

## SOME NEW SPECIES OF INDIAN HYMENOPTERA

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### INTRODUCTION

THE material dealt with in this paper was mainly collected by me and my colleagues. This collection was made under a Scheme for Survey of Parasites and Predators of Agricultural Crop Pests in the Indian Union.

Several of the genera, such as *Dusmetia* Mercet; *Chrysophagus* Ashmead; *Ectromatopsis* Compere; *Microterys* Thompson of the family Encyrtidae are being recorded for the first time from India.

The types of the new species are deposited in the National Pusa Collections of the Division of Entomology, Indian Agricultural Research Institute, New Delhi.

### Family EUPELMIDÆ

#### *Solindenia amara* new species

Since Cameron (1883) erected the genus *Solindenia* with *Solindenia picticornis* as genotype only one species has been recorded in India and described by Bhatnagar (1951).

While studying the parasite complex of *Hymenia recurvalis* L. this Eupelmid was reared as a hyperparasite of *Apanteles delhiensis* new species (description of the new species is under publication). In all, four females and one male were reared in the laboratory.

#### *Female*

*Length.*—3.3 mm. Head metallic with blue green iridescence and a coppery lustre at certain angles; viewed from above clothed with silvery white pubescence, rugulosely closely punctate. Ocelli large, arranged in an acute triangle; interocellar space slightly more than ocellular space, front ocellar space slightly more than the interocellar space. Occiput concave. Antennæ inserted just above the mouth border and widely separated. Genæ and face below the middle covered with long closely set setæ. Face with a shallow scrobe and the front ocellus placed outside the furrow. Head from side slightly more than half as wide as high; post-orbital space closely punctate. Antennæ dark brown, metallic, slender. Scape lemon yellow,

slender, slightly more than half of flagellum. Pedicel brilliant metallic green, about one-fifth of the length of scape. Ring joint broader than longer. Funicle dark brown, segments one to three subequal, fourth segment shorter than third, fifth and sixth shorter than fourth, seventh longer than sixth. Club slightly less than half of the scape, apical joint longest. Eyes lemon yellow.

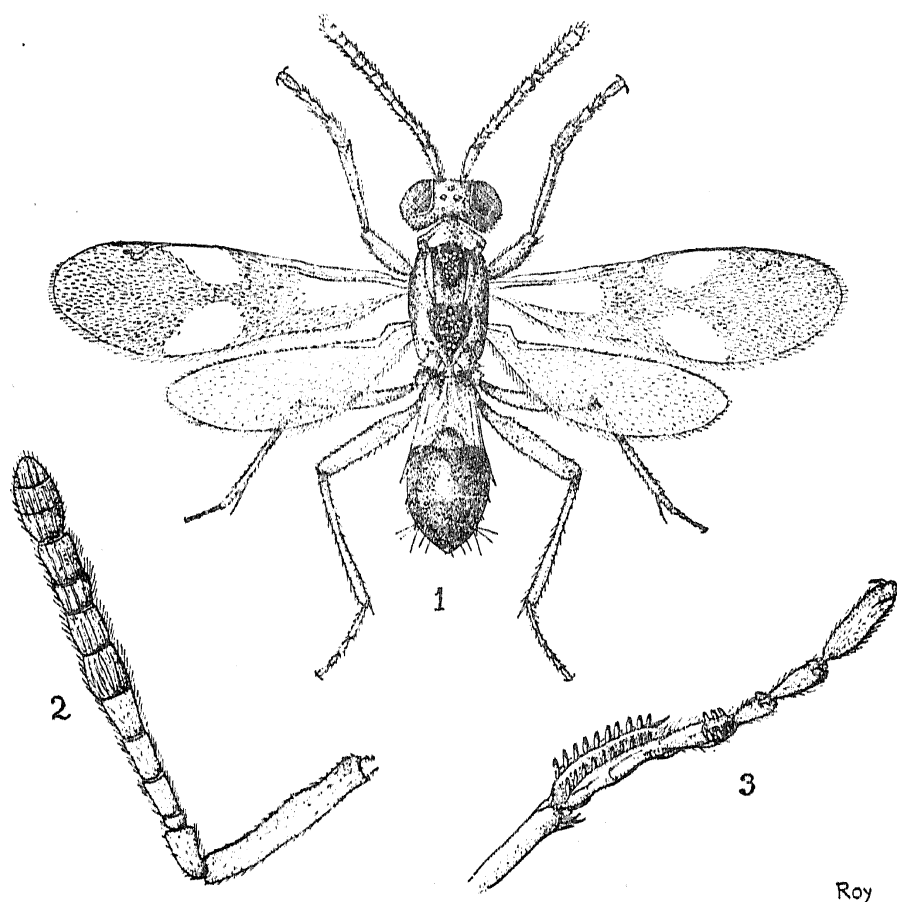


FIG. 1.—1. *Solindenia amara* new species, female. 2. Antenna of female. 3. Mid-tarsus of female.

*Thorax*.—Prothorax very narrow, narrower than head. Parapsidal furrows incomplete. Scutum slightly raised, coppery metallic, rugulose closely punctate. Tigulae slightly raised, dark brown. Scutellum metallic, rugulose closely punctate. Forewings fuscous, with hyaline areas as shown in the figure. Forewing about two and half times as long as wide, marginal fringe moderate. Discal ciliation thick. Marginal vein slightly longer than the sub-marginal. Post-marginal vein twice longer than the stigmal. Legs with coxae dark brown. Hind tibia not compressed, dark brown except

at apical one-third which is whitish; hind tarsus pale yellow. Hind tibial spur one-third the basi tarsus, armed with dark short denticles.

