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SHORT COMMUNICATION

DESCRIPTION OF A NEW SPECIES OF *OMYOMYMAR SCHAUFF* FROM INDIA WITH A KEY TO ORIENTAL SPECIES AND FIRST REPORT OF *PALAEONEURA MARKHODDLEI* TRIAPITSYN (HYMENOPTERA: MYMARIDAE) FROM THE INDIAN SUBCONTINENT

H. Sankararaman & S. Manickavasagam

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Description of a new species of *Omyomymar* Schauff from India with a key to Oriental species and first report of *Palaeoneura markhoddlei* Triapitsyn (Hymenoptera: Mymaridae) from the Indian subcontinent

H. Sankararaman¹ & S. Manickavasagam²

^{1,2}Parasitoid Taxonomy and Biocontrol laboratory, Department of Entomology, Faculty of Agriculture, Annamalai University, Chidambaram, Tamil Nadu 608002, India.

¹sankararaman05@gmail.com (corresponding author), ²drmanicks2003@yahoo.co.in

Abstract: *Omyomymar hayati* sp. nov. (Hymenoptera: Chalcidoidea: Mymaridae) is described from Tamil Nadu, India and key to Oriental species of *Omyomymar* is updated. *Palaeoneura markhoddlei* Triapitsyn, is reported from Indian subcontinent for the first time and key to Indian species is updated. The following known species, viz., *Acmopolynema incognitum* (Narayanan, Rao & Kaur), *Platystethynium glabrum* Jin & Li, *Polynema (Polynema) bengalense* Rehmat & Anis and *Palaeoneura vegis* Amer & Zeya are recorded from the Indian states of Rajasthan, Karnataka, Kerala, and Tamil Nadu, respectively.

Keywords: Chalcidoidea, key, new species, *Palaeoneura markhoddlei*, *Omyomymar*.

Abbreviations: fl—flagellar segments | gt—gastral tergite | mps—multiporous plate sensillum or sensilla | YPT—yellow pan trap.

The family Mymaridae is represented by 116 genera world-wide (Noyes 2019) and 39 from India. Totally, about 205 species are known from India (H. Sankararaman personal compilation upto August 2020). Of the two genera treated in this work, *Omyomymar* Schauff (1983) was erected by Schauff with descriptions of *O. alar* and *O. griselli* from U.S.A. and he also transferred *Paranaphoidea silvana* Oglobin and *P. clavata* Oglobin

to *Omyomymar* and designated *P. silvanum* as the type species of *Omyomymar*. Presently, this genus contains six and seven species from New and Old World, respectively. In the Oriental region, Lin & Chiappini (1996) described three species from China, *O. glabrum*, *O. breve* and *O. longidigitum*. Manickavasagam & Rameshkumar (2011) reported this genus from India. Pricop (2014) reported this genus from Europe describing *O. andriescui* from Romania. So far, four species have been described from India: *O. insulanum* Zeya & Anwar and *O. yousufi* Anwar & Zeya by Anwar et al. (2014), followed by *O. huberi* Manickavasagam & Gowriprakash, and *O. noyesi* Manickavasagam & Gowriprakash by Gowriprakash & Manickavasagam (2016).

Palaeoneura was erected by Waterhouse (1915) with *P. interrupta* as the type species. Currently, this genus is represented by 53 species around the world, of which six species of *kusnezovi* group are known from India (Amer & Zeya 2019). Recently, *P. markhoddlei* was described by Triapitsyn (2018a) from USA. Members of this genus are known to parasitize eggs of Cicadellidae (Hemiptera)

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(Noyes 2019).

In the present paper, eighth Oriental species of *Omyomymar* is described from material collected from Tamil Nadu and Kerala, India. The previous key to the Oriental species of *Omyomymar* (Gowriprakash & Manickavasagam 2016) is updated. *Palaeoneura markhoddlei* is recorded from the Indian Subcontinent for the first time and key to Indian species of *Palaeoneura* (Amer & Zeya 2019) is updated.

