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RESEARCH ARTICLE

Two new species of *Omyomymar* Schauff (Hymenoptera: Mymaridae) from India with key to Oriental species

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Abstract: Two new species of *Omyomymar* Schauff viz., *O. huberi* sp. nov. and *O. noyesi* sp. nov., are described from Tamil Nadu, India. A key to Oriental *Omyomymar* species is provided with color images of new species for easy morphological diagnosis.

Key words: Chalcidoidea, Mymaridae, *Omyomymar*, India, new species, key.

Introduction

Ogloblin (1935) described two species, *Paranaphoidea silvana* and *P. clavata* from South America. But Schauff (1983) erected the genus *Omyomymar* with *P. silvanum* as the type species by transferring the species *P. silvana* from *Paranaphoidea* to *Omyomymar*. In addition to the two species described by Ogloblin (1935), Schauff (1983) described two species, *O. grisselli*, and *O. alar* from the New World and also transferred *P. clavata* to *Omyomymar*. Later, Lin and Chiappini (1996) described three new species (*O. glabrum*, *O. breve* and *O. longidigitum*) from the Old World, China. There was no report of *Omyomymar* from India till 2010, when Manickavasagam & Rameshkumar (2011) reported this genus for the first time in India based on two females. Subsequently Manickavasagam *et al.* (2011) diagnosed them as *O. silvanum* (Ogloblin). However this was a misidentification, which is now identified as a new species which is closer to *O. silvanum*. Then Pricop (2014) added a new species, *O. andriescui* from Romania followed by another two new species (*O. yousufi* & *O. insulanum*) from India (Anwar *et al.* 2014) taking the total to 10 species (former four

and latter six from New and Old world respectively). Here we describe additional two new species from India.

Material and methods

Specimens were collected using yellow pan / Malaise traps (Noyes 1982) from forest, orchard and weedy ecosystems of Yercaud, Annamalai University premises and Kattumannarkoil respectively of Tamil Nadu and weedy ecosystem of Chintapalli, Andhra Pradesh, India. Slide mounts and card mounts were prepared as described by Noyes (1982). All the relative measurements were taken using micrometer division readings fitted in an ocular lens and then converted to microns. Habitus images were taken using Leica stereo zoom microscope M205C with DMC 2900 camera whereas for slide mounted parts, the same was done using Leica DM750 phase contrast microscope with DFC 295 camera. Finally the images were stacked using montage software and pyramided using Combine ZP software. The acquired images were then processed using Adobe Photoshop CS. All types except two paratypes (one each will be deposited with NBAIR & ZDAMU) of *O. noyesi* will be retained with EDAU.

Terms used in the key and descriptions follow those in Schauff (1983). The following abbreviations are used: F1, 2, = Funicular segments 1 and 2 etc. of female antenna, LMS= Longest marginal setae, MT= Malaise Trap, YPT=Yellow Pan Trap, EDAU= Entomology Department, Annamalai University, NBAIR= National Bureau of Agricultural Insect Resources (formerly known as NBAII), Bengaluru, Karnataka, India; NHM= Natural History Museum, London; CNC= Canadian Natural Collections of Insects, Arachnids and Nematodes, Ottawa, Ontario, Canada; ZDAMU= Department of Zoology, Aligarh Muslim University, Aligarh, India.

Results

Genus *Omyomymar* Schauff, 1983

Omyomymar Schauff 1983: 543-551. Type species: *Paranaphoidea silvana* Ogloblin, 1935.

Omyomymar belongs to the *Anagrus* genus group, as it shares the characters, posterior scutellum divided medially, face often with subantennal grooves, body usually poorly sclerotized and often pale coloured. This genus group is closer to *Schizophragma* that differs from *Omyomymar* by having ovipositor only slightly exerted (ovipositor distinctly exerted in *Omyomymar*) (Schauff 1983).