Abdomen slightly shorter than the head and the thorax put together, finely rugose punctate, first segment pale yellow, rest dark brown. Ovipositor concealed.

*Holotype*.—One female on celluloid strip, labelled hyperparasite on *Apanteles delhiensis* new species collected M. Ramachandra Rao. Type locality New Delhi. Paratypes: 3 females on celluloid strips.

KEY TO INDIAN SPECIES OF *Solindenia* CAMERON

1. Pedicel brilliant metallic green. Eyes pale yellow. First segment of abdomen pale yellow, rest dark brown. Ovipositor concealed .. .. . *Solindenia amara*  
Sp. nov
2. Antennæ uniformly dark brown. Abdomen dark, wings hyaline with an oblique hairless line in the middle. Ovipositor exerted *Solindenia vermai*  
Bhatnagar.

*Male*

Essentially similar to the female except for its smaller size.

*Type locality*.—Delhi.

*Host*.—*Apanteles delhiensis* new species.

Collected by M. Ramachandra Rao, August, 1956.

Family APHELINIDÆ

*Perissopterus cheriani* Mani (*Ind. J. Ent.*, 1939, 1, 88)

*Marietta* Motschulsky, 1863

*Marietta cheriani* (Mani)

I refer to this species as *Marietta cheriani* (Mani). Mani (1939) described this species from two females collected by Cherian. I have bred this species in large numbers on *Aspidiotus glomeratus*, a periodic pest on sugarcane in Delhi. The description of Mani is inadequate and I have based this description after examining a series of specimens. In addition to this the description of the male is also given.

*Female*

*Length*.—1.4 mm. Head wider than thorax, normal, vertex narrow but the frons are not at right angles to the vertex as shown in the figure by Mani. The holotype of Mani resembles the figure. But in natural condition and also when properly set the specimens do not shrink so much as seen in case of the holotype. Lateral ocelli close to the eye border. Inter-ocellar space twice more than the ocellular space. Inner orbital borders converge downwards to form a triangle. Eyes grey. Antennæ six segmented. Scape twice longer than the pedicel. Funicular segments very narrow. Four strong reddish brown spurs just above the insertion of the antennæ.

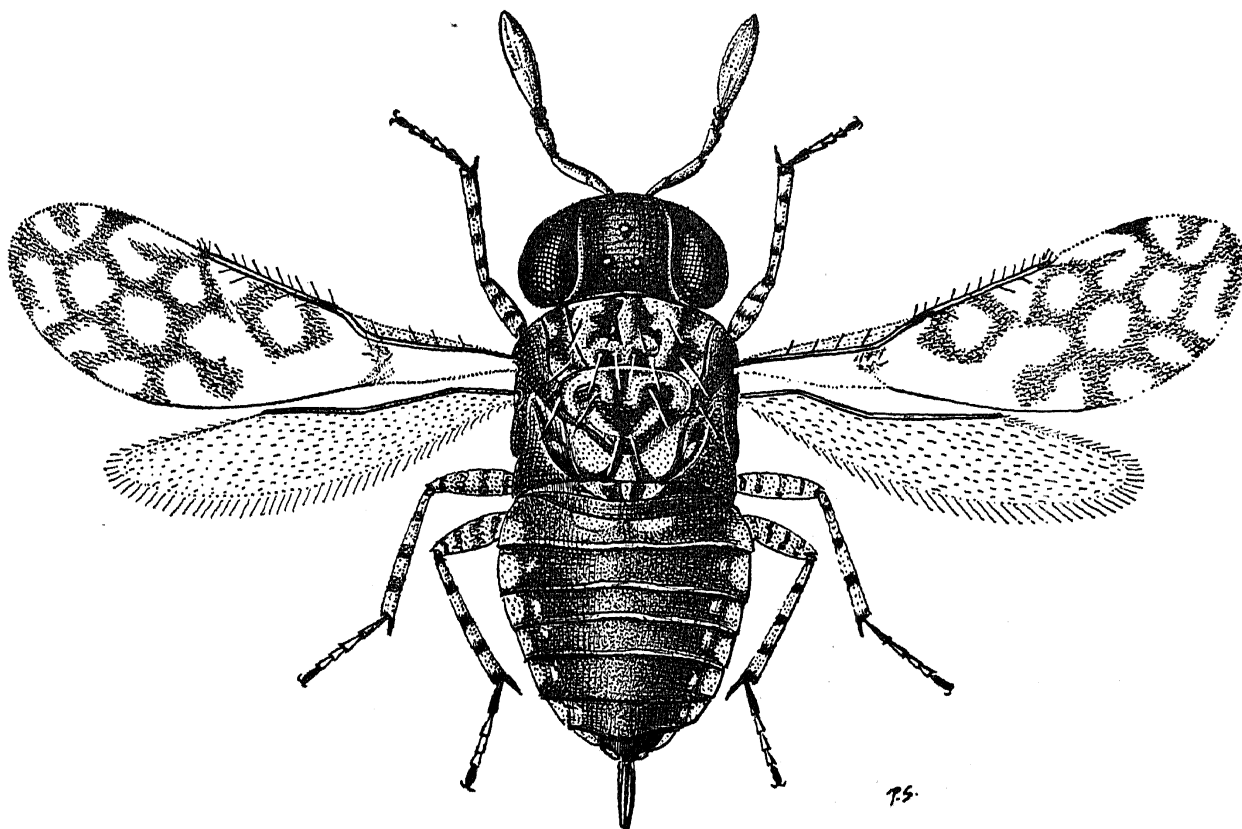


FIG. 2. *Marietta cheriani* (Mani), female.

