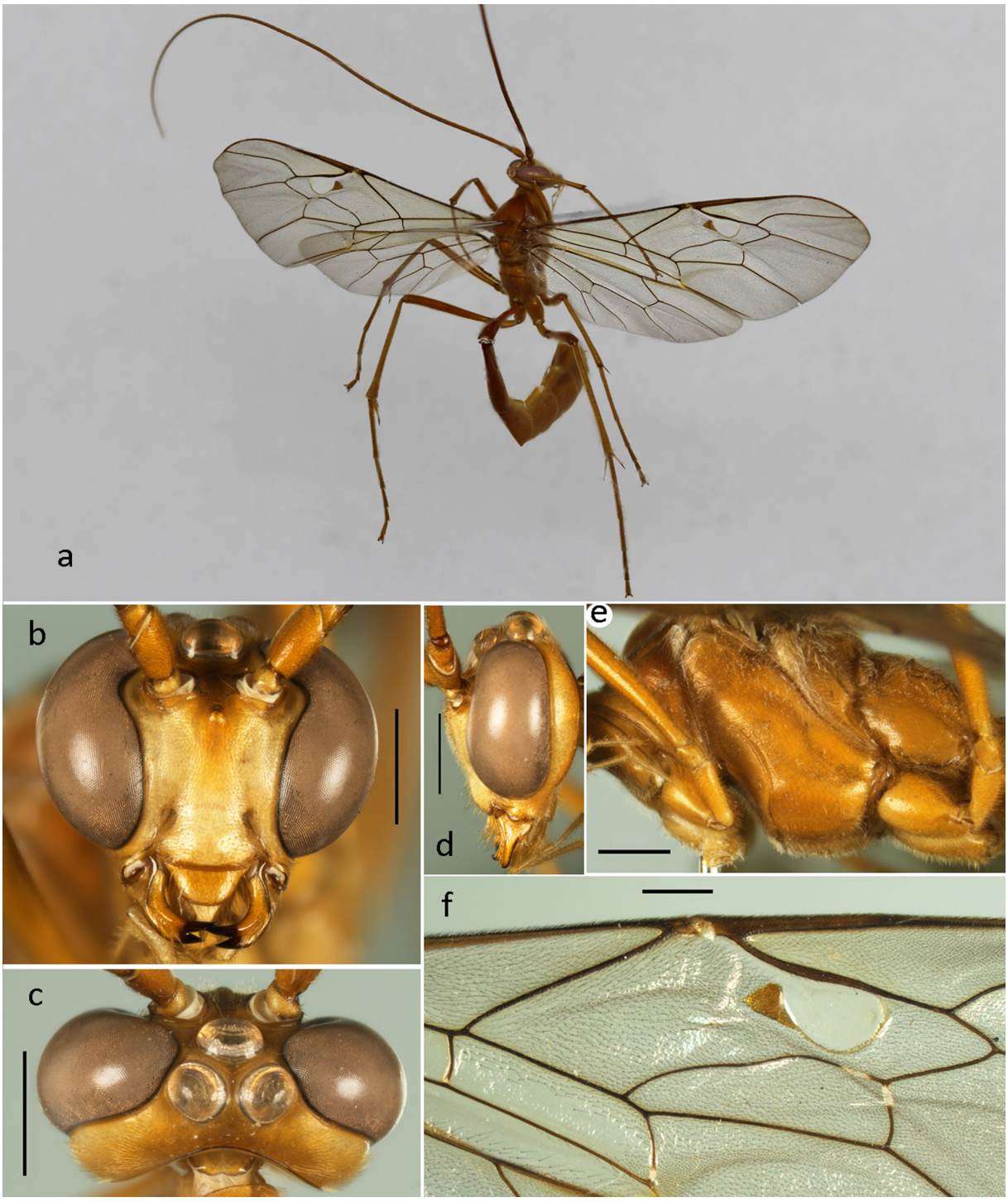

Fig. 45. *Enicospilus longitarsis* Tang, 1990, ♀ (IEBR). **a**. Habitus. **b**. Head, frontal view. **c**. Head, dorsal view. **d**. Head, lateral view. **e**. Mesosoma, lateral view. **f**. Central part of fore wing. Scale bars = 1.0 mm.

Remarks

Vietnamese specimens have fore wing length 16.0–20.0 mm, longer than specimens examined by Gauld & Mitchell (1981).

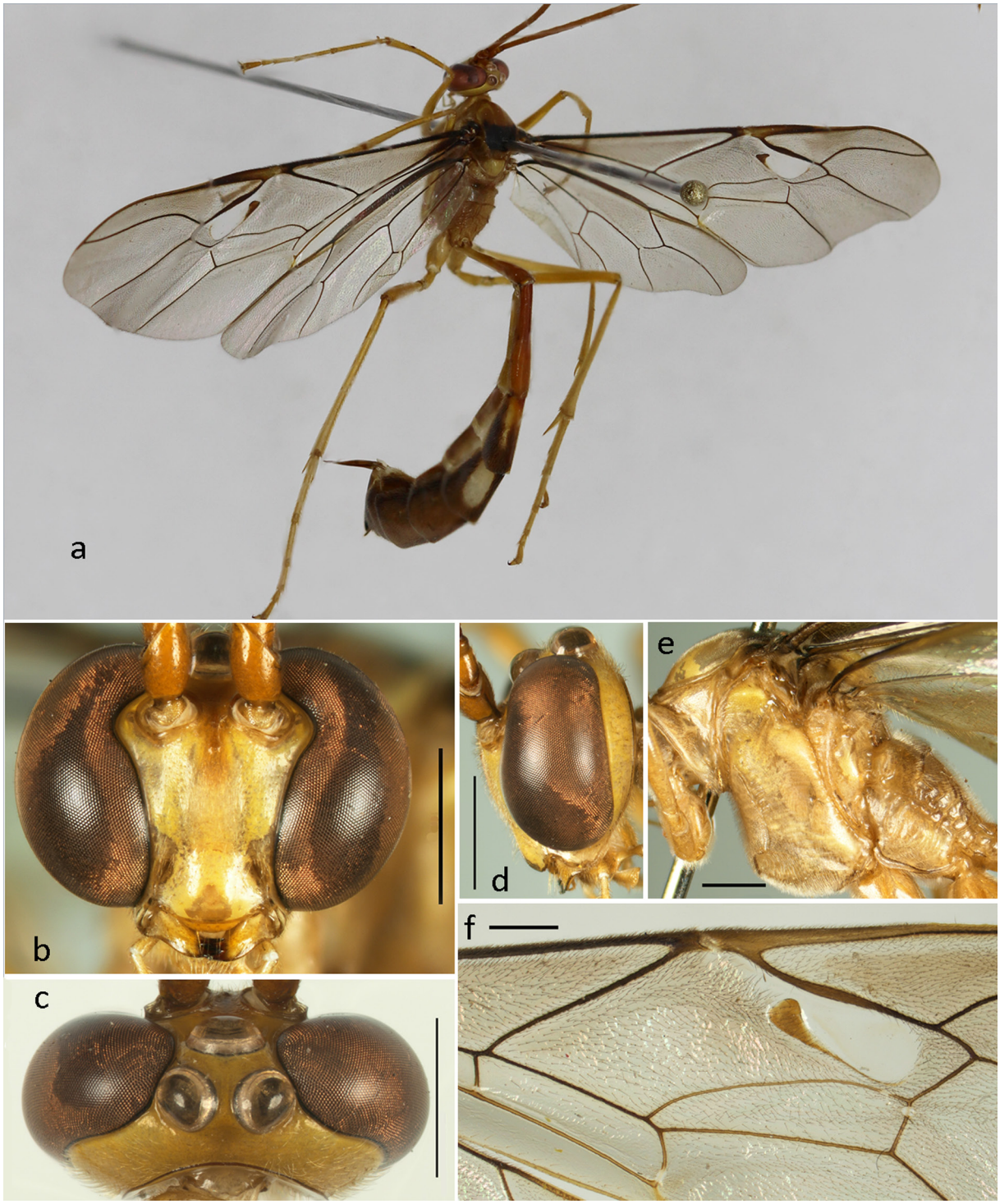

Fig. 46. *Enicospilus maai* Chiu, 1954, ♀ (IEBR). **a**. Habitus. **b**. Head, frontal view. **c**. Head, dorsal view. **d**. Head, lateral view. **e**. Mesosoma, lateral view. **f**. Central part of fore wing. Scale bars = 1.0 mm.

Distribution

China (including Taiwan), India, Malaysia, and Vietnam (Yu *et al.* 2016).

Enicospilus maritus (Roman, 1913)
Fig. 47

Henicospilus maritus Roman, 1913: 29; holotype ♂ from Philippines (NHRS).

Enicospilus maritus – Townes *et al.* 1961: 280.

Diagnosis

Interocellar area reddish brown; clypeus more or less flat, ventral margin subacute; mandible twisted ca 20°, outer surface without a diagonal setose groove; fore wing fenestra with proximal and distal sclerites, both weak and elongate, vein 2r&RS sinuous, abruptly narrowed and straight distally, CI more than 0.5, marginal cell with glabrous area proximally.

Material examined

VIETNAM • 1 ♀; Son La Province, Thuan Chau, Co Ma; 14 May 2017; Pham V.P. leg.; light trap ; IEBR.

Distribution

Brunei, China, Indonesia, Malaysia, Philippines, and Vietnam (Yu *et al.* 2016).

Enicospilus melanocarpus Cameron, 1905
Fig. 48

Enicospilus melanocarpus Cameron, 1905a: 122; holotype ♀ from Sri Lanka (NHMUK).

Diagnosis

Interocellar area reddish brown; clypeus moderately convex, ventral margin impressed, acute; mandible twisted 20–30°, outer surface with a diagonal setose groove; fore wing fenestra with proximal, central and distal sclerites, central sclerite transversely oval, positioned in centrodistal area of fenestra; metasoma from T5 onwards black.

Material examined

VIETNAM • 1 ♂; Quang Binh Province, Minh Hoa, Cha Lo; 16 Apr. 1998; Khuat D.L. leg.; hand net; IEBR • 1 ♀; Hoa Binh, Yen Thuy, Bao Hieu; 8 Aug. 2000; Pham T.N. leg.; hand net; IEBR • 1 ♀; Vinh Phuc Province, Phuc Yen, Ngoc Thanh; 11–25 Oct. 2000; Khuat D.L. leg.; Malaise trap; IEBR • 1 ♀; same collection data as for preceding; 25 Oct.–16 Nov. 2000; Malaise trap; IEBR • 4 ♀♀; Ha Giang Province, Vi Xuyen, Cao Bo; 800 m a.s.l.; 22 Oct.–5 Nov. 2001; Khuat D.L. leg.; Malaise trap; IEBR • 1 ♀; Hoa Binh, Yen Thuy, Lac Thinh; 1–10 Jun. 2002; Khuat D.L. leg.; Malaise trap; IEBR • 1 ♀; Cao Bang Province, Phia Oac - Phia Den NP; 10 Aug. 2002; Hoang V.T. leg.; light trap; IEBR • 1 ♀; Hanoi, Thach That, Tan Xa; 10–20 Dec. 2002; Khuat D.L. leg.; Malaise trap; IEBR • 1 ♀; Vinh Phuc Province, Tam Dao NP; 900 m a.s.l.; 9 Aug. 2005; Pham T.N. leg.; hand net; IEBR • 1 ♀; Nghe An Province, Con Cuong, Kem waterfall; 250 m a.s.l.; 11 Sep. 2005; Pham T.N. leg.; hand net; IEBR • 1 ♂; Ha Noi, Gia Lam, Da Ton; 15 Aug. 2006; Pham T.N. leg.; hand net; IEBR • 1 ♀; Hoa Binh Province, Cao Phong; 15 Sep. 2006; Nguyen D.H. leg.; hand net; IEBR • 1 ♀; Thai Nguyen Province, Dai Tu, Cat Ne; 15–20 Oct. 2007; Khuat D.L. leg.; Malaise trap; IEBR • 1 ♀; same collection data as for preceding; 25–30 Oct. 2007; Malaise trap; IEBR • 1 ♀; same collection data as for preceding; 15–20 Nov. 2007; Malaise trap; IEBR •

1 ♂; Ha Tinh Province, Vu Quang, Son Tho; 25 May 2008; Hoang V.T. leg.; hand net; IEBR • 1 ♀; Kon Tum Province, Chu Mom Ray NP; 24 Jun. 2008; Hoang V.T. leg.; light trap; IEBR • 1 ♂; same locality as for preceding; 1 Apr. 2014; Cao T.K.T. leg.; light trap; IEBR • 1 ♀; Dak Lak Province, Chu Yang Sin NP; 28 Jul. 2008; Ngo T.H. leg.; Malaise trap; IEBR • 1 ♂; Phu Tho, Xuan Son, Xuan Dai; 10–15 Aug. 2009; Khuat D.L. leg.; Malaise trap; IEBR • 1 ♀; Bac Giang Province, Son Dong, Thanh Son; 4 Jul. 2010; Pham T.N. leg.; hand net; IEBR • 1 ♂; Nam Dinh Province, Xuan Thuy NP; 13 Dec. 2012; Hoang V.T. leg.; light trap; IEBR • 1 ♀; Bac Kan Province, Ba Be NP; 12 May 2015; Hoang V.T. leg.; light trap;

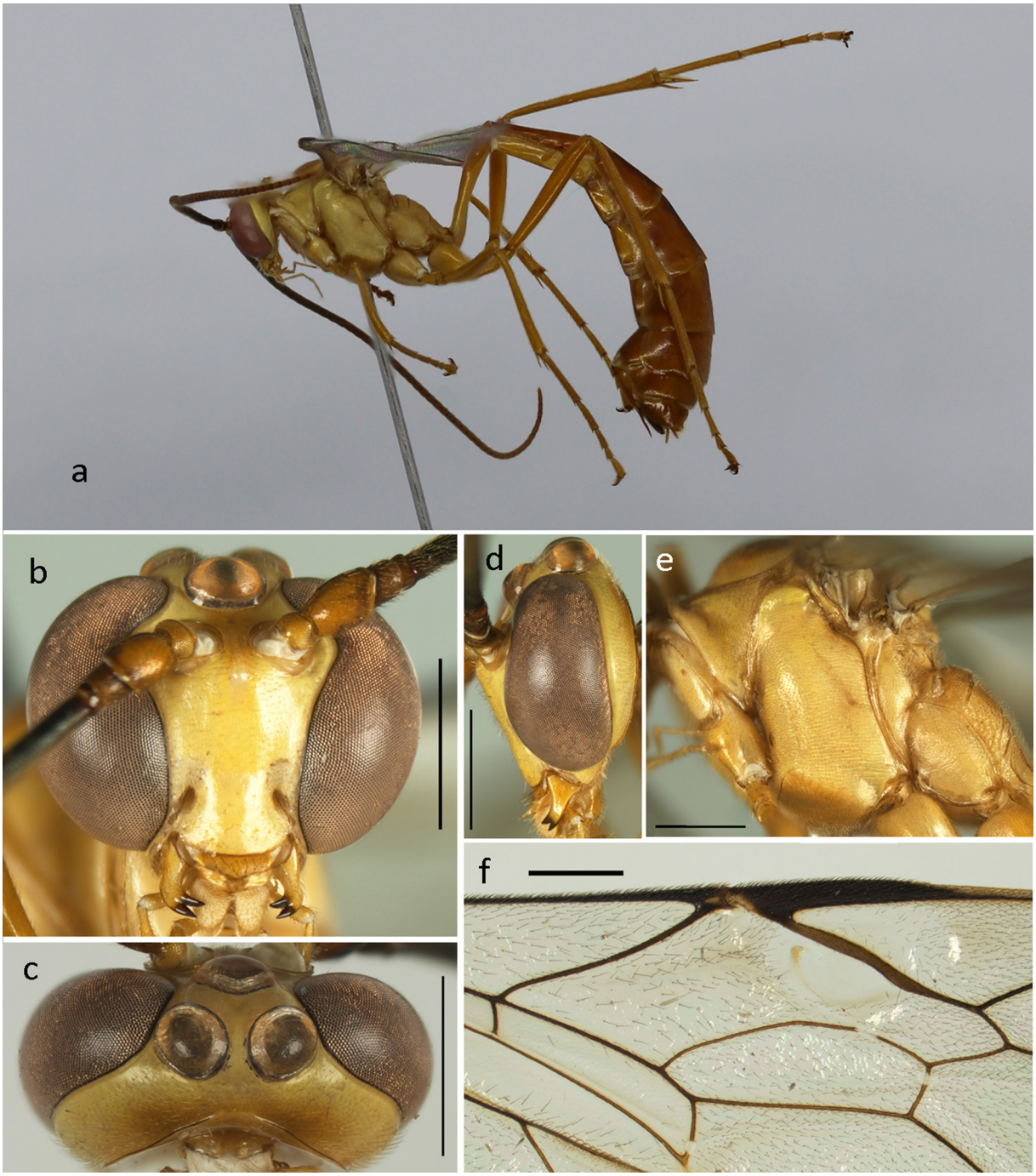

Fig. 47. *Enicospilus maritus* (Roman, 1913), ♀ (IEBR). **a**. Habitus. **b**. Head, frontal view. **c**. Head, dorsal view. **d**. Head, lateral view. **e**. Mesosoma, lateral view. **f**. Central part of fore wing. Scale bars = 1.0 mm.

IEBR • 1 ♀; Son La Province, Thuan Chau, Long He; 2 May 2016; Hoang V.T. and Nguyen V.B. leg.; light trap; IEBR • 1 ♀; Thai Nguyen Province, Phu Luong, An Lac; 15 Apr. 2017; Dang T.H. leg.; hand net; IEBR • 1 ♂; Hanoi, Long Bien, Tu Dinh; 21°03′ N, 105°51′ E; 8 m a.s.l.; 20 Apr. 2017; Khuat D.L. leg.; hand net; IEBR • 1 ♀, 1 ♂; same collection data as for preceding; 11–30 Nov. 2017; Malaise trap;

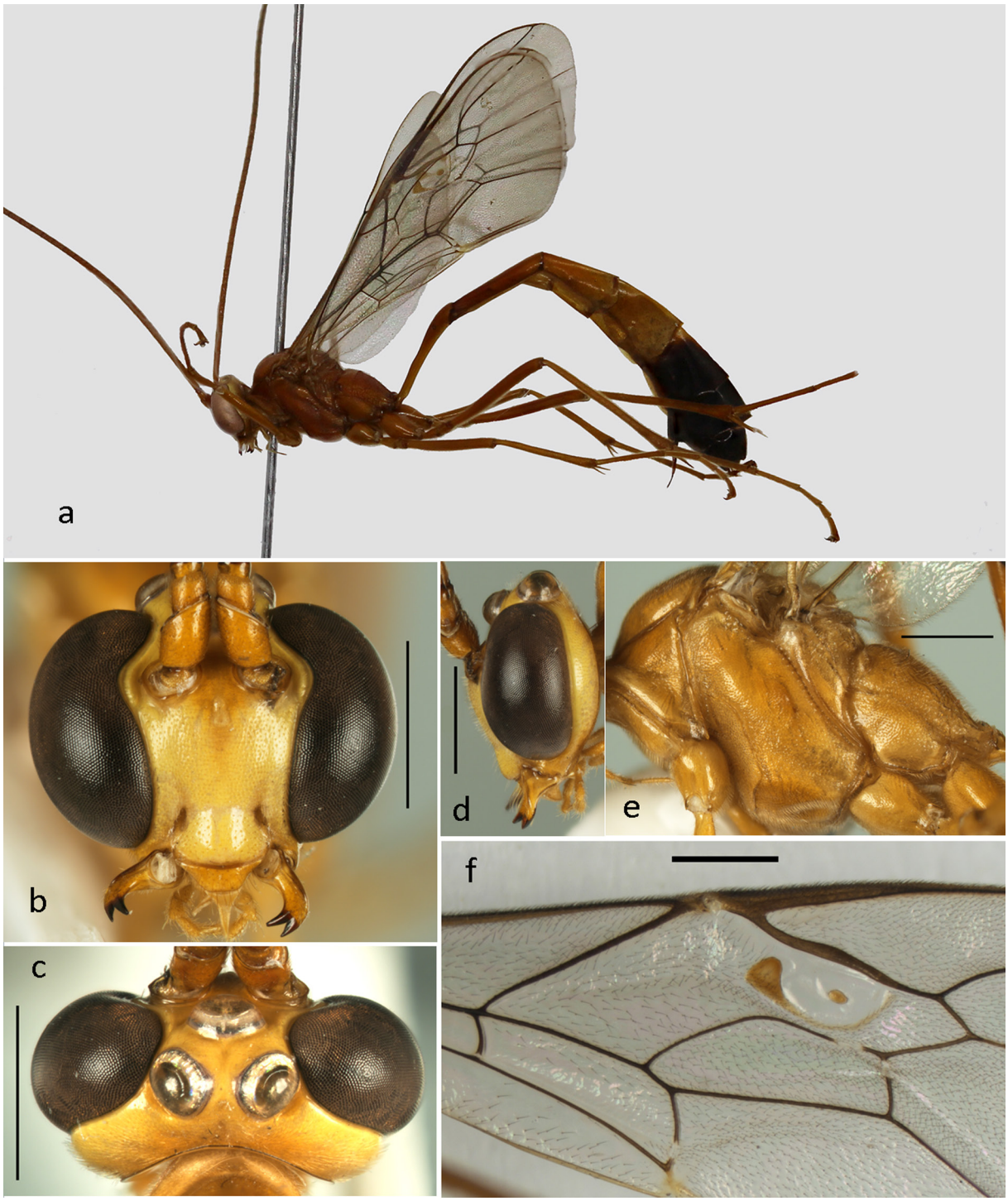

Fig. 48. *Enicospilus melanocarpus* Cameron, 1905, ♀ (IEBR). **a**. Habitus. **b**. Head, frontal view. **c**. Head, dorsal view. **d**. Head, lateral view. **e**. Mesosoma, lateral view. **f**. Central part of fore wing. Scale bars = 1.0 mm.

IEBR • 1 ♀; Son La Province, Thuan Chau, Co Ma; 14 May 2017; Pham V.P. leg.; light trap; IEBR • 1 ♀; Ninh Binh Province, Trang An Landscape Complex, Tran Temple; 20°15.516′ N, 105°53.271′ E; 32 m a.s.l.; 22 Jun. 2017; Pham T.N. leg.; light trap; IEBR • 1 ♂; Tuyen Quang, Na Hang, Giang Chi; 11 Sep. 2017; Hoang V.T., Pham V.P. and Nguyen H.N. leg.; light trap; IEBR • 1 ♀; Cao Bang Province, Trung Khanh, Tra Linh; 22°45′29.89″ N, 106°17′47.10″ E; 640 m a.s.l.; 17 Oct. 2018; Pham V.P. leg.; light trap; IEBR • 1 ♂; Kon Tum Province, Mang Den, Mang Canh; 6 Jun. 2019; Nguyen V.T. leg.; light trap; IEBR • 1 ♀; same locality as for preceding; 12 Jul. 2019; Nguyen V.T. leg.; light trap; IEBR • 1 ♂; Gia Lai Province, Kon Ka Kinh NP; 28 Apr. 2022; Pham V.P. leg.; light trap; IEBR • 3 ♀♀; Ha Giang Province, Vi Xuyen, Phong Quang; 22.89996° N, 104.91559° E; 609 m a.s.l.; 26 May 2022; Pham T.N. and Pham V.P. leg.; light trap; IEBR.

Distribution

Widely distributed in the Australasian, Eastern Palaearctic, Oceanic and Oriental regions (Yu *et al.* 2016).

Enicospilus melanothoracicus sp. nov.

urn:lsid:zoobank.org:act:21308D96-984C-47C7-B7FC-1147F57B98BD

Fig. 49

Diagnosis

Interocellar area black; clypeus convex, ventral margin acute; mandible short, twisted 80–85°, outer surface without a diagonal setose groove; fore wing fenestra with proximal, central and distal sclerites, central sclerite small, oval, positioned at centre of fenestra; mesopleuron and metapleuron densely striate.

Differential diagnosis

The new species can be recognized from *E. xanthocephalus* Cameron, 1905 by the acute ventral margin of the clypeus, the proximal sclerite joining the proximal margin of the fenestra, the size and position of the central sclerite, the presence of the distal sclerite that joining the proximal sclerite and the colouration.

Etymology

The Greek adjective '*melanos*' means 'black', combined with adjective derived from the Greek noun thorax, the specific epithet '*melanothoracicus*' meaning 'with black thorax', referring to the black pattern of the thorax.

Material examined

Holotype

VIETNAM • ♀; Vinh Phuc Province, Me Linh Station for Biodiversity; 20 Mar. 2021; Tran D.D. leg.; Malaise trap; IEBR

Paratypes

VIETNAM • 1 ♀; Thai Nguyen Province, Vo Nhai, Than Sa; 16 Oct. 2004; Ta H.T. and Hoang V.T. leg.; light trap; IEBR • 1 [sex unknown]; Ninh Binh, Trang An Landscape Complex; 23 Jun. 2017; Pham T.N. leg.; hand net; IEBR.

Description

Female (holotype)

Measurements. Body length 13.2 mm, fore wing length 9.8 mm.

Head with FI = 0.5, GOI = 3.0 (Fig. 49d). Lower face 0.6 × as wide as high, moderately shiny (Fig. 49b). Clypeus 1.4 × as wide as high, convex in profile, smooth, ventral margin acute (Fig. 49b). Malar space 0.2 × as long as basal mandibular width (Fig. 49b). Mandible twisted by ca 85°, short, strongly narrowed apically, outer surface without diagonal setose groove (Fig. 49b). Upper tooth of mandible about 1.2 ×

as long as lower tooth (Fig. 49b). Frons and vertex polished, gena shiny with fine setae (Fig. 49c–d). Posterior ocellus close to eye (Fig. 49c). Occipital carina complete, ventral end meeting hypostomal carina at about 0.7 × basal mandible width from base of mandible. Antenna with 45 flagellomeres; F1 1.8 × as long as F2; F20 2.9 × as long as wide.

Mesosoma. Moderately shiny (Fig. 49e). Pronotum finely striate medially (Fig. 49e). Mesoscutum 1.4 × as long as maximum width, evenly rounded in profile. Notaulus absent. Scutellum moderately convex, shiny with small punctures anteriorly, posteriorly with several rugae, lateral longitudinal carinae present

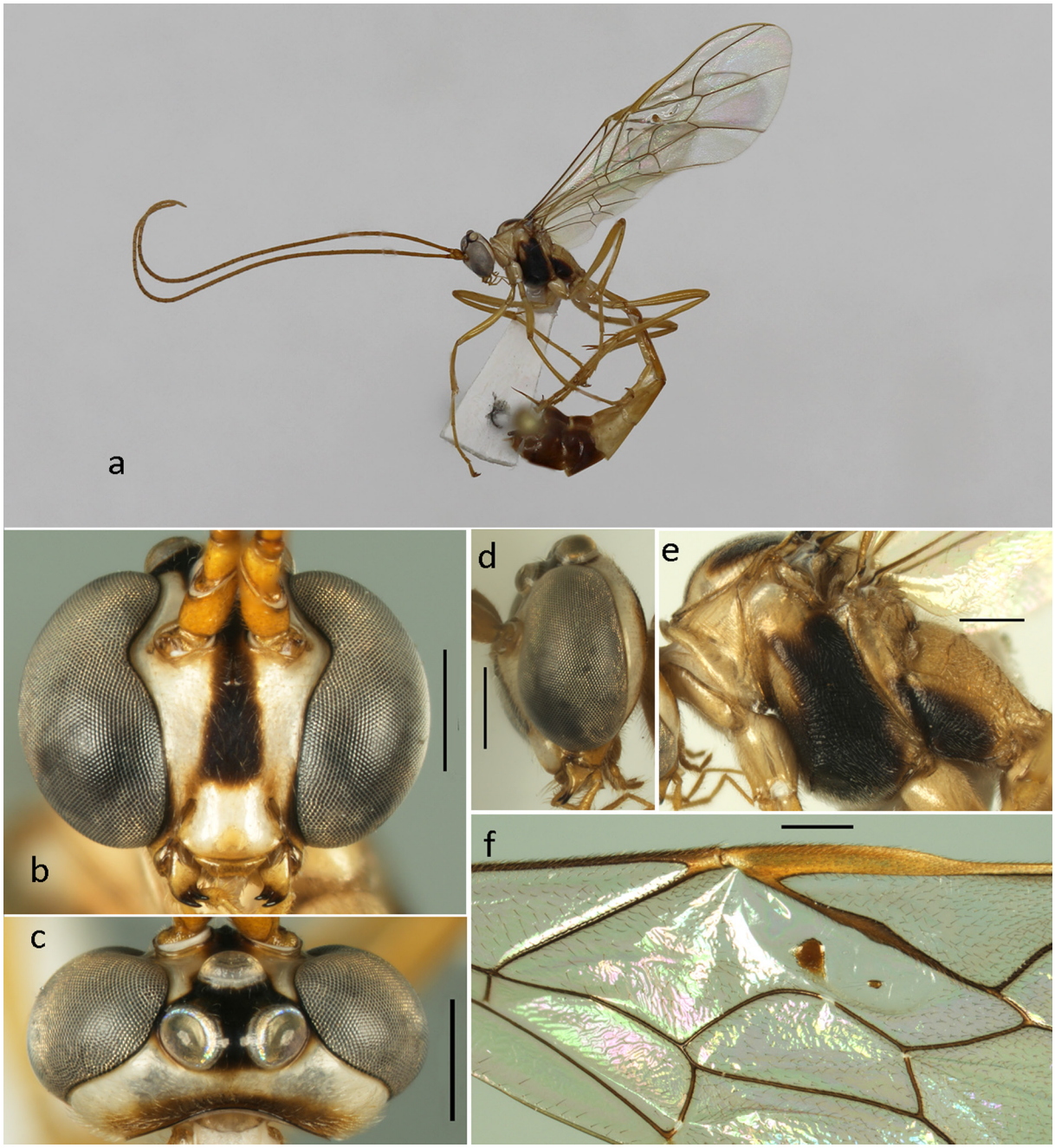

Fig. 49. *Enicospilus melanothoracicus* sp. nov., holotype, ♀ (IEBR). **a**. Habitus. **b**. Head, frontal view. **c**. Head, dorsal view. **d**. Head, lateral view. **e**. Mesosoma, lateral view. **f**. Central part of fore wing. Scale bars = 0.5 mm.

along entire length of scutellum. Epicnemium matt, ventrally densely punctate, dorsally densely striate (Fig. 49e). Epicnemial carina moderately strong, present on ventral half of mesopleuron, dorsal end not bent towards anterior margin of mesopleuron (Fig. 49e). Mesopleuron densely striate (Fig. 49e). Submetapleural carina broadened anteriorly (Fig. 49e). Metapleuron densely striate (Fig. 49e). Propodeum evenly rounded in profile; anterior transverse carina complete; anterior area longitudinally striate; spiracular area smooth; posterior area weakly rugose; propodeal spiracle elliptical and joining pleural carina by ridge (Fig. 49e).

