**FAMILY EULOPHIDAE**

**Key to the subfamilies and tribes**

1. Forewing with the submarginal vein smoothly joining parastigma.

   ---------------------- 2

2. Forewing with the venation more or less interrupted between submarginal vein and parastigma.

   ---------------------- 3

2. Mesoscutum with parapsidal grooves (notaular lines) complete, more or less deep through out, male antenna always simple; abdomen sessile or petiolate.

   ----Elachertinae------ 5

3. Parapsidal grooves (notaular lines) incomplete or only faintly indicated in posterior third; male antenna frequently branched; abdomen nearly always simple.

   ---------------------Eulophinae

3. Parapsidal furrows complete, narrow, similar throughout, more or less straight; axilla angularly produced forward into scapula along parapsidal furrow; number of mesoscutal bristles variable; wing rarely dwarfed; submarginal vein with one or more bristles.

   ---------------------- 4
Parapsidal furrows incomplete or posteriorly indicated only by more or less broad impression, rarely complete, then not similar throughout but usually linear and strongly bent outward anteriorly, deeper and very broad posteriorly; axilla rounded at anterior margin, rarely produced; mesoscutum often with two pairs of bristles only; abdomen sometimes petiolate; wings fully developed, submarginal vein with two bristles, marginal vein very long and radius very short.

------------------------ Entedontinae

4. Scutellum usually with two longitudinal grooved lines, these only very rarely obliterated; postmarginal vein wanting or much reduced, radius not extremely short; wing rarely dwarfed.

------------------------ Tetrastichinae

- Scutellum without grooved lines; postmarginal vein nearly always longer than radius, later frequently very short, winged.

------------------------ Euderinae

5. Elachertinae. Hind tibia with very long spurs, longer one usually exceeding basitarsus; bristles on thorax very long.

------------------------ Tribe-Euplectrini

(Represented by the only genus Euplectrus)

- Spurs of hind tibia small, much shorter than basitarsus.

------------------------ Tribe -Elachertini
SUBFAMILY ELACHERTINAE
Tribe: Elachertini

Key to genera of tribe Elachertini

1. Funicle with two segments; club with three; body weakly sclerotized.

   ____________________________ 2

   - Funicle at least with three segments.

   ____________________________ 3

2. Parapsidal furrows weak, curved, meeting axillae distinctly antero-lateral to inner angles of later; mandibles quadri to pentadentate with acute apices; maxillary and labial palpi two and one segmented respectively; subgenital plate deeply concave, middle of anterior margin connected with the central notch of posterior margin by longitudinal groove; first valvifers triangular; outer plate of ovipositor narrow at base gradually widening posteriorly with a submarginal ridge along one half length of dorsal margin; third valvulae short, conical.

   ___________ Diglyphus Walker

   - Parapsidal furrows strong; axillae not produced forward; mandibles with one or two teeth and a truncation having serration; maxillary and labial palpi one segmented each; subgenital plate with anterior margin straight, posterior margin with a semicircular notch in the middle, postero-lateral ridges present; first valvifers semicircular, outer plates of ovipositor long, with a median longitudinal
ridge; third valvulae blunt.

---------- *Scotolinx* Ashmead

3. Punicle in female always three segmented.

--------------------------- 4

- Punicle in female always four segmented; occiput bordered by distinct horse shoe-like ridge; thorax with reddish or yellow marks, propodeum with two high submedian carinae joined at middle, anterior area thus limited, deep and trapezoidal; first valvifers semicircular; third valvulae almost five times as long as wide, more than one fourth the length of second valvifers; abdomen ovoidal, petiolate, petiole very long.

---------- *Stenomesius* Westwood

4. Abdomen sessile; scutellum with same reticulate sculpture as on mesoscutum, longitudinal grooves completely absent; postmarginal vein usually vague, very rarely slightly longer than radius; tibial spur of middle and hind legs long and stout; middle tibial spur as long as or longer than basitarsus; first valvifers almost semicircular with basal and apical angles in one plane; third valvulae long, one third of the length of second valvifers.

---------- *Olynx* Förster
Abdomen distinctly petioblate; scutellum with two
distinct sublateral grooves; postmarginal vein long,
less than one half of marginal vein, distinctly longer
than stigmal vein; tibial spur of middle and hind
legs short, not likewise; first valvifer triangular
with basal and apical angles at different levels;
third valvulae rudimentary; outer plates of ovipositor
narrow at base, widened at apex.

------------- Ginsiella Erdos
Genus *Diglyphus* Walker


**Diglyphus**

|----------------|--------|------|-----------------------------|

There has been some confusion over the type species of the genus *Diglyphus*. Some publications carry the type-species as *D. poppaea* Walker, 1848. This error probably stems from the citation of *D. poppaea* as the type-species by Ashmead (1904:372) and listed again in Gahan and Fagan (1923:45).

Gordh and Hendrickson Jr. (1979) have solved the controversy over the confusion of its type species by citing the earlier work of Walker (1844). In this case Walker (1844) wrote, "*Diglyphus chabrias, Cirrospilus chabrias*, *Ann. Nat. Hist.* 1.451. Alten Finmark". This is the earliest reference Gordh and Hendrickson Jr. could find to this name and from the context of the remainder of Walker's article they have declared it as a new combination. Thus *Cirrospilus chabrias* Walker no doubt should be the type-species of *Diglyphus* by monotypy.

The distinguishing characters of the genus have been given in detail by Peck et al. (1964) and Gordh and Hendrickson Jr. (1979). Khan (1985) recorded the genus for the first time from India. The generic characters suggested by him viz., i) mandibles quadri to pentadentate, ii) maxillary and labial palpi two and one segmented respectively, iii) subgenital plate deeply concave,
middle of anterior margin connected with the central notch of posterior margin by longitudinal (groove, iv) first valvifers triangular; outer plates of ovipositor narrow at base gradually widening posteriorly with a submarginal ridge along one half length of dorsal margin; third valvulae short, conical. These characters apply well on the species under study.

Three species are known from India namely *D. horticola* Khan, *D. mandibularis* Khan, *D. funicularis* Khan. Presently two new species are being described. A key to the Indian species of genus has also been framed.

Key to the Indian species of the genus *Diglyphus* Walker based on females.

1. Fore wings hyaline
   - Fore wings infuscated
   
2. Antennae uniformly dark brown
   - Antennae dark brown with funicle segments and club white; body dark brown with golden reflections.

   ..... *D. horticola* Khan

3. Body iridescent bluish-green with very fine reticulate sculpture; frontovertex with big punctures, wider than long, width about one-half the total head width; post-ocellar line almost two times as long as ocellocular; prominence between antennal sockets slightly more than one-fourth the width of frons between eyes; pedicel a
trifle less than two times as long as wide; two anelli present; first funicle segment distinctly less than three times as long as wide.

---------- D. indicus sp.n.

Body dark brown with very faint iridescent reflections except clypeal region which is yellowish brown, very finely sculptured; frontovertex smooth without punctures; frontovertex more than two times as wide as long, width distinctly more than half the total head width; post-ocellar line less than one and one-half times as long as ocellocular; prominence between antennal sockets less than one-fourth the width of frons between eyes; pedicel almost one and a half times as long as wide; three anelli present; first funicle segment distinctly less than two times as long as wide.

---------- D. frontolatus sp.n.

Entire club white, funicle segments quadrate, subequal in size; stigmal vein longer than postmarginal vein.

---------- D. mandibularis Khan

Entire club uniformly brown except apex white; funicle segments longer than wide; postmarginal vein longer than stigmal vein.

---------- D. funicularis Khan
Diglyphus indicus sp.n.
(Figs. 1 - 10)

Head (Fig.1):- Iridescent bluish-green, with very fine reticulate sculpture; frontovertex with bi; punctures; wider than long in facial aspect (0.66 : 0.52); frontovertex wider than long, width one-half the total head width (0.33 : 0.66); ocelli arranged in obtuse angle triangle; postocellar line almost two times as long as ocellocular; antennae inserted well above the lower level of eyes; prominence between antennal sockets slightly more than one-fourth the width of frons between eyes (0.08 : 0.33); scrobe distinct; malar space longer than eye width (0.16 : 0.15); malar suture distinct; mandibles (Fig.2) pentadentate with acuto apices; maxillary (Fig.3) and labial palp (Fig.4) two and one segmented respectively.

Antennae (Fig.5):- Uniformly dark brown; scape cylindrical less than six times as long as wide (0.20 : 0.035); pedicel a trifle less than two times longer than wide (0.085 : 0.045); distinctly shorter than first funicle segment; two anelli intervening between pedicel and first funicle segment; funicle two segmented; first funicle segment less than three times as long as wide (0.10 : 0.04); longer than second segment (0.08 : 0.05); club three segmented, more than three times longer than wide (0.20 : 0.06), longer than funicle segments together.

Thorax (Fig.6):- Iridescent bluish-green with very fine reticulate sculpture; posterior margin of pronotum with four
PLATE - I

Figs. 1-10  *Diglyphus indicus* sp.n., ♀

1. Head, in frontal aspect
2. Mandible
3. Maxillary palp
4. Labial palp
5. Antenna
6. Thorax
7. Fore wing
8. Hind wing
9. Subgenital plate
10. Ovipositor
pair of strong setae; mesoscutum more than two times wider than long (0.66 : 0.32), coarsely reticulate; parapsidal grooves complete, distinct throughout with a pair of bristles; scutellum with sublateral longitudinal grooves, wider than long (0.54 : 0.34); microreticulate sculptured, lateral area beyond scutellar grooves broadly reticulate with three pair of bristles; posterior axilla reticulate; propodeal spiracles not contiguous with anterior margin of propodeum, both median and lateral carinae present; mesopostphragma short.

**Fore wings (Fig. 7)**:— Hyaline, venation dark brown; more than two times longer than wide; costal cell broad, its upper side with a complete row of 15 hairs, its underside densely setose; basal vein with four straight setae and a tuft of five setae at its base; basal cell open, bare; speculum almost reduced; cubital vein straight; subcubital line of hairs starting from one third distance from base; submarginal vein (0.40) longer than margin vein (0.39), with five strong setae; postmarginal vein (0.16) distinctly longer than marginal vein (0.13); marginal fringe short.

**Hind wings (Fig. 8)**:— Hyaline, disc densely setose; more than four times longer than wide (1.4 : 0.32) with blunt apex; marginal fringe long.

**Fore legs**: Dark brown except apex of femora, basitarsus and basal half of second tarsal segment yellowish.
Middle legs :- Coxa, trochanter and femora except basal and apical 1/4 dark brown, rest of the leg yellowish with dark brown bands on basal and apical half of tibiae; tarsal segment 2-4 brown.

Hind legs :- Colouration same as that of middle legs.

Abdomen :- Iridescent bluish-green; longer than thorax; sub-genital plate (Fig. 9) broad, posterior margin with a notch in the middle; first valvifers triangular (Fig.10) with basal and apical angles at different levels; third valvulae short, almost five times as long as wide, almost one-fourth the length of second valvifers (Fig.10); outer plates of ovipositor (Fig.10) shorter than second valvifers, narrow at base, broad at apex, basal 3/4 with thickened dorsal margin; ovipositor slightly exserted, arising from basal one-third of abdominal venter.

Length of female :- 1.55 mm

Male :- Not known

Holotype :- Q., INDIA; U.P.; Nainital, Kashipur ex. Pseudonapomyza asiatica Spencer (Diptera : Agromyzidae) on Oryza sativa Linn (graminace) 25.9-1984 (Nikhat Arifa)

Paratype :- 30 QQ same data as holotype.
Diglyphus frontolatus sp.n.
(Figs. 11 - 18)

Head (Fig.11) :- Dark brown with very faint iridescent reflections except clypeal region which is yellowish brown; very finely sculptured; wider than long in facial view (0.49 : 0.37), frontovortex more than two times as wide as long, width distinctly more than half the total head width (0.29 : 0.49); ocelli arranged in obtuse angle triangle, postocellar line less than one and one-half times as long as ocellocular; antennae inserted well above lower level of eyes; prominence between antennal sockets less than one-fourth the width of frons between eyes (0.06 : 0.29); scrobes distinct, short, smooth and polished; malar suture distinct; malar space longer than eye width; mandibles pentadentate with sharp apices; maxillary and labial palp two and one segmented respectively.

Antennae (Fig.12) :- Uniformly brown; scape cylindrical, less than five times as long as wide (0.175 : 0.04); pedicel long, almost one and a half times as long as wide (0.065 : 0.04), distinctly shorter than first funicle segment; three anelli intervening between pedicel and first funicle segment; funicle two segmented, first funicle segment distinctly less than two times as long as wide (0.08 : 0.045), longer than second segment (0.075 : 0.05); club three segmented, more than three times as long as wide (0.22 : 0.07), distinctly shorter than funicle and pedicel combined.
PLATE - II

Figs. 11-18  *Diglyphus frontolatus* sp.n., ♀

11. Head, in frontal aspect
12. Antenna
13. Thorax
14. Fore wing
15. Hind wing
16. Sub genital plate
17. First valvifer
18. Ovipositor
**Thorax (Fig. 13):** Dark brown with faint iridescent reflections, with very fine reticulate sculpture; posterior margin of pronotum with six strong setae; mesoscutum more than two times wider than long (0.44 : 0.21), coarsely reticulate; parapsidal grooves complete, distinct throughout, with a pair of bristle; scutellum wider than long (0.31 : 0.21), shorter than mesoscutum, microreticulate, sublateral longitudinal grooves well distinct, lateral area beyond scutellar grooves broadly reticulate with three pair of bristles; posterior axillae reticulate; propodeal spiracles not contiguous with anterior margin, both median and lateral carinae present; mesopostphragma short.

**Fore wings (Fig. 14):** Hyaline; venation dark brown; densely setose, almost two and a half times longer than wide; costal cell rather broad, its upperside with a complete row of 9 hairs and its underside with a row of 7 small hairs; basal vein pilose; basal cell open, bare; speculum very narrow and closed below; cubital vein strongly sinuate upwards where it joins the basal vein; subcubital line of hairs broken for a short distance, about one-third of distance from base; submarginal vein (0.42) longer than marginal vein (0.35) with seven strong setae; postmarginal vein (0.11) shorter than stigmal vein (0.13); marginal fringe short.

**Hind wings (Fig. 15):** Hyaline; disc densely setose; more than four times longer than wide (1.25 : 0.28) with acute apex; marginal fringe long.
Fore legs: - Coxa, trochanter and femora except apical 1/4 dark-
brown, rest of the leg infuscated; tibial spur very short.

Middle legs: - Coxa, trochanter and femora except apical 1/4
dark brown, rest of the leg yellowish with dark brown bands on
basal and apical half of tibiae, last tarsal segment brownish.

Hind legs: - Colouration same as that of middle leg.

Abdomen: - Dark brown with white complete transverse bands on
the dorsum, longer than thorax; subgenital plate broad, posterior
margin with a notch in the middle (Fig. 16); first valvifers
triangular (Fig. 17) with basal and apical angles at different
levels; third valvulae short, less than four times as long as
wide, one-fourth the length of second valvifers (Fig. 18); outer
places of ovipositor (Fig. 18) slightly shorter than second
valvifers; ovipositor slightly exserted, arising from basal
one-third of abdominal venter.

Length of female: - 1.4 mm

Male: - Not known

Holotype: - ♀ India, U.P. Lakhimpur Kheri,
Palia ex Liriomyra taraia Garg
(Diptera: Agromyidae) on Vicia
Sativa Linn. (Leguminosae) 15-8-1984
(Nikhat Arifa)

Paratype: - 20 ♀♀ (same data as holotype).
<table>
<thead>
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<th>Genus</th>
<th>Author</th>
<th>Year</th>
<th>Reference</th>
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The genus *Ginsiella* was proposed by Erdos (1951) for the species *Ginsiella triarticulata* Erdoa. The genus is characterized by the presence of complete parapsidal grooves, deep throughout; abdomen petiolate; spur of hind tibiae small, funicle in female with three segments; frontal cavity not limited by ridge dorsally; scutellum with two distinct sublateral grooves. Some new generic characters are suggested which will further facilitate the identification of the genus from closely allied ones, viz., mandibles bidentate with blunt teeth; maxillary (Fig. 20) and labial (Fig. 21) palpi one segmented each; pronotum with anterior margin deeply concave in the middle, anterolateral arms long and narrow, posterior margin much convex bearing two pairs of long setae; ovipositor concealed, arising from the apical one-third of abdominal venter; first valvifer triangular (Fig. 27) with basal and apical angles at different level, second valvifers (Fig. 27) of uniform width; third valvulae rudimentary or absent; outer plates of ovipositor narrow at base, widened at apex, densely setose.
The genus is recorded for the first time from India. In the present work a new species *Gensiella indica* is described and a key couplet has been framed to distinguish it from *G. triarticulata* Erdos as follows.

1. Frontovertex punctate, very wide, distinctly more than one-half total head width; scape flattened, less than three times as long as wide; pedicel short, almost as long as first funicle segment; funicle segments transverse; segments subequal in size; club two segmented, distinctly longer than preceding two funicle segments combined.

----- *G. triarticulata* Erdos

Frontovertex smooth, wider than long, width less than one-half head width; scape cylindrical, less than four times as long as wide, pedicel longer than first funicle segment; funicle segments elongated, first funicle segment two times as long as wide, second almost one and a half times as long as wide, third segment slightly longer than wide; club three segmented, shorter than preceding two funicle segments combined.

----- *G. indica* sp.n.
**Ginsiella indica sp.n**  
(Figs. 19 - 27)

**Head** (Fig. 19): Dark brown except clypeal region light brown, noniridescent; moderately setose; wider than long in facial view (0.62: 0.43); frontovertex wider than long, smooth, width less than one-half the total head width (0.28: 0.62); ocelli white, arranged in obtuse angle triangle, postocellar line almost equal in length to ocellocular; frontal fork with arms obtusely diverging; eyes dark, bare; malar space longer than eye width (0.2: 0.16); malar sutures absent; antennae inserted below lower level of eyes; prominence between antennal sockets less than one-fourth the width of frons between eyes; mandibles bidentate with blunt teeth; maxillary (Fig. 20) and labial palpi (Fig. 21) one segmented each.

**Antennae** (Fig. 22): Uniformly brown except scape which is yellow; 8 segmented excluding a ring segment; scape cylindrical, less than four times as long as wide (0.22: 0.06); pedicel longer than two times as long as wide (0.13: 0.06), longer than first funicle segment; funicle three segmented, first funicle segment two times as long as wide (0.12: 0.06), second almost one and a half times as long as wide (0.09: 0.065), third segment slightly longer than wide (0.1: 0.09); club three segmented, less than two times as long as wide (0.19: 0.11), shorter than preceding two funicle segments combined.
PLATE - III

Figs. 19-27  *Ginsiella indica* sp.n. ♀

19. Head, in frontal aspect
20. Maxillary palp
21. Labial palp
22. Antenna
23. Thorax
24. Fore wing
25. Hind wing
26. Part of fore leg, middle leg and hind leg
27. Ovipositor
Thorax (Fig.23) :- Dark brown with metallic reflections; pronotum with anterior margin deeply concave in the middle, anterolateral arms long and narrow, posterior margin much convex bearing; two pairs of long setae; parapsidal furrows well developed, each parapside with a setae; mesoscutum with hexagonal reticulate sculpture, less than two times as long as wide (0.6 : 0.35), with two setae; scutellum with fine reticulate sculpture, short, wider than long (0.32 : 0.23), with four strong setae; surface of propodeum slightly roughened both median and paraspiracular carinae present; propodeal spiracle not contiguous with anterior margin.

Fore wings (Fig.24) :- Hyaline, less than three times as long as wide (2.16 : 0.82); prestigma smoothly joining submarginal to marginal vein; costal cell broad, densely setose; basal cell with few setae; basal vein with three setae; cubital vein sinuate; submarginal vein (0.74) longer than marginal vein (0.54); postmarginal (0.72) less than one half of marginal vein; stigmal vein (0.16) shorter than postmarginal vein; marginal fringe spaced by a distance equal to one-fourth their length.

Hind wings (Fig.25) :- Hyaline, more than four times as long as wide (1.5 : 0.35) with apex tapering; marginal fringe almost one-third the wing width, spaced by a distance equal to one-fifth their length.
Legs (Fig. 26) :- Yellowish except hind coxae black on greater part and femora with infuscation on dorsal margin.

Abdomen :- Dark brown with a yellow patch on dorsum; longer than thorax; ovipositor concealed, arising from the apical one-third of abdominal venter; first valvifer triangular (Fig. 27), with basal and apical angles at different levels; second valvifers (Fig. 27) of uniform width; third valvulae (Fig. 27) rudimentary or absent; outer plates of ovipositor narrow at base, widened at apex (Fig. 27), densely setose.

Length of female :- 1.51 mm

Male :- Not known


Paratype :- One ♀, same data as holotype.
Genus Olynx Foerster


Ashmead (1904) erected Ophelinoideus to include one Japanese species, japonicus Ashmead, without giving generic definition. Subsequently, Girault (1917) pointed out a similarity between Ophelinoideus and Olynx, describing some generic characters of the former. Kamijo (1976) studied the types of O. japonicus, which belonged to Olynx.

Kamijo (1976) while redescribing Olynx japonicus (Ashmead) has formulated its generic characters which can be summed up as: antennae with three funicle segments; scutellum without longitudinal grooves; middle tibial spur very long, as long as the first tarsal segment; abdomen sessile.

The genus is recorded for the first time from India and a new species is described.
Glynx indicus sp.n.
( Figs. 28 - 35 )

Head (Fig. 28) :- Yellowish with infuscation on frontovertox; much wider than long in facial view (0.67 : 0.4); frontovertox slightly more than two times as wide as long; width distinctly more than half the total head width (0.4 : 0.67); ocelli pale yellow, arranged in obtuse triangle; length of postocellar line almost two times as great as ocellocular; eyes red, bare; antennae inserted on the lower level of eyes; prominence between antennal sockets less than one-fifth the width of frons between eyes (0.09 : 0.42); malar space slight shorter than eye width (0.12 : 0.13); malar suture distinct; mandibles (Fig. 29) tridentate with sharp apices; maxillary and labial palpi each one segmented.

Antennae (Fig. 30) :- Brownish except scape yellowish with dorsal margin infuscated; eight segmented excluding three ring segments; scape slightly flattened, less than four times as long as wide (0.24 : 0.07); 3rd antennal greatly transverse and most conspicuous; pedicel two times as long as wide (0.12 : 0.06), distinctly shorter than first funicle segment; funicle three segmented, segments 1-3 drastically decreasing in length distal; first funicle segment longest, almost two and a half times as long as wide (0.16 : 0.065), second segment two times as long as wide (0.13 : 0.065); third shortest,
Figs. 28-35  Olynx indicus sp.n. ♀

28. Head, in frontal aspect
29. Mandible
30. Antenna
31. Thorax
32. Pronotum
33. Part of fore wing venation
34. Part of fore leg, middle leg and hind leg
35. Abdomen, attached with thorax
distinctly longer than wide (0.105 : 0.07); club three segmented, more than three times as long as wide (0.22 : 0.07), shorter than preceding two funicle segments together.

Thorax (Fig.31): - Yellowish except pronotum with a brown patch in the middle, its anterior and lateral margins with small infuscated spots; mesopraescutum with a large brown patch, lateral margins of parapsides, lateral sides of scutellum, metanotum and propodeum infuscated; posterior margin of pronotum with submarginal ridge bearing six pairs of setae (Fig.32); mesoscutum more than two times as wide as long (0.65 : 0.31); parapsidal furrows well developed; mesopraescutum bearing two bristles at each lateral margin without median longitudinal groove; scutellum wider than long (0.34 : 0.29), with four setae, broadly rounded at apex and without submedian grooves; propodeum with a well developed carina.

Fore wings (Fig.33): - Hyaline, more than two times as long as wide (2.15 : 0.94), broadly rounded at apex; costal cell short, with thirteen long setae; basal vein with a row of three setae; basal cell completely bare; speculum narrow and open below; cubital vein straight; submarginal vein (0.46) short, with five long setae directed backward; marginal vein very long (0.82) densely setose; postmarginal vein rudimentary, stigmatic vein (0.12) less than one-seventh the marginal vein; marginal fringe short.
Hind wings: -- Hyaline, almost five times as long as wide; marginal fringe short.

Legs (Fig. 34): -- Honey yellow except hind tibiae infuscated; apical rim of mid tibiae with a row of three stout pegs; tibial spur very long, distinctly longer than basitarsus; apical rim of hind tibiae with a row of five stout pegs; tibial spur slightly shorter than basitarsus.

Abdomen (Fig. 35): -- Yellowish, except dorsum with transverse brown bands; very long, more than two times the length of abdomen; ovipositor exserted, arising from base of abdominal venter; first valvifers almost semicircular with basal and apical angles in one plane; third valvulae long, one-third the length of second valvifers.

Length of female: -- 2.4 mm

Male: -- Not known

Holotype: -- ♀ India, U.P., Mussoorie, Chakravta (9000') ex. Lepidopterous leaf mine (unidentified) on wild plant 4-5-1980 (Nikhat Arifa)

Paratypes: -- 2 ♀♀ (same data as holotype).
Species *O. indicus* differs from *O. japonicus* (Ashmead) in the following manner.

**O. japonicus** (Ashmead)

1. Body dark bluish green with a strong bronzy tint, especially on scutellum and dorsolum, clypeus blackish brown.

2. Pedicel a little longer than broad

3. First funicle segment two times as long as broad, second segment much shorter than first; third segment slightly shorter than second.

4. Middle tibial spur fully as long as the first tarsal segment.

**O. indicus** sp.n.

1. Body yellowish with infuscation on fronto-vertex, pronotum with a brown patch in the middle, abdomen yellowish except dorsum with transverse brown bands.

2. Pedicel two times as long as wide.

3. First funicle segment almost two and a half times as long as wide, second segment two times as long as wide, third shortest, distinctly longer than wide.

4. Middle tibial spur very long, distinctly longer than first tarsal segment.
Genus Scotolinx Ashmead

Type species: *Scotolinx galinicola* Ashmead, by monotypy and original designation.


**Scotolinx** Subba Rao and Ramamani 1965 *Indian J. Ent.* 27: 412.


The distinguishing characters of this genus have been given by Ashmead (1904). Subba Rao and Ramamani (1965) recorded the genus for the first time from India.

Khan and Shafee (1980) proposed some new generic characters viz., pronotum of uniform width, anterior margin straight; first valvifers semicircular with basal and apical angles at different levels; third valvulae blunt, movably articulated with second valvifers; outer plate of ovipositor long, slightly shorter than second valvifers with a median longitudinal ridge; subgenital plate with anterior margin straight, posterior margin with a semicircular notch in the middle, postero-lateral ridges present. These characters apply well on the species under study.
So far only four species have been reported from India. In the present work two new species are added from India and a key to the Indian species is proposed to accommodate the new species.

Key to Indian species of the genus *Scotolinx* Ashmead based on females

1. Body dark brown with metallic reflection. 

2. Body yellow except transverse bands on abdominal dorsum.

3. First funicle segment shorter than second; costal cell longer than marginal vein and with 26 setae; marginal vein with 11 setae, postmarginal vein distinctly longer than stigmal vein.

   ------ *S. nigricorpus* Khan

4. First funicle segment longer than second; costal cell shorter than marginal vein and with 35 setae; marginal vein with 15 setae; postmarginal vein two times as long as stigmal vein.

   ------ *S. depterus* Khan
3. Abdomen with only two transverse brown bands.

-------------------- 4

- Abdomen with four or five transverse brown bands.

-------------------- 5

4. Head yellow except postoccipital region dark; prominence between antennal sockets less than one-fourth the width of frons between eyes; antennae inserted near middle of frons; mandibles bidentate with one acute tooth and a broad truncation having serrations; scape three and a half times as long as wide; first funicle segment two times as long as wide; axillae with 7 setae; costal cell with 24 setae; postmarginal vein as long as stigmal vein; middle tibial spur as long as basitarsus.

-------- S. maculatus Khan

- Head uniformly yellow; prominence between antennal sockets distinctly less than one-third the width of frons between eyes; antennae inserted well below lower level of eyes; mandibles tridentate with very sharp spines; scape distinctly less than five times as long as wide; first funicle segment less than two times as long as wide; axillae with a strong setae; costal cell with 4 setae; postmarginal vein shorter than stigmal vein; middle tibial spur short, almost one-half the length of basitarsus.

-------- S. mandibularis sp. n.
Mandibles with one acute tooth and a broad truncation having serrations; scapo flattened, slightly more than three times as long as wide, about as long as club; pedicel one and a half times as long as wide; scutellum with two pairs of setae; costal cell with 11 small setae; postmarginal vein slightly shorter than stigmal vein; abdomen with four transverse brown bands.

\textit{----- \textit{S. quadrirhniata}}

Subba Rao and Ramamani

Mandibles with two acute teeth and serrations; scapo cylindrical, less than four times as long as wide, distinctly longer than club; pedicel two times as long as wide; scutellum with six pairs of setae; costal cell densely setose, postmarginal vein short, one-half the length of stigmal vein; abdomen with five transverse brown bands.

\textit{----- \textit{S. ramnagarensis sp.n.}}
Scotolinx mandibularis sp.n.  
(Figs. 36 - 43)

Head (Fig.36) :- Orange yellow, setose, wider than long in facial view (0.38 : 0.27) frontovertex with very fine longitudinal reticulations, strongly throughout, wider than long, width one-half the total head width (0.18 : 0.36); ocelli red, arranged in obtuse angle triangle, lateral ocelli two times their own diameters from orbital margin and their own diameters from occipital margin, postocellar line almost as long as ocellocular; scrobe deep; eyes black, smooth; antennae inserted well below lower level of eyes, prominence between antennal sockets distinctly less than one-third width of frons between eyes (0.07 : 0.19); malar suture distinct; malar space longer than eye width; mandibles (Fig.37) pentadentate with very sharp apices; maxillary and labial palp one segmented each.

Antennae (Fig.38) :- Uniformly yellow, seven segmented excluding two ringer segments, more distinctly less than five times as long as wide (0.16 : 0.035), pedicel less than two times as long as wide (0.07 : 0.04), shorter than first funicle segment; funicle two segmented, segments elongated, first funicle segment less than two times as long as wide (0.09 : 0.05), longer than second segment (0.08 : 0.05), club three segmented, more than three times as long as wide (0.17 : 0.05), shorter than funicle segments.

Thorax (Fig.39) :- Yellow with golden luster on dorsum, with
FIGS. 36-43  

SCOTOLIX MANDIBULARIS sp.n. ♀

36. Head, in frontal aspect
37. Mandible
38. Antenna
39. Thorax
40. Part of fore wing venation
41. Part of fore leg, middle leg and hind leg
42. Abdomen, attached with thorax
43. Ovipositor
very fine hexagonal reticulate sculpture; pronotum of uniform width, anterior margin almost straight, slightly concave in the middle, antero-lateral angles acute, posterior margin straight with 10 setae; parapsidal furrows complete; mesoscutum less than two times wider than long (0.48 : 0.26), sparsely setose, with a pair of long, strong setae; parapside with a strong setae on each side; scutellum short, wider than long (0.24 : 0.18), with two pair of long, strong setae; each axilla with a strong setae; mesonotum long, reaching beyond propodeum; metanotum narrow, band like; propodeum short, surface setose, paraspiracular carinae wanting; mesal length of propodeum almost one-third length of scutellum; propodeal spiracle almost rounded, not touching anterior margin.

Fore wings (Fig.40) :- Hyaline, densely setose, less than three times as long as wide (1.38 : 0.48); costal cell narrow, with four setae; basal vein with four setae; basal cell with three setae; speculum large, closed below; eight admarginal hairs present; submarginal vein short (0.37), with five strong, long setae, directed apically and eight small setae directed backward; marginal vein very long (0.52), densely setose; postmarginal vein (0.05) shorter than stigmal vein (0.06); marginal fringe spaced by a distance equal to one-fourth their length.

Hind wings :- Hyaline, almost five times as long as wide; marginal fringe long, almost one-third the wing width, spaced by a distance equal to one-fifth their length.
Legs (Fig. 41) :- Yellow, middle-tibial spur short, almost one-half of the length of basitarsus; hind coxae slightly enlarged.

Abdomen (Fig. 42) :- Yellow except dorsum with two transverse brown bands, entire dorsum with very fine hexagonal reticulate sculpture from base to last segment, densely setose with long setae, longer than thorax; ovipositor slightly exserted, arising from base of abdominal venter; first valvifers semicircular (Fig. 43) with basal and apical angles at different levels, anterior margin of basal part of second valvifers (Fig. 43) much curved, almost U shaped; third valvulae (Fig. 43) long, more than five times as long as wide, almost one-third the length of second valvifers; outer plates of ovipositor (Fig. 43) shorter than second valvifers, widened in the middle, with a long middle longitudinal ridge.

Length of female :- 1.25 mm.

