

### THREE NEW SPECIES OF PTEROMALIDAE (HYMENOPTERA : CHALCIDOIDEA) FROM MIDDLE-EAST

T.C. NARENDRAN, P. GIRISH KUMAR, M. SHEEBA AND LAMBERT KISHORE\*

SYSTEMATIC ENTOMOLOGY LABORATORY, DEPARTMENT OF ZOOLOGY,

UNIVERSITY OF CALICUT, CALICUT-673 635, INDIA.

DEPARTMENT OF ZOOLOGY, MALABAR CHRISTIAN COLLEGE,

KOZHIKODE-673 001, INDIA\*.

E-mail : <drtcnarendran@yahoo.com>

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Three new species of Pteromalidae viz. *Eumacepolus yemensis* Narendran sp. nov., *Merisomorpha gatra* Narendran sp. nov. and *Hemitrichus longigaster* Narendran sp. nov. are described from Yemen. The genera *Eumacepolus*, *Merisomorpha* and *Hemitrichus* are recorded for the first time from Middle-east. Each new species is compared with related species.

**Key words :** Hymenoptera, Chalcidoidea, Pteromalidae, *Eumacepolus*, *Merisomorpha*, *Hemitrichus*, new species, Yemen.

### INTRODUCTION

The genus *Eumacepolus* was raised by Graham (1957). The genus *Hemitrichus* was raised by Thomson (1878, as a subgenus of *Dimachus*). The genus *Merisomorpha* was erected by Girault (1913) and is known only so far from Australia and India. All these three genera are reported from Middle-East (The Middle-East countries : Egypt, Jordan, Syria, Iraq, Kuwait, UAE, Yemen, Oman and Iran) for the first time in this paper by describing three new species. They are also compared with the related species. These new species differ from all the species of the respective genera dealt with Boucek (1965 & 1988), Graham (1969) and Sureshan (2003). All type specimens are deposited in the TCN Collections, Systematic Entomology Laboratory, Department of Zoology, University of Calicut (DZUC) and eventually will be transferred to Western Ghats Regional Station, Zoological Survey of India, Kozhikode (ZSIK).

### RESULTS AND DISCUSSION

#### *Eumacepolus yemensis* Narendran sp. nov. (Figs. 1-8)

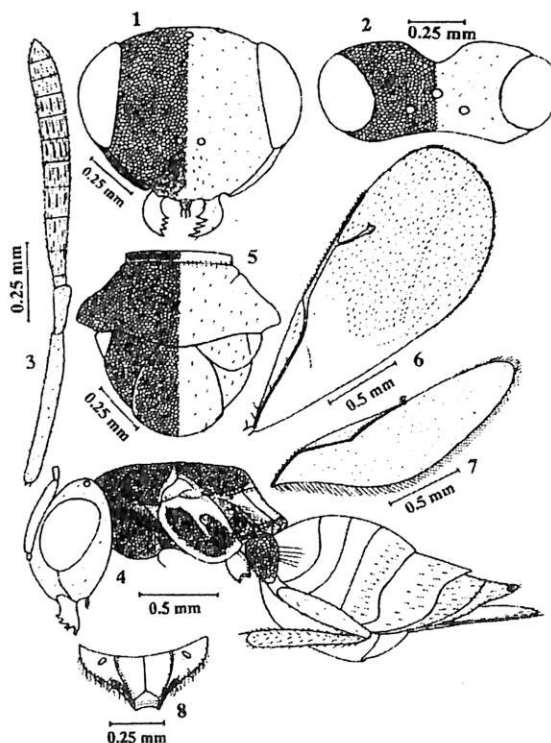
**Holotype :** Female : Length 3.2 mm. Head and mesosoma metallic green; antenna brown with scape paler; mandibles pale brown with teeth darker; eyes brick red with anterior and dorsal margin paler; ocelli pale reflecting yellow; legs with all coxae concolourous with mesosoma; remaining segments pale yellow with femora reddish brown (except base and apex in fore and mid femora and at base of hind femur paler); gaster brown with metallic green refringence on T<sub>1</sub> and T<sub>6</sub>; tegula pale yellow; wings hyaline and veins pale yellow and apex of stigma slightly darker; pilosity of wing base brown.

