

## TWO NEW GENERA AND THREE NEW SPECIES OF PTEROMALIDAE (HYMENOPTERA : CHALCIDOIDEA) FROM INDIA

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**ABSTRACT.** Two new genera of Pteromalidae namely *Kumarella* and *Narendrella*, with type species *K. angulus* and *N. nilamburensis* respectively are described from India. *Miscogasteriella* Girault is reported for the first time from India by describing a new species, *M. jayasreeae* from Kerala.

*Key words:* Pteromalidae, *Kumarella*, *Narendrella*, *Miscogasteriella*, New genera, new species.

### Introduction

While studying Indian Pteromalidae I came across two interesting genera, the specimens of which were mainly collected from the southern western Ghats of Kerala state. Detailed study proved that the specimens do not belong to any of the hitherto described genera of Pteromalidae. Hence two new genera, namely *Kumarella* and *Narendrella* have been proposed to include two new species described here.

*Miscogasteriella* was erected by Girault (1915) with *M. longiventris* Girault as the type species. Bouček (1988) considered *Glyptosticha* Masi a synonym of *Miscogasteriella*. A new species, *M. jayasreeae* is described here, reporting the genus from India for the first time.

The terminology used generally follows that of Graham (1969). In addition, the antennal funicular segments are numbered F1 through F6 and the gastral tergites numbered T1 to T6 beginning with the first after the petiole and the last before epipygium. The following abbreviations are used: Ocellar-Ocular distance OOL, Posterior ocellar distance POL, Submarginal vein SMV, Marginal vein MV, Postmarginal vein PMV and Stigmal vein STV.

### Genus *Kumarella*, nov.

*Type species:* *Kumarella angulus*, sp. nov.

*Description:* Body metallic, size moderate. Head raised, reticulate; pilosity denser and longer on lower face. Head wider than thorax; vertex convex; lateral ocellus nearer to the median than to the eye. Eyes bare. Scrobe deep, reaching median ocellus. Clypeus broad, clearly demarcated, anteriorly with a broad median tooth. Mandibles large and strong. Mouth corners depressed. Gena convex, finely carinate in lower part. Antennal toruli close to each other, above centre of face; formula 1:1:3:5:3 in female and 1:1:2:6:3 in male;

flagellum sub-filiform; funicular segments long; claval sutures slightly oblique; micropilosity not clear.

Thorax 1.4x as long as broad, raised reticulate; pubescence sparse. Pronotum broad, anteriorly weakly carinate, on sides behind carina with a groove continuous with the sinuate depression on lateral panel; collar just behind it appears in the form of two blunt lateral teeth due to a median notch. Notauli groove-like over 3/4 length. Scutoscutellar suture curved. Scutellum convex, anteriorly separated by a deep groove; frenum separated by a fine ridge. Dorsellum anteriorly bordered by a ridge in the form of 'M'. Propodeum dull with fine sculpture; median carina indicated up to costula, after costula finely indicated up to nucha with a short break proximally; spiracles oval, large, close to metanotal margin; costula continuous as a short transverse carina behind spiracles; supracoxal flange short but distinct; callus with sparse hairs; posterior corners rounded. Mesepimeral groove alveolate. Mesosternum with epinomial carina. Hind coxa dorsally convex and bare. Hind tibia with one spur. Fore wing with proximal pilosity reduced; basal hairline indicated; costal cell setose on the anterior half. MV almost 4x as long as STV, longer than the PMV.

Gaster sessile, lanceolate, compressed laterally and collapsing dorsally; longer than head plus thorax combined; apex sharply conical; hypopygium not reaching middle of gaster.

*Remarks:* *Kumarella* is readily distinguished from all other pteromaline genera by the large, reticulate clypeus which has a broad median tooth on its anterior margin, by the pronotal collar which has two tooth like projections along its lateral margin and by the general habitus of the propodeum (Fig. 6). It shows close resemblance to *Apyncetron* Bouček in having a similar antenna, thorax, fore wing and gaster but differs from *Apyncetron* in having a broad clypeus with a median tooth, pronotal collar with two lateral tubercles on either side, propodeum medially with 4 depressed areas, cariniform plicae, frenal area finely reticulate, separated by a fine ridge, and gaster with apex sharply conical and hypopygium not reaching middle.

*Kumarella* also resembles *Laticlypea* Bouček in the general shape of the face with a broad clypeus, lateral ocelli placed closer to each other than to eyes, strong and large mandibles, and similar propodeum but differs in the nature of antenna, in having a broad tooth on the clypeus, and longer gaster.