Male :- Not known

Holotype :- ♀ India, U.P. Tanakpur ex. *Pseudonapomyza spicata* (Mall.) (Diptera : Agromyzidae) on *Zea mays* Linn. (Gramineae) 26-4-1983 (Nikhat Arifa)

Paratype :- One ♀, Same data as holotype.
Scotolinx ramnagorensis sp.n.
(Figs. 44 - 49)

Head (Fig. 44) :- Orange yellow and setose, distinctly wider than long in facial view (0.6 : 0.4), frontovortex much wider, more than one-half the total head width (0.35 : 0.6); ocelli red; arranged in obtuse triangle, postocellar line almost one and one-half times as long as ocellocular; eyes red and smooth; malar suture distinct; malar space much longer than eye width (0.2 : 0.12); antennae inserted well above the lower level of eyes; mandibles with two acute teeth and serrations; maxillary and labial palpi each one segmented.

Antennae :- Yellowish except club infuscated; seven segmented excluding two ring segments; scape cylindrical, less than four times as long as wide (0.19 : 0.05); pedicel two times as long as wide (0.08 : 0.04), shorter than first funicle segment; funicle two segmented, first funicle segment slightly more than one and a half times as long as wide (0.1 : 0.06), second almost quadruple (0.08 : 0.07); club three segmented, distinctly more than two times as long as wide (0.18 : 0.08), longer than funicle.

Thorax (Fig. 45) :- Orange yellow; pronotum (Fig. 46) setose, of uniform width, anterior margin straight, slightly concave in the middle, anterolateral angles acute, posterior margin straight bearing three pairs of setae; parapsidal furrows complete; scutum with microreticulate sculpture, less than two times as wide as long (0.43 : 0.25), with three pairs of long, strong setae;
Figs. 44-49  *Scotolinx ramnagarensis* sp.n. ♀

44. Head, in frontal aspect

45. Thorax

46. Pronotum

47. Fore wing

48. Hind wing

49. Ovipositor
scutellum with fine large hexagonal reticulate sculpture, with six pair of large, strong setae, distinctly longer than wide (0.3 : 0.26), longer than scutum; metanotum band like with large hexagonal reticulations in the middle; propodeum with median carinae well developed, with large hexagonal reticulations, spiracles not contiguous; mesosternum well developed, not reaching beyond the propodeum.

Fore wings (Fig. 47) :- Hyaline, more than two times as long as wide (1.4 : 0.6); costal cell broad, densely setose; basal vein with six setae; basal area setose; speculum narrow and closed below; cubital vein almost straight; subcubital line of hairs moderately long near base, a single row of short hairs in between cubital vein and subcubital line of hairs present; submarginal vein (0.38) with six long setae, more than one-half the length of marginal vein (0.6); postmarginal vein short (0.04), one-half the length of stigmal vein (0.08); marginal fringe short, spaced by a distance equal to one-fourth their length.

Hind wings (Fig. 48) :- Hyaline, more than four times as long as wide (1.09 : 0.24), with acute apex; marginal fringe one-third the wing width; spaced by a distance equal to one-fifth their length.

Legs :- Yellow; middle tibial spur distinctly longer than basitarsus; hind tibial spur slightly shorter than basitarsus.
Abdomen: Yellow except dorsum with five transverse brown bands; distinctly longer than thorax; ovipositor slightly exserted, arising from base of abdominal venter; first valvifers (Fig. 49) triangular with articular knobs prominent, anterior margins of basal part of second valvifers (Fig. 49) much curved; third valvulae (Fig. 49) three times as long as wide, about one-fifth the length of second valvifers; outer plates of ovipositor (Fig. 49) long, with median longitudinal ridge, shorter than second valvifers.

Length of female: 1.32 mm.

Male: Not known


Paratype: 10 ♀♀, Same data as holotype.
Genus *Stenomesius* Westwood


| *Stenomesius* | Nikol'skaya | 1952 | Opred Faune SSSR Moscow 44: 260. |
| *Stenomesius* | Subba Rao | 1966 | *Indian J. Ent.* 28: 299 |
The genus *Stenomesius* Westwood 1833 was based on a single European species long since identified as *rufescens* (Rossi). Generic characters based on this species are the form of the propodeum, which has a pair of strong median carinae well separated, bowed inwards and joined by a transverse carina, the form of the scutellum, which has a pair of sublateral furrows, which run the whole length, then bend inward to join before the apical margin, and by the black and reddish yellow colouration. It stands close to *Miotropis* Thomson 1878. By contrast *Miotropis* Thomson has on the propodeum a pair of median carinae running very close together and converging, and on the scutellum a pair of weaken furrows which are only developed anteriorly. These characters are illustrated by Askew (1968, Fig.15 and 16) and the *Stenomesius* condition by Kasi (1917, Fig.65) and by Subba Rao and Sharma (1966, Fig.6).

Kerrich (1974) further separated these two genera, by *Stenomesius* having a strongly raised occipital margin and a single hind tibial spur, contrasting with an immarginate occiput and two hind tibial spurs in *Miotropis*. 

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**Stenomesius** Hayat 1985 *Oriental Insects* 19: 249.


Burks (1967, 229) placed *Stenomesioideus* Ashmead 1904 in synonymy with *Miotropis* Thomson.

So far only one species *S. japonicus* (Ashmead) is known from India. Two new species have been described here and a key to the Indian species based on females has been framed. In addition to the generic characters given above, characters of outerplates of ovipositor and first valvifers could also be helpful in separation of the genus from allied ones.

Key to the Indian species of the genus *Stenomesius* Ashmead based on females

1. Body yellowish with some brownish patches on scutellum and abdominal tergites, antennae with two ring joints, mandibles hexodontate.

2. Body uniformly yellowish without any brown patch on scutellum and abdominal tergites, antennae without any ring joint; eyes red; frontovertex width distinctly less than one-third the total head width; mandibles tridentate.

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S. indicus sp.n.

2. Eyes greyish, very finely pubescent; ocelli in an equilateral triangle; prominence between antennal sockets almost one-third the width of frons; malar space almost as long as eye width; antennae blackish; funicle segments subequal in length; club three segmented; speculum moderate
and closed below; cubital vein straight; postmarginal
vein very long, more than two times the length of stigmal
vein.

---------- S. japonicus (Ashmead)

Eyes black, bare; ocelli in an obtuse triangle; prominence
between antennal sockets more than one-fourth the width
of frons between eyes; malar space short, more than one-half
the eye width; antennae light brownish except scape yellowish;
first funicle segment more than three times as long as wide,
second shorter than first funicle segment, third segment
as long as first; fourth segment shortest; club two segmented;
speculum very reduced and closed below; cubital vein slightly
sinuate, postmarginal vein slightly longer than stigmal vein.

---------- S. trjapitrini sp.n.

Stenomesius trjapitrini sp.n.*
(Figs. 50-56)

Head (Fig.50) :- Yellowish with fine microreticulate sculpture,
 wider than long in facial view (0.52 : 0.37); width of frontovertex
 slightly more than one-half the total head width (0.27 : 0.52);
 ocelli red, arranged in obtuse triangle, postocellar line equal
 in length to ocellocular; antennae inserted well above the lower
 level of eyes; prominence between antennal sockets more than

*This species is named for Dr. V.A. Trjapitzin in recognition of
his valuable contributions to our knowledge of Chalcidoidea.
PLATE VII

Figs. 50-56  Stenonesius trjapitzini sp.n. ♀

50. Head, in frontal aspect
51. Antenna
52. Thorax
53. Part of fore wing venation
54. Hind wing
55. Part of fore leg
56. Ovipositor
one-fourth the width of front between eyes (0.06 : 0.27); malar space short, more than one-half the eye width (0.07 : 0.12); malar suture distinct; eyes black, bare; mandibles deeply sclerotised, hexadentate, the two outer teeth well developed, long and acute and the four inner ones short and saw like, maxillary and labial palpi two and one segmented respectively.

**Antennae** (Fig. 51) :- Light brownish except scape yellowish, eight segmented excluding two ring segments; scape cylindrical, less than six times as long as wide (0.26 : 0.045); pedicel more than two times as long as wide (0.085 : 0.04), distinctly more than one-half the first funicle segment; funicle four segmented, first funicle segment more than three times as long as wide (0.135 : 0.04), second shorter than first funicle segment, three times as long as wide (0.12 : 0.04), third segment as long as first funicle segment, less than three times as long as wide (0.135 : 0.05), fourth segment shortest, more than two times as long as wide (0.11 : 0.05); club two segmented, less than three times as long as wide (0.17 : 0.06), longer than preceding segment.

**Thorax** (Fig. 52) :- Yellowish except scutellum with an infuscated spot near apex, metanotum and propodeum in the middle uniformly infuscated; thorax convex, slender, long; posterior margin of propodeum with three pairs of long setae; mesoscutum wider than long (0.38 : 0.22), with well developed complete parapsidal furrows; scutellum long, longer than wide (0.26 : 0.22); axillae
narrowly contiguous in the middle; mesoscutum and scutellum with four and two pairs of long bristles; propodeum highly carinated as shown in Figure.

**Fore wings (Fig.53)**: Hyaline, less than three times as long as wide (1.64 : 0.6); costal cell long and narrow, with a row of five long setae near apex, and a row of thirteen small setae at its underside; basal vein with a row of five setae; basal area setose; speculum very reduced and closed below; cubital vein slightly sinuate; subcubital line of hairs moderately long near base; a single row of short hairs in between cubital vein and subcubital line present; submarginal vein with six long setae directed upwards and a row of five setae directed downwards near base, distinctly shorter (0.49) than marginal vein (0.6); postmarginal vein (0.22) longer than stigmal vein (0.17); marginal fringe short; spaced by a distance equal to one-fourth their length.

**Hind wings (Fig.54)**: Hyaline, narrow with acute apex; less than eight times as long as wide (1.30 : 0.17); marginal fringe long, spaced by a distance equal to one-sixth their length.

**Legs**: Uniformly yellowish, apical rim of fore tibiae (Fig.55) with two small pegs, basitarsus with an oblique row of small setae; middle tibial rim with three small pegs, tibial spur short; hind tibial rim with two stout pegs, tibial spur short.
**Abdomen** :- Yellowish with some brownish spots on tergites; long and ovoidal; ovipositor arising from near the base; petiolar petiole short; longer than head and thorax combined; first valvifers semicircular (Fig.56), third valvulae (Fig.56) almost five times as long as wide, more than one-fourth the length of second valvifers (Fig.56); outer plates of ovipositor (Fig.56) shorter than second valvifers; ovipositor exerted.

**Length of female** :- 1.49 mm.

**Male** :- Not known

**Holotype** :- India, Tamil Nadu, Padappai ex. larval parasite of groundnut leaf webber Aproseroma mediceps (Lepidoptera : Gelechiidae) on Arachis hypogaea (groundnut) 20-10-1985 (Nikhat Arifa)

**Paratype** :- 4 ♀♀ same data as holotype.
Stenomesius indicus sp.n.  
(Fig. 57)

Head : - Yellowish, wider than long in facial view; frontovertex wide, slightly wider than long (0.27 : 0.26), width distinctly less than one-third the total head width (0.27 : 0.7); ocelli red, arranged in obtuse triangle; eyes red and sparsely setose; antennae inserted well above the lower level of eyes; malar space shorter than eye width, malar suture distinct; mandibles tridentate; maxillary and labial palpi two and one segmented respectively.

Antennae : - Uniformly yellowish, 8-segmented, without any ring segment; scape cylindrical, less than six times as long as wide (0.17 : 0.03); pedicel short, two times as long as wide (0.06 : 0.03) distinctly less than one-half the length of first funicle segment; funicle segments elongated, four segmented, first funicle segment very long, distinctly more than three times as long as wide (0.14 : 0.04), second and third segment equal in size, three times as long as wide (0.12 : 0.04), fourth shortest, more than two times as long as wide (0.1 : 0.04); club two segmented, more than three times as long as wide (0.13 : 0.04), longer than preceding segment.

Thorax : - Yellowish, convex, slender, long; pronotum with anterolateral arms long and narrow, anterior margin deeply concave, posterior margin convex with four pairs of long setae; mesoscutum less than two times wider than long (0.74 : 0.4), with well
PLATE - VIII

Fig. 57  Stenomesius indicus sp.n. ♀
developed parapsidal furrows; scutellum flat and carinated distally, wider than long (0.54 : 0.41); axillae narrowly contiguous in the middle; mesoscutum and scutellum with eight and six bristles; propodeum highly carinated; the entire thorax is so constructed that the mesoscutellar region with its well developed axillae resembles that of an encyrtid.

**Fore wings** :- Hyaline, more than two times as long as wide (1.43 : 0.6); costal cell broad and long, very densely setose, basal vein with a row of four setae, basal area with two setae; speculum narrow and closed below; cubital vein straight; sub-marginal vein with nine setae, longer (0.55) than marginal vein (0.43); postmarginal vein (0.25) distinctly longer than stigmal vein (0.15); marginal fringe very short.

**Hind wings** :- Hyaline, more than four times as long as wide (1.15 : 0.28); marginal fringe short.

**Legs** :- Uniformly yellowish; middle tibial spur shorter than basitarsus; hind tibiae with two short spurs.

**Abdomen** :- Yellowish, ovoidal, longer than thorax excluding length of petiole; petiole very long, less than five times as long as wide (0.49 : 0.1), more than one-half the length of abdomen; ovipositor very slightly excerted; third valvulae short and lanceolate.
Length of female: 2.52 mm.

Male: Not known

Holotype: ♀ India, U.P. Mussoorie, Chakrata (9000') ex.
Lonidopterous leaf mine (unidentified) on wild plant, 4-5-1980 (Nikhat Arifa)

Paratype: ♀ Mounted on slide, same data as holotype.
Tribe: Euplectrini

Genus **Euplectrus** Westwood


**Rekabia** Cameron, 1904. *Invert. Pacif.*, 1: 65. Type-species: *Rekabia testaceipes* Cameron, by monotypy.


**Euplectrus** Ferriere 1941 *Bull. ent. Res* 32: 33-34.


**Euplectrus** Nikol'skaya 1952 *Opred Faune SSSR* Moscow 44: 257.


**Euplectrus** Trjapitzin 1978 *Opred. Faune SSSR(3)120: 394.*
Genus *Buplectrus* was proposed by Westwood (1832) for the species *Buplectrus maculiventris* Westwood. All recent workers have considered the genera *Diplectron* Dahlbom and *Pachyscapha* Howard to be synonyms of *Buplectrus* Westwood. Kerrich (1974) synonymized the genus *Hekabia* Cameron with *Buplectrus* Westwood. The distinguishing characters of the genus as proposed by Nikol'skaya (1952), Peck et al. (1964) and additional generic characters of pronotum, female genitalia and subgenital plate as proposed by Khan and Shafee (1980) apply well on the species under study. So far 18 species of the genus are known from India. In the present work three new species are described and key to Indian species has also been framed for the first time.
Key to the Indian species of the genus, Buplectrus Westwood based on females.

1. All legs, including their coxae uniformly coloured yellow or white.

2. Legs with differential colour black, brown, reddish brown, light brown or a colouration of these.

3. Pedicel armed with bristles

4. Pedicel without any bristle

3. Pedicel with two stout bristles

4. Pedicel with only one bristle

5. Entire face black, light brown antennae with white scape and pedicel, abdomen light yellow except tip, sides and petiole black; scutellum smooth; abdominal petiole rather long, two times as long as broad or little less; bristles of pedicel both basally and apically.

E. ceylonensis Howard
Face brown; ocelli dark reddish brown, antennae yellowish with scape pale yellow, abdomen pale brown but transversely banded dark brown before apex; scutellum extremely finely shagreened except in the posterior area, where it is almost smooth and polished; abdominal petiole short, almost quadrat; bristles of pedicel only subabically.

-------- B. plecopterae Mani

5. Vortox shallowly and closely punctate face very finely and obscurely punctate; length of postocellar line more than three times as great as ocellocular; prominence between antennal sockets distinctly more than one-third the width of frons between eyes; antennal scape pale white, rest of the antennal segments hyaline light brown; only one very narrow ring segment present; scape three times as long as wide, funicle segments subequal, about two times as long as broad; club unsegmented, distinctly shorter than preceding; two funicle segments combined, mesothorax strongly rugulosey punctate anteriorly, the punctures not very well defined and virtually coalescent; scutellum and axillae minutely and shallowly punctate; abdomen mostly white except for a discontinuous centrally interrupted pale brown band apically, laterally and at the extreme base brown.

-------- B. maternus Bhatnagar
- Vertex and face smooth, without punctuation; postocular line and ocellocular line almost equal in length; prominence between antennal sockets slightly less than one-third the width of frons between eyes; antennal scape uniformly white, pedicel, ring segments and first two funicle segments yellow, rest of the flagellum infuscated; only two ring segments present; scape five times as long as wide; first funicle segment longest, almost one and a half times as long as wide, funicle segments 2-4 subequal in size; distinctly longer than wide; club two segmented, longer than preceding two funicle segments together; thorax smooth without punctuation; abdomen dark brown except a white patch on middle of dorsum.

----------- E. longiscapus sp.n.

6. Scutellum uniformly punctate; or punctate in the middle.

-------------------- 7

- Scutellum not likewise, smooth.

-------------------- 8

7. Abdomen yellow above, with only the sides and a more or less complete transverse band before the end brownish, antennae slightly brownish at tip; ocelli very large; the lateral ocelli closer to the eye margins than to the front ocellus; pubescence whitish, funicle segments not subequal in length; scutellum uniformly finely
longitudinally striate; propodeum smooth; petiole slightly broader than long.

-------- E. leucostomus Rohwer

Abdomen black with a large yellow spot, without any transverse band; antennae uniformly yellowish white without infuscation at tip; ocelli small, widely separated from the eye margins, the ocellocular line and two-thirds as long as the postocellar line; pubescence brownish; funicle segments subequal in length; scutellum finely reticulate medially, reticulato-lineate laterally; propodeum shining, median furrow distinct, complete; petiole granular, longer than wide.

-------- E. euplexiane Rohwer

8. Pedicel two times or about two times as long as wide.

--------------------------------- 9

- Pedicel slightly longer than broad; abdomen yellow with a transverse strip before the end, lines on the sides of the second segment and the petiole brown; vertex almost smooth, cilia very scattered; antennae with scape rather short, not reaching to the front ocellus; funicle thicker, the four joints subequal in length.

-------- E. parvulus Ferriere

9. Abdomen black with a rounded yellow spot.

--------------------------------- 10
Abdomen yellow above, slightly more orange-yellow at tip, only two lines on the sides at base and the petiole black; antennae orange-yellow, brownish towards tip, scape light yellow; pronotum very short; mesonotum with irregular transverse striate; scutellum finely reticulate.

---------- *E. coimbatorensis* Ferriere

10. Antennae yellow, last joint brownish; vertex with some scattered long whitish ciliae; ocelli small, the lateral ocelli closer to the front ocellus than to the eye margins; scape narrow, reaching to the level of the front ocellus; mesonotum transversely striate and with a distinct median carina; scutellum almost smooth, with thin longitudinal striate; marginal vein much longer than the submarginal vein; the longest tibial spur as long as the first two tarsal joints together; petiole short, subquadrate, slightly regulose.

---------- *E. indicus* Ferriere

Antennae brown, scape and pedicel yellow; vertex smooth; ocelli rather large, the lateral ocelli at about the same distance from the front ocellus as from the eye margins; scape narrow and elongate, but not reaching to the level of front ocellus; mesonotum finely reticulate, without median carina; scutellum smooth; marginal vein a little longer than the submarginal vein; the longest hind tibial spur not quite as long as the first two
tarsal joints together; petiole smooth, elongate, almost three times as long as broad.

---------- E. petiolatus Ferriere

11. Pedicel distinctly longer than first funicle segment.

---------------------- 12

- Pedicel not likewise, as long as or shorter than first funicle segment.

---------------------- 13

12. Abdomen reddish brown in the middle; ocelli dark reddish brown; postocellar line almost equal in length to ocellocular; malar space very long, almost two times the eye width; antennae dark brown except scape, pedicel and the ring joint reddish brown, only one ring joint present; scape about four times as long as wide; funicle segments subequal in size; club unsegmented, equal to one and one-half of the preceding two funicle segments; mesonotum and scutellum shallowly and closely punctate; the longest hind tibial spur distinctly longer than the length of basal two tarsal joints together.

---------- E. spodopterae Bhatnagar

- Abdomen dark brown with metallic bluish reflections on the dorsum; ocelli white; length of postocellar line almost two times as much as ocellocular; malar space longer than eye width; antennae yellowish with slight infuscation except scape uniformly whitish; only three
ring segments present; scape slightly more than five
times as long as wide; funicle segments gradually
increasing in width distad; first segment as long as
second, third segment shortest, a trifle longer than
wide, fourth segment quadrate; club three segmented;
almost as long as preceding two funicle segments
together; mesonotum and scutellum without punctations;
longest hind tibial spur shorter than the length of
basal two joints together.

---------- E. suconjaevi sp.n.

13. Pedicel shorter than first funicle segment.

------------------------------- 14

- Pedicel as long as first funicle segment.

------------------------------- 18

14. Hind coxae either completely black or black basally
and reddish brown apically.

------------------------------- 15

- Hind coxae completely yellow on slightly infuscated.

------------------------------- 16

15. Scape white, segments of funicle unequal; hind coxae
completely black.

---------- E. bussyi Crawford
Scape brown, segments of funicle subequal; hind coxae black basally and reddish brown apically.

---------- B. himalayaensis Mani

16. Funicle segments distinctly longer than wide.

----------------------- 17

- Funicle segments as long as wide, body black except head with white patches on vertex and face; antennae black except the white basoventral area of scape and abdomen white basally.

---------- B. ornatus Mukerjee

17. Body black except below antennae light brown and abdomen with a light brown patch in the middle; vertex and face very finely and closely punctate, in low power appears to be matt with fine grains; antennae brown except scape yellowish white; two ring segments present; first funicle segment distinctly less than three times as long as wide; second and third almost subequal in size; fourth segment a trifle two times as long as wide; club three segmented.

---------- B. mathuri Bhatnagar

- Body yellowish; vertex and face smooth without punctations; antennae yellowish with club slightly infuscated, only one ring segment present; first funicle segment longest, a trifle less than four times as long as wide; second and third segment subequal, fourth segment longer than
wide; club unsegmented.

------------- **E. clavatus** sp.n.

18. Mesoscutum coarsely reticulate medio-posteriorly, finely and linearly shagreened latero-anteriorly, without a median line or furrow.

------------- **E. nyctemora**e Crawford

- Middle lobe of mesoscutum reticulately rugose, at rear medially with one or two longitudinal rugose, which extend forward about one-third the length of mesoscutum; scutellum basally indistinctly reticulate.

------------- **E. *govimohani* Mani

19. Head with scattered punctures; scutellum finely reticulolineate in front and polished behind; funicle segments gradually decreasing in length and increasing in width distad, club two segmented.

------------- **E. *utethesia*e Mani and Kurian

- Head without punctures; scutellum faintly longitudinally striate; funicle segments gradually increasing in length, the fourth somewhat shorter than third, club entire.

------------- **E. *utethesia*e Mani and Kurian
Euplectrus sugonjaevi sp.n.*
(Figs. 58 - 68)

Head (Fig. 58):- Dark brown with metallic bluish reflections; triangular in facial view, wider than long (0.64 : 0.47); fine reticulate sculpture with punctures on frontovertex; fronto-vertex almost two times as wide as long, with distinctly more than half the total head width (0.34 : 0.64); ocelli white, arranged in obtuse triangle; length of postocular line almost two times as great as ocellocular; eyes white and smooth; antennae inserted just on the lower level of eyes; prominence between antennal sockets less than one-fourth the width of frons between eyes (0.09 : 0.34); malar space longer than eye width (0.21 : 0.14); malar suture absent; maxillary and labial palpi two and one segmented respectively (Fig. 59).

Antennae (Fig. 60):- Yellowish with slight infuscation except scape uniformly whitish; nine segmented excluding three ring segments; scape cylindrical, slightly more than five times as long as wide (0.22 : 0.05); pedicel less than two times as long as wide (0.09 : 0.05), distinctly longer than first funicle segment, funicle four segmented, segments gradually increasing in width distad, first funicle segment (0.07 : 0.045) as long as second (0.07 : 0.055), third segment shortest, a trifle longer than wide (0.065 : 0.06), fourth segment quadrate (0.07 : 0.07), club three segmented, slightly more than two times as long as wide.

*This species is named for Dr. E.S. Sugonjaev in recognition of his valuable contributions to our knowledge of Chalcidoidea.
PLATE IX

Fig. 58-68  *Euplectrus sugonjaevi* sp.n. ♀

58. Head, in frontal aspect
59. Maxillary and labial palp
60. Antenna
61. Pronotum
62. Propodeum
63. Fore wing
64. Hind wing
65. Fore leg
66. Middle leg
67. Hind leg
68. Abdomen
(0.165 : 0.08), almost as long as preceding two funicle segments together.

**Thorax**: Dark brown with metallic bluish reflections and reticulately sculptured; pronotum (Fig. 61) with anterior margin deeply concave in the middle, antero-lateral arms moderate, posterior margin convex bearing 3 pairs of long setae, postero-lateral grooves deep, side projections raised; parapsidal furrows well developed; mesoccutum wider than long; scutellum longer than wide; propodeum with a median carina (Fig. 62).

**Fore wings** (Fig. 63):- Hyaline, almost two and a half times as long as wide (1.8 : 0.7); costal cell broad, and long with three long and fifteen small setae; submarginal vein (0.61) with four strong setae, longer than marginal vein (0.36) stigmal vein (0.18) one-half the length of marginal vein and distinctly shorter than postmarginal vein (0.27); marginal fringe short, spaced by a distance equal to one-third their length.

**Hind wings** (Fig. 64):- Hyaline, less than five times as long as wide (1.3 : 0.28), with blunt at apex; marginal fringe spaced by a distance equal to one-half their length.

**Fore legs** (Fig. 65):- Uniformly yellowish with slight infuscation; tibial spur short, apical rim of tibiae with four stout pegs, basitarsus with an oblique row of small setae on dorsal surface.
Middle legs (Fig. 66): - Uniformly yellowish; femora with a long, strong setae at apical end; tibial spur shorter than basitarsus; apical rim of tibiae with three stout pegs.

Hind legs (Fig. 67): - Uniformly yellowish except coxae with slight infuscation, tibiae with two strong spurs; longest tibial spur shorter than the length of basal two tarsal joints together.

Abdomen (Fig. 68): - Dark brown with metallic bluish reflections on the dorsum; petiolate, petiole almost one and a half times as long as wide; ovipositor concealed, arising from apical one-third of abdominal venter; first valvifers triangular with basal and apical angles at different level, basal margin concave, second valvifers of uniform width; third valvulae rudimentary, articulated with second valvifers; outer plates of ovipositor narrow at base, widened at apex; subgonital plate of uniform width, anterior margin straight, posterior margin with a wide notch in the middle.

Length of female

Male :- Not known

Holotype :- Q, India, U.P., Lakhimpur Kheri, NHGhasan, Neasmea trapezalis (Guen.) (Lepidoptera : Pyraustidae) on Zea mays 17-8-1984 (Nihat Arifa).

Paratype :- 3 QQ, same data as holotype.
Euplectrus longiscapus sp.n.
(Figs. 69 - 78)

**Head** (Fig.69):- Dark brown with metallic reflections; dorsoely setose; wider than long, in facial view (0.54 : 0.45); frontovertex almost two times as wide as long, width almost half the total head width (0.28 : 0.54); vertex with six very long bristles; ocelli pale, arranged in obtuse angle triangle, postocellar line and ocellocular line almost equal in length; eyes dark brown and smooth; antennae inserted well above lower level of eyes; prominence between antennal sockets slightly less than one-third the width of frons between eyes (0.09 : 0.28); malar space longer than eye width (0.17 : 0.13); malar suture absent; mandibles bidentate maxillary (Fig.70) and labial palpi two and one segmented respectively.

**Antennae** (Fig.71):- Scape white, pedicel, ring segments and first two funicle segments yellow, rest of the flagellum infuscated; uniformly setose; pedicel with a very long bristle; eight-segmented excluding two ring segments; scape cylindrical, five times as long as wide (0.2 : 0.05); pedicel two times as long as wide (0.08 : 0.04), as long as first funicle segment; funicle four-segmented, first funicle segment longest and almost one and a half times as long as wide (0.08 : 0.05), segments 2-4 subequal in size (0.07 : 0.055); club two segmented, less than three times as long as wide (0.15 : 0.055), longer than preceding two funicle segments together.
PLATE - X

Figs. 69-78

Euplectrus longiscapus sp.n. ♂

69. Head, in frontal aspect
70. Maxillary palp
71. Antenna
72. Pronotum
73. Propodeum
74. Fore wing
75. Part of fore leg
76. Part of middle leg
77. Hind leg
78. Ovipositor
Thorax: Dark with metallic reflections and reticulately sculptured; pronotum (Fig. 72) with anterior margin concave in the middle, antero-lateral arms moderately long, not much narrow, posterior margin convex bearing six long setae; parapsidal furrows well developed; mesoscutum wider than long; scutellum longer than wide; parapside, mesoscutum and scutellum with two, four and four long, strong setae respectively; axillae bare; propodeum (Fig. 73) with a median carina.

Fore wings (Fig. 74): Hyaline, less than three times as long as wide (1.68 : 0.69); costal cell broad, setose, setae arranged in an apical row, twelve in number; basal vein with three setae; basal cell bare; speculum short, closed below; cubital vein sinuate; ten admarginal hairs present; submarginal vein (0.57) longer than marginal vein (0.5); postmarginal vein (0.19) longer than stigmal vein (0.17); marginal fringe short, spaced by a distance equal to one-third their length.

Hind wings: Hyaline, more than five times as long as wide with apex blunt; sparsely setose; marginal fringe short, spaced by a distance equal to one-half their length.

Legs (Figs. 75-77): Yellow, apex of each femora with a long seta; middle tibial spur as long as basitarsus (Fig. 76); hind legs with two stout tibial spurs (Fig. 77), longest tibial spur shorter than the length of basal two tarsal segments together.
**Abdomen** :- Dark brown except a white broad patch on middle of dorsum; densely setose; petiolate, petiole less than two times as long as wide; ovipositor concealed, arising from apical one-third of abdominal ventor; first valvifers (Fig. 78) triangular with basal and apical angles at different levels, basal margin concave; second valvifers (Fig. 78) of uniform width; third valvulae (Fig. 78) rudimentary, articulated with second valvifers; outerplates of ovipositor (Fig. 78) narrow at base, widened at apex; subgenital plate of uniform width, anterior margin straight, posterior margin with a wide notch in the middle.

**Length of female** : 1.75 mm

**Male** : Not known

**Holotype**

| India, U.P. Nainital, Pantnagar ex. Lamprosema indicata (Fabr.) (Lepidoptera : Pyraustidae) on Phaseolus aureus (Green Gram) 26-3-1984 (Mikhat Arifa). |

2 ♀♀ same data as holotype.
**Buplectrus clavatus sp.n.**  
**(Figs. 79 - 86)**

**Head (Fig.79):** Yellowish with golden reflections, triangular in facial view; almost two times wider than long; frontovertex (0.82 : 0.48) more than two times as long as wide, width slightly less than half the head width (0.4 : 0.84); ocelli red, arranged in obtuse angle triangle; basal ocellus removed from eye rim by almost two diameters of an ocellus and less than their own diameter from occipital margin; eyes black and smooth; antennae inserted below lower level of eyes; prominence between antennal sockets almost one-fifth width of frons between eyes; malar space shorter than eye width; malar suture distinct; maxillary and labial palpi two and one segmented respectively.

**Antennae (Fig.80):** Uniformly yellowish with club slightly infuscated, eight segmented excluding one ring segment; scape cylindrical, almost five and a half times longer than wide (0.35 : 0.06), pedicel more than two times as long as wide (0.11 : 0.05), distinctly shorter than first funicle segment, funicle four segmented, first segment longest, less than four times as long as wide (0.15 : 0.04), second and third segment subequal in length (0.13), fourth segment shortest, longer than wide (0.12 : 0.09); club unsegmented, longer than wide (0.17 : 0.11), longer than preceding segment.

**Thorax (Fig.81):** Yellowish, with fine reticulate sculpture;
PLATE - XI

Figs. 79-86  *Euplectrus clavatus* sp.n. ♀

79. Head, in frontal aspect

80. Antenna

81. Thorax

82. Fore wing

83. Part of fore leg

84. Part of middle leg

85. Part of hind leg

86. Ovipositor
pronotum with anterior margin deeply concave in the middle, antero-lateral arms long and narrow, posterior margin with eight long setae; scutum more than two times wider than long (0.84 : 0.36); scutellum (0.7 : 0.32) shorter than scutum; propodeal spiracles contiguous with anterior margin of propodeum; median carina present.

