

MISCELLANEOUS PUBLICATION

OCCASIONAL PAPER NO. 27

# Records of the Zoological Survey of India

**ON A COLLECTION OF SCELIONIDAE AND  
PLATYGASTRIDAE (HYMENOPTERA :  
PROCTOTRUPOIDEA) FROM INDIA**

by  
**M. K. MUKERJEE**

Issued by The Director  
Zoological Survey of India. Calcutta

**RECORDS**  
OF THE  
**ZOOLOGICAL SURVEY OF INDIA**

**MISCELLANEOUS PUBLICATION**  
**OCCASIONAL PAPER NO. 27**

**ON A COLLECTION OF SCELIONIDAE AND  
PLATYGASTRIDAE (HYMENOPTERA :  
PROCTOTRUPOIDEA) FROM INDIA**

*By*

**M. K. MUKERJEE**



सत्यमेव जयते

*Edited by the Director, Zoological Survey of India*

**1981**

© *Copyright 1981, Government of India*

**Published in July, 1981**

**PRICE : *Inland* : Rs. 30·00**

***Foreign* : £ 3·50 or \$ 9·00**

**PRINTED IN INDIA AT IMPRINTA, 243/2B, A. P. C. ROAD, CALCUTTA-6 AND  
PUBLISHED BY THE CONTROLLER OF PUBLICATIONS, CIVIL LINES, DELHI-110006**

**ON A COLLECTION OF SCELIONIDAE AND  
PLATYGASTRIDAE (HYMENOPTERA :  
PROCTOTRUPOIDEA) FROM INDIA**

# ON A COLLECTION OF SCELIONIDAE AND PLATYGASTRIDAE (HYMENOPTERA : PROCTOTRUPOIDEA) FROM INDIA\*

By

M. K. MUKERJEE

*School of Entomology, St. John's College,  
Agra-282002, India*

(With 40 Figures)

Forty new species of Proctotrupoidea, reported here, were collected by Dr. M. S. Mani and party from India in the course of investigations on the Proctotrupoidea with grants from the United States Department of Agriculture out of PL 480 funds. The following genera are being reported for the first time from India: *Xenomerus* walker, *Fidiobia* Ashmead, *Platygastoides* Dodd and *Isostasius* Föremster. The type specimens of the new forms, described here, are retained for the present in the School of Entomology, pending future disposal.

I express my grateful thanks to Dr. M. S. Mani, Emeritus Professor, for placing this interesting material at my disposal and for guidance.

## Family SCELIONIDAE

### Subfamily TELEASINAE

#### 1. *Trimorus abbicolus* sp. nov.

(Fig. 1)

*Female*: Length of body 1.86 mm. General colour of body black; eyes and ocelli brown; mandibles reddish-brown; antenna black except for the brown radicle and basal 0.50 of scape; legs brown; wings hyaline; veins brown; abdomen black except for the reddish-brown petiole.

*Head*: Face above the clypeus and genae longitudinally striate, otherwise head perfectly smooth; clypeal margin with very long white hairs; face above the clypeus, orbital border and genae with fine

---

\* Contribution No. 267 from the School of Entomology, St. John's College, Agra-282002.

white pubescence ; eyes finely and densely pubescent ; antennal sockets close to the clypeal border ; head viewed from above (Fig. 1A) almost as wide as the maximum width of thorax ; length to width 7:34 ; ocellocular space subequal to the ocellar diameter ; interocellar space 3.00 times ocellar diameter ; front ocellar space about 1.50 times ocellar diameter. *Antenna* (Fig. 1D) : Segments 12, 1.1.0.4.6. Scape long, slender, nearly uniformly thick throughout its length, about 8.00 times longer than thick ; pedicel 0.20 of scape, about 2.00 times longer than thick ; first and second funicular segments longer than the rests, and subequal ; first funicular segment 1.18 times the pedicel, 2.40 times longer than thick ; second funicular segment slender and subequal to the first segment ; third and fourth funicular

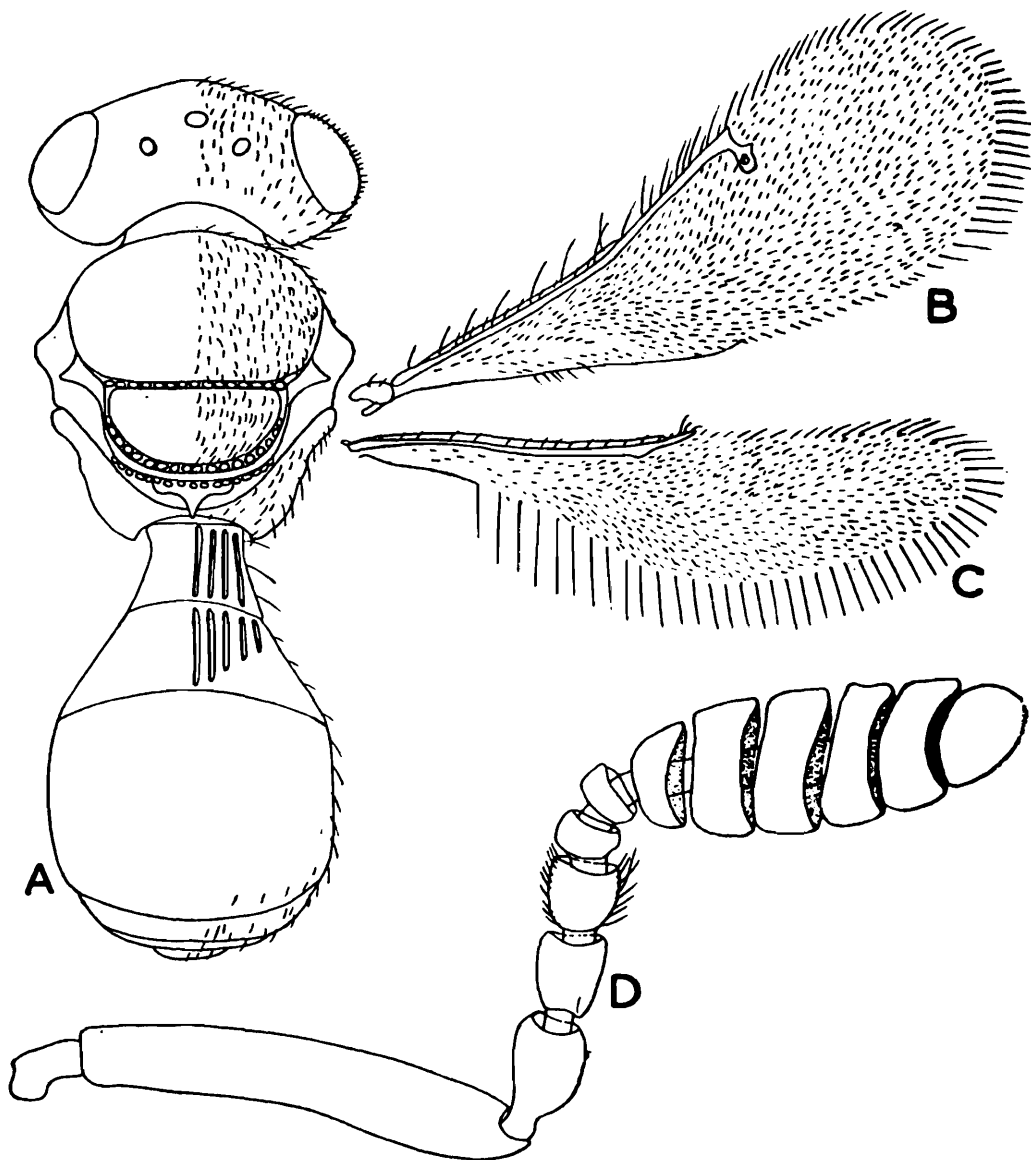


Fig. 1. *Trimorus abbiculus* sp. nov. ♀ : A, body dorsal view ; B, forewing ; C, hind wing ; D, antenna.

segments not transverse ; third funicular segment 0.72 of the second segment, 1.56 times longer than thick ; fourth funicular segment shortest, 0.85 of the third segment, 1.33 times longer than thick ; first club segment subequal to the preceding funicular segment, almost as long as

thick ; second club segment 1.12 times the first segment, almost as long as thick ; following segments gradually becoming thinner apically, and subequal to the second segment ; terminal segment almost oval, 1.40 times longer than thick ; club subequal to the preceding four funicular segments and 0.40 of pedicel combined.

*Thorax* : Mesoscutum reticulate in front and with well separated umbilicate punctae behind, scutellum with well separated umbilicate punctae ; parapsidal furrows present ; mesoscutum and propodeum more densely hairy than the rest of the thorax ; sides of propodeum with distinctly long white pubescence ; metanotum transverse and with a short spine medially ; thorax viewed dorsally (Fig 1A) length to width 37 : 33 ; mesoscutum to scutellum 16 : 12 ; thorax to abdomen 37 : 49. *Fore wing* (Fig. 1B) length 95 : 30 ; marginal fringe short ; *sm* : *m* 33 : 25 ; *st* short ; *sm* with 16 short setae directed forward ; *m* with 14 setae ; discal ciliation dense and complete. *Hind wing* (Fig. 1 C) to fore wing 83 : 95 ; length to width 83 : 17 ; marginal fringe moderately long. *Legs* normal.

*Abdomen* smooth ; petiole and second tergite longitudinally striated throughout their lengths, third tergite more finely and closely striated only anteriorly, otherwise smooth and shiny ; petiole laterally with a few long hairs ; abdomen with white pubescence as shown in figure ; petiole transverse ; abdomen viewed dorsally (Fig. 1 A) length to width 49:33 ; second to third tergite 10:27 ; abdomen 0.52 of body.

*Holotype* : Female, on card, 20.10. Abbi Fall (Karnataka Survey), Coll. *M. S. Mani & party*, 21. v. 1978.

## 2. *Trimorus agraensis*, sp. nov.

(Fig. 2)

*Male* : Length of body 0.98 mm. General colour of body black ; eyes, ocelli and mandibles dark brown ; antennae dark brown except for the yellowish radicle ; legs yellowish brown ; wings hyaline ; veins brown ; abdomen black except for the yellowish-brown petiole.

*Head* smooth except for longitudinally striated clypeus and gena ; vertex and face especially below the lower orbital border with moderately long, dense, white pubescence ; antennal sockets below the lower orbital border ; eyes finely and densely pubescent. Head viewed in front length to width 14:19 ; viewed from above (Fig. 2 A) length to width 6.5:20 ; head width subequal to the maximum width of thorax ; ocellular space 2.50 times ocellar diameter ; interocellar space 2.80 times ocellar diameter ; front ocellar space about 1.40 times ocellar diameter.

*Antenna* (Fig. 2 D) : Segments 12, 1.1.0.9.1. Scape slightly thickened in the middle, 3.43 times longer than thick ; pedicel subglobose, 0.31 of scape, 1.15 times longer than thick ; first funicular segment 1.33 times the pedicel, 1.48 times longer than thick ; second funicular segment shortest, 0.90 of the first segment, 1.50 times longer than thick ; third funicular segment 1.22 times the second segment, about 2.00 times longer than thick ; fourth funicular segment 1.13 times the third segment, 2.27 times longer than thick ; remaining funicular segments almost subequal to the fourth segment except for minute variations ; club missing.

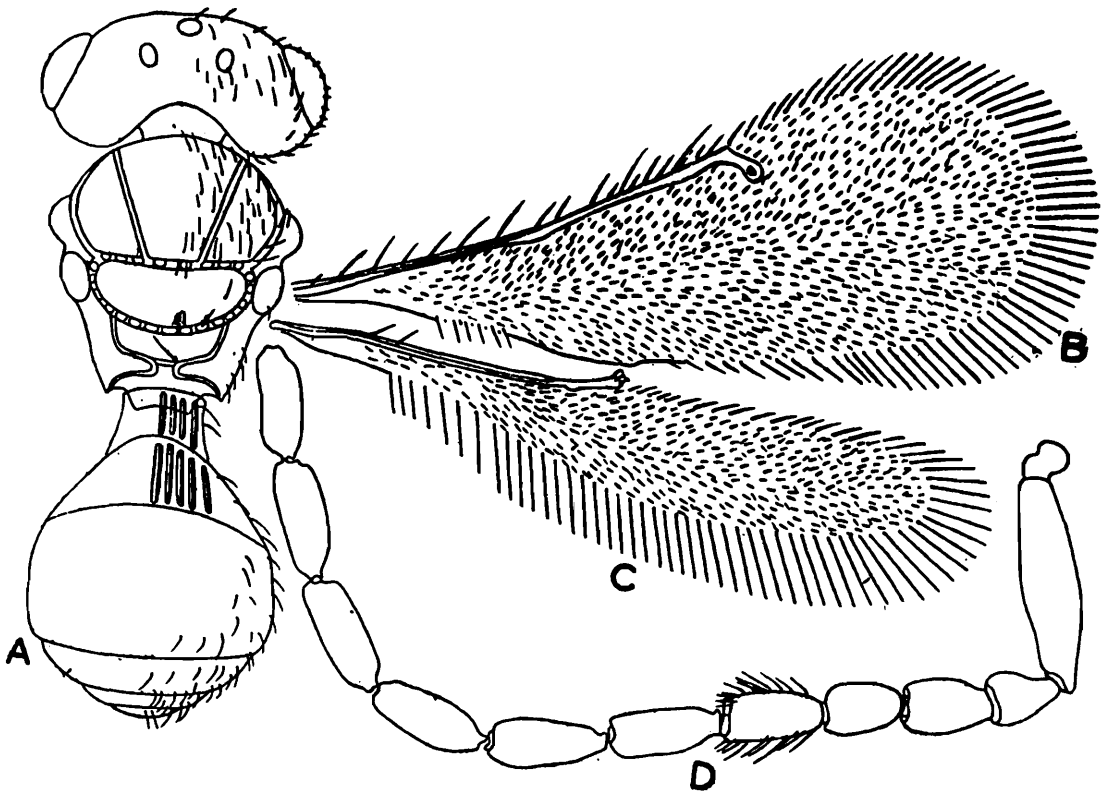


Fig. 2. *Trimorus agragensis*, sp. nov. ♂ : A, body dorsal view ; B, fore wing ; C, hind wing, D, antenna

*Thorax* : with well defined scattered punctae, clothed with moderately long, white, dense hairs ; parapsidal furrows deep and complete ; metanotum unarmed and transverse ; thorax viewed dorsally (Fig. 2 A) length to width 19.5:18 ; mesoscutum to scutellum 9:4.5. *Fore wing* (Fig. 2 B) length to width 70:24 ; discal ciliation dense and complete ; marginal fringe long ; *sm* slightly longer than *m* ; *st* very short ; *sm* with 8 and *m* with 6 long setae. *Hind wing* (Fig. 2 C) to fore wing 64:70 ; length to width 64:10 ; marginal fringe to maximum wing width 7:10.