*Etymology:* *Kumarella* is named after my late father Shri P. M. Kumaran, who was always a source of encouragement in my studies and research. The species name is from the angulate nature of clypeus. The gender is masculine.

### ***Kumarella angulus*, sp. nov. (Figs. 1-7)**

*Female:* Length 3.9-4mm (Holotype 3.9mm.) Head and thorax dark metallic blue; gaster brown with slight bluish reflection on sides of basal tergites dorsally. Eyes chocolate. Antennae with scape and pedicel pale brown, remainder dark brown. Mandibles pale brown. Basal halves of fore and hind

coxae black, remainder of legs testaceous with tips of tarsi brown. Tegulae testaceous; wings hyaline; veins pale brown.

*Head* (Figs. 1,3,4): Uniformly reticulate, finer on vertex; pubescence longer and denser on lower half of face. In dorsal view head width 2.1x length; temples 0.4x eye length; POL 0.7xOOL; eye height 1.3x length (in profile), separated by 1.7x their height. In front view head width 1.3x height; malar space 0.7x eye height; malar grooves indicated; clypeus with reticulation finer towards anterior end, broad, with a median tooth; gena concave. Antennal toruli above lower margin of eyes, separated from the eye margin by a distance 3.1x that of distance between them; scape (Fig.2) slender, reaching median ocellus, 0.8x eye length; pedicel as long as F2; third anellus little longer; F1 longest, F3 and F4 equal and little shorter than F2; F5 shorter than F4; club little shorter than two preceding segments combined.

*Thorax* (Figs. 1,4,6): Moderately reticulate; pubescence sparse; collar with two blunt teeth like projections on either side; lateral panel with sinuate depression. Mesoscutum width 2.2x length; axillae advanced forwards, so that anterior margin of scutellum narrow; frenum finely reticulate. Propodeum width 2.7x median length; median area in the form of four depressed areas. Prepectus finely reticulate, deeper posteriorly. Upper mesepimeron shiny, remaining areas of mesopleuron raised reticulate. Legs normal; hind coxa very finely aciculate. Fore wing (Fig.5) with marginal fringe small; costal cell with about three rows of hairs in the upper part. Relative lengths of SMV, MV, PMV and STV as 38.0:23.0:16.5:6.0

*Gaster* (Fig. 1): Sessile, 1.3x as long as head plus thorax; T1 medially subequal to T6, equal to T2 and T3 combined; hind margin of T5 emarginate; epipygium in dorsal view 1.4x as long as broad; posterior tergites very finely reticulate.

*Male* (Fig. 7): Length 3.1-3.3mm. (Allotype 3.3mm). Resembles female but differs in the nature of antenna with two anelli and 6 funicular segments and longer pubescence and gaster shorter.

*Holotype*: ♀, INDIA: Kerala: Parambikulam Wild Life Sanctuary (Tellickal), 16.iii.1996, Coll. P. M. Sureshan *Allotype*: ♂, Kerala: Parambikulam Wild Life Sanctuary (Sirkarpathi-I), 29.x.1995, Coll. P. M. Sureshan. *Paratypes*: 1♀, Kerala: Calicut University Campus, 29.vii.1986, 1♂, Kerala: Calicut University Campus, v.1989, Coll. P. M. Sureshan. All types deposited in the Western Ghat Field Research Station, Zoological Survey of India, Calicut).

### Genus *Narendrella*, nov.

*Type species*: *Narendrella nilamburensis*, sp. nov.

*Description*: Body metallic. Head and thorax moderately raised reticulate with distinct white pubescence. Head wider than thorax; vertex convex; occiput not carinate; temples converging; ocelli moderate; clypeus radially striated; anterior margin with a deep notch in the middle and two blunt teeth;

gena not carinate. Antennae inserted well above middle of face, closer to median ocellus; formula 1:1:3:5:3 in female and 1:1:2:6:3 in male; funicular segments elongated; claval sutures oblique.

Thorax robust, pronotal collar anteriorly margined, narrower than mesoscutum; Notauli incomplete, groove like, reaching slightly beyond middle. Scutellum convex, anterior margin narrow due to advanced axillae; frenum not separated. Dorsellum narrow, smooth. Propodeum dull, finely reticulate; median carina vaguely indicated up to costula; submedian area depressed; small median longitudinal depression beyond costula up to base of nucha; adpetiolar area little raised; plicae distinct anteriorly; spiracles oval, closer to metanotal margin; costula continued as short transverse carina behind spiracles; callus with few hairs, posterior corners round. Mesepisternum depressed posteriorly. Mesepimeral groove small. Legs slender; hind coxa hairy on dorsolateral part; hind tibia with one spur. Fore wing with pubescence reduced in the proximal part; basal hair line not indicated; MV longer than PMV and STV.

