

TAXONOMIC STUDIES ON *EURYDINOTOMORPHA*
AND *NETOMOCERA*
(HYMENOPTERA: CHALCIDOIDEA: PTEROMALIDAE)

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Abstract. Two new species of Pteromalidae, *Eurydinotomorpha malabarensis* and *Netomocera nigra* are described from Kerala, India. *Eurydinotomorpha* is reported from India for the first time. Keys are provided to the Oriental species of *Eurydinotomorpha* and the Afro-Oriental species of *Netomocera*.

Introduction

Girault (1913) described *Eurydinotomorpha* from specimens collected in Australia. So far only six species (all from Australia) are known. The genus is characterized by the peculiar form of petiole and propodeum (Figs. 1, 6). The propodeum is horizontal medially from its base or ascending straight to rather narrow nucha which is raised high above hind coxae. It comes extremely close to the Oriental genus *Asoka* Bouček (1973), from which it differs only in having the clypeal margin weakly emarginate; in *Asoka* it is more deeply and narrowly excised medially. We do not consider this character to be of generic importance, and hereby synonymize the two. The two species currently placed under *Asoka* (*A. petiolatus* Bouček from Sri Lanka and Malaysia, and *A. appendigaster* Bouček from Taiwan) are new combinations under *Eurydinotomorpha*. A key to the Oriental species is given.

Netomocera was described by Bouček (1954) with *N. setifera* as the type species from Europe. Saraswat & Mukerjee (1974) recorded this species from India, but Bouček et al. (1979) stated that the species reported by Saraswat & Mukerjee was not *N. setifera*. Farooqi & Subba Rao (1986) placed the species of Saraswat & Mukerjee among "unplaced species". A new species, *N. nigra* is described here from India. Three species of the genus are known from Africa (Hedqvist, 1971), one from North America (Yoshimoto, 1977), and one from Australia (Bouček, 1988). A key to the Oriental and African species is given.

The material studied is deposited in the Department of Zoology, University of Calicut, Kerala.

Genus *Eurydinotomorpha* Girault

Eurydinotomorpha Girault, 1913. Mem. Queensland Mus., 2: 320.

Type species: *Eurydinotomorpha pax* Girault; original designation.

Eurydinotomorpha Girault, 1915 (b). Canadian Ent., 47: 45.

Type species: *Eurydinotomorpha pax* Girault; original designation.

[Apparently based on the 1913 specimen; cf. Bouček, 1988].

Asoka Bouček, 1973. Oriental Ins., 7: 557. **Syn. nov.**

Type species: *Asoka appendigaster* Bouček; original designation.

Bouček (1988: 453) has provided a synopsis of the genus and a key to distinguish it from the related Australian genera. The genus is Indo-Australian in distribution. The hosts are unknown. Bouček (1988) reported undescribed species from New Guinea and New Hebrides, and stated that the species occurred in forests. The Indian species described here was, however, collected on the University Campus.

Check-list of the world species:

- | | |
|---|--------------------|
| 1. <i>appendigaster</i> (Bouček), 1973: 559. | Taiwan. |
| 2. <i>basalis</i> Girault, 1915 (a): 332. | Australia. |
| 3. <i>fusciventris</i> Girault, 1913: 320. | Australia. |
| 4. <i>grandis</i> Girault, 1915 (a): 332. | Australia. |
| 5. <i>incerta</i> Girault, 1915 (a): 333. | Australia. |
| 6. <i>malabarensis</i> Sureshan & Narendran, sp. nov. | India. |
| 7. <i>monteithi</i> Bouček, 1988: 453. | Australia. |
| 8. <i>pax</i> Girault, 1913: 320. | Australia. |
| (= <i>pax</i> Girault, 1915 (b):45). | |
| 9. <i>petiolatus</i> (Bouček), 1973: 560. | Sri Lanka, Malaya. |

