



Taxonomic description of a new species of the genus *Mestocharella* (Hymenoptera: Eulophidae) from the Kumaon hills of the Uttarakhand (India)

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ABSTRACT : A new species of the Genus *Mestocharella* (Hymenoptera: Eulophidae: Tetrastichinae), *M. kausaniensis*, parasitizing to a Lepidopteran leaf miner, is described and illustrated from India.

Key words : Hymenoptera, Chalcidoidea, Eulophidae, Tetrastichinae, Uttarakhand, India

Abbreviations : FS1-FS3 –Funicular segments first to third, MV- Marginal vein, SMV- Submarginal vein, STV- Stigmal vein, POL-Post ocellar distance, OOL- Ocellocular distance, TS-Tarsal segment

INTRODUCTION

The genus *Mestocharella* was proposed by Girault with the type species *feralis* from Queensland, Australia, belongs to the subfamily Tetrastichinae, is the only known genus with a carinate or subcarinate collar on the pronotum. The pronotal and propodeal characters suggest a similarity to certain Eulophinae genera, but the male antennae and the arrangement of sclerites on thoracic dorsum are clearly Tetrastichinae, although the axillae are relatively weakly advanced. Boucek (1988) proposed some key characters by which the genus can easily be identified, which are as follows: very distinct sculpture on propodeum, an areolation with more or less pronounced median carina forking anteriorly; antennae not inserted high above the centre of face, scape and pedicel without any rough sculpture, only pedicel with slightly raised reticulation, but the antennae with three fairly conspicuous anelli, female antennae with four funicle segments and two segmented club; malar groove always present or replaced by groove or ridge; axillae relatively little advanced, their interior corners obtuse angular, petiole distinct, coarsely sculptured. Kamijo (1994) revised the genus *Mestocharella* and described 6 new species from Eastern and South Eastern Asia. During this revision, the species of this genus were divided into three groups mainly based on carinal arrangement on gestral petiole; propodeum and Pronotal collar as the kumatai-, the *feralis*- and *javensis*-groups. The members of *Mestocharella* are parasitic on Lepidoptera, Mainly leaf-mining species. The kumatai-group has been reared from *Tischeria* (*Tischeriidae*) and the *feralis*-group from *Pilocrocis* sp. (*Pyralidae*). The hosts of the *javensis*-group seems to be restricted to the *Acroceropes*- and *Gracillaria*-groups of *Gracillariidae*. Singh and Khan (1995) also reported *Mestocharella indica* as a new species, which was reared from the eggs of pentatomid bug collected from the Arjun leaves. The members of *Mestocharella* are distributed in South East Asia to Java, Solomon Islands and Australia (Boucek, 1988).

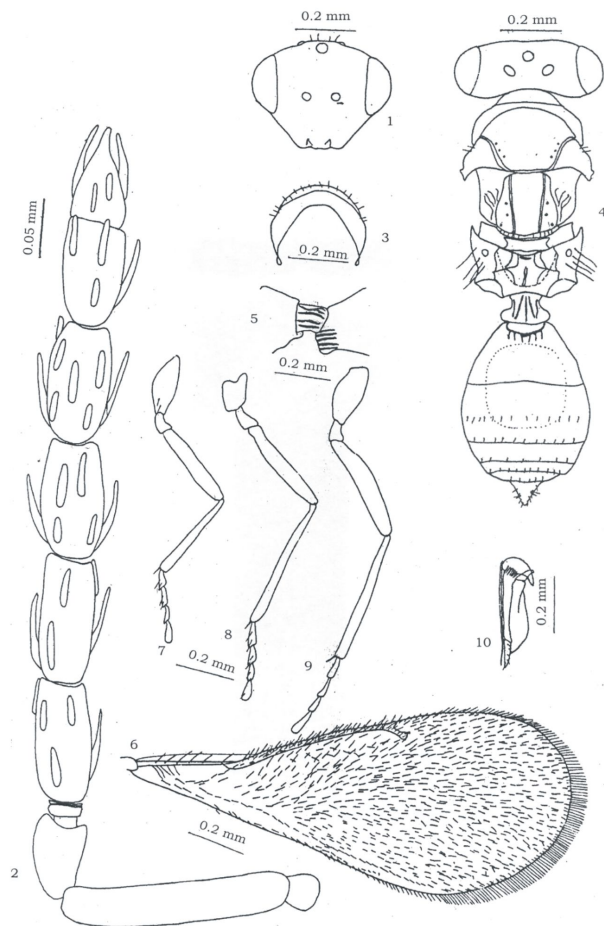
RESULTS AND DISCUSSION

***Mestocharella kausaniensis* sp.nov.** (Figs.1-10)

Female (Holotype): Body length about 1.645 mm; body colour black; head black; ocelli reddish brown and eyes reddish black, antennae brown except scape pale yellow, thorax brownish black and nonirridescence; wings hyaline with brown venation; legs yellowish white except coxae brownish yellow and TS4 dark brown; gaster with almost hexagonal yellow spot from base to second segment.