*Abdomen* smooth and shiny, clothed with white, dense pubescence as shown in figure ; ovate ; petiole wider than long ; third tergite largest, third tergite to second tergite 11:5 ; abdomen viewed dorsally (Fig. 2 A) length to width 24:17 ; petiole and second tergite longitudinally striated for their whole lengths, remaining tergites smooth.

*Holotype* : Male, on card, labelled as "Entomology Annexe compound, St. John's College, Agra (U. P.), Coll. M. K. Mukerjee, 28.x. 1976."

### 3. *Trimorus anamalaianus* sp. nov.

(Fig. 3)

*Female* : Length of body 1.40 mm. General colour of body brownish-black ; eyes, ocelli and mandibles dark brown ; antennae dark brown except for the brownish basal 0.75 of scape, and radicle ; legs brownish except for the dark brown coxae ; wings completely infuscated very light brown ; veins brown ; abdomen brownish-black except for the brown petiole.

*Head* : Face and vertex smooth ; gena and clypeus longitudinally striate ; head width subequal to the maximum width of thorax ; antennal sockets close to the clypeal border ; vertex and gena conspicuously setose ; face with a few long setae ; eyes finely and densely pubescent. Head viewed in front length to width 18:27 ; viewed from above (Fig. 3 A) length to width 10:27 ; ocellocular space 3.00 times ocellar diameter ; interocellar space about 3.50 times ocellar diameter ; front ocellar space 2.50 times ocellar diameter. *Antenna* (Fig. 3 D) : Segments 12, 1.1.0.4.6. Scape slightly thickened in the apical half, 5.78 times longer than thick ; pedicel about 0.25 of scape, 2.00 times longer than thick ; first funicular segment 0.85 of the pedicel, 1.70 times longer than thick ; second funicular segment longest, slightly longer than the first segment, almost 2.00 times longer than thick ; third funicular segment 0.50 of the second segment, as long as thick ; fourth funicular segment shortest, very slightly shorter than the preceding segment, transverse, its length 0.80 of its thickness ; club segments except that of the terminal one distinctly transverse ; first club segment subequal to the third funicular segment in its length, its length 0.53 of its thickness ; second club segment very slightly longer than the first segment, subequal to the third and fifth club segments, its length 0.50 of its thickness ; third club segment subequal to the second segment ; fourth club segment subequal to the first segment, distinctly transverse, its length 0.45 of its thickness ; fifth club segment subequal to the second segment in its length, its length 0.52 of its thickness ; terminal club segment 1.80 times the preceding segment, very slightly less than 1.40 times longer than thick ; club subequal to the preceding four funicular segments and about 0.66 of pedicel combined.

*Thorax* closely finely punctate ; densely hairy ; sides of propodeum clothed with especially long, white, dense setae ; parapsidal furrows

present; metanotum distinctly transverse, continues behind into a short median spine; thorax viewed dorsally (Fig. 3A) very slightly longer than its maximum width; mesoscutum to scutellum 13 : 7. *Fore wing* (Fig. 3B) length to width 159:55; discal ciliation dense and complete; marginal fringe well developed: *sm* distinctly longer

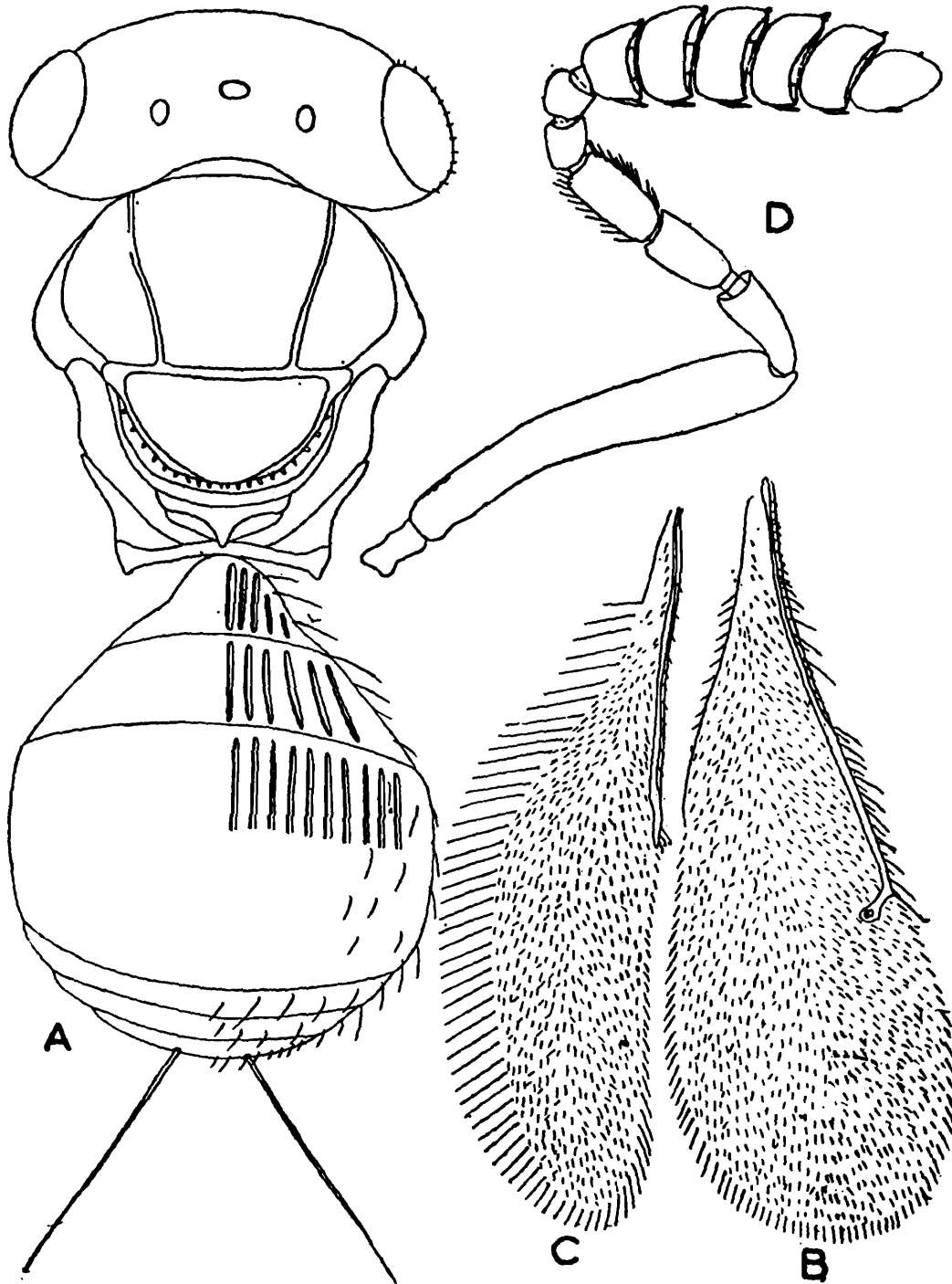


Fig. 3. *Trimorus anamalaianus*, sp. nov. ♀ : A, body dorsal view ; B, fore wing ; C, hind wing ; D, antenna

than *m*; *st* very short. *Hind wing* (Fig. 3C) to fore wing 149 : 159; length to width 149 : 32; marginal fringe well developed. *Legs* normal.

*Abdomen*: smooth oval, petiole and following two tergites dorso-laterally and the remaining tergites completely clothed with white setae; petiole distinctly transverse; third tergite largest, third tergite to second

tergite 18:6 ; abdomen viewed dorsally (Fig. 3A) length to width 33:28 ; petiole and second tergite longitudinally striated for their whole lengths, third tergite more finely striated only in the basal 0.40 as shown in the figure.

*Holotype* : Female, on card, 5.18. Munnar-Kodaikanal Road, Coll, M. S. Mani & party, 3.iv. 1972.

#### 4. *Trimorus appangalus* sp. nov.

(Fig. 4)

*Female* : Length of body 1.14 mm. General colour of body very dark brown to black ; head black ; eyes and ocelli dark brown ; mandibles reddish-brown ; antenna very dark brown except for the yellowish-brown radical, basal about 0.60 of scape beyond which a little darker, and brownish pedicel ; thorax black ; legs yellowish-brown ; wings hyaline ; veins light brown ; abdomen very dark brown except for the yellowish-brown petiole.

*Head* smooth ; gena longitudinally striate ; vertex, face above the clypeus and genae with white pubescence ; eyes finely and densely pubescent ; antennal sockets close to the clypeal border. Head viewed in front length to width 16.21 ; eye length to head length 10:16 ; head viewed from above (Fig. 4A) almost as wide as the maximum width of thorax ; length to width 8.21 ; ocellocular space 1.66 times oceller diameter : interocellar space 3.12 times ocellar diameter ; front ocellar space 1.35 times ocellar diameter. *Antenna* (Fig. 4D) : Segments 12, 1.1.0.4.6. Scape long, slender, cylindrical, slightly curved, 6.80 times longer than thick ; pedicel 0.23 of scape, 2.00 times longer than thick ; first funicular segment subequal to the pedicel ; Second funicular segment slightly shorter than the first segment, a little less than twice longer than thick ; third funicular segment distinctly shorter than the second segment, almost as long as thick ; fourth funicular segment subequal to the third segment, but distinctly transverse ; club segments except for the terminal one transverse ; first club segment about 0.50 of pedicel, its length 0.66 of its thickness ; second club segment 1.15 times the first segment, its length 0.60 of its thickness ; 3-5 club segments almost subequal to the second segment in their lengths but gradually reducing in thickness ; terminal club segment conic-ovate, very slightly less than the pedicel in its length, 1.33 times longer than thick ; club subequal to the preceding four funicular segments and about 0.84 of pedicel combined.

*Thorax* with well separated umbilicate punctae ; parapsidal furrows distinct and complete ; mesoscutum more densely pubescent than the rest of the thorax ; metanotum transverse and continues behind into

a single, short, median spine ; thorax viewed dorsally (Fig. 4A) length to width 22:20 ; mesoscutum to scutellum 10 : 6 ; thorax to abdomen 22 : 27. *Fore wing* (Fig. 4B) length to width 57 : 19 ; *sm* : *m* 20 : 14 ; *st* short ; *sm* with 9 and *m* with 8 moderately long setae directed forward ; marginal fringe short ; discal ciliation dense and complete. *Hind wing* (Fig. 4C) to fore wing 52 : 57 ; length to width 52 : 9.5 ; marginal fringe distinctly long. *Legs* normal.

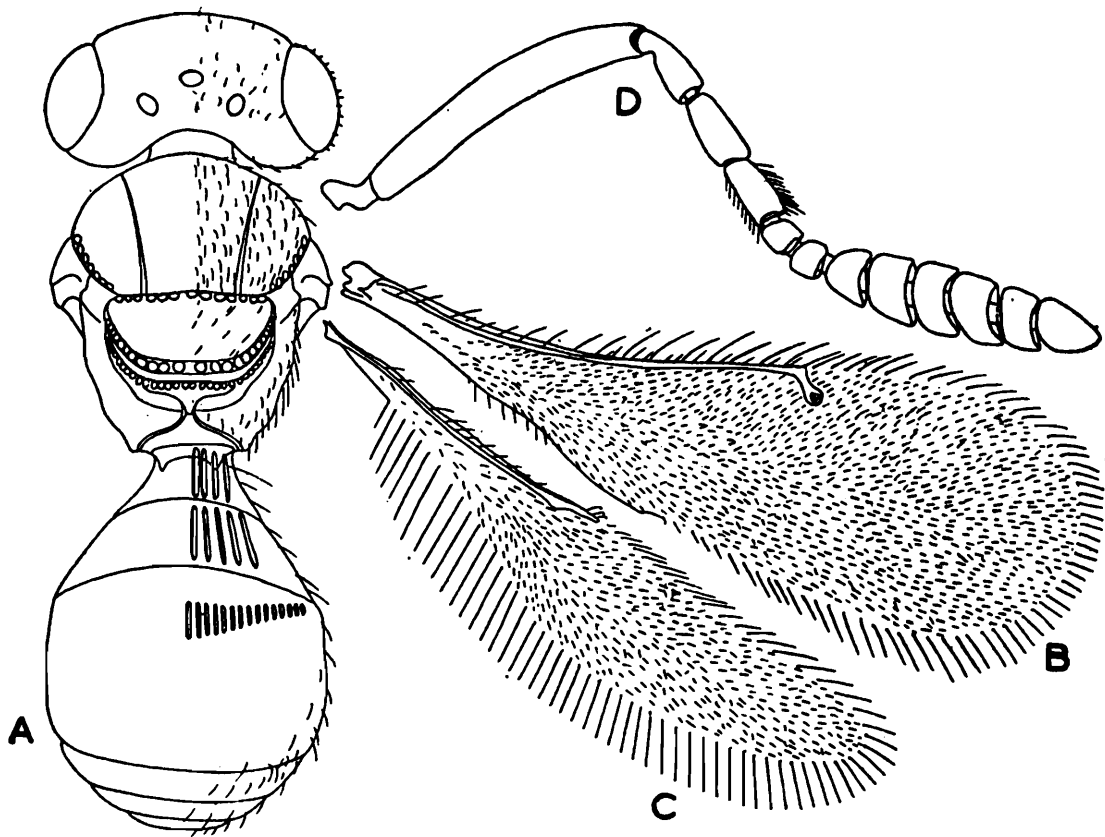


Fig. 4. *Trimorus appangalus* sp. nov. ♀ : A, body dorsal view ; B, forewing ; C, hindwing ; D, antenna

*Abdomen* smooth ; petiole and second tergite completely, but the third tergite more finely and only anteriorly longitudinally striated ; petiole transverse and clothed with a few long setae laterally ; third tergite dorsolaterally and the following tergites completely clothed with white pubescence ; abdomen viewed dorsally (Fig. 4A) length to width 27 : 20 ; second to third tergite 5 : 15 ; abdomen about 0.47 of body.

*Holotype* : Female, on card, 20.8. Appangala (Karnataka Survey), Coll. M. S. Mani & Party, 19, 24. v. to 3. vi. 1978.

##### 5. *Trimorus atturensis*, sp. nov.

(Fig. 5)

*Male* : Length of body 1.04 mm. General colour of body very dark brown to black ; head black ; eyes and ocelli very dark brown ; mandibles brownish ; antenna very dark brown except for the paler

radicle, scape and pedicel ; thorax very dark brown except for the brownish propodeum ; legs brown ; wings uniformly infuscated light brown ; veins brown ; abdomen very dark brown except for the brownish petiole.