*Thorax*.—Yellowish grey. Scutellum with or without two large subquadrate reddish brown spots in the middle. Generally only two spines on the posterior margins of the scutum and scutellum present. However, four spines on the scutellum is not uncommon. More spines are present on and lateral regions of the thorax as shown in the figure. Hind wings narrow. Transverse black stripes on the hind tibiæ relatively more widely

spaced, the posterior one being subapical. Fifth and the sixth tergites without conspicuous markings.

*Male*

*Length.*—1.07 mm. Essentially similar to the female. Reddish brown spot on the scutellum absent. The two spines on the posterior margins of the scutellum and scutum present. But the other spines are fewer. Thorax more reticulately punctate.

*Allotype.*—One specimen on card strip. Several paratypes on slides.

*Host.*—*Aspidiotus glomeratus* Green.

*Type locality.*—Delhi. Collected by Rana Brinder Kaur.

Family ENCYRTIDÆ

Subfamily ENCYRTINÆ

*Anabrolepis mayurai* new species

*Female*

*Length.*—1.25–1.75 mm. Brilliant metallic blue green with red iridescence on the thorax and vertex. Abdomen dark, shining. Eyes, brick red. Legs black, shining.

*Head.*—Normal, as broad as thorax. Frons and vertex very narrow, closely finely punctate; bare. Ocelli reddish brown, arranged in an acute angle. Ocellocular space very narrow, lateral ocelli placed very close to the orbits. Front ocellar space more than inter-ocellar space. Inter-orbital space slightly less than one-third of the width of the head. Eyes brick red, microscopically thinly pubescent. Genæ prominent. Seen from front the lower borders of the orbit are not parallel. Antennæ inserted slightly below the middle of the face, just above an imaginary line joining the lower orbital borders. Antennal fovæ short but semicircular. Antennæ yellowish brown, eleven-segmented. Scape pale brown, slightly dilated, more than thrice the length of the pedicel. Funicle six-segmented, broader than long, but the segments increase in length from base to apex. Club three-segmented, swollen, more or less spindle-shaped, longer than the funicle.

*Thorax.*—Entire thorax brilliant metallic bluish green. Mesonotum leathery punctate, short silvery white pubescence present. Scutellum closely reticulately punctate. Metanotum and propodeum black, shining, shagreened. Axillæ connate.

*Legs.*—Coxæ black. Trochanter pale yellow. Femur of fore and hind legs dark brown with bases pale yellow. Tibia of fore and hind legs dark

brown with their apices pale yellow. Femur of mid-legs pale yellow, tibia yellowish white. Tarsus pale yellow.