Wings (Fig. 49f). Fore wing with AI = 1.74, CI = 0.22, DI = 0.41, ICI = 0.43, SDI = 1.1, SI = 0.25, SRI = 0.33; vein 1m-cu&M strongly arcuate; vein 2r&RS relatively straight, thickened medially, with posterior bulb; vein RS strongly curved; fenestra and sclerites of discosubmarginal cell as in Fig. 49f; proximal sclerite triangular, strongly pigmented, confluent with weak distal sclerite; central sclerite small, oval, positioned in centre of fenestra; proximal corner of marginal cell evenly hirsute; posterodistal corner of second discal cell ca 50° and that of subbasal cell ca 85°; vein 1cu-a sub-interstitial to M&RS. Hind wing with NI = 2.0; vein RS straight; vein RA with 5 uniform hamuli.

Legs. Hind leg with coxa in profile 1.9 × as long as high; basitarsus 1.7 × as long as second tarsomere; fourth tarsomere 2.0 × as long as wide; tarsal claws with proximal pecten longer than distal ones.

Metasoma. With DMI = 1.3, PI = 2.9, THI = 3.6; thyridium oval; ovipositor sheath not longer than posterior height of metasoma.

Colour (Fig. 49a). Reddish brown except for apex of mandible, face and frons medially, interocellar area, three longitudinal stripes of mesoscutum, of which two lateral stripes meet at black area in front of scutellum, mesosternum, ventral 0.8 of mesopleuron, ventral 0.8 of metapleuron and metasoma from T5 onwards black. Wings hyaline; sclerites pigmented and amber; veins dark brown, pterostigma reddish brown.

Variation in female

Fore wing length 9.1–9.6 mm, AI = 2.00–2.10, CI= 0.29–0.33, DI = 0.42–0.48, ICI = 0.32–0.34, SDI = 1.00–1.07, SI = 0.24, SRI = 0.35–0.42. Hind wing with NI = 1.7–1.8, vein RA with 5–6 uniform hamuli. Female paratype from Thai Nguyen Province has 44 flagellomeres. Lower face of the paratype from Ninh Binh Province (sex unknown since its terminal metasomal tergites are missing) about 0.7 × as broad as high and FI = 0.6.

Male

Unknown.

Distribution

Currently known from Thai Nguyen and Vinh Phuc provinces in the northeast and from Ninh Binh Province in the northwest Vietnam.

Enicospilus mythrus Gauld & Mitchell, 1981
Fig. 50

Enicospilus mythrus Gauld & Mitchell, 1981: 343; holotype ♀ from Philippines (NMHN).

Diagnosis

Interocellar area reddish brown; clypeus weakly convex, ventral margin blunt; mandible twisted ca 40°, outer surface without a diagonal setose groove; fore wing darkened anteriorly, fenestra with proximal and distal sclerites present; hind tarsal claws with distal pecten projecting beyond apical tooth; mesoscutum posteriorly black.

Material examined

VIETNAM • 1 ♀; Quang Nam Province, Bac Tra My, Tra Doc; 15°25′37″ N, 108°7′5.5″ E; 221 m a.s.l.; 15 Mar. 2020; Pham V.P. leg.; light trap; IEBR.

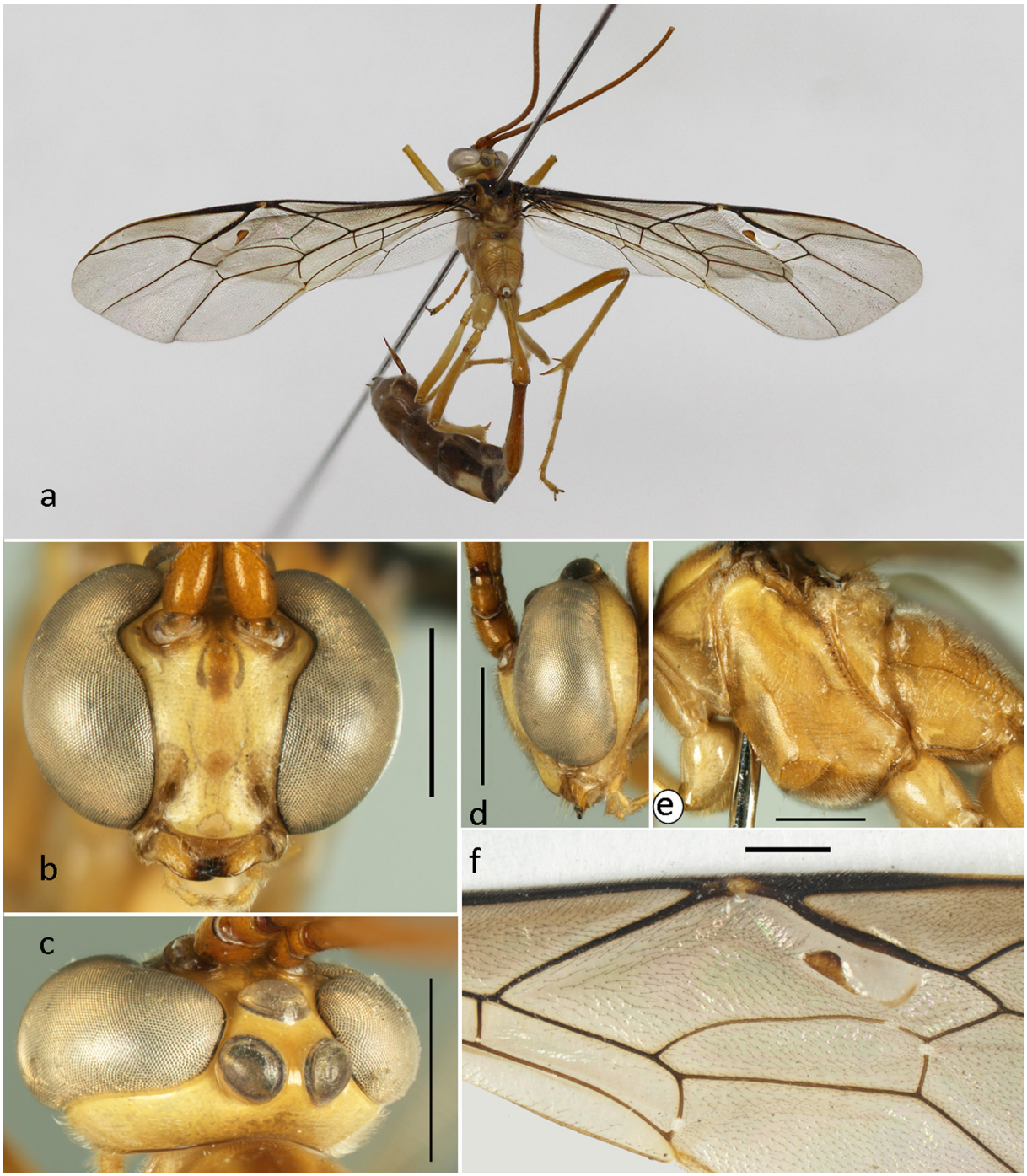

Fig. 50. *Enicospilus mythrus* Gauld & Mitchell, 1981, ♀ (IEBR). **a**. Habitus. **b**. Head, frontal view. **c**. Head, dorsal view. **d**. Head, lateral view. **e**. Mesosoma, lateral view. **f**. Central part of fore wing. Scale bars = 1.0 mm.

Remarks

The Vietnamese specimen has ICI = 0.64 and SDI = 1.33, greater than specimens from the Philippines (0.46–0.56 and 1.15–1.25 respectively), whereas AI = 0.58, smaller than that of Philippines specimens (0.96–1.07).

Distribution

Previously known from Philippines (Gauld & Mitchell 1981). It is the first record of this species from Vietnam.

Enicospilus nathani Gauld & Mitchell, 1981
Fig. 51

Enicospilus nathani Gauld & Mitchell, 1981: 371; holotype ♀ from India (CNC).

Diagnosis

Interocellar area reddish brown; clypeus moderately convex, ventral margin impressed, acute; mandible moderately short, twisted ca 20°, outer surface with a diagonal setose groove; fore wing fenestra with proximal, central and distal sclerites, central sclerite linear, parallel to distal sclerite; metapleuron strongly rugose.

Material examined

VIETNAM • 1 ♀; Gia Lai Province, Kon Ka Kinh NP; 8 Jun. 2011; Nguyen Q.T. leg.; light trap; IEBR • 1 ♀; Gia Lai Province, Kbong, Kon Pne; 15 Jul. 2012; Ta H.T. and Hoang V.T. leg.; light trap; IEBR • 1 ♀; Gia Lai Province, Kon Chu Rang NP; 28 Mar. 2016; Truong X.L. leg.; light trap; IEBR • 1 ♂; same locality as for preceding; 27 May 2019; Nguyen V.T. leg.; light trap; IEBR • 1 ♀; Kon Tum Province, Mang Den, Mang Canh; 6 Jun. 2019; Nguyen V.T. leg.; light trap; IEBR • 2 ♀♀; Lam Dong Province, Bidoup - Nui Ba NP; 4 May 2022; Nguyen D.H. leg.; light trap; IEBR • 1 ♀; Dien Bien Province, Muong Nhe; 22.38560° N, 102.23854° E; 750 m a.s.l.; 25 Jun. 2022; Pham V.P. leg.; light trap; IEBR • 2 ♀♀; Hoa Binh Province, Mai Chau, Bao La; 20.7046° N, 104.9720° E; 830 m a.s.l.; 3 Jul. 2022; Phan Q.T. leg.; light trap; IEBR.

Distribution

Previously known from China, India, and Laos (Yu *et al.* 2016; Shimizu & Konishi 2018). These are the first records of this species from Vietnam.

Enicospilus nigribasalis (Uchida, 1928)
Fig. 52

Henicospilus nigribasalis Uchida, 1928: 222; holotype ♀ from Taiwan (SEHU).

Enicospilus nigribasalis – Townes *et al.* 1961: 283.

Diagnosis

Interocellar area reddish brown; clypeus weakly convex, ventral margin subblunt; mandible moderately short, twisted ca 30°, outer surface without a diagonal setose groove; fore wing fenestra long, anterodistal corner interstitial to vein RS, proximal, central and distal sclerites present, central sclerite crescentic, formed from antero-distal margin of large quadra; body yellow-orange with black markings.

Material examined

VIETNAM • 1 ♀; Kon Tum Province, Mang Den, Mang Canh; 5 Jun. 2019; Nguyen V.T. leg.; light trap; IEBR • 1 ♀; Cao Bang Province, Phia Oac - Phia Den NP; 22°35′18.2″ N, 105°52′33.2″ E; 1200 m a.s.l.; 22 May 2020; Hoang V.T. and Pham V.P. leg.; light trap; IEBR • 1 ♀; same collection data as for preceding; 22°36.477′ N, 105°52.186′ E; 1605 m a.s.l.; 25 May 2020; light trap; IEBR.

Fig. 51. *Enicospilus nathani* Gauld & Mitchell, 1981, ♀ (IEBR). **a**. Habitus. **b**. Head, frontal view. **c**. Head, dorsal view. **d**. Head, lateral view. **e**. Mesosoma, lateral view. **f**. Central part of fore wing. Scale bars = 1.0 mm.

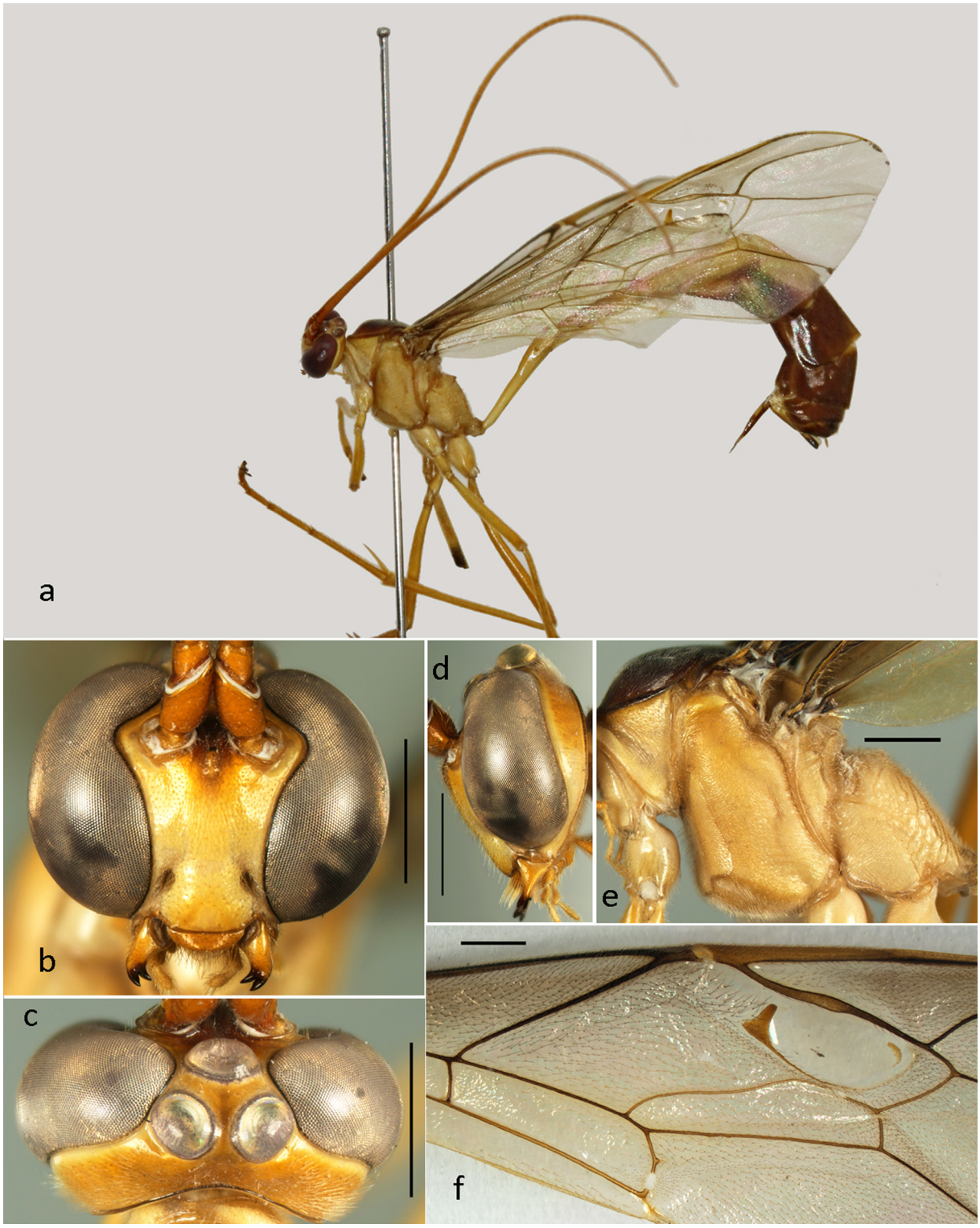

Fig. 52. *Enicospilus nigribasalis* (Uchida, 1928), ♀ (IEBR). **a**. Habitus. **b**. Head, frontal view. **c**. Head, dorsal view. **d**. Head, lateral view. **e**. Mesosoma, lateral view. **f**. Central part of fore wing. Scale bars = 1.0 mm.

Remarks

Antennae of Vietnamese specimens have 56–58 flagellomeres, slightly longer than those of specimens examined by Gauld & Mitchell (1981) (53–55 flagellomeres). Some fore wing indices of Vietnamese specimens are greater than those of specimens examined by Gauld & Mitchell (1981), such as AI = 0.83–1.0, CI = 0.2–0.43, SDI = 1.35–1.43 (vs 0.75–0.85, 0.2–0.25, 1.2–1.3, respectively), whereas ICI = 0.41–0.43, smaller in comparison to 0.44–0.59 in Gauld & Mitchell (1981).

Distribution

Previously known from China (including Taiwan), India, Japan, Philippines, and Sri Lanka (Yu *et al.* 2016). These are the first records of this species from Vietnam.

Enicospilus nigristernalis sp. nov.

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Fig. 53

Diagnosis

Interocellar area reddish brown; clypeus weakly convex, ventral margin blunt; mandible twisted ca 40°, outer surface without a diagonal setose groove; fore wing fenestra with proximal, central and distal sclerites, central sclerite small, circular, positioned in anterodistal corner of quadra, both CI and ICI less than 0.5; mesoscutum posteriorly and mesosternum black.

Differential diagnosis

The new species resembles *E. stenophleps* Cushman, 1937 in having a small, weak, circular central sclerite. The new species can be recognized from the latter by the narrower fenestra, anterodistal corner antefurcal to RS by about 0.8 × length of 2rs-m (vs interstitial to RS in *E. stenophleps*), with quadra (vs without quadra in *E. stenophleps*), and colour patterns of mesoscutum, mesosternum and metasomal tergites.

Etymology

The adjective belonging to the Latin neuter noun '*sternum*' is '*sternalis*', combined with black the specific epithet '*nigristernalis*' meaning 'black sternum', referring to the black mesosternum.

Material examined

Holotype

VIETNAM • ♂; Dong Nai Province, Vinh Cuu, Phu Ly; 7 Jun. 2021; Pham T.N., Hoang V.T. and Pham V.P. leg.; light trap; IEBR

Paratypes

VIETNAM • 1 ♀; Dong Nai Province, Cat Tien NP; 7 Jul. 2002; Le X.H. leg.; light trap; IEBR • 2 ♀♀, 1 ♂; Dong Nai Province, Vinh Cuu, Phu Ly; 16 May 2007; Hoang V.T. leg.; light trap; IEBR • 1 ♀; Cuc Phuong NP, Ninh Binh Province; 11 Jun. 2022; Pham V.P. leg.; light trap; IEBR.

Description

Male (holotype)

Measurements. Body length 14.1 mm, fore wing length 10.5 mm.

Head with FI = 0.6, GOI = 4.0 (Fig. 53d). Lower face 0.7 × as wide as high, smooth and shiny (Fig. 53b). Clypeus 1.4 × as wide as high, similar sculpture as face, weakly convex in profile, ventral margin blunt (Fig. 53b). Malar space 0.3 × as long as basal mandibular width (Fig. 53b). Mandible moderately short, twisted by ca 40°, evenly narrowed, outer surface without diagonal setose groove (Fig. 53b). Upper tooth

of mandible depressed, about 1.2 × as long as lower tooth (Fig. 53b). Frons and vertex smooth and shiny, gena shiny with fine setae (Fig. 53c–d). Posterior ocellus close to eye (Fig. 53c). Occipital carina complete, ventral end meeting hypostomal carina at about 0.5 × basal mandible width from base of mandible. Antenna broken, with 46 remaining flagellomeres; F1 1.5 × as long as F2; F20 2.5 × as long as wide.

Mesosoma. Moderately shiny (Fig. 53e). Pronotum coriaceous (Fig. 53e). Mesoscutum 1.4 × as long as maximum width, evenly rounded in profile. Notaulus absent. Scutellum moderately convex, anteriorly

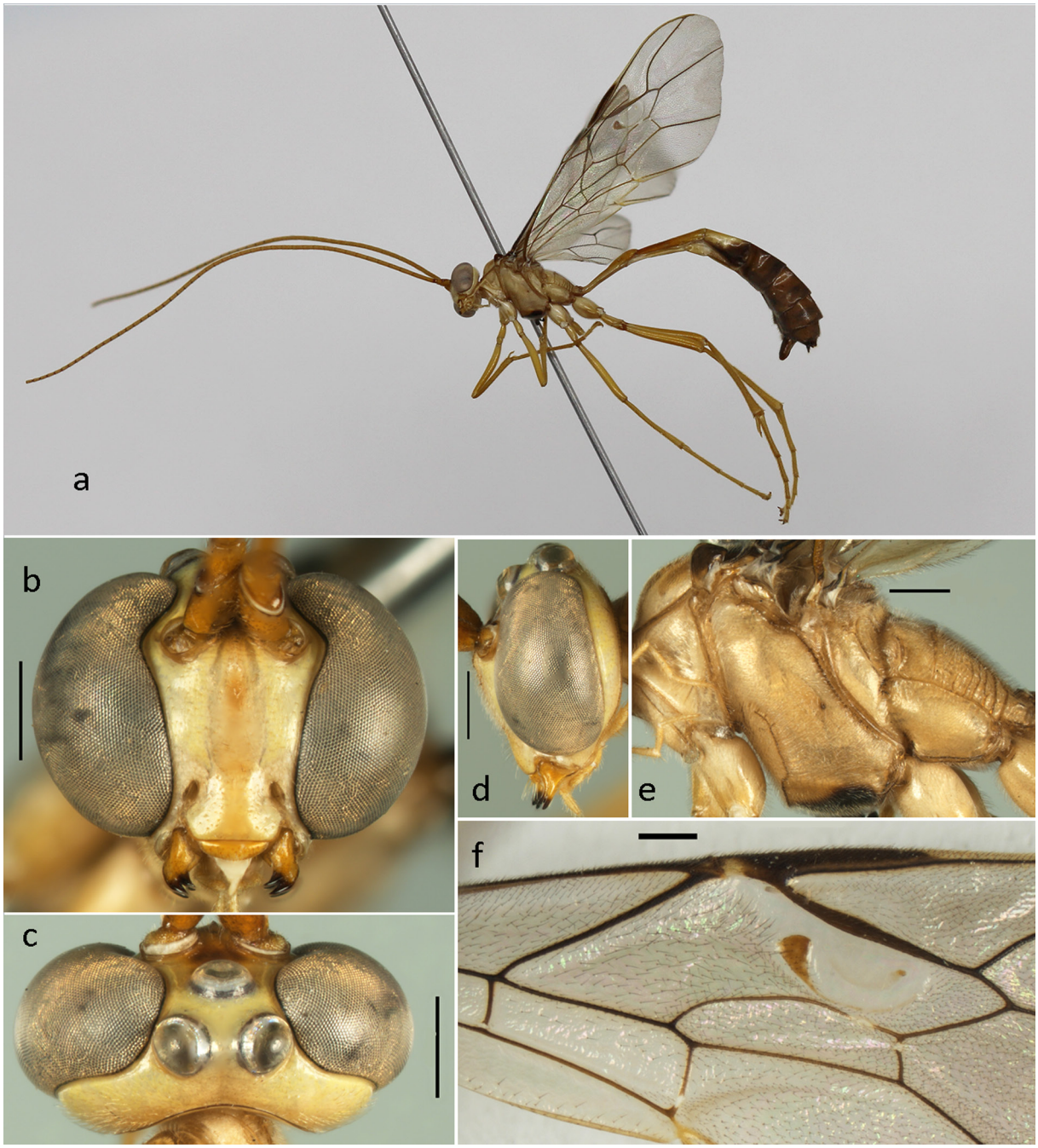

Fig. 53. *Enicospilus nigristernalis* sp. nov., holotype, ♂ (IEBR). **a**. Habitus. **b**. Head, frontal view. **c**. Head, dorsal view. **d**. Head, lateral view. **e**. Mesosoma, lateral view. **f**. Central part of fore wing. Scale bars = 0.5 mm.

with transverse wrinkles, posteriorly with irregular rugae, lateral longitudinal carinae present on anterior 0.9. Epicnemium coriaceous ventrally, dorsally with transverse wrinkles (Fig. 53e). Epicnemial carina moderately strong, dorsal end bent to reach anterior margin of mesopleuron (Fig. 53e). Mesopleuron finely punctate dorsally, ventrally transversely striate (Fig. 53e). Submetapleural carina slightly broadened anteriorly (Fig. 53e). Metapleuron coriaceous (Fig. 53e). Propodeum evenly rounded in profile; anterior transverse carina complete; anterior area longitudinally striate; spiracular area smooth; posterior area irregularly rugose; propodeal spiracle elliptical, joining pleural carina by ridge (Fig. 53e).

Wings (Fig. 53f). Fore wing with AI = 0.57, CI = 0.33, DI = 0.28, ICI = 0.43, SDI = 1.19, SI = 0.16, SRI = 0.22; vein 1m-cu&M evenly arcuate; vein 2r&RS relatively straight; vein RS strongly curved; fenestra and sclerites of discosubmarginal cell as in Fig. 53f; proximal sclerite strong, connected to weakly pigmented distal sclerite; central sclerite small, more or less round in shape, pigmented, positioned in anterodistal corner of moderately large quadra; proximal corner of marginal cell evenly setose; posterodistal corner of second discal cell and that of subbasal cell ca 90°; vein 1cu-a antefurcal to M&RS by 0.15 × length of 1cu-a. Hind wing with NI = 2.8; vein RS arcuate; vein RA with 7 uniform hamuli on right wing and with 6 uniform hamuli on left wing.

Legs. Hind leg with coxa in profile 1.7 × as long as high; basitarsus 1.6 × as long as second tarsomere; fourth tarsomere 2.4 × as long as wide; tarsal claw simply pectinate.

Metasoma. With DMI = 1.6, PI = 2.3, THI = 3.1; thyridium oval.

Colour (Fig. 53a). Reddish brown except for apex of mandible, posterior 0.4 of mesoscutum, mesosternum, and posterior half of T3 onwards black. Wings hyaline; sclerites pigmented and amber; veins and pterostigma dark brown.

Variation in male

Paratype male has fore wing length 11.2 mm, ICI = 0.42, SDI = 1.24. Metasoma with DMI = 1.4, PI = 2.5.

Females

Similar to male, except head with FI = 0.6; antenna with 50–53 flagellomeres; fore wing length 10.5–15.0 mm, AI = 0.61–0.83, CI = 0.33–0.44, ICI = 0.42–0.49; SDI = 1.24–1.26; metasoma with DMI = 1.4–1.5, PI = 2.6–2.7, THI = 3.8, ovipositor sheath not longer than posterior height of metasoma.

Distribution

Currently known from Ninh Binh Province, North Vietnam and Dong Nai Province, South Vietnam.

Enicospilus nigristigma Cushman, 1937
Fig. 54

Enicospilus nigristigma Cushman, 1937: 309; holotype ♀ from Taiwan (DEI).

Diagnosis

Interocellar area black; clypeus weakly convex, ventral margin blunt; mandible twisted 5°–10°, outer surface without a diagonal setose groove; body reddish with black markings, fore wing length ca 18.0 mm or more, fenestra with proximal, central and distal sclerites present, central sclerite C-shaped, formed from the distal periphery of an extensive quadra.

Material examined

VIETNAM • 1 ♀; Thua Thien-Hue Province, Bach Ma NP; 12 Jul. 2011; Hoang V.T. leg.; light trap; IEBR • 1 ♀; Gia Lai Province, Kon Chu Rang; 27 May 2019; Nguyen V.T. leg.; light trap; IEBR • 1 ♀; Cao Bang Province, Phia Oac - Phia Den NP; 22°35.305′ N, 105°52.552′ E; 1216 m a.s.l.; 23 May 2020;

Hoang V.T. and Pham V.P. leg.; light trap; IEBR • 2 ♀♀; same collection data as for preceding; 24 May 2020; light trap; IEBR.

Distribution

Previously known from China (including Taiwan), Japan, Malaysia, and Thailand (Yu *et al.* 2016). These are the first records of this species from Vietnam.

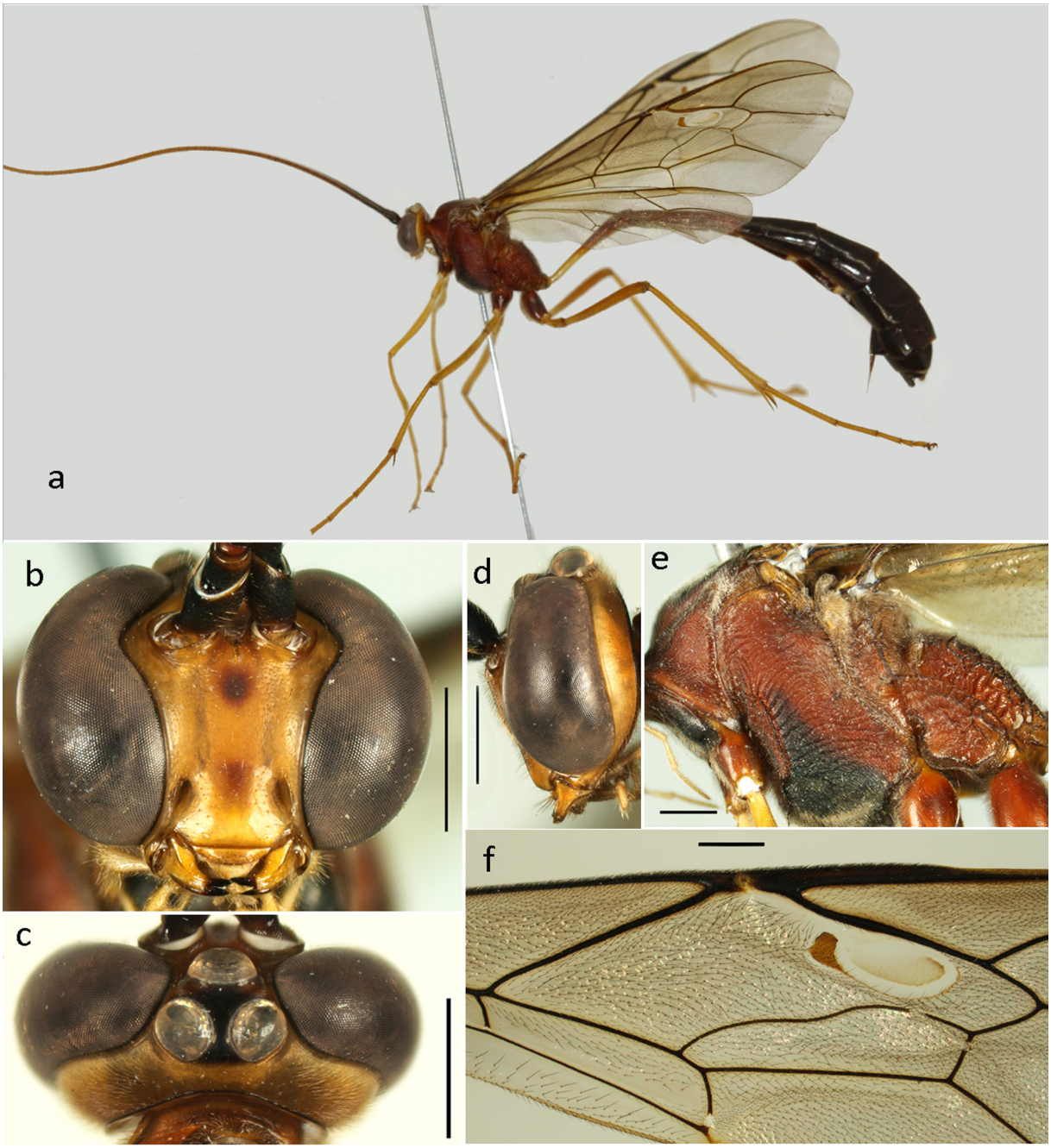

Fig. 54. *Enicospilus nigristigma* Cushman, 1937, ♀ (IEBR). **a**. Habitus. **b**. Head, frontal view. **c**. Head, dorsal view. **d**. Head, lateral view. **e**. Mesosoma, lateral view. **f**. Central part of fore wing. Scale bars = 1.0 mm.

