



Description of two new species of *Microgastrini* (Hymenoptera: Braconidae) from India

MIR SAMIM AKHTAR^{1,3}, ZUBAIR AHMAD² & V.V. RAMAMURTHY^{1,3}

¹Network Project on Insect Biosystematics, Division of Entomology, Indian Agricultural Research Institute, New Delhi-110012, India

²Department of Zoology, Aligarh Muslim University, Aligarh 202002, UP, India

³Corresponding authors. E-mail: msakhtar123@yahoo.com (Mir Samim Akhtar), vvrento@gmail.com (V.V. Ramamurthy)

Abstract

Parapanteles sireeshaae Ahmad et Akhtar, **sp. nov.**, is described from Bapatla, Andhra Pradesh, India. Specimens of the new species were reared from *Hyposidra successaria* (Lepidoptera: Geometridae) on *Tinospora cordifolia* (Ranunculales: Menispermaceae) in betel vine garden. The new species is distinguished from *P. masoni* Austin et Dangerfield by the punctuation on coxae and anterior diagonal carina of propodeum. *Pholetesor hayati* Akhtar, **sp. nov.**, is described from Jammu and Kashmir, India and distinguished from *P. salalicus* (Mason) by the size of frons, sculpture on tergite II and smooth tergite III. The *Pholetesor* is recorded for the first time from the Oriental region.

Key words: *Parapanteles*, *Pholetesor*, new species, India

Introduction

Mason in 1981, re-erected the *Parapanteles* Ashmead and described *Pholetesor* while reclassifying the Microgasterinae and explaining the polyphyletic nature of *Apanteles* Förster. *Parapanteles* contains 19 described species: 13 from Neotropical region (Mason, 1981; Valerio *et al.* 2009), two from Nearctic region (Valerio *et al.* 2009), one each from Australasian (Austin and Dangerfield, 1992), Afrotropical (Valerio *et al.* 2005), Oriental (Sathe *et al.* 1989), and from both the Neotropical and Nearctic region (Mason 1981; Valerio *et al.* 2009). *Pholetesor* has 35 known species so far, of these 13 are Palearctic (Haliday 1834; Reinhard 1880; Marshall 1885; Tobias 1964; Papp 1973; Nixon 1973; Komenko 2007), 19 are Nearctic (Mason 1981; Valerio and Whitfield 2003; Whitfield 2006), and two are from both the Palearctic and Nearctic regions (Whitfield 2006); one species is from the Neotropical region (Valerio and Whitfield 2003). Two new species namely, *Parapanteles sireeshaae* Ahmad et Akhtar, **sp. nov.**, parasitizing *Hyposidra successaria* on *Tinospora cordifolia* in betel vine garden, and *Pholetesor hayati* Akhtar, **sp. nov.**, are described and illustrated herein from India.

Material and methods

The morphological terminology used in the species description for the various body parts and wing venation is that of Sharkey and Wharton (1997). Line diagrams were drawn using camera lucida attached with Leica MZ12 stereomicroscope. Female genitalia were mounted in DPX after overnight immersion in 10% KOH and exposure to 80% and 99% alcohol.

Description

Parapanteles Ashmead

Parapanteles Ashmead, 1900: 131. Type species: *Apanteles aletiae* Riley, original designation.

Parapanteles sireeshaae Ahmad et Akhtar, sp. nov.