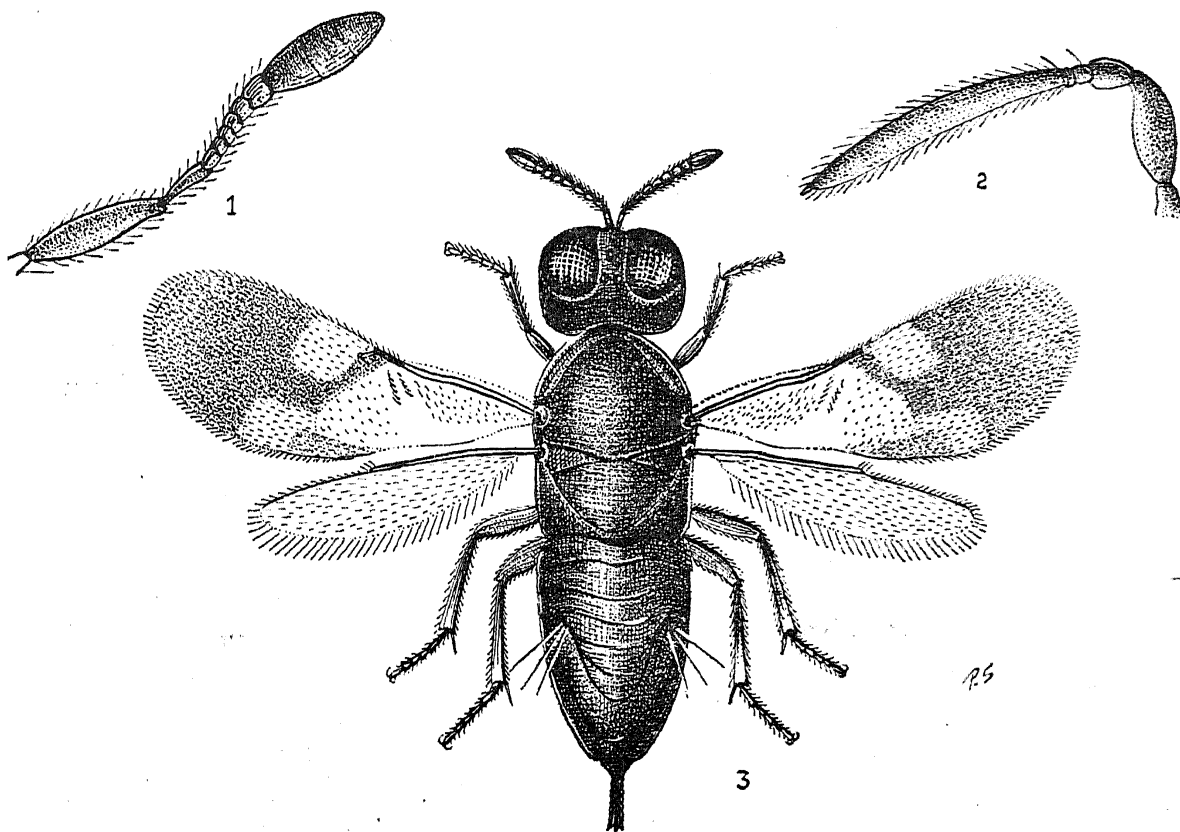


FIG. 3.—1. Antenna of *Anabrolepis mayurai* new species, female. 2. Antenna of male. 3. *Anabrolepis mayurai* new species, female.

*Wings*.—Fuscous with several rays along the margin alternating with hyaline spots. Marginal vein punctiform, longer than broad. Stigmal vein longer than post-marginal vein. Fore wings slightly more than twice longer than wide.

Abdomen dark brown to black, shiny, concave. Ovipositor exerted.

#### Male

Essentially same as female with the exception of the following characters:

Head and thorax dull metallic green with red iridescence. Slightly smaller than the female. However, there is a great variation in the size among males. Antennæ five-segmented. Scape, pedicel, two jointed funicle and a long undivided club. Scape two and half times the pedicel. Club five and a half times the pedicel. Funicular segments broader than long. Forewing twice longer than broad. Wings hyaline with an oblique hairless line. Abdomen dark brown, non-metallic.

Holo- and allo-types on card mount, collected by Rana Brinder Kaur, February 1957. This is the first record of the genus from India.

*Type locality*.—New Delhi.

*Host*.—*Aspidiotus glomeratus* Green.

*Chrysopophagus bangalorensis* new species

*Female*

*Length*.—1.6 mm. Brown colour in general, with dark patches on the thorax and posterior part of the abdomen. Eyes black to dark brown. Scape and pedicel brown, funicle black, club pale brown.

Head viewed from above lenticular. Vertex narrow. Viewed from front longer than wide, finely reticulately punctate. Ocelli in an equilateral triangle. Inter-ocellar space twice more than ocellular space. Face in lateral aspect sub-triangle. Eyes reach downward about three-fourth way. Scrobes very short, shallow, twice as long as the antennal sockets. Genal suture faintly marked below the eyes. Antennæ inserted close to the oral margin, the sockets about three times their own diameter apart. Antennæ long, slender, slightly dorsoventrally flattened. The scape reaching only midway through the length of the head, slender, yellowish brown. Pedicel smaller, yellowish brown. The funicular segments flattened, black, first segment longer than broad, second segment wider than long, third and fourth segments almost as long as wide, fifth and sixth wider than long. Club three-segmented, first segment long, black, second segment dark only in the posterior region, the third being yellowish. Apical segment of the club rounded at apex. Antennal segments measure as shown below.

Scape, 3.75; pedicel, 1.2; funicle, 4.3; club, 3.

*Thorax*.—Thorax of normal Encyrtid type. Mesoscutum strongly convex, dark, broader than long, closely coarsely punctate, hairy. Axillæ connate. Scutellum convex, lighter in colour, longer than scutum. Apex of scutellum with a tuft of strong black bristle-like hairs. Wings fuscous, more than three times longer than width. Sub-marginal two and a half times longer than the marginal, thickened at base. Marginal vein slightly more than seven times longer than its own breadth. Post-marginal vein short, thick. Stigmal vein slightly longer than the marginal. Marginal fringes moderately short.

*Legs*.—Coxæ of all legs lemon yellow, rest of the legs deep yellow. Middle femur and tibia with dark brown patches.

*Abdomen.*—Conical, slightly shorter than the head and thorax combined. In card mounts dorsum of the abdomen depressed, but in life the abdomen is as long as the head and thorax combined and not depressed. First segment dark brown, second segment light yellow and the rest dark brown. Ovipositor slightly exerted.