Fore wings (Fig. 82) :- Hyaline, almost three times as long as wide; costal cell narrow with ten setae; submarginal vein with four long setae, shorter than marginal vein (0.7 : 0.85), postmarginal vein (0.3) almost two times as long as stigmal vein (0.15); marginal fringe short, spaced by a distance equal to one-third length of a fringe.

Hind wings :- Hyaline, more than five times as long as wide; marginal fringe short, spaced by a distance equal to one-half their length.

Legs (Figs. 83-85) :- Uniformly yellowish, except hind coxae uniformly infuscated; hind tibiae with two spurs, longest tibial spur shorter than the length of basal two tarsal segments together.

Abdomen :- Yellowish; petiole short; ovipositor concealed, arising from one-third of abdomen venter; first valvifers semi-circular (Fig. 86) with articular knobs prominent; second valvifers (Fig. 86) long, of uniform width; third valvulae lanceolate,
movably articulated with second valvifers; outer plates of ovipositor (Fig. 86) narrow at base, widened at apex; subgenital plate of uniform width, anterior margin straight, posterior margin with a wide notch in the middle.

Length of female :- 1.9 mm.

Male :- Not known

Holotype :- ♀ India, U.P. Mussoorie, Chakrauta (9000') ex. Lepidopterous leafmine (unidentified on wild plant, 4-5-1980 (Nikhat Arifaji).

Paratype :- 1 ♀, same data as holotype.
Key to genera of subfamily Eulophinae

1. Head roundish in front view; costal cell of fore wing extremely narrow; antenna attached near middle of face, scape extending well beyond front ocellus; funicle in female with four segments; pronotum much shorter; scutellum without any longitudinal grooves; axilla not produced forward; mandibles quadridentate with sharp apices; subgenital plate with anterior margin cone like in the middle, posterior margin with a deep notch in the center; first valvifer triangular with articular knobs prominent; third valvulae short, lacerolate; outer plate of ovipositor narrow at base, rounded at apex, dorsal margin thickened with a ridge in the middle.

----------- Hemiptarsenus, Westwood

Head transverse-subtriangular; costal cell of forewing broad with a horizontal row of hairs on the lower surface extending from end to end, some times two rows; antennae inserted below, above or at ventral margin of eye; scape reaching anterior ocellus; pronotum moderate, with protuberance on each side on posterior margin, anterolateral angles obtuse and laterally directed; scutellum with a pair of sublateral longitudinal grooves; axillae moderately produced forward; mandibles bidentate with acute teeth; subgenital plate with anterior margin almost straight without cone in the middle; first valvifers semicircular or triangular with basal and apical angles at different
level; third valvulae comparatively very short; outer plates of ovipositor narrow at base gradually widened at apex, without ridge.

------------- *Dieladocerus* Westwood
Genus Hemiptarsenus Westwood


Hemiptarsenus Boucek 1959 *Acta Entomol. Mis Nat. Pragae* 33: 119, 139-144.

Hemiptarsenus Graham 1959 *Trans Soc. Br. Ent* 13: 175, 185


The genus *Hemiptarsenus* Westwood can be separated from other eulophid genera in having parapsidal grooves incomplete or only faintly indicated in posterior third; costal cell of forewings narrow; antennal sockets situated near middle of face; antennal scape extending well beyond front ocellus; antennae with four funicle segments, segments elongated; male antennae with three long rami.

Gokulpure (1972) recorded the genus (*Hemiptarsenus sp.*) parasitic on the pupae of *Phytomyza atricornis* (Meigen) from India. Khan (1985) proposed some generic characters viz., mandibles quadridentate with sharp apices; maxillary and labial palpi two and one segmented respectively; subgenital plate with anterior margin cone like in the middle, posterior margin with a deep notch in the centre; first valvifers triangular with articular knobs prominent, third valvulae short, lanceolate, outer plates of ovipositor narrow at base, rounded at apex, dorsal margin thickened with a ridge in the middle. These characters apply well on the species under study. In the present work, a new species *H. albiclavus* has been described and *H. semialbiclavus* Girault has been redescribed in detail.

A key to Indian species based on females has also been framed.

**Key to Indian species of the genus *Hemiptarsenus* Westwood based on females.**

1. Antennal club partly yellowish or whitish
- Antennal club uniformly whitish; head with cluster of six long, strong setae below antennal sockets.

---------- H. albiclavus sp.n.

2. Frontovertex slightly more than one half the total head width; prominence between antennal sockets more than one-sixth the width of frons between eyes; malar space as long as transverse diameter of eye; malar suture absent; fore wings with two longitudinal 'Y' shaped light brownish bands, bands are rather densely setose.

---------- H. indicus Khan

- Frontovertex slightly less than one-half the total head width; prominence between antennal sockets one-fifth the width of frons between eyes; malar space longer than eye width; malar suture distinct; fore wings densely setose without any brownish bands.

---------- H. semialbiclavus Girault
Hemiptarsenus semialbiclavus Girault
(Figs. 87 - 93)

Hemiptarsenoideus semialbiclavus Girault 1916, pp. 220-22

Superficially this species may be recognized in the female sex by having the antennal club white in apical half or rather more. It runs in the keys of both Boucek (1959a) and Graham (1959) with H. fulvicollis Westw., but has the wings almost hyaline, and the antennae relatively considerably longer, with the scape not strongly darkened above. There is variation in strength of the sculpture of the thorax and the propodeum has sometimes a trace of a median keel at base. Here, it is redescribed in detail.

Head (Fig.87) :- Yellowish brown, roundish in front view, little wider than long (0.5 : 0.43); coarsely reticulate, finely so below level of antennal sockets; face and on cheeks; frontovertex wide, slightly less than one-half the total head width (0.24 : 0.5); ocelli arranged in obtuse triangle, length of postocellar line almost two times as great as ocellocular; eyes dark and smooth; antennae inserted in the middle; prominence between antennal sockets one-fifth the width of frons between eyes; malar space longer than eye width (0.14 : 0.12); malar suture distinct;
PLATE - XII

Figs. 87-93  Hemiptarsenus semialbiclavus Girault ♀

87. Head, in frontal aspect
88. Mandible
89. Antenna
90. Thorax
91. Part of fore wing venation
92. Hind wing
93. Ovipositor
mandibles (Fig. 88) quadri dentate with sharp apices; maxillary and labial palpi two and one segmented respectively.

Antennae (Fig. 89):- Brown except basal half of scape and apical half of club white; eight segmented excluding one ring segment; scape cylindrical more than five times as long as wide (0.26 : 0.05). pedicel short, less than two times as long as wide (0.07 : 0.055), distinctly less than half of first funicle segment; funicle four segmented, first funicle segment slightly more than three times as long as wide (0.18 : 0.055), second segment longer than first, slightly less than four times as long as wide (0.21 : 0.055), third and fourth segment equal in size, distinctly less than three times as long as wide (0.17 : 0.065); club two segmented, three times as long as wide (0.21 : 0.07), distinctly longer than preceding segment.

Thorax (Fig. 90):- Yellowish brown, with golden reflections on the dorsum, with reticulate sculpture; pronotum short, with fine reticulate sculpture, posterior margin straight with six setae; mesoscutum coarsely reticulate, less than two times wider than long (0.46 : 0.27), with incomplete parapsidal furrows; axillae not produced forward, with fine reticulate sculpture; scutellum almost as wide as long (0.26 : 0.25), coarsely and broadly reticulate, scutellar pits present; surface of propodeum smooth, both median and lateral carinae present, propodeal spiracle separated from anterior margin by a space almost two times the length of a spiracle; mesosternum short.
Fore wings (Fig. 91): - Hyaline, more than three times as long as wide (1.74 : 0.53), densely setose; costal cell very narrow, bare; basal vein with five setae, basal cell bare; speculum narrow, closed below; cubital vein sinuate; subcubital line of hairs continuous from base; submarginal vein short (0.44) with nine long setae, directed apically and a row of small eleven setae directed backward; marginal vein very long (0.65), almost three times as long as postmarginal vein (0.22); stigmal vein short (0.1), less than one-half the length of postmarginal vein; marginal fringe long, spaced by a distance equal to more than one-fourth length of a fringe.

Hind wings (Fig. 92): - Hyaline, narrow, with acute apex; more than seven times as long as wide (1.49 : 0.17); densely setose; marginal fringe long.

Fore legs: - Uniformly yellowish except apical half of coxa and tarsal segments 3-4 brownish.

Middle legs: - Uniformly yellowish except coxa and tarsal segments 3-4 brownish.

Hind legs: - Uniformly yellowish except coxa on major portion, basal half of femora and tarsal segments 3-4 brownish.

Abdomen: - Brownish with golden reflections on dorsum; longer than thorax; petiole short; subgenital plate with anterior
margin cone like in the middle, posterior margin with a
deep notch in the centre; first valvifers (Mi., .93) triangular
with articular knobs prominent; third valvifer (Mi., .93)
short, lanceolate, five times as long as wide, more than one
fourth the length of second valvifers (Mi., .93); outer plates
of ovipositor (Mi., .93) a trifle shorter than second valvifers.

Length of female

:- 1.65 mm.

Male

:- Not known

Holotype

:- # India, U.P., Rampur
    ex. Chromatomyia horticola
    (Diptera: Agromyzidae) on
    field peas Pisum sativum
    1-3-1984 (Nikhat Arifa)

Paratype

:- 6 ♀♀, same data as holotype.
*leptotarsius alburinus* sp. n.

(Pls. 94 - 101)

**Head** (Pl. 94): - Brown with yellowish reflections; wider than long in facial view (0.52 : 0.53); frontovertex wider than long, width of front between eyes more than one half the head width (0.26 : 0.52); ocelli arranged in obtuse triangle, basal ocelli removed from eye rim by more than two diameter of an ocellus and from occipital margin by one ocellar diameter; eyes large, silvery white and smooth; antennae inserted nearly in centre of frons, antennal sockets rounded, almost as high as wide, separated by less than two times the diameter of a socket; prominence between antennal sockets less than one-fifth the width of front between eyes (0.06 : 0.26), cluster of six long, strong setae below antennal sockets; malar space short, shorter than eye width (0.09 : 0.13); mandibles (Pl. 95) with four or five teeth, masticatory and basal each two and one segmented respectively (Pl. 96).

**Antennae** (Pl. 97): - Light brown except scape yellowish with infuscation on dorsal surface of the apical half and club white; antennae eight segmented consisting of scape, pedicel, an antennus, four segmented funicle and an unsegmented club; scape cylindrical, almost five times as long as wide (0.09 : 0.06), pedicel two times as long as wide (0.08 : 0.04), first funicle segment almost four times as long as wide and equal to second segment in size (0.16 : 0.05) third segment (0.17 : 0.055) shorter than second, almost three times as long as wide, fourth funicle segment shorter than third, slightly more than two
PLATE - XIII

Figs. 94-101  *Hemiptarsemus albiclavus* sp.n. ♀

94. Head, in frontal aspect
95. Mandible
96. Maxillary and labial palp
97. Antenna
98. Thorax
99. Fore wing
100. Hind wing
101. Ovipositor
times as long as wide (0.16 : 0.07); club almost three times as long as wide (0.2 : 0.065), longer than preceding segment.

**Thorax (Fig. 98):** Brown with golden reflection on dorsum, with fine uniform reticulate sculpture; mesoscutum more than two times as wide as long (0.38 : 0.18), with incomplete parapsidal furrows, with few scattered setae; axillae triangular, widely separated from each other; scutellum longer than wide (0.27 : 0.23), longer than mesoscutum, with two pair of bristles; axillae not produced forward; metanotum band like; surface of propodeum smooth, mesal length of propodeum more than half the scutellum, both median and lateral carinae present, propodeal spiracle separated from anterior margin by a space equal to two times the diameter of a spiracle; mesopostphragma short, not reaching beyond the propodeum.

**Fore wings (Fig. 99):** Hyaline, more than three times as long as wide, moderately rounded apically (1.5 : 0.47); densely setose; costal cell shorter than marginal vein, and with five small setae; basal vein with six setae; basal cell bare; speculum short, closed below; submarginal vein (0.45) with eleven strong setae, shorter than marginal vein (0.49); postmarginal vein (0.24) two times the length of stigmal vein (0.12); eleven admarginal hairs present; marginal fringe long, spaced by a distance equal to one-fourth length of a fringe.

**Hind wings (Fig. 100):** Hyaline; narrow; more than nine times as long as wide; densely setose, marginal fringe long.
Legs :- Uniformly yellowish except coxae and tarsal segments 2-4 brownish.

Abdomen :- Brownish with golden reflections on dorsum; slightly longer than thorax; petiole yellow, short, slightly longer than wide; subgenital plate with anterior margin cone like in the middle, posterior margin with a deep notch in the centre; first valvifers (Fig.101) triangular with articular knobs prominent; second valvifers (Fig.101) long, more or less of uniform width; third valvulae (Fig.101) movably articulated with second valvifers, almost five times as long as wide, more than one-fourth the length of second valvifers; outer plates of ovipositor (Fig.101) as long as second valvifers, narrow at apex, ovipositor slightly exserted, arising from basal one-third of abdominal venter.

Length of female :- 1.25 mm.

Male :- Not known

Holotype :- Q India, U.P. Nainital, Kaladungi ex. Japanagromyza tristella (Thomson) (Diptera: Agromyzidae) on Glycine max (Linn.) Merr. (Soybean) 25-10-85 (Nikhat Arifa)

Paratype :- 10 QQ, same data as holotype.
Genus *Dicladocerus* Westwood

*Dicladocerus* Westwood, 1852. *Phil. Mag.*, (3)1: 128. Type-
species: *Dicladocerus westwoodi* Westwood, by monotypy.

*Solenotus* Foerster, 1856. *Hym. Stud.*, 2: 74, 76. Type species:
*Solenotus viridis* Foerster, by monotypy.

*Diclymphis* Thomson, 1878. *Skand. Hym.*, 5: 200, 235. Type-
species: *Diclymphis acneiscarus* Thomson, by designation of
Gahan & Fagan, 1923.


**Dicladocerus Nikol'skaya** 1952 *Opered Faune SSSR* Moscow
44: 264.

**Dicladocerus Boucek** 1959 *Acta Ento. Muse Lit.* 33, 1:
119, 145-147.

**Dicladocerus Graham** 1959 *Trans. Soc. Ir. Ent.*

**Dicladocerus Peck et al.** 1964 *Can. Entomol. Soc. Canada*
34: 96.

**Dicladocerus Boucek and Askew** 1969 *Index of Entomophagous Insects*
No.3: 254.


**Dicladocerus Trusanitsin** 1978 *Opered Faune SSSR* 3, 120:
384, 387.


Genus *Dicladocerus* was described by Westwood in 1832 with *Dicladocerus westwoodi* as its type species. Peck (1964) listed three species of *Dicladocerus* from North America. Poucek and Askew (1969) recognized four species of this genus from Europe. Poucek (1975) treated *Eocladocerus pronodalis* Poucek as a synonym of *D. praevirgulatus* Poucek.

Recently Hussain and Khan (1986) declared *Solenotus guptai* Subba Rao as a new combination under the genus *Dicladocerus*. The author studied the species *S. guptai* (Subba Rao, 1957, *Ind. J. Ent.* Page 50-53), which is certainly not congeneric with the genus *Dicladocerus* as it does not show any of the generic characters of the later.

Yoshimoto (1976) while making a revision of the genus *Dicladocerus* described several new species, formulated its generic characters, which can be summed up as:

Head transverse- subtriangular; eyes ovate and somewhat subprominent; gena about 1/5 to 1/3 length of eye; ocelli obtusely triangular; antennae inserted below, above, or at ventral margin of eye; scape slender, reaching anterior ocellus; pronotum, mesoscutum and scutellum densely sculptured with lateral having a pair of sublateral longitudinal grooves; median carina of propodeum generally weak and complete in female, plica usually weak and complete in female; wings hyaline; costa cell broad with horizontal row of hairs on the lower surface extending from end to end, post stigma as long as stigmal vein and postmarginal vein 1.5 times longer than stigmal vein; abdomen...
elongately ovate to elongately lanceolate, apex acuminate; fore and middle coxae finely striate to strigose and hind coxa strongly sculptured.

In addition to these morphological features, character of pronotum, subgenital plate and components of ovipositor can also help a lot in distinguishing this genus from allied ones and have been described and illustrated in detail.

In the present work the genus Dicladocerus is recorded for the first time from India and four new species are described. A key to the Indian species is also proposed.

Key to the Indian species of the genus Dicladocerus Westwood based on females.

1. Frontovertex with reticulate sculpture; postocellar line almost or two times as long as ocellocular.

--------2

2. Frontovertex reticulate-punctate, big puncts clear; postocellar line one and one-half times as long as ocellocular; scrobes distinct and deep, convergent, inter-scrobal region rigid; surface of propodeum shagreened, smooth to alutaceous except sides of median carina microreticulate, median carina thin and moderately elevated anteriorly.

-------- D. indicus sp.n.

2. Frontovertex one-half or less than one-half the total head width; pedicel less than two times as long as wide,
distinctly shorter than first funicle segment.

-------------------------------------------------- 3

- Prominence between antennal sockets more than one-half the total head width; pedicle long, less than three times as long as wide; distinctly longer than first funicle segment; first funicle two times as long as wide; second segment a trifle long or than wide, third segment transverse, distinctly wider than long; club longer than preceding two funicle segments combined.

---------- D. antennalis sp.n.

3. Prominence between antennal sockets less than one-fourth the width of frons between eyes; mandibles with acute teeth and serrations; antennae dark brown with two ring segments; speculum narrow and closed below, postmarginal vein two times as long as stigmal vein.

---------- D. lirionyma sp.n.

- Prominence between antennal sockets less than one-third the width of frons between eyes; mandibles bidentate with acute teeth without serrations; antennae uniformly yellowish except third funicle segment and club dark brown with only one ring segment; speculum moderate and closed below; postmarginal vein distinctly longer than stigmal vein.

---------- D. alami sp.n.
**Dicladocerus alami** sp.n.
(Figs. 102-112)

**Head** (Fig. 102):- Black, noniridescent; much wider than long in facial view (0.54 : 0.36); sparsely setose; frontovertex width less than one-half the total head width (0.24 : 0.54); ocelli white, arranged in obtuse triangle; postocellar line almost two times as long as ocellocular; eyes silvery; malar suture absent; malar space with three long setae on either side; slightly shorter than eye width (0.14 : 0.15); antennae inserted at lower level of eyes; prominence between antennal sockets less than one-third the width of frons between eyes (0.09 : 0.24); mandibles bidentate with acute teeth and serration (Fig. 103), maxillary and labial palpi two and one segmented respectively.

**Antennae** (Fig. 104):- Uniformly yellowish except third funicle segment and club dark brown; eight segmented excluding one; scape cylindrical, almost seven times as long as wide (0.24 : 0.035); pedicel less than two times as long as wide (0.06 : 0.035), distinctly shorter than first funicle segment; funicle three segmented; first funicle segment very long, two times as long as wide (0.09 : 0.045), second less than two times as long as wide (0.08 : 0.045); third as long as second segment but slightly wider, distinctly less than two times as long as wide (0.08 : 0.05); club three segmented, more than three and a half times as long as wide (0.17 : 0.05), longer than preceding two funicle segments together.

*This species is named for Prof. S. Mashhood Alam for his outstanding contribution to our knowledge of parasitic micro-hymenoptera.*
PLATE - XIV

Figs. 102-112  Dicladocerus alami  sp.n. ♀

102. Head, in frontal aspect
103. Mandible
104. Antenna
105. Thorax
106. Pronotum
107. Fore wing
108. Hind wing
109. Part of fore leg
110. Part of middle leg
111. Part of hind leg
112. Ovipositor
Thorax (Fig. 105): - Black except scutellum with a yellow patch in the middle; noniridescent; pronotum (Fig. 106) with posterior margin without submarginal ridge bearing six very long and twenty small sized bristles with a small protuberance on each side, antero-lateral angles obtuse and laterally directed; mesoscutum more than two times wider than long (0.4 : 0.17), micro-reticulate; with three pair of long setae; parapsidal grooves complete, faintly indicated; scutellum wider than long (0.28 : 0.19), longer than mesoscutum, micro-reticulate; sublateral longitudinal grooves distinct; lateral area beyond scutellar grooves 2/3 micro-reticulate and 1/3 scaly-reticulate; with three pair of long setae; propodeum with median carina.

Fore wings (Fig. 107): - Hyaline, less than three times as long as wide (1.27 : 0.48); costal cell with five setae directed upward and three setae directed backward at apical end; basal vein with only three setae; basal cell bare; speculum moderate and closed below; cubital vein sinuate; submarginal vein long (0.47) with four long setae directed upward and a row of five small setae directed backward; longer than marginal vein (0.32); postmarginal vein (0.15) distinctly longer than stigmal vein (0.11); eleven admarginal hairs present; marginal fringe short.

Hind wings (Fig. 108): - Hyaline, less than five times as long as wide (0.37 : 0.17), with acute apex; marginal fringe moderate size.
Foroloes (Fig. 109) :- White except coxa on greater part infuscated, tarsal segments densely setose, tibial spur very short, apical rim of tibiae with two pegs.

Middlelegs (Fig. 110) :- White except femora with an opaque band in the middle; tarsal segments densely setose; tibial spur shorter than basitarsus, apical rim of tibiae with two pegs.

Hindlegs (Fig. 111) :- White, tarsal segments densely setose, tibial spur shorter than basitarsus, apical rim of tibiae with three pegs.

Abdomen :- Petiolate, dark brown except basal one-third with a yellow patch, longer than head and thorax together; first abdominal tergite well developed reaching beyond the mid of abdomen; ovipositor slightly exerted, arising from basal one-fourth abdominal venter; first valvifers (Fig. 112) triangular with basal ovipositor under at different level, third valvulae short (Fig. 112) less than three times as long as wide, less than one-sixth the length of second valvifers (Fig. 112); outer plates of ovipositor distinctly shorter than second valvifers (Fig. 112).

Length of female :- 1.29 mm.

Male :- Not known

Holotype :- ♀ India, U.P., Bhimtal, ex Acromyz- nana Heigen (Diptera : Acromyzidae) on Trifolium alexandrium Linn. (Leguminosae) 15-10-1984 (Nikhat Arifa)

Paratype :- 6 ♂ ♀ same data as holotype.
Dicladocerus antennalis sp.n.

Head (Fig. 113) :- Dark brown with fine reticulate sculpture, wider than long, in facial view (0.44 : 0.35), frontovertex wider than long, width more than one-half the total head width (0.24 : 0.44), ocelli dark, arranged in obtuse triangle, postocellar line two times as long as ocellocular; antennae inserted well above lower level of eyes; prominence between antennal sockets almost one-fifth the width of frons between eyes (0.05 : 0.24); malar space longer than eye width (0.13 : 0.01); malar suture absent; mandibles with acute teeth and serration (Fig. 114), maxillary (Fig. 115) and labial palpi (Fig. 116) two and one-segmented respectively.

Antennae (Fig. 117) :- Light brown except scape white; eight segmented excluding one ring segment; scape cylindrical, less than four times as long as wide (0.26 : 0.07), pedicel long, less than three times as long as wide (0.11 : 0.04) distinctly longer than first funicle segment; first funicle two times as long as wide (0.1 : 0.05), second segment a trifle longer than wide (0.065 : 0.06), third segment transverse, distinctly wider than long (0.07 : 0.05), club three segmented, almost two and a half times as long as wide (0.17 : 0.07), longer than preceding two funicle segments together.

Thorax (Fig. 118) :- Dark brown, pronotum with fine reticulate sculpture, posterior margin with five pairs of setae; mesoscutum
Figs. 113-121  

*Hicladecorus antennalis* sp.n. Q

113. Head, in frontal aspect
114. Mandible
115. Maxillary palp
116. Labial palp
117. Antenna
118. Thorax
119. Fore wing
120. Hind wing
121. Ovipositor
more than two times wider than long (0.44 : 0.21), micro-
reticulate sculpture; parapsidal furrows faintly indicated;
scutellum slightly wider than long (0.24 : 0.25) microreticulate,
sublateral longitudinal grooves distinct, lateral area beyond
scutellar grooves scaly reticular; axillae finely and broadly
reticulate; propodeum finely reticulate to alutaceous except
along periphery of plica reticulate regulose, more than half
the length of scutellum, median carina thin, elevated towards
anterior half, anterior part of plica thickened, moderately
elevated on ridge, reaching; spiracle at the distance of half
its diameter; spiracles separated from the anterior margin of
propodeum; mesosternum not reaching beyond propodeum.

Fore wings (Fig. 119) :- Hyaline; more than two times as long
as wide (1.47 : 0.61); broadly spatulate; costal cell with
twelve setae on anterior margin of its apical half and twelve
small setae directed backward in the middle; basal vein with
six setae; basal cell setose; cubital vein sinuate; sacculum
almost reduced and closed below; submarginal vein with four
strong setae, longer (0.46) than marginal vein (0.4); post-
marginal vein (0.09) shorter than stigmal vein (0.1), marginal
fringe short.

Hind wings (Fig. 120) :- Hyaline, more than four times as long
as wide with acute apex; marginal fringe moderate size.

Fore legs :- Yellowish except coxa and femora light brownish,
tibial spur short.
Middle legs :- Yellowish except coxa at its basal end infuscated; tibial spur shorter than besitrous; apical rim of tibiae with two pegs.

Hind legs :- Colouration same as that of middle legs; tibial spur short; apical rim of tibiae with only one peg.

Abdomen :- Dark brown except apical one-third yellowish; shorter than head and thorax together; ovipositor slightly exerted; first valvifers semicircular (Fig.121); third valvulac (Fig.121) long, seven times as long as wide, lanceolate, more than one-third the length of second valvifers; outer plates of ovipositor (Fig.121) shorter than second valvifers.

Length of female :- 1.31 mm.

Male :- Not known


10-4-1985 (Mridhat Arifa)

Paratype :- 2 ♀♀, same data as holotype.
**Dicladocerus indicus** sp.n.  
(Figs. 122 - 130)

**Head** :- Dark brown with blue-green iridescence, reticulate sculpture with bis punctures on frons, vertex; transverse subtriangular, distinctly wider than long, in frontal aspect; frontovertex wide, more than one-half the total head width (0.5 : 0.58); scrobes distinct and deep, convergent, inter scrobal region rigid; postocellar line one end one-half times as long as ocellocular; antennae inserted at the level of ventral margin of eye, prominence between antennal sockets slightly more than one-third the width of frons between eyes; malar space as long as the eye width; eyes dark; mandibles (Fig. 122) with acute teeth and serrations; maxillary (Fig. 123) and labial palpi each one segmented (Fig. 124).

**Antennae** (Fig. 125) :- Dark brown, eight segmented excluding two ring segments; scape cylindrical, more than five times as long as wide (0.29 : 0.05); pedicel less than two times as long as wide (0.085 : 0.05), more than half the length of first funicle segment; funicle three segmented, segments gradually decreasing in length distally but increasing in width; first funicle segment more than two times as long as wide (0.14 : 0.06); second less than two times as long as wide (0.115 : 0.07); third segment shortest, longer than wide (0.11 : 0.08); club three segmented, three times as long as wide (0.24 : 0.08), longer than preceding two segments together.

**Thorax** (Fig. 126) :- Dark brown with blue-green iridescence, with
PLATE - XVI

Figs. 122-130 Dicladocerus indicus sp.n. ♀

122. Mandible
123. Maxillary palp
124. Labial palp
125. Antenna
126. Thorax
127. Fore wing
128. Hind wing
129. Ovipositor
130. Sub genital plate
fine reticulate sculpture; pronotum with anterior margin slightly concave, posterior margin slightly curved bearing three pairs of setae; mesoscutum less than two times wider than long (0.63 : 0.33), coarsely reticulate; parapridal furrows distinct anteriorly and faint posteriorly; scutellum wider than long (0.54 : 0.33), microreticulate, sublateral longitudinal grooves distinct, lateral area beyond scutellar grooves scaly reticulate; axillae finely reticulate; surface of propodeum shagreened, smooth to alutaceous except sides of median carina microreticulate, median carina thin and moderately elevated anteriorly, spiracles almost contiguous with anterior margin of propodeum.

**Fore wings** (Fig. 127): Hyaline, less than three times as long as wide (2.24 : 0.86), broadly spatulate; costal cell short with three rows of hairs; basal vein with eight setae; basal cell with three setae; speculum narrowly longitudinal extending to base of marginal vein, closed below; cubital vein sinuate, partially closed; subcubital line of hairs broken for a short distance about one-third of distance from base; submarginal vein long (0.72) with eight long setae directed apically and a row of small eight setae at basal portion directed backward, longer than marginal vein (0.5), marginal vein almost three times as long as stigmal vein; postmarginal vein (0.3) distinctly less than two times as long as stigmal vein (0.17); fifteen admarginal fringe short.

**Hind wings** (Fig. 128): Hyaline, more than four times as long as wide (1.71 : 0.41), broadly spatulate; marginal fringe long.
**Fore legs** :- Uniformly dark brown; tibial spur short; apical rim of tibia and tarsal segments densely setose.

**Middle legs** :- Uniformly dark brown except apical half of trochanter, apical tip of femora, basal one-fourth of tibia and basitarsus white; tibial spur shorter than basitarsus; apical rim of tibia and tarsal segments densely setose.

** Hind legs** :- Colouration same as that of fore legs.

**Abdomen** :- Dark brown with blue-green iridescence; longer than head and thorax together; ovipositor exserted, arising from basal one-third of abdominal venter; first valvifers (Fig. 129) triangular with articular knobs prominent, basal and apical angles at different levels; third valvulae short (Fig. 129) almost four times as long as wide, almost one-fifth the length of second valvifers (Fig. 129); outer plates of ovipositor (Fig. 129) almost as long as second valvifers; sub-genital plate broad, posterior margin with a notch in the middle (Fig. 130).

**Length of female** :- 1.81 mm.

**Male** :- Not known

**Holotype** :- India, U.P., Ramnagar ex. *Tropicomyia vigneae* (Seguy) (Diptera : Agromyzidae) on *Dolichos lablab* Linn. (Leguminosae) 18-3-1984. (Nikhat Arifa)

**Paratype** :- 4 ♀♀, same data as holotype.
Dicladocerus liriomyza sp. n.
(Figs. 131 - 142)

Head (Fig. 131): - Dark bluish green with golden reflections, with fine reticulate sculpture; wider than long; in facial aspect (0.64 : 0.44); frontovertex width one-half the total head width (0.34 : 0.63); scrobes deep and convergent above; ocelli white, arranged in obtuse angle triangle, postocellar line almost two times as long as ocellocular; antennae inserted just on the lower level of eyes, prominence between antennal sockets less than one-fourth the width of front between eyes (0.09 : 0.34); malar space shorter than eye width (0.14 : 0.16); malar suture not distinct; eyes dark; mandibles with acute teeth and serrations (Fig. 132), maxillary (Fig. 153) and labial palpi (Fig. 134) two and one segmented respectively.

Antennae (Fig. 135): - Dark brown eight segmented excluding two ring segments; scape cylindrical, more than four times as long as wide (0.22 : 0.04); pedicel less than two times as long as wide (0.08 : 0.05), more than one-half the length of first funicle segment; funicle three segmented, first funicle segment more than two times as long as wide (0.13 : 0.06), second segment less than two times as long as wide (0.11 : 0.06), third segment as long as second but a trifle wider (0.11 : 0.065); club three segmented, more than three times as long as wide (0.23 : 0.07), longer than preceding; two funicle segments together.

Thorax (Fig. 136): - Dark bluish green with golden reflections; pronotum (Fig. 137) with posterior margin slightly curved, posterior
PLATE - XVII

Figs. 131-142

Diciadocerus liriomyza sp.n. ♀

131. Head, in frontal aspect
132. Mandible
133. Maxillary palp
134. Labial palp
135. Antenna
136. Thorax
137. Pronotum
138. Fore wing
139. Hind wing
140. First valvifer
141. Ovipositor
142. Sub genital plate
Submarginal ridge bearing three pairs of setae, its mid

dorsal area coarsely reticulate, anterior two-third strigose;
mesoscutum more than two times wider than long (0.61 : 0.23),
coarsely reticulate; scutellum somewhat flattened in the
middle, less than two times wider than long (0.52 : 0.33),
microreticulate, sub-lateral longitudinal grooves distinct,
lateral area beyond scutellar grooves scaly reticulate; axillae
finely reticulate; median carina of propodeum weak and complete.

Fore wings (Fig. 138) :- Hyaline, more than two times as long
as wide (1.8 : 0.8) broadly spatulate; costal cell broad with
two rows of hairs extending from end to end; basal cell bare;
speculum narrow, closed below; cubital vein sinuate; sub-
cubital line of hairs long, starting from the base of cubital
vein; submarginal vein long (0.6) with twelve long setae, longer
than marginal vein (0.48); marginal vein less than two times
as long as stigmal vein; postmarginal vein (0.26) two times
as long stigmal vein (0.13); thirteen admarginal hairs present;
marginal fringe short.