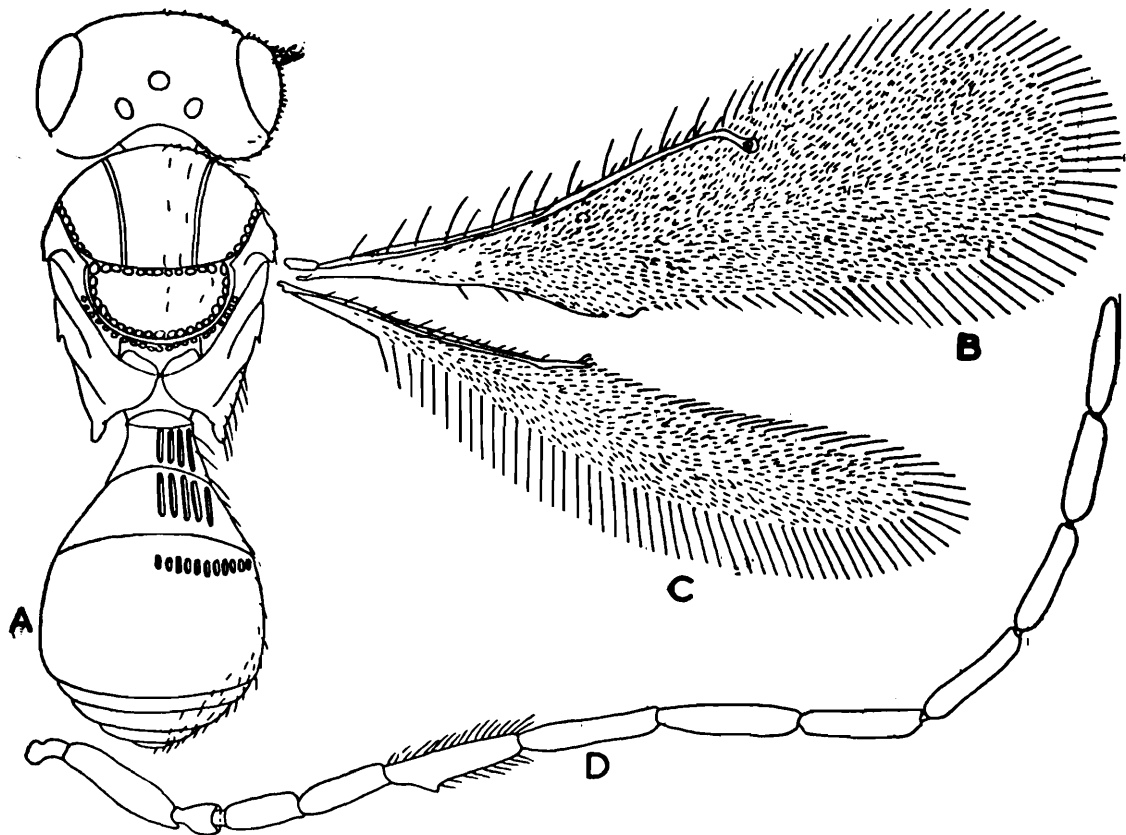


Fig. 5. *Trimorus atturensis* sp. nov. ♂ : A, body dorsal view ; B, fore wing ; C, hind wing ; D, antenna

*Head* smooth and shiny except for the longitudinally striated gena ; with less distinct pubescence ; eyes finely and densely pubescent ; clypeal margin with distinctly long hairs ; mandibles tridentate. Head viewed in front length to width 15:20 ; eye length to head length 8.5:15 ; head viewed from above (Fig. 5A) as wide as the maximum width of thorax ; length to width 9:20 ; ocellocular space 2.00 times ocellar diameter ; interocellar space 2.50 times ocellar diameter ; interocellar space 2.50 times ocellar diameter ; front ocellar space 1.20 times ocellar diameter. *Antenna* (Fig. 5D) : Segments 12, 1.1.0.9.1. Scape slightly thickened subapically, 3.47 times longer than thick ; pedicel subglobose, 0.31 of scape, 1.25 times longer than thick ; first funicular segment shortest, 0.58 of scape, 2.35 times longer than thick ; second funicular segment 1.27 times the first segment, 3.00 times longer than thick ; third funicular segment with a slight angular protruberance near its base, 1.50 times the second segment, 3.60 times longer than thick ; fourth and fifth funicular segment subequal to the third segment ; sixth and seventh funicular segments subequal and slightly shorter than the preceding segment ; eighth and ninth funicular segment

subequal and slightly shorter than the seventh ; club segment subequal to the seventh funicular segment.

*Thorax* : Mesoscutum anteriorly minutely and sparsely punctate otherwise thorax smooth and shiny ; parapsidal furrows distinct and complete ; thorax with less distinct pubescence ; metanotum transverse and continues behind into 3 widely spaced subequal teeth ; thorax viewed dorsally (Fig. 5A) length to width 17:20 ; mesoscutum to scutellum 9:5.3 ; *Fore wing* (Fig. 5B) length to width 63:18 ; *sm:m* 20:15 ; *st* short ; *sm* with 8 and *m* with 6 distinctly long setae directed forward ; discal ciliation dense and complete ; marginal fringe very long. *Hind wing* (Fig. 5C) to fore wing 55:63 ; length to width 55:8 ; marginal fringe moderately long. *Legs* normal.

*Abdomen* : Petiole completely, second tergite longitudinally striated except posterior one-fourth region, third tergite striated only in front, rest of the abdomen smooth and shiny. Abdomen viewed dorsally (Fig. 5A) length to width 25:17 ; second to third tergite 5:12 ; abdomen slightly less than 0.50 of body.

*Holotype* : Male, on card, 20.9. Attur (Karnataka Survey), coll. M. S. Mani & party, 20, 23, 31.v. — 8, 10.vi. 1978.

## 6. *Trimorus deccana* sp. nov.

(Fig. 6)

*Male* : Length of body 1.04 mm. General colour of body dark brown to black ; head very dark brown ; vertex black ; eyes, ocelli and mandibles brown ; antenna dark brown except for the yellowish-brown scape ; thorax brownish-black ; legs brownish except for the dark brown coxae ; wings uniformly infuscated light brown ; veins brown ; abdomen dark brown.

*Head* smooth and shiny, gena and clypeus longitudinally, striated, vertex moderately setose ; face with sparse, long hairs ; antennal sockets close to the clypeal border ; eyes finely and densely pubescent. Head viewed in front length to width 11:18 ; viewed from above (Fig. 6A) length to width 9:21 ; ocellular space a little less than 2.00 times ocellar diameter ; interocellar space 2.80 times ocellar diameter ; front ocellar space 1.33 times ocellar diameter. *Antenna* (Fig. 6 D) : Segments 12, 1.1.0.9.1. Scape uniformly thick, 3.55 times longer than thick ; pedicel short, globose, 0.28 of scape, as long as thick ; funicular and club segments slender, cylindrical, much longer than their thickness, and clothed with moderately long hairs ; first funicular segment shortest, 1.61 times the pedicel, very slightly thickened in the middle, 1.81 times longer than

thick ; second funicular segment slightly longer than the first segment but much shorter than the remaining funicular segments, 2.71 times longer than thick ; third funicular segment 1.73 times the second segment, 5.07 times longer than thick ; fourth funicular segment very slightly longer than the preceding segment, 5.38 times longer than thick ; fifth funicular segment longest, slightly longer than the fourth segment, 5.84 times longer than thick ; sixth funicular segment subequal to the third segment in its length but very slightly less in its thickness ; seventh and eighth funicular segments subequal, each almost subequal to the sixth segment, 5.33 times longer than thick ; ninth funicular segment about 0.90 of the eighth segment, 4.83 times longer than thick ; club about 1.07 times the ninth funicular segment, bluntly pointed, 5.16 times longer than thick.

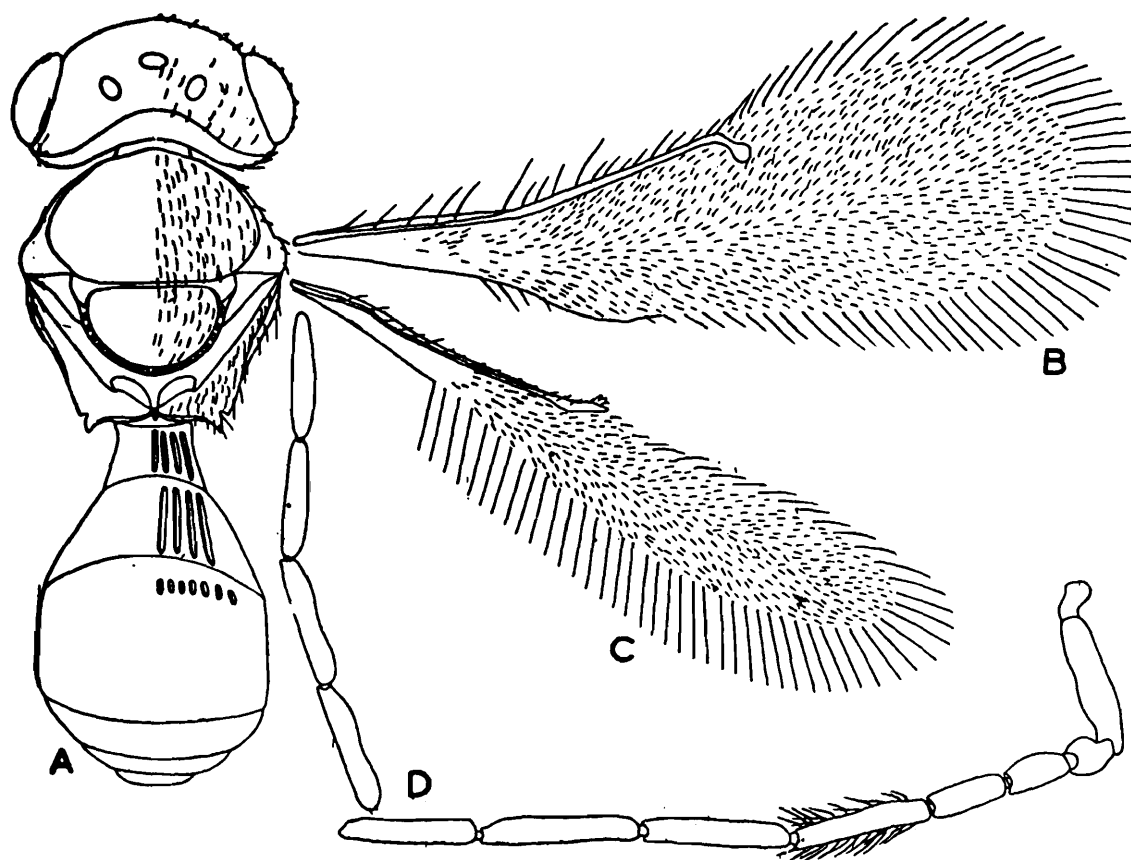


Fig. 6. *Trimorus deccana*, sp. nov. ♂ : A, body dorsal view ; B, fore wing ; C, hind wing ; D, antenna

*Thorax* : Mesoscutum in front with minute punctae, rest of the mesoscutum and scutellum finely longitudinally rugose. Thorax densely setose ; parapsidal furrows absent ; metanotum transverse, continued behind into 3 unequal spines (the median spine longest) ; maximum width of thorax subequal to the head width ; thorax viewed dorsally (Fig. 6A) length to width 20:19 ; mesoscutum to scutellum 10:6 ; scutellum semicircular. *Fore wing* (Fig. 6B) length to width 191:59 ;

discal ciliation dense and complete ; marginal fringe to maximum wing width 20:59 ; *sm* almost subequal to *m* ; *st* very short. *Hind wing* (Fig. 5C) to fore wing 167:191 ; length to width 167:26 ; marginal fringe to maximum wing width 18:26. *Legs* normal.

*Abdomen* smooth ; petiole and following three tergites with white pubescence only laterally, remaining tergites completely pubescent ; petiole wider than long ; third tergite largest, third tergite to second tergite 11.5:5.5 ; abdomen viewed dorsally (Fig. 6A) length to width 26:16.5 ; petiole and second tergite longitudinally striated for their whole lengths, third tergite shortly only at the extreme base.

*Holotype* ; Male, on card, 4.5. Mahabaleshwar Anjamali Rd. (Mahabalshwar), Coll. *M. S. Mani & party*, 15.ix.1971.

### 7. *Trimorus dimidicornis* sp. nov.

(Fig. 7)

*Female* : Length of body 1.86 mm. General colour of body black ; eyes and ocelli dark brown ; mandibles dark brown ; antennae dark brown except for yellowish radicle, yellowish basal 0.70 of scape and yellowish-brown pedicel ; legs yellowish-brown ; wings hyaline ; veins brown.

*Head* : Vertex and frons longitudinally rugose ; densely setose ; gena and face below the lower orbital border longitudinally striate ; eyes finely and sparsely pubescent ; head width subequal to the maximum width of thorax. Head viewed in front length to width 26:32 ; viewed from above (Fig. 7A) length to width 11.5:32 ; ocellocular space subequal to the ocellar diameter ; interocellar space about 2.75 times ocellar diameter ; front ocellar space subequal to the ocellar diameter. *Antenna* (Fig. 7D) : Segments 12, 1.1.0.5.5. Scape long, slender, almost uniformly thick, 7.44 times longer than thick ; pedicel 0.19 of space, 1.73 times longer than thick ; first funicular segment longest, 2.53 times the pedicel, 5.50 times longer than thick ; second funicular segment 0.91 of the first segment, but more thick, 3.33 times longer than thick ; third funicular segment almost subequal to the second segment, 3.00 times longer than thick ; fourth funicular segment almost subequal to the preceding segment ; fifth funicular segment shortest, 0.84 of the fourth segment, 2.44 times longer than thick ; first club segment 0.77 of the preceding funicular segment, 1.54 times longer than thick ; second club segment 0.88 of the first segment, 1.36 times longer than thick ; third and fourth funicular segments almost subequal to the second segment, with small differences ; terminal

club segment obtusely pointed, 1.42 times the fourth segment, 2.22 times longer than thick; club subequal to the preceding 3.25 funicular segments combined.