(Figs 1–6)

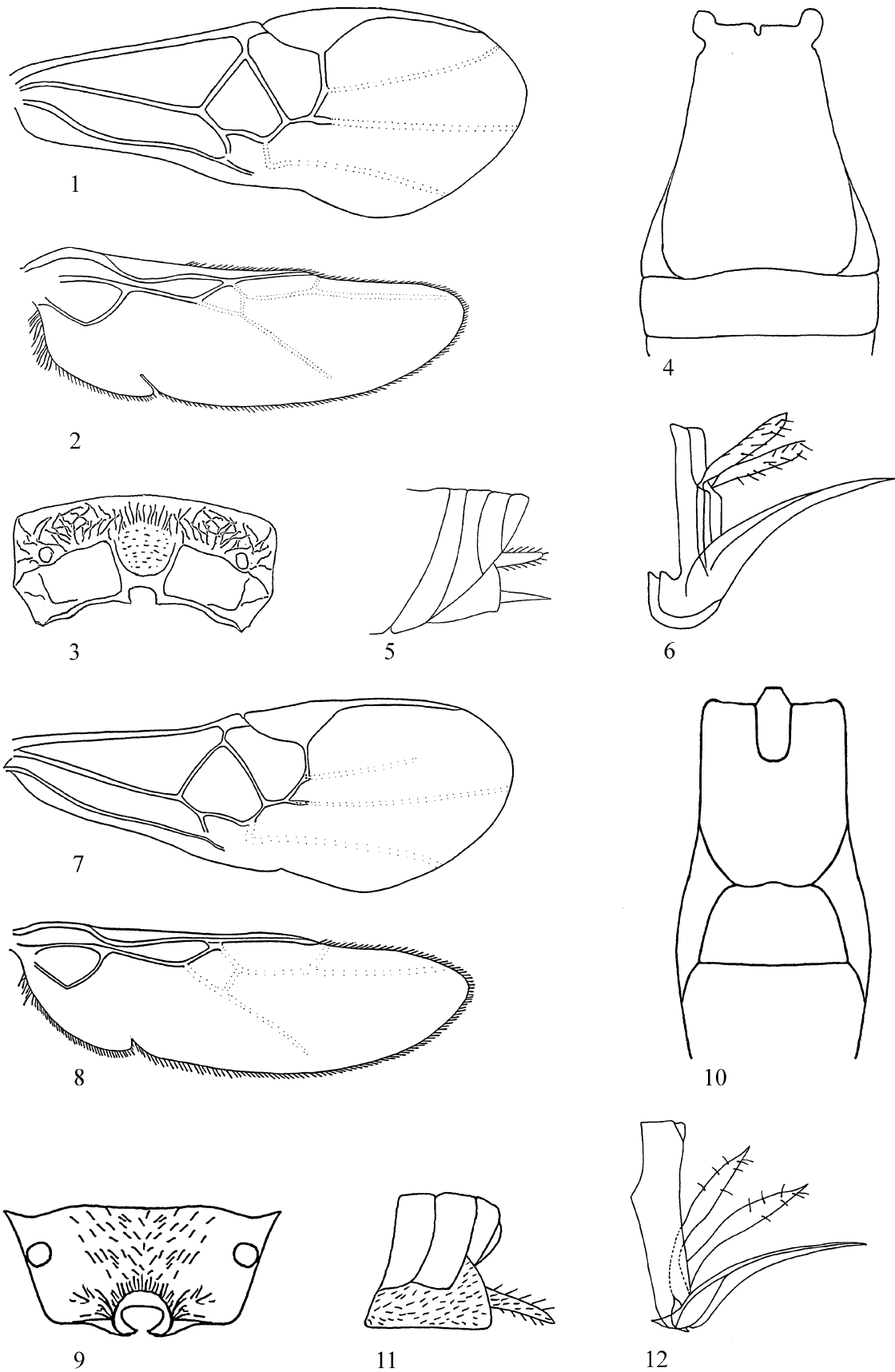
Description. FEMALE Holotype. Body length, 2.0 mm. Fore wing: maximum length 2.2 mm, maximum width 1.0 mm. *Head.* Brownish black in colour, densely covered with hairs; temple, lateral frons, vertex, occiput and face with minute punctures associated with pilosity making surface rough and with dull luster; head in frontal view approximately 1.20x as wide as medially long, vertex 2.50x as wide as medially long; frons 1.60x wide at midheight than long, little raised medially, shallowly punctate; compound eye with hairs, maximum height 2.00x as long as maximum width, inner margins weakly converging towards clypeus; intertentorial distance 2.80x as long as distance from tentorial pit to compound eye; ocelli forming an obtuse triangle, ocell-ocular distance 1.50x as long as lateral ocelli distance; width of clypeus 3.70x as long as height; antennae with 18 segments, 0.95x as long as body; scrobe prominent; scape 1.10x as long as wide, pedicel 1.20x as long as wide, flagellomeres with two ranks of longitudinal placodes, flagellomeres I and II subequal in length, flagellomere I 1.50x as long as apical flagellomere, flagellomere I and II 2.50x as long as wide. Palpi pale yellow-brown throughout. *Mesosoma* (Figs 1–3). Mesoscutum punctate, smooth and shiny along dorsal margin of scutellar sulcus, in dorsal view about 0.90x as wide as maximum width of head at frontal view; scutellum sparsely punctate with rather long hairs along lateral margin; propodeum with distinct and complete areola, about 1.50x as long wide; anterior diagonal carinae merged with anterior rugulose sculpturing, transverse carinae percurrent and branched laterally into costulae, surface of propodeum finely rugose on dorsal face, mostly smooth posteriorly; mesopleuron finely punctate and covered with short hairs in anterior third, smooth and shiny elsewhere, postero-lateral area depressed; metanotum laterally finely punctate and densely pilose in posterior third, smooth and shiny elsewhere. *Legs.