Gaster petiolate; petiole smooth, wider posteriorly, embraced by projecting first sternite up to middle ventrally; gaster shorter than head plus thorax, compressed laterally and collapsing dorsally; hind margin of T1 deeply incised in the middle; hypopygium reaching up to middle of gaster.

*Remarks:* *Narendrella* can be distinguished from all other pteromaline genera by the following combination of characters: anterior margin of clypeus with a distinct emargination, toruli high on face, 3 anelli in females, pronotal collar with an anterior transverse carina, a transverse depression across anterior margin of propodeum, and a short petiole which is embraced ventrally by an extension of the first gastral sternite.

It resembles *Neocatolaccus* Ashmead in having antenna with 3 anelli and 5 elongate funicular segments, propodeum with distinct costula and general habitus. *Neocatolaccus*, however, does not have a petiole and an antenna placed high above the face. *Narendrella* also resembles *Gugolzia* Delucchi & Steffan in having antennae inserted high above the face and with long flagellum, but differs in the nature of propodeum, clypeus, etc. In the nature of petiole, embraced by produced first sternite ventrally, *Narendrella* is similar to *Toxeumorpha*, *Merismomorpha* and *Inkaka* but readily distinguishable by the nature of the clypeus, antenna and the gaster from these genera.

*Etymology:* The genus is named in honour of my guide, Dr. T. C. Narendran (University of Calicut) for his outstanding contributions to the study of Oriental Chalcidoidea. The gender is masculine. The species name is derived from the type locality.

***Narendrella nilamburensis*, sp. nov. (Figs. 8-15)**

*Female:* Length 1.6-2.7 mm (Holotype 2.7mm). Head and thorax dark metallic blue; gaster dark brown with metallic blue reflection on basal tergite dorsally complete and basal part of other tergites dorsally and ventrally. Antennae testaceous with flagellum slightly darker. Eyes brick red. Legs with

fore and hind coxae concolorous with thorax; mid coxae brown; all femora light brown; remainder of legs testaceous with tips of tarsi brown. Tegulae and veins pale brown; wings hyaline.

*Head* (Figs. 8,10,11): Moderate reticulate; pubescence moderately dense. In dorsal view head width 2x length and in front view width 1.2x height; temples 0.3x eye length; POL 1.4x OOL; malar grooves distinct; malar space length 0.6x eye height; gena not carinate. Antennal toruli closer to median ocellus; the distance between lower margin of toruli to median ocellus 2.6x their diameter; scrobe small, deep, reaching median ocellus; flagellum (Fig. 9) slender; club little wider than funicle; scape little shorter than eye; first anellus shortest, second and third equal; funicular segments longer; club 1.4x as long as the preceding segment.

*Thorax* (Figs. 8,11,13): Raised reticulate; pubescence sparse; posterior margin of collar emarginate; lateral panel with deep furrow. Mesoscutum width 2x length; notauli groove like, incomplete. Scutellum convex, as long as broad; frenum not separated. Scutoscutellar suture slightly wavy. Dorsellum narrow, smooth. Propodeum width 2.2x median length, finely reticulate; median carina indicated in the anterior part; nucha distinct; plicae indicated only anteriorly; basal fovea deep; spiracles oval; supracoxal flange distinct. Prepectus broad, triangular, raised reticulate. Mesepisternum reticulate; upper mesepimeron shiny; lower mesepimeron and metapleuron finely reticulate. Legs normal. Fore wing (Fig. 12) with pubescence reduced; costal cell with scattered hairs on the upper half, complete distally. MV 4.1x STV. Relative lengths of SMV, MV, PMV and STV as 33:18.5:10:4.5.

*Gaster* (Figs. 8,13): Compressed laterally; ovate, dorsally collapsing; acuminate at apex; petiole smooth, expanded posteriorly; length 1.4x width; first sternite covering half length ventrolaterally; T1 smooth, others microsculptured; T1 deeply incised in the middle on the posterior margin; T2-T4 slightly incised in the middle

*Male* (Figs. 14,15): Length 2.1-2.4 mm (Allotype 2.4mm). Resembles female but differs in the nature of antenna with 2 anelli and 6 funicular segments; gaster reduced with a broad yellow spot at the base reaching beyond middle and petiole with covering of sternite reduced.

