

A new species of the genus *Pediobius* Walker (Eulophidae: Entedoninae) parasitizing spider from India

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Abstract

A new species of the subfamily Entedoninae viz. *Pediobius hebbalensis* sp. n. is described from Karnataka state of India. It was reared from the egg sacs of spider. The new species is also compared with another spider parasitizing species of genus *Pediobius* Walker.

Keywords: Parasitoids, new species, Bengaluru.

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Introduction

Pediobius Walker, 1846 is a cosmopolitan genus containing 26 species from India among 222 species known worldwide (Noyes, 2017). Members of the genus display a wide range of parasitism and are considered as either primary or secondary parasitoids of different insects groups such as Coleoptera, Dermaptera, Diptera, Hemiptera, Hymenoptera, Lepidoptera, Neuroptera, Orthoptera, Thysanoptera and very rarely on eggs of spiders (Kerrich 1973; Bouček, 1988; Hansson, 2013). The species *Pediobius grunini* (Nikolskaya), *P. brachycerus* (Thomson) (Fitton *et al.*, 1987), *P. imbreus* (Walker) (Khan and Shafee, 1982) and *P. pyrgo* (Walker) (Schoeninger *et al.*, 2015) have been recorded parasitizing eggs of spiders.

In the present paper we deal with the record and description of a new species *Pediobius hebbalensis* sp. n. parasitizing the egg sac of an unidentified spider. The host spider is an unknown species with an egg (Fig. 3) of about 0.59-0.64 mm in diameter.

Materials and Methods

Specimens were reared from egg sacs (Fig. 1) of unknown spider from Hebbal near Bengaluru, Karnataka. Adult female and male specimens were found on the egg sac (Fig. 2). Six adults were separated from egg sac and

mounted on cards. Body colour was noted from card mounted specimens before clearing and mounting the three specimens (2 females, 1 male) on slides in Canada balsam. Body length for the new species is given in millimetres (mm). All other measurements are relative taken from the divisions of a linear scale of a micrometer placed in the eye piece of a compound microscope. These measurements were taken at 100× magnification of the microscope.

The photographs of card mounted specimens are taken with digital camera (Nikon DS-Fi2) attached to a stereo zoom Nikon SMZ25 and the photographs of slide mounted parts were taken with a digital camera (Nikon DS-Fi1c) attached to a compound microscope (Nikon Eclipse Ci). The following abbreviations are used in the text:

C1, C2 etc. = Clavomeres 1, 2 etc.

F1, F2, etc. = Funicular segments 1, 2 etc.

T1, T2, etc. = Gastral tergites 1, 2 etc.

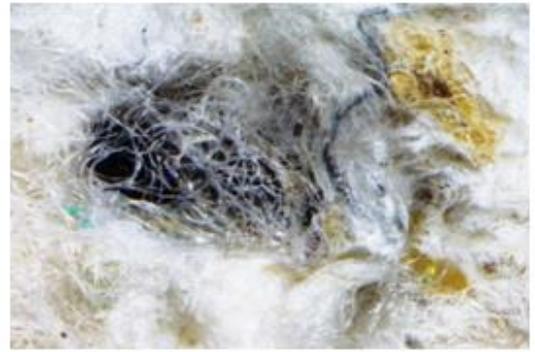
Genus *Pediobius* Walker, 1846

Diagnosis: Hansson (2002) should be consulted for a generic diagnosis.

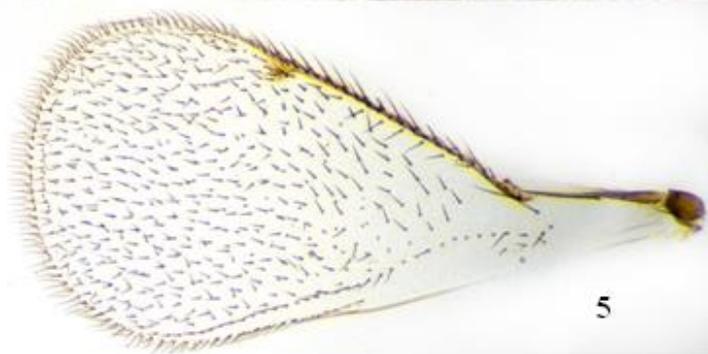
Distribution: Worldwide.