* Prothoracic and mesothoracic legs entirely light brown except infuscate extreme bases of coxa, hind coxa rather large, more than 0.50x as long as metasoma, its finely punctate surface with short hairs making the surface rough with dull luster, apical spurs of hind tibiae shorter than hind basitarsi. *Wings.* Tegulae pale yellowish, translucent. Fore wing veins light brown; stigma usually paler proximally or over much of surface, 2.60x as long as wide. Fore wing with r and 3RSa not meeting at distinct angle, R1 subequal to length of stigma, 1.90x as long as distance from its distal end to end of 3RS fold along wing edge, length of 1M 2.30x as long as m-cu, 0.30x as long as M+CU and 6.00x as long as 1RS, $1cu_a$ 1.10x as long as $1cu_b$. Hind wing with vannal lobe convex to weakly flattened subapically, 3.30x as long as wide, evenly fringed with hairs of moderate length. M+CU 1.1x of 1M. *Metasoma* (Figs 4–6). Tergite I slightly longer than widest part, length 1.20x as long as maximum width, slightly bulging posteriorly with surface punctate-reticulate becoming longitudinally striate posteriorly with a luminescent area medio-posteriorly along the margin. Tergite II sub-rectangular, longitudinally striate, about 3.00x as wide as long, rest of tergites somewhat smooth and shiny; hypopygium evenly sclerotized; ovipositor and sheaths hardly protruding beyond apex of gaster; ovipositor slightly curved ventrally with basal ridge just before apex; ovipositor sheaths covered with short fine hairs.