Hind wings (Fig. 139) :- Hyaline, less than four times as long
as wide with blunt apex; marginal fringe moderate size.

Fore legs :- Uniformly dark brown except apical tip of femora
and basal half of basitarsus white; tibial spur very short; coxa
finely striate to strigose.

Middle legs :- Uniformly light brown except apical tip of femora,
basal tip of tibiae and basitarsus white, tarsal segment 2-4
infuscated; tibial spur short; coxa finely striate to strigose.

**Hind legs** :- Colouration same as that of middle legs; tibial spur shorter than basitarsus, densely setose; coxa coarsely reticulate sculptured.

**Abdomen** :- Dark bluish green with golden reflections on the dorsum; longer than head and thorax together; ovipositor slightly exserted, arising from basal one-third of abdominal venter; first valvifers (Fig.140) triangular with basal and apical angles at different levels; third valvulae (Fig.141) short, lanceolate, almost four times as long as wide, one-seventh the length of second valvifers (Fig.141); outer plates of ovipositor (Fig.141); distinctly shorter than second valvifers, subgenital plate narrow (Fig.142), posterior margin with a small semicircular notch in the middle.

**Length of female** :- 1.73 mm.

**Male** :- Not known

**Holotype** :- ♀ India, U.P. Kathgodam ex. *Liriomyza sonchi* Hendel (Diptera : Agromyzidae) on *Sonchus* (compositae) 27-8-1984 (Nikhat Arifa)

**Paratype** :- 4 ♀♀, same data as holotype.
SUBFAMILY ENTEDONTINAE

Key to genera of subfamily Entedontinae

1. Body weekly sclerotized; head and abdomen at least partly shrunken, sometimes also thorax, later frequently weekly sculptured; abdomen usually sessile.

2. Body strongly sclerotized; head and abdomen not shrunken, abdomen impressed or convex; often distinctly petiolate.

2. Punicle two segmented, club three segmented, acutely tapering to apex; antennae inserted slightly above level of posterior margin of eye; head with frontal fork forming a narrow "Y" to broad "Y"; clypeal margin slightly concave and broadly rounded; mandibles bidentate; maxillary palpi two segmented, labial palpi two segmented, cigar shaped; fore wing with a distinct row of setae extending distad from stigma, the radial cell more or less bare; post-marginal vein about as long as stigmal vein or shorter; sometimes slight fuscous streak at stigmal vein; petiolar emargination of propodeum small; first valvifers semi-circular; subgenital plate narrow, posterior margin with a semicircular notch in the middle.

---------- Chrysonotomyia Ashmead

--- Funicle three segmented, club two segmented, three anelli present, the third anellus is the largest and most conspicuous in the female; antennae inserted well above level of
posterior margin of eye; the surface of eyes densely pubescent; the inner orbits of the eyes broadly emarginate medially; and the frontal fork 'Y' shaped except in few species which have a 'T' shaped arm; clypeal margin subtruncate; mandibles bidentate with sharp apices; maxillary and labial palp each one segmented; postmarginal vein very long more than three times as long as stigmal vein; propodeum with narrow emargination embracing petiole, the later sometimes very long, one third the length of abdomen; gaster usually broad; first valvifers triangular.

------------ Chrysocharis Foerster

3. Eyes hairy; scutellum with median and two lateral grooves; propodeum with some parts smooth and with two submedian longitudinal granulated furrows; occiput not margined; mandibles tridentate, first valvifers semicircular; third valvulae moderate, blunt,

------------ Horismenus Walker

- Eyes mostly bare; scutellum without median and lateral grooves; propodeum with complete plicae and two submedian longitudinal carinae diverging posteriorly; later rarely vague and replaced by narrow basal elevation moderately sloping backward; nucha well developed; abdomen petiole distinct, rectangular and reticulate; pronotal collar carinate; mandibles bidentate with acute teeth; first valvifers triangular with basal margin concave; third valvulae very short, lanceolate.

------------ Pediobius Walker
Genus **Chrysonotomyia** Ashmead


The genus *Chrysonotomyia* was proposed by Ashmead (1904) for the species *Eulophus auripunctatus* Ashmead.

Since the genus is frequently misidentified as *Omphale* Haliday, the two can be distinguished on the basis of following key characters.

1. Mandibles bidentate; inner orbits of eyes converging ventrally; ventral facets of eyes larger than dorsal ones; antennal scape hardly reaching anterior ocellus; antennal flagellum pubescent except in males; pedicel
longer than first funicle segment; mesoscutum and scutellum usually moderately to coarsely sculptured; propodeum narrowly emarginate or U-shaped propodeal emargination; marginal vein of fore wings slightly arched with short dense setae; radial cell on fore wings present; propodeal spiracle located near anterior margin; membrane not exposed between basal tergite and petiole.

---------- **Chrysonotomypia** Ashmead

Mandibles tridentate; inner orbits of eyes parallel; facets of eyes uniform in size; antennal scape usually extending beyond anterior ocellus; antennae with some whorls, distinct in males; pedicel shorter than first funicle segment; mesoscutum and scutellum usually finely to alutaceously sculptured; propodeum broadly emarginate or V-shaped propodeal emargination; marginal vein more or less straight with sparse long setae; radial cell of fore wing present or absent; propodeal spiracle located about middle of propodeum; membrane exposed between basal tergite and petiole.

---------- **Omphale** Haliday

Peck (1963) listed seven species in North America under the name *Achrysocharis* Girault (1913); however, this was synonymized with *Chrysonotomypia* Ashmead (1904) by Kamijo (1976) and independently by Boucek (1977).
Boucek and Askew (1968) indicated that Achrysocharella Girault may be synonymous with Neochrysochares Kurdjumov, as Achrysocharella does not reflect a natural grouping of species (Boucek, in litt., 1977). Boucek (1977) has indicated that possibly most of the species classified as Neochrysochares and Achrysocharella may be included in Chrysonotomyia Ashmead.

Yoshimoto (1978, 1980), while making revision of the genus Chrysonotomyia treated Achrysocharella as a subgenus of Chrysonotomyia and separated the two subgenera as follows.

Key to the subgenera of the genus Chrysonotomyia as proposed by Yoshimoto (1978).

1. Facets of eye uniform in size; apical margin of hind wings rounded to pointed; subcubital hairs of fore wing present; fore wing without row of hairs extending from stigma to wing margin forming radial cell; distance between base of submarginal vein and distal seta about 1/2 length of submarginal vein.

   ------- Chrysonotomyia (Achrysocharella)

- Facets of eye larger in size ventrally than dorsally; apical margin of hind wing acutely pointed; subcubital hairs on fore wing absent; fore wing with row of hairs extending from stigma to wing margin forming radial cell; distance between base of submarginal vein and distal seta less than 1/2 length of submarginal vein.

   ------- Chrysonotomyia (Chrysonotomyia)
The distinguishing characters of the genus have been
given by Ashmead (1904) and Yoshimoto (1978, 1980). Recently
Khan and Shafee (1981) suggested some new generic characters
viz., pronotum with posterior margin much curved, antero-
lateral angles acute; first valvifers triangular with basal
and apical angles at different levels; third valvulae short
movably articulated with second valvifers; outer plates of
ovipositor long, narrow at base with a submarginal ridge along
basal two third of dorsal margin. These characters apply well
on the species under study.

So far only three species of the genus are known from
India. In the present work a new species C. indicus is described
and a key to the Indian species of the genus has been framed.

Key to the Indian species of the genus *Chrysotomotymia* Ashmead
based on females

1. Body yellow except mesoscutum and scutellum with
metallic green reflections; abdomen with three trans-
verse brown bands.

2. Frontovertex smooth; clypeal margin without tooth like
projections; antennae inserted at lower level of eyes;
antennae yellowish brown except scape yellow; two ring
segments present; scutellum with a pair of long setae.

--- C. kerrichi Khan and Shafee

Frontovertex punctate, clypeal margin in the middle with a pair of minute tooth like projections; antennae inserted a little above the level of ventral margin of eyes; antennae dark brown; scape yellowish brown; minute anellus present; scutellum with a pair of longer bristles at posterior margin; one oblique row of six equally long hair like setae on each side.

--------- C. postmarginaloides (Saraswat)

3. Clypeal region yellow; frontovertex as wide as long, width more than one-third the total head width; ocelli yellowish, arranged in equilateral triangles; eyes red; malar suture absent; antennae yellowish brown except scape yellow; scape cylindrical, five times as long as wide; pedicel two times as long as wide, longer than first funicle segment; funicle segments elongated; mesoscutum, parapsides, axillae except base, middle of scutellum, propodeum, meso and meta sternites dark with metallic reflections, rest of the thorax yellow; fore wings hyaline.

--------- C. latipennis Khan and Shafee

Clypeal margin dark brown; frontovertex wide, distinctly less than one-half the width of frontovertex; ocelli white, arranged in obtuse triangles; eyes dark; malar suture distinct; antennae uniformly dark brown; scape flattened, more than two times as long as wide; pedicel very short,
slightly longer than wide; funicle segments decreasing in width distad; thorax uniformly dark brown with metallic reflections; fore wings hyaline with an infuscated transverse patch in the middle.

--- C. indicus sp.n. ---

Chrysoschnomyia indicus sp.n. (Figs. 143 - 149)

Head (Fig. 143) :- Dark brown with metallic bluish reflections and reticulately sculptured; wider than long in facial view (0.52 : 0.38) frontovertex wide; distinctly less than one-half the width of frontovertex (0.23 : 0.52); ocelli white, arranged in obtuse triangle, postocellar line less than one and one-half times as long as ocellocular; eyes dark and bare; antennae inserted well above the lower level of eyes; prominence between antennal sockets distinctly less than one-fourth the width of frons between eyes (0.07 : 0.23); malar space more than one-half the eye width (0.08 : 0.15); malar suture distinct; mandibles bidentate with sharp apices, maxillary and labial palpi one segmented each.

Antennae (Fig. 144) :- Uniformly dark brown; seven segmented excluding one ring segment; scape flattened, more than two times as long as wide (0.23 : 0.09); pedicel very short slightly longer than wide (0.055 : 0.045); funicle two segmented, segments decreasing in width distad, more tapering towards apex;
Figs. 143-149  Chrysonotoryia indicus sp.n. ♂

143. Head, in frontal aspect
144. Antenna
145. Propodeum
146. Fore wing
147. Hind wing
148. Ovipositor
149. Sub genital plate
first funicle segment slightly longer than wide (0.11 : 0.09),
second one and a half times longer than wide (0.12 : 0.08),
longer than first funicle segment; club three segmented, less
than six times as long as wide (0.29 : 0.05), shorter than
preceding two funicle segments and pedicel combined.

Thorax :- Dark brown with metallic bluish reflections, with
very fine reticulate sculpture; pronotum with posterior margin
convex with two pairs of setae, antero-lateral arms long and
narrow, anterior margin deeply concave; mesoscutum more than
two times as wide as long (0.48 : 0.19) with incomplete parapsidal
furrows, with a pair of setae; scutellum longer than mesoscutum,
distinctly longer than wide (0.27 : 0.21) with a pair of setae;
axillae very finely reticulate; propodeum (Fig.145) with median
and lateral carina; mesopostphragma not reaching beyond propo-
deum.

Fore wings (Fig.146) :- Hyaline with an infuscated transverse
patch in the middle, more than two times as long as wide (1.42 :
0.62), broadly rounded at apex; disc with dark setae; costal
cell bare; cubital vein strongly sinuate; speculum large and
closed below; subcubital line of hairs absent, only five setae
present on the hind margin of wing just near below the base of
cubital vein; submarginal vein short (0.33) with two large setae,
more than one-half the length of marginal vein (0.56); marginal
vein with eighteen large setae; postmarginal vein very short
(0.03), one half the length of stigmal vein (0.06); ten admarginal
hairs present; marginal fringe short.
**Hind wings** (Fig. 147): Hyaline, less than five times as long as wide (1.18 : 0.25) with acute apex; marginal fringe one-half the wing width.

**Fore legs**: Dark brown except tibiae white with margin infuscated, tarsal segments 1-3 white and last tarsal segment light brownish; tibiae with two small spurs.

**Middle legs**: Colouration same as that of fore legs except tibiae with infuscated margins on basal one-third; tibial spur shorter than basitarsus.

**Hind legs**: Colouration same as that of middle legs; tibial spur short, one-half the length of basitarsus.

**Abdomen**: Dark brown with metallic bluish reflections; as long as head and thorax together; ovipositor slightly exserted, arising from basal one-third of abdominal venter; first valvifers (Fig. 148) semicircular; third valvulae almost two and a half times as long as wide, less than one-sixth the length of second valvifers (Fig. 148); outer plates of ovipositor (Fig. 148) narrow at base, greatly widen at apex, shorter than second valvifers; subgenital plate (Fig. 149) narrow, posterior margin with small semicircular notch in the middle.

**Length of female** : 1.41 mm

**Male** : Not known
**Holotype**  
: - ♀, India, U.P., Pantnagar  
ex. *Melanagromyza sojae*  
(Zehntner) (Diptera : Agromyzidae)  
from the stem of soybean, *Glycine max* (Linn.) Merr. 20-8-1985  
(Nikhat Arifa)

**Paratype**  
: - 4 ♀♀, same data as holotype.
Genus Chrysocharis Poerster


Chrysocharis Nikol'skaya 1952 Opred Faune SSSR Moscow 44: 266.


Chrysocharis Subba Rao 1957 Indian J. Ent. 19: 52.


Chrysocharis Burks 1963 Can. Ent. 95: 1257.


Chrysocharis Burks 1967 In Krombein and Burks., synoptic catalog Agriculture Monograph. 2(Suppl.2): 232.

Chrysocharis Boucek and Askew 1968 The index of Entomophagous Insects Le Francois, Paris pp. 103-118.


Delucchi (1954a) divided *Chrysocharis* into three genera, *Enaysma* Delucchi, *Epilampsis* Delucchi and *Chrysocharis s. str*, he (1954c) added key to the subgenera and species of *Chrysocharis*. 

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Graham (1959) followed Delucchi's classification and presented a key to British species of the genus Chrysocharis. Boucek (1961) recognized Epilampsis of Delucchi as being the same as Kratochviliana Malac. Graham (1963) studied the two subgenera viz., Kratochviliana and Chrysocharis s.str. and indicated that the only character that separates Kratochviliana from Chrysocharis s.str. is the presence (in the former) or absence (in the later) of the margined collar of the pronotum. Boucek and Askew (1968) synonymized Delucchi's subgeneric names, Trichocharis, Oxycharis and Xenocharis in Epilampsis under Chrysocharis.

Yoshimoto (1973) followed the subgeneric classification of Graham (1963) and Boucek and Askew (1968) and proposed a key to the subgenera of Chrysocharis Foerster on the basis of pronotal collar character.

Key to subgenera of Chrysocharis Foerster as proposed by Yoshimoto.

1. Pronotum without a raised or margined collar, area behind collar reticulate with posterolateral corner shiny or sometimer with narrow, shiny, and smooth strip behind middle of margin.

------------- Chrysocharis s.str.

- Pronotum with a strong raised or margined collar which extends from one side to the other, hind margin usually with wide, smooth, shiny strip which extends from side to side.

------------- Kratochviliana Malac
The generic characters as proposed by Yoshimoto (1973) viz., postmarginal vein of the fore wing much longer than stigmal vein; antennae ten segmented with three segmented anelli (the third segmented is the largest and most conspicuous in the female); funicle three segmented and club two segmented; surface of eyes densely pubescent, the inner orbits of the eyes are broadly emarginate medially; and the frontal fork Y-shaped; petiolar emargination of propodeum generally narrow, semicircular to trapeziform; petiole generally conical or spatulate to elongate, either smooth or with variable sculpture. These characters apply well on the species under study.

Subba Rao (1957) reported the genus *Chrysocharis* for the first time from India. Recently Khan (1985) suggested the characters of female ovipositor for the separation of the genus from closely allied genera which apply well on the species under study.

So far only five species of the genus are known from India. In the present work three species are described as new and a key to the Indian species based on females has also been proposed.

Key to the Indian species of the genus *Chrysocharis* Poëster based on females

1. Flagellum with three funicle segments and two segmented club.

---------------------- 2
- Flagellum with four funicle segments and two segmented club; antennae uniformly dark brown; scape greatly flattened; two anelli present.

------------- C. funicularis Khan

2. Legs pale (except coxae).

------------------------ 3

- Legs not likewise, legs on greater part brown.

------------------------ 4

3. Coxae uniformly brown.

------------------------ 5

- Coxae with base slightly infuscated.

------------------------ 6

4. Antennae dark brown except scape with basal half pale, one minute, narrow ring segment; fore wing hyaline except for a conspicuous and short brown infumation from the stigma backwards across the width to a short distance and gradually disappearing before the middle of wing; scape almost seven times as long as wide; first funicle segment about three-fourth the pedicel.

------------- C. horticola (Mani)

- Antennae uniformly dark brown, without ring segment; fore wings hyaline with infumation behind stigmal vein; scape about five times as long as wide; first funicle segment almost as long as pedicel.

------------- C. ajugus Dubey
5. Antennae with three ring segments.

---------- C. johnsoni Subba Rao 0

- Antennae with only one ring segment, antennae dark brown except scape and pedicel yellow, thorax dark-green, rugoso punctate; parapsidal furrows well defined; stigmal vein half of the submarginal vein.

---------- C. indicus Khan

6. Body dark brown with greenish reflections; frontovertex wide, width of frons between eyes more than half the total head width; malar space slightly shorter than transverse diameter of eye; malar suture absent; antennae uniformly light brown except scape yellowish with slight infuscation on apex; scape slightly more than six times longer than wide; first funicle segment three times as long as wide; second segment longer than third funicle segment.

---------- C. quadristriata sp.n.

- Body yellowish, abdomen with four transverse brown bands; frontovertex narrow, width of frons between eyes one-third the total head width; malar space very short, one-fourth the total eye width; malar suture well distinct; antennae light brown except scape white on basal half; scape more than four times as long as wide; first funicle segment slightly more than one and a half times as long as wide; second and third funicle segment almost subequal in size.

---------- C. quadristriata sp.n.
7. Head and thorax shiny blue green with golden reflections, abdomen dark brown; frons between antennal sockets and frontal fork dull; ocelli dark, postocellar line slightly longer than ocellocular; eyes dark and bare; prominence between antennal sockets more than one-third the width of frons between eyes; scape more than four times as long as wide; third anellus slightly large, almost two times as long as wide; funicle segments gradually increasing in length and decreasing in width distad; first funicle segment distinctly less than two times as long as wide; club less than six times as long as wide.

-------- C. occulomerus sp.n.

- Head reddish brown, thorax and abdomen light brown, abdomen with a golden patch on the middle of dorsum; frons between antennal sockets and frontal fork microreticulate; ocelli white; postocellar line almost two times as long as ocellocular; eyes white and sparsely setose; prominence between antennal sockets less than one-third the width of frons between eyes; scape more than five times as long as wide; third anellus slightly wider than long; first funicle segment more than two times as long as wide, second segment distinctly longer than first; third segment as long as first funicle segment; club less than four times as long as wide.

-------- C. antennalis sp.n.
Chrysocharis quadristriata sp.n.

(Fig. 150 - 156)

Head (Fig. 150): - Orange yellow with very fine reticulate sculpt-ure; frons between antennal sockets, face and clypeus micro- reticulate; distinctly wider than long in facial view (0.62 : 0.42); frontovertex narrow, one-third the total head width (0.2 : 0.62); ocelli red, arranged in obtuse triangle, postocellar line almost two times as long as ocellocular; eyes dark and bare; prominence between antennal sockets almost one-third the width of frons between eyes (0.07 : 0.2); malar suture well distinct; malar space very short, one-fourth the total eye width (0.05 : 0.2); antennae inserted well above the lower level of eyes; mandibles bidentate with acute teeth, maxillary and labial palpi each one segmented.

Antennae (Fig. 151): - Light brown except scape white on basal half, seven segmented excluding three anelli; scape cylindrical more than four times as long as wide (0.22 : 0.05) pedicel less than two times as long as wide (0.07 : 0.04); slightly shorter than first funicle segment; first two anelli ring shaped, third conspicuous, distinctly wider than long (0.03 : 0.02); first funicle segment slightly more than one and a half times as long as wide (0.08 : 0.05), second funicle segment more than two times as long as wide (0.11 : 0.05), second and third segment almost subequal in size; club two segmented, less than four times as long as wide (0.17 : 0.05), shorter than preceding two funicle segments together.
PLATE - XIX

Figs. 150-156 Chrysocharis quadristriata sp.n. Q

150. Head, in frontal aspect
151. Antenna
152. Thorax
153. Pronotum
154. Fore wing
155. Hind wing
156. Ovipositor
Thorax (Fig. 152): - Yellowish except parapsides, axillae and middle of scutellum with metallic green reflections; pronotum (Fig. 153) with very fine reticulate sculpture, anterior margin deeply concave in the middle, antero-lateral arms long and narrow; posterior margin with three pairs of long setae; mesoscutum and scutellum flattened with fine reticulate sculpture; axillae alutaceous; mesoscutum almost two and a half times as wide as long (0.5 : 0.19), with two pair of long setae; each parapside with a long setae; scutellum almost two times as wide as long (0.42 : 0.22), with rounded apex; with a pair of long setae; propodeum with median and lateral carinae, surface alutaceous.

Fore wings (Fig. 154): - Hyaline; more than two times as long as wide (1.56 : 0.67); apical margin broadly rounded; costal cell completely bare; basal vein with four setae; basal cell with three setae; cubital vein straight; subcubital line of hairs starting just below the base of cubital vein; speculum very large and closed below; submarginal vein short (0.35) with two long setae, its underside with four small setae; marginal vein very long (0.74), more than two times the length of submarginal vein; postmarginal vein (0.23) more than one-third the marginal vein; stigmal vein (0.16) distinctly shorter than postmarginal vein; marginal fringe short.

Hind wings (Fig. 155): - Hyaline; four times as long as wide (1.13 : 0.28) with acute apex; marginal fringe short.
Legs: Uniformly white except hind coxae at basal tip slightly infuscated; middle tibial spur shorter than basitarsus.

Abdomen: Yellowish except dorsum with four transverse brown bands; longer than thorax excluding length of petiole; petiole very long, almost three times as long as wide (0.29 : 0.1); ovipositor concealed; first valvifers (Fig.156) triangular; third valvulae short, less than one-sixth the length of second valvifers (Fig.156); outer plates of ovipositor (Fig.156) almost as long as second valvifers.

Length of female: 1.49 mm.

Male: Not known


Paratype: 5 ♀♀, same data as holotype.
Chrysocaris occulomerus sp.n.
(Figs. 157 - 162)

Head (Fig.157) :- Shiny blue-green with golden reflections; frons between antennal sockets and frontal fork dull reddish brown with golden green reflections; face dark brown to reddish brown with golden reflections; head distinctly wider than long in facial view (0.62 : 0.47), frons and vertex alutaceous; occipital edge margined behind ocelli; frontovertex narrow, distinctly less than one-third the total head width, (0.24 : 0.62); ocelli dark, arranged in obtuse triangle, postocellar line slightly longer than ocellocular; eyes dark, bare; prominence between antennal sockets more than one-third the width of frons between eyes (0.075 : 0.24); malar suture absent; malar space very short, distinctly shorter than eye width (0.12 : 0.19); antennae inserted above the lower level of eyes; mandibles pale except teeth reddish brown, bidentate, with sharp apices; maxillary and labial palpi each one segmented.

Antennae (Fig.158) :- Brown except scape white with apical and infuscated; seven segmented excluding three anelli; scape cylindrical, more than four times as long as wide (0.25 : 0.06); pedicel distinctly less than two times as long as wide (0.11 : 0.06), anelli three, third anellus slightly large, almost two times as wide as long; funicle three segmented, segments gradually increasing in length and decreasing in width distad; first funicle segment distinctly less than two times as long as wide (0.10 : 0.06), second less than three times as long as wide (0.11 : 0.04),
PLATE - XX

Figs. 157-162  Chrysocharis occulomorus sp.n. ♀
157. Head, in frontal aspect
158. Antenna
159. Thorax
160. Fore wing
161. Hind wing
162. Ovipositor
third segment more than three times as long as wide (0.12 : 0.035); club two segmented tapering at apex, six times as long as wide (0.21 : 0.35), shorter than preceding two funicle segments combined.

**Thorax (Fig. 159):** Shiny blue green with golden reflections; with fine reticulate sculpture; mesoscutum more than two times wider than long (0.62 : 0.28) with a single pair of setae, scutellum slightly wider than long (0.34 : 0.33), with a pair of setae, apical one-third of scutellum sloping gently towards hind margin; axillae with microreticulate sculpture on apical half and scaly sculpture on posterior half; propodeum with both median and lateral carinae.

**Fore wings (Fig. 160):** Hyaline, more than two times as long as wide (1.95 : 0.08), apical margin broadly rounded; costal cell completely bare; basal vein with two rows of seven setae; basal cell bare; cubital vein straight; speculum large and closed below; submarginal vein short (0.47) with five long setae, underside bare; marginal vein very long (0.88) less than two times the length of submarginal vein; postmarginal vein short (0.36), less than one-half the length of marginal vein; stigmal vein very short (0.1); marginal fringe short.

**Hind wings (Fig. 161):** Hyaline, more than four times as long as wide (1.50 : 0.35) with blunt apex, marginal fringe short.

**Legs:** Pale yellow except last tarsal segment of all the legs
infuscated; middle and hind coxae infuscated on greater part, middle tibial spur shorter than basitarsus.

**Abdomen** :- Dark brown; longer than thorax excluding length of petiole; petiole more than two times as long as wide (0.21 : 0.1), ovipositor concealed, first valvifers (Fig.162) triangular with basal and apical angles at different level; third valvulae (Fig.162) short with pointed apex, more than two times as long as wide, less than one-fifth the length of second valvifers (Fig.162), outer plates of ovipositor as long as second valvifers.

**Length of female** :- 1.60 mm.

**Male** :- Not known

**Holotype** :- ♀, India, U.P., Kaladungi ex *Liriomyza brassicae* (Rieley) (Diptera : Agromyzidae) on *Brassica campestris* Linn. (Cruciferae) 12-1-1985 (Nikhat Arifa).
Chrysocharis antennalis sp.n.
(Figs. 163 - 169)

Head (Fig.163) :- Reddish brown with golden reflections; with fine reticulate sculpture; frons between antennal sockets and frontal fork microreticulate; distinctly wider than long in facial view (0.72 : 0.5); frontovertex narrow; width distinctly less than one-third the total head width (0.28 : 0.72); ocelli white arranged in obtuse triangle, postocellar line almost two times as long as ocellocular; eyes white and sparsely setose; prominence between antennal sockets less than one-third the width of frons between eyes (0.1 : 0.28); malar suture absent; malar space very short, one-half the total eye width (0.11 : 0.22); antennae inserted well above lower level of eyes; mandibles bidentate with sharp apices; maxillary and labial palpi each one segmented.

Antennae (Fig.164) :- Uniformly brown except scape yellowish on basal half; seven segmented excluding three anelli; scape cylindrical, more than five times as long as wide (0.29 : 0.055); pedicel slightly less than two times as long as wide (0.09 : 0.05); distinctly shorter than first funicle segment; first two anelli ring shaped, third largest and most conspicuous; slightly wider than long (0.05 : 0.045); funicle three segmented, first funicle segment more than two times as long as wide (0.12 : 0.05) second segment (0.135 : 0.065) distinctly longer than first; third (0.12 : 0.065) as long as first segment; club two segmented, less than four times as long as wide (0.25 : 0.065); shorter than preceding two funicle segments together.
PLATE - XXI

Figs. 163-169  Chrysocharis antennalis sp. n. ♀
163. Head, in frontal aspect
164. Antenna
165. Thorax
166. Pronotum
167. Part of fore wing venation
168. Hind wing
169. Ovipositor
Thorax (Fig. 165): :- Light yellowish brown; pronotum with a strong raised or margined collar, with fine reticulate sculpture, posterior margin with four pairs of long setae (Fig. 166); mesoscutum and scutellum more or less flattened with fine reticulate sculpture; mesoscutum less than two times as wide as long (0.56 : 0.32), parapsidal furrows weekly completed; scutellum slightly wider than long (0.38 : 0.33), apical one-third of scutellum slopping gently towards hind margin, axillae with scaly reticulate sculpture on posterior half; mesoscutum and scutellum each with a pair of setae, propodeum short, about one-third as long as length of scutellum; alutaceous, shiny; both median and lateral carinae present; propodeal spiracle separated from anterior margin by a space almost equal to diameter of a spiracle.

Fore wings (Fig. 167): :- Hyaline, more than, two times as long as wide (2.25 : 1.0), apical margin rounded; costal cell with eleven setae; basal vein with three setae; basal cell bare; cubital vein straight; speculum large and closed below, submarginal vein short (0.47) with two long setae, its underside bare, marginal vein very long (1.09), distinctly more than two times the length of submarginal vein; postmarginal vein short (0.34); more than one-third the marginal vein; stigmal vein very short (0.1), distinctly less than one-fourth the length of postmarginal vein; marginal fringe short.

Hind wings (Fig. 168): :- Hyaline, more than four times as long as wide (1.72 : 0.43) with blunt apex, marginal fringe short.
**Legs**: Pale yellow except last tarsal segment of all the legs infuscated and hind coxae dark brown; mid tibial spur shorter than basitarsus.

**Abdomen**: Light brown with a golden patch on the middle of dorsum; longer than thorax excluding length of petiole; petiole two times as long as wide, less than one-fourth the length of abdomen; ovipositor concealed, first valvifers (Fig. 169) triangular with basal and apical angles at different levels, basal margin concave; second valvifers (Fig. 169) of uniform width; third valvulae (Fig. 169) short, two and a half times as long as wide; less than one-sixth the length of second valvifers; outer plates of ovipositor (Fig. 169) long; shorter than second valvifers.

**Length of female** :- 2.06 mm.

**Male** :- Not known.


**Paratype** : 4 ♂, same data as holotype.
Horismenus Walker

Type-species: Horismenus cleodora Walker; monotypic

Type-species: Pseudomphale opsiphanis Schrottky; monotypic.

Pediobioidae Girault, 1911. Can. Ent. 43: 407 (syn. under
Horismenus when descr.). Type-species; Pediobioidae
cyanea Girault, monotypic.

36: 84 (syn. of Horismenus). Type-species: Triolynx
clavicornis Cameron; monotypic.

36: 84 (syn. of Horismenus), Type species: Akonda
hipparchia Cameron; monotypic.

Type-species: Dirphiphagus ancilla Brethes; orig.
desig.

(syn. of Horismenus). Type-species: Holopeltomorpha
christensenii Blanchard; orig. desig.

Horismenus Nikol'skaya 1952 Opred Faune SSZR Moscow
44: 268.


In the literature the genus Holcopelte Foerster, 1856, has been listed as synonym of Horismenus (Ashmead, 1904 p.377; Peck 1951, p. 467 and numerous other authors). Graham, 1959, Boucek, 1965 and Burks 1971, pointed out, this mistake. According to Burks (1971) Holcopelte differs generically from Horismenus in having the occiput sharply carinate and in having a scutellum that lacks lateral carinate.

The name Horismenus itself spent most of the last century in synonymy. Three years after its proposition Walker (1846, p.66) shifted it under Entedon Dalman.

Subsequent authors did not disturb the synonymy until Ashmead (1904) resurrected it and employed it as a valid genus. Cresson (1887, p. 344) listed Horismenus as a synonym of Euderus Haliday, but that almost certainly was an error in citation (Burks, 1971).
Burks (1971) while describing several new nearctic species under this genus, formulated its generic characters, which can be summed up as:

Occiput not margined, eyes large and more or less hairy; antennae inserted below center of frons, at or slightly above level of ventral margin of compound eyes; female antennae with three funicle segments, male with four, club with two segments and an apical spicule in both sexes; notaulices complete often weak anteriorly; scutellum with a median longitudinal and two lateral grooves; fore wing with marginal vein very long, submarginal vein short, stigmal vein short. In addition to these morphological features, characters of pronotum, tibial spurs of fore, middle and hind legs, and components of ovipositor can also help a lot in distinguishing this genus from allied ones and have been described in detail.

The genus is recorded for the first time from India. A new species *H. indicus* is described which is close to *H. latrodecti* Burks. A comparison of the two shows that they are different species.

