

**THE SPECIES OF *METASTENUS* WALKER AND *ACROCLISOIDES*
GIRAULT & DODD (HYMENOPTERA : CHALCIDOIDEA :
PTEROMALIDAE) FROM INDIA**

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INTRODUCTION

Metastenus Walker and *Acroclisoides* Girault & Dodd are two Pteromalid genera poorly known from the Indian subcontinent.

The type specimens of the new species are deposited in Zoological Survey of India, Western Ghats Field Research station, Calicut, India.

The morphological terminology used in this paper generally follows that of Boucek (1988). The following abbreviations are used : F1-F5—funicular segments 1 to 5; MV—marginal vein; OOL—ocellocular distance; PMV—postmarginal vein; POL—post ocellar distance; SMV—submarginal vein; STV—stigmal vein; T1-T5—gastral tergites 1 to 5; BMNH-British Museum (Natural History), London, U.K.

Genus *Metastenus* Walker

Metastenus Walker, 1834 : 301-302. Type species : *Metastenus concinnus* Walker by monotypy.

Symnophagus Ashmead, 1904 : 319, 321. Type species *Symnophagus townsendi* Ashmead by monotypy and original designation. Syn. by Graham, 1956 : 256.

Tripolycystus Dodd in Girault 1915 : 337. Type species *Tripolycystus sulcatus* Dodd, by original designation. Syn, by Boucek, 1988; 440.

Boucek (1988) stated that probably only one species of *Metastenus* occur from Europe to China and India, two species in Africa and one species in Australia. According to Boucek *et al.* (1979) *Metastenus* is known from the region by the type species *M.concinnus* Walker recorded from Kerala, India. Though we have made extensive collections of Pteromalidae from Kerala we couldn't collect *M.concinnus* Walker so far. However we could collect a new species of

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Metastenus from Kerala which is described here. Since the original description is inadequate for identification, a redescription of *M.concinnus* Walker is provided here based on the study of the lectotype (lectotype selected by Graham, 1956). A key to separate the two species of *Metastenus* is also provided.

The genus belongs to the subfamily Pteromalinae and can be distinguished by the following characters :

Diagnosis : Gena with a hollow above base of the mandible extending fully one third up the malar space; female flagellum with 3 very short anelli and 5 funicular segments with dense longitudinal sensillae; propodeum tapering to nucha; MV of forewing only moderately widened; parallel sided; gaster sessile.

Biology : parasites of coccidophagous and aphidophagous coccinellid beetles.

Key to the Indian species of Metastenus

1. Propodeum (Fig.3) with nucha moderate and coarsely reticulate; plicae raised and distinct; antennae (Fig. 1) inserted centre of face, body moderately reticulate
 *M.concinnus* Walker
- Propodeum (Fig. 7) with nucha short, finely reticulate; plicae very fine almost indistinct; antennae (Fig. 5) inserted below middle of face, reticulation of body finer especially on head and propodeum *M.indicus* sp. nov.

1. *Metastenus concinnus* Walker

(Figs. 1-3)

Metastenus concinnus Walker, 1834 : 302. Lectotype. F. designated by Graham (1956 : 256) (examined).

Redescription : Lectotype : Female : Length 1.5 mm. Black; antennae dark brown; coxae concolrous with mesosoma; remainder of legs brown; tegulae brown; wings hyaline; veins brown.

Head : (Fig. 1) uniformly and moderately reticulate; clypeus finely striate; anterior margin shallowly emarginate. In dorsal view head width 2x length; temple length 0.43x eye length; POL : OOL = 5 : 4; eye height 1.3x width in profile; malar space length 0.6x eye height; posterior margin of gena sharp; scrobe locally deep; antennae inserted middle of face; scape length 0.7x eye height; pedicel longer than F1, clava 1.2x as long as two preceding segments combined.