Head (Fig. 1) : Less than 1.5 times wider than long in frontal aspect (0.470: 0.380), smooth and sparsely setose, head frontal grooves absent; frontovertex width distinctly more than $\frac{1}{2}$ the total head width (0.320: 0.470); vertex setae short and sparse; ocelli arranged in obtuse angled triangle; POL less than 1.5 times as long as OOL; compound eyes bulged, moderate in size and smooth, eyes orbits round; antennal toruli situated above the lower level of eye margin, prominence between antennal toruli more than $\frac{1}{4}$ th the width of frons between eyes (0.07: 0.30) malar sulcus absent; malar space smooth almost 2 times longer than eye width (0.16: 0.08); tentorial pits distinct and large; maxillary palp and labial palp each single segmented; lower margin of clypeus with a lobe medially.

Antennae (Fig. 2) : 8 segmented excluding 2 anelli, first anellus distinctly large; apical tip of antenna with moderate spicule, antennal formula 1,1,2,4,2; scape cylindrical slightly more than 4.5 times as long as wide (0.190: 0.039), scape apex touching to mid ocelli; pedicel less than 1.5 times as long as wide (0.057: 0.043); funicle 4 segmented; FS1 long, more than 2 times as long as wide (0.105: 0.048) and less than 2 times as long as pedicel, FS2 less than 2.5 times as long as wide (0.112: 0.045), FS3 slightly less than 2 times as long as wide (0.103: 0.052), FS4 less than 2 times as long as wide (0.10: 0.055); club 2 segmented, more than 3 times as long as wide (0.173:0.052), shorter than preceding two funicle segments combined.



Figs. 1-10: *Mestocharella kausaniensis* sp. nov.

1. Head in frontal view; 2. Antenna; 3. Pronotum 4. Dorsal view of body; 5. Petiole 6. Forewing; 7. Foreleg; 8. Middle leg; 9. hind leg; 10. Female genitalia

Thorax (Fig. 4): Pronotum with prominent transverse carina, bearing 8 pairs of setae (Fig. 3); mesoscutum less than 2 times as wide as long (0.425: 0.222); mesoscutum having 3 pairs of adnotaular setae, notauli complete and deep, median longitudinal groove absent; axilla almost not advanced; scutellum smooth and longer than mesoscutum, less than 2 times as wide as long (0.425: 0.255) with submedian longitudinal grooves and 3 pairs of setae situated on scutellum, grooves deep, broad and almost straight; propodeum almost smooth, with carinae delimiting subpentagonal area, strong median carina and without paraspiracular carinae, propodeal spiracles round and moderate in size and well separated from the anterior margin of propodeum spiracle rim fully exposed, callus with 4 long setae; plicae high and sharp.

Fore wings (Fig. 6): more than 2 times as long as wide (1.49: 0.595), densely setose; costal cell long, broad and bare; SMV with 6 setae directed upwards, shorter (0.44) than MV (0.47); MV bearing short setae on front edge; PMV very short; SV long (0.05) slightly more than $1/9^{\text{th}}$ of the length of MV (0.470); marginal fringe short; basal vein with 7 setae, basal cell bare; speculum narrow, closed below; cubital vein sinuate, subcubital line of hairs arising almost from the base.

Hind wings: Blunt at its apex; marginal fringe moderate in length.

Fore Legs (Fig. 7): Coxa more than 2.5 times as long as wide (0.21: 0.08); femur more than 6 times as long as wide (0.305: 0.05), more than 1.5 times longer than tibia in length; fore tarsus shorter than length of tibia.

Mid legs (Fig. 8): Coxa less than 1.5 times as long as wide (0.105: 0.075); femur more than 6.5 times as long as wide (0.345: 0.05); less than 1.5 times shorter than tibia in length, mid tarsus shorter than length of tibia, mid tibial spur much longer than fore and hind tibial spur.

Hind legs (Fig. 9): Hind coxa slightly more than 2 times as long as wide (0.21: 0.10); femur more than 6 times as long as wide (0.37: 0.06).

Gaster (Fig. 4): Bulged, elongate and smooth, densely setose at the posterior end; basal area of 1st gasteral tergite foveated with 6 longitudinal carinae; gasteral apical tip acuminate; petiole with 5 irregular longitudinal carinae; having knob at each pestero-lateral margin; not raised behind neck (Fig. 5); gaster a little shorter than thorax; ovipositor sheaths not exerted; first valvifers triangular (Fig. 10); anterior margin of basal part of second valvifers much curved; third valvulae movably articulated with second valvifers, almost 5 times as long as wide (0.10: 0.02), almost $1/3^{\text{rd}}$ the length of second valvifers (0.30); outer plates of ovipositor slightly longer than second valvifers, with a ridge along basal half of dorsal margin (Fig. 10); cercal setae small.

Male: Not examined.

Holotype: ♀, India, U.K., Ranikhet, Host unidentified leaf miner, Sweepnet collection from unidentified plant, 10.10.07 Hym. Eulo. Nr. 128 (Sandeep Kumar).

Paratypes: 5 ♀♀, same data as holotype Hym. Eulo Nr. 128A (Sandeep Kumar).

Remarks: The new species is allied to *javensis* Gahan but differs from latter, by having the antennae brown colour except scape pale yellow with three distinct ring segments; FS1 less than 2 times as long as pedicel; scutellum smooth with three pairs of setae, dorsellum without median carina, callus with four setae; SMV with 6 dorsal setae, basal cell hairy, PMV almost rudimentary; gaster a little shorter than thorax with a conspicuous yellow spot from its base to second segment.

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