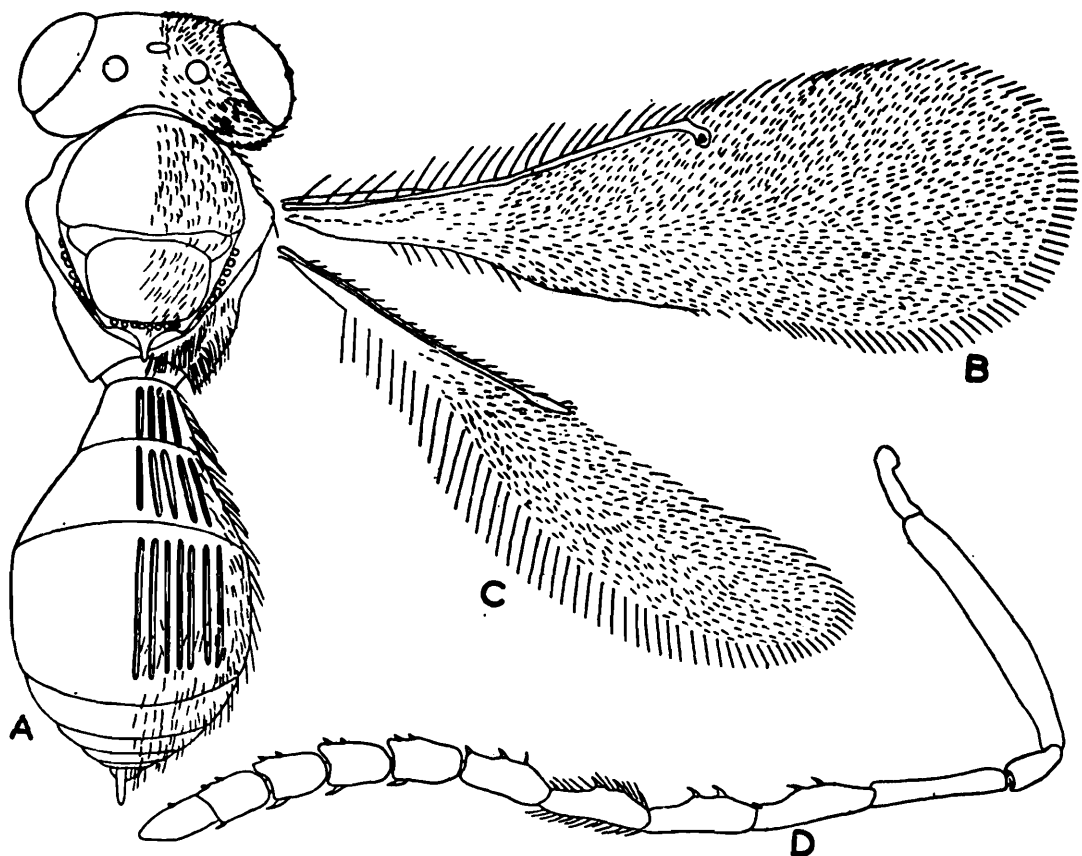


Fig. 7. *Trimorus dimidicornis*, sp. nov. ♀ : A, body dorsal view ; B, fore wing ; C, hind wing ; D, antenna

*Thorax* rugosely punctate; densely hairy; propodeum laterally with conspicuously long, dense, white pubescence; metanotum transverse, continues behind into a long slender spine; parapsidal furrows absent; thorax viewed dorsally (Fig. 7A) length to width 32:28; mesoscutum to scutellum 14:9.5. *Fore wing* (Fig. 7B) length to width 191:64; marginal fringe well developed; *m* about 1.75 times *sm*; *st* very short; discal ciliation dense and complete; *ms* and *m* with a series of long bristles. *Hind wing* (Fig. 7C) to fore wing 164:191; length to width 164:29; marginal fringe to maximum wing width 15:29. *Legs* normal.

*Abdomen* smooth and shiny, densely pubescent abdomen viewed dorsally (Fig. 7A) length to width 47:28; third tergite longest; third tergite to second tergite 21:10; petiole transverse; petiole, second and third tergites longitudinally striated for their whole lengths, striations on the third tergite more fine; ovipositor slightly exerted beyond the tip of abdomen.

*Holotype*: Female, on card, 12.2 Neyyar wild-Life Sanctuary, Coll. M. S. Mani & party, 21. viii. 1974.

8. *Trimorus dubarensis* sp. nov.

(Fig. 8)

*Female*: Length of body 1.04 mm. General colour of body black; eyes and ocelli brown; mandibles reddish-brown; antenna black except for the yellowish-brown radicle; legs brown; fore wings uniformly infuscated very light brown; veins dark brown; hind wings hyaline; abdomen black.

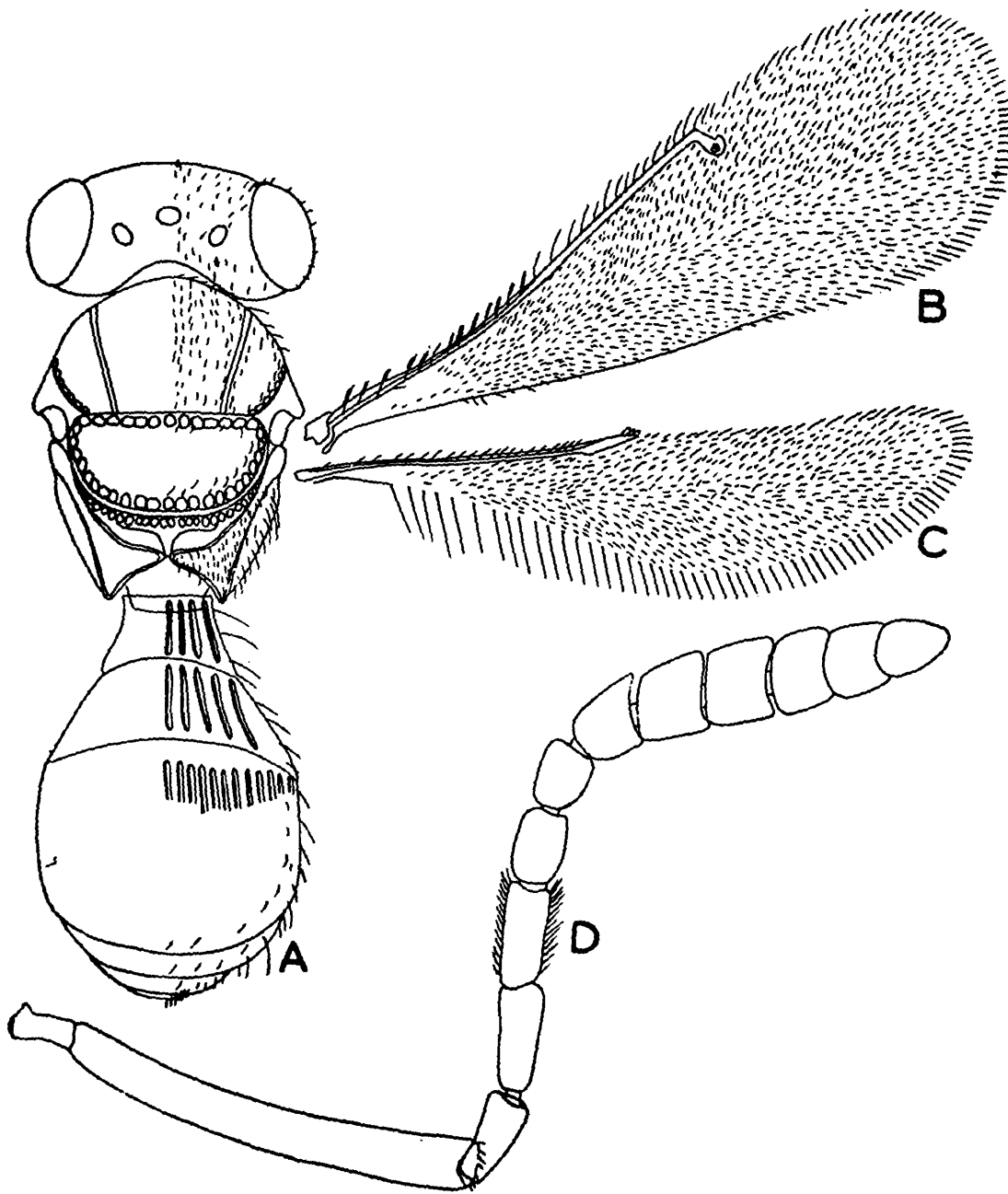


Fig. 8. *Trimorus dubarensis*, sp. nov. ♀ : A, body dorsal view ; B, fore wing ; C, hind wing ; D, antenna

*Head* smooth and shiny except for the longitudinally striated gena ; clothed with dense white pubescence ; eyes finely and densely pubescent ; antennal socket close to the clypeal border ; head viewed from above (Fig. 8A) almost as wide as the maximum width of thorax ;

length to width 7.5:20 ; ocellocular space 2.50 times ocellar diameter, interocellar space 4.00 times ocellar diameter ; front ocellar space a little less than twice ocellar diameter. *Antenna* (Fig. 8D) : Segments 12, 1.1.0.4.6. Scape long, slender, slightly curved and somewhat thickened subapically, 5.55 times longer than thick ; pedicel 0.26 of scape, 1.60 times longer than thick ; first funicular segment 0.60 of the pedicel, almost as long as thick ; second funicular segment very slightly shorter than the first segment, its length a little shorter than its thickness ; third funicular segment about 0.50 of the second segment, distinctly transverse ; fourth funicular segment almost subequal to the third segment ; club slightly shorter than the scape 2.85 times longer than thick, segments distinctly transverse except that of the terminal one which is almost as long as its maximum thickness ; club subequal to the preceding four funicular segments, pedicel and about 0.75 of scape combined.

*Thorax* finely closely punctate, clothed with dense, white hairs ; parapsidal furrows absent ; metanotum transverse and continues behind into a short median spine ; propodeum without teeth ; thorax viewed dorsally (Fig. 8A) length to width 17.5:19 ; mesoscutum to scutellum 9:5.5 ; thorax to abdomen 17.5:27. *Fore wing* (Fig. 8B) length to width 43:16 ; *sm* : *m* 18:10 ; *st* distinctly short ; *sm* with 8 and *m* with 7 setae directed forward ; discal ciliation dense and complete ; marginal fringe moderately long. *Hind wing* (8 C) to fore wing 39 : 43 ; length to width 39:9 ; marginal fringe moderately developed. *Legs* normal.

*Abdomen* : Petiole and second tergite longitudinally striated as shown in figure, other tergites completely smooth ; petiole with a few distinctly long hairs ; abdomen viewed dorsally (Fig. 8A) length to width 27:17 ; second to third tergite 5:13.5 ; abdomen 0.50 of body.

*Holotype* : Female, on card (antenna and wings on slide), 20.12. Dubare : Karnataka Survey, Coll. *M. S. Mani & Party*, 26.v.-4, 7.vi.1978.

### 9. *Trimorus fasciatus* sp. nov.

(Fig. 9)

*Female* : Length of body 2.28 mm. General colour of body black ; eyes and ocelli dark brown ; mandibles brownish except for the reddish teeth ; antenna almost black except for the dark brown pedicel, and the following three funicular segments ; legs brown except for the very dark brown apical about 0.70 of middle and hind tibiae ; fore wings

with three dark bands as shown in figure, apical band less infuscated ; hind wings hyaline ; abdomen black.

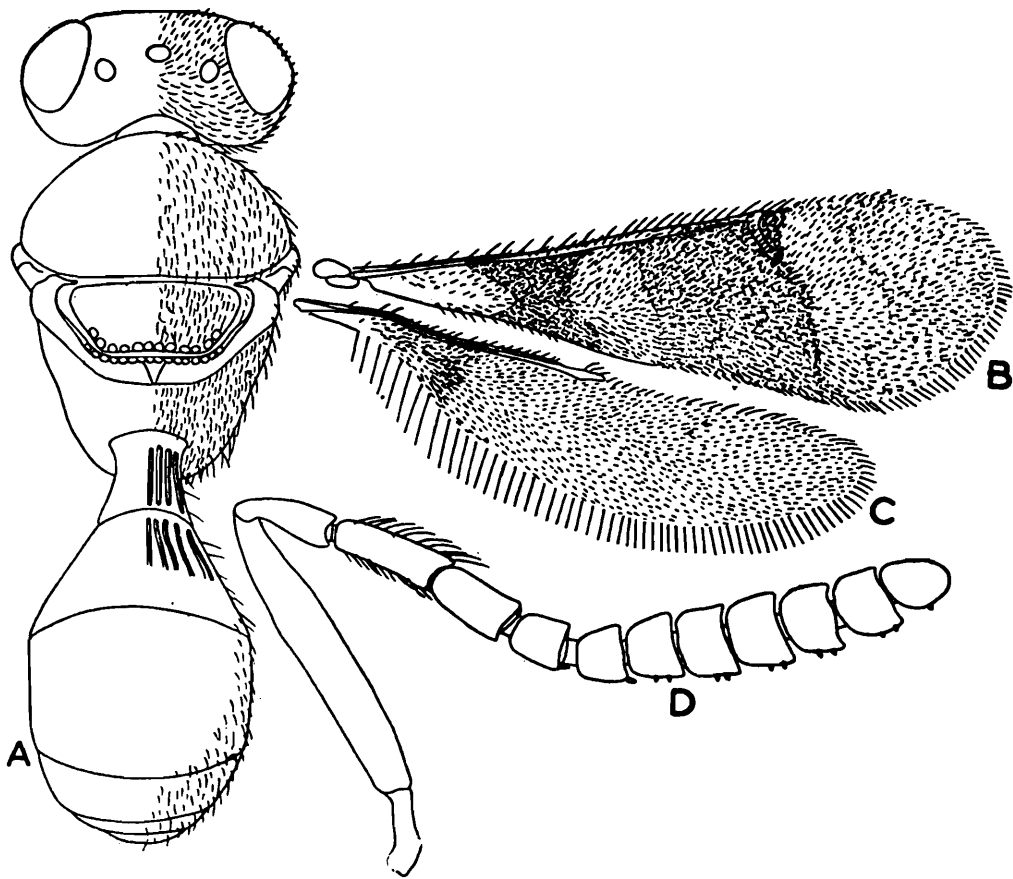


Fig. 9. *Trimorus fasciatus*. sp. nov. ♀ : A, body dorsal view ; B, fore wing ; C, hind wing ; D, antenna

*Head* closely umbilicately punctate ; gena and face just above the clypeus longitudinally striate ; clothed with dense white hairs ; eyes finely and densely pubescent ; antennal sockets close to the clypeal border ; head viewed from above (Fig. 9A) very slightly less than the maximum width of thorax ; length to width 14:38 ; ocellular space about 0.70 of ocellar diameter ; interocellar space 4.25 times ocellar diameter ; front ocellar space 1.60 times ocellar diameter, *Antenna* (Fig. 9D) : Segments 12, 1.1.0.4.6. Scape long, slender, slightly reduced apically, 6.41 times longer than thick ; pedicel about 0.30 of scape, 2.50 times longer than thick ; first funicular segment longest, slightly thickens apically, slightly longer than the pedicel, 2.58 times longer than thick ; second funicular segment 0.81 of the first segment, 1.85 times longer than thick ; third and fourth funicular segments shortest and subequal ; third funicular segment 0.61 of the second segment, almost as long as thick ; fourth funicular segment transverse ; 1-5 club segments almost subequal to the third funicular segment but transverse ; terminal club segment almost oval, 1.25 times the third funicular segment, 1.25 times longer than thick ; club subequal to the preceding four funicular segments and about 0.12 of pedicel combined.

*Thorax* closely rugoso-punctate ; densely clothed with white pubescence ; propodeum without carina ; metanotum with a short spine, produced medially ; thorax very slightly wider than the width of head ; thorax viewed dorsally (Fig. 9A) length to width 50 : 40 ; mesoscutum to scutellum 20 : 10 ; thorax to abdomen 50 : 58 ; parapsidal furrows absent. *Fore wing* (Fig. 9B) narrow ; length to width 100 : 32 ; *m* about 1.18 times *sm* ; *st* distinctly long ; discal ciliation dense and complete ; *sm* with 10 and *m* with 16 short setae directed forward ; marginal fringe moderately long. *Hind wing* (Fig. 9C) to fore wing 86 : 100 ; length to width 86 : 19 ; marginal fringe moderately long  
*Legs* : normal.