Key to the Oriental species

1. Propodeum with plicae weakly indicated, nuchal part projecting upwards and forwards over level of scutellum; petiole about 3x as long as scutellum; gaster slender. Sri Lanka, Malaya **petiolatus** (Bouček)
Propodeum with plicae distinct, nuchal part projecting upwards to level of scutellum; petiole about as long as scutellum; gaster shorter than in alternate . . . 2
2. Antenna with scape never exceeding vertex level; hypopygium ending at the level of hind margin of tergite 4; epipygium not narrower than preceding tergite (Fig. 1). India: Kerala **malabarensis**, sp. nov.
Antenna with 0.25 of scape exceeding vertex level; hypopygium ending at the level of middle of tergite 5; epipygium narrower. Taiwan
. **appendigaster** (Bouček)

Eurydinotomorpha malabarensis, sp. nov. (Figs. 1-6)

Female: Length 3.1 mm. Body generally bright metallic blue; gaster with violaceous tint; eyes cupreous; ocelli reddish brown. Legs with coxae concolorous with thorax; femora, tibiae dark brown with tips of later testaceous; tarsi testaceous with tips brown. Antenna completely brown with scape and pedicellus lighter. Tegulae dark brown. Wings subhyaline; veins light brown.

Head (Figs. 3,4) wider than thorax, 1.2x as broad as mesoscutum dorsally, 1.8x as broad as long in dorsal view and 1.3x as broad as long in front view; ocelli average sized, in an obtuse triangle, base of it 2.0x the sides. Head finely reticulate, with sparse pubescence; dorsal margin of eyes strongly diverging backwards; anterior mar-

gin of clypeus incised at middle; malar groove distinct; scrobe deep. Relative measurements: Head length 32, width 59, height 47, frons breadth 33, malar space 16, lower margin of antennal toruli 18 from lower margin of clypeus and 25 from median ocellus; temples 9, POL 15, OOL 7. Antenna (Fig. 2) with scape nearly reaching median ocellus; funicle and club covered with dense white pubescence; scape length nearly 3x that of second funicle segment, first and third funicle segments equal in length, similarly second and fourth, fifth funicle segment shorter, club as long as fourth and fifth funicle segments combined.

Thorax: Deeply reticulate punctate, with sparse pubescence, only slightly narrowed towards both ends; Pronotal collar length 0.22x mesoscutal length, emarginate posteriorly. Mesoscutum 0.6x as long as head, notaular lines indistinct, anterior part seen at certain angles. Scutellum slightly wider than long, convex, frenal sulcus absent; axilla faintly reticulate. Metanotum well visible on sides; nuchal region of propodeum thrust upwards to level of scutellum; reticulation on propodeum not deep as on scutellum, plicae present. Mesopleuron pubescent ventrally and anteriorly, also ventral aspect of fore and middle coxa; anterior part of mesepimeron smooth and shiny. Metapleuron as reticulate as mesopleuron; prepectus triangular, reticulate. Fore wing (Fig. 5) with relative measurements of marginal, postmarginal, stigmal veins as 32:26:10.

Gaster: Form of gaster and its attachment shown in Fig. 6, petiole in dorsal view expanding caudad, its length 2.1x maximum width (21:10), maximum width 2.5x minimum width (10:4); surface almost smooth with a dorso-basal arrow like groove with distinct granulation; anterior tergites smooth, sides and whole of distal tergites dull owing to a microscopic cross striation, which is more pronounced from tergite 4 onwards, intermixed fine punctures bearing short white pubescence; hypopygium ending with hind margin of tergite 4; gaster 5x as long as hind femur (without petiole) laterally.

Male: Unknown.

Holotype: Female, INDIA: Kerala: Calicut University Campus, 9.ix.1986, Coll. P. M. Sureshan.