**Horismenus indicus** sp.n.
(Figs. 170 - 180)

*Head* (Fig. 170): Dark brown with very faint iridescence, wider than long in facial view (0.6 : 0.49); frontovertex distinctly less than one half the width of frons (0.24 : 0.6); ocelli brown, arranged in obtuse angle triangle, lateral
PLATE - XXII

Figs. 170-180  Horismenus indicus sp.n. ♀

170. Head, in frontal aspect
171. Mandible
172. Antenna
173. Thorax
174. Pronotum
175. Fore wing
176. Hind wing
177. Part of fore leg
178. Part of middle leg
179. Part of hind leg
180. Ovipositor
ocelli more than two times their diameter from orbital margin and close to occipital margin, postocellar and ocellocular lines almost equal in length; eyes dark, bare; malar suture distinct; antennae inserted at lower level of eyes; prominence between antennal sockets less than one-fourth the width of frons between eyes (0.07 : 0.24); mandibles (Fig.171) tridentate with acute apices; maxillary and labial palpi one segmented each.

**Antennae (Fig.172):** Dark brown, seven segmented excluding two ring segments; scape less than six times as long as wide (0.22 : 0.04); pedicel long, two times as long as wide (0.1 : 0.05), shorter than first two funicle segments combined; funicle three segmented, segments greatly transverse, first (0.06 : 0.05) and second funicle segment (0.065 : 0.05) subequal in size; third segment almost one and a half times wider than long (0.08 : 0.055), club two segmented, distinctly less than two times as long as wide (0.15 : 0.085), longer than preceding two funicle segments combined; first funicle segment to last club segment with 4, 5, 6, 8 and 3 sensoria respectively.

**Thorax (Fig.173):** Dark brown with iridescent blue luster; parapsidal furrows distinct anteriorly; pronotum (Fig.174) with anterior margin deeply concave, posterior margin convex, posterior submarginal ridge distinct with four pair of long, strong setae; mesoscutum very wide, less than three times as wide as long (0.6 : 0.22), with fine hexagonal reticulate sculpture, each parapside with two long setae on its lateral arms, scutellum with fine, reticulate sculpture, longer than wide (0.3 : 0.24)
with a longitudinal median groove running half way, and two lateral grooves, with two strong setae; metanotum narrow, band like; propodeum with petiolar emargination broad, two yellowish spots present on either side, surface strongly sculptured, spiracle almost contiguous with anterior margin of propodeum; mesal length of propodeum more than half as great as that of scutellum.

**Fore wings** (Fig.175) :- Hyaline, venation brown; less than two and a half times as long as wide (1.3 : 0.55); costal cell bare, narrow; densely setose; basal area bare; basal vein absent; speculum moderate in size and closed below; basal cell open; sub-marginal vein (0.35) with two long, strong setae; marginal vein very long (0.6), distinctly less than two times the length of submarginal vein; postmarginal vein (0.04) longer than stigmal vein (0.03); sixteen admarginal hairs present, marginal fringe short, spaced by a distance equal to length of a fringe.

**Hind wings** (Fig.176) :- Hyaline, more than four times as long as wide (1.02 : 0.25), marginal fringe short, spaced by a distance equal to one-third their length.

**Fore legs** :- Dark brown except apical rim of femora and tibiae yellowish with infuscation; tarsal segments 1-4 brown; apical rim of tibiae with two spurs (Fig.177).

**Middle legs** :- Brown except apical rim of femora, tibiae, tarsal segment 1-3 yellowish, tibial spur longer than basitarsus (Fig.178)
Hind legs:— Colouration same as that of middle legs with the addition of third tarsal segment infuscated; tibial spur shorter than basitarsus (Fig. 179).

Abdomen:— Petiolate; dark brown with metallic bluish reflections, shorter than head and thorax together; ovipositor slightly exserted, arising from basal one-half of abdominal venter; first valvifers (Fig. 180) semicircular with articular knobs prominent; second valvifers (Fig. 180) long and narrow, more or less of uniform width; third valvulae (Fig. 180) short, with blunt apex, less than four times as long as wide, one-sixth the second valvifer; outer plates of ovipositor (Fig. 180) distinctly shorter than second valvifers with a dorsal ridge in the middle.

Length of female:— 1.4 mm.

Male:— Not known


Paratype:— 5 ♂♂, same data as holotype.
Species *H. indicus* differs from *H. latrodecti* Burks in the following manner.

*H. latrodecti* Burks
1. Shining black, without metallic luster, body deeply punctured.
2. Eyes densely hairy.
3. Apices of femora, bases and apices of tibiae and basal segments of tarsi white, legs otherwise dark brown to black.
4. Funicle segments 1-3 slightly wider than long, equal in size.
5. Scutellum smooth.

*H. indicus* sp.n.
- Dark brown with very faint iridescence, body smooth, not deeply punctured.
- Eyes bare.
- Legs brown except apical rim of tibiae, tarsal segments 1-3 yellowish.
- Funicle segments 1-3 greatly transverse, first and second segment subequal in size, third segment almost one and a half times wider than long.
- Scutellum with fine, reticulate sculpture.
Genus *Pediobius* Walker


Bupleurotropis Girault, 1917. Speciosissima Genera Nova
Eulophidarum: p. 3. Type-species: Pleurotropis testaceipes Crawford, by monotypy and original designation

Type-species: Pleurotropis utahensis Crawford, by monotypy and original designation.

Cum Observ., III: p. 7. Type-species: Epipleurotropis
longfellowi Girault, by monotypy and original designation.

Pediobius Nikol'skaya 1952 Opred Faune SSSR Moscow
44: 266.
19: 395-404.
Pediobius Graham 1959 Trans Soc. Br. Ent. 13: 186,
189-191.
Pediobius Peck et al. 1964 Mem. Entomol. Soc. Canada
34: 104.
Pragae 36: 5-90.
29: 115-199.
The genus *Pediobi*us was erected by Walker (1846). Ashmead (1904) designated *Entedon imbrues* Walker as type species of the genus *Pediobi*us Walker. Gahan (1921) synonymized the genera, *Pseudacriasoides* Girault and *Epipleurotropis* Girault with *Pleurotropis* Foerster. Nikol'skaya (1952) recognised *Pediobi*us Walker and *Pleurotropis* Foerster as valid genera and separated them on the basis of presence of incomplete or complete parapsidal furrows. Gahan (1932), Ferrier (1953), Askew (1962), Peck (1963) and Boucek (1965) synonymized the genera *Pseudacrias* Girault, *Pleurotropis* Foerster, *Rhopalotus* Foerster, *Epipleurotropis* Girault and *Cluthaira* Cameron respectively with *Pediobi*us Walker.
Boucek (1965) declared the genus *Microterus* Spinola to be a synonym of *Pediobius* Walker and revised the European species of the genus *Pediobius* Walker and wrote, 'As *Pediobius* is today already a well-established and well known name, it is taken here as the valid name for the genus and, consequently, *Microterus*, although older than the former name, is dropped into synonymy'. He revised the European species of the genus *Pediobius*. Kerrich (1973) made a comprehensive study of the South Asiatic and Australian species of the genus *Pediobius*. Khan and Shafee (1982) have given excellent diagnostic characters of pronotum, subgenital plate and external female genitalia for the separation of the genus *Pediobius* with allied genera, besides framing out a key to Indian species of the genus.

Very recently Peck (1985) has given a detailed account of the taxonomy of the Nearctic species of the *Pediobius*.

The generic characters proposed by Khan and Shafee (1982) viz., pronotum with antero-lateral arms long and narrow, anterior margin deeply concave, posterior margin convex; first valvifers semicircular with basal and apical angles at different levels, third valvulae short, movably articulated with second valvifers; subgenital plate with anterior margin straight, posterior margin with a triangular notch in the middle and Peck (1985) apply well on the species under study. In the present study four new species of the genus are described and key to Indian species of *Pediobius* has been revised.
Revised key to the Indian species of the genus *Pediobius* Walker, based on females.

1. Frontovertex with reticulation strong or moderately strong almost throughout and more or less regular.

2. Frontovertex with reticulation not strong or moderately strong, but either fine and regular or in greater part weak to indistinct.

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2. Fore wings uniformly hyaline.

3. Fore wings infuscated except a transverse broad band beyond venation hyaline, infuscated area with coarse setae; costal cell narrow with row of fine setae, less than half the length of marginal vein.

4. Basalis bearing hairs, and cubital hair-row starting immediately beyond it.

4

10

--- *P. pondicheryensis*
Shafee and Rizvi

- Basalis completely bare and cubital hair-row starting beyond or much beyond the large speculum post basale.
4. Sculpture of scutellum nearly uniform, either reticulate or striate almost throughout.

-------------------------------------------------- 5

- Sculpture of scutellum not uniform, partly striate or striate-reticulate and partly reticulate, often partly smooth.

-------------------------------------------------- 8

5. Sculpture of scutellum in greater part and of mesoscutum similar, reticulate almost throughout.

-------------------------------------------------- 6

- Sculpture of scutellum regularly striate almost throughout, very dissimilar from that of mesoscutum; petiolar segment much broader than long.

-------- P. bethylicidus Kerrich

6. Petiole long, almost one and a half times longer than broad.

-------------------------------------------------- 7

- Petiole short, a little longer than broad, face bluish-black and thoracic dorsum brilliant bluish green; reticulations on the mesoscutum and scutellum is coarser; inner orbits of face more shallowly emarginate; the malar space long; the funicle segments stout, obviously the first segment stouter than pedicel and the base of last segment of flagellum as broad as preceding segment.

-------- P. acantha Walker
7. Frontovertex wide, one half the total head width; mandibles bidentate with blunt tooth; antennae dark brown; only one ring segment present; pedicel long, more than two times longer than wide; first funicle segment a trifle longer than second segment, third funicle segment quadrate; speculum very narrow and closed below; thirteen admarginal hairs present.

-------- P. indicus Khan

Frontovertex narrow, less than one-third the total head width; mandibles with two acute teeth; antennae dark brown except club infuscated, three ring segments present; pedicel distinctly less than two times as long as wide; first and second funicle segment equal in size, third segment short distinctly longer than wide; speculum large and closed below; ten admarginal hairs present.

-------- P. angustifrons sp.n.

8. Head, seen from above, not so broad, less than two and a half times breadth of its median length and frontovertex less than one and a half times; first funicle segment in side view about one and a half as long as broad; scutellum strongly longitudinally striate at sides almost to apex, with reticulation at apex that is rather wide-meshed but much weaker, and may extend forward broadly in middle line or may be evanescent, leaving a shining median band in about basal two thirds; space between notaular pits about as broad as a pit.

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Head, seen from above, relatively broad, two and a half
to three times breadth of its median length and fronto-
vertex usually about one and a half times; first funicle
segment in side view, in well developed specimens, about
two and a half times as long as broad; scutellum longi-
tudinally striate-reticulate, merging to regular reticula-
tion in about apical third, the sculpture of almost uniform
strength except that, narrowly in middle line in basal
part, it is finer yet very distinct; space between notaular
pits very much narrower than a pit.

-------- P. foveolatus (Crawford)

9. Antennae funicle three segmented, and pronotal collar
sharply margined as is normal for the genus; mesoscutum
having longitudinal striation on sides of middle lobe and
on parapsides, its hind margin between the notaular pits
raised and strongly emarginate; petiolar segment much
broader than long; lower face, as normally in the genus,
almost smooth; tibiae not or hardly pale at base and apex.

---------- P. elasmi (Ashmead)

Antennae funicle four segmented; the smooth pronotal collar
clearly indicated by a change of sculpture but with no
elevated margin; mesoscutum without longitudinal striation,
its hind margin between the notaular pits very weakly
emarginate; petiolar segment a little longer than broad;
lower face very distinctly reticulate except narrowly in
middle line; tibiae very distinctly pale at base and apex.

-------- P. agaristae (Cameron)
10. Fore wing disc with basal one-third or more than one-third naked except few setae.

- Fore wing disc at basal one-third not likewise, sparsely setose; submarginal marginal and post marginal vein with 3, 2 and 4 setae respectively; postmarginal vein as long as stigmal vein, legs dark except tarsal segment 1-4 white.

-------- **P. maduraiensis**
Shafee and Rizvi

11. Antennae with two ring segments.

- Antennae with only one ring segment.

12. Head dark with metallic bluish reflections; frontovertex two times as wide as long, width more than half the total head width; ocelli red; antennae inserted at lower level of eyes; antennae dark brown; first funicle segment two times as long as wide; club two and a half times as long as wide; mesoscutum with six setae; propodeum with median carina diverging posteriorly; legs dark except fore tibiae on middle longitudinal area, apex of middle and hind femora, and apical half of middle and hind tibiae and basal three tarsal segments white.

-------- **P. longicorpus** Khan and Shafee
- Head dark brown except area of face and clypeus tan; frontovertex wider than long, width about the total head width; ocelli yellowish; antennae inserted well above the line drawn across the lower eye margins; antennae dark brown except scape white with apical one-third infuscated; first funicle segment very long, almost two and a half times as long as wide; mesocutum with four setae, propodeum with a submedian carina diverging backwards, inter carinal space raised; legs brown except fore tibiae, middle and hind trochanter, apex of middle and hind femora and tibiae with a brown band at basal one-third and tarsal segment 1-4 (of all legs) white.

---------- P. sambhalensis sp.n.

13. Antennae dark brown except scape yellowish brown or infuscated.

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- Antennae uniformly yellowish except scape dark brown; frontovertex distinctly wider than long, more than one-half the total head width; malar space very short, legs dark except tarsal segments 1-3 white.

---------- P. antennalis sp.n.

14. Ocelli white, inter-antennae space about one-fourth the width of frons between eyes; scape less than five times as long as wide; pelicle one and a half times
as long as wide, funicle segments 1-3 gradually decreasing in length and increasing in width distad; first funicle segment two times as long as wide, third slightly longer than wide; club slightly more than two times as long as wide; fore wing disc with basal one-third naked except a row of six setae; twelve admarginal hairs present;

----- P. gunturensis Shafee and Rizvi

Ocelli red, inter-antennae space less than one-fifth the width of frons between eyes; scape seven times as long as wide; pedicel more than two times as long as wide; first funicle segment less than two times as long as wide, second and third segment subequal in size, less than two times as long as wide; club less than three times as long as wide; fore wing disc with basal more than one-third naked except a row of four setae; only five admarginal hairs present.

----- P. cydiae sp.n.

15. Frontovertex at least in greater part, with reticulation fine and regular; pronotal collar having sides strongly or rather strongly narrowed; scutellum having sculpture more or less uniform, very distinct throughout; basalis bare and cubital hair-row starting beyond the speculum postbasale.

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Frontovertex in greater part with reticulation weak and irregular to indistinct; pronotal collar having sides no more than moderately narrowed; scutellum having a median band, percurrent or almost so, with sculpture more or less indistinct, sometimes this median band broad and shining; basalis, bearing hairs and cubital hair-row starting immediately beyond it.

16. Smaller species, of length about 1.3 mm; head, seen from above subglobose, not sharply narrowed behind eyes, with ocelli in a strongly acute triangle, and no fine keel running back from the lateral ocelli, the frontovertex not as broad as its median length; antennae having first funicle segment in side view about quadrate, the second and third very distinctly transverse; pronotal collar having fore and hind margins parallel; mesoscutum having hind margin weakly emarginate, the notaular pits shallow and ill-defined; scutellum finely longitudinally reticulate throughout.

-------- P. fraternus (Motschulsky) --------

Larger species; head, seen from above, more transverse, sharply narrowed behind eyes, with ocelli in about a right-angled or slightly acute triangle, and a fine keel running back from the lateral ocelli, the frontovertex at least slightly broader than its median length; antennae
having; first funicle segment in side view about two
times as long: as broad, the second and third distinctly
longer than broad; pronotal collar wider at sides than
in middle, the fore an' hind margins not parallel;
scutellum strongly longitudinally striate, merging to
reticulate behind.

-------- P. stenochoreus Kerrich

17. Occipital carina discontinuous, represented only by a
short ridge developed behind each lateral ocellus;
antennal scape very slender, almost parallel-sided for
the greater part of its length, about eight times length
of its greatest breadth; third funicle segment about
quadrate.

-------- P. waterstonii (Kasi)

- Occipital carina continuous, as is normal in the genus;
antennal scape slightly rounded below, four times length
of its greatest breadth; third funicle segment dis­
tinctly broader than long.

-------- P. imbreus Walker
Pediobius sambhalensis sp.n.
(Figs. 181 - 191)

Head (Fig. 181): Very dark brown, area of face and clypeus tan with fine hexagonal reticulate sculpture; wider than long in facial view (0.7 : 0.54) frontovertex wider than long, width about one half the total head width (0.34 : 0.7); ocelli yellowish arranged in obtuse angle triangle, lateral ocelli slightly more than their own diameter from orbital margin and less than their own diameters from occipital margins; eyes dark and smooth; malar space shorter than eye width (0.13 : 0.18); antennae inserted well above the line drawn across the lower eye margins; prominence between antennal sockets about one-fifth the width of frons between eyes (0.07 : 0.34); malar suture absent; mandibles (Fig. 182) bidentate with acute teeth; maxillary and labial palpi each one segmented.

Antennae (Fig. 183): Dark brown except scape white with apical one-third infuscated; seven segmented excluding two ring segments; scape cylindrical, six times as long as wide (0.24 : 0.04), distinctly longer than club; pedicel more than two times as long as wide (0.09 : 0.04), distinctly shorter than first funicle segment; funicle three segmented, first funicle segment very long, almost two and a half times as long as wide (0.12 : 0.05), second funicle segment two times as long as wide (0.11 : 0.055), third segment as long as second but distinctly less than two times as long as wide (0.11 : 0.06); club two segmented, more than three times as long as wide (0.21 : 0.06), shorter than preceding two funicle segments combined.
PLATE - XXIII

Figs. 181-191  Podiobius sambhalensis sp.n. ♀

181. Head, in frontal aspect
182. Mandible
183. Antenna
184. Thorax
185. Pronotum
186. Part of fore wing; venation
187. Hind wing
188. Part of fore leg
189. Part of middle leg
190. Part of hind leg
191. Ovipositor
Thorax (Fig. 184):— Dark brown with metallic bluish green reflections, except the pronotum with two yellowish patches near anterior margin; very fine hexagonal reticulate sculpture; parapsidal furrows distinct, pronotum (Fig. 185) with anterolateral arms long and narrow, anterior margin deeply concave, posterior margin convex with four pairs of long setae; mesoscutum more than two times wider than long (0.62 : 0.25), with four setae; scutellum a trifle wider than long (0.38 : 0.36), longer than mesoscutum, with two setae; propodeum with a submedian carina, diverging backwards, inter carinal spine raised; mesopostphragma short.

Fore wings (Fig. 186):— Hyaline, less than two and a half times as long as wide (1.52 : 0.67), moderately rounded apically; costal cell, basal vein bare; basal cell with only two setae; speculum very large, open below; cubital vein, subcubital line of hairs absent; disc densely setose from speculum onward as shown in figure, costal cell much shorter than marginal vein; submarginal vein (0.41) with a single seta; marginal vein very long (0.62) with a number of setae; postmarginal vein (0.02) short, less than half the length of stigmal vein (0.05); ten admarginal hairs present; marginal fringe short spaced by a distance equal to one-third their length.

Hind wings (Fig. 187):— Hyaline, less than four times as long as wide (1.19 : 0.33); marginal fringe short, spaced by a distance equal to one-third their length.
Fore legs :- Brown except tibiae and tarsal segments 1-4 white; apical rim of tibiae (Fig. 188) with two short spurs and with two small pegs; basitarsus with one peg.

Middle legs :- Brown except trochanter, apex of femora, tibiae with a brown band at basal one-third and tarsal segments 1-4 white, tibial spur longer than basitarsus (Fig. 189).

Hind legs :- Colouration same as that of middle legs; tibial spur stout, distinctly shorter than basitarsus (Fig. 190).

Abdomen :- Brownish with purplish reflections; petiolate; as long as head and thorax together; ovipositor slightly exserted, arising from basal one-half of abdominal venter; first valvifers (Fig. 191) semicircular with articular knobs prominent, second valvifers (Fig. 191) long and narrow, more or less of uniform width; third valvulae (Fig. 191) short, three times as long as wide, one-eighth the second valvifers; outer plate of ovipositor (Fig. 191) distinctly shorter than second valvifers; subgenital plate with anterior margin straight, posterior margin with a triangular notch in the middle.

Length of female :- 1.68 mm.

Male

:- Not known

Holotype

:- Q, India, U.P., Moradabad, Sambhal, ex. Nymphula depunctalis Guenee - Rice case worm (Lepidoptera: Pyraustidae) on Oryza sativa (Rice) 9-10-1985 (Nikhat Arifa)

Paratype

:- 5 QQ, same data as holotype.
Pediobius angustifrons sp.n.
(Figs. 192 - 198)

Head (Fig. 192): Dark with metallic bluish reflections; densely and finely reticulate throughout; gena, vertex and occiput shining; sparsely setose with silvery setae; head almost roundish, wider than long in facial view (0.58 : 0.42); fronto-vertex comparatively narrow, less than one-third the total head width (0.22 : 0.58); ocelli brown, arranged in obtuse triangle, postocellar line two times as long as ocellocular; occiput moderately emarginate, carina clearly long and weak; frontal fork with arms obtusely diverging; eyes silvery, bare and long; malar space short, less than half the eye width (0.1 : 0.17); malar suture absent, antennae inserted above the lower level of eyes; prominence between antennal sockets more than one-third the width of frons between eyes (0.07 : 0.22); mandibles with two acute teeth, maxillary and labial palpi each one segmented.

Antennae (Fig. 193): Dark brown except the club infuscated, whitish at apex; seven segmented excluding three ring segments; scape cylindrical, more than six times as long as wide (0.185 : 0.03); pedicel distinctly less than two times as long as wide (0.07 : 0.04), shorter than first funicle segment, funicle three segmented; first two funicle segments equal in size (0.08 : 0.05), almost one and a half times as long wide, third segment short (0.07 : 0.05); club two segmented, three times as long as wide (0.15 : 0.05), as long as preceding two funicle segments together.
Figs. 192-198  Pediobius angustifrons sp.n. ♀

192. Head, in frontal aspect
193. Antenna
194. Thorax
195. Pronotum
196. Fore wing
197. Hind wing
198. Ovipositor
Thorax (Fig. 194): - Dark with metallic bluish reflections; with fine reticulate sculpture; parapsidal furrows weakly distinct anteriorly; pronotum (Fig. 195) with antero-lateral arm moderate, anterior margin concave, posterior margin slightly convex, bearing three pairs of long setae, lateral margin of each side with a small protuberance, submarginal ridge absent; mesoscutum more than two times wider than long (0.48 : 0.22); scutellum longer than wide (0.3 : 0.25) longer than mesoscutum; mesoscutum, scutellum and axillae with fine hexagonal reticulate sculpture; propodeum smooth, shining, submedian carinae basally far apart, diverging near anterior margin of propodeum as a narrow V; lateral plica weakly steplike scarcely concealing short supra-coxal projections; propodeal spiracle separated from anterior margin of propodeum by a space equal to almost three diameter of a spiracle.

Fore wing (Fig. 196): - Hyaline, more than two times as long as wide (1.27 : 0.61); moderately rounded apically; costal cell narrow, short and bare; basal vein with only two setae; basal area bare; cubital vein slightly sinuate; speculum large and closed below, subcubital line of hairs broken for a short distance about one-third of distance from base; submarginal vein short (0.32) with two strong setae; marginal vein long (0.54), less than two times as long as submarginal vein; post marginal vein (0.05) longer than stigmal vein (0.03); ten admarginal hairs present; marginal fringe short.
Hind wings (Fig. 197) :- Hyaline; blunt at apex; more than four times as long as wide (1.12 : 0.23) marginal fringe short, spaced by a distance equal to one-third their length.

Legs :- Uniformly dark brown with metallic bluish reflections except tarsal segments 1-3 white, pretarsus infuscated; fore tibiae with two small tibial spurs, its apical rim with a single peg; apical rim of middle tibiae with a row of four, well distinct pegs, middle tibial spur shorter than basitarsus; apical rim of hind tibiae with a row of five distinct pegs, hind tibial spur very short, almost half the length of basitarsus.

Abdomen :- Dark with metallic bluish reflections; petiolate; shorter than head and thorax together; first abdominal tergite well developed, reaching beyond the middle of dorsum; ovipositor slightly exerted, arising from basal one-half of abdominal venter; first valvifers (Fig. 198) triangular with basal and apical angles at different levels, second valvifers (Fig. 198) long and narrow, more or less of uniform width; anterior margin of basal part moderately curved; third valvulae (Fig. 198) less than four times as long as wide, less than one-sixth the second valvifers; outer plates (Fig. 198) of ovipositor shorter than second valvifers; subgenital plate of uniform width with anterior margin straight, posterior margin with a triangular notch in the middle.

Length of female :- 1.4 mm.

Male :- Not known
Holotype

\[ \text{♀, India, U.P., Kaladungi ex. \textit{Trichoplusia ni} (Hb.) (Lepidoptera: Noctuidae) on \textit{Brassica oleracea} (Cabbage) 12-1-1985 (Nikhat Arifa).} \]

Paratype

\[ \text{4 ♂♂, same data as holotype.} \]

\textit{Pediobius cydiai} sp.n. \\
(Figs. 199 - 210)

Head (Fig.199): - Blue-green colouration, with dense, fine reticulate sculpture, sparsely setose with minute silvery setae; distinctly wider than long (0.74 : 0.51); frons broadly impressed, frontal fork with arms obtusely diverging, fronto-vertex slightly shorter than one-half the total head width (0.36 : 0.74); ocelli red, arranged in obtuse angle triangle, length of post ocellar line more than two times as great as ocellocular; occipital carina absent; eyes smooth, bare; malar space as long as eye width (0.19 : 0.19); malar suture absent; antennae inserted at lower level of eyes; prominence between antennal sockets less than 1/5 the width of frons between eyes; scrobal grooves not meeting dorsally; mandibles (Fig.200) bidentate; maxillary and labial palpi each one segmented (Fig.201).

Antennae (Fig.202): - Dark brown with scape infuscated; seven segmented, excluding one ring segment; scape cylindrical, seven times as long as wide (0.24 : 0.035), pedicel more than two times
PLATE - XXV

Figs. 199-210  Pediobius cydiai sp. n. ♀

199. Head, in frontal aspect
200. Mandible
201. Maxillary and labial palp
202. Antenna
203. Thorax
204. Pronotum
205. Fore wing
206. Part of fore leg
207. Part of middle leg
208. Part of hind leg
209. Ovipositor
210. Sub genial plate
as long as wide (0.085 : 0.04); shorter than first funicle segment, funicle three segmented, first funicle segment less than two times as long as wide (0.09 : 0.05), second and third segment subequal in size (0.10 : 0.055); club two segmented, less than three times as long as wide (0.17 : 0.06), shorter than preceding two funicle segments combined.

**Thorax (Fig.203):** Blue green colouration with shining reflection on dorsum; with very fine, dense reticulate sculpture; pronotum (Fig.204) with antero-lateral arms long and narrow, anterior margin deeply concave, posterior margin convex, posterior submarginal ridge distinct bearing five pairs of setae; mesoscutum more than two times as wide as long (0.54 : 0.25), parapsidal furrows distinct anteriorly; scutellum wider than long, almost flat with longitudinally striate; propodeum short, almost three and a half times as wide as long, submedian carinae unusually far apart at base diverging apically, propodeal spiracle separated from anterior margin by a space equal to two times the diameter of a spiracle; mesopostphragma short.

**Fore wings (Fig.205):** Hyaline, less than two times as long as wide (1.38 : 0.7), moderately rounded apically; costal cell bare; basal area and area below prestigma bare; near posterior margin with four hairs; rest of the surface densely pubescent; submarginal vein (0.5) with a single long setae, longer than marginal vein (0.47); postmarginal vein and stigmatic vein subequal in length (0.06), five admarginal hairs present, marginal fringe short.
Hind wings: Hyaline, three and a half times as long as wide, marginal fringe short.

Fore legs (Fig.206): Light brown except apical half of tibiae and tarsal segments 1-4 white, apical rim of tibiae with two short spurs and with a single peg.

Middle legs (Fig.207): Light brown except trochanter, apical half of tibiae and tarsal segments 1-4 white, tibial spur shorter than basitarsus.

Hind legs (Fig.208): Coxae black, femora light brown except apical tip, rest of the parts whitish; tibiae with an infuscated ring at basal third; coxae and femora with dense fine reticulate sculpture; tibial spur stout, shorter than basitarsus; apical rim of tibiae with a row of six pegs.

Abdomen: Blue-green; petiolate, petiole 1.5 times as wide as long, tapering posteriorly; densely and coarsely reticulate, with anterior flange and lateral carina; abdomen short, broadly elliptical; apical tergites with very fine reticulate sculpture; ovipositor arising from base of abdominal venter.

Length of female: 1.71 mm.

Male: Not known

Holotype: Q, India, U.P., Dehradun ex Cydia (=Eucosma) critica (Meyrick) - Leaftier (Lepidoptera: Eucosmidae) on Cajanus cajan 25-12-1985 (Nikhat Arifa).

Paratype: 5 QQ, same data as holotype.
**Pediobius antennalis sp.n.**

(Figs. 211 - 220)

**Head** (Fig.211):- Black with metallic bluish reflections, wider than long in facial view (0.74 : 0.52); frontovertex distinctly wider than long, more than one half the total head width (0.38 : 0.74), with fine reticulate sculpture; ocelli brown, arranged in obtuse angle triangle, post ocellar line almost one and one-half times as long as ocellocular; occipital carina continuous; frontal fork with arms obtusely diverging; eyes dark, bare, moderately long; malar space very short (0.09), almost one half the eye width (0.17); malar suture absent; antennae inserted at lower level of eyes, prominence between antennal sockets more than one-fourth the width of frons between eyes (0.09 : 0.38); mandibles (Fig.212) bidentate with blunt teeth; maxillary and labial palpi each one segmented.

**Antennae** (Fig.213):- Uniformly yellowish with infuscation except scape which is dark brown, seven segmented excluding an anellus; scape cylindrical less than five times as long as wide (0.23 : 0.05); pedicel less than two times as long as wide (0.07 : 0.04), distinctly shorter than first funicle segment; funicle three segmented, segments elongated, decreasing in length distad, first funicle segment long, almost two times as long as wide (0.115 : 0.06), second almost one and one half as long as wide (0.095 : 0.06), third segment longer than wide (0.09 : 0.06); club two segmented, less than three times as long as wide (0.14 : 0.05), distinctly shorter than preceding two funicle segments together.
PLATE - XXVI

Figs. 211-220  Pediobius antennalis sp. n. ♀
211. Head, in frontal aspect
212. Mandible
213. Antenna
214. Thorax
215. Pronotum
216. Fore wing
217. Fore leg
218. Middle leg
219. Hind leg
220. Ovipositor
Thorax (Fig. 214): - Black with shining metallic bluish green reflections, pronotum furrows distinct anteriorly; pronotum (Fig. 215) with antero-lateral arms long and narrow, anterior margin deeply concave, posterior margin convex with three pairs of long setae, posterior submarginal ridge absent; mesoscutum more than two times as wide as long (0.64 : 0.27), with fine hexagonal reticulate sculpture; scutellum a trifle wider than long (0.36 : 0.35) almost flat entirely striate, the striate fine and longitudinally parallel; propodeum short smooth, shining; submedian carina unusually far apart at base, diverging apically.

Fore-wing (Fig. 216): - Hyaline; more than two times as long as wide (1.35 : 0.62); costal cell bare; basal vein absent; basal cell bare; mesocell large and open below; cubital vein straight starting just from the base of mesocell; subcubital line of hairs broken for a short distance about one-third of distance from base; submarginal vein (0.3) with three long marginal setae, longer than marginal vein (0.44), postmarginal vein (0.07) almost as long as stigmatic vein; twenty-two admarginal hairs present; marginal fringe short, spaced by a distance equal to one-third their length.

Hind-wing: - Hyaline; less than five times as long as wide, with apex blunt; marginal fringe short, spaced by a distance equal to one-third length of a fringe.

Legs (Fig. 217-219): - Dark brown except tarsal segments 1-3 and tibial spurs white, last tarsal segment light brown;
mid tibial spur (Fig. 218) as long as basitarsus, hind tibial spur very long and stout, longer than first and second tarsal segment together (Fig. 219).

**Abdomen** :- Dark with very shining bluish green reflections; petiolate; petiole very short; longer than thorax, ovipositor slightly exserted, arising from basal one-half of abdominal venter; first valvifers semicircular (Fig. 220) with basal and angles at different levels; second valvifers (Fig. 220) long and narrow more or less of uniform width; third valvulae short almost three times as long as wide, less than one-seventh the second valvifers; outer plates (Fig. 220) of ovipositor shorter than second valvifers; subgenital plate of uniform width with anterior margin straight, posterior margin with a triangular notch in the middle.

**Length of female** :- 1.73 mm.

**Male** :- Not known

**Holotype** :- Q, India, U.P., Nanakmata ex. *Calycomyza* sp. (Diptera: Agromyzidae) on *Conyza stricta* Willd. (Compositae) 26-4-1983 (Nikhat Arifa)

**Paratype** :- 6 QQ, same data as holotype.
SUBFAMILY EUDERINAE

Key to genera of subfamily Euderinae

1. Fore wing without plain hair lines or these reduced to two vague lines diverging outward from stigma; propodeum sculptured or smooth, median carina usually indistinct; antennae in female often with some segments pale, in male always with unusual whorls of long bristles.