**Head :** Width in anterior view 1.27x its median length from vertex to lower clypeal margin (Fig. 1); width in dorsal view (Fig. 2) 2.38x its maximum dorsal length, wider than mesosoma; frons and vertex distinctly reticulate; clypeus demarcated with longitudinal broken striae, its lower margin slightly emarginate; both mandibles quadridentate; POL 1.45 x OOL; occiput not margined, without any transverse ridge. Antennal toruli located on a slightly swollen area below lower ocular line; antennal formula (Fig. 3) 11173; scape reaching front ocellus but not exceeding level of vertex; relative measurements of length; width of antennal segments as follows : scape = 56 : 6;

56 : 6; pedicel = 17 : 7; anellus = 4 : 4;  $F_1 = 9 : 6$ ;  $F_2 = 12 : 8$ ;  $F_3 = 12 : 9$ ;  $F_4 = 9 : 9$ ;  $F_5 = 9 : 10$ ;  $F_6 = 9 : 10$ ;  $F_7 = 7 : 10$ ;  $Cl_1 = 7 : 10$ ;  $Cl_2 = 7 : 10$ ;  $Cl_3 = 7 : 7$ ; antenna longer than width of head in anterior view; multiporous plate sensilla in a single row on each funicular segment from  $F_2$ - $F_7$ .

**Mesosoma** (Fig. 5) : Pronotum distinctly margined and slightly raised anteriorly, with a single row of setae near posterior margin, with a deep fovea at posterior corner at the junction with mesoscutum on either side; lateral panel of pronotum with a deep broad oblique furrow; axilla slightly advanced; pronotum, mesonotum and scutellum with distinct raised reticulations; notauli not complete, indicated slightly on anterior side; scutellum length subequal to its width, without distinct frenal area; mesoscutum and scutellum with sparse short pubescence. Propodeum (Fig. 8) slanting posteriorly, with distinct complete plicae and median carina; surface of propodeum otherwise smooth and shiny; spiracle oval; callus with several setae; propodeal nucha absent. hind tibia with a single apical spur. Forewing (Fig. 6) length 2.46x its maximum width; basal cell asetose; speculum open behind; basal line indicated but without setae; cubital line of setae not reaching speculum marginal fringes very short; relative length of forewing veins :  $SMV = 51$ ;  $MV = 25$ ;  $PMV = 21$ ;  $STV = 15$ .

**Gaster** (Fig. 4) : Sessile; not collapsing; 1.4x length of mesosoma; 2.55x as long as broad in dorsal view; a trifle longer than combined length of head and mesosoma; posterior margin of  $T_1$  slightly convex posteriorly;  $T_1$  to  $T_5$  smooth and polished;  $T_6$  rugulose; cercal setae not very long; ovipositor sheath exerted posteriorly; apex of hypopygium reaching well behind middle of gaster.



**Figs. 1-8 :** *E. yemensis* Narendran sp. nov. Female. 1. Head (Front view); 2. Head (Dorsal view); 3. Antenna; 4. Body profile; 5. Pronotum, mesonotum and scutellum (Dorsal view); 6. Forewing; 7. Hindwing; 8. Propodeum (Dorsal view).

*Male* : Unknown

*Host* : Unknown

*Material examined* : Holotype : Female . YEMEN; Ar Rujum. Coll. A. Van Harten and A.M. Hager, 16.X.2000-15.i.2001 (DZUC). Reg. No. MoEF Y-5.

*Etymology* : Named after the country of origin of the specimen.

*Discussion* : This new species comes near *Eumacepolus (Oxycepolus) pulcher* Graham (Graham, 1969) in having antennal flagellum weakly clavate and scape as long as eye. However, this new species differs from *E. pulcher* and all other known species of *Eumacepolus* in having second anellus transformed in to  $F_1$  (with antennal formula 11173) and in several other combination of characters. This species also resembles *E. muscidifurax* Girault and Sanders in having with 7 funicular segments but differs from it in having (1) MV not widened in basal half and (2) hind margin of  $T_1$  not trilobed.

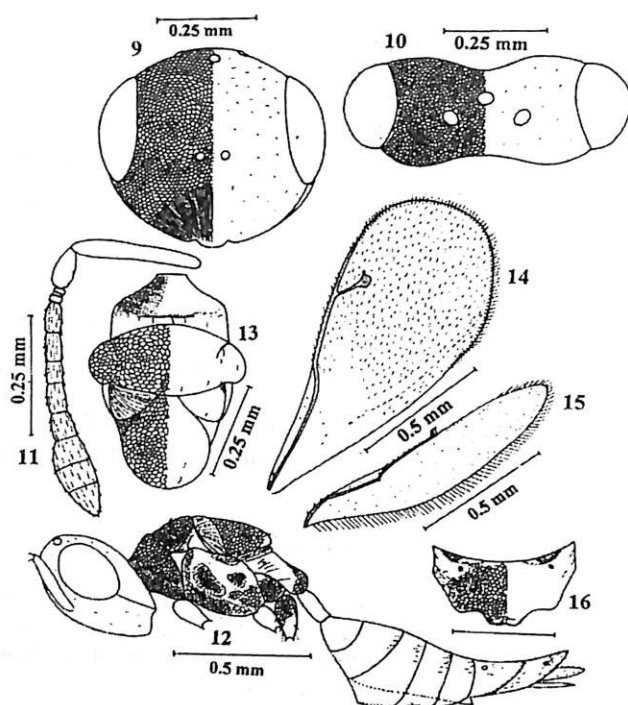
***Merisomorpha gatra* Narendran sp. nov. (Figs. 9-16)**