Mesosoma : moderately reticulate; pronotal collar almost shiny, anteriorly carinate. Mesoscutum width 2.1x length. Scutellum medially slightly longer than mesoscutum (9.5 : 9); frenum clearly separated. Propodeum (Fig. 3) with median area coarsely reticulate, nucha moderately long, plicae

sharp and complete; spiracles small, oval, touching hind margin of metanotum. Forewing (Fig. 2) with relative lengths of SMV 19; MV 9; PMV 9.25; STV 5.5.

Gaster : (Fig. 3) 2x as long as wide in dorsal view and as long as head plus mesosoma combined.

Host : A widespread parasite of coccinellid beetles especially on those predatory on coccids (Boucek & Rasplus 1991). Recorded from India with coccids (Boucek *et al.*, 1979).

Material examined : Lectotype : Female : England (grass fields near London) det. Graham (BM type Hym. 5.2225.)

Distribution : India (Kerala), Europe.

2. *Metastenus indicus* sp. nov.

(Figs. 4-8)

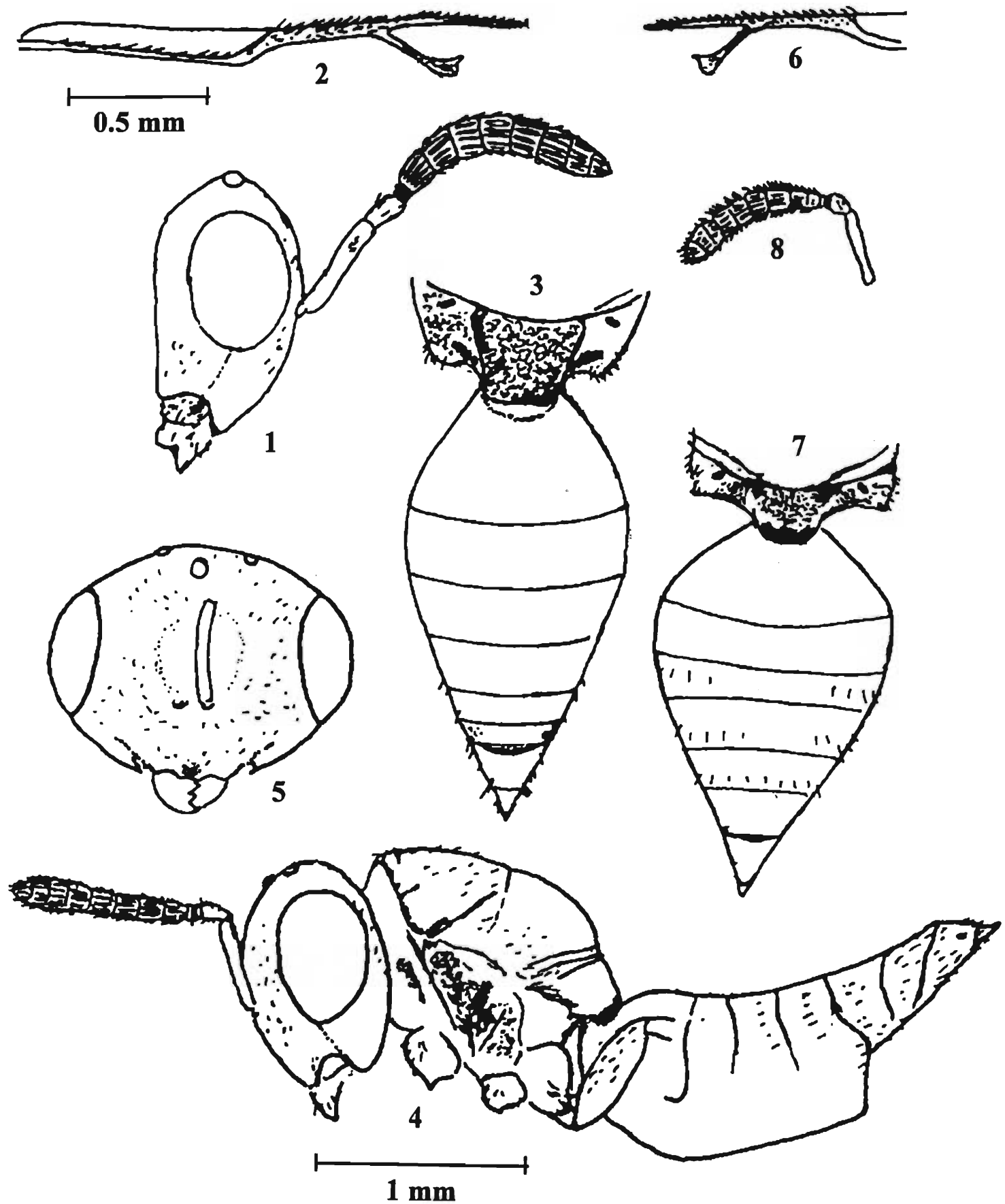
Holotype : Female : Length 1.6–1.8 mm. (Holotype 1.8 mm) Black; gaster with brownish tinge; antennae testaceous; fore and hind coxae concolrous with mesosoma, mid coxae and all femora dark brown; hind tibiae and tarsi yellow; fore and mid tibiae and tarsi testaceous except proximal two third part of former brown. Tegulae brown; wings hyaline; veins pale brown.