Key to Oriental species of *Omyomymar* (females)

- 1 Clava without any apical incision (Figs 1-2, p.143 of Anwar *et al.*, 2014)..... 2
- Clava with an apical incision (Figs 1-4, p.546 of Schauff 1983, Fig 7, p.144 of Anwar *et al.* 2014)..... 3
- 2(1) Clava 3.5× as long as wide and shorter than F4-F6 combined (China)
..... *O. glabrum* Lin & Chiappini
- Clava 2.5× as long as wide and a little longer than F4-F6 combined (India)
..... *O. yousufi* Anwar & Zeya
- 3(1) Exserted part of ovipositor at most 0.4× metasomal length (China)

- *O. breve* Lin & Chiappini
- Exserted part of ovipositor at least 0.6× metasomal length 4
- 4(3) F1 shorter (0.75×) than pedicel (Exserted part of ovipositor 0.6× metasomal length) (India) *O. insulanum* Zeya & Anwar
- F1 at least as long as pedicel 5
- 5(4) F5 and F6 excised dorsally (Fig.3, p.303 of Lin & Chiappini 1996) (F1 1.35× pedicel length; exserted part of ovipositor at least 0.85× metasomal length) (China)..... *O. longidigitum* Lin & Chiappini
- F5 and F6 straight 6
- 6(5) Exserted part of ovipositor 0.6× as long as gaster; F1 the longest and 1.5× as long as pedicel (Fig. 2); propodeum finely strigulate (India) *O. huberi* sp. nov.
- Exserted part of ovipositor 0.9× as long as gaster; F2 the longest; F1 as long as pedicel (Fig. 7); propodeum smooth (India) *O. noyesi* sp. nov.

Descriptions of new taxa

Omyomyr huberi Manickavasagam & Gowriprakash sp. nov. (Figs. 1–5)

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Description

Female (holotype) (Fig. 1). Length excluding exserted part of ovipositor 530 μ. Head, funicle segments, clava, mesosoma, distal 2/3 of the metasoma except tip pale brown; scape, pedicel, legs, basal 1/3 and tip of the metasoma pale yellow. Wings hyaline.

Head 1.25× as broad as high; Antenna (Fig. 2), scape 4.5× as long as wide, pedicel 2.0× as long as wide, F1 the longest and 6× as long as wide, F4–6 combined 0.75× shorter than clava, clava 4.0× as long as wide; clava 2-segmented with 4 sensillae in apical and one in basal segments.

