

A NEW SPECIES OF *CAMPTOPTERA* FOERSTER, 1856 (HYMENOPTERA: MYMARIDAE) AND REDESCRIPTIONS OF TWO OTHER SPECIES OF THE GENUS NEWLY RECORDED FROM INDIA

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ABSTRACT

Camptoptera aveolobato Anwar & Zeya **sp. nov.** (Hymenoptera: Mymaridae) is described. *Camptoptera concava* Taguchi, 1972 from the Philippines and *C. jthuberi* Triapitsyn, 2018 from Taiwan are recorded for the first time from India and redescribed. A modified couplet for the key to the Indian species of *Camptoptera* by Anwar *et al.* (2020) is provided.

Key words: Mymaridae, *Camptoptera*, taxonomy, new records, new species.

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RESUMEN

Una nueva especie de *Camptoptera* Foerster, 1856 (Hymenoptera: Mymaridae) y redescipción de otras dos especies del género recién registradas en la India

Se describe *Camptoptera aveolobato* Anwar y Zeya **sp. nov.** (Hymenoptera: Mymaridae) y se redesciben y citan por primera vez en la India *C. concava* Taguchi, 1972, de Filipinas, y *C. jthuberi* Triapitsyn, 2018, de Taiwán. Además, se incluye la nueva especie en la clave dicotómica de las especies indias de *Camptoptera* de Anwar *et al.* (2020).

Palabras clave: Mymaridae, *Camptoptera*, taxonomía, nuevas citas, nueva especie.

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Introduction

Species of *Camptoptera* Foerster, 1856 are among the smallest members of the family Mymaridae (Hymenoptera: Chalcidoidea). They are more diverse

than they appear but are usually collected in few numbers mostly as “singletons” that often results in poor descriptions if they are not carefully prepared so as many of their features as possible are clearly visible. Obviously, a single specimen can only be

slide-mounted in either dorsal or lateral view, usually with head dissected so the face is visible, which means features on the side or top of the head or side of the body are not visible.

Taguchi (1971, 1972, 1977) described 11 *Camptoptera* species from the Philippines or Taiwan, both in the Oriental region and from Japan, normally included entirely in the Palaearctic region (the southern part is actually Oriental). Triapitsyn (2014) revised the Palaearctic species of *Camptoptera* and noted that the Taguchi collection is lost.

Triapitsyn (2017) provided taxonomic notes on species of *Camptoptera* described by Subba Rao (1989) from India. Triapitsyn (2018) described *C. jthuberi* Triapitsyn, 2018, a species similar to *C. concava* Taguchi, 1972. Anwar et al. (2020) reviewed the genus from India and Sri Lanka, treated 26 species including 11 new species from India and provided a key to females.

Here, we record and redescribe *Camptoptera concava* and *C. jthuberi* from India for the first time since their original description from Bohol Islands, Philippines, and Taiwan respectively and, describe one new species from India. A modified couplet for the key of Anwar et al. (2020) is also provided to include the three species in the Anwar et al. (2020) key. For all three species, males and hosts are unknown.

Material and methods

The terms used largely follow Zeya & Hayat (1995) and Gibson (1997). Measurements of body length are taken from card-mounted specimens; all other measurements are from slide mounts made at 400× magnification, and converted to µm. Length of antennal scape excludes the radicle. Specimens were slide-mounted in Canada balsam following the method in Noyes (1982) and partly modified by Anwar et al. (2020). Photographs of slide mounted parts were taken with a digital camera attached to a compound microscope Leica DM 2500 and retouched using Adobe Photoshop®. All the determined and type materials were deposited at the Insect Collections Department of Zoology, Aligarh Muslim University, Aligarh, Uttar Pradesh, India.

The following abbreviations are used:

F = Funicle segment
 mps = multiporous plate sensillum or sensilla (= longitudinal sensilla of authors)
 MT = Malaise trap

The following acronyms are used for specimen depositories:

CNC = Canadian National Collection of Insects, Arachnids and Nematodes, Agriculture and Agri-Food Canada, Ottawa, ON, Canada.

ZDAMU = Insect Collections Department of Zoology, Aligarh Muslim University, Aligarh, Uttar Pradesh, India

ZLMU = Entomological Laboratory, Faculty of Agriculture, Meijo University, Shiogamaguchi, Tempaku-ku, Nagoya, Japan

Results

Taxonomy

Key

A modified couplet 3 for the key of Anwar et al. (2020: 4) is provided here to fit the three additional species into the key to Indian species of *Camptoptera*, females. They fall within couplets 4 and 8 of Anwar et al. (2020) together with 5 previously included species which **apparently all have a strongly ridged petiole**: *macheta*, *protuberculata*, *ambrae*, *tuberculata* and *scythe*.