Enicospilus nigriventris Nikam, 1975
Fig. 55

Enicospilus (*Bicorniata*) *nigriventris* Nikam, 1975: 195; holotype ♂ from India (MUC).

Enicospilus nigriventris – Nikam 1980: 197.

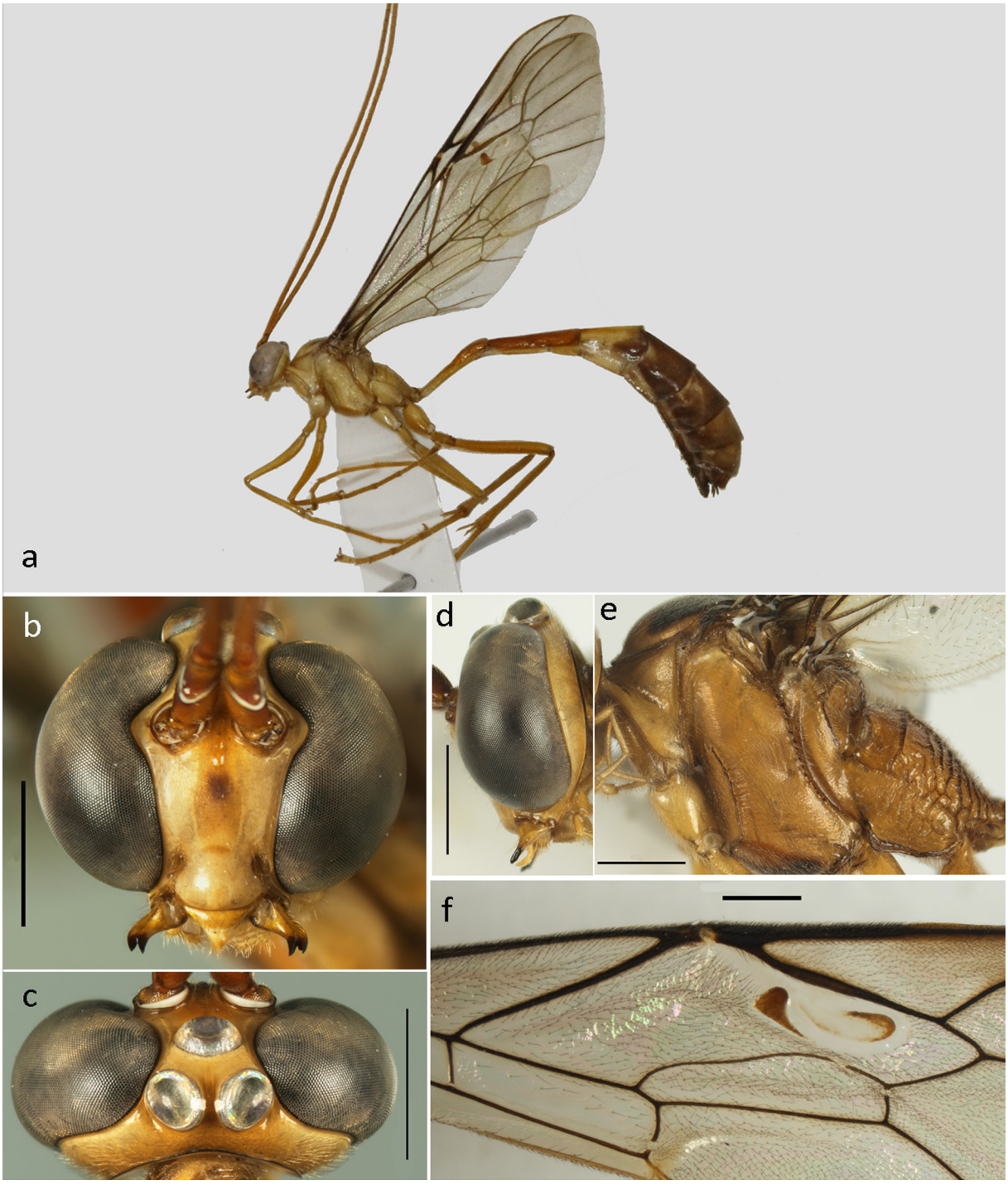

Fig. 55. *Enicospilus nigriventris* Nikam, 1975, ♂ (IEBR). **a**. Habitus. **b**. Head, frontal view. **c**. Head, dorsal view. **d**. Head, lateral view. **e**. Mesosoma, lateral view. **f**. Central part of fore wing. Scale bars = 1.0 mm.

Diagnosis

Interocellar area reddish brown; clypeus moderately convex, ventral margin acute; mandible twisted ca 75°, outer surface without a diagonal setose groove; body reddish with black markings, fore wing fenestra with proximal, central and distal sclerites present, central sclerite large, C-shaped, formed from the antero-distal periphery to almost ventral margin of an extensive quadra; mesoscutum posteriorly black.

Material examined

VIETNAM • 1 ♀; Gia Lai Province, Kon Chu Rang NP; 21 Sep. 2017; Nguyen Q.C. and Nguyen T.P.L. leg.; light trap; IEBR • 1 ♂; Dong Nai Province, Vinh Cuu, Phu Ly; 11°20.848′ N, 107°08.514′ E; 95 m a.s.l.; 9 Jun. 2021; Pham T.N., Hoang V.T. and Pham V.P. leg.; light trap; IEBR • 1 ♀; Dong Nai Province, Vinh Cuu, Phu Ly; 11°26.517′ N, 107°06.182′ E; 178 m a.s.l.; 11 Jun. 2021; Pham T.N., Hoang V.T. and Pham V.P. leg.; light trap; IEBR.

Distribution

Previously known from Brunei, India, and Philippines (Yu *et al.* 2016). These are the first record of this species from Vietnam

Enicospilus nigronotatus Cameron, 1903
Fig. 56

Enicospilus nigronotatus Cameron, 1903: 133; lectotype ♀ from Borneo (NHMUK), designated by Townes *et al.* (1961): 284.

Diagnosis

Interocellar area reddish brown; clypeus weakly convex, ventral margin blunt; mandible twisted ca 40°, outer surface without a diagonal setose groove; fore wing length 20.0 mm or more, fenestra with proximal and distal sclerites, both CI and ICI greater than 0.65; metapleuron strigose.

Material examined

VIETNAM • 1 ♀; Vinh Phuc Province, Tam Dao NP; 900 m a.s.l.; 8 Mar. 2003; Truong X.L. leg.; hand net; IEBR • 1 ♀; Lang Son Province, Bac Son, Vi Ba; 660 m a.s.l.; 1 Jul. 2003; Truong X.L. leg.; hand net; IEBR • 1 ♀; Thanh Hoa Province, Xuan Lien NP; 23 Apr. 2012; Tran T.D. leg.; light trap; IEBR • 1 ♂; Lao Cai Province, Sapa, Khoang; 4 Jul. 2013; Hoang V.T. leg.; light trap; IEBR • 1 ♀; Son La Province, Copia NP; 17 May 2017; Pham V.P. leg.; light trap; IEBR • 1 ♂; Ninh Binh Province, Ninh Hai, Nang cave; 20°13.554′ N, 105°54.148′ E; 4 m a.s.l.; 14 Jun. 2018; Pham T.N., Dang T.H. and Nguyen H.N. leg.; light trap; IEBR • 1 ♀; Quang Nam Province, Tay Giang, Tr'Hy; 15°48′59″ N, 107°22′23″ E; 1210 m a.s.l.; 24 Jul. 2019; Phan Q.T. leg.; light trap; IEBR • 2 ♀♀; Cao Bang Province, Phia Oac - Phia Den NP; 22°35′18.2″ N, 105°52′33.2″ E; 1200 m a.s.l; 22 May 2020; Hoang V.T. and Pham V.P. leg.; light trap; IEBR • 1 ♀; Vinh Phuc Province, Me Linh Station for Biodiversity; 24 Jul. 2020; Tran D.D. leg.; light trap; IEBR • 1 ♀; Lao Cai Province, Bat Xat NR; 22°37′37″ N, 103°37′32″ E; 1840 m a.s.l.; 28 May 2022; Pham T.N. and Dang T.H. leg.; light trap; IEBR.

Distribution

Previously known from Brunei, China (including Taiwan), Japan, Laos, Malaysia, Philippines, Singapore, and Sri Lanka (Yu *et al.* 2016; Shimizu & Konishi 2018; Shimizu *et al.* 2020). These are the first records of this species from Vietnam.

Enicospilus nigropectus Cameron, 1905
Fig. 57

Enicospilus nigropectus Cameron, 1905b: 123; holotype ♀ from Sarawak (NHMUK).

Diagnosis

Interocellar area black; clypeus weakly convex, ventral margin subacute to blunt; mandible twisted 30–40°, outer surface without a diagonal setose groove; fore wing fenestra with proximal and distal sclerites, SDI = 1.07 or less, vein 2r&RS centrally thickened; metapleuron reticulate.

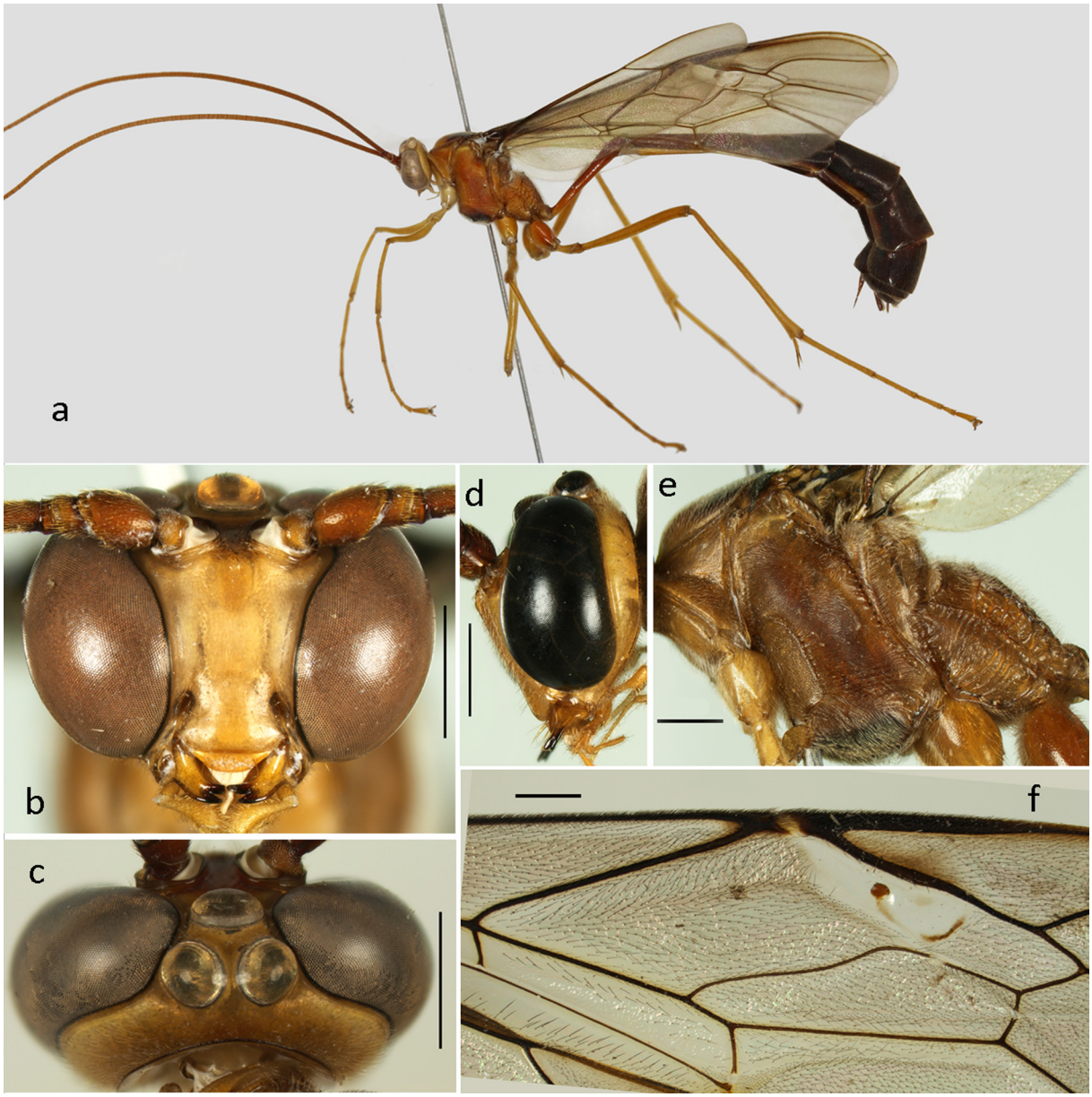

Fig. 56. *Enicospilus nigronotatus* Cameron, 1903, ♀ (IEBR). **a**. Habitus. **b**. Head, frontal view. **c**. Head, dorsal view. **d**. Head, lateral view. **e**. Mesosoma, lateral view. **f**. Central part of fore wing. Scale bars = 1.0 mm.

Material examined

VIETNAM • 1 ♂; Ha Tinh, Huong Son, Son Tay; 24 May 2004; Truong X.L. leg.; light trap; IEBR • 1 ♂; Phu Tho Province, Xuan Son NP; 17 Oct. 2004; Truong X.L. leg.; hand net; IEBR • 1 ♀; same locality as for preceding; 7 May 2005; Pham T.N. leg.; hand net; IEBR • 1 ♂; Son La Province, Thuan Chau, Chieng Bom; 30 Apr. 2016; Hoang V.T. and Nguyen V.B. leg.; light trap; IEBR • 1 ♀; Son La, Thuan Chau, Co Ma; 14 May 2017; Pham V.P. leg.; light trap; IEBR • 1 ♀; Kon Tum Province, Mang Den, Mang Canh; 5 Jun. 2019; Nguyen V.T. leg.; light trap; IEBR • 1 ♀; Quang Nam Province, Bac Tra My, Tra Doc; 13 Mar. 2020; Pham V.P. leg.; light trap; IEBR • 1 ♂, 1 ♀; same collection data as for preceding;

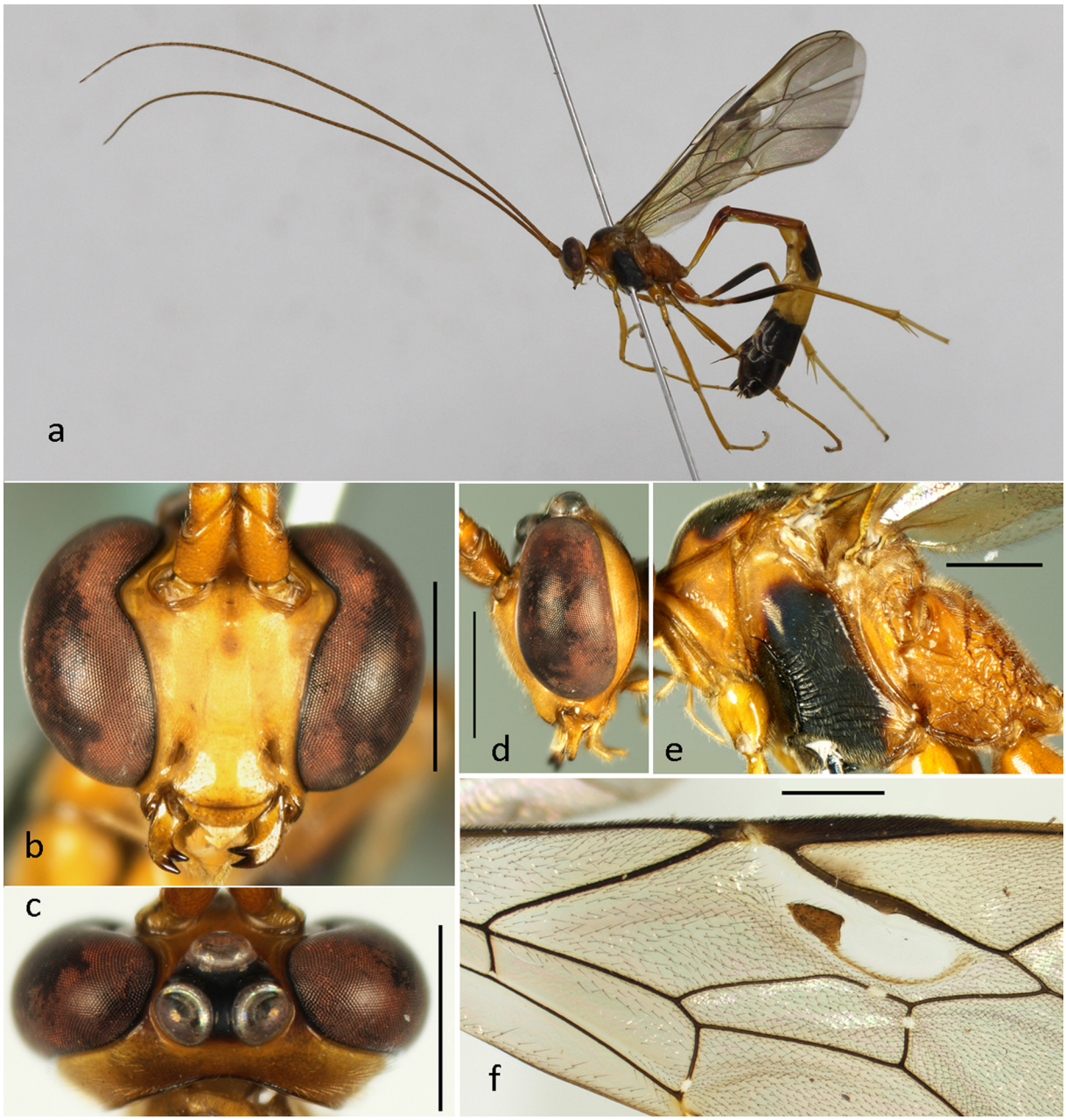

Fig. 57. *Enicospilus nigropectus* Cameron, 1905, ♀ (IEBR). **a**. Habitus. **b**. Head, frontal view. **c**. Head, dorsal view. **d**. Head, lateral view. **e**. Mesosoma, lateral view. **f**. Central part of fore wing. Scale bars = 1.0 mm.

15°25′37″ N, 108°7′5.5″ E; 221 m a.s.l.; 15 Mar. 2020; light trap; IEBR • 1 ♂; Dien Bien Province, Muong Nhe; 22.38560° N, 102.23854° E; 750 m a.s.l.; 25 Jun. 2022; Pham V.P. leg. ; light trap; IEBR.

Distribution

Previously known from China (including Taiwan), India, Indonesia, Japan, Laos, Korea, Malaysia, Papua New Guinea, Philippines, Sri Lanka, and Thailand (Yu *et al.* 2016; Shimizu & Konishi 2018). These are the first records of this species from Vietnam.

Enicospilus pallidistigma Cushman, 1937
Fig. 58

Enicospilus pallidistigma Cushman, 1937: 308; holotype ♀ from Taiwan (DEI).

Diagnosis

Interocellar area reddish brown; clypeus weakly convex, ventral margin blunt; mandible twisted ca 30°, outer surface without a diagonal setose groove; fore wing fenestra long, anterodistal corner antefurcal to RS, with proximal, central and distal sclerites present, central sclerite C-shaped, formed from the distal periphery of an extensive quadra; metasomal tergites long and slender, T3–4 dorsally and T5 onwards black.

Material examined

VIETNAM • 1 ♀; Lao Cai Province, Sapa; 20 Jul. 2001; Ta H.T. and Hoang V.T. leg.; light trap; IEBR.

Distribution

Previously known from China (including Taiwan) (Yu *et al.* 2016). This is the first record of this species from Vietnam.

Enicospilus pantanae Tang, 1990
Fig. 59

Enicospilus pantanae Tang, 1990: 133; holotype ♀ from China (ZAUC).

Diagnosis

Interocellar area reddish brown; clypeus weakly convex, ventral margin blunt; mandible twisted ca 20°, outer surface without a diagonal setose groove; fore wing fenestra with proximal, central and distal sclerites, proximal sclerite moderately weak, roughly blade-shaped.

Material examined

VIETNAM • 1 ♀; Lam Dong Province, Cat Tien, Dong Nai Thuong; 22 Apr. 2021; Phan Q.T. leg.; light trap; IEBR.

Remarks

The specimen from Vietnam has fore wing length 16.6 mm, longer than specimens from China with fore wing 10.5–15.0 mm. Its fore wing indices include AI = 0.77, CI = 0.48, ICI = 0.62, all greater than those of Chinese specimens with AI = 0.5–0.7, CI = 0.30–0.38, ICI = 0.35–0.50, whereas Vietnamese specimen has smaller NI (1.52 vs 2.0–2.5). Otherwise agreeing with specimens from China.

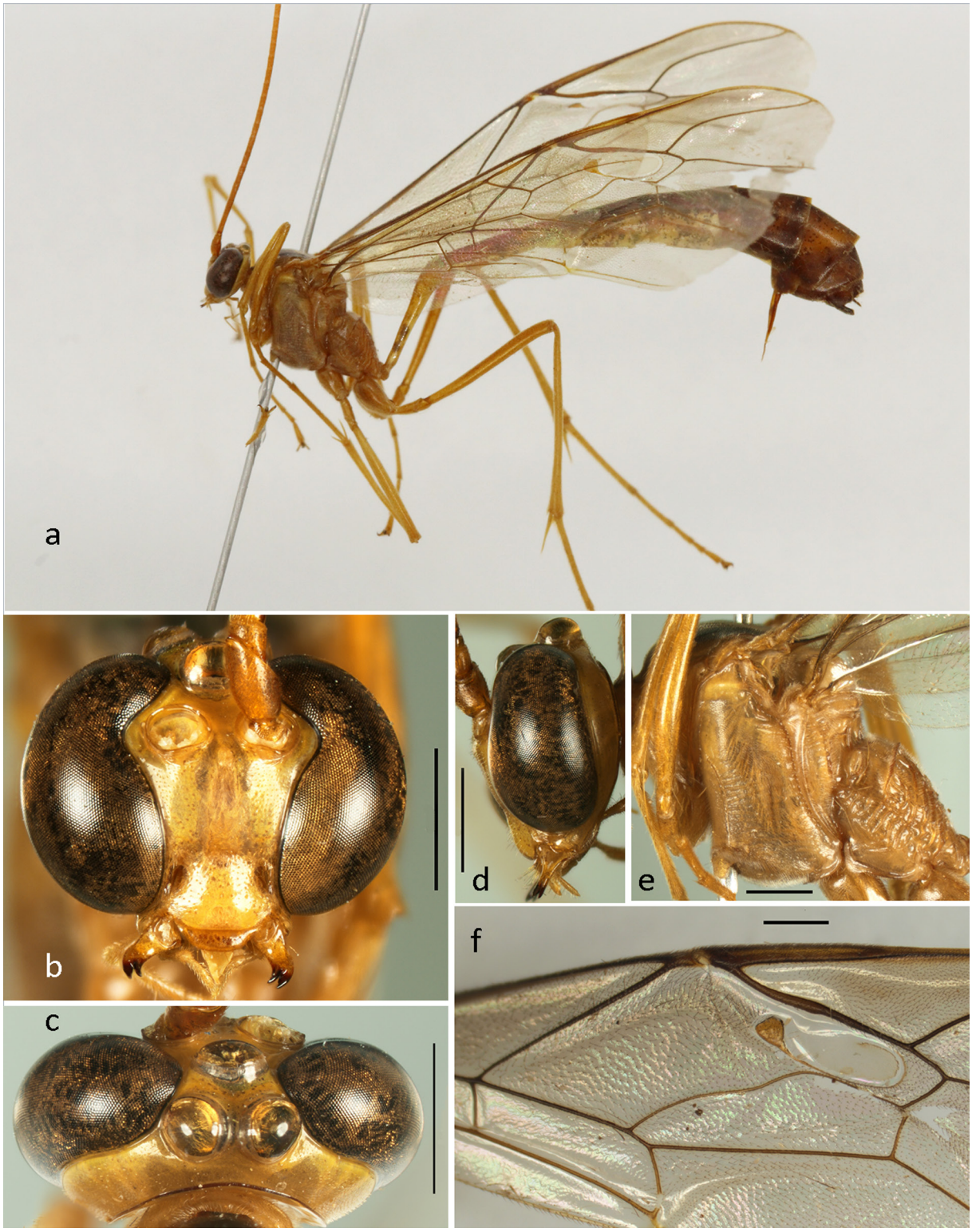

Fig. 58. *Enicospilus pallidistigma* Cushman, 1937, ♀ (IEBR). **a**. Habitus. **b**. Head, frontal view. **c**. Head, dorsal view. **d**. Head, lateral view. **e**. Mesosoma, lateral view. **f**. Central part of fore wing. Scale bars = 1.0 mm.

Distribution

Previously known from China (Tang 1990). This is the first record of this species from Vietnam.

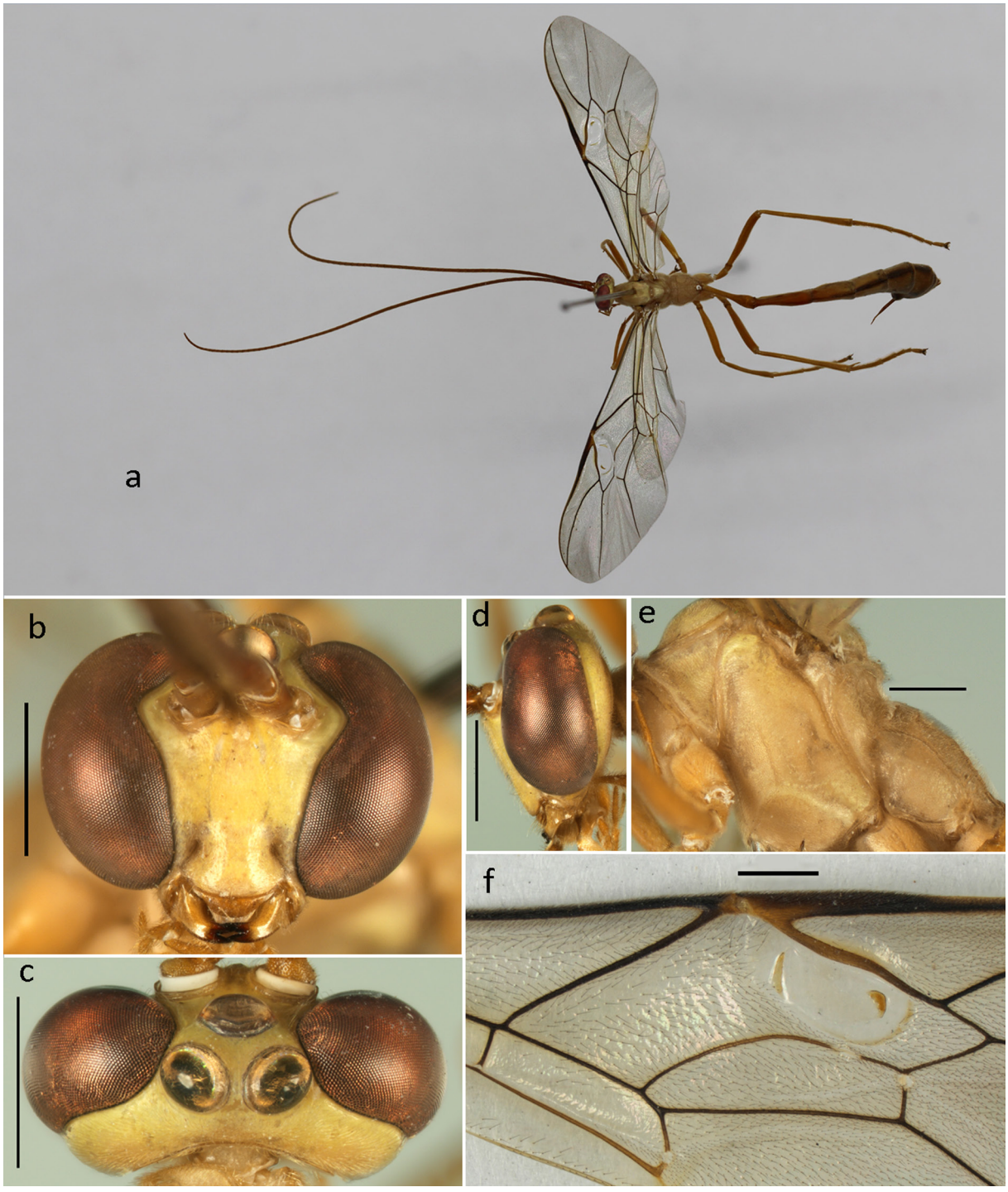

Fig. 59. *Enicospilus pantanae* Tang, 1990, ♀ (IEBR). **a**. Habitus. **b**. Head, frontal view. **c**. Head, dorsal view. **d**. Head, lateral view. **e**. Mesosoma, lateral view. **f**. Central part of fore wing. Scale bars = 1.0 mm.

