

Taxonomic studies on *Eurydinotomorpha* Girault (Hymenoptera: Pteromalidae) with the description of a new species from Western Ghats, Kerala

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Abstract

A new species of Pteromalidae viz. *Eurydinotomorpha indica* sp. n. is described from Mannavan shola forests of southern Western Ghats, Kerala. The affinities of the new species with related species are discussed and a key to the Oriental species and checklist of world species of *Eurydinotomorpaha* are also provided.

Keywords: *Eurydinotomorpha*, new species, Oriental Region, Key, Western Ghats, Kerala, India.

Received: 1 November 2016; Revised: 11 March 2017; Online: 25 March 2017.

Introduction

The genus *Eurydinotomorpha* was described by Girault (1913) from Australia with the type species *E. pax* Girault. The genus belongs to the subfamily Pteromalinae of Pteromalidae (Hymenoptera) characterised by its peculiar propodeum and evaniform gaster. Sureshan & Narendran (1990) synonymised the genus *Asoka* Boucek with *Eurydinotomorpha* owing to its close resemblance with the latter in having similar gaster and propodeum. The genus is known by 9 species in the world distributed only in the Australasian Region and it is represented in India by the species *E. malabarensis* Sureshan & Narendran, 1990 described from the Malappuram district of Kerala (11° 8' 2.1" N 75° 53' 47" E). The species has been recently collected from Shendurny Wildlife sanctuary, Kollam district Kerala (8° 48' 43" N 77° 09' 00" E) (Sureshan, 2015). During the recent faunal exploration surveys conducted in the southern Western Ghats of Kerala, an interesting specimen of *Eurydinotomorpha* belonging to an undescribed species was collected and is described here. All efforts to collect further specimens from the same and adjacent areas did not yield any additional material due to the very rare nature of the genus which was only collected thrice, *E. malabarensis* Sureshan & Narendran in 1990

and 2012 and the present new species in 2013. The new species is interesting as it shows a close affinity with the species *E. appendigaster* (Boucek) described from Malaya and its collection from the Western Ghats throws further light to the interesting affinities of the fauna of the region.

Materials and Methods

The specimen of the present study was collected by sweep net from the forested tracts of Mannavan shola forests of Idukki district, Kerala, (10° 11' 17.6" N 77° 10' 51.6" E) which is the largest Shola forest patch in Asia, exists in "Western Ghats", one of the Biodiversity hot spots of the world. The specimen was card mounted and studied under a stereoscopic binocular microscope (Leica M 205C) and photographs were taken with Leica MC 170 HD camera attached with the same microscope. The morphology used in this paper generally follows that of Boucek (1988) except Mesosoma and Metasoma are used for thorax and abdomen. The following abbreviations are used in the text: MV- Marginal vein; OOL- Ocellocular distance; PMV- Post marginal vein; POL- Post- ocellar distance; SMV- Submarginal vein; STV-Stigmal vein. The type specimen of the present study is

deposited in Zoological Survey of India, Western Ghat Regional Centre, Calicut (ZSIK).

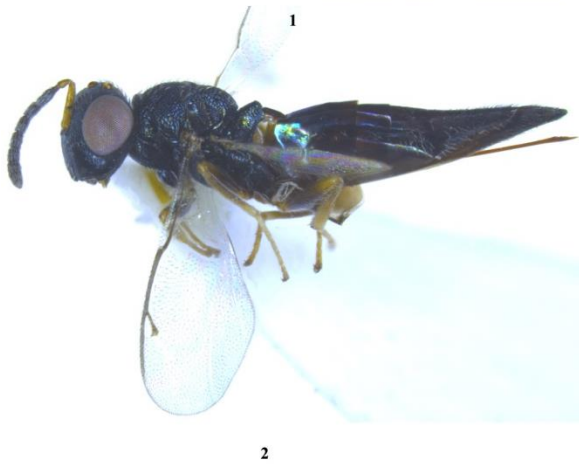


Fig. 1. *Eurydinotomorpha indica* sp. n. Female, body in profile; **2.** *Eurydinotomorpha malabarensis* Sureshan & Narendran, female body in profile.

***Eurydinotomorpha* Girault**

Eurydinotomorpha Girault, 1913: 320. Type species *Eurydinotomorpha pax* Girault by original designation.

Eurydinotomorpha Girault, 1915b: 45. Type species *Eurydinotomorpha pax* Girault by original designation. Apparently based on the same type material. (Boucek, 1988: 453).