- 3(2) Petiole with strong transverse ridges4'
 – Petiole with reticulate sculpture8
- 4'(3) Clava at least 5× as long as broad (Figs 1b, 3b, 5b); fore wing distinctly curved at apex, at least 15× as long as broad (Figs 2b, 4b, 6b)5'
 – Clava at most 3× as long as broad (Anwar et al., 2020: figs 9, 27, 31, 35, 37); fore wing apex not curved as above, at most 12× as long as broad (Anwar et al., 2020: figs 12, 21)4
- 5'(4') Prosternum truncated apically (Fig. 2c); clava 8× as long as broad, longer than F4–F7 combined
*C. concava* Taguchi, 1972
 – Prosternum pointed apically (Figs 4c, e, 6c); clava at most 6× as long as broad, subequal to F4–F7 combined6'
- 6'(5') Scape dilated basally (Fig. 3b); frenum with faint reticulate sculpture*C. jthuberi* Triapitsyn, 2018
 – Scape distended (Fig. 5b); frenum with large polygonal cell-like sculpture
*C. aveolobato* Anwar & Zeya sp. nov.
- 4(4') Pedicel much longer than F1 (Anwar et al., 2020: figs 9, 27); fore wing disc setose, with 2–4 rows of setae (Figs 12, 28)5
 – Pedicel at most slightly longer than F1 (Anwar et al., 2020: figs 31, 35, 37); fore wing disc largely bare except a few setae in two incomplete rows (Anwar et al., 2020: figs 30, 36, 40)6

Camptoptera concava Taguchi, 1972

Figs 1–2

Camptoptera concava Taguchi, 1972: 225, ♀. Holotype female (ZLMU), Philippines, Bohol, Bilar, not examined; it is lost according to Triapitsyn (2014).

MATERIAL EXAMINED. INDIA: KARNATAKA: Bengaluru, Jarakabande Kaval, 16.i.2015 (MT), Coll. K. Veenakumari; 1 ♀ on slide under 4 coverslips (slide No. MYM.670, ZDAMU).

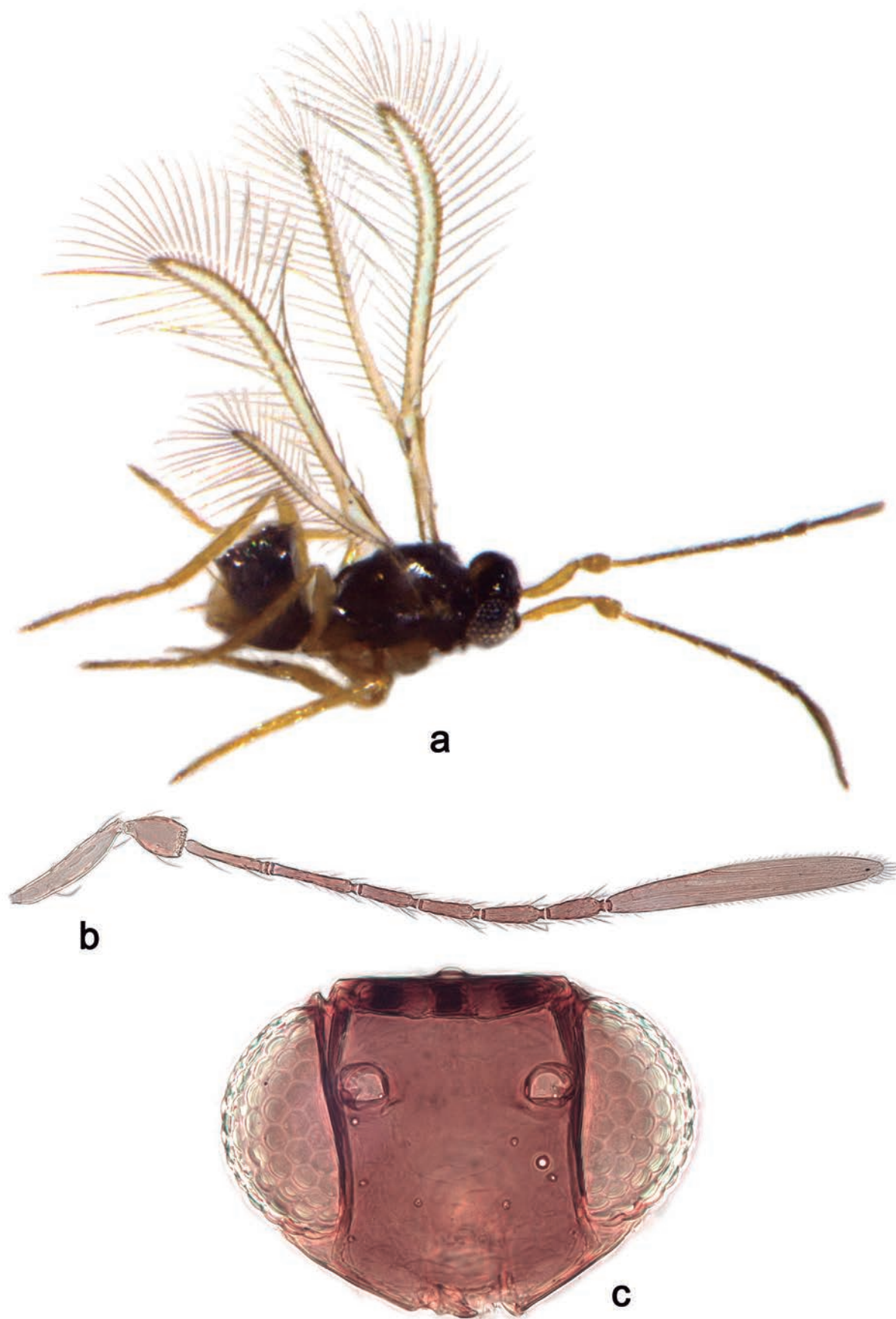


Fig. 1.— *Camptoptera concava* Taguchi ♀. a. Habitus. b. Antenna. c. Head, frontal view.