*Holotype*: ♀, INDIA: Kerala: Nilambur, 23.iv.1989, Coll. P. M. Sureshan. *Allotype*: ♂, same data as that of holotype. *Paratypes*: 2♂, Kerala: Nilambur, 23.iv.1989; 1♀, Kerala: Calicut (Paroppady), 25.v.1987); 1♀, Kerala: Kayamkulam, 19.ii.1989; 1♀, Kerala: Cannore (Nedumpoyil), 24.ii.1988; 1♀, Kerala: Calicut University Campus, v.1987; 1♀, Kerala: Parambikulam Wild Life Sanctuary (Anappady), 6.v.1989; 1♀, Kerala: Palghat (Chindaki), 13.xii.1987; All Coll. P. M. Sureshan; 2♀, Nilambur, 21.v.1985; 1♂, 2♀, Calicut University campus, 20.x.1986, 18.iii.1985, Coll. T. C. Narendran & Party. All types deposited in Western Ghat Field Research Station, Zoological survey of India, Calicut.

*Miscogasteriella jayasreeae*, sp. nov. (Figs. 16-21)

*Female*: Length 7.5 mm. Body dark metallic blue; gaster almost black towards the tip, brownish ventrally. Antennae with scape and pedicel testaceous, remainder brownish black. Mandibles testaceous with tips brown. Legs testaceous with tips of tarsi brown. Tegulae testaceous; wings subhyaline; veins and pubescence brown.

*Head* (Figs. 18 & 19): Finely reticulate, almost shiny on vertex with long white pubescence, denser on lower face, less distinct on vertex and occiput, replaced there by strong bristles directed forwards. In dorsal view head width 2x length; 1.3x as wide as thorax; temples narrow, length 0.2x that of eye length; occiput weakly excavated; POL little longer than OOL. In front view head width 1.3x height; malar space length 0.3x eye height; eye height 1.3 x length (in profile), separated by a distance little longer than their height; clypeus smooth, anterior margin straight. Antennae (Fig. 17) inserted well below centre of face, little above lower margin of eyes; scrobes moderately deep; scape length 0.7x eye height; pedicellus plus flagellum 1.6x that of head width; anelli transverse; funicular segments slender, almost equal in width; club wider, length equal to one and three fourth preceding segments combined; area of micropilosity reaches up to the base of third segment.

*Thorax* (Fig. 16): Pronotum much narrower than scutum, sides convex, finely striated. Mesoscutum with median segment moderately reticulate; lateral lobes transversely rugose; pubescence dense; notaular grooves deep with transverse ridges, complete. Mesoscutum width 1.7x length. Scutellum reticulate as on mid lobe of mesoscutum; frenum finely reticulate, separated by a deep crenulate groove formed by a row of pit like punctures. Dorsellum slightly convex, shiny. Metanotum shiny. Propodeum (Fig. 21) deeply emarginate at apex, feebly reticulate, polished with a median depression reaching posterior margin, deep anteriorly, strongly costate, forming large alveoli; median carina complete but broken due to costae; sublateral longitudinal foveae also costate, extending half way down propodeum; spiracles large, oval; post spiracular sulci distinct; callus with dense hairs. Prepectus with upper corner hairy, delimited by a carina, area in front reticulate. Mesopleuron with upper mesepimeron shiny, remainder finely sculptured, densely hairy on anterior part. Metapleuron reticulate, hairy, not reaching hind wing base. Hind coxa dorsally pilose, fore and mid femora slightly swollen. Fore wing (Fig. 20) with basal cell hairy; costal cell hairy on anterior 2/3; basal vein infusate. Relative lengths of SMV, MV, PMV, and STV as 49.0.:20.5: 35.0:5.5.

*Gaster* (Fig. 16): Much longer than head plus thorax combined; dorsally collapsing; T1 with hind margin deeply incised in the middle.

*Male*: Unknown.

*Holotype*: ♀, INDIA: Kerala: Parambikulam Wild Life Sanctuary (Tellickal), 16.iii.1996, Coll. P. M. Sureshan. Deposited in WGFRRS, ZSI, Calicut).