MATERIALS AND METHODS

Specimens were collected using yellow pan traps (Noyes 1982) from various Indian states. Recovered parasitoids were processed using hexamethyldisilazane (Brown 1993) and card or slide mounted for study. All the specimens are deposited with Entomology Department, Annamalai University (EDAU), Chidambaram, Tamil Nadu, India. All measurements are in microns. Habitus images were captured using Leica M205C stereozoom microscope (while specimens were in ethanol before slide mounting) and the slide mounted parts using Leica DM 750 phase contrast microscope. Images were stacked using montage and Combine ZP software, and then processed using Adobe Photoshop version 7.0. Terms used in the description follow Gibson (1997).

RESULTS

***Omyomymar* Schauff, 1983**

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

Omyomymar hayati

Manickavasagam & Sankararaman sp. nov.

(Images 1–2)

urn:lsid:zoobank.org:act:CD2536BC-BB8C-458A-AF6D-D6F426135758

Materials examined: Holotype: EDAU/Mym34/2020, Female, 01.viii.2019, Kunjappanai, Coimbatore, Tamil Nadu, India, 11.305N & 76.929E, on slide under four coverslips, labeled “India: Tamil Nadu, Kunjappanai, Coimbatore, YPT, tea plantation, coll. H. Sankararaman”.

Paratypes: EDAU/Mym34/2020, two females, 08.vi.2019, Siruvani, Coimbatore, Tamil Nadu, India, 10.937N & 76.687E, coll. H. Sankararaman, on card, labeled “India: Tamil Nadu, Siruvani, Coimbatore, YPT, forest, coll. H. Sankararaman”; three females, 23.viii.2019, Palakkad, Mannarkkad, Kerala, India, 10.993N & 76.461E, on card, Malaise trap, forest, coll. Prashanth.

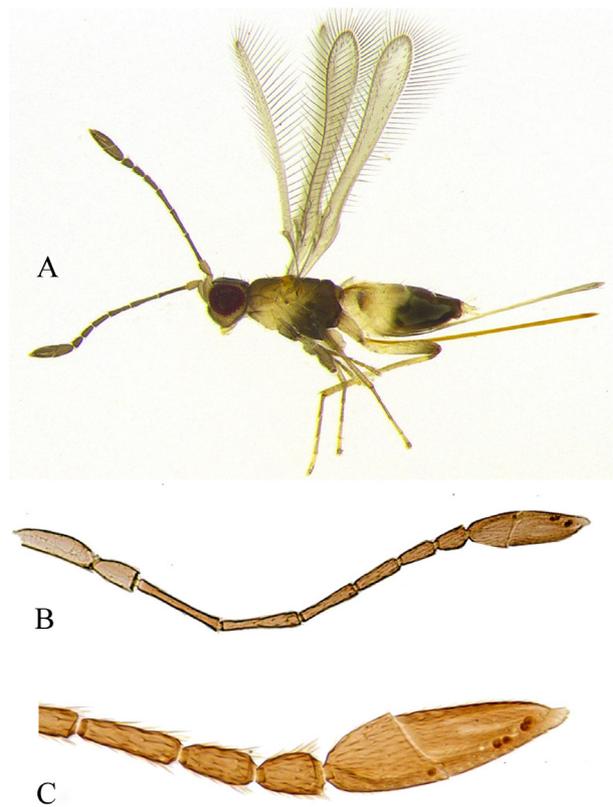


Image 1. *Omyomymar hayati* sp. nov. female, holotype: A—Habitus | B—antenna | C—Fl₄₋₆ and clava magnified. © Sankararaman. H.