Fig. 1.— *Camptoptera concava* Taguchi ♀. a. Habitus. b. Antena. c. Cabeza, vista frontal.

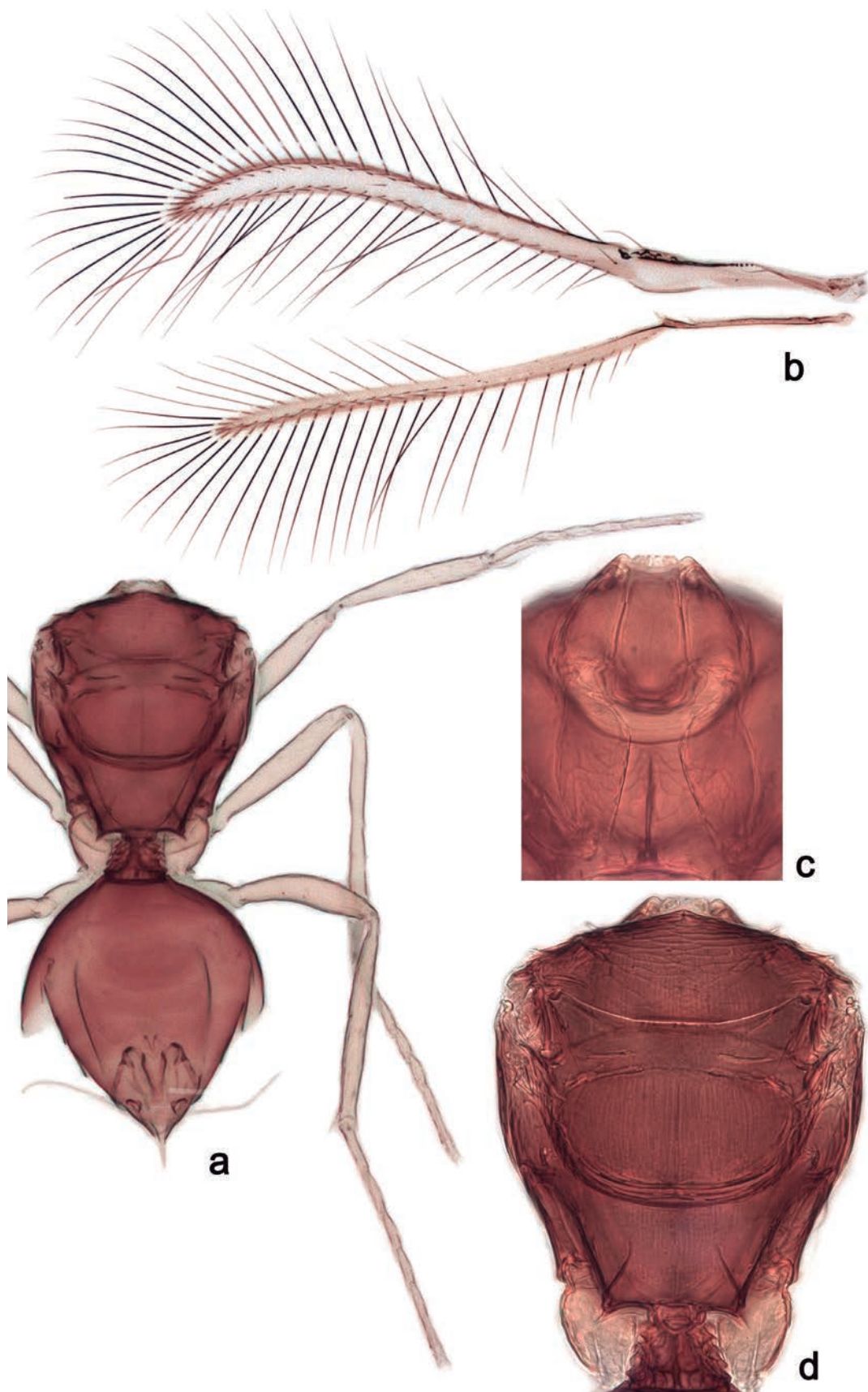


Fig. 2.— *Camptoptera concava* Taguchi ♀. a. Mesosoma with gaster and petiole. b. Wings. c. Prosternum. d. Mesosoma enlarged.

Fig. 2.— *Camptoptera concava* Taguchi ♀. a. Mesosoma con gáster y peciolo. b. Alas. c. Prosternum. d. Mesosoma aumentado.

DIAGNOSIS. *Camptoptera concava* is readily recognized by the anteriorly truncated prosternum and fore wing disc without discal cilia except for one in apical third. Here, we report it for the first time since the original description from the Philippines but from Karnataka, India over 5000 km away. Our specimen matches exactly Taguchi's description and illustrations of *C. concava* so, we are confident that it is conspecific.

REDESCRIPTION (specimen from India)

Female

Length, 400 μm . Head and body dark brown. Antenna with radicle, scape, pedicel, F1 and F2 yellowish rest pale brown. Wings subhyaline. Legs, including coxae, yellowish brown.