Male. Unknown.

Host. *Hyposidra successaria* (Lepidoptera: Geometridae)

Remarks. *Parapanteles sireeshaae* sp. nov. closely resembles *P. masoni* Austin et Dangerfield but differs in having the following features: coxae finely punctate with short hairs (vs. smootherd shiny in *P. masoni*), anterior diagonal carina of propodeum not meeting anterior margin of propodeum (vs. meeting), fore leg except coxae, pale yellowish (vs. brown).

In the key given by Valerio *et al.* (2009), this new species will key in at the couplet no 2 leading to *P. masoni*. This is to be modified as follows:



FIGURES 1–12. *Parapanteles sireeshaae* Ahmad et Akhtar, **sp. nov.** (1–6): 1. fore wing, 2. hind wing, 3. propodeum, 4. metasomal tergite I dorsally, 5. metasoma laterally, 6. female genitalia; *Pholetesor hayati* Akhtar, **sp. nov.** (7–12): 7. fore wing, 8. hind wing, 9. propodeum, 10. metasomal tergite I dorsally, 11. metasoma laterally, 12. female genitalia

- 2 Areola normally closed at anterior edge, ovipositor and ovipositor sheaths elongate and relatively thin in lateral view; fore telotarsus, ovipositor, ovipositor sheaths and body color variable; from the New World 3
- Areola open at anterior edge, ovipositor and ovipositor sheaths short and relatively thick in lateral view; fore telotarsus, ovipositor, ovipositor sheaths and body color fixed; from the Australia or Oriental 18
- 18(2) Coxae smootherd shiny without short hairs, anterior diagonal carina of propodeum meeting anterior margin of propodeum, fore leg except coxae brown..... *P. masoni* Austin et Dangerfield
- Coxae finely punctate with short hairs, anterior diagonal carina of propodeum not meeting anterior margin of propodeum (Fig. 3), fore leg except coxae, pale yellowish..... *P. sireeshae* Ahmead et Akhtar, **sp. nov.**

Consequently the couplet 18 added at the end will distinguish the species in the key.

The type of *Parapanteles shivranginii* Sathe et Ingawale 1989 (species reported from Oriental region) could not be accessed either at Department of Zoology, Shivaji University, Kolhapur, or at the Zoological Survey of India, Kolkata. Its original description is inadequate especially with regard to the comparison of different body parts and description of metasoma.

Type material. Holotype (female): INDIA, Andhra Pradesh, Bapatla, 1.VIII.2008, reared from *Hyposidra successaria* on *Tinospora cordifolia* in betel vine garden, coll. K. Sireesha, deposited in National Pusa Collection (NPC), Indian Agricultural Research Institute, New Delhi, India. Paratypes: 6 females, same data as holotype; deposited in NPC, except one female in the Department of Zoology, Aligarh Muslim University, Aligarh, India.

Etymology. The species is named after the collector Dr. K. Sireesha, Scientist, Herbal Garden Scheme, Rajendranagar, Hyderabad.

Pholetesor Mason

Pholetesor Mason, 1981: 37. Type-species: *Apanteles ornigis* Weed, original designation.

Teremys Mason, 1981: 42. Type species: *Teremys masneri* Mason, original designation. Syn. by Whitfield, 2006: 11.

Pholetesor hayati Akhtar, **sp. nov.**

(Figs 7–12)

Description. FEMALE Holotype. Body length 2.8 mm. Fore wing length 3.0 mm, width 1.2 mm. *Head.* Brownish black in colour. Head in frontal view approximately 1.10x as wide as medially long, vertex 2.80x as wide as medially long. Frons 1.40x wider midheight than long, little raised medially, shallowly punctate; compound eye with hairs, maximum height 1.50x as long as maximum width, inner margins weakly converging towards clypeus; intertentorial distance 1.40x as long as distance from tentorial pit to compound eye; ocell-ocular distance 1.70x as long as lateral ocelli distance; width of clypeus 2.50x as long as height; antennae with 18 segments, slightly smaller than body, scrobe prominent; scape 1.20x as long as wide, pedicel 1.20x as long as wide, flagellomeres with two ranks of longitudinal placodes, flagellomeres I and II sub equal in length, length of flagellomere I 1.60x as long as length of apical flagellomere, flagellomere I 2.30x as long as wide, flagellomere II 2.00x as long as wide; flagellomere VII 2.10x as long as wide. Palpi pale yellow-brown throughout. *Mesosoma* (Figs 7–9). Mesoscutum in dorsal view about 0.90x as wide as head, shallowly punctate, becoming less strong posteriorly; surface with strong satiny sheen. Pronotal furrow distinctly but irregularly crenulate. Scutoscuteellar scrobe sharp, narrow, composed of somewhat confluent pits, arched weakly medially, not set in depression. Scutellar disc shallowly punctate, slightly longer than maximum width. Metanotum strongly retracted from scutellum anteriorly, exposing mesothoracic postphragma; transverse carinae at about midlength moderately developed. Propodeum about 2.03x as wide as long at longest point, smooth to punctate anterolaterally, rugulose and depressed in posterolateral corners except for scattered irregular peripheral ridges; anteromedially with weak transverse ridging; posteriorly with a series of ridges extending obliquely on either side from nucha. *Legs.* Prothoracic and mesothoracic legs entirely light yellow-brown except infuscate extreme bases of coxae, tibial apices and most of distal portions of tarsi. Inner apical spurs of hind tibiae 1.20x as long as outer, about half as long as hind basitarsi. *Wings.* Tegulae pale