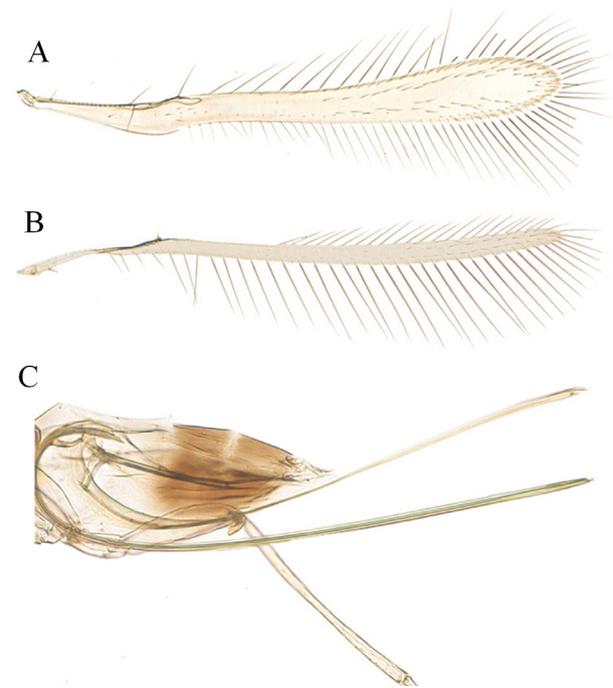


Image 2. *Omyomymar hayati* sp. nov. female, holotype: A—fore wing | B—hind wing | C—metasoma showing ovipositor. © Sankararaman. H.

Key to Oriental species of *Omyomymar*, females (modified from Gowriprakash & Manickavasagam 2016)

1. Clava without apical incision (Anwar et al. 2014: Figs. 1–2) 2
- Clava with an apical incision (Anwar et al. 2014: Fig. 7) 3
2. Clava about 3.5× as long as wide and shorter than fl_{4-6} combined [0.73×] (China) *O. glabrum* Lin & Chiappini
- Clava 2.5× as long as wide and a little longer than fl_{4-6} combined (India) *O. yousufi* Anwar & Zeya
3. Exserted part of ovipositor at most 0.4× gaster length (China) *O. breve* Lin & Chiappini
- Exserted part of ovipositor at least 0.6× gaster length 4
4. Fl_1 shorter (0.75×) than pedicel (Exserted part of ovipositor 0.6× gaster length) (India) *O. insulanum* Zeya & Anwar
- Fl_1 at least as long as pedicel 5
5. Fl_5 and fl_6 excised dorsally (Lin & Chiappini 1996: Fig. 3) (Fl_1 1.35× pedicel length; exserted part of ovipositor at least 0.85× gaster length) (China) *O. longidigitum* Lin & Chiappini
- Fl_5 and fl_6 straight, not excised dorsally 6
6. Clava at most 3.1× as long as wide (Image 1C); clava as long as fl_{4-6} combined (Image 1B–C); fore wing disc almost bare with two lines of thick setae in distal half, running parallel to its wing margin (Image 2A) (India)
..... *O. hayati* Manickavasagam & Sankararaman sp. nov.
- Clava at least 3.6× as long as wide; clava longer than fl_{4-6} combined (1.3×); fore wing disc densely setose 7
7. Clava 4× as long as wide; exserted part of ovipositor 0.6× gaster length (Gowriprakash & Manickavasagam 2016: Fig. 5); fl_1 the longest and 1.5× as long as pedicel; propodeum finely strigulate (India)
..... *O. huberi* Manickavasagam & Gowriprakash
- Clava 3.6× as long as wide; exserted part of ovipositor 0.9× gaster length (Gowriprakash & Manickavasagam 2016: Fig. 10); fl_2 the longest; fl_1 as long as pedicel; propodeum smooth (India) ... *O. noyesi* Manickavasagam & Gowriprakash

DESCRIPTION

Female (Holotype): (Image 1A) Length, 585µm (excluding exserted part of ovipositor). Head, flagellum, pronotum, mesoscutum, propodeum, brown. Antenna with scape and pedicel yellow. Mesosoma with lateral lobe of mesoscutum yellow. Wings subhyaline. Legs including coxae yellow. Metasoma, basal one third of gaster yellow (rest brown), ovipositor brown.