Enicospilus pinguivena (Enderlein, 1921)
Fig. 60

Henicospilus pinguivena Enderlein, 1921: 22; holotype ♂ from Sumatra (IZPAN).

Enicospilus pinguivena – Townes *et al.* 1961: 286.

Diagnosis

Interocellar area reddish brown; clypeus weakly convex, ventral margin subacute; mandible twisted ca 20°, outer surface without a diagonal setose groove; fore wing fenestra with two medium-sized sclerites

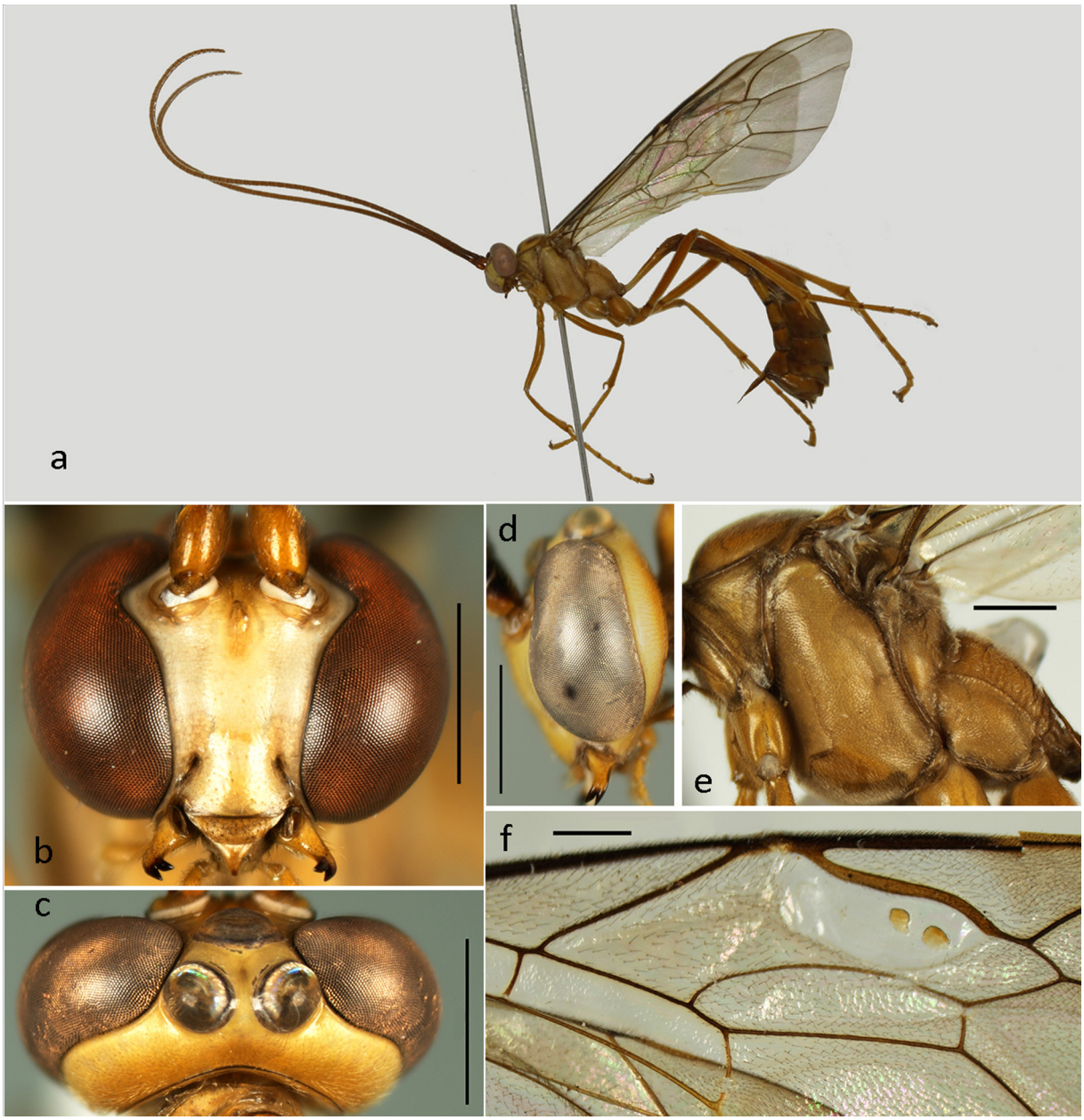

Fig. 60. *Enicospilus pinguivena* (Enderlein, 1921), ♀ (IEBR). **a**. Habitus. **b**. Head, frontal view. **c**. Head, dorsal view. **d**. Head, lateral view. **e**. Mesosoma, lateral view. **f**. Central part of fore wing. Scale bars = 1.0 mm.

in distal part of which the outer has a forward projecting long tail; vein 2r&RS strongly sinuous, abruptly narrowed and straight at distal 0.15.

Material examined

VIETNAM • 1 ♂; Hanoi, Ba Vi, Van Hoa; 3 Jun. 2001; Pham T.N. leg.; hand net; IEBR • 1 ♀; Ha Tinh, Huong Son, Son Hong; 25 May 2004; Truong X.L. leg.; hand net; IEBR • 2 ♀♀; Phu Tho Province, Xuan Son, Xuan Dai; 29 Apr.–5 Jul. 2009; Khuat D.L. leg.; Malaise trap; IEBR • 1 ♀; Vinh Phuc Province, Tam Dao NP; May 2013; Hoang V.T. leg.; light trap; IEBR • 1 ♀; Ninh Binh Province, Trang An Landscape Complex, Tran Temple; 20°15.516′ N, 105°53.271′ E; 32 m a.s.l.; 11 Jun. 2018; Pham T.N., Dang T.H. and Nguyen H.N. leg.; light trap; IEBR • 1 ♀; Ninh Binh Province, Trang An Landscape Complex, Ui cave; 20°15.430′ N, 105°53.103′ E; 2 m a.s.l.; 13 Jun. 2018; Pham T.N. leg.; hand net; IEBR • 1 ♀; Bac Kan Province, Ba Be NP; 12 May 2014; Hoang V.T. leg.; light trap; IEBR • 1 ♀; Cao Bang Province, Trung Khanh, Tra Linh; 22°45′29.89″ N, 106°17′47.10″ E; 640 m a.s.l.; 17 Oct. 2018; Pham V.P. leg.; light trap; IEBR • 1 ♀; Cao Bang Province, Phia Oac - Phia Den NP; 22°35.305′ N, 105°52.552′ E; 1216 m a.s.l.; 23 May 2020; Hoang V.T. and Pham V.P. leg.; light trap; IEBR • 2 ♀♀; same collection data as for preceding; 24 May 2020; light trap; IEBR • 1 ♂; same locality as for preceding; 8 May 2021; Nguyen D.H. leg.; light trap; IEBR • 1 ♂; Dong Nai Province, Vinh Cuu, Bu Dang; 11°26.517′ N, 107°06.182′ E; 178 m a.s.l.; 11 Jun. 2021; Pham T.N., Hoang V.T. and Pham V.P. leg.; light trap; IEBR • 1 ♂; Cao Bang Province, Ha Quang, Thanh Long; 22.76852° N, 105.9687° E; 590 m a.s.l.; 24 May 2022; Pham T.N., Hoang V.T. and Pham V.P. leg.; light trap; IEBR • 1 ♀; Ninh Binh Province, Cuc Phuong NP; 11 Jun. 2022; Pham V.P. leg.; light trap; IEBR• 1 ♂; Hoa Binh Province, Mai Chau, Bao La; 20.7046° N, 104.9720° E; 830 m a.s.l.; 3 Jul. 2022; Phan Q.T. leg.; light trap; IEBR.

Distribution

Previously known from Indonesia, Philippines, and Taiwan (Yu *et al.* 2016). These are the first records of this species from Vietnam.

Enicospilus plicatus (Brullé, 1846)
Fig. 61

Ophion plicatus Brullé, 1846: 145; holotype ♀ from Java (MRSN).

Enicospilus plicatus – Townes *et al.* 1961: 276.

Diagnosis

Interocellar area reddish brown; clypeus weakly to moderately convex, ventral margin subacute; mandible twisted 70°–80°, outer surface without a diagonal setose groove; fore wing fenestra without any sclerites or with weakly linear proximal and distal sclerites present, vein 2rs&RS strongly sinuous, vein 1m-cu&M strongly sinuous, sometimes with short ramellus, CI = 0.50–0.73.

Material examined

VIETNAM • 1 ♂; Thai Nguyen Province, Dai Tu, Cat Ne; 15–20 Nov. 2007; Khuat D.L. leg.; Malaise trap; IEBR • 1 ♂; Ninh Thuan Province, Nui Chua NP; 5 Aug. 2014; Hoang V.T. leg.; light trap; IEBR • 1 ♀; Cao Bang Province, Phia Oac - Phia Den NP; 22°35′18.2″ N, 105°52′33.2″ E; 1200 m a.s.l.; 22 May 2021; Hoang V.T. and Pham V.P. leg.; light trap; IEBR • 1 ♂; Dong Nai Province, Vinh Cuu, Bu Dang; 11°26.517′ N, 107°06.182′ E; 178 m a.s.l.; 11 Jun. 2021; Pham T.N., Hoang V.T. and Pham V.P. leg.; light trap; IEBR.

Remarks

In comparison with specimens examined by Gauld & Mitchell (1981), Vietnamese specimens have more strongly twisted mandibles (60°–80° vs 25°–40°) and shorter fore wings (16.0–21.0 mm vs 19.0–22.0 mm). Their terminal tergites are entirely reddish brown to blackish.

Fig. 61. *Enicospilus plicatus* (Brullé, 1846), ♀ (IEBR). **a**. Habitus. **b**. Head, frontal view. **c**. Head, dorsal view. **d**. Head, lateral view. **e**. Mesosoma, lateral view. **f**. Central part of fore wing. Scale bars = 1.0 mm.

Distribution

Brunei, China (including Taiwan), India, Indonesia, Malaysia, Papua New Guinea, Philippines, Singapore, Thailand, and Vietnam (Yu *et al.* 2016).

Enicospilus pseudantennatus Gauld, 1977
Fig. 62

Enicospilus pseudantennatus Gauld, 1977: 92; holotype ♀ from Australia (ANIC).

Diagnosis

Interocellar area reddish brown; lower face reddish brown with discrete white-yellow orbits; clypeus moderately convex, ventral margin acute; mandible twisted 10°–20°, outer surface without a diagonal setose groove; fore wing fenestra with proximal, central and distal sclerites, central sclerite fairly large, more or less circular.

Material examined

VIETNAM • 1 ♀; Dak Lak Province, Ea So NR; 12°55′93″ N, 108°37′964″ E; 310 m a.s.l.; 27 Jul. 2008; Ngo T.H. leg.; Malaise trap; IEBR • 1 ♀; Gia Lai Province, Kon Ka Kinh NP; 14°13.533′ N, 108°19.192′ E; 1194 m a.s.l.; 15 Mar. 2019; Nguyen H.N. leg.; hand net; IEBR.

Remarks

Vietnamese specimens have fore wing length 12.1–12.5 mm, smaller than specimens examined by Gauld & Mitchell (1981).

Distribution

Australia, China (including Taiwan), India, Indonesia, Myanmar, Nepal, Norfolk Island, Papua New Guinea, Philippines, Sri Lanka, and Vietnam (Yu *et al.* 2016).

Enicospilus pseudoconspersae (Sonan, 1927)
Fig. 63

Henicospilus pseudoconspersae Sonan, 1927: 48; holotype ♂ from Taiwan (TARI).

Enicospilus pseudoconspersae – Sonan 1944: 222.

Diagnosis

Interocellar area reddish brown; clypeus weakly convex, ventral margin subacute; mandible twisted 20°–30°, outer surface without a diagonal setose groove; fore wing fenestra with proximal sclerite weakly to moderately strongly sclerotized, half-moon shaped, distal sclerite weak or entirely absent, CI = 0.6–0.7.

Material examined

VIETNAM • 1 ♀; Lao Cai Province, Sapa; 27 May 1997; R. Matsumoto leg.; light trap; OMNH • 1 ♀; same locality as for preceding; 17 Jul. 2001; Ta H.T. and Hoang V.T. leg.; light trap; IEBR • 1 ♀; Ninh Binh Province, Cuc Phuong NP; 26 Apr. 1998; R. Matsumoto leg.; OMNH • 1 ♀; Nghe An Province, Pu Mat NP; 16 Apr. 2006; Pham T.N. leg.; hand net; IEBR • 1 ♂; Son La, Thuan Chau, Co Ma; 5 Sep. 2016; Pham V.P. leg.; light trap; IEBR • 1 ♀; Gia Lai Province, Kon Chu Rang NP; 19 Sep. 2017; Truong X.L. and Nguyen T.P.L. leg.; light trap; IEBR • 1 ♀; Cao Bang Province, Phia Oac - Phia Den NP; 22°35′18.2″ N, 105°52′33.2″ E; 1200 m a.s.l.; 22 May 2020; Hoang V.T. and Pham V.P. leg.; light

trap; IEBR • 3 ♀♀; Lao Cai Province, Bat Xat NR; 22°37′37″ N, 103°37′32″ E; 1840 m a.s.l.; 28 May 2022; Pham T.N. and Dang T.H. leg.; light trap; IEBR • 1 ♀; Lai Chau Province, Sin Ho, Sa De Phin; 22°18′18″ N, 103°13′37″ E; 1760 m a.s.l.; 31 May 2022; Pham T.N. and Dang T.H. leg.; light trap; IEBR • 1 ♂; Hoa Binh Province, Mai Chau, Bao La; 20.7046° N, 104.9720° E; 830 m a.s.l.; 3 Jul. 2022; Phan Q.T. leg.; light trap; IEBR.

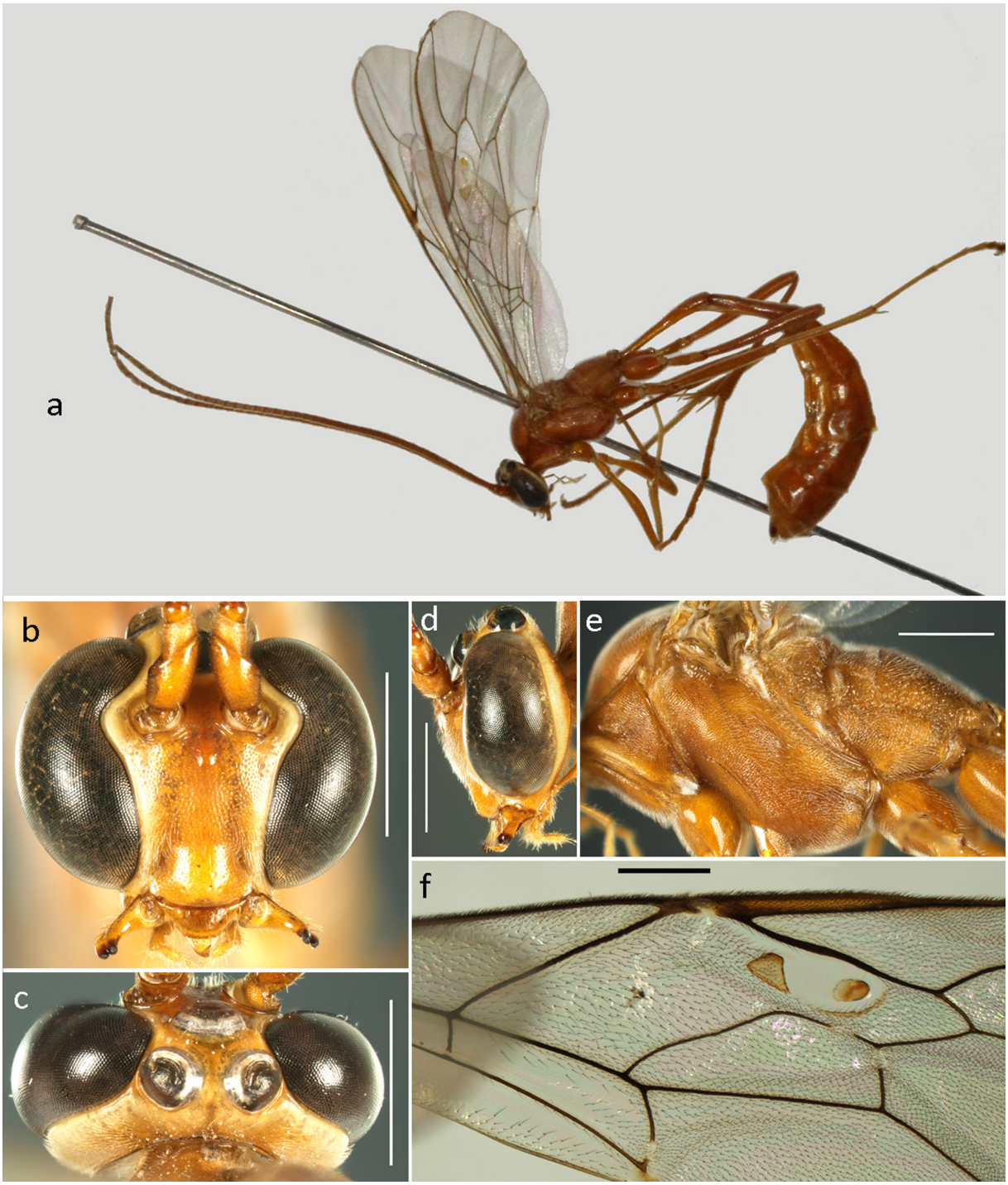

Fig. 62. *Enicospilus pseudantennatus* Gauld, 1977, ♀ (IEBR). **a**. Habitus. **b**. Head, frontal view. **c**. Head, dorsal view. **d**. Head, lateral view. **e**. Mesosoma, lateral view. **f**. Central part of fore wing. Scale bars = 1.0 mm.

Distribution

Previously known from China, Japan, Nepal, and Philippines (Yu *et al.* 2016). These are the first records of this species from Vietnam.

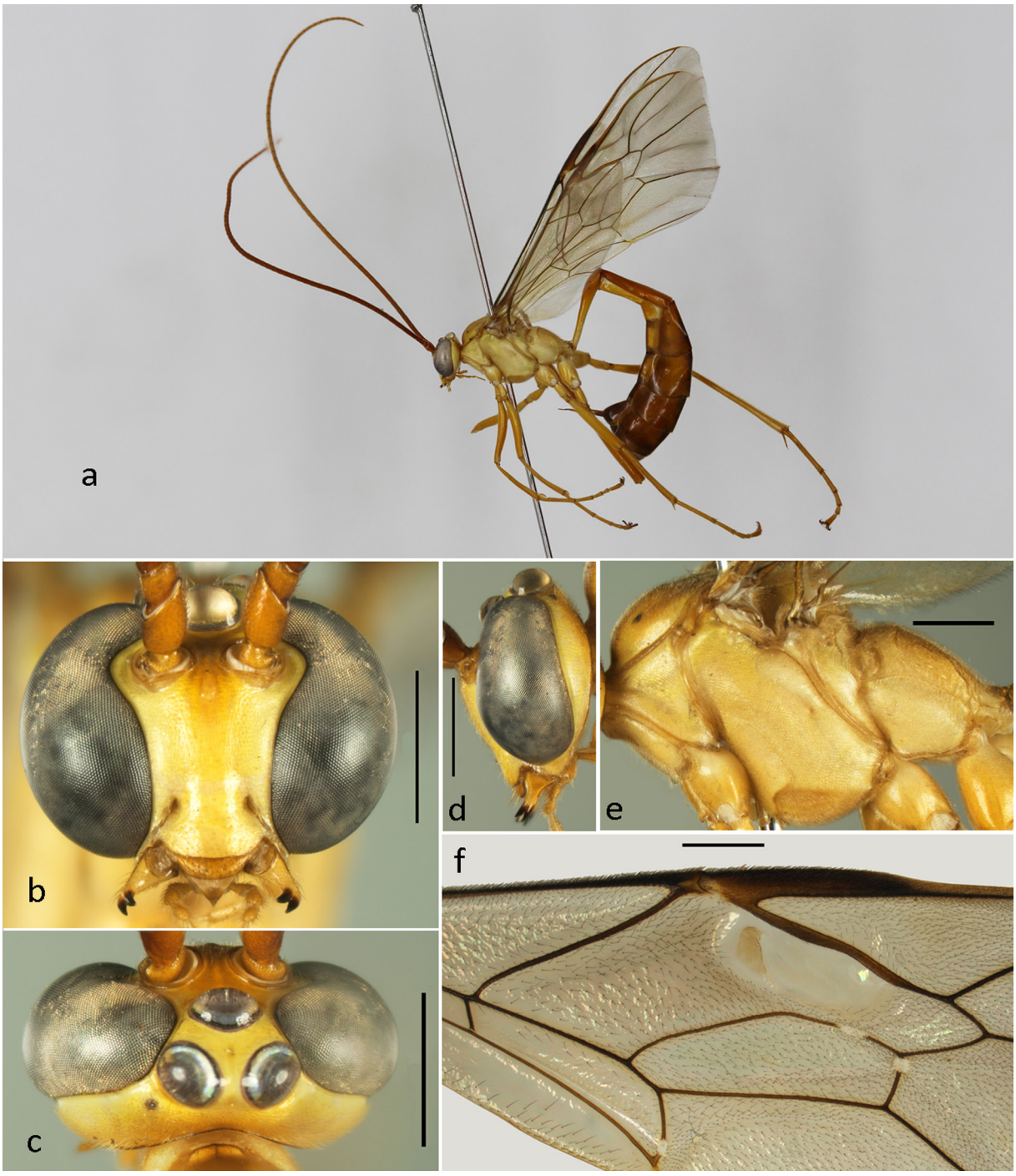

Fig. 63. *Enicospilus pseudoconspersae* (Sonan, 1927), ♀ (IEBR). **a**. Habitus. **b**. Head, frontal view. **c**. Head, dorsal view. **d**. Head, lateral view. **e**. Mesosoma, lateral view. **f**. Central part of fore wing. Scale bars = 1.0 mm.

Enicospilus pudibundae (Uchida, 1928)

Henicospilus pudibundae Uchida, 1928: 219; lectotype ♂ from Japan (SEHU), designated by Townes *et al.* 1965: 330.

Enicospilus pudibundae – Chiu 1954: 30.

Diagnosis

Interocellar area reddish brown; clypeus almost flat, ventral margin subacute; mandible twisted 10°–15°, outer surface without a diagonal setose groove; fore wing fenestra with proximal and distal sclerites, both linear; tarsal claw lacking pecten proximally; mesopleuron and metapleuron punctate.

Material examined

None.

Distribution

Brunei, China, India, Japan, Korea, Laos, Sri Lanka, and Vietnam (Gauld & Mitchell 1981; Yu *et al.* 2016).

Remarks

Gauld & Mitchell (1981) recorded this species from Hoa Binh Province, Northwest Vietnam. We could not find any specimens of this species in our collections.

Enicospilus pungens (Smith, 1874)
Fig. 64

Ophion pungens Smith, 1874: 396; holotype ♂ from Japan (NHMUK)
Enicospilus striatus Cameron, 1899: 103; holotype ♀ from India (OUMNH).
Henicospilus lineolatus Roman, 1913: 30; holotype ♂ from Philippines (NHMW).
Enicospilus uniformis Chiu, 1954: 25; holotype ♀ from Taiwan (TARI).
Enicospilus flatus Chiu, 1954: 28; holotype ♀ from Taiwan (TARI).
Enicospilus unicornis Rao & Nikam, 1969: 343; lectotype ♂ from India (NHMUK).

Diagnosis

Interocellar area reddish brown; clypeus weakly convex, ventral margin subacute to acute; mandible twisted ca 20°, outer surface without a diagonal setose groove; fore wing fenestra with only distal sclerite present, vein 1m-cu&M sinuous.

Material examined

VIETNAM • 1 ♀; Ha Tinh Province, Huong Son, Rao An; 18 May 1998; Khuat D.L. leg.; hand net; IEBR • 1 ♀; Hanoi, Ba Vi NP; 800–900 m a.s.l.; 2 Jun. 2001; Pham T.N. leg.; hand net; IEBR • 2 ♀♀; Phu Tho Province, Xuan Son NP; 17 Oct. 2004; Truong X.L. leg.; hand net; IEBR • 1 ♀; same locality as for preceding; 8 May 2005; Pham T.N. leg.; hand net; IEBR • 1 ♀; same collection data as for preceding; 10 May 2005; hand net; IEBR • 1 ♀; Nghe An Province, Con Cuong, Mon Son; 400 m a.s.l.; 21 Jul. 2006; Le X.H. leg.; hand net; IEBR • 1 ♀; Thai Nguyen Province, Dai Tu, Cat Ne; 5 Nov. 2006; Khuat D.L. leg.; Malaise trap; IEBR • 1 ♀; Hanoi, Tu Liem, Phu Dien; 28 Mar. 2007; Pham T.N. leg.; hand net; IEBR • 1 ♀; Vinh Phuc Province, Me Linh Station for Biodiversity; 30 May 2008; Pham T.N. leg.; Malaise trap; IEBR • 1 ♀, 1 ♂; Kon Tum Province, Kon Plong, Hieu; 14°41.447′ N, 108°22.376′ E; 1170 m a.s.l.; 12 May 2006; Nguyen Q.T. leg.; light trap; IEBR • 1 ♀; Cao Bang Province, Nguyen Binh, Thanh Cong; 720 m a.s.l.; 11 May 2010; Hoang V.T. leg.; light trap; IEBR • 1 ♀; Cao Bang Province, Trung Khanh, Cao Thang; 22 Apr. 2012; Nguyen Q.T. leg.; light trap; IEBR • 1 ♀; Son La Province, Moc Chau; 15 May 2014; Khuat D.L. leg.; hand net; IEBR • 2 ♂♂; Son La Province, Thuan Chau, Long

He; 2 May 2016; Hoang V.T. and Nguyen V.B. leg.; light trap; IEBR • 1 ♀; Tuyen Quang Province, Na Hang, Thanh Tuong; Dec. 2016–Mar. 2017; Khuat D.L. leg.; Malaise trap; IEBR • 1 ♀, 1 ♂; Son La Province, Thuan Chau, Co Ma; 17 May 2017; Pham V.P. leg.; light trap; IEBR • 1 ♀; Gia Lai Province, Kon Chu Rang NP; 21 Sep. 2017; Nguyen T.P.L. and Nguyen Q.C. leg.; light trap; IEBR • 1 ♀; Hoa Binh Province, Luong Son, Thanh Lap; 25 Feb.–5 Mar. 2019; Nguyen D.H. leg.; Malaise trap; IEBR • 1 ♀, 2 ♂♂; Quang Nam Province, Bac Tra My, Tra Doc; 15 Mar. 2020; Pham V.P. leg.; light trap; IEBR • 2 ♀♀; Cao Bang Province, Phia Oac - Phia Den NP; 22°35′18.2″ N, 105°52′33.2″ E; 1200 m a.s.l.; 22 May 2020; Hoang V.T. and Pham V.P. leg.; light trap; IEBR • 1 ♀; same collection data as for preceding; 22°35.305′ N, 105°52.552′ E; 1216 m a.s.l., 24 May 2020; IEBR • 1 ♂; same collection data as for preceding; 22°36.477′ N, 105°52.186′ E; 1605 m a.s.l.; 25 May 2020; IEBR • 1 ♀; same locality

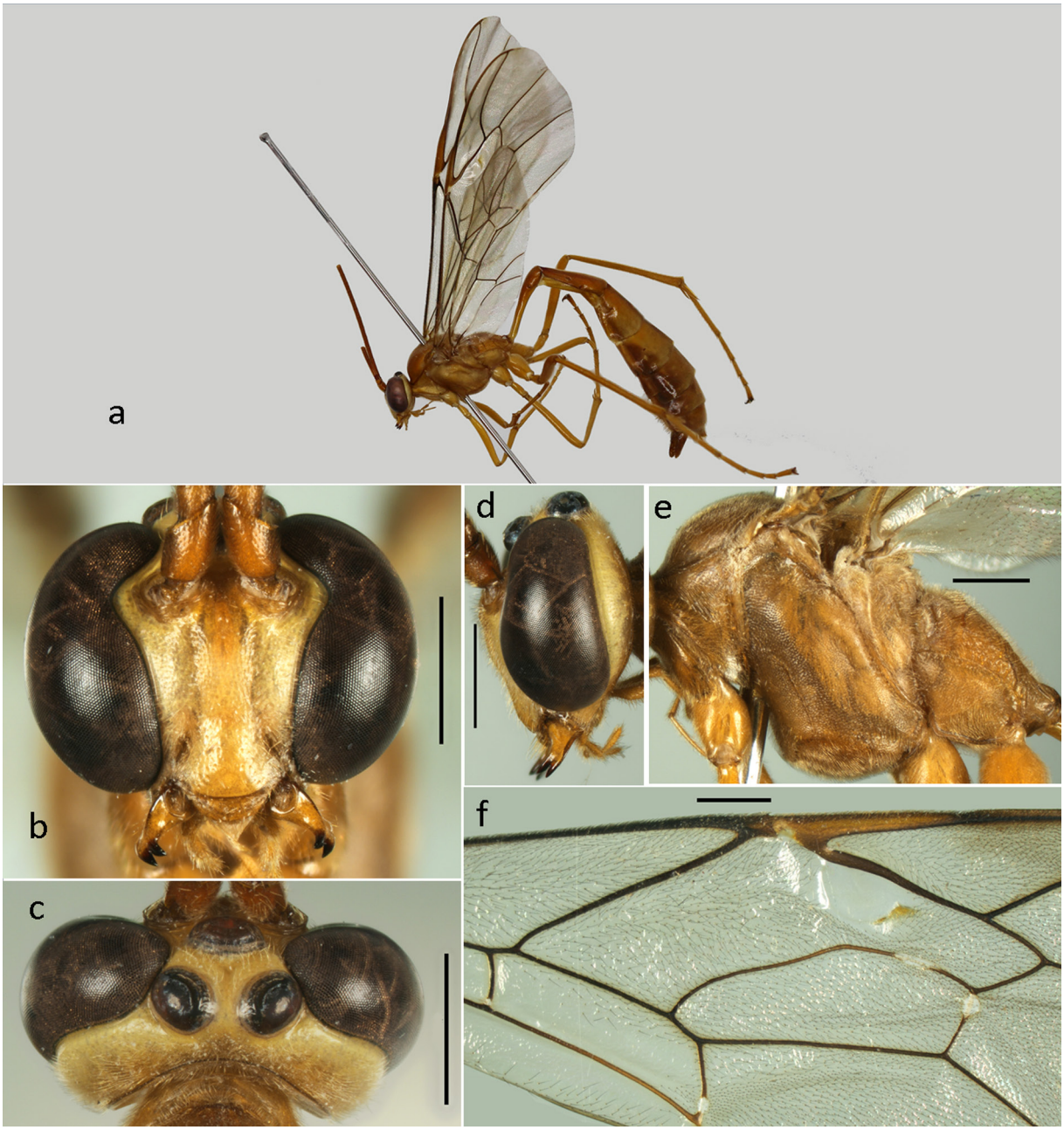

Fig. 64. *Enicospilus pungens* (Smith, 1874), ♀ (IEBR). **a**. Habitus. **b**. Head, frontal view. **c**. Head, dorsal view. **d**. Head, lateral view. **e**. Mesosoma, lateral view. **f**. Central part of fore wing. Scale bars = 1.0 mm.

as for preceding; 8 May 2021; Nguyen D.H. leg.; light trap; IEBR • 1 ♂; Kon Tum Province, Chu Mom Ray NP; 14°26′1″ N, 107°43′14″ E; 707 m a.s.l., 24 Apr. 2022; Pham V.P. leg.; light trap; IEBR • 1 ♀; Gia Lai, Kon Ka Kinh NP; 26 Apr. 2022; Pham V.P. leg.; light trap; IEBR • 1 ♀, 1 ♂; Lam Dong Province, Bidoup - Nui Ba NP; 4 May 2022; Nguyen D.H. leg.; light trap; IEBR • 2 ♂♂; Lang Son Province, Huu Lien NR; 1 Jun. 2022; Pham V.P. leg.; light trap; IEBR • 1 ♀; Ninh Binh Province, Cuc Phuong NP; 8 Jun. 2022; Pham V.P. leg.; light trap; IEBR • 5 ♀♀; Dien Bien Province, Muong Nhe; 22.38560° N, 102.23854° E; 750 m a.s.l.; 25 Jun. 2022; Pham V.P. leg.; light trap; IEBR • 2 ♀♀; Hoa Binh Province, Mai Chau, Bao La; 20.7046° N, 104.9720° E; 830 m a.s.l.; 3 Jul. 2022; Phan Q.T. leg.; light trap; IEBR.