--------------------------- 2

- Fore wing hyaline with very distinct plain hair lines, three radiating from stigma; propodeum with median carina, otherwise nearly smooth; antennae uniformly dark in male without distinct hair whorls.

--------------- Euderus Haliday

2. Two hair lines running from stigma; in male first funicular segment short, with one whorl of hairs; anterior margin of basal part of second valvifers much curved, U-shaped.

---------- Allocerastichus Masi

- Wing without distinct hair lines; first funicular segment in male long, with two whorls of hairs; anterior margin of basal part of second valvifers normal.

---------- Euderastichus Boucek
Genus Allocerastichus Masi


Genus Allocerastichus was described by Masi in 1923 with Allocerastichus doderi as its type species. Boucek (1963) declared the genera Stipaebia Erdos and Euderinus Erdos as synonyms to Allocerastichus Masi. Further, he synonymised Allocerastichus alma Erdos, Stipaebia verticillate Erdos and Euderinus hungaricus Erdos with the type species of Allocerastichus Masi and transferred A. obscurus to Euderastichus Boucek. The generic characters given by Peck, Boucek and Hoffer (1964) apply well on the species under study.

Khan (1978) reported the genus for the first time from India. So far only one species Allocerastichus longicorpus Khan is known from India. In the present work a new species
Allocerastichus indicus is described and a key to the species based on female has also been framed.

Key to the species of the genus Allocerastichus Masi based on female.

1. Lateral ocelli separated by their own diameters from orbital margin; cubital hair line absent; only two hair lines extending from apex of stigmal vein.

----------------------------- 2

- Lateral ocelli separated by more than two times their own diameters from orbital margin; cubital hair line present; postmarginal vein slightly longer than stigmal vein; three hair lines extending from apex of stigmal vein, a row of six long setae beneath the marginal vein; fourth funicle segment longer than wide.

---------- A. doderi Masi

2. Head smooth, without punctation; malar suture distinct; antennae dark except scape, pedicel yellowish brown; funicle segment 1-3 longer than wide, fourth segment slightly wider than long; mesoscutum and scutellum without punctation; costal cell with two setae, only three admarginal hairs present.

---------- A. longicorpus Khan

- Head distinctly reticulate punctate; malar suture absent;
antennae dark brown except scape yellow, funicle segments gradually broaden, first funicle segment almost two times as long as wide, second and third segment almost subequal in size, fourth funicle segment short, much wider than long; mesoscutum and scutellum distinctly and shallowly reticulate-punctate; costal cell bare, only four admarginal hairs present.

---------- A. indicus sp.n.

Allocerastichus indicus sp.n.
(Figs. 221 - 230)

Head (Fig. 221) :- Dark metallic green with purplish reflections; much wider than long in facial aspect (0.84 : 0.54); distinctly reticulate punctate; surface of face covered with short black hairs; frontovertex much wider, one-half the total head width (0.42 : 0.84), ocelli arranged in obtuse triangle, length of postocellar line almost two times as great as ocellocular; malar space much shorter than eye width (0.16 : 0.21); scrobes smooth; antennae inserted well above lower level of eyes; prominence between antennal sockets less than one-tenth the width of frons between eyes; mandibles tridentate (Fig. 222), maxillary and labial palpi (Fig. 223) two segmented each.

Antennae (Fig. 224) :- Light brown except scape yellow; scape less than six times as long as wide (0.29 : 0.05); pedicel
PLATE - XXVII

Figs. 221-231 Allocerastichus indicus sp.n. ♀

221. Head, in frontal aspect
222. Mandible
223. Maxillary and labial palp
224. Antenna
225. Thorax
226. Pronotum
227. Fore wing
228. Hind wing
229. Part of fore leg
230. Ovipositor
231. Antenna, ♂
distinctly less than two times as long as wide (0.08 : 0.05), much shorter than first funicle segment, two anelli present, funicle segments gradually broaden apically; first funicle segment almost two times as long as wide (0.115 : 0.06); second (0.09 : 0.065) and third funicle segment (0.09 : 0.07) almost subequal in size; fourth segment short, much wider than long (0.08 : 0.07); club three segmented, slightly less than two times as long as wide (0.19 : 0.1), longer than preceding two funicle segments combined.

Thorax (Fig. 225) :- Dark metallic green with purplish reflections; mesoscutum and scutellum distinct and shallowly reticulate punctate; pronotum (Fig. 226) short, anterior margin deeply concave, posterior margin slightly curved bearing nine pairs of setae; mesoscutum distinctly less than two times as wide as long (0.74 : 0.5); parapsidal furrows deeply and sharply defined; axillae angularly produced forward into lateral lobes along parapsidal furrows; scutellum without grooves, longer than wide (0.45 : 0.42); propodeum with a high thin, median carina, basally broad, flattened, polished, in form of subtriangular plate, lateral areas with carina in irregular pattern with undifferentiated plicae, finely reticulato between median carina and plicae; propodeal spiracle small, rounded, elevated, separated from the anterior margin by almost its own diameter; metanotum short and broad; meso-postphragma not reaching beyond the propodeum.

Fore wings (Fig. 227) :- Hyaline, venation lightly infuscated,
apical half sparsely pubescent, more than two times as long as wide (1.91 : 0.83); posteroapical with two distinct hair lines; costal cell broad, bare; basal vein absent, basal area bare, near posterior margin with row of two hairs, submarginal vein (0.56) with five strong dorsal bristles, much shorter than marginal vein (0.7); postmarginal vein (0.1) two times the length of stigmal vein (0.05); four admarginal hairs present; marginal fringe short, close together.

**Hind wings** (Fig. 228) :- Hyaline slightly more than three times as long as wide (1.66 : 0.55); sparsely pubescent; marginal fringe short.

**Fore legs** :- Dark brown except the tarsal segments infuscated, moderately setose, coxae with six long setae on outer face of distal half; apical rim of coxae with three long setae; tibial spur short; apical rim of tibiae with two stout pegs; tarsal segments densely setose; basitarsus (Fig. 229) with a row of 20 setae arranged obliquely running three fourth length on dorsal side.

**Middle legs** :- Dark brown except 1-3 tarsal segments and tibial spur white; moderately setose, apical rim of coxae with seven setae, apex of femora with five small and a long, stout bristle; apical rim of tibiae with two stout white pegs, tibial spur short; basitarsus very long.

**Hind legs** :- Colouration same as that of middle legs; apical rim of coxae with a single, strong bristle; apical rim of
tibiae with a row of setae and with three stout pegs; tibial spur short.

Abdomen: Dark metallic green with purplish reflections; longer than thorax; potiolate; ovipositor concealed, arising from the base of abdominal venter; first valvifers semicircular (Fig. 230) with articular knobs prominent, with basal and apical angles at different levels; anterior margin of basal part of second valvifers (Fig. 230) much curved, U-shaped; third valvulae (Fig. 230) lanceolate, moderate in size, almost seven times as long as wide, distinctly less than one-third the length of second valvifers; outer plates of ovipositor (Fig. 230) long, narrow with middle longitudinal ridge, shorter than second valvifers.

Length of female: 2.26 mm.

Male: Resembles female except head and thorax non-metallic, abdomen shorter than head and thorax combined, pale brown to dark; antennae as shown in Fig. 231.

Length of male: 1.92 mm.

Holotype: India, U.P., Rishikesh, ex. Melangromyza cleomae Spencer (Diptera: Agromyzidae) inside the stem of Brassica campestris Linn. (Cruciferae) 8-4-1985 (Nikhat Arifa)

Paratype: 10 Q Q, 2 0, same data as holotype.
Genus Euderus Haliday


<table>
<thead>
<tr>
<th>Genus</th>
<th>Author</th>
<th>Year</th>
<th>Source</th>
</tr>
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<tbody>
<tr>
<td>Euderus</td>
<td>Nikol'skaya</td>
<td>1952</td>
<td>Opred Faune SSSR Moscow 44: 268.</td>
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<tr>
<td>Euderus</td>
<td>G-an grade</td>
<td>1961</td>
<td>Indian J. Ent. 22: 80</td>
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<td>Euderus</td>
<td>Burks</td>
<td>1967</td>
<td>Agriculture Mono. 2(Suppl.2): 231-232.</td>
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<tr>
<td>Euderus</td>
<td>Trjapitzin</td>
<td>1978</td>
<td>Opred Faune SSSR 120: 401-404.</td>
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The genus *Euderus* Haliday is a small group of chalcidoid wasps belonging to the subfamily Euderinae, placed between the subfamilies Tetrastichinae and Entedontinae (Graham 1959; Boucek, 1963). This genus can easily be recognized from other eulophids by the presence of the 3 hair lines radiating from the base of stigmal vein, by the postmarginal vein in the fore wing, and by the complete natalices.
Members of this genus constitute a discrete and a homogeneous group within the subfamily Euderinae. There are two opinions regarding the placement of the related genera of the Euderus. Boucek (1963) separated Secodelloidea Girault and regarded these groups as valid genera. Peck (1951, 1963) and Kurks (1967) placed Secodelloidea in synonymy with Euderus. Yoshimoto (1971) while making a revision of the genus Euderus modified both schools of thought. In 1971, by proposing new subgenera, re-evaluated the characters of the group and proposed a new classification. Key to the subgenera of the genus Euderus proposed by him is produced below:

Key to subgenera of the genus Euderus Haliday as proposed by Yoshimoto.

1. Propodeum 1/2-2/3 as long as scutellum, with strong median and lateral carinae, areas between carinae irregularly rugulose to rugose; entire propodeum strongly developed; antenna strongly clavate, club thick and without apical spicule.

               Secodelloidea Girault

2. Propodeum much shorter, lateral carina absent or weakly developed, surface reticulate or reticulate; antenna weakly clavate, club with a spicule or male funicular segments pedicellate.

               2
2. Marginal vein 2.1 times length of submarginal vein; prestigma about as long as submarginal vein; postmarginal vein short, about 1/3 length of stigmal vein.

............... Euderoides Yoshimoto

Marginal vein 1.3-1.4 times length of submarginal vein; prestigma about 1/4-1/3 length of submarginal vein; postmarginal vein long, 1.0-2.75 times length of stigmal vein.

............... 3

3. Fore wing without marginal ciliae, surface smooth, whitish, hyaline with scattered inconspicuous, colourless micro-pubescence (as seen under high magnification).

............... Leipocrossus Yoshimoto

- Fore wing with marginal ciliae, surface hyaline, with dark pubescence.

............... 4

4. Apical margin of fore wing with 5 hair lines; female antenna inserted at level of lower margin of eye; male antenna inserted about middle of face; male flagellum with whorls of long hairs.

............... Neoeuderus Yoshimoto

- Apical margin of fore wing with 3-4 hair lines; antenna of male and female inserted slightly above or level of lower margin of eye; antenna similar in both sexes.

............... Euderus Haliday
Yoshimoto (1971) while describing several new species under this genus, formulated its generic characters, which can summed up as:-

- Head transverse, as broad as or slightly broader than thorax, vertex wide, mandibles tridentate, eyes prominent, bare or with sparse, minute pubescence and ovate, antennal scape usually subcylindrical in female, flattened laterally at inner margin in male, nearly reaching frontal ocellus; two anelli present; funicle four segmented; club three segmented, usually broader than funicle in female, club not thicker than funicle in male or male flagellum with whorls of hairs; pronotum short subconical or subrectangular, without carina; axilla angularly produced forward into lateral lobes along notaulices; mesoscutum closely and densely reticulate, reticulate-punctate; notaulices deeply and sharply defined; scutellum without grooves, usually longer than broad; propodeum without mucha and with distinct median carina, plicae absent; fore wing hyaline and pubescent; submarginal vein with four to eight dorsal bristles, usually broken at junction of prestigma; three hair lines radiating from stigma; postero-apical margin of fore wing with three to five hair lines; submarginal vein shorter than marginal, postmarginal short, subequal or 1.5-2.0 times longer than stigmal vein; 2-13 admarginal hairs present; legs stout. These characters apply well on the species under study.

Khan (1985) suggested some additional characters of components of ovipositor for generic identification. In the
present work a new species *E. testulalis* is described. Key to some species of the genus *Euderus* proposed by Yoshimoto has been revised to adjust the new species.

Revised key to some species of the genus *Euderus*.

1. Female ovipositor sheath shorter than head and thorax combined.

........................................... 2

Female ovipositor sheath 1.5-2.0 times length of head and thorax combined; middle and hind tibiae whitish apically; radial and costal cells bare without hairs.

........................... *E. superbae* Miller

2. Legs concolorous with body, three basal tarsal segments pale to yellowish or apices of tibiae whitish to pale yellowish; marginal ciliae of fore wing minute to long but not thickened.

........................................... 3

Legs reddish to tawny, middle of fore and hind femora and tibiae dark brown to black, fore and middle coxae bluish purple, basal half of hind coxa greenish yellow and apical half purplish blue, marginal ciliae of fore wing thick and distinct.

............... *E. vockerothi* Yoshimoto

3. Tibiae uniformly or apices of tibiae whitish or pale.

........................................... 4
- Tibiae entirely metallic or dark brown.


4. Antennae uniformly fuscous or black with metallic luster.


- Antennae not likewise.


5. Female gaster narrow, very long and apex slightly pointed, 1.5 times length of head and thorax combined.


- Female gaster broad, elongate ovate, slightly longer, about 1.2 times length of head and thorax combined.


6. Body bluish green, face dark purplish, median lobe of mesoscutum greenish yellow; antennal flagellum fuscous, pedicel and first funicle segment subequal in length, funicle segments longer than wide, segments first to third subequal in size, fourth short, a trifle longer than wide; club shorter than preceding three funicle segments together; costal cell with one or two minute hairs near apex; five to eight admarginal hairs present, postmarginal vein 1.5 times length of stigmal vein.


\[ \text{E. fuscedinellae} \] Yoshimoto
Body very dark green, almost black, sometimes more or less bluish or with a purple shine on the vertex; antennal flagellum brown; pedicel distinctly longer than wide, second as long as wide, third and fourth transverse, distinctly wider than long, club as long as preceding; two funicle segments together; costal cell bare, fourteen admarginal hairs present; postmarginal vein a little longer than stigmal vein.

............... E. gossypi Ferriere

7. Body metallic blue black; postmarginal vein subequal or slightly longer than stigmal vein; postero-lateral margin of fore wing with three distinct hair lines.

............... 8

Body bright metallic green with brassy luster; postmarginal vein 1.5 times length of stigmal vein; postero-lateral margin of fore wing with two distinct hair lines.

............... E. pecki Yoshimoto

8. Submarginal vein of fore wing with six dorsal bristles, seven to eight admarginal hairs present; anterior half of median carina short and broad, two to three times wider than long; second funicle segment two times length of first.

............... E. glaucus Yoshimoto

Submarginal vein of fore wing with seven dorsal bristles; four to five admarginal hairs present; anterior half of
median carina narrow and long, five to six times longer than broad; funicle segments first and second subequal in length.

........................ E. solidaginis Yoshimoto

9. Only antennal scape yellow or yellowish-orange.

................................. 10

- Antennae uniformly yellowish except club brown; scape slightly flattened, more than three times as long as wide, pedicel distinctly more than two times as long as wide, as long as first funicle segment, two anelli present.

................................. E. testulalis sp.n.

10. Female gaster narrow, very long, and apex slenderly pointed, 1.5 times length of head and thorax combined; apex of hind wing rounded.

................................. E. chillcottii Yoshimoto

- Female gaster broad, elongate oval, slightly longer, about 1.2 times length of head and thorax combined; apex of hind wing subacute.

................................. E. masoni Yoshimoto

11. Female gaster elongate-ovate, slightly longer or shorter than head and thorax combined.

................................. 12
Female gaster narrow, very long, and apex very slenderly pointed, 1.5 times length of head and thorax combined, anterior half of median carina short and broad, slightly longer than broad.

............... E. lividus (Ashmead)

12. Fore wing sparsely pubescent; funicle segments short, as long as broad or slightly not distinctly longer.

............... 13

13. Fore wing with irregular hair lines radiating from the stigmal vein; submarginal vein with three to four dorsal bristles, the admarginal hair ranging from two to four, antennae with two ring segments, first funicle segment very short, funicle segments second to fourth subequal in size; club very long, distinctly longer than preceding three funicle segments together.

............... E. acrobasis Crawford

14. Fore wing with regular hair lines radiating from the stigmal vein; submarginal vein with seven dorsal bristles; seven admarginal hairs present; antennae with only one ring segment, first funicle segment a trifle shorter than second, second and third segment subequal,
fourth segment shortest, quadrate, club longer than preceding two funicle segments together.

........................... E. agromyzae Gangeade

14. Costal cell bare or with one to three hairs above submarginal vein, sometimes one or two additional hairs at distal and, three to six admarginal hairs present.

................................. 15

- Costal cell with row of six hairs above submarginal vein; seven to eight admarginal hairs present.

............. E. alaskensis Yoshimoto

15. Ovipositor sheath distinctly exserted, longer than last tergite, marginal ciliae of fore wing close together, short.

................................. 16

- Ovipositor sheath barely exserted as seen in dorsal view; stigmal vein with three to five hairs, generally three to five admarginal hairs present, marginal ciliae generally sparse and weak, costal cell usually with one to two hairs above distal end of submarginal vein; submarginal vein with five to six dorsal bristles; colour dull bluish green without luster or with slight purplish luster; callus of propodeum with four hairs.

............. E. subopacus (Gahan)
16. Costal cell with three to five hairs above submarginal vein; submarginal vein with six to eight dorsal bristles; six to seven admarginal hairs present.

............................ 17

Costal cell with zero to two hairs above submarginal vein, submarginal vein with six dorsal bristles; three to five admarginal hairs present; callus of propodeum with row of three hairs; colour blackish green.

............ E. albitarsis (Zett.)

17. Body metallic green with brassy luster, first funicle segment as long as pedicel; stigmal vein with five to six hairs; submarginal vein with five to six dorsal bristles, costal cell with two to three hairs near apex.

............ E. cushmani (Crawford)

Body and legs deep metallic purplish blue with greenish luster; stigmal vein of fore wing with about nine to eleven hairs; submarginal vein with eight to nine bristles; costal cell with four to five hairs near apex, first funicle segment longer than pedicel.

............ E. argyresthiae (Crawford)

Buderus testulalis sp.n.
(Figs. 232 - 239)

Head (Fig. 232):- Dark with metallic green lustre except clypeal region yellowish, wider than long (0.87 : 0.6) with fine reticulate
PLATE - XXVIII

Figs. 232-239  Euderus testulalis sp.n. ♀

232. Head, in frontal aspect
233. Antenna
234. Thorax
235. Pronotum
236. Fore wing
237. Hind wing
238. Ovipositor
239. Sub genital plate
sculpture; frontovertex slightly more than two times as wide as long, width distinctly more than half the total head width (0.5 : 0.87); ocelli white arranged in obtuse angle triangle, length of postocellar line two times as great as ocellocular; scrobes deep, inverted 'Y' shaped, apex extending to frontal ocellus, malar suture present; malar space longer than eye width (0.25 : 0.19); clypeus trapezoid, anterior margin shallow and broadly emarginate, antennae inserted well above lower level of eyes; prominence between antennal sockets less than one-fifth the width of frons between eyes; mandibles reddish, tridentate, maxillary and labial palp two segmented each.

**Antennae** (Fig.233) :- Yellowish except club brown; scape slightly flattened, more than three times as long as wide (0.25 : 0.08); pedicel distinctly more than two times as long as wide (0.09 : 0.04), as long as first funicle segment, two anelli present, funicle segments gradually decreasing in length and increasing in width distad; first funicle segment more than two times as long as wide (0.09 : 0.04), second longer than wide (0.07 : 0.05), third a trifle longer than wide (0.06 : 0.055), fourth segment quadrate (0.06 : 0.06); club three segmented, less than two times as long as wide (0.14 : 0.08), longer than preceding two funicle segments combined.

**Thorax** (Fig.234) :- Dark brown, dorsum with five longitudinal bright metallic green strips on mesal, notaulic and lateral lobes of mesoscutum; mesoscutum and scutellum with very fine reticulate sculpture; pronotum (Fig.235) short, anterior margin deeply
concave, posterior margin slightly curved with submarginal ridge bearing eight pairs of setae; mesoscutum more than two times as wide as long (0.88 : 0.41), parapsidal grooves deeply and sharply defined; scutellum without grooves, longer than wide, propodeum with median carina.

**Fore wings (Fig. 236):** Hyaline, venation yellowish; almost two and a half times as long as wide (2.18 : 0.86); costal cell with two hairs near apex; basal cell and area below prestigma with three minute hairs, near posterior margin with row of six hairs; surface sparsely pubescent, submarginal vein with six dorsal bristles, as long as marginal vein (0.7); postmarginal vein (0.11) almost one and a half times length of stigmal vein (0.06); six admarginal hairs present; marginal fringe short.

**Hind wings (Fig. 237):** Hyaline; distinctly less than four times as long as wide; apex rounded.

**Fore legs:** Uniformly pale except coxae slightly infuscated, coxae with three long setae on outer face of distal half, apical rim of coxae with a row of five small setae; tibial spur short; apical rim of tibiae with a single peg; basitarsus with a row of setae arranged obliquely running three fourth length on dorsal side.

**Middle legs:** Uniformly pale, apical rim of tibiae with two stout pegs; tibial spur short.

**Hind legs:** Uniformly pale except slight infuscation on dorsal side of coxae, last tarsal segment tan; apical rim of tibiae with
two stout pegs; tibial spur short.

Abdomen:—Dark except tergites 1-3 shiny metallic green, longer than thorax, petiolate, ovipositor slightly exerted arising from near the base of abdominal ventor; first valvifers (Fig. 238) with articular knobs prominent, anterior margin of basal part of second valvifers (Fig. 238) much curved, third valvulae (Fig. 238) very long, lanceolate, almost fifteen times as long as wide, almost one half the second valvifers, outer plates of ovipositor (Fig. 238) distinctly longer than second valvifers; posterior margin of subgenital plate (Fig. 239) with a semicircular notch in the middle, anterior margin with antero-lateral ridges.

Length of female:—2.1 mm.

Male:—Not known

Holotype:—♀, India, U.P., Moradabad, ex. Maruca testulalis (Gayer) (Legume pod borer) (Lepidoptera: Pyralidae) on Cajanus cajan, 25-10-1981 (Mikhat Arifa)

Paratype:—2 ♀ ♂, same data as holotype.
Genus Euderastichus Boucek


Euderastichus Peck 1964 Mem. Entomol. Soc. Canada. 34: 100
Euderastichus Trjapitzin 1978 Opred Faune SSSR. 120: 401, 404.

Boucek (1963) proposed the genus Euderastichus for the species Euderus obscurus Thomson. Further, he synonymized the species Allocerastichus almus Erdos and A. obscurus Erdos with the type species of his genus Euderastichus. The diagnostic characters of the genus as proposed by Boucek (1963) and Peck et al. (1964) apply well on the species under study. Khan (1978) reported the genus for the first time from India. So far only one species is known from India. In the present work a new species is described and a key to the species of the genus Euderastichus Boucek has been proposed.

Key to the species of the genus Euderastichus Boucek based on females.

1. Pedicel long, as long or first funicle segment or longer than first funicle segment.

......................... 2

- Pedicel short, distinctly longer than wide, shorter than first funicle segment; first funicle segment one and a half times as long as wide, second segment longer than first, third funicle segment shorter than second and increasing in width, fourth segment quadrate; club longer than preceding two funicle segments combined.

............... E. indicus sp.n.
2. Pedicel as long as first funicle segment; first funicle segment more than two times as long as wide; club two and a half times as long as wide, as long as first and second funicle segment together (Boucek 1963, Fig. 13); postmarginal vein slightly longer than stigmal vein.

............ E. obscurus Thomson

- Pedicel distinctly longer than first funicle segment; first funicle segment less than two times as long as wide; club more than two and a half times as long as wide, longer than first and second segment together; postmarginal vein shorter than stigmal vein.

............ E. nigricorpus Khan

**Euderastichus indicus sp.n.**
(Figs. 240 - 248)

Head (Fig. 240) :- Dark metallic green with purplish reflection, face deep purplish to light colour near periphery; reticulate sculpture; surface of face covered with short black hairs; distinctly wider than long in facial aspect (0.8 : 0.52); fronto-vertex distinctly less than one half the total head width (0.36 : 0.8); ocelli arranged in obtuse triangle, lateral ocelli almost two times their own diameters from orbital and less than their own diameters from occipital margins; eyes reddish brown, smooth; malar space shorter than eye width (0.17 : 0.22); malar suture absent; antennae inserted just above the lower levels of eyes; prominence between antennal sockets less than one-eighth
Figs. 240-248

Pseudarcticus indicus sp.n. ♀

240. Head, in frontal aspect
241. Mandible
242. Maxillary and labial palp
243. Antenna
244. Thorax
245. Pronotum
246. Fore wing
247. Hind wing
248. Ovipositor
the width of frons between eyes (0.06 : 0.44); scrobes shallow, inverted 'Y' shaped with a narrow groove reaching frontal ocellus; mandibles reddish brown, tridentate (Fig.241) with sharp apices; maxillary and labial palpi (Fig.242) two segmented each.

Antennae (Fig.243):- Dark brown with scape, pedicel and first funicle segment uniformly yellow; nine segmented excluding two ring segments; scape cylindrical, less than six times as long as wide (0.26 : 0.045); pedicel distinctly longer than wide (0.08 : 0.06); shorter than first funicle segment; funicle four segmented, first funicle segment one and a half times as long as wide (0.09 : 0.06), second segment (0.1 : 0.06) longer than first, third funicle segment (0.08 : 0.065) shorter than second and increasing in width, fourth segment short, quadrate (0.07 : 0.07); club three segmented, less than three times as long as wide (0.2 : 0.07), longer than preceding two funicle segments combined.

Thorax (Fig.244):- Dark, metallic green with purplish reflections on dorsum; fine hexagonal reticulate sculpture; pronotum (Fig.245) with anterior margin concave in the middle, posterior margin with six pairs of setae; parapsidal furrows complete; axillae angularly produced forward into lateral lobes along notaulices; mesoscutum very wide, more than two times as wide as long (0.31 : 0.36), with three pairs of setae; scutellum shorter than mesoscutum, wider than long (0.4 : 0.38),
with two pairs of setae; mesoscutum and scutellum without any longitudinal grooves; propodeum with a median carina.

Fore wings (Fig. 246) :- Faintly infumate; less than three times as long as wide (1.9 : 0.73), without any radiating vein; basal area bare; area below pretigma bare; surface sparsely scattered with micropubescence; costal cell broad with a single seta; submarginal vein (0.64) with five dorsal bristles, almost as long as marginal vein (0.63); postmarginal vein (0.05) as long as stigmal vein; stigmal vein bare, only two ad marginal hairs present; marginal fringe one-sixth the wing width, spaced by a distance equal to one-sixth their length.

Hind wings (Fig. 247) :- Faintly infumate; more than four times as long as wide; sparsely setose.

Legs :- Dark brown with metallic bluish reflections; tarsal segments 1-3 white, fourth tarsal segment tan.

Abdomen :- Dark metallic green with purplish reflections on dorsum; longer than thorax, tapering at apex, ovipositor slightly exserted arising from base of abdominal venter; first valvifers (Fig. 248) semicircular with articular knobs prominent; second valvifers (Fig. 248) long and narrow, more or less of uniform width; third valvulae (Fig. 248) long and narrow, less than eight times as long as wide, more than one-third the second valvifers; outer plates of ovipositor (Fig. 248) slightly shorter than second valvifers.
Length of female :- 1.8 mm.

Male :- Not known

Holotype :- Q, India, U.P., Moradabad, Sambhal, ex. Cryptoblatus angustipennella Hampson (Lepidoptera: Pyraustidae) on Sorghum vulgare, 4-8-1985 (Nikhat Arifa)

Paratype :- 5 ♂♂, same data as holotype.
Key to genera of subfamily Tetrastichinae

1. Lower margin of clypeus usually with a pair of toothlike projections; pronotum with anterior margin concave in the middle, posterior margin slightly concave; scutum generally with a median groove, scutellum always with two submedian longitudinal grooves; outer plates of ovipositor as long as or shorter than second valvifers.

---------- *Tetrastichus* Haliday

- Lower margin of clypeus without a pair of toothlike projections, pronotum with anterior margin deeply concave posterior margin straight or slightly curved, antero-lateral arms moderately long; scutum and scutellum without any longitudinal grooves; outer plates of ovipositor usually distinctly longer than second valvifers.

---------- *Syntomosphyrum* Foerster
Genus *Syntomosphyrum* Foerster


*Syntomosphyrum* Ferriere 1933 *Stylops* 2: 86-108.


The genus *Syntomosphyrum* was proposed by Foerster (1878) for the species *S. fulvius* Foerster. Muesebeck et al. (1951) considered the genus *Tetrastichopsis* Girault to be a synonym of *Syntomosphyrum* Foerster. Graham (1961) synonymized *Syntomosphyrum* Foerster with *Aprostocetus* Westwood and Domenichini (1965) with *Tetrastichus* Haliday. Recently Hussain and Khan (1986) have questioned the validity of the species described under *Aprostocetus* Westwood and *Syntomosphyrum* Foerster without assigning any valid reason. They are not fully convinced while making new combinations of the species described under these two genera and transferring them under the genus *Tetrastichus*. They wrote, "Irrespective of the validity or otherwise of the genera *Aprostocetus* Westwood and *Syntomosphyrum* Foerster, the species described from India under these names appear to be best placed in *Tetrastichus*, and are, therefore, transferred to this genus as new combinations". This unfortunately resulted in some homonyms and new names had been proposed.

The genus *Tetrastichus* is a well established genus which can only be recognized by the presence of longitudinal dorsal grooves on scutum and scutellum. In the genus *Syntomosphyrum* not even traces of these dorsal grooves are found. Therefore, the validity of the genus *Syntomosphyrum* cannot be questioned. Earlier workers who recognized this genus as valid, have
considered this major character for the separation of Syntomosphyrum from closely allied genera.

In the present work six new species of the genus are described and new combinations proposed by Hussain and Khan (1986) under the genus Tetractichus have been resurrected under the genus Syntomosphyrum as valid names.

Key to Indian species of the genus has also been revised to accommodate the new species described.

Revised key to species of Syntomosphyrum Foerster, based on females.

1. Funicle segments subquadrate or longer than wide.
   2
   - Funicle segments transverse.
     13

2. Pedicel longer than first funicle segment.
   3
   - Pedicel as long as or shorter than first funicle segment.
     7

3. Antennae with two or three ring segments.
   4
   - Antennae with only one ring segment.
     5
4. Abdomen shorter than head and thorax together; antennae with only two ring segments; vertex smooth; body rameous black.

.................. S. invaniow Ferriere

- Abdomen as long as head and thorax together; antennae with three ring segments; vertex finely punctate; body orange yellow.

.................. S. obscuriceps Ferriere

5. Body dark brown.

................................. 6

- Body yellowish brown; frontovertex punctate; prominence between antennal sockets less than one-fifth the width of frons between eyes; mandibles tridentate; antennae brown; pedicel longer than first funicle segment; first funicle segment quadrate, shorter than second segment, second and third segment subequal in size, distinctly longer than wide; mesopraescutum with four sockets at each lateral margin; propodeum with a median and lateral carina; third valvulae more than seven times as long as wide, almost one-third the length of second valvifers.

...................... S. lituru sp.n.

6. Frontovertex smooth; antennae brown except scape yellowish brown, four times as long as wide; pedicel one and a half times as long as wide; first funicle segment longer than
wide, second and third segment each as long as wide, club about two times as long as wide, longer than preceding two funicle segments together; costal cell with four setae; posterior indul vein absent; legs: yellowish brown except coxae and femora brown; ovipositor concealed; anterior margin of basal part of second valvifers not much curved; third valvulae short and blunt, two and a half times as long as wide.

............... S. cerococci Khan and Shafee

- Frontovertex reticulate with big punctures; antennae uniformly brown; scape more than five times as long as wide; pedicel less than two times as long as wide; first and second funicle segments subequal in size, distinctly longer than wide; third segment very long; club almost two and a half times as long as wide, longer than funicle; ovipositor very slightly exserted; anterior margin of basal part of second valvifers much curved; third valvulae long, lanceolate, less than six times as long as wide.

............... S. punctulatus sp.n.

7. Pedicel as long as first funicle segment.

............................ 8

- Pedicel distinctly shorter than first funicle segment.

............................ 9

8. First funicle segment as long as wide; pedicel being distinctly less than one-third the length of scape;
antennae with two ring segments; disc of fore wing not with hyaline setae; submarginal vein with two setae.