yellowish, translucent. Fore wing veins light yellow-brown, stigma usually paler proximally or over much of surface, 2.70x as long as wide. R1 1.10x as long as stigma, 1.80x as long as distance from its distal end to end of 3RS fold along wing edge. r curved, meeting it at an indistinct curved angle, 1M 2.70x as long as m-cu, 0.40x as long as M+CU and 5.50x as long as 1RS, 1cu_a 1.50x as long as 1cu_b. Hind wing with vannal lobe weakly flattened subapically, 3.30x as long as wide, evenly fringed with hairs of moderate length. M+CU 1.2x of 1M. *Metasoma* (Figs 10–12). Tergite I anteriorly longitudinally costulate around base, posteriorly rugose to aciculatorugose, 1.10x as long as posteriorly wide, narrowing posteriorly, usually with lateral margins nearly straight. Tergite II rugose laterally, smooth medially, trapezoidal in shape, 1.90x as wide posteriorly as long medially and 2.00x as wide posteriorly as long anteriorly; lateral margins weakly arched, often bordered by roughened, darkened regions of laterotergites; posterior crenulate margin nearly straight to little concave. Tergite III 1.30x as long as longer than II, completely smooth and not polished, remaining terga polished; colour often mostly dark brown to black. Laterotergites pale yellow, posterior part of the tergite III–VI with light yellow to white. Hypopygium subequal to slightly shorter than basitarsi, evenly pigmented and sclerotized; tip weakly acuminate. Ovipositor sheaths weakly decurved over expanded distal portions, entire length slightly longer than hind basitarsi.

Male. Similar to female except: antennae longer than females, clearly longer than body or fore wings, with more slender distal flagellomeres. Legs usually more yellowish-brown; extent to black coloration on hind coxae, tibiae often greater. Wing venation usually more darkly grey-brown. Metasomal tergites less roughly sculptured; tergite I usually with more curved lateral margins; tergite II often less transverse.

Host. Unknown

Remarks. Closely resembles *P. salalicus* (Mason), but differs in having frons 1.4x as wide at midheight than long (vs. less than 1.4x in *P. salalicus*), tergite II rugulose laterally and smooth medially (vs. completely rugose), tergite III completely smooth (vs. sculptured anteromedially).

Type material. Holotype Female: INDIA: Jammu and Kashmir, Srinagar, Mirgund, 10.III.2009, from cocoons on the mulberry leaf, coll. Niquat Mahmood; Paratypes: 2 Females and 5 Males with same data as holotype are deposited in National Pusa Collection (NPC), Indian Agricultural Research Institute, New Delhi.

Etymology. The species is named after Dr. Mohammad Hayat, former Professor, Department of Zoology, Aligarh Muslim University, Aligarh.

Acknowledgements

We would like to thank Bernardo F. Santos (UFES/Brazil) for reviewing the manuscript critically, and the Indian Council of Agricultural Research (ICAR), New Delhi for providing financial assistance (NPIB 21-17). The second author acknowledges the Department of Science and Technology, New Delhi for financial assistance (Grant no. SR/FT/L-92/2003).

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