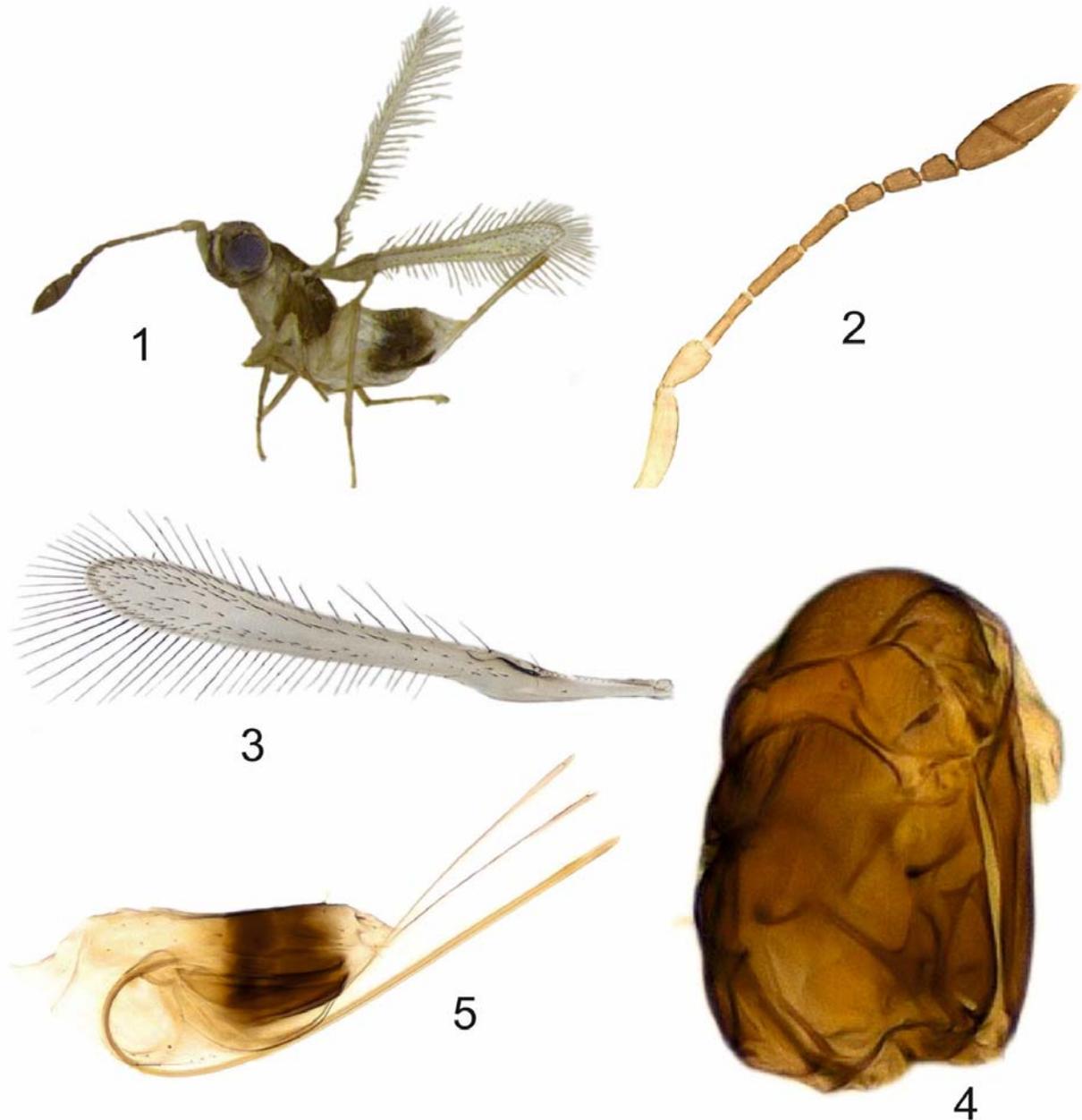
Mesosoma (Fig. 4) 0.5× gaster length, mesoscutum reticulate, anterior scutellum medially smooth and laterally substrigulate, posterior scutellum substrigulate, propodeum finely strigulate; One pair of setae each, in middle and lateral lobes of mesoscutum, anterior scutellum and axillae. Fore wing (Fig. 3) 8.9× as long as wide with two lines of setae running parallel to its wing margin, LMS 2× as long as maximum width, apical one fourth sparsely setose in between two lines of setae; hind wing 29.5× as long as wide, LMS 5.5× as long as maximum width.

Ovipositor 1.5× as long as gaster (Fig. 5), exserted part 0.6× gaster length, 2.9× as long as mid tibia and 3.1× as long as hind tibia.

Measurements (in microns) (length: width; or length): scape, 90:20; pedicel, 40:20; F1, 60:10; F2 50:10; F3, 40:10; F4, 30:20; F5, 30:20; F6, 30:20; clava, 120:30; mesosoma, 210; gaster, 420; fore wing, 620:70; LMS, 140; hind wing, 590:20; LMS, 110; ovipositor, 620; exserted part, 270; mid tibia, 210; hind tibia, 200.

Materials examined: Holotype (EDAU/Mym 22/2016): 1 female dissected and mounted on slide under 4 cover slips, INDIA: Tamil Nadu, Cuddalore, Chidambaram, Annamalai University, Annamalai Nagar (N11 23; E079 43), MT, *Mangifera indica* L. Orchard, 30.vii.2011, Coll. S. Manickavasagam and A. Rameshkumar. **Paratype** (EDAU/Mym22/2016): 1 female dissected and mounted on slide under 4 cover slips, INDIA:

Tamil Nadu, Cuddalore, Chidambaram, Jeyamkondapattinam (N11 21; E 079 36), MT, weedy field, 14.viii.2011, Coll. C. Menakadevi.



Figures 1–5. *Omyomymar huberi* sp. nov., holotype, female. **1**, habitus; **2**, antenna; **3**, fore wing; **4**, mesosoma; **5**, metasoma showing ovipositor.