Head 1.1× as wide as high; antenna with (Image 1B, C) scape about 3.5× as long as wide; pedicel about 1.8× as long as wide; fl_1 the longest; fl_2 longer than fl_3 ; clava 2-segmented, 3.1× as long as wide, with apical incision and as long as fl_{4-6} combined. Basal segment of clava with one mps and one placoid sensilla, apical segment with three mps and four placoid sensilla.

Mesosoma (Image 1A) 0.7× gaster length, pronotum, mesoscutum, anterior scutellum faintly reticulate; frenum substrigulate; propodeum smooth. Mid lobe of mesoscutum with two pairs of setae and lateral lobe of mesoscutum with one pair of setae; anterior scutellum with one pair of setae. Fore wing (Image 2A) about 9.4× as long as wide, proximal half or so of wing disc almost bare, distal half with two lines of setae running parallel

to wing margins; longest marginal seta about 1.75× as long as maximum wing width. Hind wing (Image 2B) 26.5× as long as wide, longest marginal seta about 5.0× as long as maximum wing width.

Metasoma (Image 2C) ovipositor about 1.9× as long as gaster, 2.5× as long as mesotibia and 2.3× as long as metatibia, exserted part 0.9× as long as gaster.

Measurements (length: width; or length) antennal segments: scape, 77:22; pedicel, 40:22.5; fl_1 , 90; fl_2 , 75; fl_3 , 62.5; fl_4 , 45; fl_5 , 40; fl_6 , 33; clava, 117:37.5; mesosoma, 250; fore wing, 750: 80; longest marginal seta, 140; hind wing, 730: 27.5; longest marginal seta, 140; mesotibia, 256; metatibia, 288; gaster, 350; ovipositor, 650; exserted part, 320.

Male: Unknown.

Etymology: The species is named after Prof. Mohammad Hayat, Aligarh Muslim University, for his contributions to the taxonomy of Indian Chalcidoidea.

Distribution. India: Tamil Nadu and Kerala.

Hosts: Unknown.

Comments: *Omyomymar hayati* sp. nov. looks similar to *O. glabrum* and *O. yousufi* in having fore wing with very few setae. However, it differs from both of

them by having clava with apical incision (*O. glabrum* and *O. yousufi*, clava without apical incision). This new species differs from *O. glabrum*, by having following characters: clava as long as fl_{4-6} combined; exerted part of ovipositor shorter than gaster (In *O. glabrum*, clava shorter than fl_{4-6} combined [0.7×] and exerted part of ovipositor longer than gaster [1.3×]). It differs from *O. yousufi* by having clava 3.1× as long as wide; fl_2 longer than fl_3 ; exerted part shorter than gaster (In *O. yousufi*, clava 2.5× as long as wide; fl_2 subequal to fl_3 ; exerted part as long as gaster).

First report of *Palaeoneura markhoddlei* Triapitsyn from India (Image 3)

Material examined: EDAU/Mym35/2020, three females, 22.ix.2018, Yercaud, Salem, Tamil Nadu, India, 11.774N & 78.209E, YPT, coffee ecosystem, coll. S. Palanivel, two on slide under four cover slips, another female on card, EDAU.

Brief diagnosis

Vertex with sparse, short setae; scape as long as wide and smooth; pedicel shorter than Fl_1 ; Fl_3 the longest and fl_6 the widest; fore wing disc notably narrow, hyaline with brownish tinge along apical margin and also anterior margin sub apically. Ovipositor occupying almost entire length of gaster, notably exerted beyond gastral apex (Image 3B) (Triapitsyn 2018a).

Distribution: USA: California & Hawaii [Hawaiian Islands, Maui island] (Triapitsyn 2018a), India: Tamil Nadu (New report).

Hosts: Unknown, but is assumed to be egg parasitoid of leafhopper from tribe Nirvanini Baker (Hemiptera: Cicadellidae: Evacanthinae) (Triapitsyn 2018a).

Comments: All three specimens collected from India exactly match with description given by Triapitsyn (2018a).