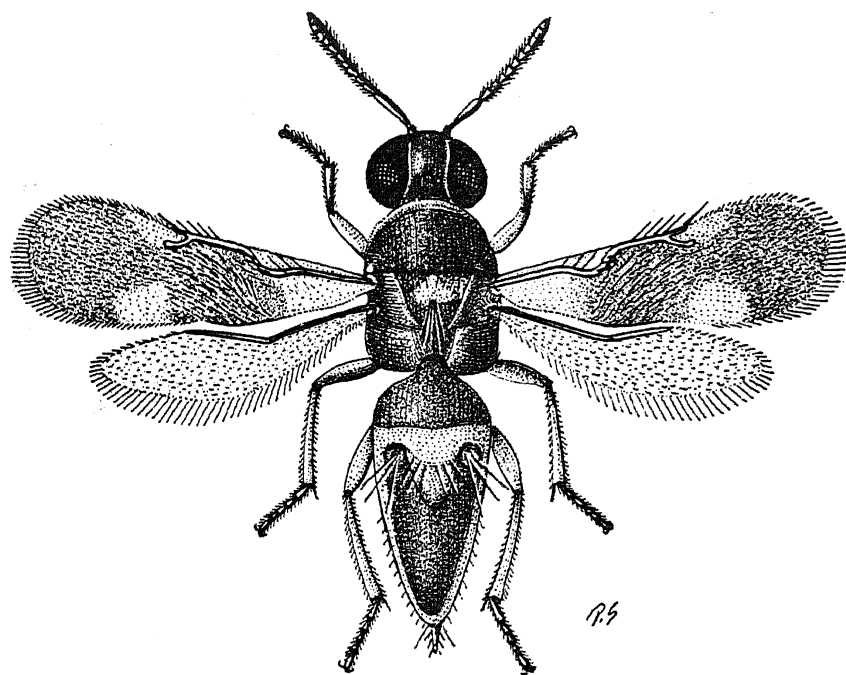


FIG. 4. *Chrysopophagus bangalorensis* new species, female.

*Sculpture.*—Axillæ and scutellum with fine close timble-like punctures formed by reticulated lines. Mesoscutum broadly punctate. Frontovortex minutely punctate.

*Male*

*Length.*—1.4 mm. Head much thinner fronto-occipitally than in female. Tuft of hair on the scutellum absent. Abdomen stout, shorter than the head and thorax combined, ovate. First and second segments pale yellow and the rest dark brown. Antennæ dark brown throughout. Wings hyaline.

Holo- and allotypes on card strips. This is the first record of the genus from India.

*Host.*—*Antonina indica* Green (Rodes grass scale).

*Type locality.*—Bangalore. Collected by H. S. Sangwan, 3-4-1957.



*Ectromatopsis indica* new species*Female*

General colour bright yellow with dark patches. Abdomen conic ovate, very much narrower than thorax. Eyes black. Scutellum with a few black spines. Length 1.25 mm.

*Head.*—Frontovertex longer than broad. Ocelli small, ocellular space twice inter-ocular space. Front ocellar space narrower than ocellular space. Ocelli arranged in equilateral triangle. Vertex smooth, shining. Antennæ brown, scape seven times longer than its maximum breadth, yellow. Pedicel short, one-third of the scape, twice longer than its own breadth, brown. Funicle six-segmented, slightly smaller than the scape, second funicular segment shortest. Club three-segmented, slightly smaller than the funicle. Antennæ inserted slightly above the oral border, the sockets about twice their own diameter apart. Scrobes slightly more than twice longer than the antennal sockets.

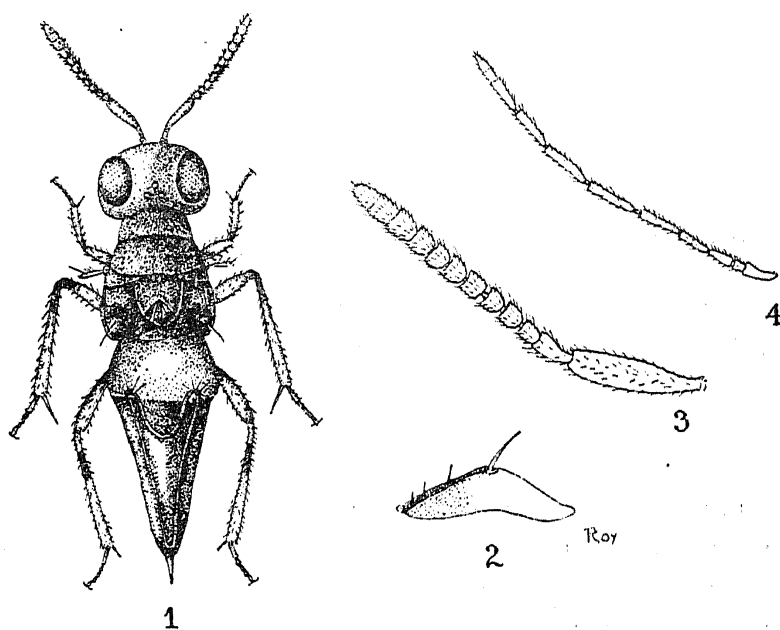


FIG. 5.—1. *Ectromatopsis indica* new species., female. 2. Fore wing of female. 3. Antenna of female. 4. Antenna of male.

*Thorax.*—Brownish. Prothorax narrow. Propodeum very much broadened. Scutum with a number of hard bristle-like hairs. Scutellum yellow. Apex of scutellum with seven black strong bristles.

*Wings.*—Fore wings very much reduced. Only a trace is seen in prepared slides. Sub-marginal very strong.

Abdomen conically produced posteriorly. Ovipositor slightly exerted. Fore- and mid-legs yellow. Hind legs yellow with dark patches. Mid-tibial spur longer than mid-metatarsus.

#### Male

Essentially similar to the female, but slightly smaller. Wings hyaline. Length 0.8 mm. Antennæ uniformly light yellow.

Holo- and allotypes on card strips. This is the first record of the genus from India.

*Type locality*.—Bangalore. Coll. H. S. Sangwan, 3-4-1957.

*Host*.—*Antonina indica* Green.