Distribution: India: Tamil Nadu.

Etymology: The species is named after the mymarid specialist Dr. John T. Huber of CNC.

***Omyomymar noyesi* Manickavasagam & Gowriprakash sp. nov.** (Figs. 6-10)

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Description

Female (holotype) (Fig. 6). Length excluding exerted part of ovipositor 610 μ (Paratype length excluding exerted part of ovipositor 575 to 660 μ). Head, funicle segments, clava, mesosoma, distal 2/3 of the metasoma pale brown; scape, pedicel, legs, basal 1/3 and tip of the metasoma pale yellow. Wings hyaline.

Head 1.1 \times as broad as high; Antenna (Fig. 7), scape 3.0 \times as long as wide, pedicel 2.0 \times as long as wide, F1 and F3 4.0 \times as long as wide, F2 the longest, F4-6 combined 0.78 \times shorter than clava, clava 3.6 \times as long as wide; clava 2-segmented with 4 sensillae in apical and one in basal segments.

Mesosoma (Fig. 9) 0.6 \times gaster length, mesoscutum and anterior scutellum faintly reticulate, posterior scutellum substrigulate, propodeum smooth; One pair of setae each, in middle and lateral lobes of mesoscutum and anterior scutellum. Fore wing 8.3 \times as long as wide with two lines of setae running parallel to its wing margin (Fig. 8), LMS 1.8 \times as long as maximum width, apical one fourth sparsely but not evenly setose; hind wing 29 \times as long as wide, LMS 6 \times as long as maximum width.

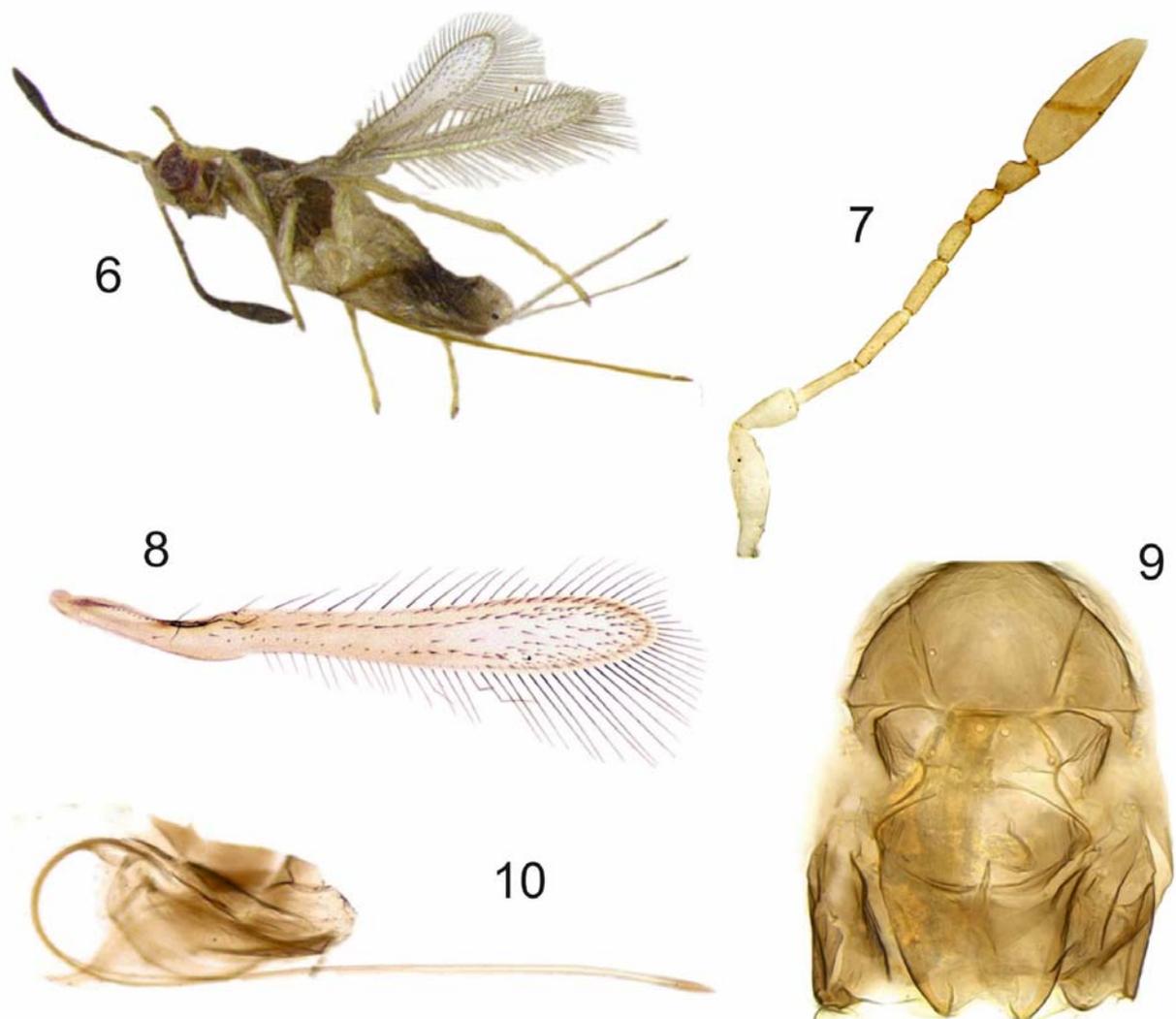
Ovipositor, 1.7 \times as long as gaster (Fig. 10), exerted part 0.9 \times gaster length, 5.3 \times as long as mid tibia and 2.6 \times as long as hind tibia.