Distribution

Widely distributed in the Australasian, Eastern Palaearctic, Oceanic and Oriental regions (Yu *et al.* 2016; Shimizu *et al.* 2020).

Enicospilus purifenestratus (Enderlein, 1921)
Fig. 65

Amesospilus purifenestratus Enderlein, 1921: 17; holotype ♀ from Sumatra (IZPAN).

Enicospilus purifenestratus – Townes *et al.* 1961: 286.

Diagnosis

Interocellar area reddish brown; clypeus flat to weakly convex, ventral margin blunt; mandible twisted 15°–20°, outer surface without a diagonal setose groove; fore wing fenestra with proximal and distal sclerites, distal sclerite strong, joining proximal sclerite; metapleuron striate.

Material examined

VIETNAM • 1 ♀; Vinh Phuc Province, Tam Dao NP; 27 May 1998; R. Matsumoto leg.; OMNH • 1 ♀; Lam Dong Province, Bao Loc; 600 m a.s.l.; 31 May 2002; Hoang V.T. leg.; light trap; IEBR • 1 ♀; Vinh Phuc Province, Me Linh Station for Biodiversity; May 2004; Hoang V.T. leg.; light trap; IEBR • 1 ♂; Gia Lai Province, Kon Chu Rang NP; 27 May 2019; Nguyen V.T. leg.; light trap; IEBR.

Distribution

Previously known from China, Indonesia, Malaysia, Papua New Guinea, Singapore, and Sri Lanka (Yu *et al.* 2016). These are the first records of this species from Vietnam.

Enicospilus rhetus Gauld & Mitchell, 1981
Fig. 66

Enicospilus rhetus Gauld & Mitchell, 1981: 460; holotype ♀ from Philippines (ZMUC).

Diagnosis

Interocellar area reddish brown; clypeus weakly convex, ventral margin subblunt; mandible twisted 40°–50°, outer surface without a diagonal setose groove; fore wing fenestra with proximal, central and distal sclerites, central sclerite moderately large, circular to oval, basal and discosubmarginal cells with short and sparse setae, marginal cell glabrous proximally, vein 2r&RS with posterior bulb.

Material examined

VIETNAM • 1 ♀; Kien Giang Province, Hon Chong; 19 Jun. 2005; Hoang V.T. leg.; light trap; IEBR • 1 ♀; Thua Thien-Hue Province, Bach Ma NP; 400 m a.s.l.; 13 Aug. 2005; Truong X.L. leg.; hand net; IEBR • 1 ♀; Ninh Thuan Province, Phuoc Binh NP; 26 Jul. 2014; Hoang V.T. leg.; light trap; IEBR.

Distribution

Previously known from India, Philippines, and Thailand (Gauld & Mitchell 1981). These are the first records of this species from Vietnam.

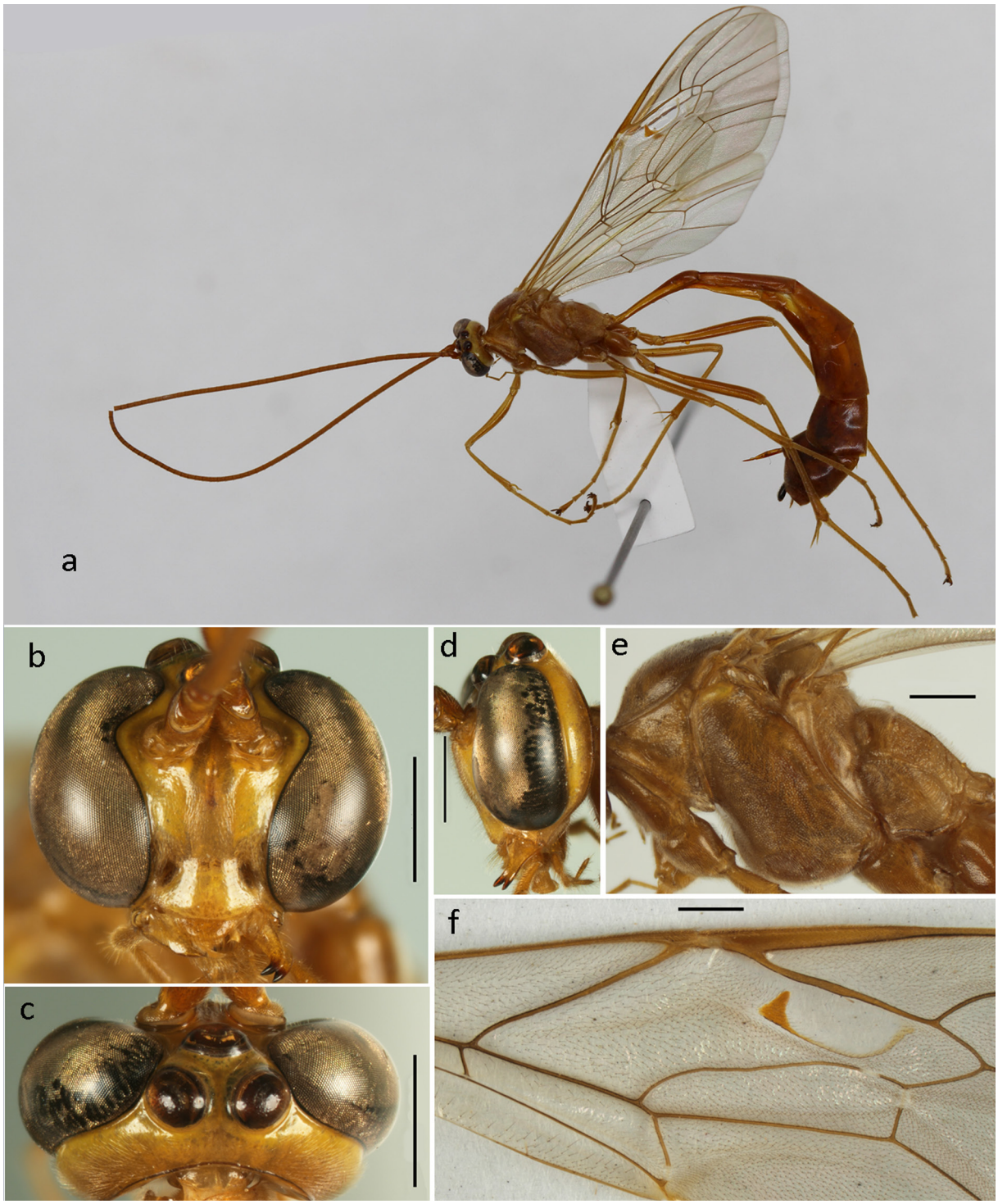

Fig. 65. *Enicospilus purifenestratus* (Enderlein, 1921), ♀ (OMNH). **a**. Habitus. **b**. Head, frontal view. **c**. Head, dorsal view. **d**. Head, lateral view. **e**. Mesosoma, lateral view. **f**. Central part of fore wing. Scale bars = 1.0 mm.

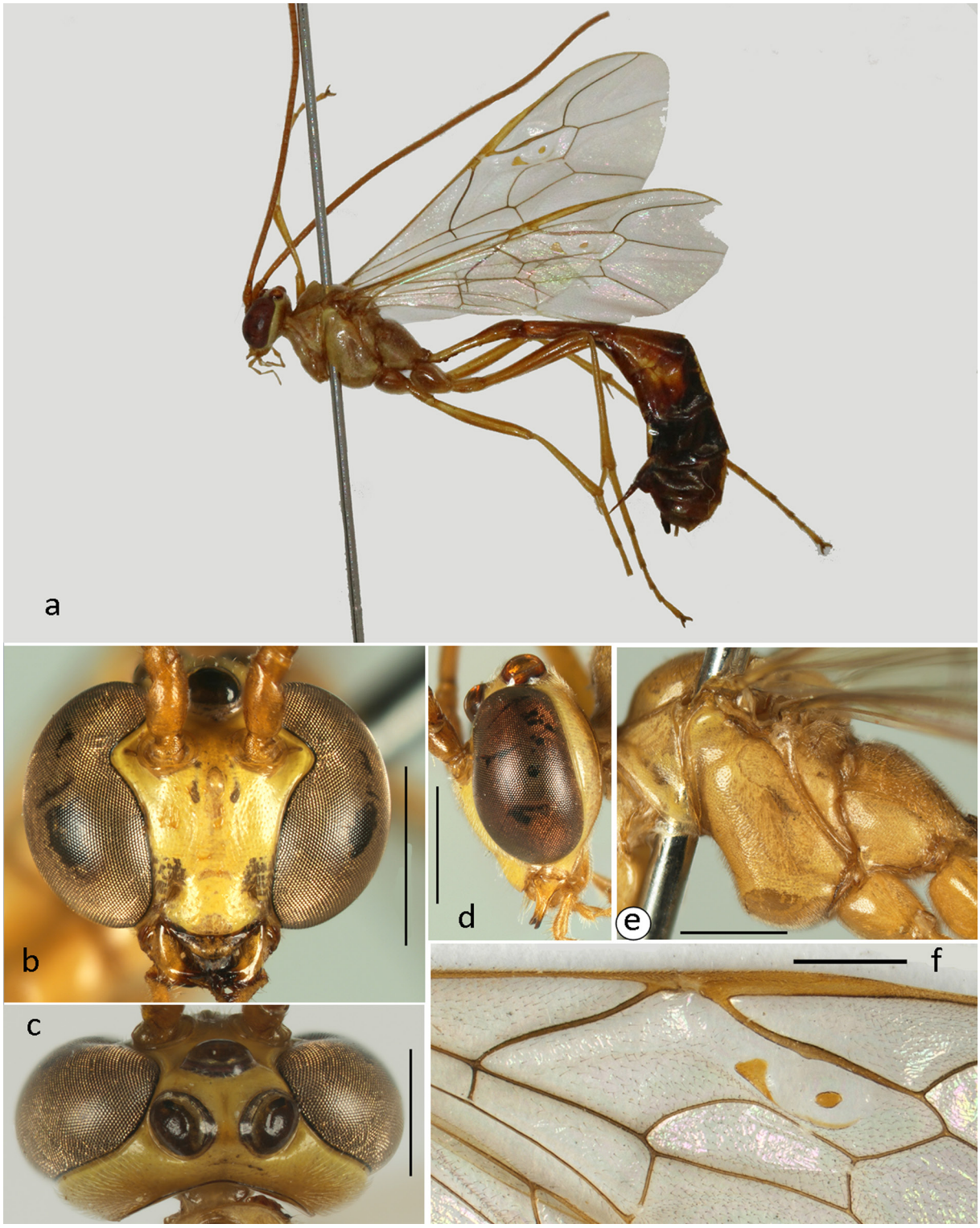

Fig. 66. *Enicospilus rhetus* Gauld & Mitchell, 1981, ♀ (IEBR). **a**. Habitus. **b**. Head, frontal view. **c**. Head, dorsal view. **d**. Head, lateral view. **e**. Mesosoma, lateral view. **f**. Central part of fore wing. Scale bars = 1.0 mm.

Enicospilus riukiuensis (Matsumura & Uchida, 1926)
Fig. 67

Henicospilus riukiuensis Matsumura & Uchida, 1926: 71; holotype ♂ from Ryukyu Is. (SEHU).

Enicospilus riukiuensis – Gauld & Mitchell 1981: 278.

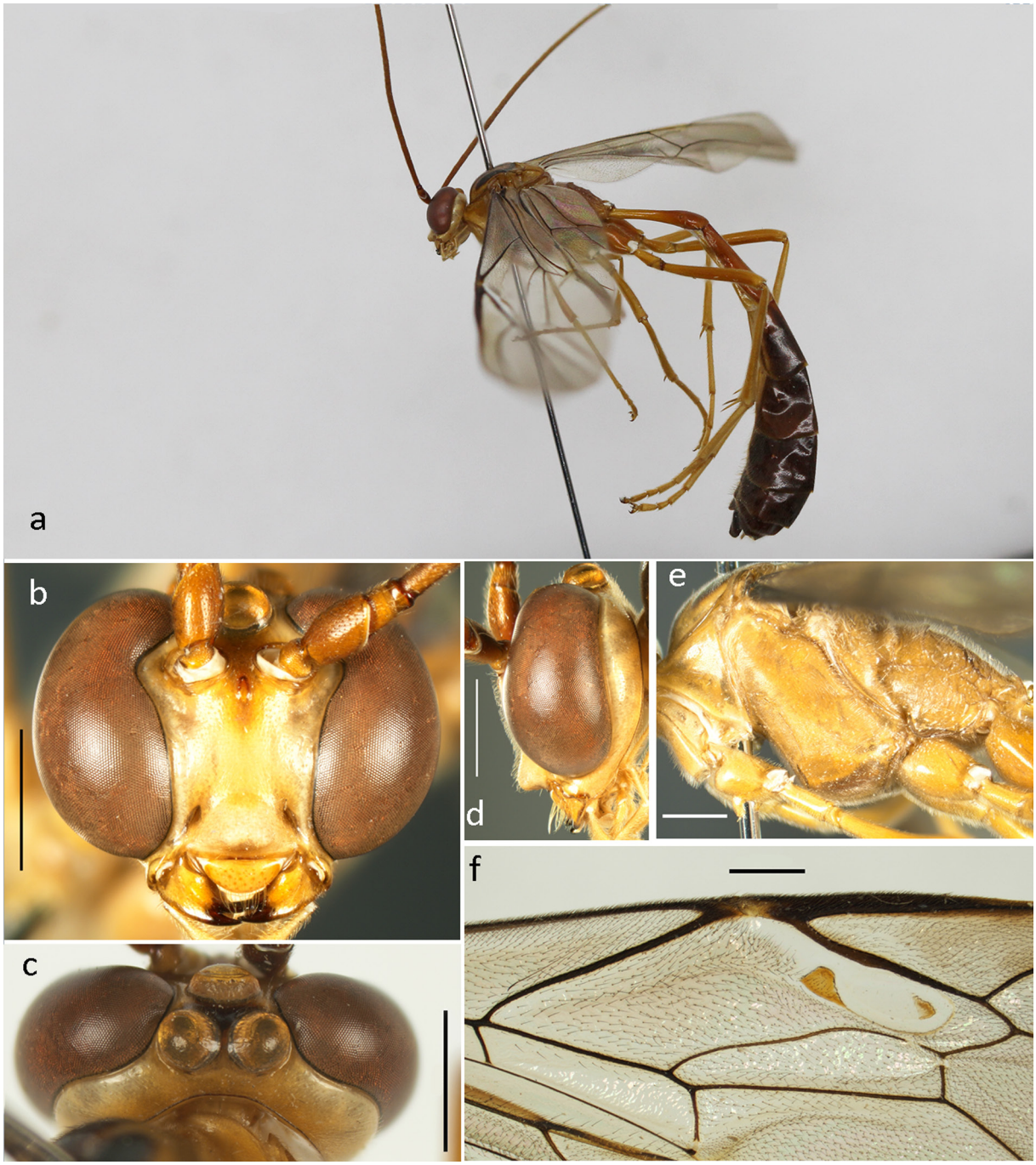

Fig. 67. *Enicospilus riukiuensis* (Matsumura & Uchida, 1926), ♂ (IEBR). **a**. Habitus. **b**. Head, frontal view. **c**. Head, dorsal view. **d**. Head, lateral view. **e**. Mesosoma, lateral view. **f**. Central part of fore wing. Scale bars = 1.0 mm.

Diagnosis

Interocellar area black; clypeus nasute, strongly convex; mandible twisted ca 10°, outer surface without a diagonal setose groove; fore wing fenestra with proximal, central and distal sclerites.

Material examined

VIETNAM • 1 ♂; Ninh Thuan Province, Nui Chua NP; 5 Aug. 2014; Hoang V.T. leg.; light trap; IEBR.

Distribution

Previously known from Brunei, China (including Taiwan), India, Japan, Madagascar, Malaysia, New Caledonia, and Papua New Guinea (Yu *et al.* 2016). This is the first record of this species from Vietnam.

Enicospilus rogus Gauld & Mitchell, 1981
Fig. 68

Enicospilus rogus Gauld & Mitchell, 1981: 351; holotype ♀ from Brunei (NHMUK).

Diagnosis

Interocellar area reddish brown; clypeus moderately convex, ventral margin blunt; mandible twisted ca 80°, outer surface without a diagonal setose groove; fore wing fenestra with proximal and distal sclerites; mesoscutum posteriorly black; T4 in profile 1.4× as long as high, black.

Material examined

VIETNAM • 1 ♂; Kon Tum Province, Chu Mom Ray NP; 31 Mar. 2014; Hoang V.T. leg.; light trap; IEBR • 1 ♀; Lai Chau Province, Sin Ho, Ta Ngao; 22°16′19″ N, 103°14′54″ E; 1520 m a.s.l.; 1 Jun. 2022; Pham T.N. and Dang T.H. leg.; light trap; IEBR.

Remarks

The two specimens from our collection have CI = 0.53, larger than specimens examined by Gauld & Mitchell (1981). The ventral margin of the clypeus is blunt.

Distribution

Brunei, India, and Vietnam (Gauld & Mitchell 1981; Yu *et al.* 2016).

Enicospilus sauteri (Enderlein, 1921)
Fig. 69

Henicospilus sauteri Enderlein, 1921: 84; holotype ♀ from Taiwan (IZPAN).

Enicospilus sauteri – Chiu 1954: 56.

Diagnosis

Interocellar area reddish brown; clypeus moderately convex, ventral margin impressed, acute; mandible twisted ca 20°, outer surface with a diagonal setose groove; fore wing fenestra with proximal, central and distal sclerites, central sclerite linear, positioned in centrodistal area of fenestra, marginal cell glabrous proximally; posterior metasomal tergites black.

Material examined

VIETNAM • 2 ♂♂; Lao Cai Province, Sapa; 25 May 1997; R. Matsumoto leg.; OMNH • 1 ♀; same locality as for preceding; 4 Jul. 2013; Hoang V.T. leg.; light trap; IEBR • 1 ♂; Ninh Binh Province, Cuc

Phuong NP; 360 m a.s.l.; 27 Apr. 1998; Y. Yoshiyasu leg.; OMNH • 1 ♀; Son La Province, Thuan Chau, Co Ma; 1200 m a.s.l.; 4 Jun. 2008; Le X.H. leg.; hand net; IEBR • 1 ♂; Gia Lai Province, Kon Ka Kinh NP; 8 Jun. 2011; Nguyen Q.T. leg.; light trap; IEBR • 1 ♀; Ninh Binh Province, Trang An Landscape Complex, Nham cave; 20°12′54″ N, 105°53′58″ E; 20 m a.s.l.; 15 Jun. 2018, Pham T.N. and Nguyen H.N. leg.; light trap; IEBR • 1 ♀; Phia Oac - Phia Den NP; 22°35.305′ N, 105°52.552′ E; 1216 m a.s.l.; 24 May 2020; Hoang V.T. and Pham V.P. leg.; light trap; IEBR • 1 ♀; Lao Cai Province, Bat Xat NR; 22°37′37″ N, 103°37′32″ E; 1840 m a.s.l.; 28 May 2022; Pham T.N. and Dang T.H. leg.; light trap; IEBR.

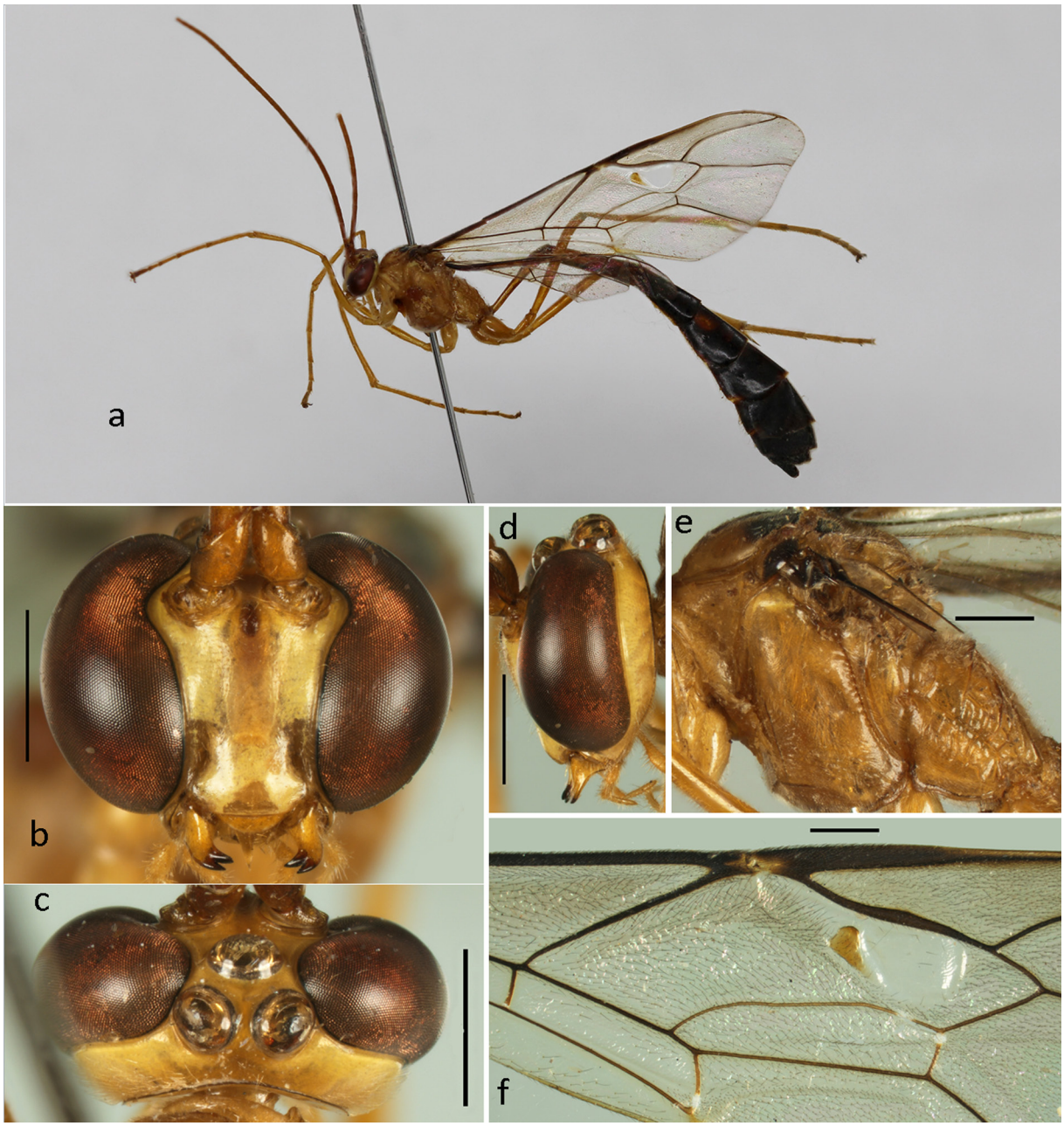

Fig. 68. *Enicospilus rogus* Gauld & Mitchell, 1981, ♂ (IEBR). **a**. Habitus. **b**. Head, frontal view. **c**. Head, dorsal view. **d**. Head, lateral view. **e**. Mesosoma, lateral view. **f**. Central part of fore wing. Scale bars = 1.0 mm.

Remarks

In comparison with specimens examined by Gauld & Mitchell (1981), Vietnamese specimens have antennae with 55–67 flagellomeres (vs 60), fore wing length 12.0–15.1 mm (vs 14.0–15.0 mm) and SDI = 1.19–1.37 (vs 1.41–1.52).

Fig. 69. *Enicospilus sauteri* (Enderlein, 1921), ♂ (OMNH). **a**. Habitus. **b**. Head, frontal view. **c**. Head, dorsal view. **d**. Head, lateral view. **e**. Mesosoma, lateral view. **f**. Central part of fore wing. Scale bars = 1.0 mm.

Distribution

Previously known from China (including Taiwan), Japan, Korea, Laos, and Philippines (Yu *et al.* 2016; Shimuzu & Konishi 2018). These are the first records of this species from Vietnam.

Enicospilus selmatos Chiu, 1954
Fig. 70

Enicospilus selmatos Chiu, 1954: 50; holotype ♀ from Taiwan (TARI).
Henicospilus nigripectus Enderlein, 1921: 26; holotype ♂ from Java (IZPAN); junior secondary homonym of *Enicospilus nigropectus* Cameron, 1905; synonymised by Gauld & Mitchell (1981): 422.

Diagnosis

Interocellar area reddish brown; clypeus weakly convex, ventral margin blunt; mandible twisted 15°–20°, outer surface without a diagonal setose groove; fore wing fenestra with proximal, central and distal sclerites; median lobe of mesoscutum black, mesosternum blackish.

Material examined

VIETNAM • 1 ♀; Nghe An Province, Tuong Duong, Tam Quang; 450 m a.s.l.; 15 Jul. 2006; Le X.H. leg.; hand net; IEBR • 1 ♀; Cao Bang Province, Phia Oac - Phia Den NP; 22°35′18.2″ N, 105°52′33.2″ E; 1200 m a.s.l.; 22 May 2020; Hoang V.T. and Pham V.P. leg.; light trap; IEBR • 1 ♀; Son La Province, Moc Chau; 20 Jun. 2015; Hoang V.T. leg.; light trap; IEBR.

Remarks

Vietnamese specimens have fore wing length 16.3–17 mm, smaller than specimens examined by Gauld & Mitchell (1981), with ICI varying from 0.68–1.0; AI = 0.58–0.78; CI = 0.45–0.61.

Distribution

Previously recorded from Brunei, China (including Taiwan), India, Indonesia, Malaysia, and Sri Lanka (Chiu 1954; Gauld & Mitchell 1981; Tang 1990; Yu *et al.* 2016). These are the first records of this species from Vietnam.

Enicospilus shinkanus (Uchida, 1928)
Fig. 71

Henicospilus shinkanus Uchida, 1928: 217; holotype ♀ from Taiwan (SEHU).

Enicospilus shinkanus – Cushman, 1937: 304.

Diagnosis

Interocellar area reddish brown; clypeus flat to weakly convex, ventral margin acute; mandible twisted 20°–30°, outer surface without a diagonal setose groove; fore wing fenestra with proximal and distal sclerites; metapleuron puncto-striate; propodeal spiracle not joining lateral carina by a raised flange.

Material examined

VIETNAM • 1 ♀; Hoa Binh Province, Yen Thuy, Lac Thinh; 10–20 Oct. 2002; Khuat D.L. leg.; Malaise trap; IEBR • 1 ♀; same collection data as for preceding; 20–30 Oct. 2002; IEBR • 2 ♂♂; Bac Kan Province, Ba Be NP; 22°23′ N, 105°37′ E; 200 m a.s.l.; 3 May 2006; R. Matsumoto leg.; OMNH • 2 ♀♀,

1 ♂; Thai Nguyen Province, Dai Tu, Cat Ne; 25–30 Oct. 2007; Khuat D.L. leg.; Malaise trap; IEBR • 1 ♀; same collection data as for preceding; 15–20 Nov. 2007; IEBR.

Remarks

Vietnamese specimens have fore wing length 10.4–12.5 mm and AI = 0.41–0.84, smaller than those of specimens examined by Gauld & Mitchell (1981), whereas their faces are wider (0.73–0.78× as broad as long vs 0.65–0.70×).