Head (Fig. 1c). Head, in frontal view, $1.4\times$ as broad as high, with faint polygonal reticulate sculpture; antennal torulus just above the mid eye level; torulus separated from transverse trabecula by $1\times$ height of torulus; occiput with oblique reticulate sculpture. Antenna (Fig. 1b) with scape $5\times$ as long as broad; pedicel $1.5\times$ as long as broad; clava $8\times$ as long as broad, longer than F4–F7 combined, with 4 mps.

Mesosoma (Figs. 2a, d). Prosternum truncated apically (Fig. 2c). Mesoscutum with transverse reticulate sculpture; axilla with polygonal reticulate sculpture; scutellum and frenum with faint reticulate sculpture (Fig. 2d); propodeum with submedian carinae, not extending to metanotum (Fig. 2d). Fore wing distinctly curved at apex and narrower, $19\times$ as long as broad, disc almost bare except for one seta in apical third; longest marginal seta $6\times$ as long as maximum wing width (Fig. 2b). Hind wing $38\times$ as long as broad; longest marginal seta $11\times$ as long as maximum wing width (Fig. 2b). All the coxae reticulate.

Metasoma (Fig. 2a). Petiole broader than long, strongly ridged and without lateral lamellae; ovipositor $0.6\times$ mesotibia and $0.7\times$ metatibia length.

Measurements (μm): head width:height, 165:115; antennal segments length:width scape, 100:20; pedicel, 40:28; F1, 58:8; F2, 5:8; F3, 60:9; F4, 43:11; F5, 43:11; F6, 43:13; F7, 38:14; clava, 200:25; mesosoma, 193; mesoscutum, 55; scutellum, 20; frenum, 58; metanotum, 13; propodeum, 48; fore wing length:width, 600:33; longest marginal seta, 188; hind wing length:width, 575:15; longest marginal seta, 163; protibia, 133; mesotibia, 200; metatibia, 170; petiole length:width, 43:45; gaster, 205; ovipositor, 113.

DISTRIBUTION. India (**new record**): Karnataka, Philippines.

Camptoptera jthuberi Triapitsyn, 2018

Figs 3–4

Camptoptera jthuberi Triapitsyn, 2018: 125, ♀. Holotype female (CNC), Taiwan, Nantou Hsien.

MATERIAL EXAMINED. INDIA: SIKKIM: Tadong, ICAR Comp., 3.xi.2014 (MT), Coll. K. Veenakumari; 1 ♀ on slide under 4 coverslips (slide No. MYM.671, ZDAMU).

DIAGNOSIS. The following features taken together distinguish the species from others in the genus. Antenna with scape dilated basally; fore wing with a complete row of setae in the middle. Ovipositor, $0.6\times$ mesotibia and $0.5\times$ metatibia length.

The redescription of the species is based on a female collected in India agrees fairly well with most of the features of the original description and illustrations of *C. jthuberi*. The features of the redescribed species and *C. jthuberi* are as follows (the features of *C. jthuberi* are taken from the original description and are in parentheses): body length, 480 μm (body length, 445–595 μm); scape minus radicle $5\times$ as long as broad (scape minus radicle $5.5\text{--}7.1\times$ as long as broad); fore wing $16\times$ as long as broad, with longest marginal seta $5\times$ as long as maximum wing width (fore wing $13.8\text{--}16.7\times$ as long as broad, with longest marginal seta $3.9\text{--}4.8\times$ as long as maximum wing width); clava $6\times$ as long as broad, subequal to F4–F7 combined, with 4 mps (clava $5.0\text{--}5.5\times$ as long as broad, a little longer than F5–F7 combined, with 4 mps); ovipositor $0.5\times$ metatibia (ovipositor $0.5\text{--}0.6\times$ metatibia). On the basis of the above features we have no hesitation in considering it to be conspecific. However, the length of funicle segments are shorter and that of clava is a little longer but we consider this to be intraspecific variation.

REDESCRIPTION (specimens from India)

Female

Length, 480 μm . Head and body brown. Antenna pale brown. Wings subhyaline. Legs pale brown.

Head (Fig. 3c). Head, in frontal view, $1.3\times$ as broad as high, with faint polygonal reticulate sculpture; antennal torulus above the mid eye level; torulus separated from transverse trabecula by $1\times$ height of torulus; occiput with oblique reticulations. Antenna (Fig. 3b) with scape, dilated distally, $5\times$ as long as broad; pedicel $1.6\times$ as long as broad; clava $6\times$ as long as broad, subequal to F4–F7 combined, with 4 mps.

Mesosoma (Figs. 4a, d). Prosternum pointed apically (Fig. 4c, e). Mesoscutum with transverse reticulations; axilla with polygonal reticulate sculpture; scutellum and frenum with faint reticulate sculpture; propodeum with submedian carinae, not extending to metanotum (Fig. 4d). Fore wing distinctly curved at apex and narrower, $16\times$ as long as broad, disc with a complete row setae in middle; longest marginal seta $5\times$ as long as maximum wing width (Fig. 4b). Hind wing $29\times$ as long as broad; longest marginal seta $9\times$ as long as maximum wing width (Fig. 4b). All the coxae reticulate.

Metasoma (Fig. 4a). Petiole as long broad, strongly ridged and without lateral lamellae; ovipositor, $0.6\times$ mesotibia and $0.5\times$ metatibia length.