Asoka Boucek, 1973: 557. Type species *Asoka appendigaster* Boucek by original designation, synonymy by Sureshan & Narendran, 1990: 219-227.

Diagnosis: The genus can be distinguished from the related genera by the peculiar propodeum

(Figs.1, 2, 5, 6) which is relatively short, medially horizontal from its base or even ascending straight to the apex of the narrow neck, the narrow smooth elongate petiole moves from horizontal position down to a vertical position under the nuchal apex. Gaster elongated and mostly slender. Antennae with three anelli and five funicular segments. Anterior margin of clypeus shallowly emarginate or deeply and narrowly excised in the middle.

Distribution: Taiwan, Australia, Sri Lanka, India, Malaya.

Key to the Oriental species of *Eurydinotomorpha* Girault (Modified from Sureshan & Narendran, 1990)

1. Propodeum (Fig. 6) with plicae weakly indicated, nuchal part projecting upwards and forwards over level of scutellum; petiole about 3x as long as scutellum; gaster slender.....*E. petiolatus* (Boucek) Sri Lanka, Malaya.
 - Propodeum (Figs. 1, 2, 5) with plicae distinct, nuchal part projecting upwards to level of scutellum; petiole about as long as or shorter than scutellum; gaster shorter than in alternate.....2
2. Antenna with scape never exceeding above level of median ocellus; hypopygium extending at the level of hind margin of T4; epipygium not narrower than preceding tergite (Fig. 2); POL 3x OOL; antennae with funicular segments short.....
 - ...*E. malabarensis* Sureshan & Narendran India: Kerala
 - Antenna with scape exceeding above median ocellus; hypopygium ending to the level of middle of T5; epipygium distinctly narrower or level with the preceding tergite; POL 2.1- 3x OOL; antennae with funicular segments long.....3
3. Gastral petiole short (Fig. 4), length 1.8x of its apical width and 3.3x of anterior width, with a short but distinct dorso-median carina in the anterior half; POL 3x OOL; epipygium not narrower than the preceding tergite.....*E. indica* sp. n. India: Kerala
 - Gastral petiole long (Fig. 5), length 2.5x of

its apical width and 4.3x of anterior width, with a fine median arrow-like groove in the anterior part, not carinate; POL about 2.1x OOL; epipygium distinctly narrower than the preceding tergite.....*E. appendigaster* (Boucek) Taiwan

Check-list of the world species of *Eurydinotomorpha* Girault

1. *E. appendigaster* (Boucek), 1973: 559. Taiwan
(= *Asoka appendigaster* Boucek, 1973)
2. *E. fusciventris* Girault, 1913: 320. Australia.
3. *E. basalis* Girault, 1915(a): 332. Australia
4. *E. grandis* Girault, 1915(a): 332. Australia
5. *E. incerta* Girault, 1915(a): 333. Australia
6. *E. malabarensis* Sureshan & Narendran, 1990: 220. India
7. *E. monteithi* Boucek, 1988: 453. Australia
8. *E. pax* Girault, 1913: 320. Australia
(= *pax* Girault, 1915(b): 45)
9. *E. petiolatus* (Boucek), 1973: 560. Sri Lanka, Malaya
(= *Asoka petiolatus* Boucek, 1973).
10. *E. indica* sp. n. India

***Eurydinotomorpha indica* sp. n.**
(Figs. 1, 3, 4)

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Material examined: *Holotype:* Female, India: Kerala. Idukki dist., Mannavan shola NP, 10° 11' 17.6" N 77° 10' 51.6" E, 7.xi.2013, Reg.no.ZSI/WGRS/IR/INV/3168, coll. P.M. Sureshan.

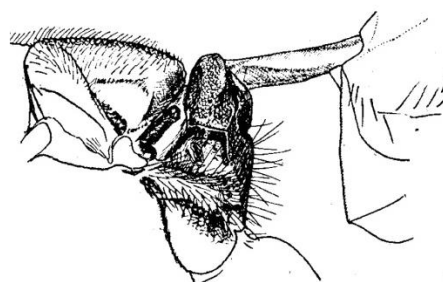
Description: Female: Length: 6mm. Head and mesosoma mainly bright metallic blue, partly darker on vertex, occiput and mesoscutum, slight bronzy tinge on lower face and propodeum dorsally, gaster blackish brown with iridescent bluish tinge on sides (middle); petiole dorsally metallic blue; fore and mid coxae