Remarks: This new species generally resembles *E. appendigaster* (Bouček), but differs from it in having the scape of antenna not reaching above vertex level, long diameter of lateral ocellus slightly shorter than distance between lateral and median ocellus, fore wing with postmarginal vein length 2.6x stigmal vein length (Fig. 5) and gaster with hypopygium ending at the level of the hind margin of tergite 4 (Fig. 1), and epipygium not narrower than tergite 6. *E. appendigaster* has the scape exceeding vertex by 0.25 of its length, long diameter of lateral ocellus slightly longer than distance between lateral and median ocellus, postmarginal vein length 3.4x stigmal vein length and the gaster with hypopygium ending with middle of tergite 5, epipygium narrower than tergite 6.

Genus *Netomocera* Bouček

Netomocera Bouček, 1954. Acta. Ent. Mus. Natl. Pragae, 29: 49.

Type species: *Netomocera setifera* Boucek; by original designation.

Bouček (1988: 336) has provided a synopsis of the genus and a key to distinguish it from the related Australian genera. According to him the genus occurs in the warmer parts of the world. It has not so far been collected in South America and colder parts of Europe and North America. Most species are undescribed. The hosts are unknown. The species occur in relatively open spaces and not in deep forests.

Check-list of the world species:

- | | |
|--|----------------|
| 1. <i>africana</i> Hedqvist, 1971: 238. | South Africa. |
| 2. <i>alboscapus</i> Hedqvist, 1971: 238. | South Africa. |
| 3. <i>nearctica</i> Yoshimoto, 1977: 1044. | North America. |
| 4. <i>nigra</i> Sureshan & Narendran, sp. nov. | India. |
| 5. <i>rufa</i> Hedqvist, 1971: 241. | South Africa. |
| 6. <i>sedlaceki</i> Bouček, 1988: 336. | Australia. |
| 7. <i>setifera</i> Bouček, 1954: 49. | Europe. |

Key to the Oriental and African species

1. Females 2
Males 4
2. Antennae inserted distinctly above the level of anterior margin of eyes; malar space short, 0.16x as long as eye height (in profile view). Congo.
. **alboscapus** Hedqvist
Antennae inserted just at the level of anterior margin of eyes; malar space not as short as above, more than 0.16x as long as eye height (in profile view). . . . 3
3. Gaster (excluding petiole but including ovipositor sheath) short oval, 1.7x as long as its maximum width; tergite 1 exceeding well beyond the middle of gaster (Fig. 7). India: Kerala **nigra**, sp. nov.
Gaster (excluding petiole but including ovipositor sheath) long, 2.65x as long as its maximum width; tergite 1 not reaching middle of gaster. South Africa.
. **africana** Hedqvist
4. Malar space shorter than width of an eye in profile view; body black 5
Malar space as long as width of an eye in profile view; body predominantly reddish-brown. South Africa. **rufa** Hedqvist
5. Antennae inserted just above the level of anterior margin of eyes; first funicle segment the longest. South Africa **africana** Hedqvist
Antennae inserted at the level of anterior margin of eyes; all funicle segments of equal length. India: Kerala. **nigra**, sp. nov.

Netomocera nigra, sp. nov. (Figs. 7-14)

Female: Length 1.73-2.36 mm. Body black with no metallic reflection. Gaster black with ventral part brown. Antenna with scape, pedicellus, first funicle segment testaceous, otherwise black. Coxae brownish black; femora brown; tibiae and tarsi testaceous with tips of later brown. Tegulae brown; wings with uniform brown infumation, veins brown.

Head: (Figs. 7,8,11) only slightly wider than mesoscutum, in dorsal view 2.1x as broad as long with temples not strongly converging and 0.26x as long as eyes, vertex with four pairs of long black bristles directed forwards, POL 3.5x OOL. Head in front view 1.2x as wide as long; finely reticulate; clypeus smooth, without teeth anteriorly. Malar space length 0.31x compound eye height; malar groove distinct. Antennal toruli at level of lower margin of compound eyes; scrobe very deep, sides striated, middle part smooth and shiny; scape just reaching median ocellus, 4.4x as long as pedicel, anellus (Fig. 10) very short, indistinct in dried specimens, first funicle segment as long as pedicel, the following segments progressively broadening, club three jointed, broader than any other funicle segment, as long as four preceding segments combined.