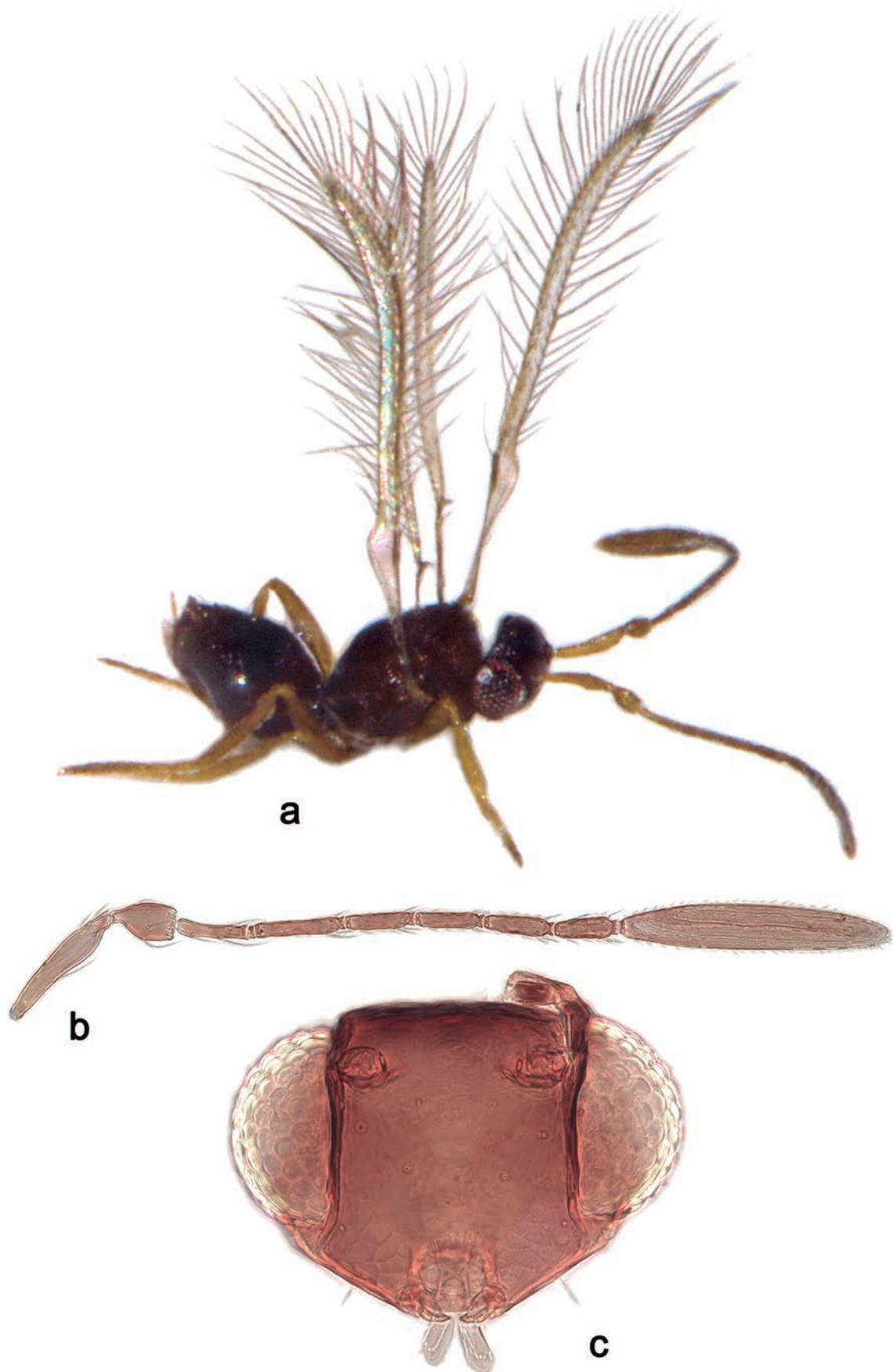


Fig. 3.— *Camptoptera jthuberi* Triapitsyn ♀. a. Habitus. b. Antenna. c. Head, frontal view.

Fig. 3.— *Camptoptera jthuberi* Triapitsyn ♀. a. Habitus. b. Antena. c. Cabeza, vista frontal.