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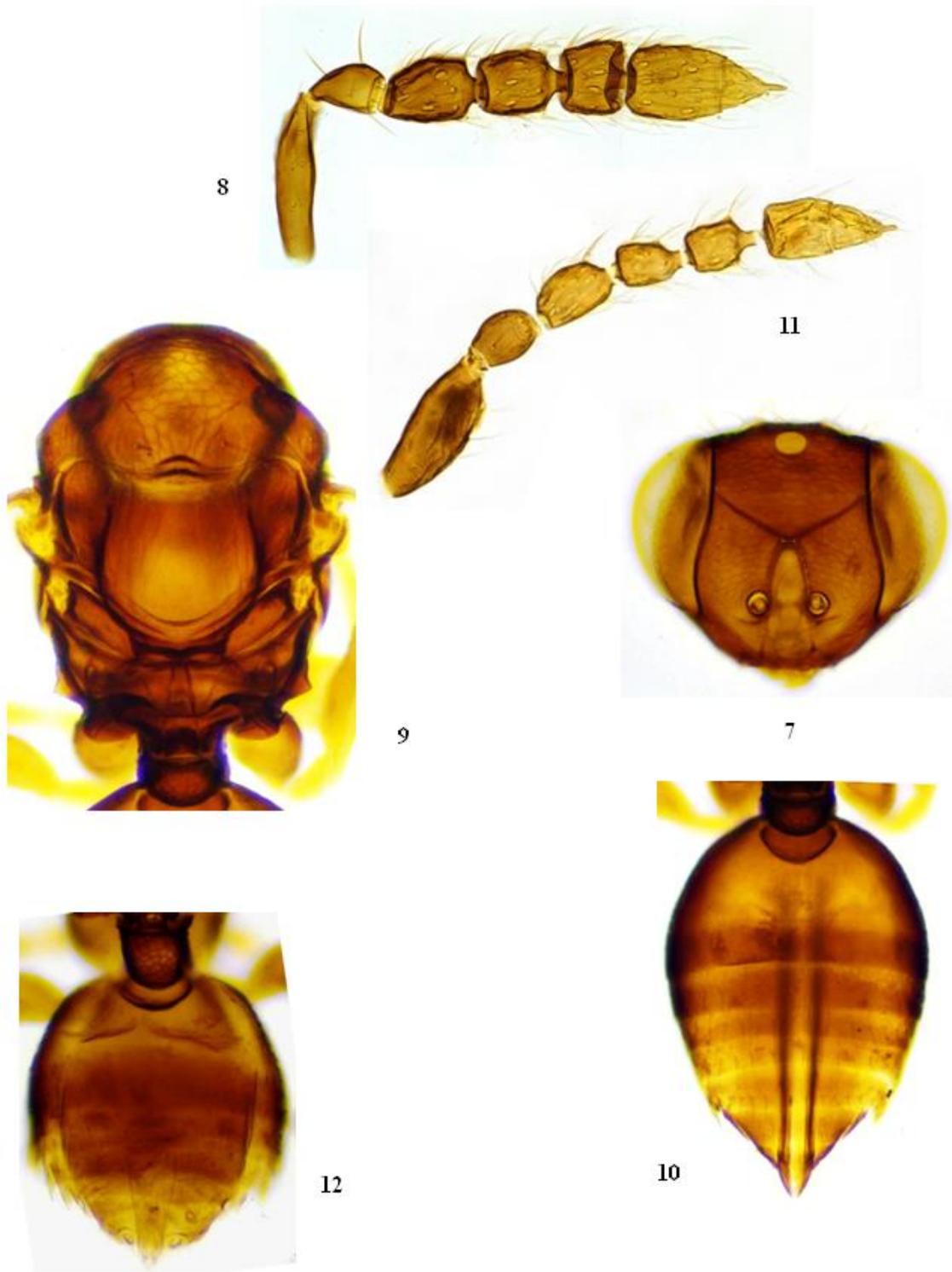


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Figures 1–6. 1, egg sac of spider; 2, specimen within egg sac; 3, spider egg. (4–6) *Pediobius hebbalensis* sp. n. female: 4, habitus image; 5, fore wing; 6, hind wing



Figures 7-12. *Pediobius hebbalensis* sp. n. female: 7, Head frontal view; 8, antenna; 9, mesosoma; 10, metasoma. (11 & 12) male: 11, antenna; 12, metasoma.

Pediobius hebbalensis Jamali, Zeya &
Veenakumari sp. n.
(Figures 4–12)

[urn:lsid:zoobank.org:act:80183969-873D-4535-B558-FFD72B522623](https://doi.org/10.21203/rs.3.rs-1000000/v1)

Description:

Female (Fig. 4): Length 1–1.25 mm (Holotype, 1.04). Head metallic dark brown. Antenna brown to dark brown. Mesosoma metallic dark brown to black. Fore wing (Fig. 2) hyaline. All legs brown except

first three tarsomeres pale white. Gaster metallic brown to dark brown.