#### Family ENCYRTIDÆ

#### Subfamily ENCYRTINÆ

#### *Dusmetia sangwani* new species

#### Female

Apterous, dark brown, robust. Antennæ, scape and pedicel yellow, funicle dark brown, club white. Eyes grey. Length 1.3 mm. Head viewed from above lenticular, viewed from front, much broader than long. Vertex broad. Eyes small. Ocelli arranged in an equilateral triangle. Inter-ocular space very slightly more than the ocellular space. Vertex and frontovertex punctate, punctures distributed sparsely. Eyes reach downward about half-

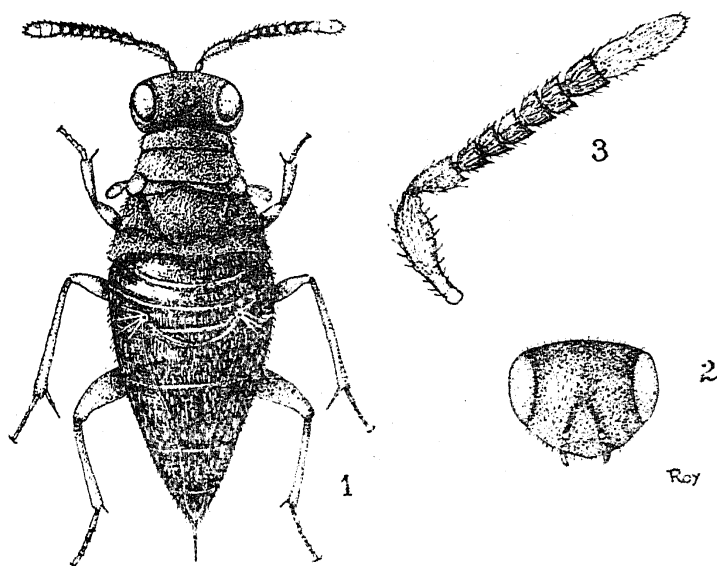


FIG. 6.—1. *Dusmetia sangwani* new species, female. 2. Head of female. 3. Antenna of male.

way. Scrobes very shallow. Face in lateral aspect almost an equilateral triangle. Genal suture very faintly marked below the eyes. Antennæ inserted very close to the oral margin, the sockets about two times their own diameter apart. Scape yellow, two and a half times longer than pedicel. Pedicel one-third of funicle, which is dark brown, six-segmented. First funicle segment longer than broad, second broader than long, the rest almost equal. Club three-segmented, twice the length of pedicel, apical segment rounded, white, opaque.

*Thorax.*—Slightly narrower than the head. Prothorax broader than mesoscutum, which is twice broader than long. Axillæ very narrow. Scutellum normal. Entire thorax brown, beset with regularly arranged dark bristle-like hairs. Wings very much reduced, only a trace of the fore wing is seen.

*Legs.*—All legs yellow. Forelegs short and stout. Mid-tibial spur a shade smaller than the mid-metatarsus.

*Abdomen.*—Dark brown, broader than the thorax, longer than the head and thorax combined, depressed slightly in dry specimens but not so in live specimens. Hypopygium is well developed and prominent. Ovipositor slightly exerted.

#### *Male*

Length 1 mm. Black, winged, wings hyaline. Fore legs brown, rest yellow.

Head viewed from above, vertex broad, coarsely punctate. Ocelli large, brown. Inter-ocellar space twice the ocellular space. Eyes very small, black. Head viewed from front broader than long. Antennæ inserted close to the oral margin. Scape yellow, much dilated. Pedicel less than half of scape. Pedicel dorsoventrally curved slightly to form a sort of arch. Funicle six-segmented, the first being the largest. Club three-segmented, rather short. Fore wings hyaline. Marginal vein punctiform, broader than long, eight times smaller than the sub-marginal vein. Stigmal vein short. Abdomen dark, much shorter than the head and thorax combined.

Holo- and allotypes on card strips. This is the first record of the genus from India. Several paratypes on slides.

*Type locality.*—Bangalore. Collected by H. S. Sangwan, 3-4-1957.

*Host.*—*Antonina indica* Green,

*Microterys delhiensis* new species*Female*

Head in dorsal view wider than long, frontovertex longer than wide and slightly more than one-third as wide as the head. Ocelli in an equilateral triangle or nearly so, the posterior pair slightly less than their own diameter from the orbital borders but at least four times away from the occipital margins. Head frontal view a shade wider than high. Antennal sockets located about their own length above the oral margin and about twice this distance from the base of the eyes. Scrobes well impressed, triangular, meeting above. Elevated portion between the scrobes rounded out. Eyes extended downward about half-way, their length slightly more than that of cheeks. Mandible broad with three distinct teeth, the apical being the longest.