Head : (Figs. 4, 5) Uniformly finely reticulate; pubescence small; clypeus similarly sculptured as on rest of face except anteriorly shiny, anterior margin slightly projecting. In dorsal view head width 2.1x length and 1.2x that of mesosoma; temple length 0.4x eye length; POL little longer than OOL (7 : 6.25); in front view head width 1.2x height; eye height 1.6x width in profile; malar space length 0.6x eye height. Both mandibles with four teeth. Antennae inserted below middle of face, little above lower margin of eyes, scape length 0.7x eye height; pedicel plus flagellum length 0.7x head width; pedicel as long as F1; clava 1.2x as long as two preceding segments combined.

Mesosoma : (Fig. 4) closely and moderately reticulate, anterior margin of pronotal collar not carinate. Mesoscutum width 2.2x length. Scutellum without frenum, medially as long as mesoscutum. Propodeum (Fig. 7) with nucha short, medially 0.5x as long as scutellum; median carina vaguely indicated in some specimens; median area finely reticulate, plicae very fine, almost indistinct; spiracles moderate, oval. Forewing (Fig. 6) length 2x width, basal part almost bare. Relative lengths of SMV 22, MV 13, PMV 12, STV 7.

Gaster (Figs. 4, 7) little longer than head plus mesosoma combined (31 : 28) and 2x as long as wide in dorsal view, sometimes dorsally collapsing.

Male : (Fig. 8) length 1.2–1.3 mm. Resembles female but differs in the nature of antenna with 2 anelli and 6 funicular segments with very long pubescence.



Figs. 1-8. 1-3. *Metastenus concinnus* Walker, Female : 1. Head and antenna in profile; 2. Forewing venation; 3. Propodeum and gaster in dorsal view. 4-8. *Metastenus indicus* sp. nov. Female; 4. Body in profile; 5. Head in front view; 6. Forewing venation; 7. Propodeum and gaster in dorsal view; 8. Male antenna.

Material examined : *Holotype* : Female : INDIA : Kerala, Kannur district, Kottiyoor R.F. 3.ii.1995, Coll. P. M. Sureshan; *Paratypes* : 2 female, 1 male, Kerala, Pathanamthitta district, Konni, 26.xi.1988; 2 male, 1 female, Kerala, Alapuzha district, Kayamkulam, 21.ii.1989; 3 female, Kerala, Ernakulam, 9.ii.1989; 1 female, 2 male, Kerala, Palakkad district, Anakkatty, 12.xii.1987; 3 female, Kottayam district, Kumarakom, 29.xi.1988; 2 female, Athirampuzha, 28.xi.1988; 1 female, Pathanamthitta district, Achankoil, 25.ii.1997; 1 female, Pamba, 21.ii.1997, Coll. P. M. Sureshan; 3 male, Malappuram district, Chelari, 10.x.1981; 2 female, Palghat district, Silent valley, iii.1985; 1 male, Malampuzha, 11.xii.1987; 2 female, Calicut University campus, ix. 1985; Coll. T C. Narendran & Party.