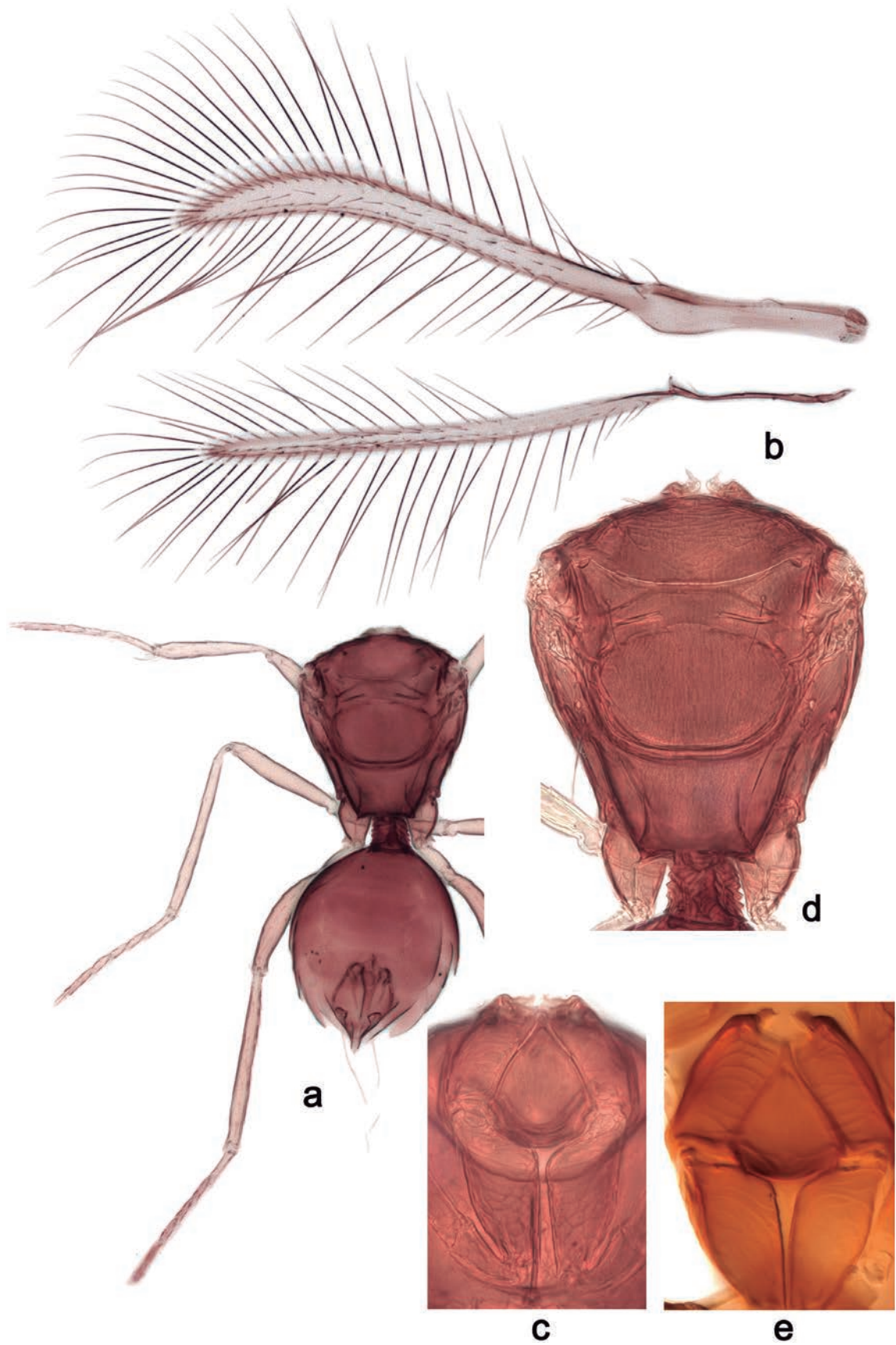


Fig. 4.— *Camptoptera jthuberi* Triapitsyn ♀. a. Mesosoma with gaster and petiole. b. Wings. c. Prosternum. d. Mesosoma enlarged. e. Prosternum, holotype.

Fig. 4.— *Camptoptera jthuberi* Triapitsyn ♀. a. Mesosoma con gaster y peciolo. b. Alas. c. Prosternum. d. Mesosoma aumentado. e. Prosternum, holotipo.