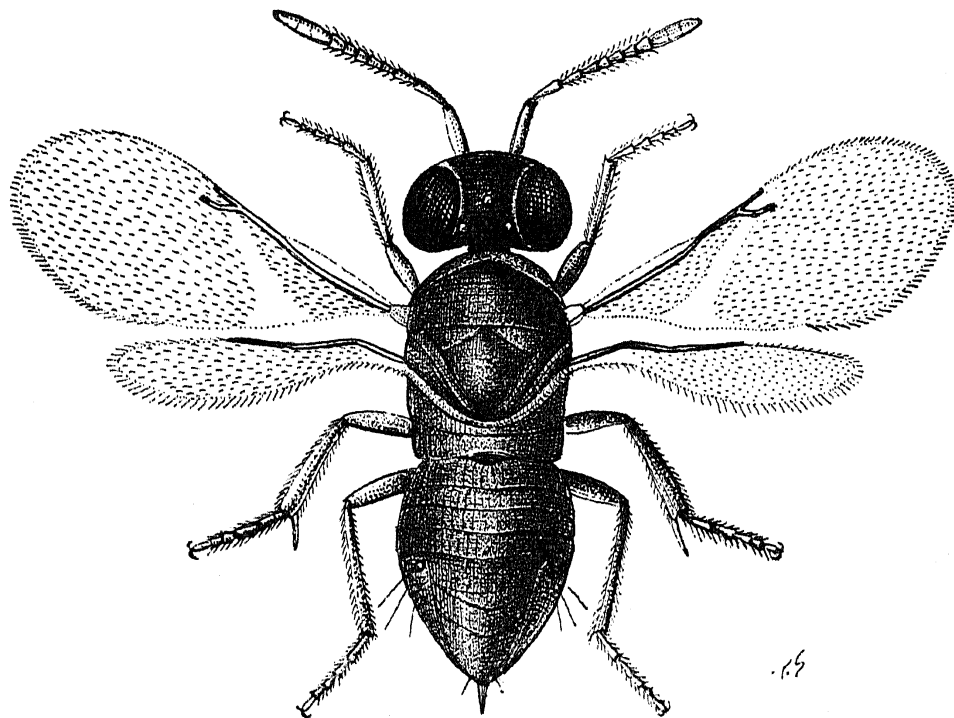


FIG. 7. *Microterys delhiensis* new species, female.

*Antennæ*.—Scape very slightly expanded, slightly compressed only towards the apex, yellow. Pedicel slightly longer and wider than the first funicle joint, first funicle joint is the longest and the rest slightly smaller, but equal in size. However, the segments become broader progressively. Club oblong, three times longer than broad.

*Thorax*.—Stongly convex from side to side, Mesoscutum about as long as scutellum, Axillæ connate,

*Abdomen*.—Sub-triangular or more towards conic-ovate, longer than wide, shorter than head and thorax combined. In dried specimens, tergum strongly depressed. Paratergites clear only in prepared slides. Ovipositor slightly exerted.

*Wings*.—Fore wings hyaline. Marginal vein at least three times longer than thick. Post-marginal nearly equal to marginal but subequal to stigmal.

*Sculpture*.—Frontovertex reticulate punctate, face and cheek also reticulate punctate. Genal suture distinct. Mesoscutum and tegulae reticulate. Scutellum with sculpture slightly different from that of scutellum. In well prepared slides the reticulated lines more zig-zag.

*Colour*.—Face and cheeks pale yellow. Mandible dark brown. Frontovertex brown, mesoscutum light brown. Sides of propodeum dark. Abdominal tergites dark brown. Basal tergites at corners brilliant metallic bluish green. All legs pale yellow.

Length 2.1 mm. Wing expanse 3.5 mm.

#### *Male*

*Length*.—1.75 mm. Essentially similar to the female except for the following characters:

Face and frontovertex closely reticulately punctate, metallic bluish green with slight red iridescence on the vertex only. Antennae pale yellow, cylindrical. Prothorax brown. Axillae yellow, connate. Scutellum metallic green, propodeum yellow. Abdomen blackish brown.

Holo- and allotypes on card strips.

*Host*.—*Saccharicoccus sacchari* (Ckll.)

*Type locality*.—New Delhi. Collected by Rana Brinder Kaur.

#### Family THYSANIDÆ

#### *Thysanus ranæ* new species

#### *Female*

Black, shining, robust. Marginal fringes long. Head crescentic, some what variable in proportion, acutely margined behind. Eyes scarcely but not reaching the hind margin. Ocelli in an obtuse triangle. Inter-ocellar space twice ocellocular space. Head in frontal view with malar space seven-ninths the longer diameter of eye. Scrobes shallow and broader than high, triangular. Head smooth. Vertex shining. Mandibles bidentate. Antennae with scape weakly rounded below and slightly dilated above,

slightly more than seven times longer than the greatest breadth. Pedicel slightly less than half of scape in length and three times longer than its own breadth. Funicle half of pedicel, clearly four segmented, three times longer than the pedicel, five times longer than its own breadth, slightly shorter than the remainder of the antennæ.

Pronotum comparatively broad, mesonotum more than one and a half times the meso-scutellum. Axillæ distinctly separated in prepared mounts. Propodeum V-shaped, much elongated and pushed back over the abdominal tergites. Entire thorax shining and jet black. Fore wings fuscous. Marginal and submarginal almost equal, but marginal slightly smaller than submarginal. Marginal cilia of both wings more than half the width of the wing. Hind wings spoon-shaped, radius extending to the hooklets.