*Abdomen* : smooth ; petiole completely and second tergite only anteriorly with longitudinal striations (as shown in figure) ; third tergites dorsolaterally and the following tergites almost completely clothed with white pubescence ; abdomen viewed dorsally (Fig. 9A) length to width 58 : 32 ; second to third tergite 14 : 24 ; abdomen almost equal to the rest of the body.

*Holotype* : Female, on card (antenna and wings on slide) 20. 11. Maldare : Karnataka Survey, Coll. *M. S. Mani & party*, 25. v.-1, 6.vi. 1978.

#### 10. *Trimorus longispina* sp. nov.

(Fig. 10)

*Male* : Length of body 2.24 mm. General colour of body reddish-brown to black except for the black head, scutellum, metanotal, spine and abdomen ; eyes and ocelli very dark brown ; mandibles brownish ; antenna black except for the yellowish-brown radicle, and dark brown scape and pedicel ; legs brown except for the dark brown tarsus of the hind leg ; wings uniformly infuscated light brown : veins brown.

*Head* : Face and gena longitudinally striate, vertex smooth ; clothed with white pubescence ; clypeal broader with a few distinctly long white hairs ; eyes finely and sparsely pubescent ; antennal sockets almost in the middle of face. Head viewed in front length to width 30:39 ; eye length to head length 16:30 ; head viewed from above (Fig. 10A) almost as wide as the maximum width of thorax ; length to width 14 : 39 ; ocellocular space almost 2.00 times ocellar diameter ; interocellar space 2.50 times ocellar diameter ; front ocellar space equal to the ocellar diameter. *Antenna* (Fig. 10D) : Segment 12, 1.1.0.9.1, with short dense hairs ; segments except for the pedicel greatly elongated, slender, cylindrical, much longer than their thickness ; scape almost

uniformly thick throughout its length, about 4.00 times longer than thick ; pedicel much shorter than the scape, subglobose ; first funicular segment subequal to the scape, 4.66 times longer than thick ; second funicular segment 1.28 times the first segment ; third funicular segment 1.13 times the second segment, produced into an angular bulge at basal 0.30 ; fourth funicular segment subequal to the third segment, ; fifth funicular segment subequal to the second segment ; 6-8 funicular segments almost subequal to the fifth segment but distinctly more slender ; ninth funicular and club segment subequal to each other and also to the scape.

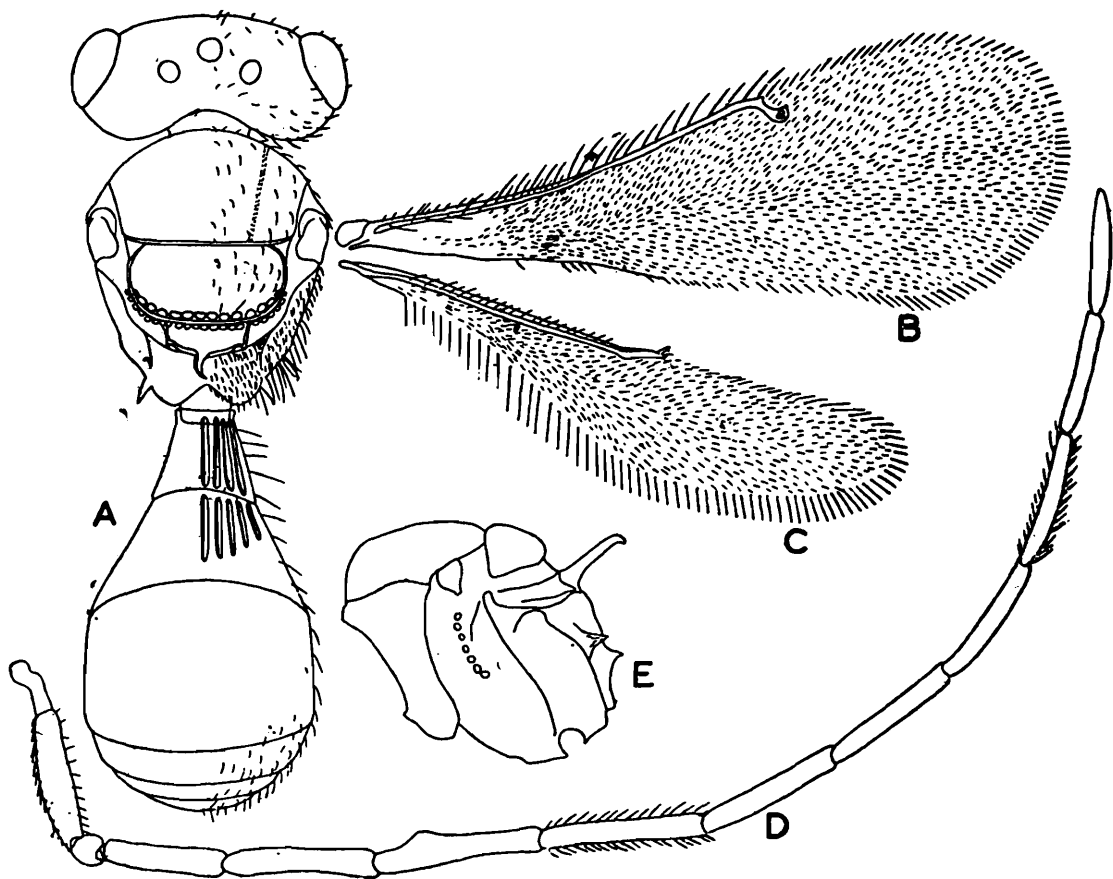


Fig. 10. *Trimorus longispina*, sp. nov. ♂ : A, body dorsal view, B, fore wing ; C, hind wing ; D, antenna ; E, thorax in profile

*Thorax* ; Mesoscutum and scutellum closely umbilicately punctate ; propodeum more densely hairy than the rest of the thorax ; parapsidal furrows complete but faint ; metanotum transverse and with a distinctly long curved spine ; propodeum with two lateral teeth. Thorax viewed dorsally (Fig. 10A) length to width 40:36 ; mesoscutum to scutellum 17:11 ; thorax to abdomen 40:58. *Fore wing* (Fig. 10 B) length to width 111 : 40 ; *sm* : *m* 40 : 26 ; *st* very short ; *sm* with 15 and *m* with 8 setae directed forward ; discal ciliation dense and complete ; marginal fringe moderately long. *Hind wing* (Fig. 10 C) to fore wing 94:111 ; length to width 94:18.5 ; marginal fringe moderately developed. *Legs* normal.

**Abdomen :** Petiole longitudinally striated throughout its length, second tergite striated only at its basal 0.75, rest of the tergites completely smooth ; petiole with a few distinctly long setae ; abdomen with white pubescence as shown in figure ; viewed dorsally (Fig. 10A) length to width 58 : 34 ; second to third tergite 13 : 25 ; abdomen 0.51 of body.

**Holotype :** Male, on card, 20.9. Attur (Karnataka Survey), Coll. *M. S. Mani & party*, 20, 23, 31.v.-8, 10.vi.1978 ; *Other material examined* one male, on card, 8.4. Keetham : Agra (U.P.), Coll. *M. K. Mukherjee*, 8. x.1977.

### 11. *Trimorus maldara* sp. nov.

(Fig. 11)

**Male :** Length 2.68 mm. General colour of body black ; eyes dark brown ; ocelli black ; mandibles brown except for the black teeth ; antenna reddish-brown except for the yellowish-brown radicle and scape ; thorax almost black ; legs brown ; wings uniformly infuscated very light brown ; veins brown ; aedeagus very pale brown.

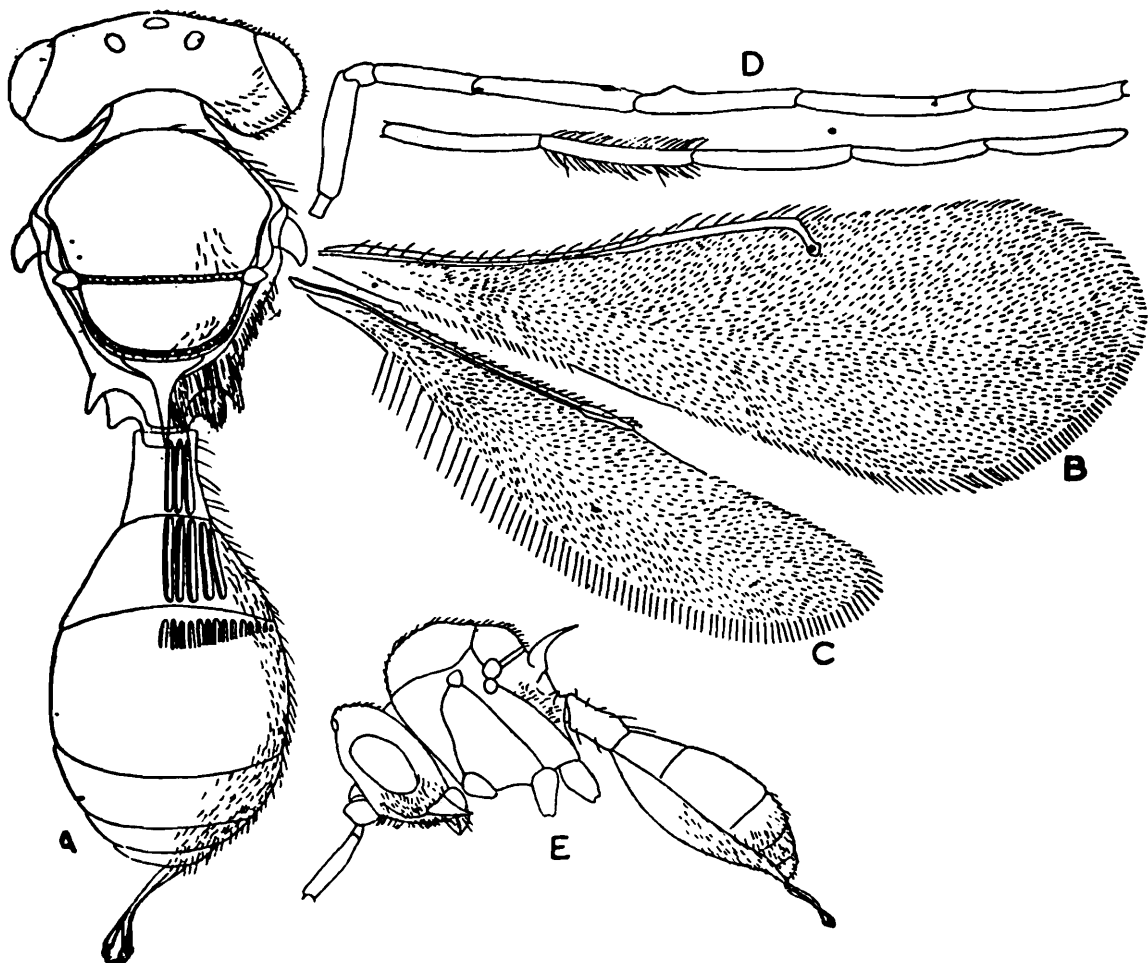


Fig. 11. *Trimorus maldara*, sp. nov. ♂ : A, body dorsal view ; B, fore wing ; C, hind wing ; D, antenna ; E, body in profile.

*Head*: Longitudinally rugose; gena and face above the clypeus distinctly longitudinally striate; vertex smooth and shiny; mandibles tridentate; head clothed with dense, white pubescence; vertex and eyes finely and very densely pubescent; clypeal margin and mandibles with distinctly long white hairs; head viewed from above (Fig. 11A) distinctly wider than the maximum width of thorax; length to width 13:47; ocellocular space 2.60 times ocellar diameter; interocellar space 3.15 times ocellar diameter; front ocellar space about 1.20 times ocellar diameter; head viewed in front length to width 37:47; eye length to head length 20:37. *Antenna* (Fig. 11D): Segments 12, 1.1.0.9.1. Scape almost uniformly thick throughout its length, 4.00 times longer than thick; pedicel 0.25 of scape, 1.35 times longer than thick; first funicular segment 0.84 of scape, 5.40 times longer than thick; second funicular segment 1.60 times the first segment, 7.16 times longer than thick; third funicular segment subequal to second segment; fourth funicular segment longest, about 1.10 times the third segment, 9.40 times longer than thick; 5.8 funicular segments almost subequal to the third segment; ninth funicular segment 0.83 of the eighth segment; club segment very slightly longer than the preceding funicular segment.

*Thorax*: Mesoscutum and scutellum finely closely umbilicately punctate; metanotum and propodeum smooth and shiny; parapsidal furrows absent; thorax clothed with white pubescence; propodeum with very dense, long, white pubescence; scutellum separated from the mesoscutum by a distinct, deep groove; propodeum laterally armed with 2 distinctly long teeth; metanotum transverse and continued behind into a very long median spine; scutellum semicircular, scutellar margin with a row of depressions; thorax viewed dorsally (Fig. 11A) length to width 51:40; mesoscutum to scutellum 23:11. *Fore wing* (Fig. 11B) length to width 43:15; *sm:m:st* 91:40:10; *sm* with 17 setae; *m* with 11 setae; marginal fringe moderately developed; discal ciliation dense and complete. *Hind wing* (Fig. 11C) to fore wing 34:7; marginal fringe well developed; discal ciliation dense and complete. *Legs* normal.

*Abdomen* Petiole and second tergite longitudinally striated throughout their lengths, third tergite striated only at its base (as shown in figure), rest of the tergites obscurely minutely punctate; petiole laterally with a few distinctly long white hairs, rest of the abdomen clothed with dense white pubescence; aedeagus well exerted beyond the tip of abdomen; abdomen viewed dorsally (Fig. 11A) length to width 75:40; third tergite longest, length to width 27:40; third tergite to second tergite 27:15; petiole slightly longer than its thickness in the middle.

*Holotype* : Male, on card, 20.11. Maldare (Karnataka Survey),  
Coll. *M. S. Mani & party*, 25.v.-1, 6.vi.1978.

12. *Trimorus nigricephala* sp. nov.

(Fig. 12)

*Male* : Length of body 1.06 mm. General colour of body brown to black ; head black ; eyes and ocelli dark brown ; except for the brownish radicle and scape ; thorax brownish ; mesoscutum with 3 obscure brown median lines ; legs brownish ; wings uniformly infuscated very light brown ; veins brown ; abdomen brownish-black except for the brownish petiole.