*Holotype* : Female : Length 2 mm. Head and mesosoma black with metallic refringence; antenna pale brown with scape pale brownish yellow; eye greyish yellow; ocelli reflecting pale yellow; mandibles pale brown; fore and hind coxae darker; middle region of femora and tibiae slightly brown with bases and apices paler; middle coxa yellowish brown; all tarsi whitish yellow; pretarsus darker; wings hyaline with veins and pilosity pale brown; pubescence on body silvery.

*Head* : Width in anterior view (Fig. 9) 1.11x its median length; width in dorsal view (Fig. 10) 2.5x its maximum length; POL 1.2x OOL; occiput not margined; frons and vertex distinctly reticulate; pubescence very small; eyes separated 1.3x their height; eye height 1.4x its width in side view, 1.7x length of malar sulcus; clypeus longitudinally striate. Antenna (Fig. 11) inserted a little above level of lower ocular margin; toruli a little nearer to lower margin of clypeus than to front ocellus; scape slender, reaching front ocellus, length equal to eye height; length of pedicel plus flagellum 0.54x head width; pedicel distinctly longer than  $F_1$ ; third anellus a little longer than others; all funicular segments a little longer than wide; clava slightly longer than combined length of three preceding segments.

*Mesosoma* (Fig. 13) : Length 1.41x its width, pubescence very short and sparse; pronotal collar finely reticulate-striate, with a median moderate carina; mesoscutum with distinct slightly raised reticulations; notaul incomplete; scutellum similarly sculptured, joins mesoscutum with a narrow area; frenal line not indicated; scutellum distinctly longer than mesoscutum (34 : 26). Propodeum (Fig. 16) medially 0.63x as long as scutellum; median area with distinct raised reticulations; median carina and plicae absent; submedian channels hardly distinct. Forewing (Fig. 14) length 2.3x width, pilosity moderately dense; speculum open behind; basal hairline with 3 or 4 setae; PMV distinctly shorter than MV (19 : 27); relative length of forewing veins : SMV = 49; MV = 27; PMV = 19; STV = 13.

*Gaster* (Fig. 12) : Distinctly longer than head and mesosoma combined; 2.5x as long as hind tibia; petiole not sinuate or fusiform, 2.6x as long its width, not widened medially, throughout of uniform width, not embraced by an extension of first gastral sternite below; hind margin of  $T_1$  to  $T_6$  not incised in middle;  $T_3$  longer than  $T_2$  but not longer than  $T_1$  in dorsal view.



**Figs. 9-16 :** *M. gatra* Narendran sp. nov. Female. 9. Head (Front view); 10. Head (Dorsal view); 11. Antenna; 12. Body profile; 13. Pronotum, mesonotum and scutellum (Dorsal view); 14. Forewing; 15. Hindwing; 16. Propodeum (Dorsal view).

*Male* : Unknown

*Host* : Unknown

*Material examined* : Holotype : Female. YEMEN; Ar Rujum. Coll. A. Van Harten 9.iv.2001-5.vi.2003 (DZUC). Reg. No. MoEF Y-4.

*Etymology* : This species name is an arbitrary combination of letters.

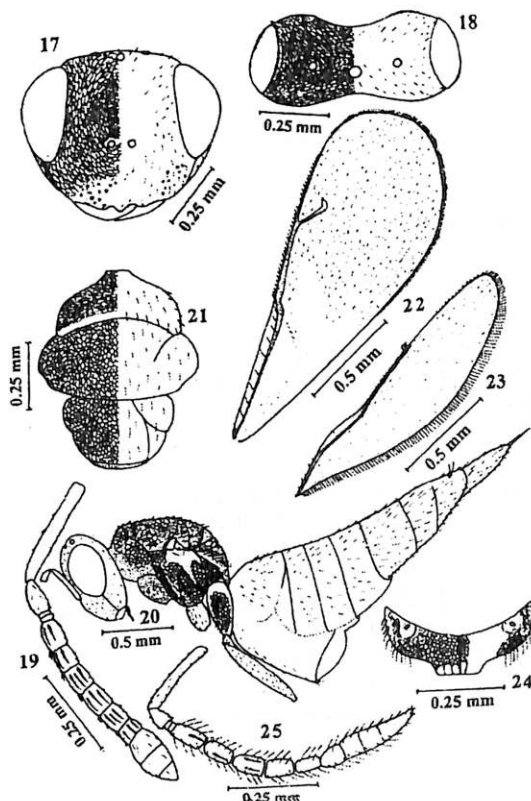
*Discussion* : This new species differs from all other known species of *Merisomorpha* in having long yellow petiole of uniform width, not sinuate, without embracing the extension of first gastral sternite and anterior margin of scutellum narrowly joins mesoscutum. This species may deserve placement under a new subgenus or genus when better known and more specimens are available for study.