Remarks : This species differs from the only known species from the region, *M.concinus* Walker as given in the key.

Genus *Acroclisoides* Girault

Acroclisoides Girault & Dodd, in Girault, 1915 : 334. Type species *Acroclisoides megacephalus* Girault & Dodd by original designation.

The genus *Acroclisoides* is found distributed in Africa, South Asia, New Guinea and Australia (Boucek, 1988). The genus is known by one species *A.indicus* Ferriere from the India and Myanmar (Boucek *et al.*, 1979). A new species of *Acroclisoides* is described here from India. *A.indicus* Ferriere is redescribed here based on the study of specimens from Kerala. A key to separate the two species of *Acroclisoides* from Indian subcontinent is also provided.

Members of the genus are parasites in eggs of Pentatomid Heteroptera and by the following combination of characters the genus can be easily distinguished.

Diagnosis : Head unusually broad; occipital carina distinct; clypeal margin not produced, rather straight; antennae inserted high above centre of face with two anelli and six funicular segments; mesoscutum with notauli complete; gaster petiolate, petiole subquadrate; T1 often narrowed basally so that gaster is prolonged behind the petiole; MV of forewing widened.

Key to the Indian species of *Acroclisoides*

1. Forewing (Fig. 13) with a broad brown spot beneath STV; gaster (Fig. 12) long, 0.8x as long as head plus mesosoma combined; head in dorsal view 2.2x as wide as long; lower posterior corner of gena developed in to a sharp spine; antennal flagellum dark brown
..... *A.maculatus* sp. nov.
- Forewing (Fig. 10) hyaline, without brown spot beneath STV; gaster short (Fig. 9), length 0.6x as long as head plus mesosoma combined; head in dorsal view 1.9x as wide as long; lower posterior corner of gena developed in to a short spine; antennal flagellum pale brown
..... *A.indicus*. Ferriere

1. *Acroclisoides indicus* Ferriere

(Figs. 9–11)

Acroclisoides indicus Ferriere, 1931 : 279. M. India : Dehra Dun (BMNH).

Since the original description of the species is based on a male specimen, a redescription is provided here based on the study of female specimen.

Female : Length 1.4 mm. Head and mesosoma dark metallic blue, lower face bright metallic blue with golden green reflection; gaster dark blue dorsally and brown ventrally; antennae with scape, pedicel and anelli testaceous, remainder pale brown; fore and hind coxae concolorous with mesosoma except tips testaceous with tips of tarsi brown. Tegulae pale brown; wings hyaline, veins pale brown.

Head : (Figs. 9, 10) closely reticulate; clypeus almost closely reticulate, clearly separated from rest of the face, anterior margin wavy. In dorsal view head width 1.4x that of mesosoma and 1.9x length; temple length almost half of eye length; POL 0.8x OOL; In front view head width 1.5x height; malar space length 0.7x eye height; eye height 1.3x width in profile; eyes separated by 2.4x their height. Antennae with scape as long as eye, pedicel plus flagellum almost as long as head width; F1–F3 equal, other segments gradually decreasing in length; clava shorter than two preceding segments combined.

Mesosoma : (Fig. 9) pronotal collar dorsally shiny behind anterior carina. Mesoscutum width 2.4x length, mid lobe moderately reticulate, reticulation finer on side lobes. Scutellum medially slightly longer than mesoscutum (11 : 10); propodeum with median area moderately reticulate, lateral areas finely reticulate; median carina complete; plicae indicated anteriorly. Forewing (Fig. 10) length 2.3x width; PMV only little longer than MV. Relative lengths : SMV 19; MV 7; PMV 8.5; STV 5.

Gaster : (Fig. 9) short, compressed, 0.6x as long as head plus mesosoma combined.