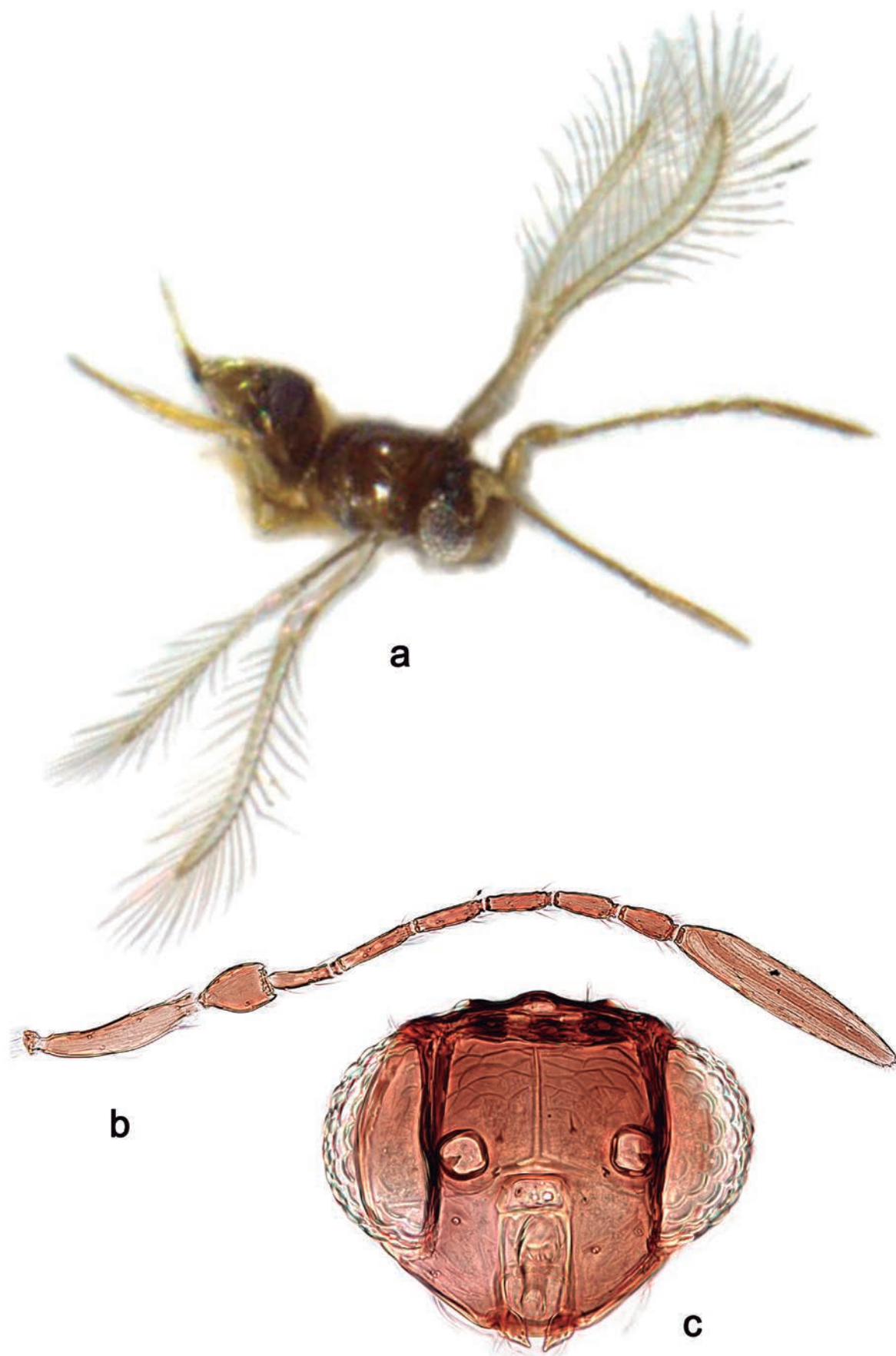


Fig. 5.— *Camptoptera aveolobato* sp. nov. ♀ Holotype. a. Habitus. b. Antenna. c. Head, frontal view.

Fig. 5.— *Camptoptera aveolobato* sp. nov. ♀ Holotipo. a. Habitus. b. Antena. c. Cabeza, vista frontal.