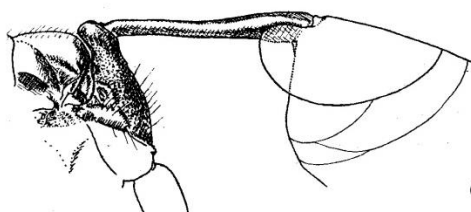
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4



5



6

Figs. 3-6: 3, *E. indica* sp. n. female, anterior margin of clypeus; 4, gastral petiole dorsal view; 5, *E. appendigaster* (Boucek), female, attachment of petiole on propodeum; 6, *E. petiolatus* (Boucek), female, attachment of petiole on propodeum (source: Boucek, 1973)

brown, hind coxae metallic blue, all femora infuscate except base and tips testaceous, rest of legs testaceous except tips of tarsi infuscate. Antennae brown except base of scape testaceous, eyes cupreous, ocelli silvery, wings sub hyaline, veins and pubescence brown.

Head: 1.1x as broad as mesoscutum, 1.8x as broad as long in dorsal view and 1.23x as broad as high in facial view, ocelli large, long, diameter of lateral ocellus slightly shorter than distance between lateral and median ocellus and between lateral ocellus and eye margin: POL 3x OOL. Head moderately reticulate, meshes broad, reticulation finer towards lower part, a shiny spot just above clypeus, reticulation coarser on vertex and occiput; clypeus (Fig. 3) radiately striated, striae extending little outside to paraclypeal region, pubescence moderately long; malar grooves distinct, anterior margin of clypeus with two blunt teeth, separated by a deep notch; dorsal margin of eyes moderately diverging backwards, eyes 1.3x as long as broad (in profile); malar space 0.5x eye length, temple short, 0.2x eye length. Scrobe deep reaching median ocellus; antennal scape slightly curved, 0.7x as long as eye, pedicel plus flagellum 1.3x as long as head width, third anellus little longer than others, funicular segments longer than broad, each with four irregular rows of long sensillae, area of micropilosity restricted on tip only, clava as long as 1.5x preceding segments combined.

Mesosoma: 1.6x as long as broad (including propodeum), only slightly narrowed towards both ends. Pronotal collar medially less than 0.25x as long as mesoscutum, posteriorly broadly emarginate, swollen along hind margin and from there fairly sloping towards anterior collar carina. Mesoscutum with distinct though irregular transverse rugulae in anterior part of mid lobe, mid lobe anteriorly convex. Scutellum about as long as broad, moderately convex. Metanotum well visible on sides, dorsellum smooth and shiny. Nuchal region of propodeum thrust upwards to level of scutellum, plicae strong, sides and posterior wall of propodeum with long and white pubescence, posterior part separated from subpetiolar area by strong keels which converge from dorsal margin of coxal socket upwards to circumpetiolar rim, approach each other closely below petiole but do not meet. Mesopleuron ventrally and anteriorly pubescent, also ventral aspect of all coxae densely hairy. Forewing length 2.7x width. Relative lengths of costal cell 39.5, MV 24, PMV 25. STV 6.5.

Metasoma: Petiole (Fig. 4) in dorsal view expanding caudad, length 1.8x apical width and

3.3x basal width, surface dorso-basally with distinct granulation and a fine dorso-median carina in the anterior half, anterior tergites smooth but their sides as well whole of distal tergites slightly dull owing to a microscopic cross-striation with intermixed fine punctures bearing short whitish pubescence.

Male: Unknown.

Biology: Unknown, occurs in forests.

Remarks: This species closely resembles and readily look like *Eurydinotomorpha appendigaster* (Boucek) but differs from it as follows: in *indica* sp. n. gastral petiole short, length 1.8x apical width and 3.3x anterior width and with a short but distinct dorso-median carina in the anterior half, POL 3x OOL, (in *E. appendigaster* the petiole length 2.5x of its apical width and 4.3x of its anterior width, and with a fine median arrow-like groove in the anterior part and POL about 2.1x OOL).

Etymology: The species name is derived from the name of the country where collections were made.

Acknowledgements

I am grateful to Dr. Kailash Chandra, Director, Zoological Survey of India, Kolkata for the facilities and encouragement. I am also thankful to the Chief Wildlife Warden, Kerala and the forest officials of Mannavan shola National Park, Idukki for granting the permission for faunistic surveys and specimen collection and other helps rendered during the field work.

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