*Head* : Genae and face above the clypeus distinctly longitudinally striate, otherwise head smooth and shiny, without sculpture ; eyes finely and sparsely pubescent ; vertex sparsely pubescent ; genae and face above the clypeus with white moderately long hairs ; Head viewed in front length to width 16:20 ; eye length to head length 9:16 ; head viewed from above (Fig. 12A) as wide as the maximum width of thorax ; length to width 8:20 ; ocellular space 3.00 times ocellar diameter ; interocellar space 3.33 times ocellar diameter ; front ocellar space 2.00 times ocellar diameter. *Antenna* (Fig. 12D) : Segments 12, 1.1.0.9.1, slender, cylindrical, much elongated and clothed with moderately long hairs ; scape slightly thickened a little beyond the middle, 4.00 times longer

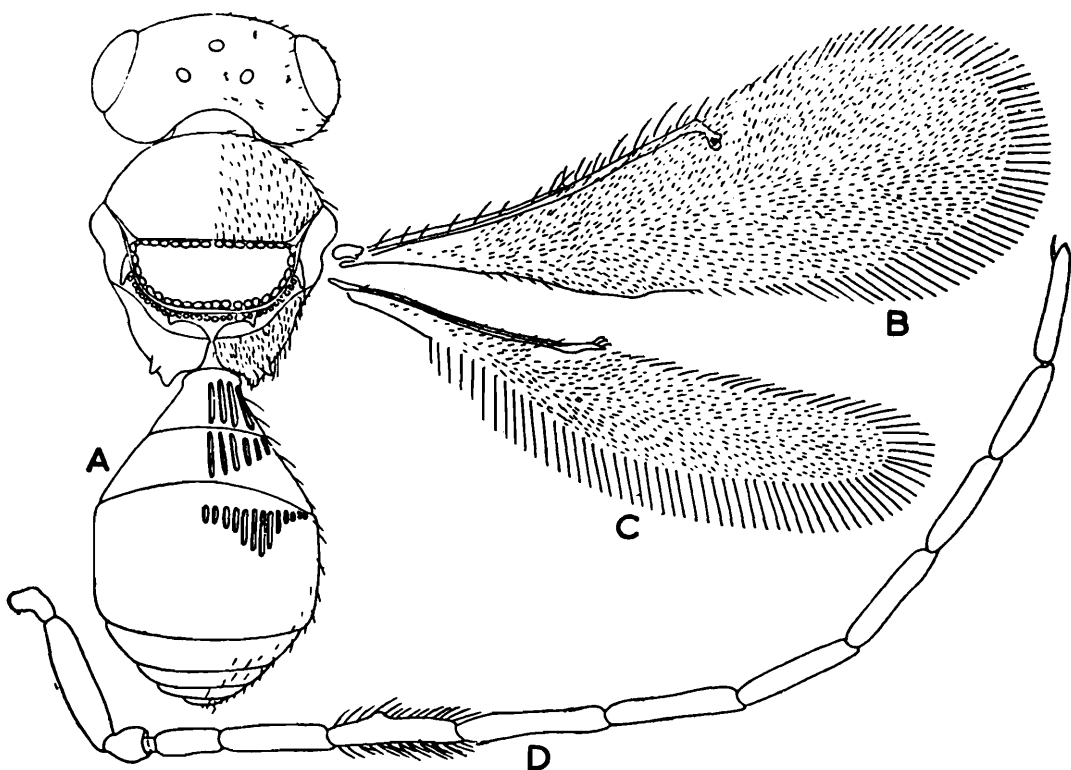


Fig. 12. *Trimorus nigricephala*, sp. nov. ♂ : A, body dorsal view ; B, fore wing ;  
C, hind wing ; D, antenna

than thick ; pedicel subglobose, 0.31 of scape, 1.19 times longer than thick ; first funicular segment shortest, 0.50 of the scape, 2.50 times longer than thick ; second funicular segment 1.62 times the first segment, about 4.00 times longer than thick ; third funicular segment with a short angular protruberence a little beyond its base, about 1.23 times the second segment ; fourth funicular segment 1.12 times the third segment ; 5-7 funicular segments almost subequal, each subequal to the third segment ; eighth and ninth funicular segments subequal, and very slightly shorter than the seventh segment ; club segment ending into a short nipple-like projection, slightly reduced apically and very slightly longer than the preceding segment.

*Thorax* matt and with leathery sculpture ; parapsidal furrows absent ; mesoscutum with short, dense, white hairs ; scutellum without pubescence ; propodeum with moderately long hairs laterally ; post-notum transverse and continued behind into 3 short widely spaced unequal spines ; thorax viewed dorsally (Fig. 12 A) length to width 19:20 ; mesoscutum to scutellum 8.3:5.5 ; propodeum bidentate ; thorax to abdomen 19:26. *Fore wing* (Fig. 12 B) length to width 56:18 ; *sm:m* 19:12 ; *st* very short ; *sm* with 10 and *m* with 7 setae directed forward ; discal ciliation dense and complete ; marginal fringe distinctly long. *Hind wing* (Fig. 12 C) to fore wing 49:56 ; length to width 49:8 ; marginal fringe moderately long. *Legs* normal.

*Abdomen* : Petiole completely and second tergite except posteriorly longitudinally striated, third tergite only anteriorly striated as shown in figure, rest of the abdomen smooth ; abdomen viewed dorsally (Fig. 12 A) length to width 26:17 ; second to third tergite 4.5:12 ; abdomen with pubescence as shown in figure ; abdomen 0.49 of body.

*Holotype* : Male, on card, 20.9. Attur (Karnataka Survey), Coll. M. S. Mani & party, 20, 23, 31.v.-8, 10.vi. 1978.

### 13. *Trimorus nilamburensis* sp. nov.

(Fig. 13)

*Male* : Length of body 1.58 mm. General colour of body black ; eyes, ocelli and mandibles dark brown ; antennae dark brown except for the yellowish-brown basal 0.70 of scape, and radicle ; legs brownish ; wings hyaline, veins light brown ; abdomen almost black except for the reddish-brown petiole and second tergite.

*Head* smooth except for the longitudinally striated gena and clypeus ; face below lower orbital border with white pubescence ; eyes finely and sparsely pubescent. Head viewed in front length to

width 21:28 ; viewed from above (Fig. 13 A) length to width 11:31 ; ocellocular space 1.40 times ocellar diameter ; interocellar space about 3.00 times ocellar diameter ; front ocellar space about 1.30 times ocellar diameter. *Antenna* (Fig. 13 D) : Segments 12, 1.1.0.9.1. Scape almost uniformly thick throughout its length, apically about 4.00 times longer than thick ; pedicel subglobose, its length 0.78 of the thickness, 0.18 of scape ; funicular and club segments with moderately long hairs ; segments elongated, cylindrical, much longer than their thickness ; first funicular segment about 3.00 times the pedicel, 2.75 times longer than thick ; second funicular segment 1.18 times the first segment, 2.73 times longer than thick ; third funicular segment a little before the middle produced below into a pointed projection, 1.17 times the second segment, 2.54 times longer than its maximum width ; fourth funicular segment longest, 1.14 times the third segment, 4.37 times longer than thick ; fifth funicular segment subequal to the third funicular segment in its length, 4.28 times longer than thick ; sixth funicular segment very slightly shorter than the fifth segment, 4.14 times longer than thick ; seventh funicular segment very slightly longer than the fifth segment, about 4.77 times longer than thick ; eighth funicular segment very slightly longer than the second segment, 4.50 times longer than thick ; ninth funicular segment subequal to the sixth segment in its length, 4.83 times longer than thick ; club cylindrical, slender, produced apically into a short nipple-like

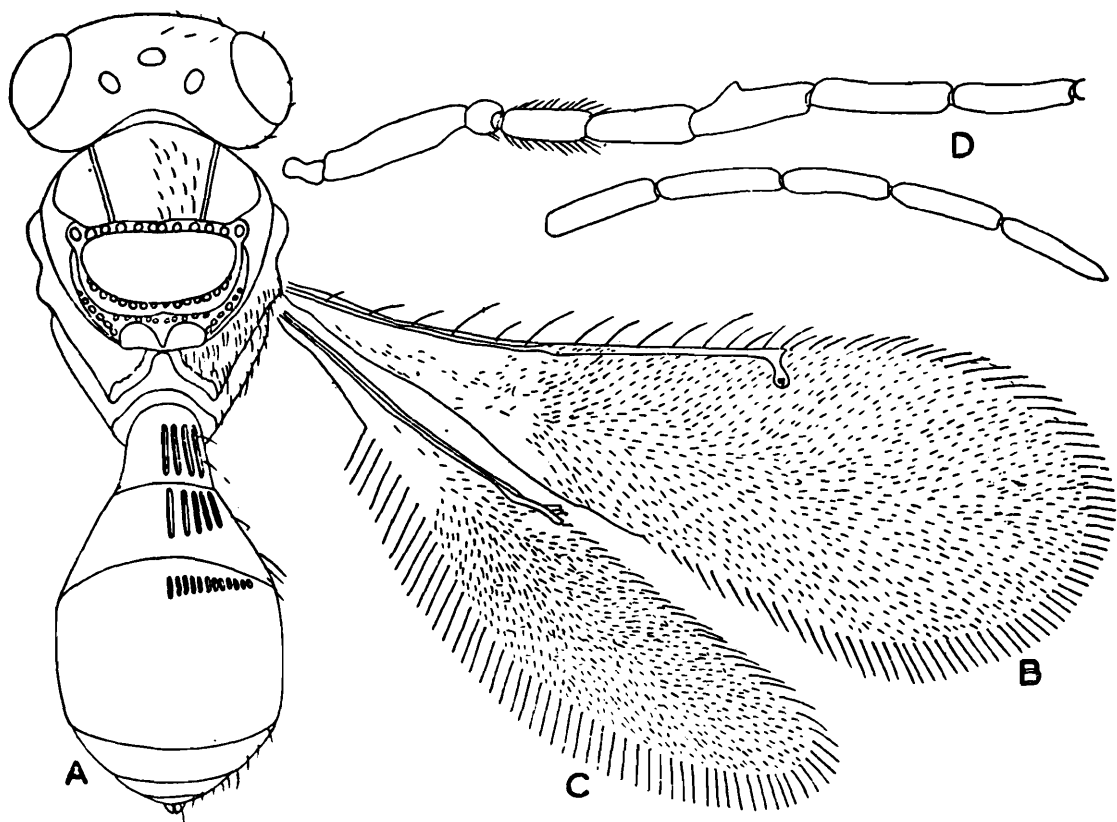


Fig. 13. *Trimorus nilambnrensis*, sp. nov. ♂ : A. body dorsal view ; B, forewing ; C, hind wing ; D, antenna

projection, very slightly longer than the preceding funicular segment, 6.00 times longer than thick.

*Thorax* : Mesoscutum in front very minutely and sparsely punctate, rest of the mesoscutum and scutellum smooth and shiny ; thorax clothed with white dense hairs ; pubescence well marked on the sides of propodeum ; postnotum continued behind into 3 short subequal and widely spaced spines ; parapsidal furrows distinct and complete ; metanotum distinctly transverse. Thorax viewed dorsally (Fig. 13 A) length to width 34:29 ; mesoscutum to scutellum 11:8. *Fore wing* (Fig. 13 B) length to width 84:29 ; marginal fringe well developed ; discal ciliation dense and complete ; *sm* and *m* with relatively long, dense bristles ; *m* long ; *pm* absent, *st* very short, much shorter than *m*. *Hind wing* (Fig. 13 C) to fore wing 70:84 ; length to width 70:14 ; marginal fringe to maximum wing width 6:14. *Legs* normal.

*Abdomen* smooth and shiny ; first segment petiolate, clothed laterally with a few long setae ; third tergite largest, third tergite to second tergite 21:8 ; first tergite longitudinally striated for its whole length, second tergite striated only at the basal 0.75, third tergite more closely and more finely striated only anteriorly, remaining tergites smooth and distinctly transverse ; abdomen viewed dorsally (Fig. 13 A) length to width 43:25.

*Holotype* Male, on card, 9.2. Nilambur (Malabar). Coll. *M. S. Mani & party*, 3-4.iv. 1973.

#### 14. *Trimorus ponmudiensis* sp. nov.

(Fig. 14)

*Male* : Length of body 1.56 mm. General colour of body black ; eyes, ocelli and mandibles very dark brown ; antennae black except for the dark brown scape and yellowish radicle ; legs brown ; wings uniformly infuscated very light brown ; veins dark brown ; abdomen black except for the reddish-brown petiole.

*Head* smooth except for the longitudinally striated clypeus and gena ; clothed with long, sparse, white hairs ; antennal sockets close to the clypeal border ; eyes densely pubescent. Head viewed in front length to width 18:23 ; viewed from above (Fig. 14A) length to width 10 : 26 ; width of head subequal to the maximum width of thorax ; ocellular space 2.00 times ocellar diameter ; interocellar space about 2.65 times ocellar diameter ; front ocellar space subequal to the ocellar diameter. *Antenna* (Fig. 14 D) : Segments 12, 1.1.0.9.1. Scape long, uniformly thick, about 6.00 times longer than thick ; pedicel 0.24 of

scape, 1.27 times longer than thick ; funicular and club segments clothed with dense setae ; first funicular segment 0.53 of scape, 2.77 times longer than thick ; second funicular segment longest, very slightly longer than the first segment, 3.00 times longer than thick ; third funicular segment 0.81 of the preceding segment, 2.44 times longer than thick ; fourth funicular segment about 0.90 of the third segment, 2.50 times longer than thick ; remaining funicular segments subequal to the fourth segment ; club elongate, 1.70 times the fourth funicular segment, 4.25 times longer than thick.