Male : Length 1.6 mm. Similar to female but differs in having gaster more compressed and antennae with funicular segments elongated and with long hairs.

Material examined : 1 Female, INDIA : Kerala : Calicut University campus, v.1989; 1 Male, Calicut University campus, vii.1989, Coll. P. M. Sureshan (in ZSIC).

Distribution : India (Kerala; Tamil Nadu; Uttar Pradesh), Myanmar.

Host : ex. Pentatomid eggs (Boucek *et al.*, 1979).

2. *Acroclisoides maculatus* sp. nov.

(Figs. 12–15)

Holotype : Female : Length 1.5 mm. Head and mesosoma dark metallic blue, lower face with golden green reflection; gaster including petiole brown with metallic blue reflection beyond middle.

Antennae with scape pedicel and anelli testaceous, remainder brown. Fore and hind coxae except distal tip concolrous with mesosoma; distal tip of fore and hind coxae, mid coxae and remainder of legs testaceous with tips of tarsi brown. Tegulae yellow. Forewing with a broad brown spot beneath STV; veins and pubescence brown.

Head : (Figs. 12, 14) reticulation as in *A. indicus*. In dorsal view head width 2.2x length and 1.4x as wide as mesosoma; anterior margin of clypeus wavy; temple length 0.73x eye length; POL 0.7x OOL. In front view head width 1.7x height; malar space length 0.7x eye height; eye height 1.3x width in profile; lower posterior margin of gena with a distinct tooth. Antennae with scape little shorter than eye (11 : 12); pedicel little wider than long; F1–F3 equal in length; F4–F5 little shorter.

Mesosoma : (Fig. 12) pronotum moderately reticulate, shiny behind anterior carina. Mesoscutum width 2.4x length., similarly sculptured as in *A. indicus*. Scutellum similarly sculptured as on mid lobe of mesoscutum, medially slightly longer than mesoscutum (12 : 11). Propodeum medially 0.6x as long as scutellum; median carina complete; plicae indicated anteriorly. Forewing (Fig. 13) length 2.3x width; basal cell and speculum closed below; basal hair line indicated. Relative lengths SMV 26; MV 9.5; PMV 14; STV 8.