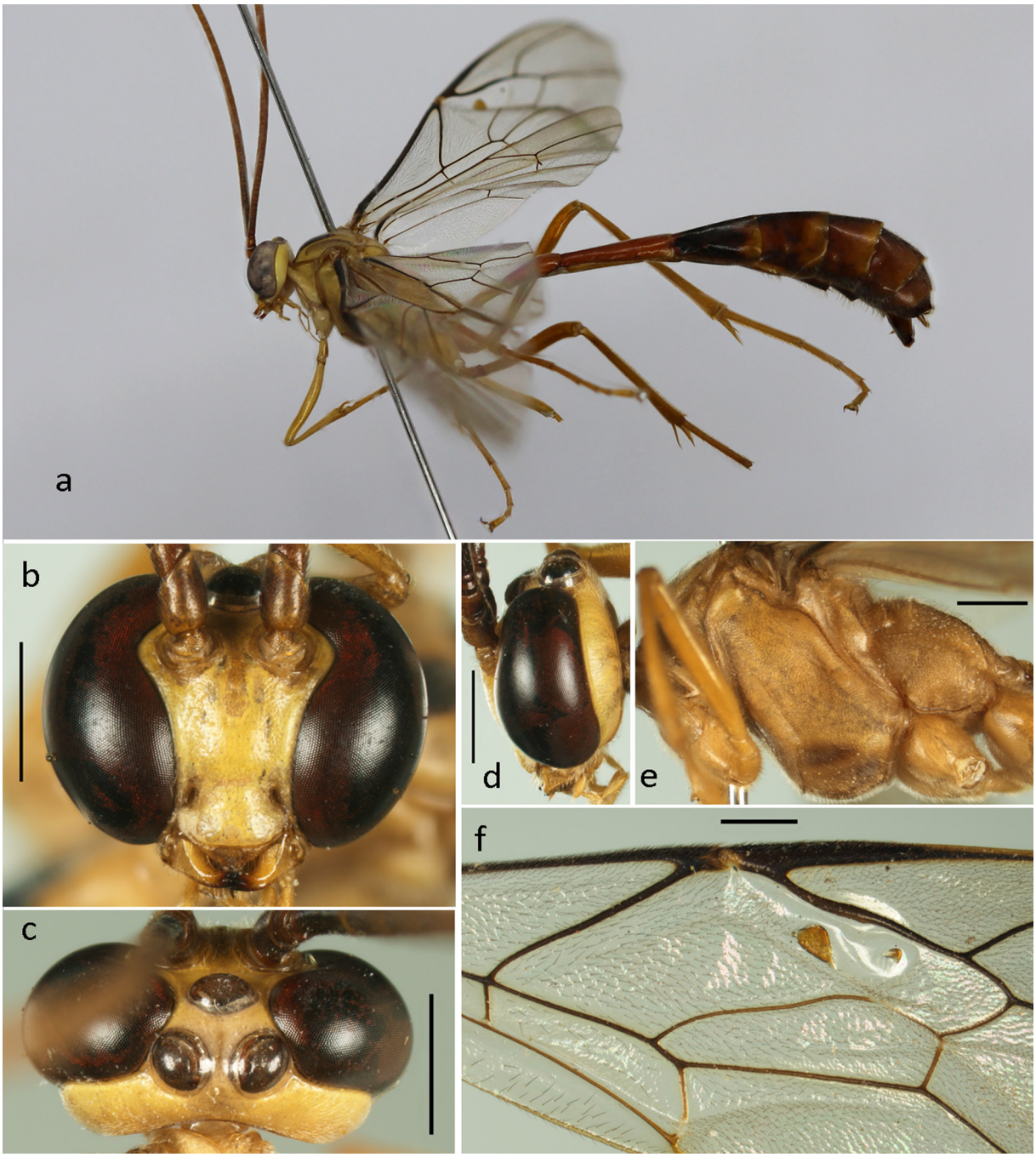

Fig. 70. *Enicospilus selmatos* Chiu, 1954, ♂ (IEBR). **a**. Habitus. **b**. Head, frontal view. **c**. Head, dorsal view. **d**. Head, lateral view. **e**. Mesosoma, lateral view. **f**. Central part of fore wing. Scale bars = 1.0 mm.

Distribution

Previously known from Chagos Archipelago, China, India, Japan, Korea, Malaysia, New Caledonia, Papua New Guinea, Philippines, Solomon Islands, Vanuatu, Western Somoa, and Vietnam (Gauld & Mitchell 1981; Yu *et al.* 2016).

Fig. 71. *Enicospilus shinkanus* (Uchida, 1928), ♂ (IEBR). **a**. Habitus. **b**. Head, frontal view. **c**. Head, dorsal view. **d**. Head, lateral view. **e**. Mesosoma, lateral view. **f**. Central part of fore wing. Scale bars = 1.0 mm.

Enicospilus signativentris (Tosquinet, 1903)
Fig. 72

Ophion (*Enicospilus*) *signativentris* Tosquinet, 1903: 37; lectotype ♀ from Java (RBINS), designated by Townes *et al.* (1961): 289.

Enicospilus signativentris – Townes *et al.* 1961: 289.

Diagnosis

Interocellar area reddish brown; clypeus weakly to moderately convex, ventral margin acute; mandible twisted 10°–15°, outer surface without a diagonal setose groove; fore wing fenestra with proximal, central and distal sclerites; propodeum with posterior transverse carina present laterally.

Material examined

VIETNAM • 4 ♀♀; Lao Cai Province, Sapa; 1.600 m a.s.l.; 27 May 1997; R. Matsumoto leg.; OMNH • 1 ♀; Ha Giang Province, Vi Xuyen, Cao Bo; 800 m a.s.l.; 22 Oct.–5 Nov. 2001; Khuat D.L. leg.; Malaise trap; IEBR • 1 ♀; Vinh Phuc Province, Tam Dao NP; 18 Mar. 2003; Truong X.L. leg.; hand net; IEBR • 2 ♀♀; Phu Tho Province, Xuan Son NP; 17 Oct. 2004; Truong X.L. leg.; hand net; IEBR • 1 ♀; same locality as for preceding; 7 May 2005; Pham T.N. leg.; hand net; IEBR • 1 ♀; same locality as for preceding; 10–20 May 2009; Khuat D.L. leg.; Malaise trap; IEBR • 1 ♀; Nghe An Province, Con Cuong, Mon Son; 23 Jul. 2004; Nguyen T.P.L. leg.; hand net; IEBR • 1 ♂; Gia Lai Province, Kon Ka Kinh NP; 8 Jun. 2011; Nguyen Q.T. leg.; light trap; IEBR • 1 ♀; Bac Kan Province, Ba Be NP; 12 May 2014; Hoang V.T. leg.; light trap; IEBR • 1 ♀; Tuyen Quang Province, Na Hang, Son Phu; 22°07′32″ N, 105°28′19″ E; 573 m a.s.l.; 25 Feb.–5 Mar. 2017; Khuat D.L. leg.; Malaise trap; IEBR • 1 ♀; same collection data as for preceding; 5–15 Mar. 2017; IEBR • 1 ♀; same collection data as for preceding; 1–10 Nov. 2017; IEBR • 1 ♂; Hoa Binh Province, Cao Phong; 27 Feb. 2019; Pham H.P. leg.; hand net; IEBR • 1 ♀; Hoa Binh Province, Luong Son, Thanh Lap; 5–15 Mar. 2019; Nguyen D.H. leg.; Malaise trap; IEBR • 1 ♀; Kon Tum Province, Mang Den, Da Sy; 6 Jun. 2019; Nguyen V.T. leg.; light trap; IEBR • 2 ♀♀, 4 ♂♂; Cao Bang Province, Phia Oac - Phia Den NP; 22°35′18.2″ N, 105°52′33.2″ E; 1200 m a.s.l.; 22 May 2020; Hoang V.T. and Pham V.P. leg.; light trap; IEBR • 1 ♀; same collection data as for preceding; 22°36.477′ N, 105°52.186′ E; 1605 m a.s.l.; 25 May 2020; light trap; IEBR • 1 ♀, 2 ♂♂; Cao Bang Province, Ha Quang, Thanh Long; 22.76852° N, 105.9687° E; 590 m a.s.l.; 24 May 2022; Pham T.N., Hoang V.T. and Pham V.P. leg.; light trap; IEBR • 1 ♀; Ha Giang Province, Vi Xuyen, Phong Quang; 22.89996° N, 104.91559° E; 609 m a.s.l.; 26 May 2022; Pham T.N. and Pham V.P. leg.; light trap; IEBR • 1 ♀; Lao Cai Province, Bat Xat NR; 22°37′60″ N, 103°37′30″ E; 1920 m a.s.l.; 30 May 2022; Pham T.N. and Dang T.H. leg.; light trap; IEBR • 5 ♀♀; Lai Chau Province, Sin Ho, Ta Ngao; 22°16′19″ N, 103°14′54″ E; 1520 m a.s.l.; 1 Jun. 2022; Pham T.N. and Dang T.H. leg.; light trap; IEBR • 1 ♀; Dien Bien Province, Muong Nhe; 22.38560° N, 102.23854° E; 750 m a.s.l.; 25 Jun. 2022; Pham V.P. leg. ; light trap; IEBR.

Distribution

Bhutan, China (including Taiwan), India, Indonesia, Japan, Malaysia, Philippines, Sri Lanka, and Vietnam (Yu *et al.* 2016).

Enicospilus stenophleps Cushman, 1937
Fig. 73

Enicospilus stenophleps Cushman, 1937: 309; holotype ♀ from Taiwan (DEI).

Diagnosis

Interocellar area reddish brown; clypeus weakly convex, ventral margin acute; mandible twisted ca 40°, outer surface without a diagonal setose groove; fore wing fenestra long, anterodistal corner sub-interstitial

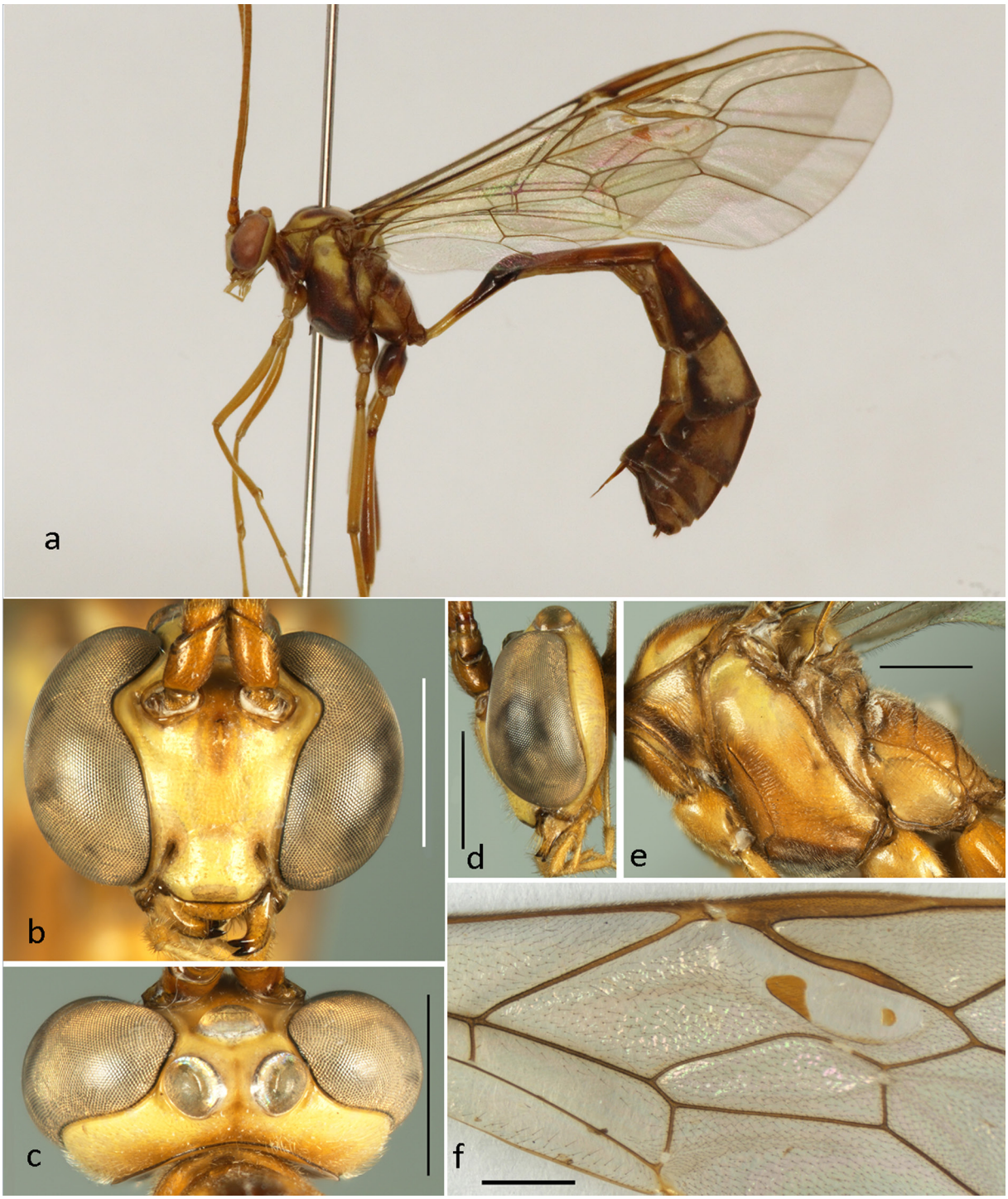

Fig. 72. *Enicospilus signativentris* (Tosquinet, 1903), ♀ (IEBR). **a**. Habitus. **b**. Head, frontal view. **c**. Head, dorsal view. **d**. Head, lateral view. **e**. Mesosoma, lateral view. **f**. Central part of fore wing. Scale bars = 1.0 mm.

to vein RS, with proximal, central and distal sclerites present, central sclerite small, circular, usually weakly pigmented; metasoma from T5 onwards black.

Material examined

VIETNAM • 1 ♀; Thua Thien-Hue Province, Bach Ma NP; 12 Jul. 2011; Hoang V.T. leg.; light trap; IEBR.

Distribution

China, India, Japan, Sri Lanka, and Vietnam (Gauld & Mitchell 1981; Tang 1990; Shimizu *et al.* 2020).

Fig. 73. *Enicospilus stenophleps* Cushman, 1937, ♀ (IEBR). **a**. Habitus. **b**. Head, frontal view. **c**. Head, dorsal view. **d**. Head, lateral view. **e**. Mesosoma, lateral view. **f**. Central part of fore wing. Scale bars = 1.0 mm.

Enicospilus strigilatus Tang, 1990
Fig. 74

Enicospilus strigilatus Tang, 1990: 101; holotype ♀ from China (FAFU).

Diagnosis

Interocellar area reddish brown; clypeus weakly convex, ventral margin acute; mandible twisted ca 40°, outer surface with a conspicuous brush of long stout setae on diagonal groove; fore wing fenestra with

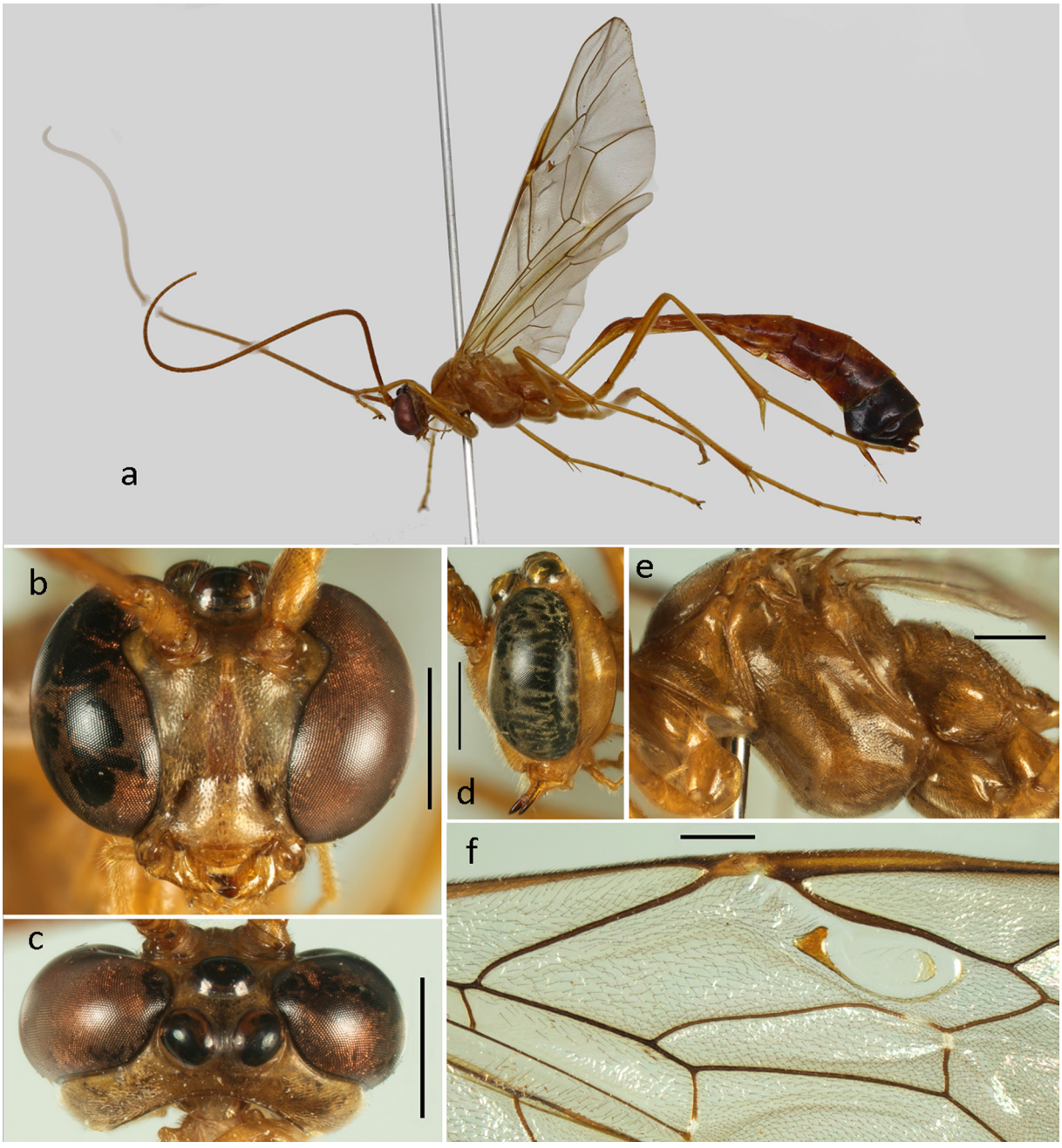

Fig. 74. *Enicospilus strigilatus* Tang, 1990, ♀ (IEBR). **a**. Habitus. **b**. Head, frontal view. **c**. Head, dorsal view. **d**. Head, lateral view. **e**. Mesosoma, lateral view. **f**. Central part of fore wing. Scale bars = 1.0 mm.

proximal, central and distal sclerites, central sclerite stout, crescentic, weakly pigmented; metapleuron shiny and finely punctate.

Material examined

VIETNAM • 1 ♀; Thai Nguyen Province, Dinh Hoa, Phu Dinh; 2 Apr. 2004; Hoang V.T. leg.; light trap; IEBR • 1 ♀; Ha Tinh Province, Huong Son, Son Hong; 24 Apr. 2004; Truong X.L. leg.; hand net; IEBR.

Remarks

Vietnamese specimens have the fore wing length 17.0–18.2 mm, antennae with 67–71 flagellomeres, longer than those of Chinese specimens (14.5–15.5 mm and 64 flagellomeres), whereas fore wing indices ICI and AI are slightly smaller (0.45–0.50 vs 0.55–0.60 and 0.40–0.44 vs 0.45–0.50, respectively). Otherwise agreeing with the description of Tang (1990).

Distribution

Previously known from China (Tang 1990). These are the first records of this species from Vietnam.

Enicospilus teleus Gauld & Mitchell, 1981
Fig. 75

Enicospilus teleus Gauld & Mitchell, 1981: 355. Holotype ♂ from Malaysia (NHMUK).

Diagnosis

Interocellar area reddish brown; clypeus weakly convex, ventral margin blunt; mandible twisted ca 20°, outer surface without a diagonal setose groove; fore wing length from 21.2–22.3 mm, fenestra with proximal and distal sclerites; mesoscutum with three black stripes.

Material examined

VIETNAM • 1 ♀; Kon Tum Province, Kon Plong, Hieu; 14°41.447′ N, 108°22.376′ E; 1170 m a.s.l.; 16 May 2006; Nguyen Q.T. leg.; light trap; IEBR • 1 ♀; Lam Dong Province, Bidoup - Nui Ba NP; 4 Jun. 2013; Hoang V.T. leg.; light trap; IEBR • 1 ♀, 1 ♂; same locality as for preceding; 27 Apr. 2022; Nguyen D.H. leg.; light trap; IEBR • 2 ♀♀; 4 May 2022; Nguyen D.H. leg.; light trap; IEBR • 2 ♀♀; Kon Tum Province, Mang Den, Mang Canh; 5 Jun. 2019; Nguyen V.T. leg.; light trap; IEBR • 1 ♀; Quang Nam Province, Tay Giang, Tr'Hy; 10 Jul. 2019; Phan Q.T. leg.; light trap; IEBR.

Distribution

Previously known Brunei, Laos, and Malaysia (Gauld & Mitchell 1981; Shimizu & Konishi 2018). These are the first records of this species from Vietnam.

Enicospilus transversus Chiu, 1954
Fig. 76

Enicospilus transversus Chiu, 1954: 14; holotype ♀ from Taiwan (TARI).

Diagnosis

Interocellar area reddish brown; clypeus more or less flat, ventral margin blunt; mandible twisted ca 30°, outer surface without a diagonal setose groove; fore wing fenestra with proximal and distal sclerites present, both moderately weak and elongate, vein 2r&RS weakly sinuous, CI more than 0.5, marginal cell proximally sparsely but uniformly setose.

Material examined

VIETNAM • 1 ♂; Ha Tinh Province, Huong Son, Son Tay; 20 May 2004; Truong X.L. leg.; hand net;

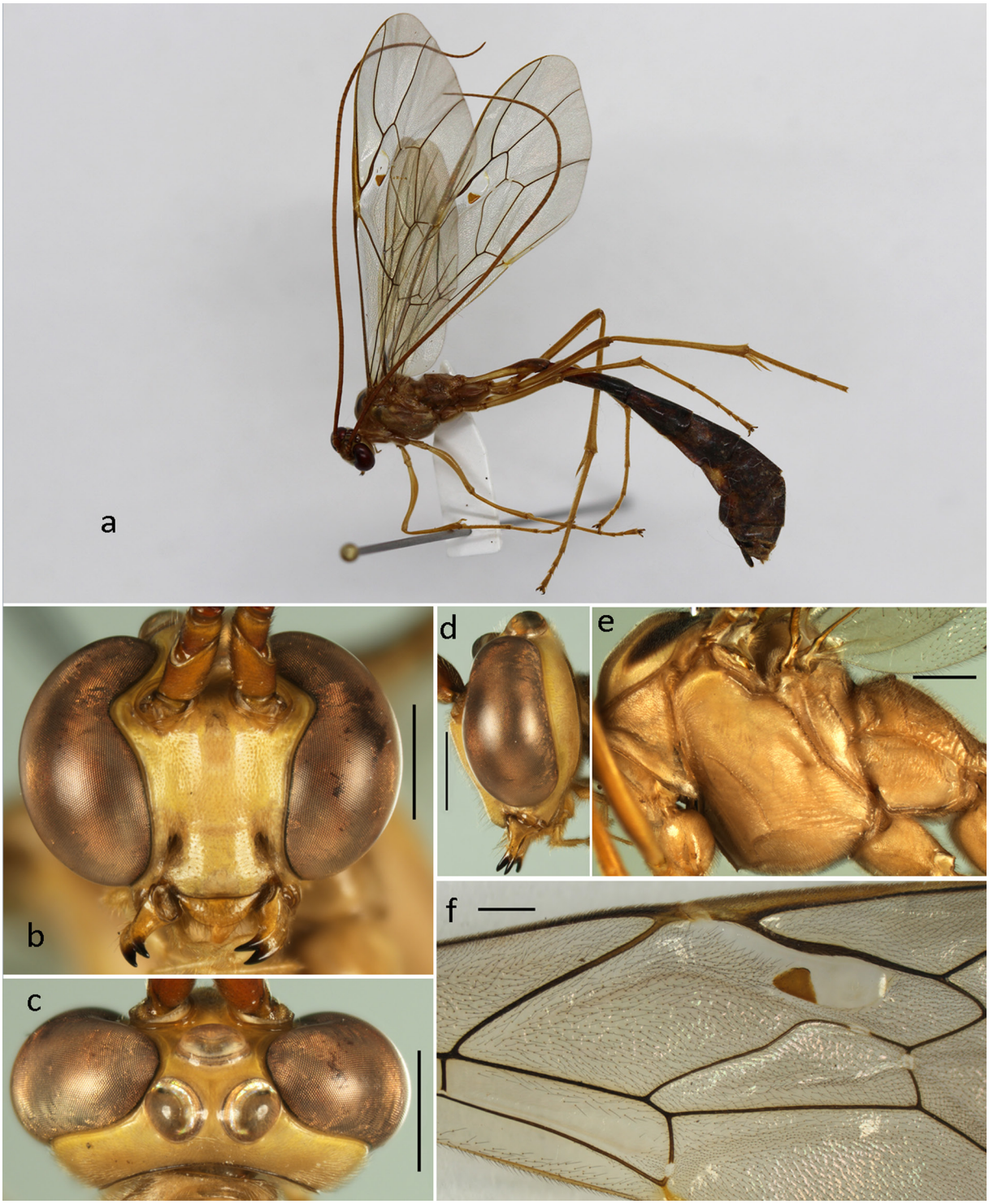

Fig. 75. *Enicospilus teleus* Gauld & Mitchell, 1981, ♀ (IEBR). **a**. Habitus. **b**. Head, frontal view. **c**. Head, dorsal view. **d**. Head, lateral view. **e**. Mesosoma, lateral view. **f**. Central part of fore wing. Scale bars = 1.0 mm.

IEBR • 1 ♀; Son La Province, Moc Chau; 20 Jun. 2015; Hoang V.T. leg.; light trap; IEBR • 1 ♂; Gia Lai Province, Kon Chu Rang NP; 1091 m a.s.l.; 27 Apr. 2016; Nguyen T.P.L. leg.; light trap; IEBR • 1 ♂; Son La Province, Thuan Chau, Co Ma; 5 Sep. 2016; Pham V.P. leg.; light trap; IEBR.

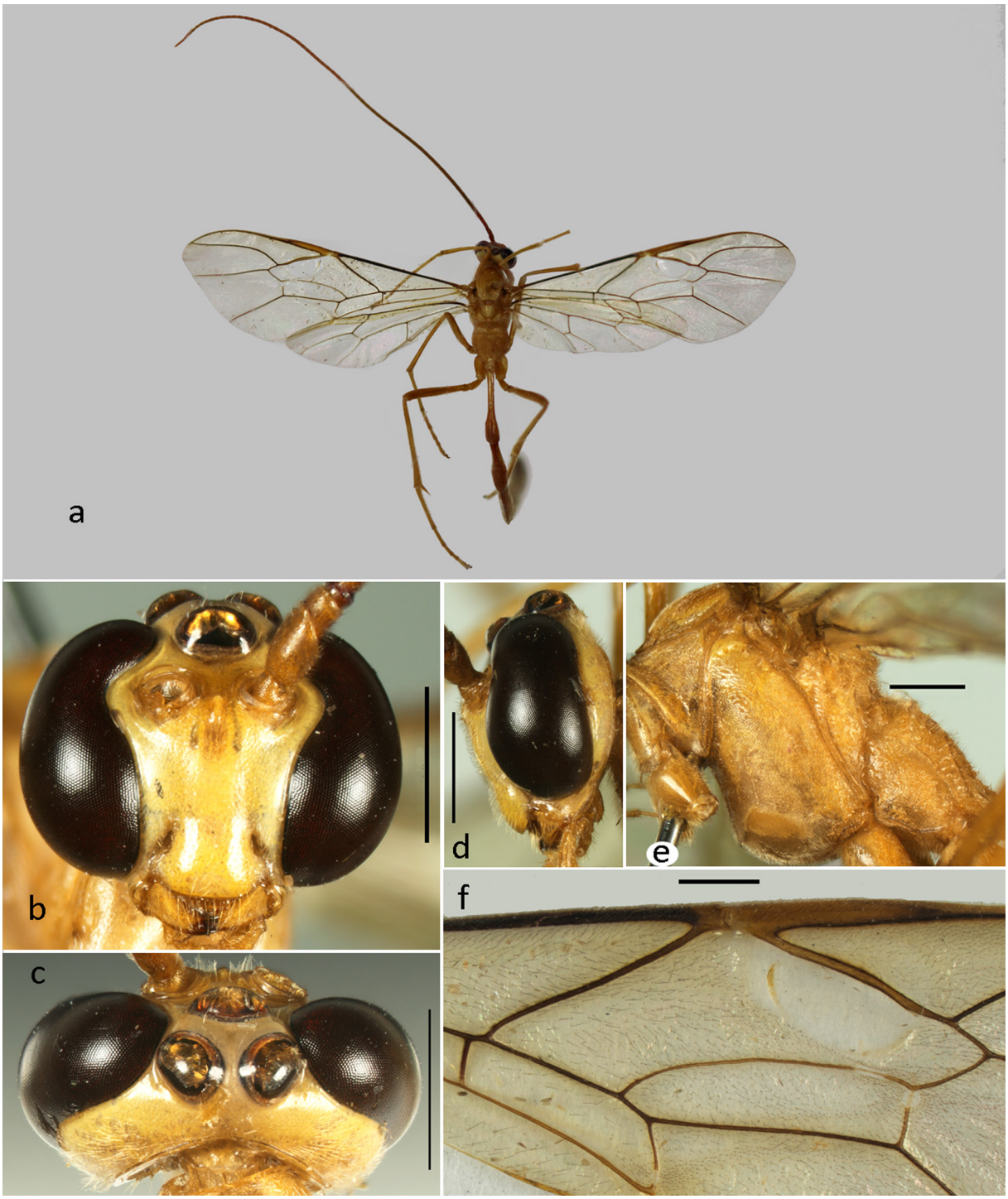

Fig. 76. *Enicospilus transversus* Chiu, 1954, ♀ (IEBR). **a**. Habitus. **b**. Head, frontal view. **c**. Head, dorsal view. **d**. Head, lateral view. **e**. Mesosoma, lateral view. **f**. Central part of fore wing. Scale bars = 1.0 mm.

Distribution

Previously known from China (including Taiwan), India, Indonesia, Laos, and Sri Lanka (Yu *et al.* 2016; Shimizu & Konishi 2018). These are the first records of this species from Vietnam.

Enicospilus tripartitus Chiu, 1954
Fig. 77

Enicospilus tripartitus Chiu, 1954: 36; holotype ♀ from Taiwan (TARI).