Thorax: More than 3.0x as long as head dorsally, finely reticulate with sparse pubescence; pronotal collar width 5x length, anterior margin round, with a row of long backwardly directed bristles. Mesoscutum shorter than 3.0x as long as pronotal collar, with 2 pairs of backwardly directed bristles, notaular lines complete. Scutellum with 2 pairs of backwardly directed bristles, frenum longitudinally striated. Scutellum 1.5x as long as middle lobe of mesoscutum. Metanotum anteriorly with close longitudinal carinae. Dorsellum not clearly marked off, smooth. Propodeum flat, 2.2x as broad as long and half as long as scutellum, median part with several small areas made by fine carinae, area just behind spiracle striated without carinae, spiracle round, well separated from metanotum; callus with scattered hairs; nucha absent. Prepectus elongated, triangular, almost smooth, lower part deep with fine transverse carinae. Mesopleuron with mesepisternum rugulose, mesepimeron smooth and shiny. Metapleuron with fine carinae on the sides and smooth medially. Legs normal; hind coxae transversely striated on dorsolateral region; hind tibia with two spurs. Fore wing (Fig. 12) almost uniformly pubescent, except a small speculum, pubescence small, marginal fringe small and inconspicuous, veins with a row of bristles, marginal vein 2x as long as postmarginal and 3x as long as the stigmal vein.

Gaster (Fig. 7): Petiole longitudinally rugulose, as long as broad and half as long as propodeum in dorsal view; tergite 1 covering more than half of gaster, posterior margin emarginate deeply, hind margin of following tergites almost straight. Ovipositor sheaths exerted, Gaster 2.9x as long as propodeum (without petiole) in dorsal view.

Male: Length 0.85-0.91 mm. Similiar to female but differing as follows: Body black, smaller than female. Propodeum (Fig. 14) more reticulate than in female. Antenna (Fig. 13) long and filiform, funicle segments elongate, anellus indistinct. Wings hyaline, with marginal fringe more clear, pubescence more sparse. Gaster with only tergite 1 visible, others retracted.

Holotype: Female, INDIA: Kerala: Calicut University Campus, vii.1986, Coll. T.C.Narendran & Party. *Allotype*: Male, INDIA: Kerala: Calicut University Campus, i.1986, Coll. T.C.Narendran & Party. *Paratypes*: 1 female, INDIA: Kerala: Peechi, 29.x.1985, Coll. T.C.Narendran & Party; 2 males, i.1986, xii.1986, other data same as that of holotype, 1 male, Kerala: Calicut University Campus, 3.v.1988, Coll. P.M.Sureshan.

Remarks: This species closely resembles the European *Netomocera setifera* Bouček, but differs in having body generally black, head without greenish to bronze metallic tint, antennal club as long as four preceding segments combined and gaster (Fig. 7) with tergites following first not very short and not much retracted under the first. *N. setifera* has the body generally testaceous and head with greenish to bronze metallic tint, club almost as long as three preceding segments combined and gaster with tergites following first very short and more or less retracted under the first.

The Australian species, *N. sedlaceki* Bouček, resembles *N. nigra* in various proportions of the body parts and in general shape of the body, but differs from the latter in having reduced wings, almost sessile gaster with hind margin of tergite 1 angulate, of tergites 2 and 3 subangulate, and posterior half or more of pronotal collar almost smooth, finely alutaceous. *N. nigra* has fully developed wings, distinctly petiolate gaster with hind margin of tergite 1 distinctly emarginate and that of tergites 2 and 3 straight, and pronotal collar with only a narrow smooth strip behind, otherwise finely reticulate. Males of *N. sedlaceki* shows close resemblance with males of *N. nigra* in the nature of antennae, body color, and size.

The distinctions of the new species from the African species are as mentioned in the key.