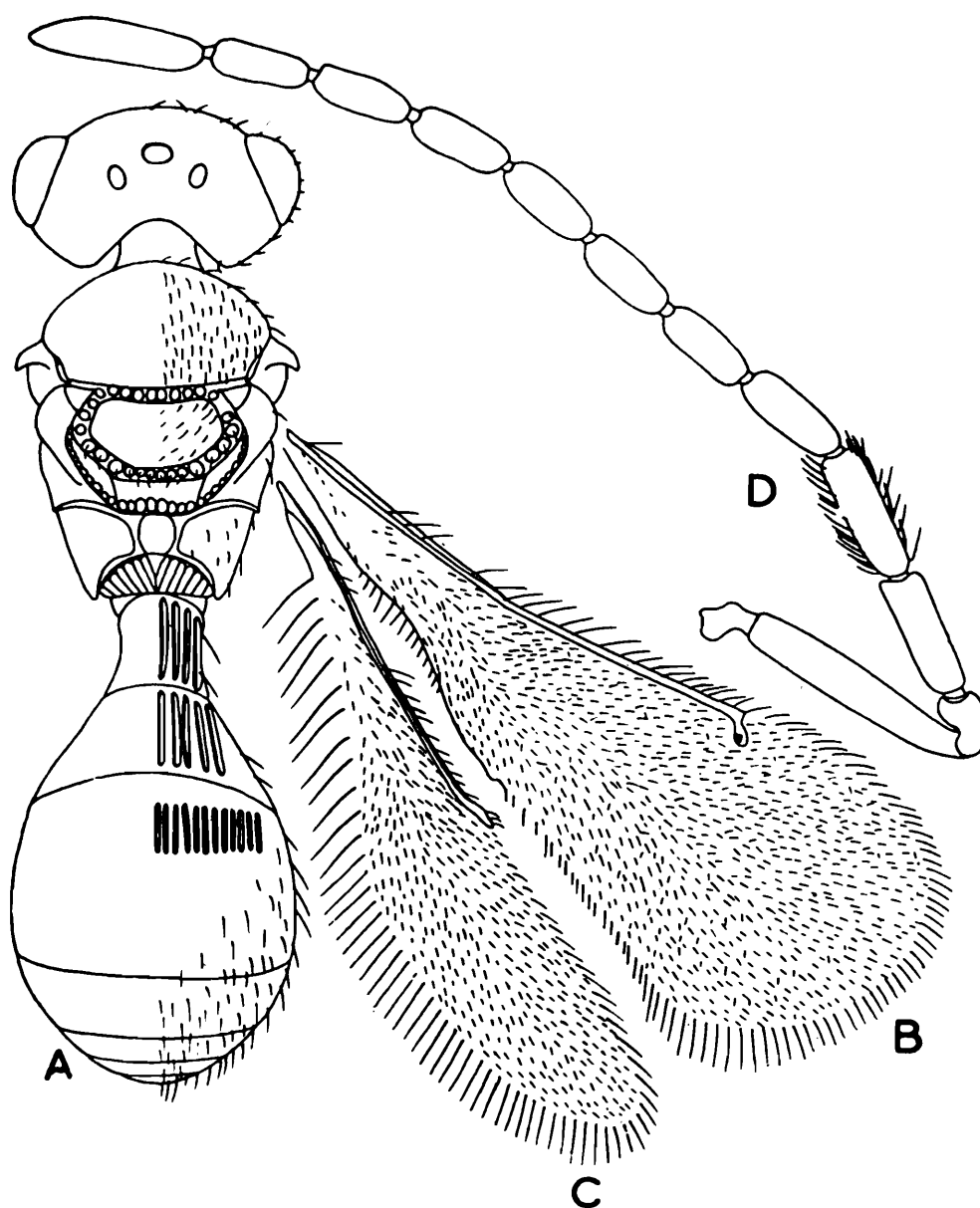


Fig. 14. *Trimorus ponmudiensis*, sp. nov. ♂ ; A, body dorsal view ; B, forewing ; C, hindwing ; D, antenna

*Thorax* finely closely punctate, clothed with white dense hairs ; parapsidal furrows absent ; metanotum transverse and unarmed ; thorax viewed dorsally (Fig. 14A) length to width 30:26 ; mesoscutum to scutellum 11:5. *Fore wing* (Fig. 14B) length to width 160:58 : discal ciliation dense and complete ; marginal fringe short *sm* almost

subequal to *m* ; *st* very short. *Hind wing* (Fig. 14C) to fore wing 144:160 ; length to width 144:26 ; marginal fringe to maximum wing width 15:26. *Legs* normal.

*Abdomen* smooth and shiny, elliptic-ovate, clothed with dense white hairs as shown in figure ; petiole longer than wide ; third tergite to second tergite 18:8 ; abdomen viewed dorsally (Fig. 14A) length to width 44:25 ; petiole and second tergite longitudinally striated for their whole lengths, third tergite finely striolate only at the base.

*Holotype* : Male, on card, 12.4. Ponmudi (Kerala Survey) Coll. M. S. Mani & party, 23.viii.1974.

#### KEY TO SPECIES OF *TRIMORUS*

- |  |                                 |
|--|---------------------------------|
| 1. Males. ... ..   | 2                               |
| — Females. ... ..  | 9                               |
| 2. Body length more than 2.00 mm ; metanotum continued behind into a very long median spine. ... ..  | 3                               |
| — Body length less than 2.00 mm (mostly 1.00 mm-1.50) ; metanotum different. ... ..  | 4                               |
| 3. Parapsidal furrows complete but faint ; petiole completely and second tergite only at its basal 0.75 longitudinally striated, other tergites completely smooth. ... ..        | <i>T. longispina</i> sp. nov.   |
| — Parapsidal furrows absent ; petiole and second tergite completely and third tergite striated only at its base, other tergites obscurely minutely punctate. ... ..              | <i>T. maldara</i> sp. nov.      |
| 4. Parapsidal furrows absent. ... ..   | 5                               |
| — Parapsidal furrows present. ... ..   | 7                               |
| 5. Body length about 1.50 mm ; first and second funicular segments subequal and distinctly longer than the following funicular segments ; thorax finely closely punctate. ... .. | <i>T. ponmudiensis</i> sp. nov. |
| — Body length about 1.00 mm ; first and second funicular segments unequal (second being the longer). ... ..  | 6                               |
| 6. Second funicular segment slightly longer than the first ; mesoscutum in front minutely punctate, rest of the mesoscutum and scutellum finely longitudinally rugose. ... ..    | <i>T. deccana</i> sp. nov.      |

- . Second funicular segment distinctly longer than the first ; matt and with leathery sculpture. ... .. *T. nigricephala* sp. nov.
7. Striations on the petiole and second tergite only ; flagellar segments not very much elongated. ... .. *T. agraensis* sp. nov.
- . Striations on the petiole, second tergite and basally on third tergite ; flagellar segments very much elongated. ... .. 8
8. Eyes finely and densely pubescent ; wings uniformly infuscated light brown. ... .. *T. atturensis* sp. nov.
- . Eyes finely and sparsely pubescent ; wings hyaline. ... .. *T. nilamburensis* sp. nov.
9. Striations on petiole and second tergite only. 10
- . Striations on petiole, second and third tergites. ... .. 11
10. Second tergite only anteriorly longitudinally striated ; head closely umbilicately punctate ; gena and face just above the clypeus longitudinally striate ; fore wing with three dark bands ; length 2.28 mm. ... .. *T. fasciatus* sp. nov.
- . Striations on the second tergite reaching to the posterior margin and receding to the sides ; head smooth and shiny ; gena longitudinally striate ; fore wing uniformly infuscated very light brown ; length 1.04 mm. ... .. *T. dubarensis* sp. nov.
11. Striations on the third tergite almost complete ; first funicular segment greatly elongated and distinctly longer than the pedicel ; parapsidal furrows absent. ... .. *T. dimidicornis* sp. nov.
- . Striations on the third tergite restricted to its base ; first funicular segment not greatly elongated and subequal to the pedicel ; parapsidal furrows present. ... .. 12
12. Abdomen ovate ; thorax closely finely punctate : wings infuscated very light brown. *T. anamalaniaus.* sp. nov.
- . Abdomen elliptic-ovate ; thorax with well separated umbilicate punctate ; wings hyalinae. ... .. 13.
13. Mesoscutum reticulate in front, rest of the thorax with well separated umbilicate punctae ; scape 8.00 times longer than thick ; ocellocular space subequal to the ocellar diameter. ... .. *T. abbicolus* sp. nov.

- . Thorax as a whole with well separated umbilicate punctae; scape 6.80 times longer than thick; ocellocular space 1.66 ocellar diameter. ... .. *T. appangalus* sp. nov.

\* 15. ***Xenomerus indicus*** sp. nov.

( Fig. 15 )

*Female*: Length of body 0.86 mm. General colour of body brownish-black; eyes and ocelli dark brown; mandibles brown with reddish teeth; vertex black; antenna yellowish except for the dark brown 2.6 club segments; legs yellowish; wings hyaline; veins yellowish-brown; abdomen very dark brown.

*Head* smooth and shiny, gena longitudinally striate; mandibles tridentate, all the teeth equal; antennal sockets close to the clypeal border; vertex, face near the eye border, gena and clypeus with white pubescence; eyes finely and sparsely pubescent. Head viewed in front length to width 15:18; viewed from above (Fig. 15A) length to width 8:19; ocellocular space 2.66 times ocellar diameter; interocellar space 6.00 times ocellar diameter; front ocellar space about 3 times ocellar diameter. *Antenna* (Fig. 15 C): Segments 12: 1.1.0.4.6. Radicle long and slender, radicle to scape 23:53; scape slender, slightly swollen in the middle, 4.82 times longer than thick; pedicel 2.00 times longer than thick, 0.34 of scape; first funicular segment 0.50 of pedicel, 1.28 times longer than thick; second funicular segment longest, 1.11 times the first segment, 1.43 times longer than thick; third funicular segment 0.60 of the second segment, almost as long as thick; fourth funicular segment shortest, 0.83 of the preceding segment, subglobose, its length 0.62 of its thickness; club segments except for the terminal one, distinctly transverse; first club segment shortest, subequal to the third funicular segment in its length but distinctly transverse, its length 0.46 of its thickness; second club segment longest, subequal to the fifth club segment in its length, 1.66 times the first segment, its length 0.58 of its thickness; third club segment 0.90 of the second segment, its length 0.53 of its thickness; fourth club segment shortest, 0.80 of the second segment, its length 0.47 of its thickness; fifth club segment subequal to the second segment in its length, its length 0.62 of its thickness; terminal segment about 1.50 times the preceding segment, 1.15 times longer than thick; club subequal to the preceding funicular segments, pedicel and 0.20 of scape combined.

---

\* I am grateful to Dr. Lubomir Masner, Biosystematics Research Institute, Agriculture Canada, Ottawa, Ontario, Canada for the placement of this species in the genus *Xenomerus*.

*Thorax* smooth and shiny ; parapsidal furrows present ; metanotum transverse, without tooth ; thorax with moderately long, sparse, white pubescence, especially well marked on the sides of propodeum ; thorax viewed dorsally (Fig. 15 A) as long as its maximum width ; mesoscutum

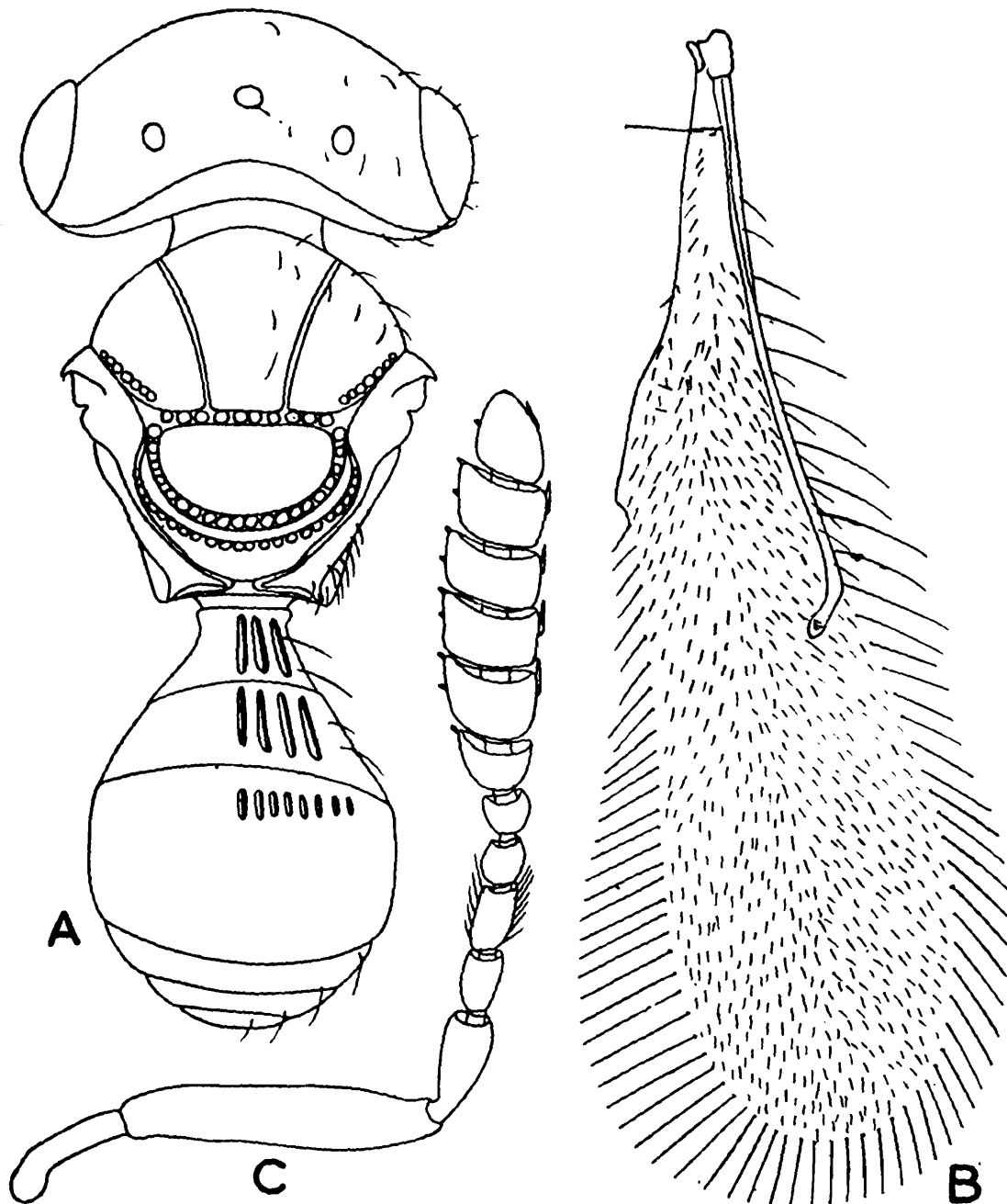


Fig. 15. *Xenomerus indicus*, sp. nov. ♀ : A. body dorsal view ; B. forewing ; C. antenna.

twice the scutellum. *Fore wing* (Fig. 15 B) length to width 74:20; discal ciliation dense and complete ; marginal fringe very long, marginal fringe to maximum wing width 8:20; *m* slightly longer than *sm*; *st* very short; *pm* absent. *Legs* normal.

*Abdomen* smooth ; ovate ; clothed with sparse, white pubescence ; first tergite wider than long ; third tergite largest, third tergite to second tergite 7:3.2 ; abdomen viewed dorsally (Fig. 15 A) length to width 17:13, petiole and second tergite longitudinally striated for their whole lengths, third tergite more finely striated only in front as shown in figure.

*Holotype* : Female, on card, 12.4. Ponmudi (Kerala Survey), Coll. M.S. Mani & Party, 23.viii.1974.

Subfamily BAEINAE

16. *Ceratobaeus longituberculata* sp. nov.

( Fig. 16 )

*Female* : Length 1.70 mm. General colour of body very dark brown ; eyes brown ; ocelli black ; mandibles yellowish except for the reddish teeth ; antenna brownish except for the scape dorsally and ventrally and pedicel dark brown and yellowish club ; legs yellowish-brown ; wings hyaline ; veins light brown ; abdominal horn dark reddish-brown.