Measurements (in microns) (length: width; or length): scape, 90:30; pedicel, 40:20; F1, 40:10; F2 50:10; F3, 40:10; F4, 30:20; F5, 30:20; F6, 30:20; clava, 115:32; mesosoma, 220; gaster, 400; fore wing, 603:73; LMS, 130; hind wing, 580:20, LMS, 120; ovipositor, 690; exerted part, 360; mid tibia, 130; hind tibia, 270.

Materials examined: Holotype (EDAU/Mym 23/2016): 1 female dissected and mounted on slide under 5 cover slips, INDIA: Tamil Nadu, Cuddalore, Chidambaram, Annamalai University, Annamalai Nagar (N11 23; E079 43), MT, orchard ecosystem, 30.viii.2011, Coll. S. Manickavasagam. **Paratypes** (EDAU/Mym 23/2016): 8 females (4 females each dissected and mounted on individual slide under 4 cover slips), INDIA: Tamil Nadu, Cuddalore, Chidambaram Annamalai University, Annamalai Nagar (N11 23; E79 43), YPT, orchard ecosystem, 2.vii.2012, 20.viii.2012, 27.ii.2013, 3. iii. 2013, Coll. S. Palanivel. 1 female (dissected and mounted on slide under 4 cover slips) INDIA: Andhra Pradesh, Chinthapalli (N18 94; E83 71) YPT, weedy ecosystem, 28. xii. 2013, Coll. T. Krishna Chaitanya. 2 females (dissected and mounted on individual slides under 4 cover slips), INDIA: Tamil Nadu, Salem, Yercaud (N11.48; E78 12), YPT, forest ecosystem, 24. ix. 2013, Coll. M. Ayyamperumal and N. Gowthaman. 1 female dissected and mounted on slide under 5 cover slips, INDIA: Annamalai University, Annamalai Nagar (N11 23; E79 43), MT, orchard ecosystem, 25.viii.2012, Coll. S. Palanivel. One paratype each to be deposited with NBAIR and ZDAMU.

Distribution: India: Tamil Nadu, Andhra Pradesh.

Etymology: The species is named after the chalcid taxonomist Dr. John S. Noyes of NHM, London.



Figures 6–10. *Omyomymar noyesi* sp. nov., holotype, female. 6, habitus; 7, antenna; 8, fore wing; 9, mesosoma; 10, metasoma showing ovipositor.

Comments: The Old World species can easily be diagnosed following the characters given below and the two new species by the characters given in Figure 11 and Table 1.