Distributional records

1. *Acmopolyntema incognitum* (Narayanan, Rao & Kaur, 1960)

Material examined: EDAU/Mym/DR1/2020, five females, 4.iii.2019, Udaipur, Rajasthan, India, 24.585N & 73.712E, YPT, grassland and vegetable ecosystems, coll. H. Sankararaman (one on slide under four coverslips and four on card, EDAU).

Brief diagnosis: Scape with cross-ridges on inner surface; fore wing with one brownish spot in the middle and marginal vein with one dorsal macrochaeta; propodeal carinae do not extend to half the length of

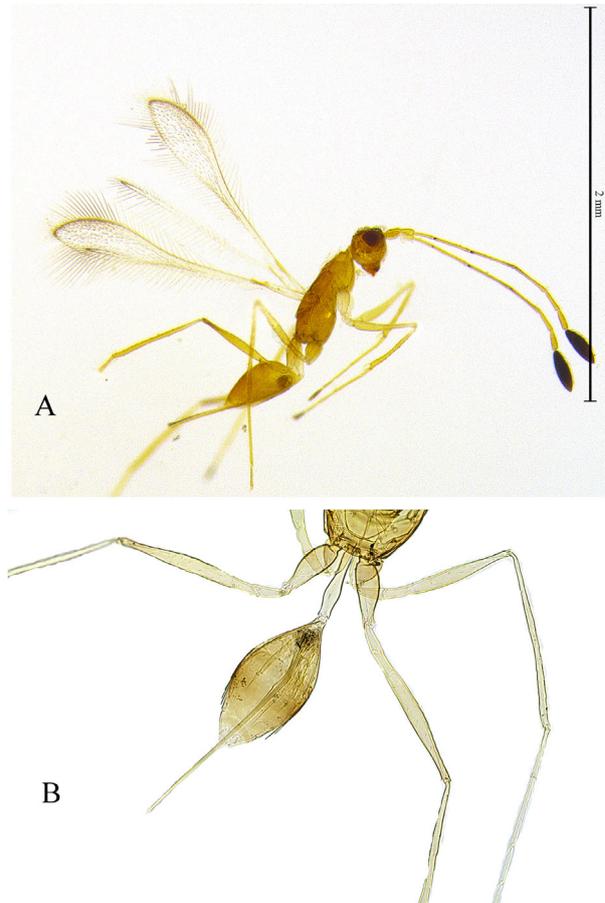


Image 3. *Palaeoneura markhoddlei* female: A—habitus | B—part of mesosoma and metasoma showing ovipositor. © Sankararaman. H.

propodeum; ovipositor exerted beyond gastral apex. (Triapitsyn & Berezovskiy 2007).

Distribution: India: Delhi, Karnataka, Uttar Pradesh (Hayat & Anis 1999) and Rajasthan (new record).

2. *Platystethynium glabrum* Jin & Li 2016

Material examined: EDAU/Mym/DR2/2020, two females, 08.ii.2019, Palakkad, Kerala, India, 10.786N & 76.654E, pitfall trap, grassland, coll. Prashanth (two on card, EDAU).

Brief diagnosis: Ovipositor about 0.49× as long as gaster, 1.8× of metatibia and originating at the level of gt_4 (Triapitsyn 2018b; Sankararaman et al. 2019).

Distribution: *Platystethynium glabrum*, India: Meghalaya (Sankararaman et al. 2019) and Kerala (new record)

Comments: Jin & Li (2016) described *P. glabrum* without examining the type species *P. onomarchicidum*, based on the absence of setae on eyes and lengths of fl_2 , fl_6 and ovipositor. Triapitsyn (2018b) examined few

Key to Indian species of the kusnezovi group of *Palaeoneura*, females (modified from Amer & Zeya 2019)