Diagnosis

Interocellar area reddish brown; clypeus moderately convex, ventral margin subacute; mandible twisted ca 20°, outer surface with a brush of closely spaced fine setae; fore wing fenestra with proximal, central and distal sclerites, central sclerite fairly large, more or less oval.

Material examined

VIETNAM • 2 ♀♀; Hanoi, Ba Vi NP; 400–600 m a.s.l.; 2 Jun. 2001; Pham T.N. leg.; hand net; IEBR • 1 ♀; Lao Cai Province, Sapa; 1500 m a.s.l.; 18 May 2003; Ta H.T. and Hoang V.T. leg.; light trap; IEBR • 1 ♀; Son La Province, Thuan Chau, Co Ma; 1200 m a.s.l.; 4 Jun. 2008; Le X.H. leg.; hand net; IEBR • 1 ♀; Kon Tum Province, Kon Plong, Hieu; 14°41.447′ N, 108°22.376′ E; 1170 m a.s.l., 12 May 2006; Nguyen Q.T. leg.; light trap; IEBR • 1 ♀; Lam Dong Province, Lac Duong, Giang Ly; 3 Jun. 2013; Hoang V.T. leg.; light trap; IEBR • 1 ♂; Cao Bang Province, Phia Oac - Phia Den NP; 12 Jul. 2018; Nguyen V.T. leg.; light trap; IEBR • 1 ♂; same locality as for preceding; 22°36.477′ N, 105°52.186′ E; 1605 m a.s.l.; 25 May 2020; Hoang V.T. and Pham V.P. leg.; light trap; IEBR • 1 ♂; same locality as for preceding; 8 Jun. 2020; Nguyen Q.C. leg.; light trap; IEBR • 3 ♀♀; Lao Cai Province, Bat Xat NR; 22°37′37″ N, 103°37′32″ E; 1840 m a.s.l.; 28 May 2022; Pham T.N. and Dang T.H. leg.; light trap; IEBR.

Remarks

Vietnamese specimens have fore wing lengths 11.0–12.1 mm, shorter than the specimens examined by Gauld & Mitchell (1981) (13.0–14.0 mm).

Distribution

Previously known from China (including Taiwan), India, Japan, Korea, and Nepal (Yu *et al.* 2016). These are the first records of this species from Vietnam.

Enicospilus trui sp. nov.
urn:lsid:zoobank.org:act:3A00D90F-B5FE-4F5E-A79C-C22F107FFB3A
Fig. 78

Diagnosis

Interocellar area black; clypeus convex, ventral margin impressed, acute; mandible twisted ca 20°, outer surface without a diagonal setose groove; fore wing fenestra with proximal and distal sclerites, both strongly pigmented, proximal sclerite more or less crescentic and distal sclerite linear; hind tarsal claws with distal pecten projecting beyond apical tooth.

Differential diagnosis

The new species can be distinguished from *E. bakerielli* Gauld & Mitchell, 1981 by its outer surface of mandible without a diagonal setose groove or tuft of long setae; and by its fore wing fenestra without any darkened patches between proximal and distal sclerites. The new species can be recognized from *E. circuliscleritalis* sp. nov. by its smaller proximal sclerite and greater DMI (1.3–1.4 vs 1.2).

Etymology

Named after Mr Hoang Vu Tru, an entomologist from IEBR who collected the type specimens of the new species.

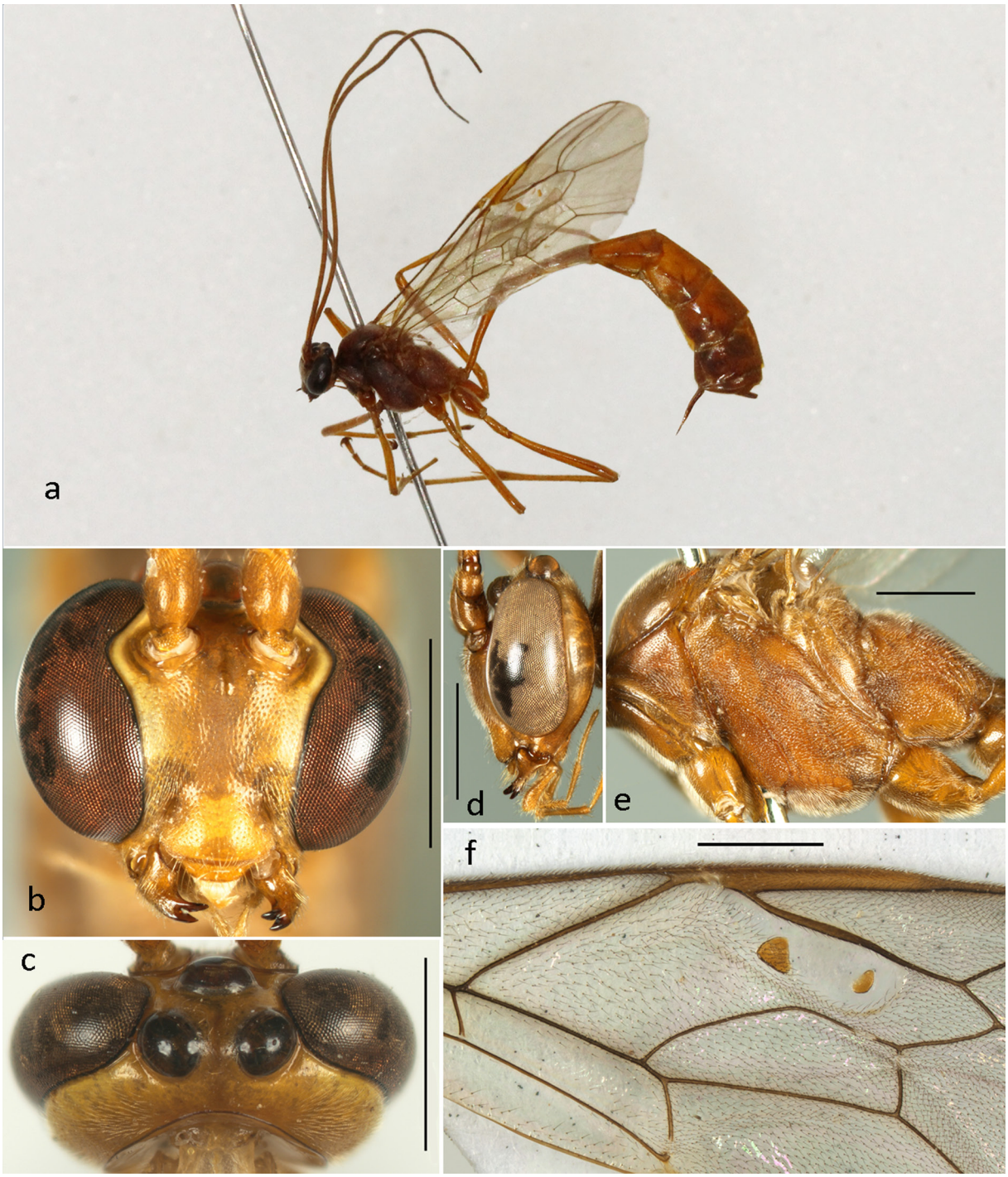

Fig. 77. *Enicospilus tripartitus* Chiu, 1954, ♀ (IEBR). **a**. Habitus. **b**. Head, frontal view. **c**. Head, dorsal view. **d**. Head, lateral view. **e**. Mesosoma, lateral view. **f**. Central part of fore wing. Scale bars = 1.0 mm.

Material examined

Holotype

VIETNAM • ♂; Lam Dong Province, Bidoup - Nui Ba NP; 3 Jun. 2013; Hoang V.T. leg; light trap; IEBR.

Paratype

VIETNAM • 1 ♀; Dong Nai Province, Vinh Cuu, Phu Ly; 1 Aug. 2008; Hoang V.T. leg; light trap; IEBR.

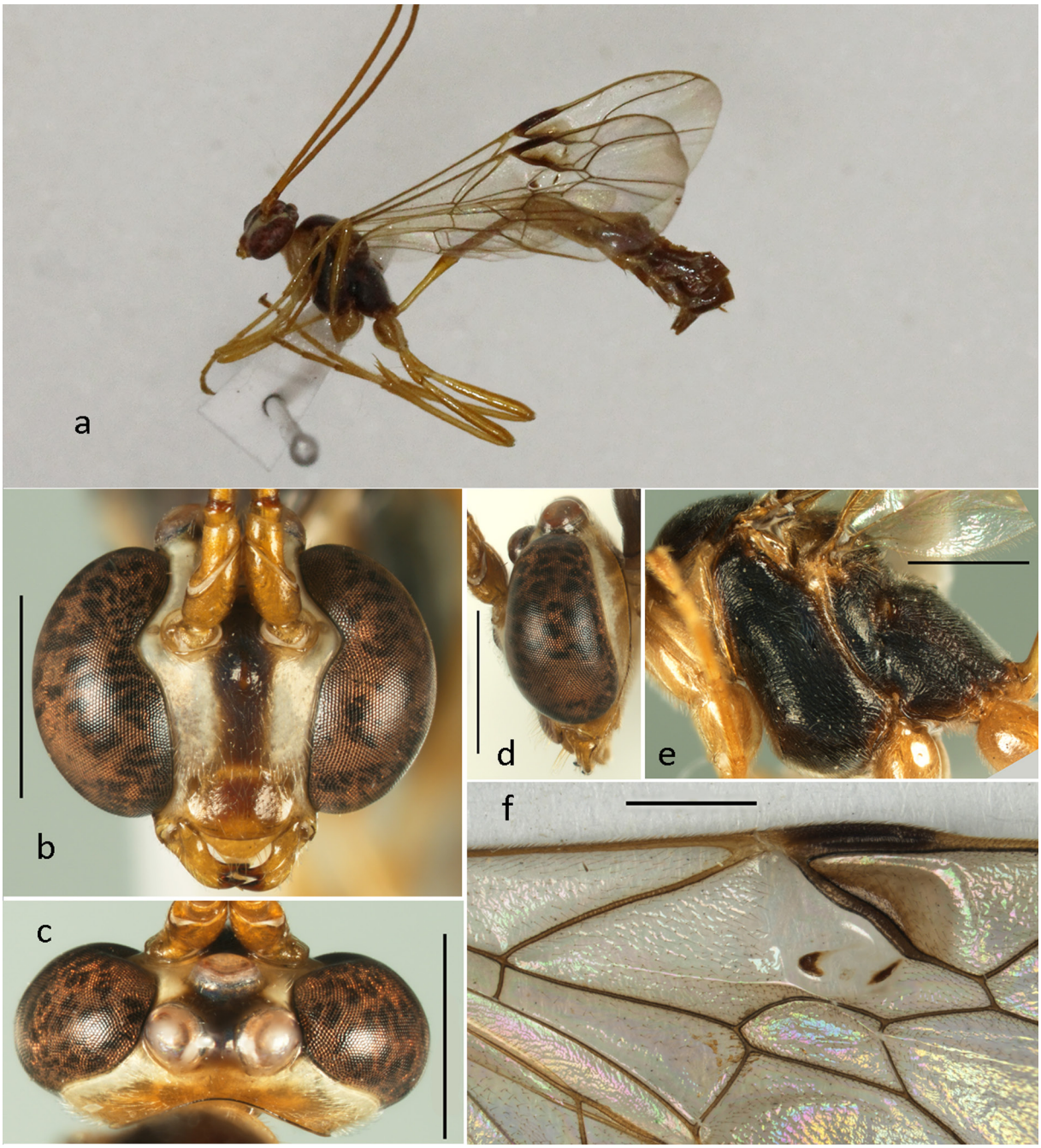

Fig. 78. *Enicospilus trui* sp. nov., holotype, ♂ (IEBR). **a**. Habitus. **b**. Head, frontal view. **c**. Head, dorsal view. **d**. Head, lateral view. **e**. Mesosoma, lateral view. **f**. Central part of fore wing. Scale bars = 1.0 mm.

Description

Male (holotype)

Measurements. Body length 14.1 mm, fore wing length 10.5 mm.

Head with FI = 0.5, GOI = 3.7 (Fig. 78d). Lower face 0.7 × as wide as high, shiny, finely punctate (Fig. 78b). Clypeus 1.4 × as wide as high, similarly sculptured as face, convex in profile, ventral margin impressed, acute (Fig. 78b). Malar space 0.3 × as long as basal mandibular width (Fig. 78b). Mandible twisted by ca 20°, outer surface without diagonal setose groove (Fig. 78b). Upper tooth of mandible about 1.4 × as long as lower tooth (Fig. 78b). Frons and vertex smooth (Fig. 78c). Gena moderately shiny, with dense, fine setae (Fig. 78d). Posterior ocellus close to eye (Fig. 78c). Occipital carina complete, ventral end meeting hypostomal carina at about 1.0 × basal mandible width from base of mandible. Antenna broken, with 31 remaining flagellomeres; F1 2.0 × as long as F2; F20 2.2 × as long as wide.

Mesosoma. Moderately shiny (Fig. 78e). Pronotum coriaceous (Fig. 78e). Mesoscutum 1.4 × as long as maximum width, evenly rounded in profile. Notauli absent. Scutellum moderately convex, finely punctate, lateral longitudinal carinae present along entire length of scutellum. Epicnemium densely punctate (Fig. 78e). Epicnemial carina moderately strong, present on ventral 0.7 of mesopleuron, dorsal end bent to reach anterior margin of mesopleuron (Fig. 78e). Mesopleuron moderately shiny, densely striate (Fig. 78e). Submetapleural carina broadened anteriorly (Fig. 78e). Metapleuron matt, with irregular wrinkles (Fig. 78e). Propodeum evenly rounded in profile; anterior transverse carina complete; anterior area coriaceous, with several rugae; spiracular area smooth; posterior area rugose; propodeal spiracle elliptical and joining pleural carina by weak ridge (Fig. 78e).

Wings (Fig. 78f). Fore wing with AI = 1.6, CI = 0.23, DI = 0.49, ICI = 0.31, SDI = 0.7, SI = 0.2, SRI = 0.49; vein 1m-cu&M evenly arcuate; vein 2r&RS thick and strongly sinuous proximally, abruptly narrowed and straight distally; vein RS strongly curved; fenestra and sclerites of discosubmarginal cell as in Fig. 78f; proximal sclerite strong, more or less crescentic, distal sclerite thick, linear, distal end close to angulation at distal 0.3 of vein 2r&RS; proximal corner of marginal cell evenly setose; posterodistal corner of second discal cell ca 75° and that of subbasal cell ca 45°; vein 1cu-a interstitial to M&RS. Hind wing with NI = 2.4; vein RS weakly curved; vein RA with 5 uniform hamuli on right wing and with 6 hamuli on left wing.

Legs. Hind leg with coxa in profile 1.7 × as long as high; basitarsus 1.7 × as long as second tarsomere; fourth tarsomere 2.0 × as long as wide; tarsal claws with distal pecten projecting beyond apical tooth.

Metasoma. With DMI = 1.3, PI = 3.6, THI = 4.2; thyridium oval; S4–7 with long stout erect setae on posterior margins.

Colour (Fig. 78a). Reddish brown with black markings as follow: apex of mandible, face and frons medially, interocellar area, mesosoma (except prothorax), metasoma from T4 onwards (except anterior 0.5 of T4 dorsally). Wings hyaline with an darkened area at proximal corner of marginal cell, sclerites dark brown, veins brown to dark brown, pterostigma black.

Female

Similar to male except following: antenna (unbroken) with 59 flagellomeres; fore wing length 11.2 mm, AI = 1.2, CI = 0.32, ICI = 0.31, SI = 0.15; metasoma with DMI = 1.4, ovipositor sheath not longer than posterior height of metasoma.

Distribution

Currently known only from Lam Dong Province (the Central Highland of Vietnam) and Dong Nai Province (South Vietnam).

Enicospilus tuani sp. nov.
urn:lsid:zoobank.org:act:5D3480D5-2721-47A5-943C-1EA2025B9ECF
Fig. 79

Diagnosis

Interocellar area yellowish brown; clypeus weakly convex, ventral margin acute; mandible short, twisted ca 50°, outer surface without a diagonal setose groove, upper tooth about 1.5 × longer than the lower tooth; fore wing darkened anteriorly, fenestra with proximal, central and distal sclerites present, central sclerite oval, its maximum diameter less than its distance from vein 2r&RS; mesoscutum posteriorly black.

Differential diagnosis

The new species resembles *E. acutus* Shimizu, 2020 in general colour pattern. It can be recognized from the latter by the less twisted mandible (50° vs 80–85°), longer antenna (63 flagellomeres vs 53–55), smaller AI (0.61 vs 0.98–1.11), greater ICI (0.77 vs 0.46–0.53) and with more hamuli on hind wing vein RA (9 hamuli vs 5–7).

Etymology

Named after Mr Nguyen Van Tuan who collected the holotype specimen.

Material examined

Holotype

VIETNAM • ♀; Gia Lai Province, Kon Chu Rang NP; 27 May 2019; Nguyen V.T. leg.; light trap; IEBR.

Paratype

VIETNAM • 1 ♀; Quang Nam Province, Tay Giang, Tr'Hy; 10 Jul. 2019; Phan Q.T. leg.; light trap; IEBR.

Description

Female (holotype)

Measurements. Body length 25.5 mm, fore wing length 19.6 mm.

Head with FI = 0.7, GOI = 2.9 (Fig. 79d). Lower face 0.7 × as wide as high, shiny (Fig. 79b). Clypeus 1.6 × as wide as high, weakly convex in profile, coriaceous, ventral margin acute (Fig. 79b). Malar space 0.2 × as long as basal mandibular width (Fig. 79b). Mandible twisted by ca 50°, moderately long, evenly narrowed, outer surface without diagonal setose groove (Fig. 79b). Upper tooth of mandible about 1.5 × as long as lower tooth (Fig. 79b). Frons and vertex smooth, vertex with sparse setae, gena shiny, with fine setae (Fig. 79c–d). Posterior ocellus close to eye (Fig. 79c). Occipital carina complete, ventral end meeting hypostomal carina at about 0.9 × basal mandible width from base of mandible. Antenna with 63 flagellomeres; F1 1.8 × as long as F2; F20 2.4 × as long as wide.

Mesosoma. Moderately shiny with setae (Fig. 79e). Pronotum wrinkled (Fig. 79e). Mesoscutum 1.4 × as long as maximum width, evenly rounded in profile. Notauli absent. Scutellum strongly convex, punctate anteriorly, with transverse striae medially, posteriorly wrinkled, lateral longitudinal carinae present along entire length of scutellum. Epicnemium matt, densely punctate (Fig. 79e). Epicnemial carina moderately strong, dorsal end bent towards and almost reching anterior margin of mesopleuron (Fig. 79e).

Mesopleuron striate (Fig. 79e). Submetapleural carina broadened anteriorly (Fig. 79e). Metapleuron strigose (Fig. 79e). Propodeum evenly rounded in profile; anterior transverse carina complete; anterior area longitudinally striate; spiracular area smooth; posterior area concentrically striate; propodeal spiracle elliptical and joining pleural carina by ridge (Fig. 79e).

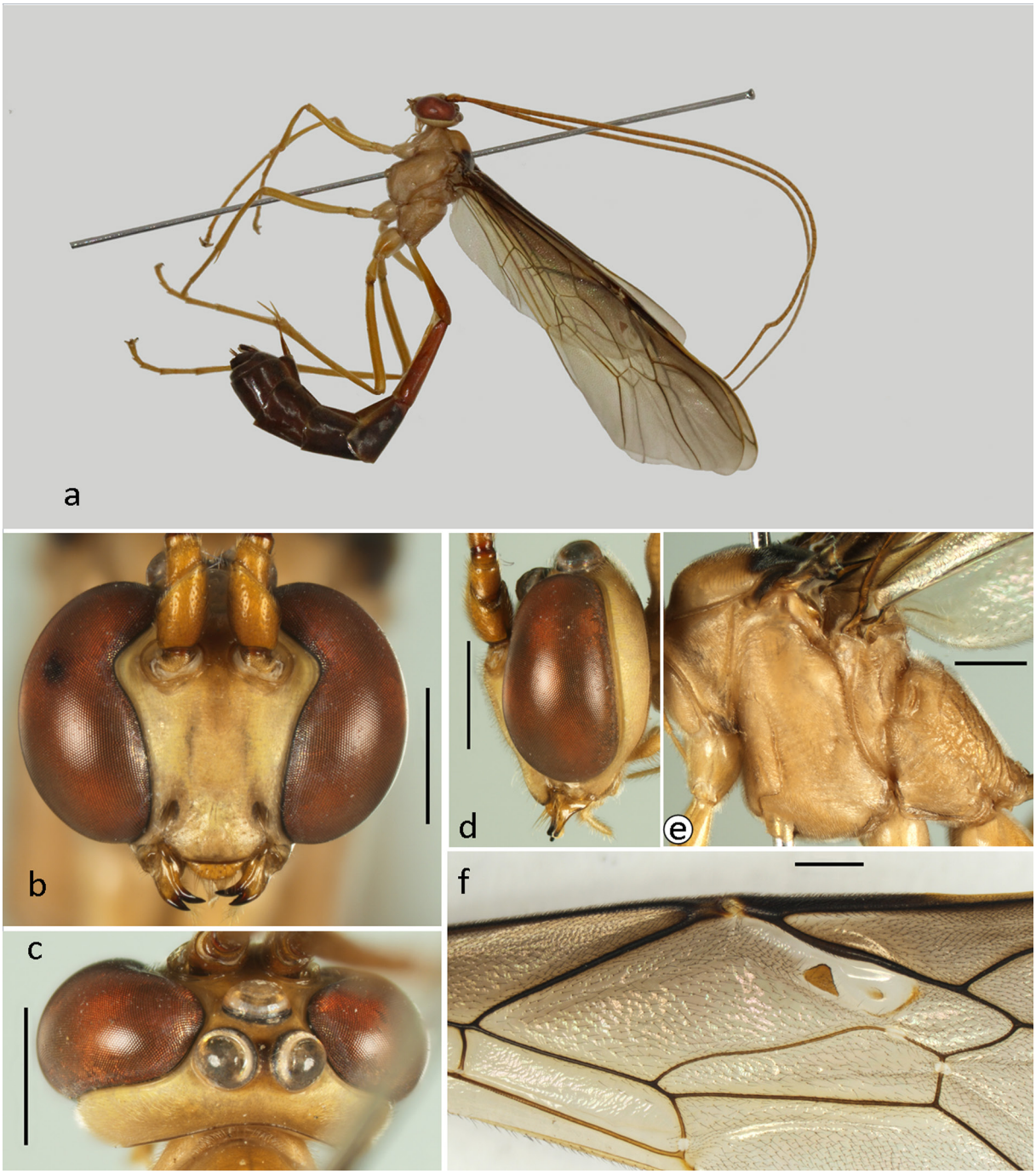

Fig. 79. *Enicospilus tuani* sp. nov., holotype, ♀ (IEBR). **a**. Habitus. **b**. Head, frontal view. **c**. Head, dorsal view. **d**. Head, lateral view. **e**. Mesosoma, lateral view. **f**. Central part of fore wing. Scale bars = 1.0 mm.

Wings (Fig. 79f). Fore wing with AI = 0.61, CI = 0.31, DI = 0.30, ICI = 0.77, SDI = 1.35, SI = 0.14, SRI = 0.19; vein 1m-cu&M sinuate; vein 2r&RS slightly sinuate; vein RS curved; fenestra and sclerites of discosubmarginal cell as in Fig. 79f; proximal sclerite triangular, not confluent with distal sclerite, strongly pigmented; central sclerite oval, pigmented, positioned in center of fenestra; distal sclerite pigmented; proximal corner of marginal cell evenly setose; posterodistal corner of second discal cell ca 95° and that of subbasal cell ca 90°; vein 1cu-a antefurcal to M&RS by 0.3 × length of 1cu-a. Hind wing with NI = 3.8; vein RS slightly curved; vein RA with 9 uniform hamuli.

Legs. Hind leg with coxa in profile 1.6 × as long as high; basitarsus 2.0 × as long as second tarsomere; fourth tarsomere 1.8 × as long as wide; tarsal claw simply pectinate.

Metasoma. With DMI = 1.4, PI = 2.7, THI = 4.5; thyridium oval; ovipositor sheath not longer than posterior height of metasoma.

Colour (Fig. 79a). Reddish brown except for apex of mandible, posterior half of mesoscutum, tegula and metasoma from T3 onwards black. Wing darkened anteriorly; sclerites pigmented and amber; veins brown to black, pterostigma black.

Variation in female

Fore wing AI = 0.56, CI = 0.33, ICI = 0.79, SDI = 1.31, SRI = 0.21; hind wing NI = 3.5; face with small black spot mediodorsally.

Male

Unknown.

Distribution

Currently known only from Quang Nam and Gia Lai provinces in South Central and Central Highlands of Vietnam.

Enicospilus urus Gauld & Mitchell, 1981
Fig. 80

Enicospilus urus Gauld & Mitchell, 1981: 454; holotype ♀ from Papua New Guinea (NHMUK).

Diagnosis

Interocellar area reddish brown; clypeus weakly convex, ventral margin subblunt; mandible twisted 15°–20°, outer surface without a diagonal setose groove; fore wing length 19.0–21.0 mm, fenestra with proximal, central and distal sclerites, proximal sclerite high and narrow, about 2.2 × as high as median width, central sclerite crescentic, formed from the sclerotized antero-distal margin of large quadra; metapleuron without strigose ridges; mesoscutum with two lateral black stripes.

Material examined

VIETNAM • 1 ♀, 1 ♂; Kon Tum Province, Kon Plong, Hieu; 14°41.447′ N, 108°22.376′ E; 1170 m a.s.l.; 12 May 2006; Nguyen Q.T. leg.; light trap; IEBR • 1 ♀; Gia Lai Province, Kon Chu Rang NP; 27 May 2019; Nguyen V.T. leg.; light trap; IEBR • 1 ♀; Lam Dong Province, Dong Nai Thuong, Cat Tien; 22 Apr. 2021; Phan Q.T. leg.; light trap; IEBR.

Distribution

Previously known from Indonesia, Malaysia, and Papua New Guinea (Gauld & Mitchell 1981). These are the first records of this species from Vietnam.

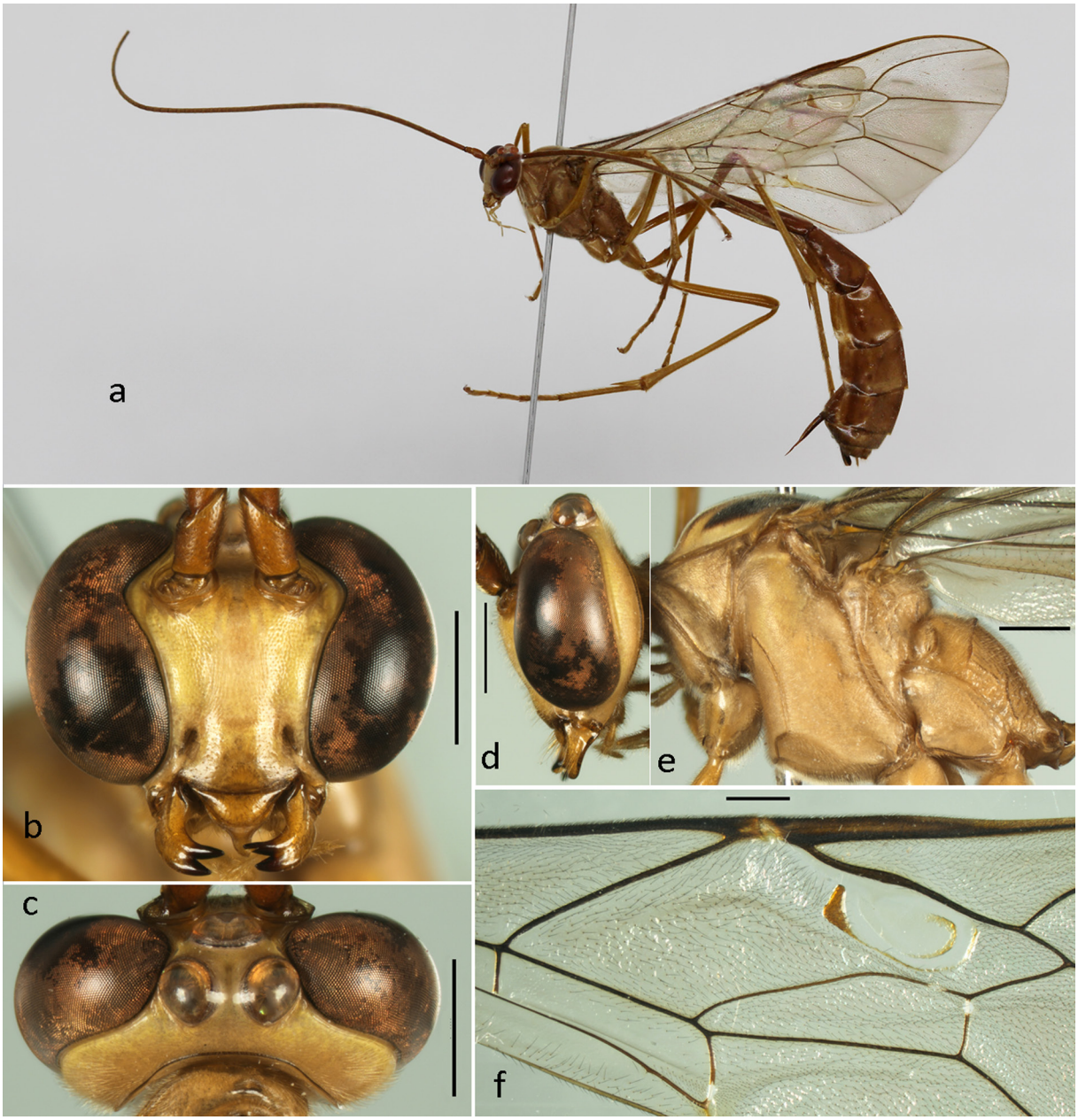

Fig. 80. *Enicospilus urus* Gauld & Mitchell, 1981, ♀ (IEBR). **a**. Habitus. **b**. Head, frontal view. **c**. Head, dorsal view. **d**. Head, lateral view. **e**. Mesosoma, lateral view. **f**. Central part of fore wing. Scale bars = 1.0 mm.

Enicospilus verticinus (Roman, 1913)
Fig. 81

Henicospilus verticinus Roman, 1913: 28; lectotype ♀ from Philippines (NHRS).