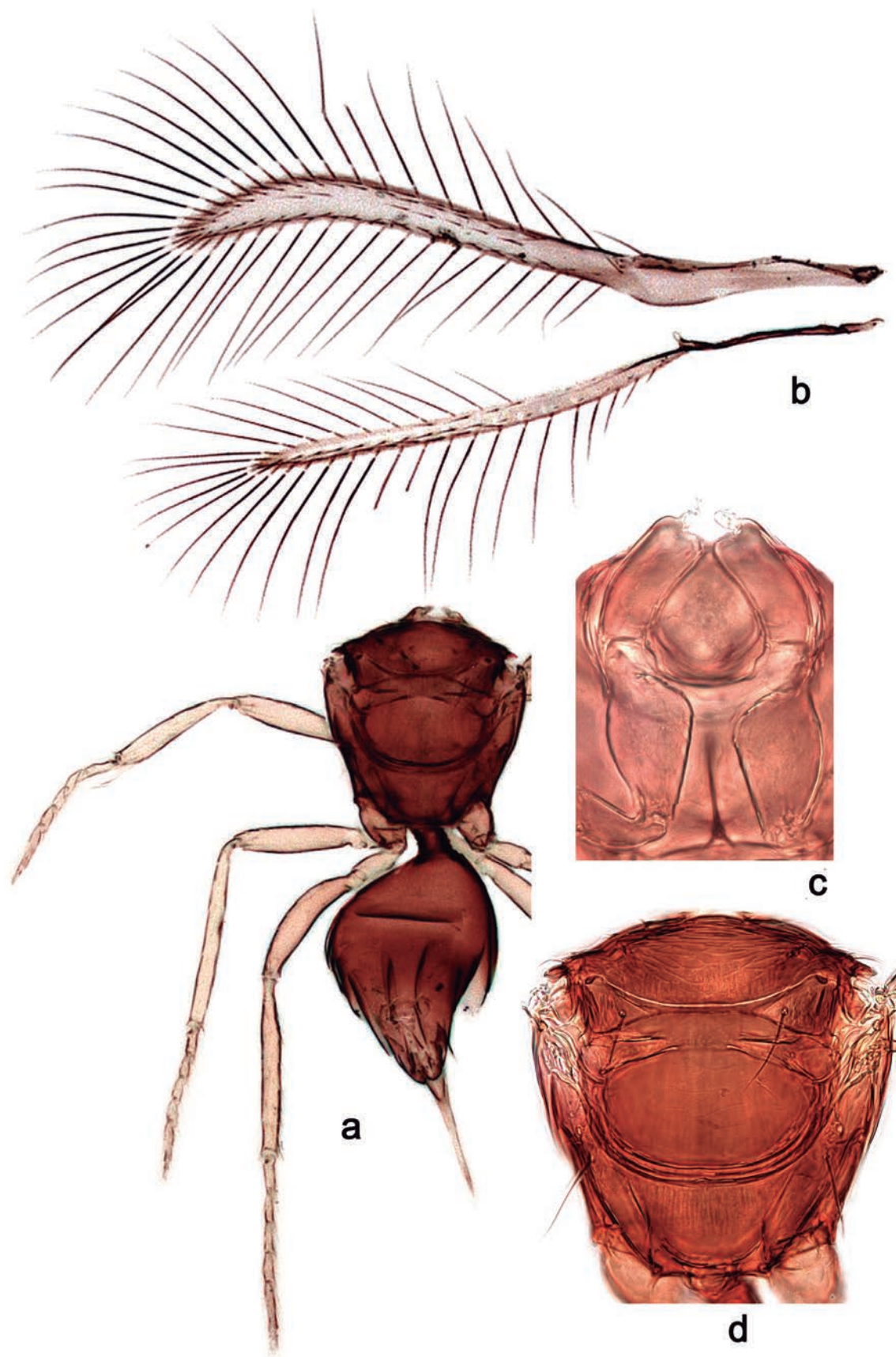


Fig. 6.— *Camptoptera aveolobato* sp. nov. ♀ Holotype. a. Mesosoma with gaster and petiole. b. Wings. c. Prosternum. d. mesosoma enlarged.

Fig. 6.— *Camptoptera aveolobato* sp. nov. ♀ Holotipo. a. Mesosoma con gaster y peciolo. b. Alas. c. Prosternum. d. mesosoma engrandecida.

Measurements (μm): head width:height, 165:125; antennal segments length:width scape, 90:19; pedicel, 40:25; F1, 45:8; F2, 5:8; F3, 60:10; F4, 45:10; F5, 45:10; F6, 43:13; F7, 40:13; clava, 175:30; mesosoma, 195; mesoscutum, 48; scutellum, 23; frenum, 65; metanotum, 15; propodeum, 45; fore wing length:width, 640:40; longest marginal seta, 213; hind wing length:width, 588:20; longest marginal seta, 180; protibia, 125; mesotibia, 190; metatibia, 200; petiole length:width, 40:40; gaster, 210; ovipositor, 105.

DISTRIBUTION. India: Sikkim. Taiwan.

Camptoptera aveolobato Anwar & Zeya sp. nov.

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Figs. 5–6

TYPE MATERIAL. Holotype ♀: INDIA: ANDAMAN & NICOBAR ISLANDS: South Andaman Forest, Garacharma, 31.i.2013 (MT), Coll. K. Veenakumari (ZDAMU, on slide under 4 coverslips, slide No. MYM.174).

DIAGNOSIS. The following features together distinguish this species. Prosternum pointed anteriorly; frenum with large polygonal reticulate sculpture. Fore wing with a row of seven setae scattered in the middle. Ovipositor extends distinctly beyond apex of gaster, $0.9\times$ mesotibia and $0.8\times$ metatibia length.

Camptoptera aveolobato comes close to *C. jthuberi* in having similar shape of prosternum and petiole, but differs by having distended scape and large polygonal cell-like sculpture on frenum.

DESCRIPTION

Female

Length, 320 μm . Head and body brown. Antenna yellowish brown. Wings subhyaline. Legs, including coxae, yellowish brown.

Head (Fig. 5c). Head, in frontal view, $1.3\times$ as broad as high, with polygonal reticulate sculpture; antennal torulus below mid eye level; torulus separated from transverse trabecula by $2\times$ height of torulus; occiput with oblique reticulations. Antenna with scape $4\times$ as long as broad; pedicel $1.5\times$ as long as broad; clava very long and slender, $5\times$ as long as broad, subequal to F4–F7 combined, with 4 mps (Fig. 5b).

Mesosoma (Figs. 6a, d). Prosternum pointed anteriorly (Fig. 6c). Mesoscutum with transverse reticulations; axilla with polygonal reticulate sculpture; scutellum with faint reticulate sculpture; frenum with large polygonal reticulate sculpture (Fig. 6d); propodeum with submedian carinae, not extending to metanotum (Fig. 6d). Fore wing distinctly curved at apex and narrower, $16\times$ as long as broad, disc with a row of seven scattered setae in middle; longest marginal seta $6\times$ as long as maximum

wing width (Fig. 6b). Hind wing $28\times$ as long as broad; longest marginal seta $9\times$ as long as maximum wing width (Fig. 6b). All the coxae reticulate.

Metasoma (Fig. 6a). Petiole broader than long, strongly ridged and without lateral lamellae; ovipositor protruded at apex of gaster, $0.9\times$ mesotibia and $0.8\times$ metatibia length.

Measurements (μm): head width:height, 128:100; antennal segments length:width—scape, 75:18; pedicel, 35:23; F1, 30:8; F2, 4:8; F3, 40:8; F4, 35:8; F5, 30:9; F6, 30:10; F7, 28:13; clava, 123:23; mesosoma, 140; mesoscutum, 35; scutellum, 15; frenum, 48; metanotum, 8; propodeum, 30; fore wing length:width, 405:25; longest marginal seta, 135; hind wing length:width, 355:13; longest marginal seta, 110; protibia, 90; mesotibia, 128; metatibia, 148; petiole length:width, 25:20; gaster, 163; ovipositor, 113.

DISTRIBUTION. India: Andaman & Nicobar Islands.

ETYMOLOGY. The species name is an arbitrary combination of letters, and is treated as noun in apposition.

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Disclosure statement

No potential conflict of interest was reported by the authors.

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