.............. S. taprobanes Westwood

- First funicle segment longer than wide; pedicel being more than one-third the length of scape; antennae with one ring segment; disc of fore wing with hyaline setae; submarginal vein with one seta.

............S. mashhoodi Khan and Shafee


......................... 10

- Thorax yellow; scutum with four or five longitudinal ridges anteriorly and with eight setae irregularly arranged near each parapsidal furrow; first funicle segment more than two times as long as wide, second and third each two times as long as wide; club as long as preceding two funicle segments together; submarginal vein with four setae; first valvifers almost semicircular with basal and apical angles in one plane.

............ S. anomalococci Khan and Shafee

10. First funicle segment less than three times as long as wide; club shorter than preceding two funicle segments combined.

......................... 11
First funicle segment less than two times as long as wide; club much longer than preceding two funicle segments combined; scutum with sixteen longitudinal ridges anteriorly and with a row of four setae near each parapsidal furrow; submarginal vein with three setae; first valvifers with basal and apical angles at different levels.

........ S. udaipurensis Khan and Shafee

11. Mandibles tridentate, frontovertex not likewise.

.......................... 12

Mandibles bidentate, frontovertex very wide, almost two times as wide as long; fore wings, densely setose with an opaque patch in more than the middle without any setae, speculum closed; third valvulae short, lanceolate, less than three times as long as wide, more than one-third the length of second valvifers, outer plates of ovipositor narrow at base, widened at apex, slightly shorter than second valvifers.

........ S. dehradunensis sp.n.

12. Postocellar line almost two times as long as ocellocular; malar space longer than eye width; prominence between antennal sockets less than one-fifth the width of frons between eyes; antennae dark brown with only one-ring segment; scape cylindrical, less than four times as long as wide; mesopraescutum bearing one row of four
bristles at each lateral margin; speculum short, closed below; submarginal vein with five setae, shorter than marginal vein, legs dark brown except apical end of femora, tibiae and tarsal segments 1-4 yellowish with infuscation; middle tibial spur almost half the length of basitarsus; ovipositor slightly exserted.

............. \textit{S. pecki} sp.n.

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Postocellar line almost one and one-half times as long as ocellocular; malar space distinctly shorter than eye width; prominence between antennal sockets one-third the width of frons between eyes; antennae uniformly light brown except scape yellowish with two ring segments; scape flattened, less than three times as long as wide; meros-praescutum bearing one row of six bristles at each lateral margin; speculum broad and closed below; submarginal vein with three setae, longer than marginal vein; legs yellowish except fore and middle coxae infuscated, hind coxae dark brown; middle tibial spur shorter than basitarsus; ovipositor concealed.

............. \textit{S. latiscapua} sp.n.

13. Frontovertex smooth, more than one half the head width; malar space almost as long as eye width; first funicle segment shorter than second, with two sensoria, bristles to spur of club as long as or longer than the last club joint.

............. \textit{S. indicum} Silvestri
Frontovertex with punctures, distinctly less than one half the head width; malar space much longer than eye width; first and second funicle segment subequal in size with three sensoria, bristles to spur of club shorter than last club joint.

............ S. funicularis sp.n.

Syntomosphyrum laticapuos sp.n.  
( Figs. 249 - 255 )

Head (Fig.249) :- Yellowish brown with relatively large and intense reticulate sculpture; slightly wider than long in facial view (0.52 : 0.46); frontovertex comparatively narrow, distinctly less than one-half the total head width (0.21 : 0.52); ocelli arranged in obtuse triangles, postocellar line almost one and one-half times as long as ocellocular; eyes dark and smooth; malar space distinctly shorter than eye width (0.14 : 0.16); malar suture distinct; antennae inserted well above the lower level of eyes; prominence between antennal sockets one-third the width of frons between eyes (0.07 : 0.21); mandibles tridentate; maxillary and labial palpi each one segmented.

Antennae (Fig.250) :- Uniformly light brown except scape yellowish; eight segmented excluding two ring segments; scape flattened, less than three times as long as wide (0.22 : 0.08); pedicel short, almost one and a half times as long as wide (0.08 : 0.05), one-half of the first funicle segment in length; funicle three segmented, segments 1-3 gradually decreasing in
PLATE - XXX

Figs. 249-255 Syntomosphyrum laticapus sp.n. ♀

249. Head, in frontal aspect

250. Antenna

251. Thorax

252. Pronotum

253. Fore wing

254. Hind wing

255. Ovipositor
length distad; first funicle segment longest, less than three times as long as wide (0.16 : 0.06), second more than two times as long as wide (0.14 : 0.06), third shortest, more than two times as long as wide (0.12 : 0.055); club three segmented, less than four times as long as wide (0.23 : 0.06), shorter than preceding two funicle segments together.

Thorax (Fig. 251) :- Brown with very faint iridescent blue or lavender luster, with relatively large and intense reticulate sculpture; pronotum (Fig. 252) broad, antero-lateral angles acute, lateral margin of each side with small protuberance, posterior margin straight, posterior submarginal ridge absent; mesopraescutum slightly wider than long (0.4 : 0.36) and bearing one row of six bristles near each parapsidal furrow, each parapside with three bristles; scutellum slightly wider than long (0.28 : 0.26) distinctly shorter than mesoscutum, without longitudinal grooves; propodeum with a median carina diverging backward.

Fore wings (Fig. 253) :- Hyaline more than two times as long as wide (1.44 : 0.6); costal cell long and narrow, bare; basal vein with two setae; basal cell bare; speculum broad and closed below; cubital vein straight; submarginal vein (0.44) longer than marginal vein (0.35) with three setae; postmarginal vein rudimentary; marginal fringe short, spaced by a distance equal to one-third their length.

Hind wings (Fig. 254) :- Hyaline, more than four times as long as wide (1.3 : 0.26), acute at apex; disc with hyaline setae; marginal fringe short, spaced by a distance equal to one-half
Legs :- Yellowish except fore and middle coxae infuscated, hind coxae dark brown; tarsi four jointed; middle tibial spur shorter than basitarsus.

Abdomen :- Brown; petiolate; about as long as head and thorax together; ovipositor concealed arising from apical one-third of abdominal venter; first valvifers (Fig.255) almost semicircular with basal and apical angles in one plane; third valvulae (Fig.255) five times as long as wide, one-third the length of second valvifers (Fig.255); outer plates of ovipositor (Fig.255) as long as second valvifers; subgenital plate of uniform width, anterior margin slightly concave, posterior margin semicircular with a notch in middle.

Length of female :- 1.42 mm.

Male :- Not known

Holotype :- ♀, India, U.P. Gola Gokran Roth, ex. Spilosoma obliqua Mlk. (Lepidoptera : Arctiidae) on Ricinus communis (Castor), 16-8-1984 (Mikhat Arifa)

Paratype :- 4 ♀♀, same data as holotype.
Syntomosphyrum punctulatus sp.n.
(Figs. 256 - 264)

Head (Fig. 256): - Dark brown with metallic reflections; reti­
culate with his punctures on frons, vertex, face and cheeks;
widcr than long in facial view (0.5 : 0.38); frontovertex more
than two times wider than long, width distinctly more than one-
half the total head width (0.32 : 0.5); ocelli white, arranged
in obtuse triangle, postocellar line almost one and one-half
times as long as ocellocellar; antennae inserted almost at the
middle; prominence between antennal sockets more than one-fifth
the width of frons between eyes; (0.06 : 0.032); malar space
distinctly longer than eye width (0.15 : 0.09); malar suture
distinct; eyes dark, smooth; mandibles tridentate; maxillary
and labial palpi each one segmented; lower margin of clypeus
without dents.

Antennae (Fig. 257): - Uniformly brown; eight segmented
excluding one ring segment; scape cylindrical more than five
times as long as wide (0.16 : 0.03); pedicel less than two times
as long as wide (0.07 : 0.04), shorter than first two funicle
segments combined; funicle three segmented, first and second
segment subequal in size, distinctly longer than wide (0.04 :
0.03), third segment very long, slightly less than two times
as long as wide (0.06 : 0.03); club three segmented, almost
two and a half times as long as wide (0.15 : 0.055), longer
than funiculus.
PLATE - XXXI

Figs. 256-264 Syntomosphyrum punctulatus sp. n. ♀

256. Head, in frontal aspect
257. Antenna
258. Thorax
259. Fore wing
260. Hind wing
261. Part of fore leg
262. Part of middle leg
263. Part of hind leg
264. Ovipositor
Thorax (Fig. 258) :- Dark brown with metallic reflections; posterior margin of pronotum with a submarginal ridge bearing seven pairs of setae; parapridial furrow well developed; mesopraescutum with one row of bristles at each lateral margin and without median longitudinal groove; scutellum with two pairs of setae, and without submedian groove; propodeum with well developed carina.

Fore wing (Fig. 259) :- Hyaline, more than two times as long as wide (1.31 : 0.06); disc sparsely setose, broadly rounded at apex; costal cell shorter than marginal vein with eight setae; basal vein with four setae; basal area bare; cubital vein straight; speculum narrow, closed below; submarginal vein with one long setae, shorter (0.38) than marginal vein (0.42); postmarginal vein very short (0.02); stigmal vein (0.11) distinctly less than one-fourth the length of postmarginal vein; marginal fringe short, spaced by a distance equal to one-third their length.

Hind wing (Fig. 260) :- Hyaline; more than five times as long as wide (1.1 : 0.2) with acute apex; marginal fringe spaced by a distance equal to one-fourth their length.

Legs :- Uniformly brownish except apical one-third of femora and tarsal segments 1-4 yellowish; apical rim of fore tibiae (Fig. 261) with one peg; tibial spur very short; apical rim of middle (Fig. 262) and hind tibiae (Fig. 263) with two pegs each; tibial spur of both shorter than basitarsus.
Abdomen: Dark brown with metallic reflections; petiolate; shorter than head and thorax together; ovipositor very slightly exerted, arising from apical one-third of abdominal venter; first valvifers (Fig. 264) triangular; anterior margin of basal part of second valvifers (Fig. 264) much curved; third valvulae (Fig. 264) long, lanceolate, less than six times as long as wide, less than one-half the length to second valvifers; outer plates of ovipositor (Fig. 264) longer than second valvifers.

Length of female: 1.15 mm.

Male: Not known


Syntomophyrum funicularis sp.n. (Figs. 265 - 277)

Head (Fig. 265): Light brown with golden reflections; reticulate sculpture with scattered punctures on frons, vertex, face and checks; inner margins near eyes, malar space, area between antennal sockets and along oral margin sparsely setose; triangular in facial view; longer than wide (0.45 : 0.38); frontovertex wide, slightly less than half of the head width (0.22 : 0.38); ocelli arranged in obtuse triangle, basal ocelli almost
PLATE - XXXII

**Figs. 265-277** Syntomosphyrum funicularis sp. n. Q

265. Head, in frontal aspect
266. Mandible
267. Maxillary and labial palp
268. Antenna
269. Thorax
270. Pronotum
271. Fore wing
272. Hind wing
273. Part of fore leg
274. Part of middle leg
275. Part of hind leg
276. Sub genital plate
277. Ovipositor
two times its diameter from eye rim and removed from occipital
margin by its own diameter; eyes dark; antennae inserted at
lower level of eyes; prominence between antennal sockets more
than one-third the width of frons between eyes (0.07 : 0.22);
malar space much longer than eye width (0.15 : 0.12); malar
suture distinct; mandibles (Fig. 266) tridentate with two acute
teeth and a truncation; maxillary and labial palpi each one
segmented (Fig. 267).

Antennae (Fig. 268) :- Light brownish, eight segmented exclud­
ing a ring segment; scape cylindrical less than four times as
long as wide (0.17 : 0.03), pedicel less than two times as
long as wide (0.07 : 0.04) longer than first funicle segment,
funicle three segmented, segment 1-3 transverse, gradually
increasing in width distad, first funicle segment wider than
long (0.06 : 0.05), second equal to first segment in size,
third segment much wider than long (0.065 : 0.055); club three
segmented, less than three times as long as wide (0.16 : 0.06),
shorter than three funicle segments combined, first funicle
to last club segment with 3, 4, 5, 3, 5 & 4 sensoria respectively.

Thorax (Fig. 269) :- Brownish with golden reflections on dorsum;
pronotum, mesoscum and scutellum with fine reticulate sculpture;
proterior margin of pronotum with submarginal ridge bearing
five pairs of setae (Fig. 270); parapsidal furrows well developed;
mesoscum wider than long (0.38 : 0.25), with one setae near
each parapsidal furrow without median longitudinal groove;
scutellum two times wider than long (0.34 : 0.17), shorter than
mesoscum with four setae and without submedian groove; mesal
length of propodeum almost one-half length of scutellum, both median and lateral carinae present; propodeal spiracle almost contiguous with anterior margin.

Fore wing (Fig. 271): - Hyaline with slight infuscation near basal vein; more than two times as long as wide (1.25 : 0.55), rounded at apex; costal cell longer than marginal vein and with eight small setae; basal vein with three setae; speculum large and closed below; submarginal vein with one long seta directing apically, longer than marginal vein (0.37 : 0.29); marginal vein with eight setae; postmarginal vein absent; stigmal vein short, less than one half the length of marginal vein (0.15 : 0.29); marginal fringe short, spaced by a distance equal to one-third their length.

Hind wing (Fig. 272): - Hyaline; less than five times as long as wide (1.0 : 0.22); narrow at apex; marginal fringe short, spaced by a distance equal to one-fourth their length.

Legs (Figs. 273-275): - Yellowish except coxae, basal half of femora and last tarsal segment brown; middle tibial spur shorter than basitarsus.

Abdomen: - Dark with golden reflections on dorsum; almost as long as thorax; ovipositor very slightly exserted, arising from basal one-third of abdominal venter; subgenital plate broad (Fig. 276), posterior margin with a notch in the middle; first valvifers (Fig. 277) triangular with articular knobs prominent; third valvulae (Fig. 277) short, more than five times as long as
wide, more than one-third the length of second valvifers (Fig. 277); outer plates of ovipositor (Fig. 277) long, narrow at base, broaden at apex, longer than second valvifers, with a submarginal ridge along basal two thirds of dorsal margin.

Female length : - 1.31 mm.

Male : - Not known

Holotype : - India, U.P. Ramnagar, ex. Planococcus citri Risso (Hemiptera : Pseudococcidae) on Citrus medica L (Kagzi lime) 12-5-1986 (Nikhat Arifa)

Paratype : - 6 ♀ ♂, same data as holotype.

Syntomosphyrum pecki sp.n.*
(Figs. 278 - 285)

Head (Fig. 278) : - Dark brown with relatively large and intense reticulate sculpture and with blue, blue-green or purplish iridescence; frons strikingly iridescent purple; wider than long in facial view (0.48 : 0.37); frontovertex width slightly less than one-half the total head width (0.23 : 0.48); ocelli white, arranged in equilateral triangle, portocellar line almost two times as long as ocellocular; eyes dark and smooth; antennae inserted above lower level of eyes; prominence between antennal sockets less than one-fifth the width of frons between eyes.

*This species is named for Dr. O. Peck in recognition of his contribution to our knowledge of Chalcidoidea.
PLATE - XXXIII

Figs. 270-285  Syntomophyrum pecki sp.n. ♀

278. Head, in frontal aspect
279. Antenna
280. Thorax
281. Pronotum
282. Fore wing
283. Hind wing
284. Ovipositor
285. Sub genital plate
malar suture distinct; malar space longer than eye width (0.17 : 0.13); mandibles tridentate with two teeth and a truncation; maxillary and labial palpi each one segmented.

Antennae (Fig. 279): Dark brown; eight segmented excluding one ring segment; scape cylindrical, less than four times as long as wide (0.18 : 0.05); pedicel less than two times as long as wide (0.07 : 0.04), distinctly shorter than first funicle segment; funicle three segmented, first funicle segment less than three times as long as wide (0.11 : 0.045), as long as second segment, third segment short, less than two times as long as wide (0.09 : 0.05); club three segmented, more than three times as long as wide (0.19 : 0.06), shorter than preceding two funicle segments together.

Thorax (Fig. 280): Dark brown with relatively large and intense reticulate sculpture and with purplish iridescence; pronotum (Fig. 281) with antero-lateral angles acute, posterior margin slightly convex with four pairs of strong setae; mesoscutum more than two times wider than long (0.52 : 0.23); mesopraescutum bearing one row of four bristles at each lateral margin; scutellum more than two times wider than long (0.42 : 0.2), shorter than mesoscutum, without longitudinal grooves; surface of propodeum smooth, both median and lateral carina present; propodeal spiracle rounded, separated from anterior margin by a space more than diameter of a spiracle; mesopostphragma not reaching beyond the propodeum.
Fore wings (Fig. 282):—Hyaline, less than three times as long as wide (1.48 : 0.55); costal cell narrow, bare; basal vein with three setae; basal cell bare; speculum short, closed below; cubital vein straight, just starting from the base of basal vein; subcubital line of hairs short, starting from about one-third of distance from base; submarginal vein (0.31) with five setae, shorter than marginal vein (0.36); postmarginal vein rudimentary; stigmal vein (0.11), less than one-fourth of the marginal vein; marginal fringe spaced by a distance equal to one-fifth their length.

Hind wings (Fig. 283):—Hyaline, with tapering apex; almost six times as long as wide; marginal fringe spaced by a distance equal to one-fifth their length.

Legs:—Dark brown except apical end of femora, tibiae and tarsal segments 1-4 yellowish with infuscation; middle tibial spur almost half the length of basitarsus.

Abdomen:—Dark brown with purplish reflections on dorsum; longer than thorax; ovipositor slightly exerted, arising from near base of abdominal venter; first valvifers (Fig. 284) almost semicircular with basal and apical angles at different levels, second valvifers (Fig. 284) long of uniform width with anterior margin of basal parts much curved; outer plates of ovipositor (Fig. 284) long, narrow at base with a submarginal ridge along basal three-fourth of outer margin, almost as long as second valvifers; third valvulae long, lanceolate, more than six times as long as wide,
less than one-third the length of second valvifers; sub-
genital plate (Fig. 285) with anterior margin slightly concave, posterior margin semicircular with a notch in the middle.

Length of female :- 1.25 mm.

Male :- Not known

Holotype :- ♀, India, U.P. Kaladungi, ex. Pulvinaria sp. (Hemiptera : Coccidae) on Mangifera indica, 5-5-1986, (Nikhat Arifa)

Paratype :- 4 ♀♀, same data as holotype.

Syntomosphyrum litura sp. n.
( Figs. 286 - 292 )

Head (Fig. 286) :- Yellowish brown; reticulate with punctures on frons, vertex, face, checks; inner margin of eyes, malar space, area between antennal sockets and along oral margin sparsely setose; wider than long in facial view (0.46 : 0.36); frontovertex width distinctly more than one-half the total head width (0.28 : 0.46); ocelli white, arranged in obtuse triangle; length of postocellar line more than two times as great as ocellocular; eyes dark; prominences between antennal sockets less than one-fifth the width of frons between eyes (0.06 : 0.28); malar space very long, less than two times the
PLATE - XXXIV

Figs. 286-292  Syntomosphyrum litura sp.n. ♀
286. Head, in frontal aspect
287. Antenna
288. Thorax
289. Pronotum
290. Fore wing
291. Ovipositor
292. Sub genital plate
eye width (0.13 : 0.08); malar suture distinct; mandibles tridentate; maxillary and labial palpi one segmented each.

Antennae (Fig.287) :- Brown, eight segmented excluding one ring segment; scape cylindrical, less than four times as long as wide (0.17 : 0.045); pedicel distinctly less than two times as long as wide (0.07 : 0.045), longer than first funicle segment; funicle three segmented, first funicle segment quadrate (0.05 : 0.05), shorter than second segment, second and third funicle segments equal in size, distinctly longer than wide (0.06 : 0.05); club three segmented, less than three times as long as wide (0.15 : 0.055), shorter than preceding three funicle segments together.

Thorax (Fig.288) :- Brown with fine reticulate sculpture; pronotum (Fig.289) with posterior margin slightly curved, with five pairs of setae; posterior submarginal ridge absent; mesoscutum less than two times as wide as long (0.42 : 0.25); parapsidal furrows complete, mesopraescutum with a single row of four setae at each lateral margin; scutellum wider than long (0.24 : 0.19) with two pairs of setae arising from conspicuous pits; mesoscutum and scutellum without longitudinal grooves; scutellum with broadly rounded apex; propodeum with a median and lateral carinae; mesosthphagma extending beyond propodeum, with a notch in the middle.

Forewings (Fig.290) :- Hyaline, with dark brown venation; more than two times as long as wide (1.12 : 0.52); costal cell broad with a single row of thirteen setae; basal vein with a
row of five setae; basal area with three setae; speculum closed below; cubital vein straight; submarginal vein (0.3) without any setae, longer than marginal vein (0.27); marginal vein with eight strong setae; postmarginal vein very short (0.015); stigmal vein (0.13) less than one-half the length of marginal vein; marginal fringe short.

Hind wings: - Hyaline, almost four times as long as wide; marginal fringe spaced by a distance equal to one-fourth their length.

Legs: - Yellowish except coxae, femora with almost basal half and last tarsal segment brownish; middle tibial spur short, less than one-half the length of basitarsus.

Abdomen: - Brown; about as long as head and thorax together; ovipositor concealed, arising from middle of abdominal venter; first valvifers triangular (Fig. 291) with basal and apical angles at different levels; anterior margin of basal part of second valvifers (Fig. 291) much curved; third valvulae (Fig. 291) long, more than seven times as long as wide, almost one-third the length of second valvifers, outerplates of ovipositor (Fig. 291) very long, distinctly longer than second valvifers; subgenital plate (Fig. 292) broad, posterior margin with a semi-circular notch in the middle.

Length of female: -= 1.41 mm.

Male: -= Not known
Holotype:--  Ind., U.P. Kashipur, 
ex. *Spodoptera litura* (Fabr.) 
(*Lepidoptera: Noctuidae*) on *Pisum* 
*sublimum* 20-2-1965 (Mahat Arifa)

Paratype:--  5 ♀♀, same data as holotype.

**Syntomorphyrum dehradunensis** sp.n. 
(Figs. 293 - 302 )

**Head** (Fig. 293):--  Dark brown, with iridescent blue luster; 
wider than long in facial view (0.51 : 0.42); frontovertex very 
wide, almost two times as wide as long, width distinctly more 
than half the total head width (0.33 : 0.51); ocelli white, 
arranged in obtuse triangle, lateral ocelli more than two times 
their own diameters from orbital margin and lies their own 
diameters from occipital margin; length of postocellar line 
almost two times as great as ocellocular; eyes dark brown and 
smooth; antennae inserted well above the lower level of eyes; 
prominence between antennal sockets more than one-fourth the 
width of frons between eyes (0.08 : 0.33), mandibles bidentate 
(Fig. 293), maxillary and labial palpi each one segmented.

**Antenna** (Fig. 294):--  Dark brown except the scape insutrcated, 
eight segmented excluding one ring segment; scape cylindrical, 
five times as long as wide (0.7 : 0.04); pedicel more than two 
times as long as wide (0.08 : 0.035), shorter than first funicle
PLATE - XXXV

Figs. 293-302  *Syntomosphyrum dehradunensis* sp.n. 0

293. Head, in frontal aspect

294. Antenna

295. Pronotum

296. Propodeum

297. Fore wing

298. Hind wing

299. Part of fore leg

300. Part of middle leg

301. Part of hind leg

302. Ovipositor
segment; first funicle segment distinctly less than three times as long as wide (0.09 : 0.35), second segment almost three times as long as wide (0.1 : 0.35), third segment a trifle more than two times as long as wide (0.1 : 0.045), club three segmented, almost two and a half times as long as wide (0.18 : 0.07), shorter than preceding, two funicle segments combined.

Thorax: – Dark brown with iridescent blue luster; pronotum (Fig.295) with posterior margin slightly curved, posterior sub-narginal ridge bearing four pair of setae; parapsidal furrows well developed, complete; mesoscutum very wide less than three times as wide as long (0.51 : 0.18) with twenty setae near each parapsidal furrow, each parapside with a single seta and without median groove; scutellum slightly wider than long (0.24 : 0.21), with three pair of setae without submedian grooves; propodeum (Fig.296), large, strong, mesal and paraspiracular carinae present, and a series of short carinae radiating latero-anteriorad from posterior margin; propodeal spiracle separated from anterior margin by a space almost as great as length of spiracle; mesopostphragma short.

Fore wings (Fig.297): – Hyaline, densely setose with an opaque patch in more than the middle without setae; two times as long as wide (1.4 : 0.6), broadly rounded at apex; costal cell with nine setae; basal cell setose; basal vein with three setae; speculum closed; cubital vein straight; submarginal vein (0.33) with three long setae; marginal vein (0.4) longer than sub-marginal vein, with ten strong, long setae, directing
apically and one seta directing backward, densely setose with small setae; postmarginal vein (0.02) very short, stigmal vein (0.12) more than one-third the length of marginal vein; marginal fringe spaced by a distance equal to one-fourth length of a fringe.

Hind wings (Fig. 298) :- Hyaline; more than five times as long as wide (1.10 : 0.2), narrow at apex; densely setose; marginal fringe spaced by a distance equal to one-fifth length of a fringe.

Legs (Figs. 299-301) :- Brown except apical tip of femora, tibiae and tarsal segments 1-4 white; densely setose; middle tibial spur (Fig. 300) longer than basitarsus; apical rim of middle tibiae with two stout legs.

Abdomen :- Brown, faintly iridescent; shorter than thorax; ovipositor concealed, arising from apical one-third of abdominal venter; first valvifers (Fig. 302) semicircular with articular knobs prominent; second valvifers of uniform width (Fig. 302); third valvulae short, lanceolate, less than three times as long as wide, more than one-third the length of second valvifers; outer plates of ovipositor (Fig. 302) narrow at base, widened at apex, slightly shorter than second valvifers; subgenital plate broad, posterior margin with a notch in the middle.

Length of female :- 1.03 mm.

Male :- Not known
**Hototype**

:- ♀, India, U.P. Dehradun, ex. *Euproctis scintillans* W. (Lepidoptera: Lymantridae) on *Cajanus cajan*,
20-12-1986 (Nikhut Arifa)

**Paratype**

:- 4 ♀♀, same data as holotype.
Genus Tetrastichus Haliday


Type-species: Cirrospilus attalus Walker, by original designation. Place on the official list of generic names in Zoology by the ICZN, Opinion 720, 1965.


Hyperteles Foerster, 1856. Hym. Stud., 2: 84. Type-species; Eulophus elongatus Foerster, by monotypy and original designation.


Hdrothrix Cameron, 1913. *Indian Forest Rec.*, 4: 103. Type-species: *Hdrothrix purpurea* Cameron, by monotypy.


<table>
<thead>
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<th>Taxon</th>
<th>Author</th>
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<th>Reference</th>
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<tbody>
<tr>
<td>Tetrastichus</td>
<td>Howard</td>
<td>1886</td>
<td>Ent. Amer. 2: 100.</td>
</tr>
<tr>
<td>Tetrastichus</td>
<td>Thomson</td>
<td>1878</td>
<td>Hymenoptera Scandinavieae 5: 278.</td>
</tr>
<tr>
<td>Tetrastichus</td>
<td>Waterston</td>
<td>1922</td>
<td>Indian Forest Rec. 9: 39.</td>
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<tr>
<td>Tetrastichus</td>
<td>Nikol'skaya</td>
<td>1952</td>
<td>Opred Faune SSSR Moscow 44: 274.</td>
</tr>
<tr>
<td>Tetrastichus</td>
<td>Author</td>
<td>Year</td>
<td>Journal and Details</td>
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<td>Ferriere</td>
<td>1960</td>
<td><em>Acta hymenop.</em>, Tokyo 1, 105-108.</td>
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</table>
Genus *Tetrastichus* was described by Haliday in 1843 with *Cirrospilus attalus* Walker as its type species. Walker (1844) apparently accepted this generic segregate at once, as he published the description of a new species in *Tetrastichus* and shortly thereafter (1846-1848) transferred many of his species previously described under *Cirrospilus* to *Tetrastichus*. Walker also treated *Aprostocetus* Westwood as a synonym of *Tetrastichus*, but that according to those days standards of taxonomic procedures, would be impossible, as *Aprostocetus* was the older of the two names.

Foerster (1856) made an excellent attempt on the classification of chalcids largely based on the works of Haliday and Walker. Foerster, however, distributed the genera of chalcid-flies among more than 20 families. *Tetrastichus* was made the type genus for one of these families. The genera *Triphasius* Foerster, *Anozus* Foerster, *Pteroptrix* Westwood, *Trichaporus* Foerster and *Tetrastichus* Haliday were grouped together to form the family *Tetrastichoidae*. 
Foerster stated in his discussion of the genus *Tetra-stichus* "that he considered Walker to have been correct in combining *Aprostocetus* and *Tetra-stichus* but that in the future if the species with an elongate ovipositor were segregated generically they should be placed under the name *Aprostocetus*, with *Lonchentedon* Ratzeburg as a generic synonym".

Walker (1871-72) in his classification of chalcidflies briefly dealt the genera of the family Tetrastichidae, but his classification differs very little from Foerster's and continued to regard *Aprostocetus* as a synonym of *Tetra-stichus*, although observance of the right of priority had become quite general by that time.

Thomson (1878) while dealing with the Scandinavian species of *Tetrastichus*, listed *Aprostocetus* Westwood and *Lonchentedon* and *Geniocerus* Ratzeburg as generic synonyms, and transferred a number of species from *Eulophus* and *Entedon* to *Tetrastichus*.

Howard (1886) a few years later, keyed out the genera of the chalcids but did not change the concept of the genus *Tetrastichus* of the European authors. This was Ashmead (1897), who published his classification of the suprageneric categories of his superfamily Chalcidoidea, considered Foerster's family Tetrastichoidea (or Walker's Tetrastichinae of the Eulophidae). He (1904) included 13 genera in the Tetrastichinae. He considered *Tetrastichus* and *Aprostocetus* to be distinct genera and listed *Geniocerus* and *Trichoceras* Ratzeburg as synonyms of *Tetrastichus*. He cited *Eulophus miser* Nees as the genotype
of *Tetrastichus*, apparently because of the fact that Dalla Torre (1898) had listed *Cirrospilus attalus* as a synonym of *Eulophus miser*.

Ashmead grouped *Melittobin Westwood, Tetristichodes Ashmend, Trichaporus Foerster, Hyperteles Foerster, Gyrolasia Foerster, Syntomosphyrum Foerster, Ceranisus Walker, Baryscapus Foerster, Aprostocetus Westwood, Crataeopus Foerster and Pentastichus Ashmead with Tetrastichus in the tribe Tetristichini and, making a tribe Ceratoneurini for the genus Ceratoneura Ashmead. He placed these two tribes in the subfamily Tetristichinae. Schmiedeknecht (1909) followed Ashmead's classification almost without any modification but pointed out the genus *Oomyzus* Rondani to be a synonym of *Tetrastichus*.

Kurdjumov (1913) made an excellent studies of the genus *Tetristichus* and its allies, and showed that *Trichaporus* is a synonym of *Astichus* Foerster (subfamily Entedontinae), and *Gyrolasia* is the same as *Pteroptrix* Westwood (a member of subfamily Aphelininae). He also considered *Syntomosphyrum, Ceranisus*, and *Baryscapus* to be synonyms of *Tetristichus*. He resurrected the genus *Geniocerus*, for those species formerly placed in *Tetristichus*, which have more than one dorsal bristle on the submarginal vein of the forewing and restricted *Tetristichus* to those species with one dorsal bristle. He used the name *Aprostocetus* for those species having a long exserted ovipositor. Kurdjumov made a confirmation of the fact that *Cirrospilus attalus* is a synonym of *Eulophus miser*.
Gahan (1914) followed Kurdjumov while dealing with the Nearctic species of the genus Tetraechus.

Crawford (1915) was unsatisfied with Kurdjumov's definition of Tetraechus and Genicercus, but nothing better was available at that time. Since that time the genus Genicercus was used by few workers, but for the rest, Kurdjumov's findings had been quite generally followed.

Girault (1913) followed Ashmead's system of classification and described numerous genera and species of Tetraechinae, but he was not always consistent in his treatment of his genera. For example, he described the genus Aprostoceroloides in his first account (1913) of the Bulophidae of Australia, but in the supplement (1915) to this work he listed this genus as a synonym of his Trichaporoidella. Later (1917) he evidently decided that the two genera were not the same, as he placed one of his new species from U.S.A. in the genus Aprostoceroloides. Burks (1943) studied the characters given in the original descriptions of Aprostoceroloides and Trichaporoidella and in his opinion Aprostoceroloides is a synonym of Tetraechus, while Trichaporoidella is more than likely the same as Syntomosphyrum.