Enicospilus verticinus – Townes *et al.* 1961: 293.

Diagnosis

Interocellar area reddish brown; clypeus weakly convex, ventral margin blunt; mandible twisted 30°–40°, outer surface without a diagonal setose groove; fore wing fenestra with proximal, central and distal sclerites, central sclerite weak to moderately strong, C-shaped, formed from distal margin of quadra.

Material examined

VIETNAM • 1 ♀; Hanoi, Thach That, Tan Xa; 15–25 May 2002; Khuat D.L. leg.; Malaise trap; IEBR • 1 ♀; Gia Lai Province, Kon Ka Kinh NP; 7–8 Jun. 2011; Nguyen Q.T. leg.; light trap; IEBR • 1 ♀; same locality as for preceding; 14 Mar. 2019; Pham V.P. leg.; light trap; IEBR.

Remarks

Vietnamese specimens have antennae with 57–62 flagellomeres, longer than the specimens examined by Gauld and Mitchell (1981) (53–56 flagellomeres).

Distribution

Previously known from Brunei, India, Indonesia, Malaysia, Myanmar, and the Philippines (Gauld & Mitchell 1981). These are the first record of this species from Vietnam.

Enicospilus vestigator (Smith, 1858)
Fig. 82

Ophion vestigator Smith, 1858: 122; holotype ♂ from Malaysia (OUMNH).

Enicospilus vestigator – Townes *et al.* 1961: 293.

Diagnosis

Interocellar area reddish brown; clypeus flat to weakly convex, ventral margin blunt to subacute; mandible twisted 60°–70°, outer surface without a diagonal setose groove; fore wing fenestra with proximal, central and distal sclerites present, distal side of central sclerite evenly rounded; CI = 0.25–0.30; SRI = 0.21–0.23.

Material examined

VIETNAM • 1 ♀; Vinh Phuc Province, Tam Dao NP; 2 Jun. 1997; R. Matsumoto leg.; OMNH • 1 ♀; same locality as for preceding; May 2013; Hoang V.T. leg.; light trap; IEBR • 1 ♂; Dong Nai Province, Vinh Cuu, Hieu Liem; 17 May 2007; Hoang V.T. leg.; light trap; IEBR • 1 ♂; Dak Lak Province, Ea So NR; 12°55′93″ N, 108°37′964″ E; 310 m a.s.l.; 27 Jul. 2008; Ngo T.H. leg.; Malaise trap; IEBR • 1 ♀; Bac Kan Province, Ba Be NP; 12 May 2014; Hoang V.T. leg.; light trap; IEBR • 1 ♂; Dong Nai Province, Vinh Cuu, Phu Ly; 11°26.517′ N, 107°06.182′ E; 178 m a.s.l., 11 Jun. 2021; Pham T.N., Hoang V.T. and Pham V.P. leg.; light trap; IEBR • 1 ♀; Cao Bang Province, Ha Quang, Thanh Long; 22.76852° N, 105.9687° E; 590 m a.s.l.; 24 May 2022; Pham T.N., Hoang V.T. and Pham V.P. leg.; light trap; IEBR • 1 ♂, 1 ♀; Ha Giang Province, Vi Xuyen, Phong Quang; 22.89996° N, 104.91559° E; 609 m a.s.l.; 26 May 2022; Pham T.N. and Pham V.P. leg.; light trap; IEBR • 1 ♀; Lao Cai Province, Bat Xat NR; 22°37′37″ N, 103°37′32″ E; 1840 m a.s.l.; 28 May 2022; Pham T.N. and Dang T.H. leg.; light trap; IEBR.

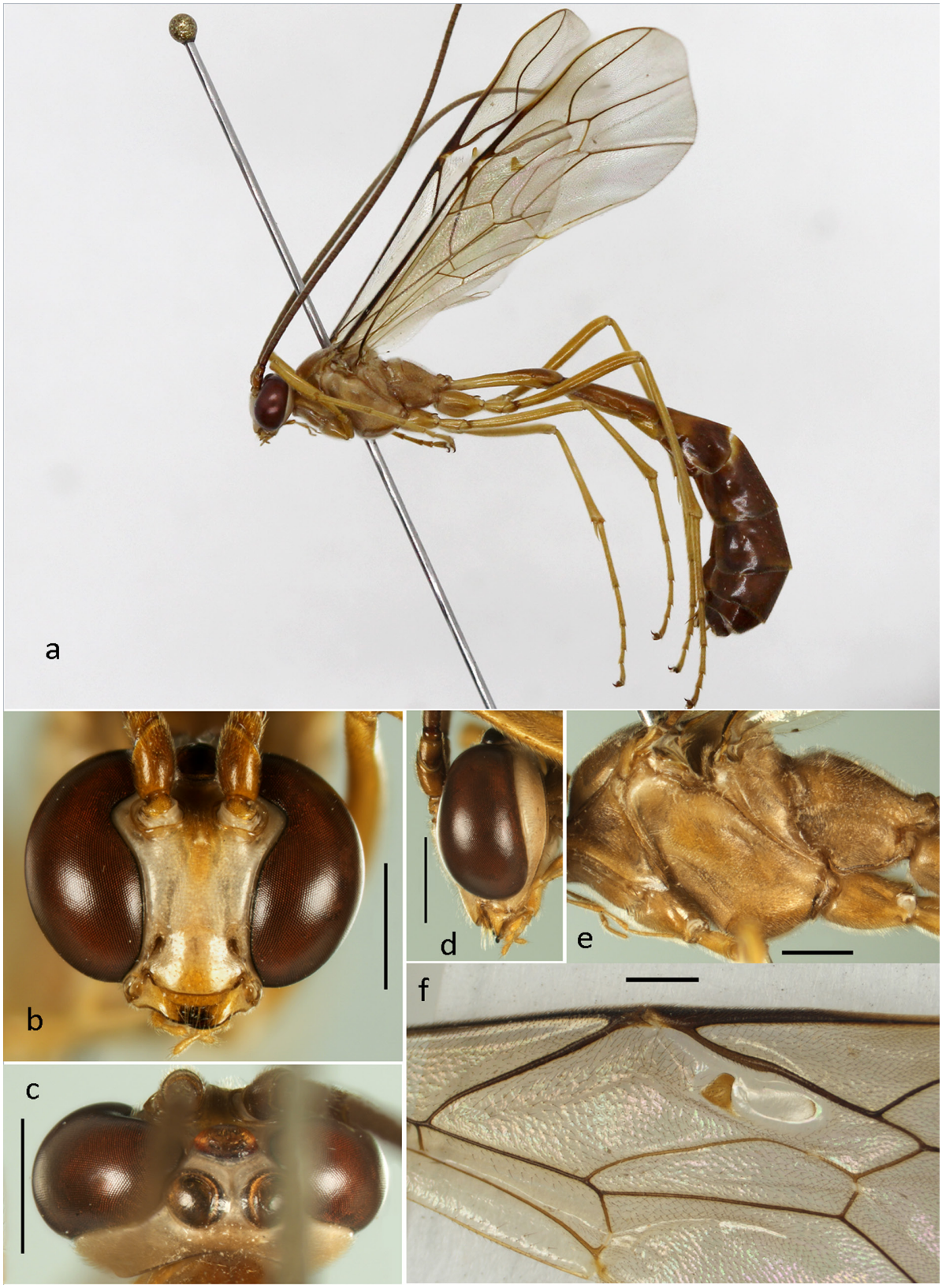

Fig. 81. *Enicospilus verticinus* (Roman, 1913), ♀ (IEBR). **a**. Habitus. **b**. Head, frontal view. **c**. Head, dorsal view. **d**. Head, lateral view. **e**. Mesosoma, lateral view. **f**. Central part of fore wing. Scale bars = 1.0 mm.

Distribution

Previously known from Brunei, China (including Taiwan), India, Indonesia, Japan, Malaysia, Papua New Guinea, Sri Lanka, and Vietnam (Gauld & Mitchell 1981; Tang 1990; Yu *et al.* 2016; Shimizu *et al.* 2020).

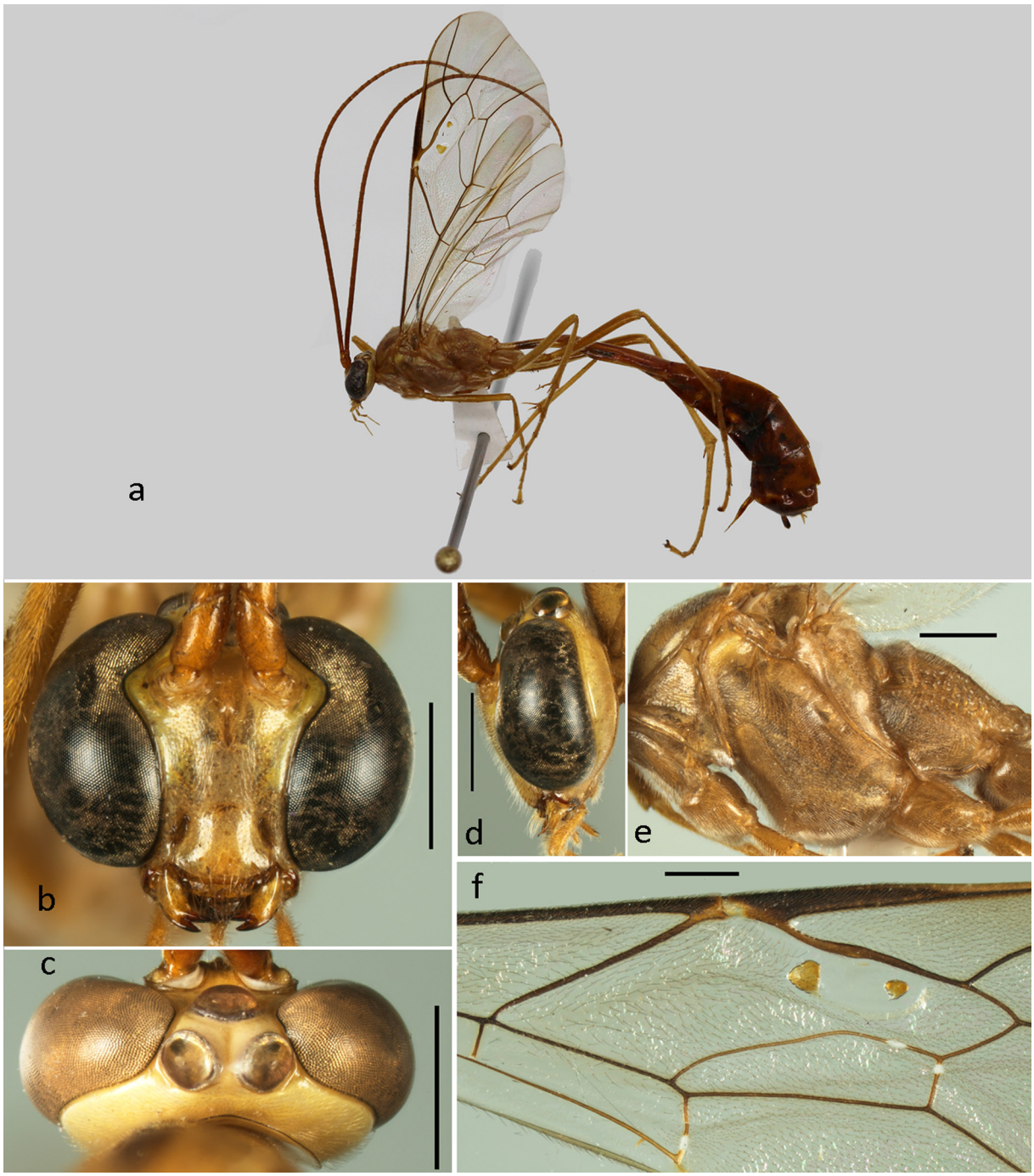

Fig. 82. *Enicospilus vestigator* (Smith, 1858), ♀ (IEBR). **a**. Habitus. **b**. Head, frontal view. **c**. Head, dorsal view. **d**. Head, lateral view. **e**. Mesosoma, lateral view. **f**. Central part of fore wing. Scale bars = 1.0 mm.

Enicospilus yonezawanus (Uchida, 1928)
Fig. 83

Henicospilus yonezawanus Uchida, 1928: 218; lectotype ♀ from Japan (SEHU), designated by Townes *et al.* (1965): 337.

Enicospilus yonezawanus – Chiu 1954: 21.

Diagnosis

Interocellar area reddish brown; clypeus moderately convex, ventral margin subacute; mandible twisted ca 20°, outer surface with a diagonal setose groove; fore wing fenestra with proximal and distal sclerites, distal sclerite vestigial or weak and narrow, not joining proximal sclerite.

Material examined

VIETNAM • 1 ♀; Ha Giang Province, Vi Xuyen, Cao Bo; 800 m a.s.l.; 25 Oct.–5 Nov. 2001; Khuat D.L. leg.; Malaise trap; IEBR • 1 ♀; Lam Dong Province, Bao Loc Pass; 600 m a.s.l.; 31 May 2002; Ta H.T. and Hoang V.T. leg.; light trap; IEBR • 1 ♀; Thai Nguyen Province, Dinh Hoa, Phu Dinh; 260 m a.s.l.; 30 Mar. 2003; Ta H.T. and Hoang V.T. leg.; light trap; IEBR • 1 ♀; Ha Tinh, Huong Son, Son Tay; 24 May 2004; Truong X.L. leg.; light trap; IEBR • 2 ♀♀; Gia Lai Province, Kbong, Kon Pne; 15 Jul. 2012; Ta H.T. and Hoang V.T. leg.; light trap; IEBR • 1 ♂; Bac Kan Province, Ba Be NP; 12 May 2014; Hoang V.T. leg.; light trap; IEBR • 1 ♂; Son La Province, Thuan Chau, Co Ma; 27 Apr. 2016; Hoang V.T. leg.; light trap; IEBR • 1 ♂; same locality as for preceding; 17 May 2017; Pham V.P. leg.; light trap; IEBR • 4 ♀♀; Lao Cai Province, Bat Xat NR; 22°37′37″ N, 103°37′32″ E; 1840 m a.s.l.; 28 May 2022; Pham T.N. and Dang T.H. leg.; light trap; IEBR • 2 ♀♀; Lai Chau Province, Sin Ho, Sa De Phin; 22°18′18″ N, 103°13′37″ E; 1760 m a.s.l.; 31 May 2022; Pham T.N. and Dang T.H. leg.; light trap; IEBR • 1 ♀; Lai Chau Province, Sin Ho, Ta Ngao; 22°16′19″ N, 103°14′54″ E; 1520 m a.s.l.; 1 Jun. 2022; Pham T.N. and Dang T.H. leg.; light trap; IEBR.

Remarks

In comparison with the specimens examined by Gauld & Mitchell (1981), Vietnamese specimens have shorter antennae (54–61 flagellomeres vs 65–70) and shorter fore wings (10.2–14.2 mm vs 14.0–17.0 mm).

Distribution

Previously known from China, India, Indonesia, Japan, Malaysia, Myanmar, Papua New Guinea, and Philippines (Yu *et al.* 2016). These are the first records of this species from Vietnam.

Enicospilus zebrus Gauld & Mitchell, 1981
Fig. 84

Enicospilus zebrus Gauld & Mitchell, 1981: 406; holotype ♀ from Myanmar (NHMUK).

Diagnosis

Interocellar area reddish brown; clypeus moderately convex, ventral margin acute; mandible twisted 10°–15°, outer surface without a diagonal setose groove; fore wing fenestra long, anterodistal corner interstitial to RS, with proximal, central and distal sclerites present; fore wing with darkened areas, mesosoma and metasoma with black and yellow markings.

Material examined

VIETNAM • 1 ♀; Lao Cai Province, Hoang Lien NP; 5 Jul. 2013; Hoang V.T. leg.; light trap; IEBR • 1 ♀; Cao Bang Province, Phia Oac - Phia Den NP; 8 May 2021; Nguyen D.H. leg.; light trap; IEBR.

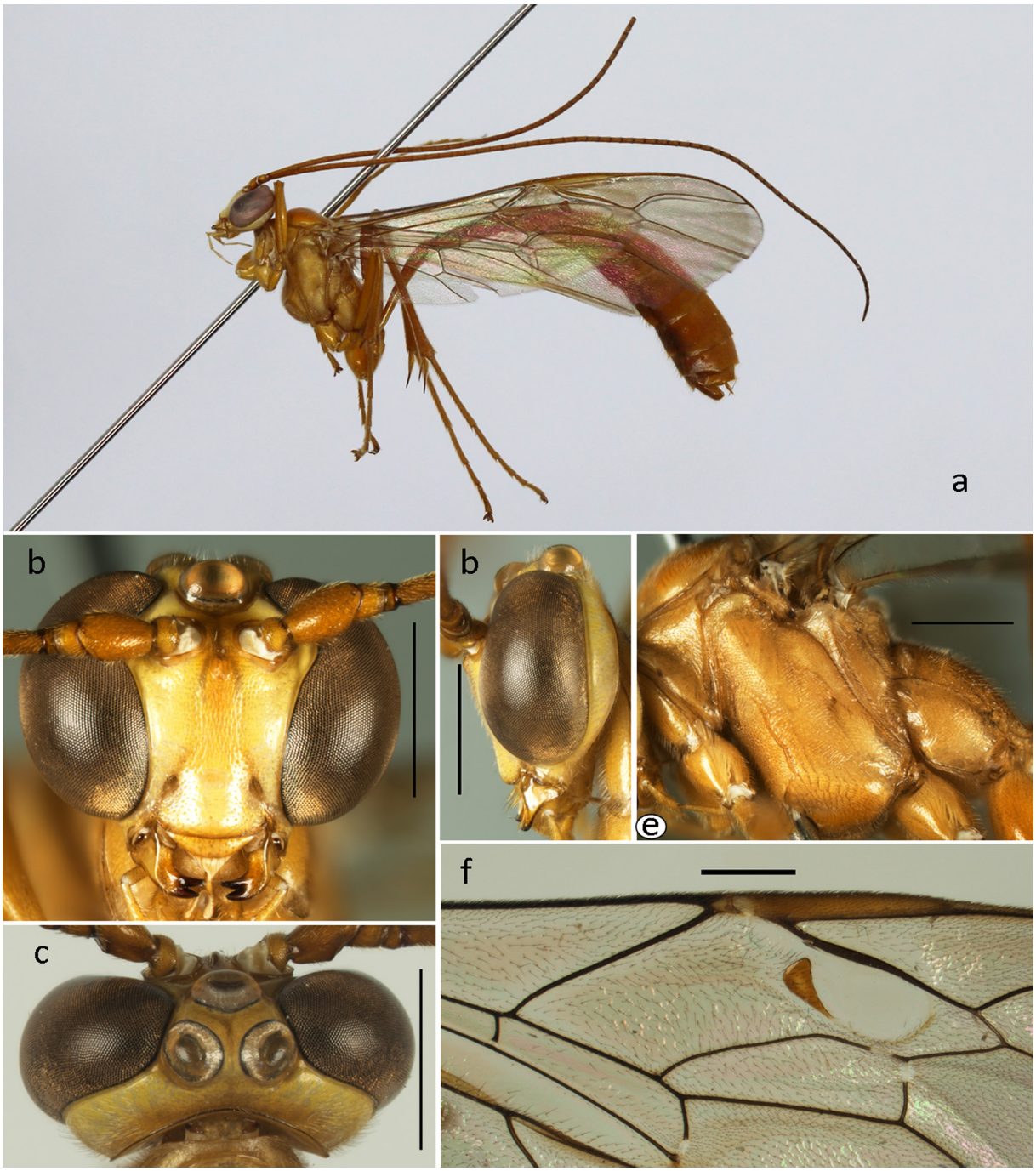

Fig. 83. *Enicospilus yonezawanus* (Uchida, 1928), ♂ (IEBR). **a**. Habitus. **b**. Head, frontal view. **c**. Head, dorsal view. **d**. Head, lateral view. **e**. Mesosoma, lateral view. **f**. Central part of fore wing. Scale bars = 1.0 mm.

Remarks

Vietnamese specimens have fore wing length 17.2–18.1 mm and antennae with 65–66 flagellomeres, larger than specimens examined by Gauld & Mitchell (1981).

Distribution

Previously known from China and Myanmar (Yu *et al.* 2016). These are the first records of this species from Vietnam.

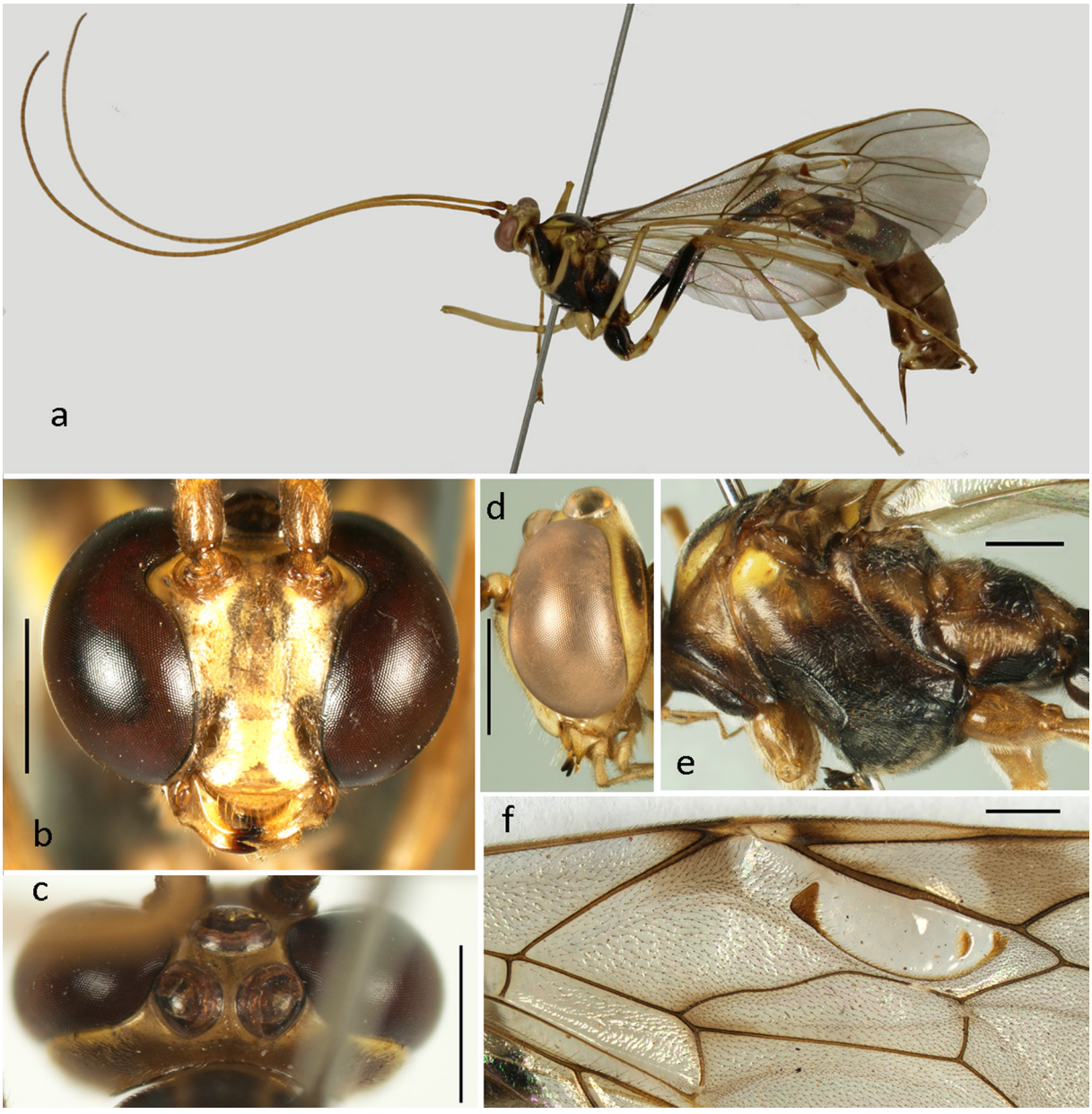

Fig. 84. *Enicospilus zebrus* Gauld & Mitchell, 1981, ♀ (IEBR). **a**. Habitus. **b**. Head, frontal view. **c**. Head, dorsal view. **d**. Head, lateral view. **e**. Mesosoma, lateral view. **f**. Central part of fore wing. Scale bars = 1.0 mm.

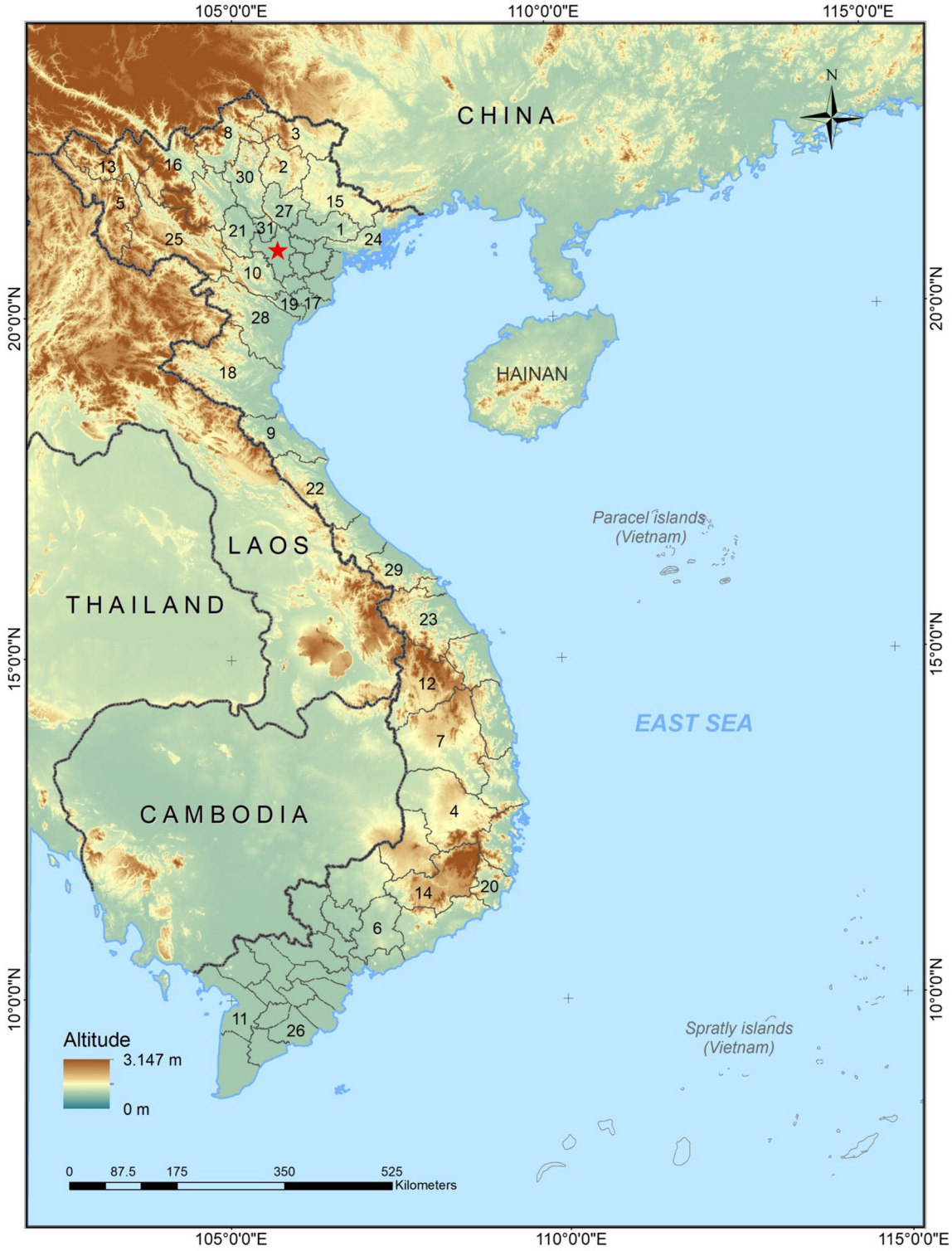

Fig. 85. Map of collecting sites of *Enicospilus* in Vietnam: ★ = Hanoi; 1 = Bac Giang; 2 = Bac Kan; 3 = Cao Bang; 4 = Dak Lak; 5 = Dien Bien; 6 = Dong Nai; 7 = Gia Lai; 8 = Ha Giang; 9 = Ha Tinh; 10 = Hoa Binh; 11 = Kien Giang; 12 = Kon Tum; 13 = Lai Chau; 14 = Lam Dong; 15 = Lang Son; 16 = Lao Cai; 17 = Nam Dinh; 18 = Nghe An; 19 = Ninh Binh; 20 = Ninh Thuan; 21 = Phu Tho; 22 = Quang Binh; 23 = Quang Nam; 24 = Quang Ninh; 25 = Son La; 26 = Soc Trang; 27 = Thai Nguyen; 28 = Thanh Hoa; 29 = Thua Thien - Hue; 30 = Tuyen Quang; 31 = Vinh Phuc.

Discussion

A total of 650 specimens of the genus *Enicospilus* were collected from 32 provinces of Vietnam, including material from 24 national parks and nature reserves (Fig. 85). Of the total 82 species of *Enicospilus* currently known from Vietnam, 81 species have been identified on the basis of the new ichneumonid collections. Ten species are described as new and 52 further species are recorded for the first time from the country. In terms of species richness, *Enicospilus* is currently the most diverse genus of Ichneumonidae in Vietnam with 82 recorded species. In terms of distribution pattern, *Enicospilus* has a much wider distribution range than other genera in the family Ichneumonidae known from Vietnam. For instance, the genus *Xanthopimpla* Saussure, 1892, another species-rich genus of Ichneumonidae in Vietnam contains 60 known species currently, of which 46 species (representing 76.67% of the recorded species) are known only from the Oriental region (Pham *et al.* 2011; Yu *et al.* 2016). Whereas 33 species of *Enicospilus* recorded in Vietnam (or 40.24% of the recorded species) are endemic to the Oriental region, 35 species (42.68%) are also known from the Palaearctic region, 33 species (40.24%) are found also in the Australian region, 11 species (13.41%) are found also from the Oceanic region, and three species are known from the Afrotropical region. However, aforementioned comparisons are only preliminary data because the ichneumonid fauna of Vietnam is imperfectly studied and further investigations are required to elucidate the actual diversity of this group in the country.

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