***Hemitrichus longigaster* Narendran sp. nov. (Figs. 17-25)**

*Holotype* : Female : Length 3.3 mm. Black; head and mesosoma with very slight metallic green refrigence; scape brownish yellow; pedicel brown; remaining antennal segments black; eye grey; ocelli reflecting yellow; legs pale brownish yellow with fore-and hind coxae concolourous with mesosoma; tegula brown; SMV pale yellow; MV, STV and PMV pale yellowish brown; wings hyaline with slight yellowish tinge; pubescence on body pale brown.

*Head* : Width in anterior view (Fig. 17) 1.15x its median length; width in dorsal view (Fig. 18) 2.42x its maximum length; POL 2.41 x OOL; occiput not margined, without any transverse ridge near occipital foramen; frons and vertex distinctly reticulate; lower frons on either side of clypeal area with sparse distinct pits (Fig. 17); frons with moderately dense short pubescence; eyes separated 1.2x their height; eye height 1.62x its width in profile, 2.33x length of malar sulcus; clypeus shiny and nearly smooth; its anterior margin with a median blunt tooth. Antenna (Fig. 19) inserted a little above level of lower ocular margin; scape slender, not reaching front ocellus, its length shorter than eye height; length of pedicel plus flagellum 0.56x head width in anterior view; pedicel a little shorter than F<sub>1</sub>; antennal formula 11263; F<sub>1</sub> to F<sub>5</sub> a little longer than wide; F<sub>6</sub> wider than long; clava a little longer than combined length of 2.5 preceding segments.

*Mesosoma* : Length 1.34x its maximum width; pronotal collar reticulate, without any cross ridge or carina; mesoscutum with slightly raised dense reticulations; notauli incomplete; scutellum similarly sculptured; frenal line distinct; scutellum distinctly shorter than mesoscutum (26 : 30); dorsellum posteriorly subangular with strong reticulations. Propodeum 0.67x as long as scutellum; median area distinctly reticulate (Fig. 24) with a short posterior nucha, with a median carina; plicae absent. Forewing (Fig. 22) 2.9x as long as its width; MV slightly wider proximally, gradually narrowing distally; speculum somewhat closed behind by vague line of cubital setae; basal line of weak setae present; pilosity feeble; relative length of forewing veins : SMV = 54; MV = 32; PMV = 30; STV = 13.



Figs. 17-25 : *H. longigaster* Narendran sp. nov. Female. 17. Head (Front view); 18. Head (Dorsal view); 19. Antenna; 20. Body profile; 21. Pronotum, mesonotum and scutellum (Dorsal view); 22. Forewing; 23. Hindwing; 24. Propodeum (Dorsal view); 25. Antenna, Male.

*Gaster* (Fig. 20) : Polished and shiny with sparse pubescence on dorsal side; 1.94x as long as combined length of head plus mesosoma; 3.4x as long as broad; last tergite 2x as long as its basal breadth.

*Male* : Similar to female except for shorter gaster; antenna as in Fig. 25.

*Host* : Unknown

*Material examined* : Holotype : Female. YEMEN; Ar Rujum. Coll. A Van Harten and A.M. Hager. 16.x.2000-15.i.2001 (DZUC) Reg. No. MoEF Y-1. Paratypes : 1 E, same date as holotype; 1 ♂. YEMEN; Ar Rujum. Coll. A Van Harten. 9.iv.2001-5.vi.2001 (DZUC).

*Etymology* : The species is named after the nature of gaster, which is relatively long.

*Discussion* : It comes near *Hemitrichus oxygaster* Boucek described from Moldavian SSR (Boucek, 1965; Graham, 1969) in having propodeum with a nucha. It differs from *H. oxygaster* in having : (1) MV 2.4x as long as STV (in *H. oxygaster* MV 1.8x as long as STV); (2) Gaster about 2x (1.94x) as long as head plus mesosoma (in *H. oxygaster* gaster 1.5x head plus mesosoma) and in several other features.

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