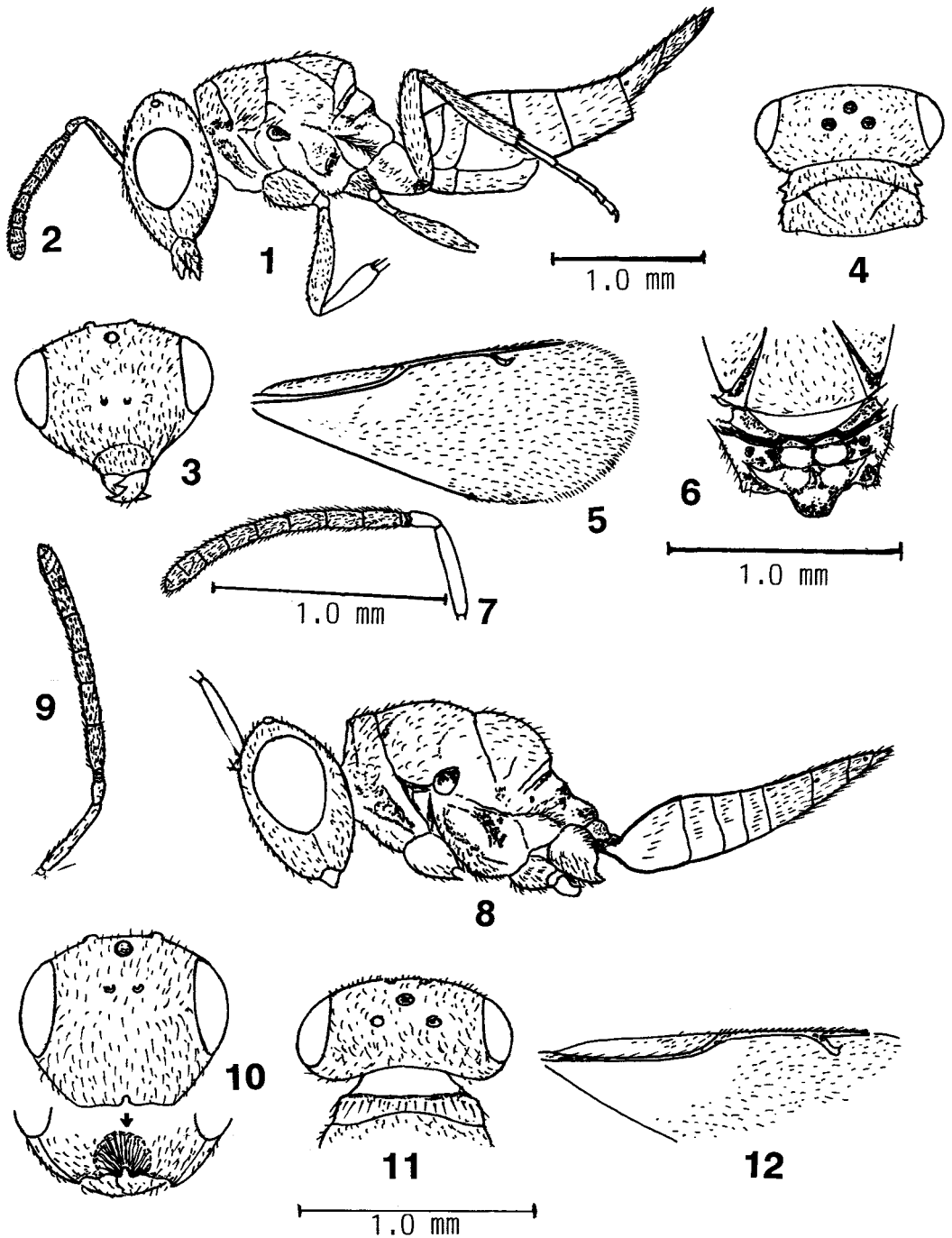
*Remarks:* This species resembles *M. sulcata* (Kamijo) in general morphology and nature of the propodeum but differ in having gaster distinctly longer than head plus thorax combined, antenna with club almost equal to two preceding segments combined, tuft of micropilosity not extending to second segment, fore wing with PMV shorter, only 1.7x MV and costal cell completely hairy in the upper half, complete towards the tip. (In *sulcata* gaster little longer than head and thorax combined, club much shorter than two preceding segments combined, tuft of micropilosity extending to second segment, PMV longer, about 2.1x MV and costal cell with only a row of hairs in distal half and double row distally.)