Head (Fig. 7): Head broader than mesosoma, in frontal view, 1.29× as broad as long, 1.64× frontovertex width; vertex with long setae between POL and OOL; frontal suture reaching upto middle of eye; eye height 3.06× as long as malar space; Antennal toruli situated at the level of lower eye margin. Antennal (Fig. 8) scape with some scattered setae, 4.8× as long as broad and 2.6× pedicel length; pedicel 1.28× as long as broad; flagellum with single annulus; funicle 3-segmented, F1 invariably longer than F2 and F3 individually; clava 2-segmented, 1.75× as long as broad, first clavomere longer than second and second clavomere conical with an apical spicula.

Mesosoma (Fig. 9): Mesosoma 1.42× as long as broad; pronotum almost smooth with 4 long setae at posterior margin; mesoscutum with polygonal reticulation; notauli distinct anteriorly reaching up to one-third length of mesoscutum; mid lobe of mesoscutum with 2-pairs of setae; axillae faintly reticulate; scutellum slightly longer than broad, with longitudinal reticulation and 1-pair of setae latero-submedially; dorsellum narrow and smooth; propodeum smooth with two submedian carinae, diverging posteriorly. Fore wing (Fig. 5) 1.95× as long as broad; marginal vein + parastigma 1.8× submarginal vein length and 17.5× as long as stigmal vein; post marginal vein 2× as long as stigmal vein; longest marginal seta 0.073× maximum wing width. Hind wing (Fig. 6) 4.6× as long as broad; longest marginal seta 0.31× maximum wing width.

Metasoma (Fig. 10): Petiole 1.7× as broad as long with polygonal reticulation; gaster shorter than mesosoma; ovipositor covering whole length of gaster, slightly exerted beyond apex of gaster; ovipositor 2.5× as long as hind tibia.

Relative measurements (holotype): Head height: width, 40: 31; eye height, 23; malar space, 7.5; antennal segments length: width – scape, 12: 2.75; pedicel: 4.5: 3.5; F1, 5.75: 4.75; F2, 5.25: 4.75; F3, 3.5: 5.5; C1, 6.25: 5.5, C2, 3.25: 3.5; spicula, 1.5. Mesosoma length: width (dorsal view), 47: 33; fore wing length: width, 80: 41; longest marginal seta, 3; submarginal vein length, 19; parastigma length, 4; marginal vein length, 31; stigmal vein length, 2; postmarginal vein length, 4. Hind wing length: width, 68: 14.5;

longest marginal seta, 4.5; hind tibia, 20; width between carinae anteriorly: posteriorly, 1.75: 4. Petiole length: width, 5: 8.5; gaster length, 40; ovipositor length, 50.

Male: Similar to female except sexual dimorphism. Antenna (Fig. 11) with short and broad scape, about 2.23× as long as broad; gaster (Fig. 12) short and T1 reaching more than two-third of gaster.

Relative measurements: Antennal segments length: width – scape, 9.5: 4.25; pedicel: 3: 3.25; F1, 5: 3.5; F2, 4: 3; F3, 4.25: 3.25; C1, 4: 3.75, C2, 3.25: 3; spicula, 1.

Material examined: Holotype: female (on slide under four cover slip, slide No. EUL.183), labelled “INDIA: KARNATAKA, Bengaluru, Hebbal, 10.ix.2009, Coll. K. Veenakumari” (NBAIR, registration No. ICAR/NBAIR/EULP.103).

Paratype: 1 female (on slide, slide No. EUL.220), 3 females (on cards), 1male (on slide, slide No. EUL.221), 1males (on cards), some specimens inside spider cocoon with same data as for holotype. (3 females, 1 male, in ZDAMU; registration No. HYM.CH.775; 1 female, 1 male in NBAIR, registration No. ICAR/NBAIR/EULP.104, 105).

Biology: Egg parasitoid of an unknown species of spider.

Distribution: India: Karnataka.

Etymology: The name of species is derived from the name of the type locality.

Comments: The new species *Pediobius hebbalensis* sp. n. closely resembles to *P. pyrigo*, which also targets eggs of spiders. But it differs by the following characters: submedian carinae on propodeum slightly diverge posteriorly; fore wing speculum hairy except at very base; postmarginal vein long. Male antennal scape short and broad. Whereas in *P. pyrigo* submedian carinae widely diverge posteriorly; fore wing speculum is completely bare; postmarginal vein short. Male antennal scape almost similar to female.

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