1. Fore wing hyaline or subhyaline without brown patch 2
- Fore wing hyaline with one or two brown patches 3
2. Fore wing subhyaline, without patches (Amer & Zeya 2019: Fig. 1C), except slightly infumate in basal third and along anterior margin of the blade; ovipositor hardly exerted and 0.57× as long as metatibia *P. vegis* Amer & Zeya
- Fore wing hyaline, without brown patch; ovipositor exerted distinctly beyond gastral apex and 1.39× as long as metatibia [Image 3B]) *P. markhoddei* Triapitsyn
3. Fore wing disc with an infuscated, round spot in distal fourth in anterior half of disc; scape with cross-ridges on inner surface *P. unimaculatum* (Hayat & Anis)
- Fore wing disc with two brown patches; scape smooth, without cross-ridges on inner surface 4
4. Fore wing less densely setose; face below toruli with six setae on each side; pronotum entire (Amer & Zeya 2019: Figs. 2C, A & G) *P. farmani* Amer & Zeya
- Fore wing densely setose; face below toruli with at least 11 setae on each side; pronotum divided mediolongitudinally (Amer & Zeya 2019: Figs. 4C, E; 5D, 7A) 5
5. Fore wing apical brown patch with proximal margin almost straight, the patch as wide as anteriorly and posteriorly; face below toruli with 11 setae on each side; ovipositor slightly longer than metatibia (Amer & Zeya 2019: Figs. 4C, 5A, 4F) *P. sophoniae* (Huber)
- Fore wing apical brown patch with proximal margin strongly oblique, the patch much wider along anterior margin than along posterior margin; face below toruli with 15 setae on each side; ovipositor at most 0.94× to about 1.02× as long as metatibia (Amer & Zeya 2019: Figs. 6C & A) 6
6. Body length 1.4 mm; head reddish-brown; antenna pale brown except clava and bases of F2 and F3 black; clava subequal in length to preceding two funicular segments combined; malar space with about 15 setae
.....*P. indopeninsularis* (Mani & Saraswat)
- Body length 0.6–0.97 mm; head yellowish-brown; antenna with funicular segments pale yellow to pale brown except clava dark brown; clava longer than preceding two funicular segments combined; malar space with 10 setae (Amer & Zeya 2019: Fig. 6) *P. bagicha* (Narayanan, Subba Rao & Kaur)

non-type materials of *P. onomarchicidum* (having similar data as in holotype) from Indonesia and indicated that the only potential difference between these two taxa is the relative length of ovipositor (0.84× as long as gaster, 3.0× of metatibia in *P. onomarchicidum* and 0.49× as long as gaster, 1.8× of metatibia in *P. glabrum*). Now it is further noted that ovipositor arises at the level of gt_3 in *P. onomarchicidum* (Fig. 106, p.161 of Triapitsyn 2018b) and gt_4 in *P. glabrum*. This was incorrectly quoted as gt_2 in *P. onomarchicidum* by Jin & Li (2016) and Sankararaman et al. (2019).

3. *Polynema (Polynema) bengalense* Rehmat & Anis, 2015

Material examined: EDAU/Mym/DR3/2020, two females, 29.xii.2018, Nanjangud, Mysore, Karnataka, India, 12.116N & 76.678E, YPT, finger millet and weed ecosystems, coll. K. Surya (on card, EDAU).

Brief diagnosis: Face narrow, subantennal grooves carrying setae; torulus slightly above mid-level of eye and touching preorbital trabeculae; ocelli in obtuse

triangle. Scape with striations; fore wing disc slightly infuscate; propodeum smooth and without any ridges or carinae; ovipositor very slightly exerted; five conical sensillae on fore tibia (Rehmat & Anis 2015).

Distribution: India: West Bengal (Rehmat & Anis 2015) and Karnataka (new record).

4. *Palaeoneura vegis* Amer & Zeya 2019

Material examined: EDAU/Mym/DR4/2020, two females, 23.ix.2018, Yercaud, Salem, Tamil Nadu, India, 11.774N & 78.209E, YPT, coffee ecosystem, coll. K. Surya (on card, EDAU).

Brief diagnosis: Face below toruli with 12 setae on each side; wings subhyaline; fore wing slightly infumate in basal third and along anterior margin; pronotum entire; ovipositor hardly exerted beyond gastral apex (Amer & Zeya 2019).

Distribution: India: Uttar Pradesh (Amer & Zeya 2019) and Tamil Nadu (new record).

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