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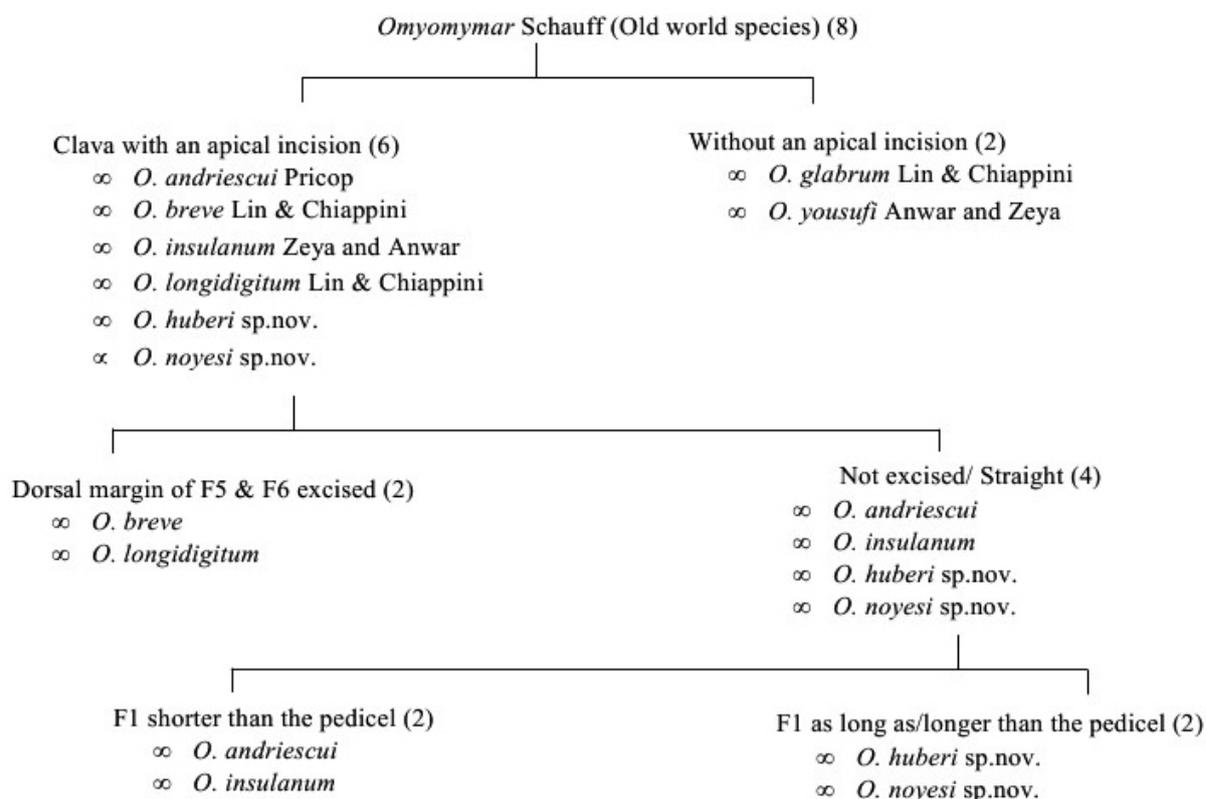


Figure 11. Diagram of the characters differentiating *Omyomymar* species.

Table 1. Characters differentiating *O. huberi* and *O. noyesi*.

Character	<i>O. huberi</i> sp. nov.	<i>O. noyesi</i> sp. nov.
Funicle	F1 the longest, 6.0× as long as wide (Fig. 2)	F2 the longest, 5.0× as long as wide (Fig. 7)
Sculpturing	Mid and lateral lobes of mesoscutum reticulate, anterior and posterior scutellum medially reticulate and laterally linearly striate, propodeum linearly striate. (Fig. 4)	Mid and lateral lobes of mesoscutum reticulate along the anterior one third border, rest smooth. (Fig. 9)
Ovipositor	2.9× mid tibia, 3.1× hind tibia; exerted part 0.6× as long as gaster (Fig. 5)	5.3× mid tibia, 2.6× hind tibia, exerted part 0.9× as long as gaster (Fig. 10)

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