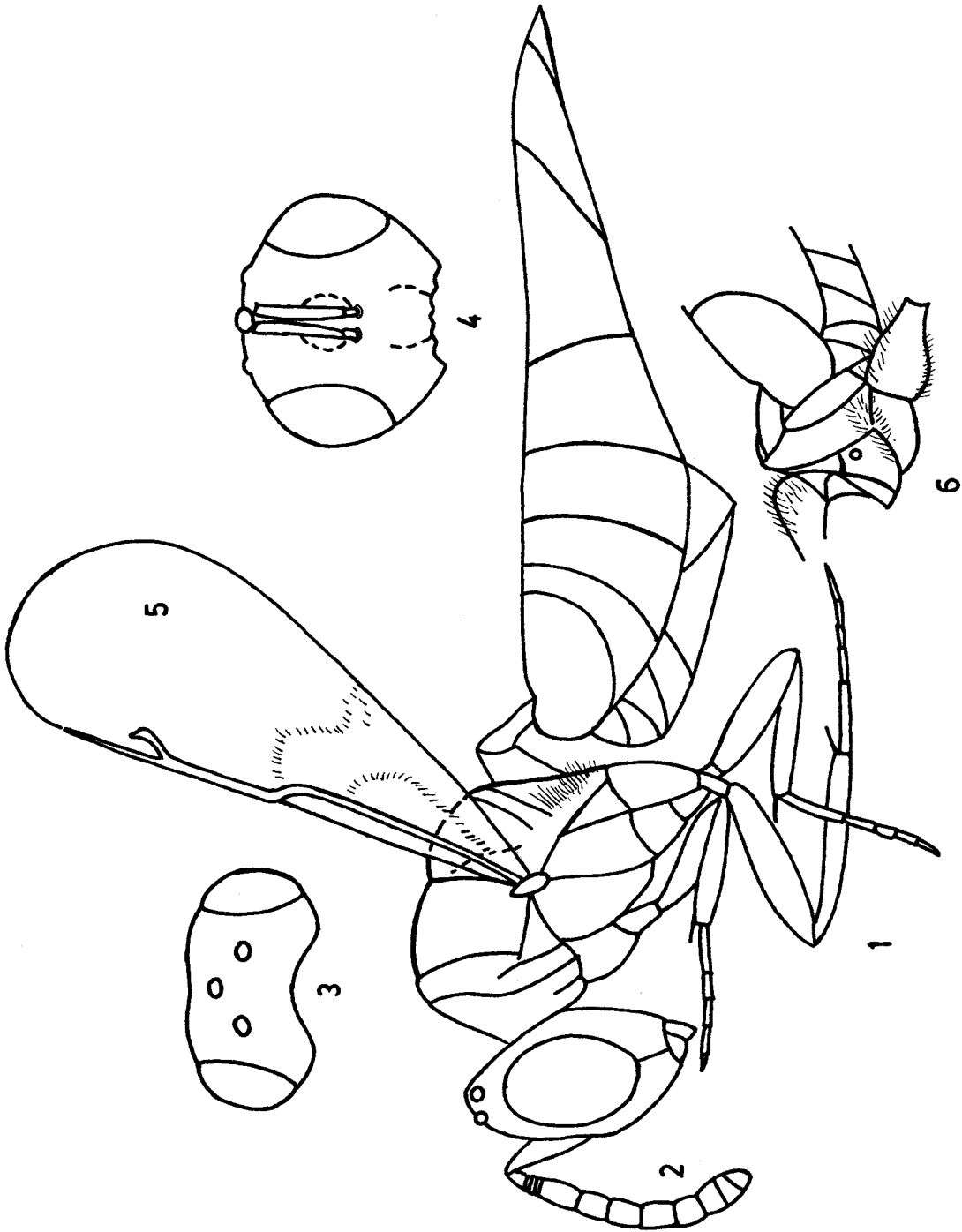
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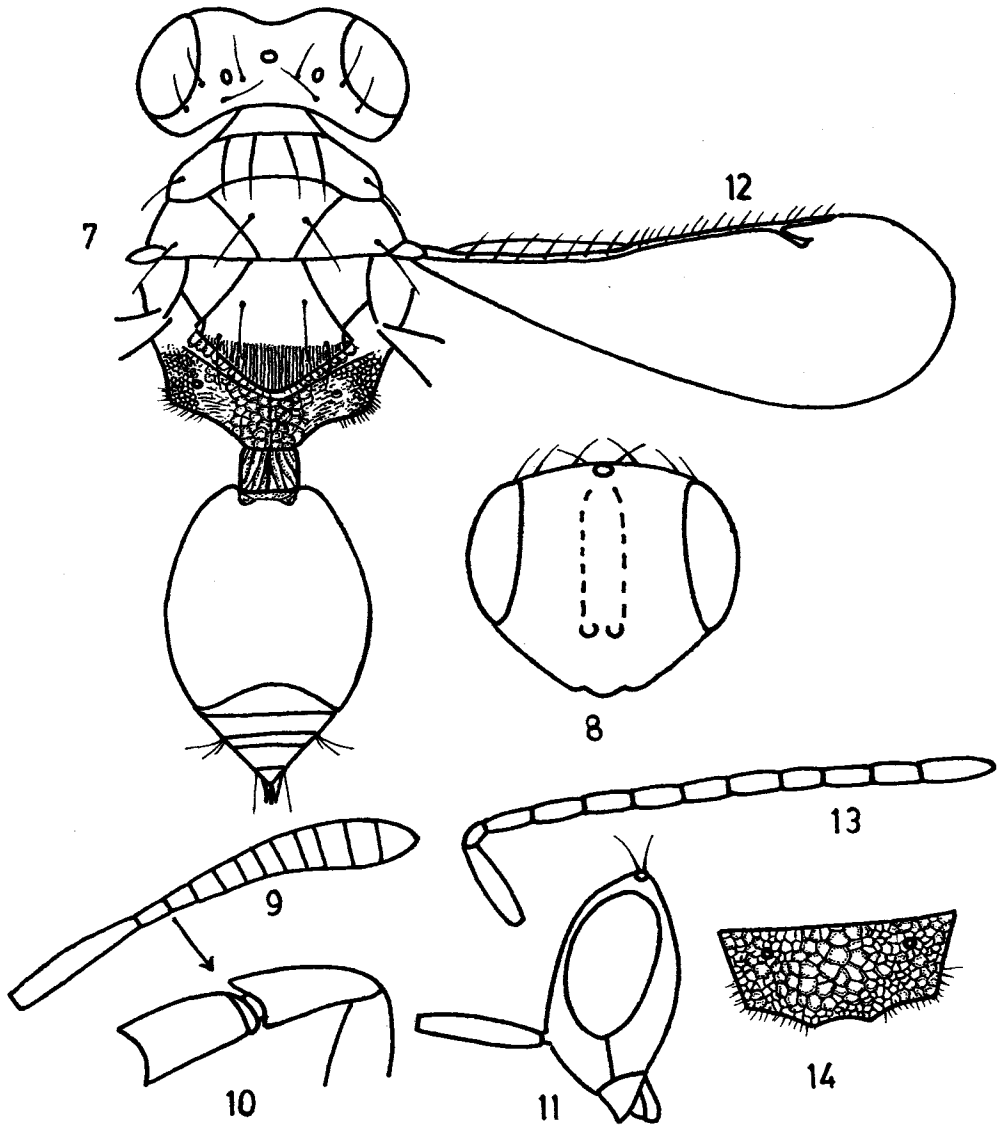
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Figs. 1-6. *Eurydinotomorpha malabarensis*, sp. nov., female: 1, habitus; 2, antenna; 3, head in dorsal view; 4, head in front view; 5, fore wing; 6, attachment of gaster on propodeum.



Figs. 7-14. *Netomocera nigra*, sp. nov., female: 7, body in dorsal view; 8, head in front view; 9, antenna; 10, anellus enlarged; 11, head in profile view; 12, fore wing; 13, male antenna; 14, male propodeum.