Burks (1943) conclusions regarding the limitation of Tetraechus and its related genera differ little from those of Kurdjumov. He disagree with Kurdjumov that Syntomosphyrum is a synonym of Tetraechus, as the two groups recognizably distinct. Further, Burks stated "the use of the name Genicercus seems unnecessary; the species referred to that genus may well
be placed in *Tetrastichus*. The genus *Ceranisus*, as identified by Ashmead (and apparently by Kurdjumov as well), is not the same as Walker's genus as originally described. *Ceranisus* Ashmead, not Walker is undoubtedly the same as *Tetrastichus*, but *Ceranisus* Walker (having two funicle segments) is close to *Pentastichus* Ashmead". Further more, according to Burks conclusion most of the Nearctic species described in *Hyperteles*, however, belong in *Tetrastichus*. Although he had transferred a number of species from *Ootetrastichus* Perkins to *Tetrastichus*, but did not consider *Ootetrastichus* a synonym of *Tetrastichus*.

*Syntomosphyrum* Foerster was synonymized with *Aprostocetus* Westwood by Graham (1961) and with *Tetrastichus* by Domenichini (1965). However, Ferrier (1933, 1940), Musebeck *et al.* (1951), Kurian (1954), Burkr (1952, 1967), Risbec (1957), Peck (1963), Peck *et al.* (1964) Khan and Shafee (1979) followed Burks (1943) opinion regarding *Syntomosphyrum* and *Tetrastichus* as distinct genera.

Recently, Hussain and Khan (1986) have again raised the issue regarding validity of *Aprostocetus* Westwood and *Syntomosphyrum* Foerster and wrote "Irrespective of the validity or otherwise of the genera *Aprostocetus* Westwood and *Syntomosphyrum* Foerster, the species described from India under these names appear to be best placed in *Tetrastichus*, and are, therefore, transferred to this genus as new combination". This, no doubt, has unfortunately resulted in some homonyms and new names had been proposed.
The author agrees with the earlier opinion of Burks (1943) and it is also felt that a detailed thorough probe, is still needed to settle this issue.

Recently Kostyukov (1977) has dealt with detailed morphology of the genus *Tetrastichus* and the identification remarks made by him apply well on the species under study. The additional generic characters of pronotum; subgenital plate and components of ovipositor as suggested by Khan and Shafee (1978) are quite convincing and are confirmed as stable generic characters.

From India a good number of species have been described. In the present work three new species are being added to the present knowledge of the genus *Tetrastichus* and three species are being redescribed. A key to some Indian species is also being proposed.

Key to some Indian species of the genus *Tetrastichus* Haliday based on females.

1. Post marginal vein distinctly developed.

   2

   Postmarginal vein completely absent.

   5

2. Body yellow or yellowish brown.

   3
- Body black except abdomen brown; frontovertex and face with scattered shallow punctations; eyes very sparsely pubescent; antennae brown, scape pale brown, only one ring segment present, club almost as long as preceding two funicle segments combined; pronotum and propodeum reticulately sculptured; scutellium finely longitudinally reticulate; pronotum with few sparsely scattered puncts; propodeum with the median carina, two short indistinct transverse carinae near median carina and one short indistinct carina near posterior margin on each side of the propodeum; paraspicular carinae strongly developed.

........... T. krishnaiahi Kaul and Saraswat

3. Eyes silvery white, bare.

.................. 4

- Eyes dark red, pubescent, abdomen with transverse bands; frontovertex punctate; propodeum smooth, median carina and paraspicular carina absent; propodeal spiracle touching the lateral margin.

........... T. postmarginaloides Sarawat

4. Mandibles trilobate; scape slightly more than four times as long as wide; three ring segments present; funicle segments 1-3 subequal in length, each one and a half times as long as wide; mesoscutum with five setae near
each parapsidal furrow, abdomen with five transverse brown bands on dorsum.

........... T. flavidus Khan and Shafee

- Mandibles bidentate; scape slightly flattened, slightly more than three times as long as wide; pedicel very short slightly longer than wide, only two ring segments present, first funicle segment distinctly more than two times as long as wide; pedicel very short slightly longer than wide, only two ring segments present; first funicle segment distinctly more than two times as long as wide, second and third segment equal in size, more than two times as long as wide; mesoscutum with three rows of bristles near each parapsidal furrow; abdomen without transverse brown bands on dorsum.

........... T. antennalis sp.n.

5. Body colouration dark brown or metallic.

......................... 6

- Body colouration yellow or yellowish brown.

......................... 13

6. Antennae with only one ring segment.

......................... 7

- Antennae with more than one ring segment.

......................... 10
7. Frontovertex punctate.

.................................................. 8

- Frontovertex smooth, without punctations.

.................................................. 9

8. Malar suture distinct; antennae dark brown, scape testaceous, pedicel short, distinctly longer than wide, two ring segments present, funicle segments 1-3 sub-equal in size, club almost as long as preceding two funicle segments together.

............ T. versicolor Ranaweera

- Malar suture absent; antennae dark brown except club white; pedicel long, more than two times as long as wide; only one ring segment present; first funicle segment elongated, less than two times as long as wide, second a trifle longer than wide, third greatly transverse, club longer than preceding two funicle segments combined.

............ T. davidi Khan

9. Eyes red; prominence between antennal sockets one-third the width of frons between eyes; lower margin of clypeus without dents medially; antennae uniformly yellowish brown.

............ T. indicus Khan and Shafee

- Eyes reddish brown, prominence between antennal sockets one-fourth the width of frons between eyes; lower margin
of clypeus with two dents medially; antennae brown except scape yellow.

.......................... T. aligarhensis
Khan and Shafee

10. Antennae with four ring segments.

................................. 11

- Antennae with only two or three ring segments.

................................. 12

11. Body very dark brown with metallic blue-green reflections; head without punctations; antennae brown with scape yellowish; legs pale yellow except fore coxae dark brown.

........... T. dhireni Saraswat

- Body non-metallic brown; head with shallow scattered punctations on vertex and face; antennae dark brown except scape yellowish brown; legs pale brown.

........ T. shencottensis Saraswat

12. Scape, podicel yellowish brown, funicle segments and club fuscous; only two ring segments present; legs pale cream except coxae and major part of femora dark.

........ T. taprobaneensis Ranaweera

- Antennae dark brown with yellow brown scape and pedicle; three ring segments present; legs testaceeous
except coxa and femora dark brown.

............ T. niger Ranaweera

13. Pedicel distinctly shorter or one-half to one-third the length of first funicle segment.

................................. 14

- Pedicel as long as first funicle segment or longer.

................................. 23


................................. 15

- Mandibles quadridentate.

................................. 22

15. Antennae with three or four ring segments.

................................. 16

- Antennae with only one ring segment; width of frons between eyes less than two times the width of head; malar space shorter than eye width; mandibles with two teeth and a truncation; first funicle segment very long second and third segment subequal in size.

............. T. pantnagarensis Khan

16. Four ring segments present.

................................. 17

- Only three ring segments present.

................................. 18
17. Antennae about half the body; pedicel almost one-third the length of first funicle segment; first funicle segment very long; almost eight times as long as wide; three mesoscutal bristles present, median longitudinal groove on mesonotum faint.

............... T. tritrichia Saraswat

Antennae less than half the body; pedicel not likewise, distinctly shorter than first funicle segment; first funicle segment almost two and a half times as long as wide; eleven mesoscutal bristles present, median longitudinal groove on mesonotum distinct.

18. Antennae not uniformly yellow.

......................... 19

Antennae uniformly yellow; eyes red with six dark patches; scape slightly less than four times as long as wide, as long as basal two funicle segments together; funicle segments 1-3 subequal in length; body completely yellow except apex of ovipositor infuscated; middle tibial spur as long as basitarsus; third valvulae four times as long as wide; one-fourth the length of second valvifers, outer plates of ovipositor as long as second valvifers.

........... T. psyllidis Khan and Shafee

19. Lower margin of clypeus with two dents medially.

......................... 20
Lower margin of clypeus without dents medially; two dark spots below the front ocellus present; club two segmented; thorax light reddish brown; slightly broader than head; legs yellowish brown; submarginal vein approximately equal to the marginal vein; stigmal vein about one-fourth the marginal vein; ovipositor sub exserted.

...... T. lasiopterae Bhatnagar

20. Frontovertex and thorax without any punctations.

21. Frontovertex, mesoscutum and scutellum with punctations; eyes and ocelli brownish red to reddish brown; antennae dark brown; legs yellowish brown except middle coxae completely, hind coxae basally and last tarsal segment of all the legs dark brown.

...... T. malabarensis Saraswat

21. Head yellowish brown, vertex and bases of ocelli dark brown, eyes reddish brown, antennae black except scape yellowish brown; legs yellowish except last tarsal segment of all the legs dark brown; pedicel distinctly less than one-half the length of first funicle segment.

...... T. bicolor Saraswat

- Head very dark brown, rest of the body yellowish brown; eyes red; antennae brown except scape and pedicel
yellowish brown; legs brownishyellow except hind coxae on basal half black; pedicel not likewise but distinctly shorter than first funicle segment.

\[ \text{T. satpurensis} \text{ Saraswat} \]

22. Head yellowish brown with two dark longitudinal bands on frontovertex, frontovertex punctate, postocellar line longer than ocellocular; antennae brownish except scape more than four times as long as wide, only two ring segments present.

\[ \text{T. frontolatus} \text{ sp.n.} \]

Head light brownish with yellowish golden reflections; frontovertex smooth; postocellar line shorter than ocellocular, antennae dark brown, scape seven times as long as wide, only three ring segments present.

\[ \text{T. vishnov} \text{ sp.n.} \]

23. Eyes red.

\[ \text{T.} \text{ sp.n.} \]

Eyes silvery white; prominence between antennal sockets one-sixth the width of frons between eyes; antennae yellowish; scape three and a half times as long as wide; pedicel one and a half times as long as wide two ring segments present; funicle segments 1-3 slightly longer than wide; third valvulae three and a half times as long as wide; one-third the length of second valvifer, outer plates of ovipositor slightly longer.
than second valvifers.

...... T. ajmerensis Khan and Shafee

24. Thorax yellowish brown; prominence between antennal sockets one-fifth the width of frons between eyes; mesoscutum with five setae near each parapsidal furrow; third valvulae six times as long as wide, more than one-third the length of second valvifers, outer plates of ovipositor as long as second valvifers.

...... T. annulicornis Khan and Shafee

Thorax golden yellow with dark brown patches on greater part of pronotum and on anterior part of mesoscutum, margins of mesoscutum and scutellum blackish brown; prominence between antennal sockets distinctly less than one-fourth the width of frons between eyes; mesoscutum with six setae near each parapsidal furrow; third valvulae less than four times as long as wide, one-fourth the length of second valvifers, outer plates of ovipositor distinctly shorter than second valvifers.

........... T. atomelli Khan
**Tetrastichus antennalis** sp.n.  
(Figs. 303 - 310)

**Head** (Fig. 303) :- Yellowish brown, wider than long in facial view (0.6 : 0.43); frontovertex smooth, width more than one-half the total head width (0.32 : 0.6); scrobes deep and convergent above; ocelli white, arranged in obtuse triangle; postocellar line almost equal in length to ocellocular; eyes white, bare; antennae inserted well above lower level of eyes; prominence between antennal sockets one-fourth the width of frons between eyes (0.8 : 0.32); malar suture distinct; malar space longer than eye width (0.19 : 0.13); lower margin of clypeus with two dents medially; mandibles bidentate (Fig. 304) with blunt teeth; maxillary and labial palpi each one segmented (Fig. 305).

**Antennae** (Fig. 306) :- Yellowish brown except scape yellow, eight segmented excluding two ring segments; scape slightly flattened, slightly more than three times as long as wide (0.19 : 0.06); pedicel very short, slightly longer than wide (0.06 : 0.05), distinctly less than half the length of first funicle segment; funicle three segmented; first funicle segment distinctly more than two times as long as wide (0.14 : 0.06); second and third segment equal in size, slightly more than two times as long as wide (0.12 : 0.055); club three segmented, less than six times as long as wide (0.29 : 0.05), longer than preceding two funicle segments together.

**Thorax** (Fig. 307) :- Brown, pronotum with posterior margin
Figs. 303-310

*Plates* XXXVI

*Tetrastichus antennalis* sp.n. ♀

303. Head, in frontal aspect

304. Mandible

305. Maxillary and labial palp

306. Antenna

307. Thorax

308. Part of fore wing venation

309. Hind wing

310. Ovipositor
straight, posterior submarginal ridge distinct bearing four pairs of setae; mesocutum less than two times wider than long (0.59:0.31), mesopraescutum wider than long (0.42:0.31), with complete longitudinal ridges and bearing three rows of bristles at each lateral margin; each paramere with five setae; scutellum wider than long (0.44:0.27), with two submedian grooves and two pairs of setae, posterior margin rounded; mesopostphragma short, reaching half way to propodeum, propodeum with strong mosal and parapsiracular carinae, propodeal spiracle contiguous with anterior margin; rudimentary petiole narrow, obscure.

Fore wings (Fig. 308) :- Hyaline, more than two times as long as wide (1.55:0.74); apex broadly rounded; costal cell long, longer than marginal vein with single row of fourteen strong setae; basal vein with only two setae; basal area bare; cubital vein straight; speculum large and closed below; subcubital line of hairs starting about one-third of distance from base; submarginal vein (0.49), longer than marginal vein (0.45) with seven strong setae directed apically; postmarginal vein short (0.05), less than one-third the length of stigmal vein (0.12); marginal fringe short, spaced by a distance equal to one-fourth their length.

Hind wings (Fig. 309) :- Hyaline, less than six times as long as wide with blunt apex; marginal fringe long, one-half the wing width, spaced by a distance equal to almost one-sixth their length.

Legs :- Yellow except coxae infuscated; tarsi four segmented; middle tibial spur shorter than basitarsus.
Abdomen: Dark brown except basal one-third yellow; ovipositor arising from apical one-third of abdominal ventre; first valvifers (Fig. 310) triangular; third valvulae (Fig. 310) three and a half times as long as wide, less than one-fourth the length of second valvifers (Fig. 310), subgenital plate broad, posterior margin with a notch in the middle.

Length of female: 1.3 mm.

Male: Not known

Holotype: Q India, U.P. Gola Gokrun Math ex. Chilo infuscatellus Snell (Lepidoptera: Pyralidae) on Saccharum officinarum 20-6-1987 (Nikhil Arifa)

Paratype: 4 QQ, same data as holotype.

Tetristichus frontolatus sp.n.
( Figs. 311 - 320 )

Head (Fig. 311): Yellowish brown with two dark longitudinal bands on frontovertex; with fine reticulate sculpture; frontovertex with big puncts; head almost roundish, slightly wider than long in facial view (0.54 : 0.47); frontovertex width less than one-half the total head width (0.25 : 0.54); ocelli white, arranged in obtuse triangle; postocellar line longer than ocellocular; eyes dark and smooth; antennae inserted well above lower level of eyes; prominence between antennal
PLATE - XXXVII

Figs. 311-320

*Tetraestichus frontolatus* sp.n. Q

311. Head, in frontal aspect

312. Mandible

313. Antenna

314. Thorax

315. Pronotum

316. Fore wing

317. Part of fore leg

318. Part of middle leg

319. Part of hind leg

320. Ovipositor
sockets more than one-third the width of frons between eyes (0.07 : 0.25); malar space as long as eye width (0.14 : 0.14); malar suture distinct; lower margin of clypeus without dents medially; mandibles quadri dentate (Fig. 312) maxillary and labial palpi each one segmented.

Antennae (Fig. 313):- Brownish except scape yellowish with apical one-third infuscated; scape cylindrical, more than four times as long as wide (0.21 : 0.05); pedicel almost two times as long as wide (0.095 : 0.05), one-half the length of first funicle segment; two ring segments present; funicle three segmented, segments 1-3 drastically decreasing in length distad; first funicle segment very long, less than four times as long as wide (0.13 : 0.055); club three segmented, less than four times as long as wide (0.23 : 0.06), distinctly shorter than preceding two funicle segments combined.

Thorax (Fig. 314):- Brownish, pronotum (Fig. 315) with posterior submarginal ridge bearing seven pairs of setae, antecostal angles obtuse and laterally directed; mesoscutum more than two times wider than long (0.56 : 0.26), mesopraescutum wider than long (0.38 : 0.26) and bearing a row of four bristles at each lateral margin; scutellum slightly wider than long (0.26 : 0.24) with two submedian grooves and a pair of long stout bristle; mesopostphragma well extended beyond the propodeum; propodeum with median and lateral carinae; propodeal spiracle contiguous with anterior margin.
Fore wings (Fig. 316): - Hyaline, more than two times as long as wide (1.46: 0.63); apex broadly rounded; costal cell as long as marginal vein, with a single row of eight setae; basal vein with five setae, basal area bare; cubital vein straight; speculum narrow and closed below; submarginal vein (0.41) distinctly shorter than marginal vein (0.45); postmarginal vein rudimentary; stigmal vein short (0.1); marginal fringe short.

Hind wings: - Hyaline, six times as long as wide.

Fore legs (Fig. 317): - Yellowish except coxae at apex with a brown spot, tarsal segments 1-4 infuscated; tibial spur shorter than basitarsus; apical rim of tibiae with a single peg; basitarsus with an oblique row of setae.

Middle legs (Fig. 318): - Uniformly yellowish except coxae and last tarsal segment infuscated; tibial spur shorter than basitarsus; apical rim of tibiae with three stout pegs.

Hind legs (Fig. 319): - Uniformly yellowish except coxae brown, last tarsal segment infuscated; tibial spur shorter than basitarsus; apical rim of tibiae with three stout pegs.

Abdomen: - Brown with five white transverse bands on dorsum; shorter than head and thorax together; ovipositor exserted, arising from basal one-third of abdominal venter; first valvifers (Fig. 320) triangular; second valvifers (Fig. 320) long, more or less of uniform width; third valvulae (Fig. 320)
long, almost eight times as long as wide, less than one-half
the length of second valvifers; outer plates of ovipositor
(Fig. 320) as long as second valvifers.

Length of female  :-  1.23 mm.

Male  :-  Not known

Holotype  :-  Q India, U.P. Dehradun
ex. *Argyroplece aprobola* Meyr.
(Lepidoptera : Eucosmidae) on
*Litchi chinensis* 5-6-1986
(Nikhat Arifa)

Paratype  :-  3 QQ, same data as holotype.

*Tetrastichus versicolor* Ranaweera
(Figs. 321 - 329)

Head (Fig. 321) :-  Dark brown, faintly iridescent; punctate;
    wider than long in facial view (0.68 : 0.52); frontovertex wide,
    more than one half the total head width (0.39 : 0.68); ocelli
    white, arranged in obtuse triangle; postocellar line almost
    two times as long as ocellocular; eyes black, smooth; antennal
    sockets less than one-fifth the width of frons between eyes
    (0.08 : 0.39); malar space distinctly longer than eye width
    (0.22 : 0.14); malar suture absent; mandibles (Fig. 322) bidentate
    with an acute tooth and a broad truncation; maxillary and labial
    palpi each one segmented (Fig. 323).
Figs. 321-329  *Tetrastichus versicolor* Ranaweera Q

321. Head, in frontal aspect
322. Mandible
323. Maxillary and labial palp
324. Antenna
325. Thorax
326. Pronotum
327. Part of fore wing venation
328. Hind wing
329. Ovipositor
Antennae (Fig. 324):- Dark brown except scape yellow with infuscation on margins; eight segmented excluding one ring segment; scape cylindrical, less than four times as long as wide (0.26 : 0.07), pedicel two times as long as wide (0.1 : 0.05), shorter than first funicle segment, first funicle segment a trifle less than two times as long; as wide (0.13 : 0.07), as long as second segment (0.13 : 0.075), third segment short, longer than wide (0.1 : 0.075), club three segmented, more than two times as long as wide (0.22 : 0.09), shorter than preceding two funicle segments together.

Thorax (Fig. 325):- Dark brown, faintly iridescent; pronotum (Fig. 326) with posterior submarginal ridge bearing four pairs of setae, anterolateral angles obtuse and laterally directed; mesoscutum more than two times as wide as long (0.72 : 0.33), mesopraescutum bearing two setae at each lateral margin; scutellum short, slightly wider than long (0.34 : 0.31), with two submedian grooves and two pairs of setae, posterior margin rounded; surface of propodeum smooth, median carinae present, paraspiracular carinae absent.

Fore wings (Fig. 327):- Hyaline, venation very dark brown; more than two times as long as wide (1.71 : 0.78), apex broadly rounded, disc sparsely setose; costal cell bare; basal vein with four setae; basal cell bare; speculum large and closed below; cubital line of hairs just starting from base of basal vein; subcubital line of hairs starting from about one-third of distance from base; submarginal vein (0.48) with two strong
setae directed upward and twelve large setae directed downward, marginal vein long (0.57) longer than submarginal vein; postmarginal vein rudimentary; stigmal vein (0.13) more than one-fourth the marginal vein; marginal fringe short.

Hind wings (Fig. 328):- Hyaline, more than four times as long as wide (1.37 : 0.33), sparsely setose, marginal fringe short.

Legs:— Brown except apex of femora, tibiae and tarsal segments yellow.

Abdomen:— Brown with faint iridescent; longer than thorax; ovipositor arising from apical one-third of abdominal venter; first valvifers (Fig. 329) triangular with basal and apical angles at different levels; third valvulae (Fig. 329) long, lanceolate, more than seven times as long as wide, less than one-third the length of second valvifers (Fig. 329) outerplates of ovipositor (Fig. 329) slightly shorter than second valvifers.

Length of female:— 1.45 mm.

Male:— Not known

Holotype:— ♀, India, U.P. Lakhimpur Kheri, Palia-Kalan, ex. Cnaphalocrocis medinalis (Guen.) (Lepidoptera : Pyraustidae) on Oryza sativa, 6-10-1986 (Nikhat Arifa)

Paratype:— ♀♀, same data as holotype.
Tetrastichus david Khan
(Figs. 330 – 338)

Head (Fig. 330) :- Dark brown with fine reticulate sculpture; wider than long in facial aspect (0.7 : 0.52), frontovertex wide, smooth, width slightly more than one-half the total head width (0.36 : 0.7); ocelli arranged in obtuse triangle, length of postocular line two times as great as ocellocular; eyes white, bare; malar space (0.24) longer than eye width (0.17); antennae inserted at lower level of eyes; prominence between antennal sockets less than one-fourth the width of frons between eyes; malar suture absent; lower margin of clypeus with two dents medially; mandibles (Fig. 331) tridentate with acute teeth; maxillary and labial palpi one-segmented each (Fig. 332).

Antennae (Fig. 333) :- Uniformly brown except scape white and pedicel infuscated; scape cylindrical, less than five times as long as wide (0.27 : 0.06); pedicel long, more than two times as long as wide (0.11 : 0.05), distinctly shorter than first funicle segment; only one ring segment present; funicle segments drastically decreasing in length and increasing in width distad, first funicle segment distinctly more than two times as long as wide (0.13 : 0.055), second a trifle longer than wide (0.08 : 0.07), third segment transverse, distinctly wider than long (0.08 : 0.07); club three segmented, more than two times as long as wide (0.2 : 0.09), longer than preceding two funicle segments combined; first funicle to last club segment with 4, 5, 6, 8, 7 and 4 sensoria respectively.
Figs. 330-339

*Tetraestichus dovidi* Khan Q

330. Head, in frontal aspect

331. Mandible

332. Maxillary and labial palp

333. Antenna

334. Thorax

335. Pronotum

336. Fore wing

337. Hind wing

338. Ovipositor

339. Antenna, ♀
**Thorax (Fig. 334)**: Dark brown with golden reflections on dorsum, with fine reticulate sculpture; posterior margin of pronotum (Fig. 335) with eight strong setae; mesocutum wider than long (0.56 : 0.32) with three pairs of adnotular bristles; scutellum wider than long (0.36 : 0.25) shorter than mesocutum, with two submedian groove and two pairs of setae; metanotum narrow, band-like; surface of propodeum dark brown, with golden reflections, both median and lateral carinae present and a series of short carinae radiating latero anteriorad from posterior margin, propodeal spiracle separated from anterior margin by a space more than one-half as great as length of a spiracle.

**Fore wings (Fig. 336)**: Hyaline, less than three times as long as wide (1.32 : 0.5); costal cell narrow, with ten setae; basal vein with six strong setae; basal area bare; speculum narrow and closed below, cubital vein straight; submarginal vein (0.4) with two long setae, shorter than marginal vein (0.5); postmarginal vein absent; stigmal vein (0.1) one-fifth the marginal vein; marginal fringe spaced by a distance equal to almost one-fourth length of a fringe.

**Hind wings (Fig. 337)**: Hyaline, more than five times as long as wide.

**Fore legs**: Yellowish except coxae dark brown and femora infuscated; coxae with a cluster of setae on outer face of basal half and two long, strong setae on outer rim on distal half.
Middle legs :- Uniformly yellowish; outer rim of distal half of coxae with one strong setae; tibial spur short, almost half of the basitarsus.

Hind legs :- Yellowish except coxae infuscated, dorsal surface of coxae with nine strong setae arranged in circle; tibial spur short.

Abdomen :- Dark brown with golden reflections on dorsum; longer than thorax, ovipositor slightly exserted; first valvifers (Fig.338) triangular with basal and apical angles at different levels, second valvifers (Fig.338) long, more or less of uniform width, third valvulae (Fig.338) movably articulated with second valvifers, almost five times as long as wide, outer plates of ovipositor (Fig.338) slightly shorter than second valvifers.

Length of female :- 1.61 mm.

Male :- Resembles female except in the following characters:

Antennae (Fig.339) :- Uniformly yellowish except club dark brown or black, very densely setose; scape dialated, three times longer than wide; pedicel long, more than two times longer than wide, distinctly much longer than first funicle segment, funicle four segmented with a transverse ring, funicle segments elongated, decreasing in size distad except fourth segment transverse; club three segmented, very stout, almost one and a half times longer than wide, longer than preceding two funicle segments combined.
Legs :- Uniformly yellowish except coxae at basal half infuscated.

Length of male :- 1.21 mm.

Holotype :- ♀, India, U.P. Moradabad ex Chilo partellus (Swinh.) (Lepidoptera : Crambidae) on Zea mays, 10-10-1986 (Mkhat Arifa)

Paratype :- 30 ♀♀ and 6 ♂♂, same data as holotype.

Tetrastichus vishnov sp.n.
(Figs. 340 - 350)

Head (Fig. 340) :- Light brown with yellowish golden reflections; a trifle wider than long in facial view (0.6 : 0.51); ocelli white, arranged in equilateral triangle; postocellar line shorter than ocellocular; eyes white, smooth; prominence between antennal sockets more than one-third the width of frons between eyes (0.1 : 0.34); lower margin of olypeus with two dents medially; mandibles (Fig. 341) quadridentate with apical tooth acute, others with rounded apices.

Antennae (Fig. 342) :- Dark brown; scape cylindrical, seven times as long as wide (0.20 : 0.04); pedicel more than two times as long as wide (0.13 : 0.06), distinctly more than half the
Figs. 340-350

Tetrastichus vishnov sp.n. ♀

340. Head, in frontal aspect
341. Mandible
342. Antenna
343. Thorax
344. Pronotum
345. Fore wing
346. Hind wing
347. Part of fore leg
348. Part of middle leg
349. Part of hind leg
length of first funicle segment; three ring segments distinct; first funicle segment less than four times as long as wide (0.19 : 0.05), as long as second segment, third segment short, more than two times as long as wide (0.15 : 0.06); club three segments, more than three times as long as wide (0.22 : 0.07), longer than preceding funicle segment.

Thorax (Fig. 343): - Dark with metallic reflections; pronotum (Fig. 344) with posterior submarginal ridge bearing four pairs of setae, anterolateral angle obtuse and laterally directed, two yellowish spots on either side; mesopraescutum bearing six setae at each lateral margin; scutellum with two submedian grooves and a pair of setae, propodeum with a median and lateral carinae.

Fore wings (Fig. 345): - Hyaline, more than three times as long as wide (2.2 : 0.75); costal cell narrow, with a single row of sixteen setae; basal vein absent; basal cell bare; cubital vein broken; speculum large and open below; submarginal vein with six setae, shorter (0.55) than marginal vein (0.85); ten admarginal hairs present.

Hind wings (Fig. 346): - Hyaline, less than five times as long as wide (1.67 : 0.36) with acute apex.

Legs (Figs. 347-349): - Uniformly brown; apical rim of middle tibiae (Fig. 348) with three pegs, tibial spur more than half the length of basitarsus; apical rim of hind tibiae (Fig. 349) with a ring of hairs, tibial spur stout, short.
Abdomen: Dark brown except basal one-third yellow; third valvulae (Fig. 350) less than five times as long as wide, more than one-third length of second valvifers (Fig. 350); outer plates of ovipositor (Fig. 350) longer than second valvifers.

Length of female: 1.21 mm.

Male: Not known.


Paratype: 5 ♀♀, same data as holotype.

**Tetrastichus niger** Ranaweera
( Figs. 351 - 357 )

Head (Fig. 351): Black with iridescent blue-green cast; fine reticulate sculpture with punctures on frons, vertex, face and cheeks; wider than long in facial view (0.67 : 0.54); frontovertex much wider, more than one-half the total head width (0.36 : 0.67); ocelli white, arranged in obtuse triangle, postocellar line almost one- and one-half times as long as ocellocular; eyes red and smooth; antennae inserted at lower level of eyes; prominence between antennal sockets less than one-eighth the width of frons between eyes (0.05 : 0.36); malar space distinctly longer than eye width (0.23 : 0.15);
Tetranichus niger Ranaweera Q

351. Head, in frontal aspect

352. Antenna

353. Thorax

354. Pronotum

355. Part of fore wing venation

356. Hind wing

357. Ovipositor
malar suture absent; lower margin of clypeus without dents medially; mandibles reddish, tridentate with two acute teeth and a truncation; maxillary and labial palpi each one segmented.

Antennae (Fig. 352): Dark brownish except scape and pedicel yellowish brown, eight segmented excluding three ring segments; scape cylindrical, less than four times as long as wide (0.24 : 0.065); pedicel short, distinctly less than two times as long as wide (0.085 : 0.05) almost one-half the length of first funicle segment; funicle three segmented, first funicle segment very long, three times as long as wide (0.165 : 0.055) second (0.13 : 0.06) and third funicle segment (0.131 : 0.065) subequal in size; club three segmented, less than four times as long as wide (0.28 : 0.075), longer than preceding two funicle segments together.

Thorax (Fig. 353): Black with iridescent blue-green cast; reticulate sculpture; pronotum (Fig. 354) with posterior margin slightly concave with seven pairs of setae, anterior margin concave in the middle; mesoscutum more than two and a half times as wide as long (0.64 : 0.24) with a median longitudinal groove; parapsidal furrows complete; mesopraescutum less than two times as wide as long (0.44 : 0.24), surface completely covered with bristles; scutellum longer than mesoscutum, slightly wider than long (0.28 : 0.26) with two submedian longitudinal grooves and with two pairs of setae, posterior margin rounded; mesopostphragma reaching beyond propodeum; surface of propodeum smooth, paraspiracular carinae wanting,
Propodeal spiracles almost rounded, not touching anterior margin.

**Fore wings** (Fig. 355) :- Hyaline, more than two times as long as wide (1.66 : 0.75), apex broadly rounded; costal cell broad with five small setae at inner margin, basal vein with a row of three setae; basal area bare; speculum large and closed below; cubital vein straight; basal half of the disc sparsely setose; submarginal vein with a row of five setae directed upward and two setae directed downward, a trifle longer (0.47) than marginal vein (0.46), postmarginal vein rudimentary, stigmal vein (0.15) almost one-third the marginal vein; marginal fringe short, spaced by a distance equal to one-fourth their length.

**Hind wings** (Fig. 356) :- Hyaline, more than five times as long as wide (1.35 : 0.26); marginal fringe long, spaced by a distance equal to one-sixth their length.

**Legs** :- Legs testaceous except coxa and femora dark brown; middle tibial spur shorter than basitarsus.

**Abdomen** :- Dark with iridescent blue-green cast; longer than head and thorax together with tapering at apex; ovipositor slightly exserted, arising from base of abdominal venter; first valvifers (Fig. 357) semicircular; second valvifers
(Fig. 357) long and narrow, more or less of uniform width, anterior margin of basal part much curved inside, U-shaped; third valvulae (Fig. 357) long, lanceolate, less than twelve times as long as wide, slightly more than one-third the length of second valvifers; outer plates of ovipositor (Fig. 357) narrow, as long as second valvifers.

**Length of female** :- 1.65 mm.

**Male** :- Not known

**Holotype** :- ♀, India, U.P., Pantnagar, emerged from the cocoons of *Apanteles sp.* (Hymenoptera: Braconidae) on the larvae of *Helicoverpa armigera* (Hubner) (Lepidoptera: Noctuidae) on *Phaseolus aureus* (Green Gram), 13-2-1986 (Nikhat Arifa)

**Paratype** :- 8 ♀♀, same data as holotype.