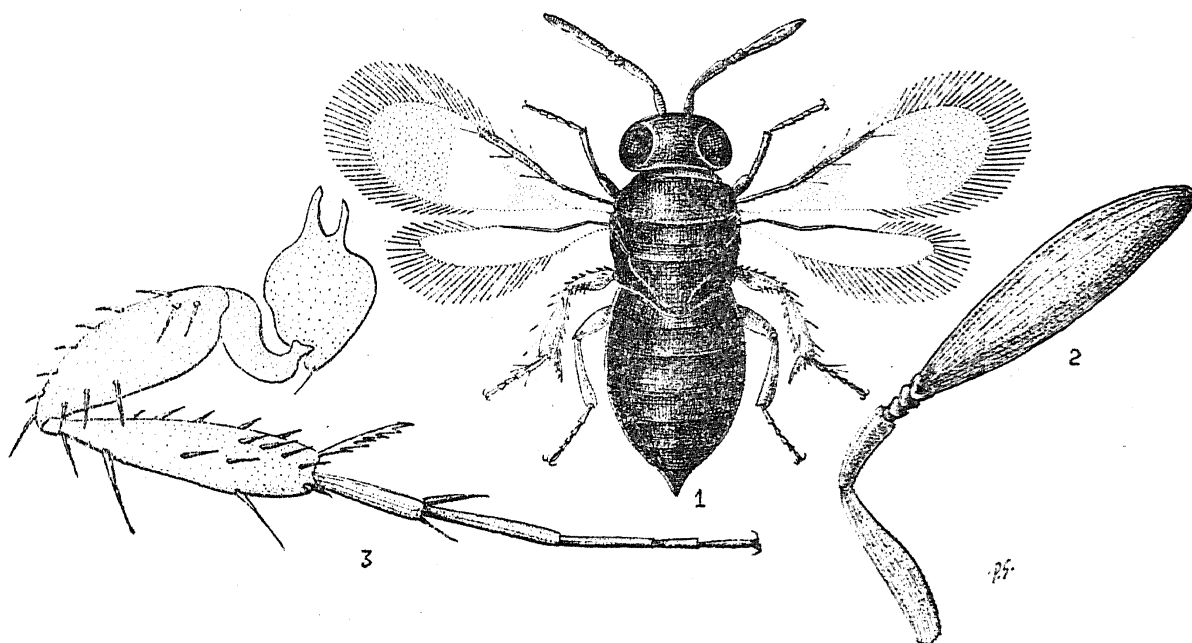


FIG. 8.—1. *Thysanus ranæ* new species, female. 2. Antenna of female. 3. Mid-leg of female.

Fore-legs short. Except tarsal segments which are testaceous the rest are dark brown. Mid-legs with femora strongly dilated below, greatest width is slightly shorter than half of the length, bearing stout hairs arranged as shown in the figure; the tibial spur also bears strong pectination. Tibial spur slightly less than the length of the basi tarsus. Abdomen oblong, the sides being almost parallel. Ovipositor not exerted, but strongly defined.

#### Male

Essentially similar to the female except for its shorter length. Holotype and allotype on card mounts. Several paratypes on slides.

*Type locality*.—New Delhi.

*Host*.—Probably a perparasite on an Encyrtid parasitising the sugarcane mealy-bug *Saccharicoccus sacchari*; collected by Rana Brinder Kaur.

The genus *Thysanus* was erected by Walker in 1840, with *Thysanus* as genotype. Later (1880) Ashmead erected the genus *Signiphora* with *Signiphora flaopalliatius* as the genotype, and placed it under the subfamily Encyrtinæ, which was accepted by Howard also. However, Schmiedeknecht, who classed the whole of Chalcids as single family, kept the Euplemids and Encyrtids as separate subfamilies, but gave the Signiphorids the status of a tribe within the group Encyrtinæ. Mercet (1917) in his work brought these two genera together in a single tribe, but Silvestri (1918) synonymised the genus *Signiphora* with *Thysanus*. It was A. B. Gahan, who actually treated *Signiphora* as a straight synonym of *Thysanus*. However, Peck (1951) elevated this group of insects to the status of a family equivalent to that of Eupelmidae and Encyrtidae. This classification has been accepted by Kerrich (1953) and he has given an excellent review on the systematic position of this peculiar family which consists of but a single genus. Though several genera were erected since Walker, they are all more or less now considered to be synonyms of the genus *Thysanus*.

#### ACKNOWLEDGMENT

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#### REFERENCES

- |                     |   |
|---------------------|---|
| 1. Ashmead, W. H.   | .. <i>Orange Insects</i> , 1880, pp. 29-30.   |
| 2. Bhatnagar, S. P. | .. <i>Ind. J. Agric. Sci.</i> , 1951, <b>21</b> , Part II.  |
| 3. Cameron, P.      | .. <i>Trans. Ent. Soc. Lond.</i> , 1883, p. 189.  |
| 4. Mani, M. S.      | .. <i>Rec. Ind. Mus.</i> , 1936, <b>37</b> , 131-32.  |
| 5. Mercet, R. G.    | .. <i>Rev. Acad. Madr.</i> , 1917, <b>16</b> , 160-70.  |
| 6. Peck, O.         | .. <i>Superfamily Chalcidoidea. Synoptic Catalogue, Agric. Monograph.</i> , U.S.D.A., No. 2., 1951. |
| 7. Silverstri, F.   | .. <i>Boll. Lab. Zool. Portici</i> , 1918, <b>12</b> , 266-71.                                      |
| 8. Walker, F.       | .. <i>Ann. Nat. Hist.</i> , 1840, <b>4</b> , 234.   |
| 9. Kerrich, G. J.   | .. <i>Bull. Ent. Rev.</i> , 1953, <b>44</b> , 789-810.  |