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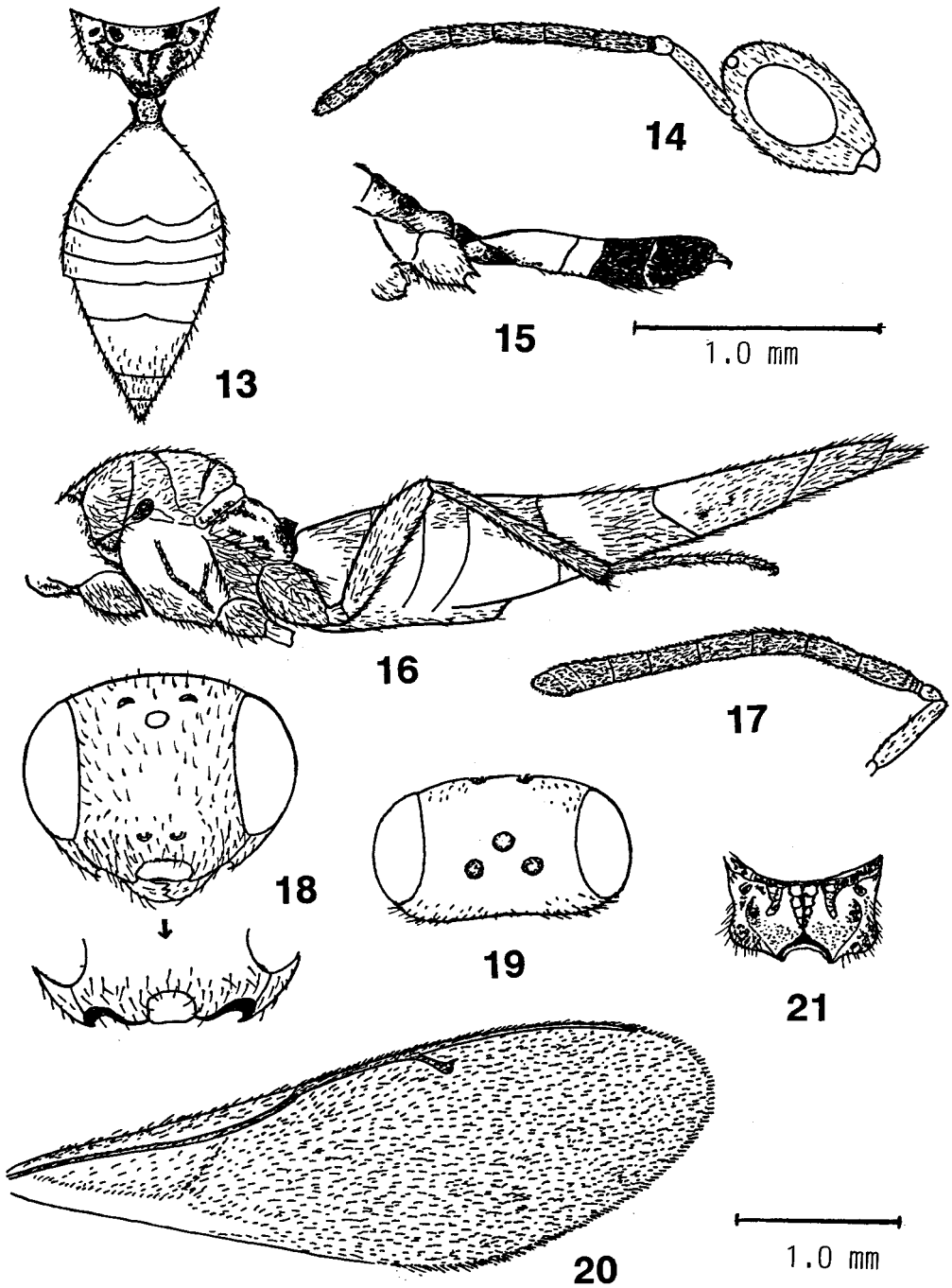
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Figs. 1-7. *Kumarella angulus*, gen. et sp. nov. ♀: 1, body in profile; 2, antenna; 3, head, front view; 4, head and part of thorax, dorsal view; 5, fore wing; 6, propodeum; 7, ♂ antenna.

Figs. 8-12. *Narendrella nilamburensis*, gen. et sp. nov., ♀: 8, body in profile; 9, antenna; 10, head, front view; 11, head and part of thorax, dorsal view; 12, fore wing venation.





Figs. 13-15. *Narendrella nilamburensis*, gen. et sp. nov.: 13, ♀ propodeum and gaster, dorsal view; 14, ♂ head and antenna, profile view; 15, ♂ part of thorax and gaster in profile.

Figs. 16-21. *Miscogasteriella jayasreeae*, sp. nov., ♀: 16, thorax and gaster in profile; 17, antenna; 18, head, front view; 19, head, dorsal view; 20, fore wing; 21, propodeum, dorsal view.