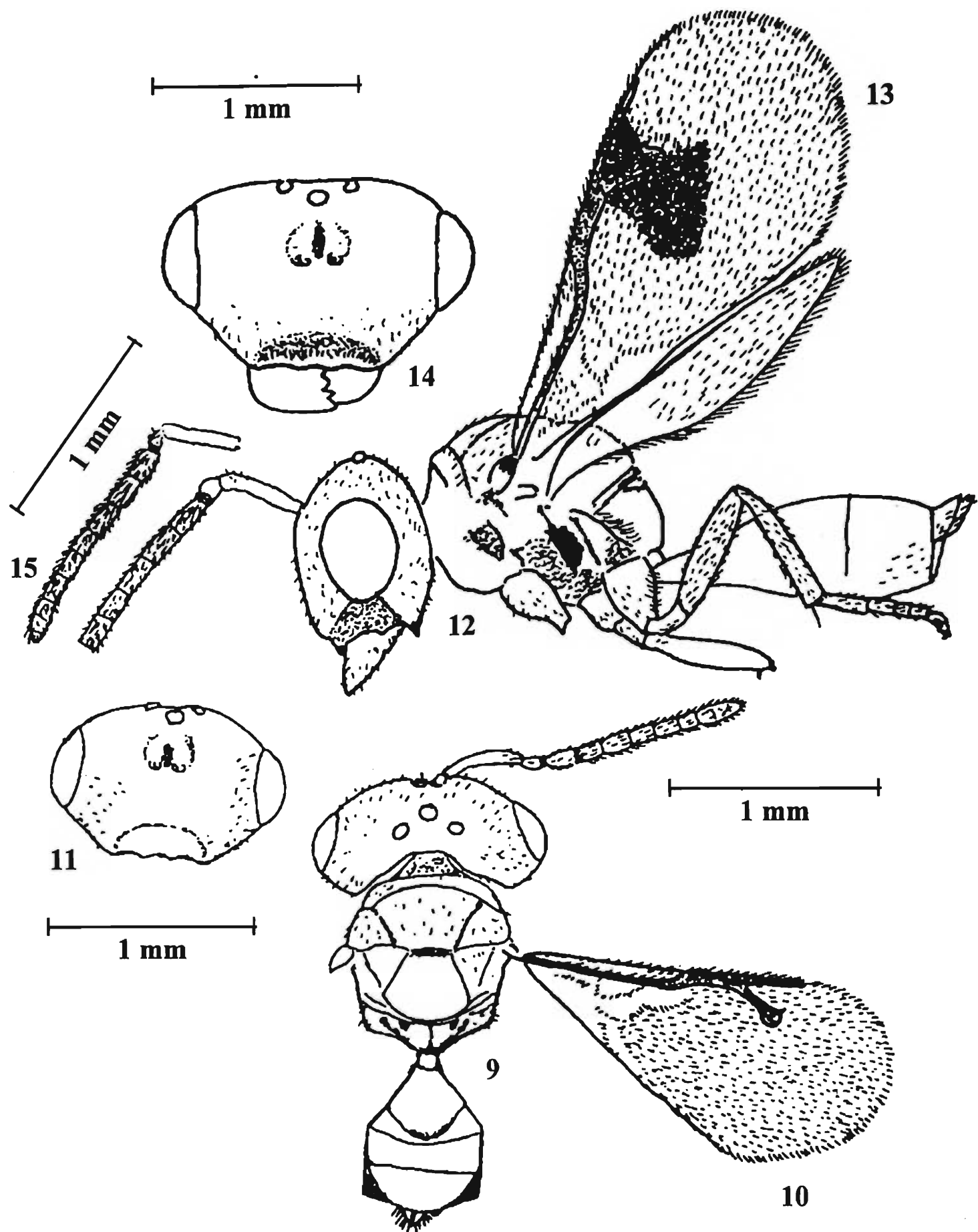
Gaster : (Fig. 12) elongate, ovate, 0.8x as long as head plus mesosoma combined (without petiole).

Male : (Fig. 15) Length 1.7 mm. Resembles female but differs in having antennae thicker and gaster short and compressed.

Material examined : Holotype : Female (without tip of antennae) : INDIA : Kerala : Calicut District, Kotooli, 20.vii.1995, Coll. P. M. Sureshan. Paratypes : 1 Male, INDIA : Tamil Nadu, Coimbatore, ix.1987, Coll. Narendran & party; 8 male, Kerala : Calicut University campus, 10.i.2001, ex. eggs on leaf of *Ficus drupaceae* var *pubescence* (Roth), Coll. T C. Narendran. (in ZSIC).

Remarks : This species closely resembles *A. indicus* Ferriere in general morphology but differs as given in the key.

In the nature of forewing, antenna and in having wider head this species resembles *A. megacephalus* Girault & Dodd but differs from it in having gaster with T4 not occupying half of gaster (excluding petiole) body dark metallic blue and middle coxae testaceous (in *megacephalus* T4 of gaster occupying half of its length, body dark metallic green and first two pairs of coxae concolrous with body).



Figs. 9-15. 9-11. *Acroclisoides indicus* Ferriere, Female : 9. Body in dorsal view; 10. Forewing; 11. Head in front view. 12-15. *Acroclisoides maculatus*, sp. nov. Female : 12. Body in profile; 13. Forewing; 14. Head in front view; 15. Male antenna.

SUMMARY

Two new species of Pteromalidae, one each under the genera *Metastenus* Walker (*M. indicus* sp. nov.) and *Acroclisoides* Girault & Dodd (*A. maculatus* sp. nov.) are described from India. *M. concinnus* Walker and *A. indicus* are redescribed based on the study of the lectotype and determined material respectively. Diagnosis and key to the species from India of both the genera are provided.

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