*Head* : Vertex upto the region of median ocellus matt and with leathery sculpture ; genae distinctly longitudinally striate ; head with a

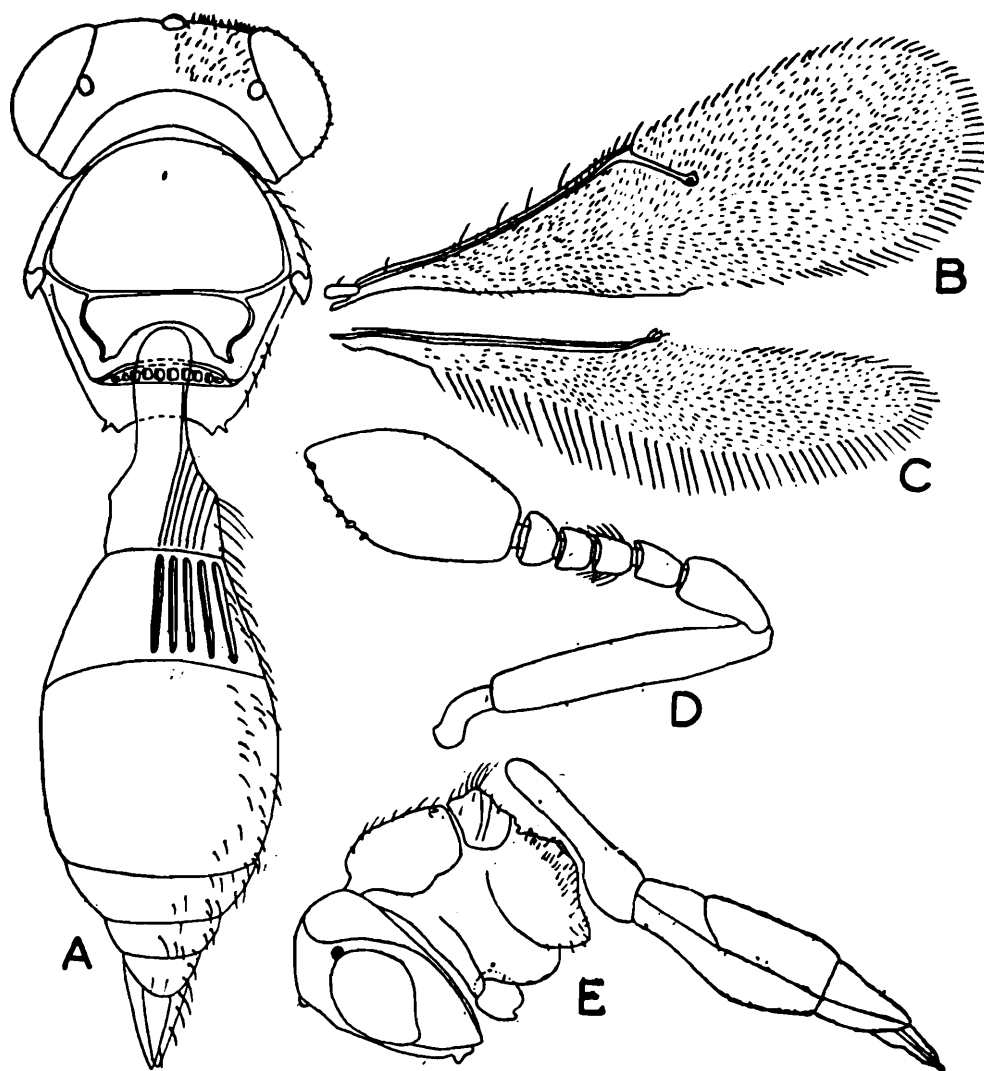


Fig. 16. *Ceratobaeus longituberculata*, sp. nov. ♀ A. body dorsal view ; B. fore wing ; C. hind wing ; D. antenna ; E. body in profile.

median longitudinal carina extending from the clypeus upto a little before the median ocellus ; the face on either side of the carina shiny

and finely reticulate ; antennal sockets close to the clypeal border ; eyes finely and sparsely pubescent ; mandibles bidentate. Head viewed from above (Fig. 16 A) almost as wide as the maximum width of thorax ; vertex strongly margined behind ; length to width 6:27 ; vertex strongly margined ; lateral ocelli contiguous with the eye border ; interocellar space 8.00 times ocellar diameter ; front ocellar space 4.50 times ocellar diameter. Head viewed in front length to width 24:27 ; eye length to head length 13:24. *Antenna* (Fig. 16 D) : Segments 7:1.1.0.4.1. Scape slender, uniformly thick, 6.00 times longer than thick ; pedicel 0.33 of scape, 2.00 times longer than thick ; first funicular segment longest, about 0.43 of pedicel, very slightly longer than thick ; second funicular segment slightly shorter than the preceding segment, its length slightly less than its thickness ; third and fourth funicular segments subequal to the second segment, and distinctly transverse ; club greatly swollen, 2.00 times longer than thick, subequal to the preceding funicular segments and about 0.50 of pedicel combined.

*Thorax* : Mesoscutum and scutellum matt and with leathery sculpture ; propodeum smooth ; thorax clothed with dense white hairs ; parapsidal furrows absent ; mesoscutum separated from scutellum by deep groove ; thorax viewed dorsally ( Fig. 16 A ) almost as long as its maximum thickness (23:24) ; mesoscutum to scutellum to 12:2.1 ; scutellum concave behind. *Fore wing* (Fig. 16 B) length to width 58:18.5 ; *sm* very long ; *st* 3.00 times *m* ; *pm* absent ; *m* with 3 setae ; marginal fringe moderately developed ; discal ciliation fine, dense and complete. *Hind wing* (Fig. 16 C) to fore wing 54:58 ; length to width 54:9 ; marginal fringe long ; discal ciliation dense and complete. *Legs* normal.

*Abdomen* : Petiole and second tergite completely longitudinally striated throughout their lengths, rest of the tergites matt and with leathery sculpture ; petiole with a few distinctly long hairs ; third tergite onwards with pubescence ; abdomen viewed dorsally (Fig. 16 A) length (including the horn of the petiole) to width 56:20 ; horn slender, elongate, extending almost to the anterior border of the scutellum, smooth and shiny ; horn is longer than in other related species ; third tergite longest ; third tergite to second tergite 17:9 ; rest of the tergites transverse ; ovipositor exerted.

*Holotype* : Female, on card, 20.11. Maldare (Karnataka Survey). Coll. *M.S. Mani & Party*, 25.v-1, 6.vi.78.

This species runs to couplet 5 in key to species (1978 ; Mukerjee) and comes close to *C. nepalensis* Mukherjee\* but differs in the club not being darker than rest of antenna and striation on second tergite extending to the posterior margin of tergite.

---

\*Mukerjee, 1978. *Mem. Sch. Ent.* 5 : 53-55.

17. *Idris agraensis* sp. nov.

( Fig. 17 )

*Female* : Length of body 1.26 mm ; length of fore wing 0.90 mm ; length of hind wing 0.90 mm ; length of abdomen including petiole 0.60 mm. General colour of body black ; eyes very dark brown ; ocelli black ; mandibles very dark brown to black ; antenna brown except for the dark brown tip of club ; thorax black ; legs yellowish-brown except for the very dark brown coxae and femora ; wings hyaline ; veins brownish ; abdomen black.

*Head* very finely reticulate ; vertex flat, without hairs ; eyes bare ; mandibles bidentate ; antennal sockets close to the clypeal border. Head viewed in front (Fig. 17 D) length to width 80:100; eye length to head length 55:100; lateral ocelli contiguous with the eye border ; interocellar space slightly less than 6.00 times ocellar diameter; front ocellar space about 2.50 times ocellar diameter. *Antenna* (Fig. 17 E) : Segments 7 : 1.1.0.4.1. Scape slightly reduced apically, 4.50 times longer than thick ; pedicel 0.41 of scape, about 2.00 times longer than thick ; first funicular segment longest, about 0.34 of pedicel, almost as long as thick ; second funicular segment about 0.50 of the first segment, transverse ; third funicular segment subequal to the second segment, transverse ; fourth funicular segment slightly shorter than the third segment and distinctly transverse ; club greatly swollen, subequal to the scape, 2.04 times longer than thick, subequal to the preceding four funicular segments, pedicel and about 0.12 of scape combined.

*Thorax* matt, finely reticulate ; parapsidal furrows absent ; scutellum semicircular and sculptured like the rest of the thorax ; thorax viewed dorsally (Fig. 17 J) length to width 24:22 ; mesoscutum to scutellum 9:6. *Fore wing* (Fig. 17 A, B) length to width 100:38 ; *sm* long, with 7 setae directed forward ; *m* and *pm* with 3 long setae directed forward ; venation *m: pm:st* 100:146:538 ; marginal fringe moderately long. *Hind wing* (Fig. 17 C) to fore wing 100:100 ; length to width 100:18 ; marginal fringe to wing width 3.00:8.00. *Fore leg* (Fig. 17 F, G): Coxa 1.25 times longer than thick ; femur slightly thickened medially, 4.66 times longer than thick ; tibia thickens apically, 0.71 of femur, 4.34 times longer than thick, tibial spur trifurcated, tibial spur to metatarsus 4.00:5.00 ; tarsus 1.20 times tibia ; metatarsus 0.50 of tibia and 0.41 of tarsus ; second segment 0.40 of metatarsus ; third and fourth tarsal segments subequal to the second segment ; fifth tarsal segment slightly longer than the preceding segment. *Middle leg* (Fig. 17 H) : Coxa 1.25 times longer than thick ; femur thickened subapically, 4.33 times longer than thick ; tibia thickens apically, very slightly longer than femur, 7.00 times longer than thick ; tibial spur to metatarsus 1.70:4.50 ; tarsus subequal to tibia ;

metatarsus 0.32 of tibia or tarsus ; second tarsal segment 0.62 of metatarsus ; third tarsal segment very slightly shorter than the second ; fourth tarsal segment 0.77 of the third ; fifth tarsal segment 1.25 times the preceding segment. *Hind leg* (Fig. 17 I) : Coxa 1.20 times longer than thick ; femur thickened medially, 5.00 times longer than thick ; tibia

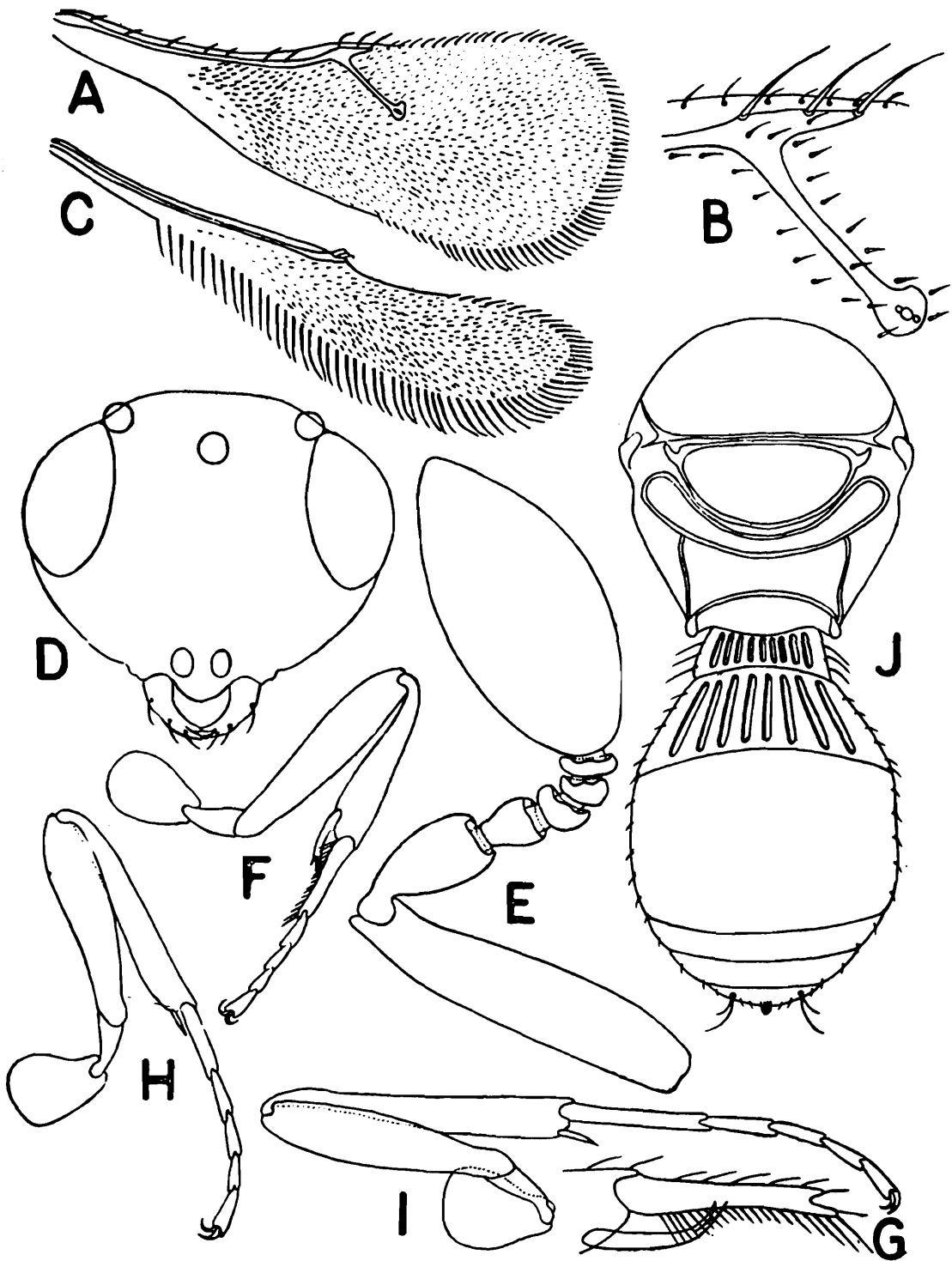


Fig. 17. *Idris agragensis*, sp. nov. ♀ : A. fore wing B. stigmal vein ; C. hind wing ; D. head in front view ; E. antenna ; F. fore leg ; G. tip of fore tibia and metatarsus enlarged ; H. middle leg ; I. hind leg ; J. thorax and abdomen dorsal view.

thickens apically, 1.16 times femur, about 7.30 times longer than thick ; tibial spur to metatarsus 2.50:8.00 ; tarsus 1.14 times tibia ; metatarsus 0.45 of tibia and 0.40 of tarsus ; second tarsal segment 0.50 of metatar-

sus ; third tarsal segment 0.75 of the second segment ; fourth and fifth tarsal segments subequal to the third segment.

*Abdomen* : Petiole and second abdominal tergites completely longitudinally striated, third tergite posteriorly in the middle longitudinally rugose, sides minutely closely punctate, other tergites smooth and shiny ; abdomen 0.47 of body ; viewed dorsally ( Fig. 17 J ) length to width 100:70 ; third tergite longest, 2.33 times the second ; ovipositor very slightly exerted.

*Holotype* : Female, labelled as "Entomology Annexe Compound, St. John's College, Agra (U. P.), Coll. M. K. Mukerjee, 28.x.1976."

18. *Idris annexia* sp. nov.

( Fig. 18 )

*Female* : Length 1.28 mm. General colour of body brownish to black ; head brownish ; eyes and ocelli black ; mandibles brown ; antenna yellowish except for the dark brown pedicel, funicular segments and

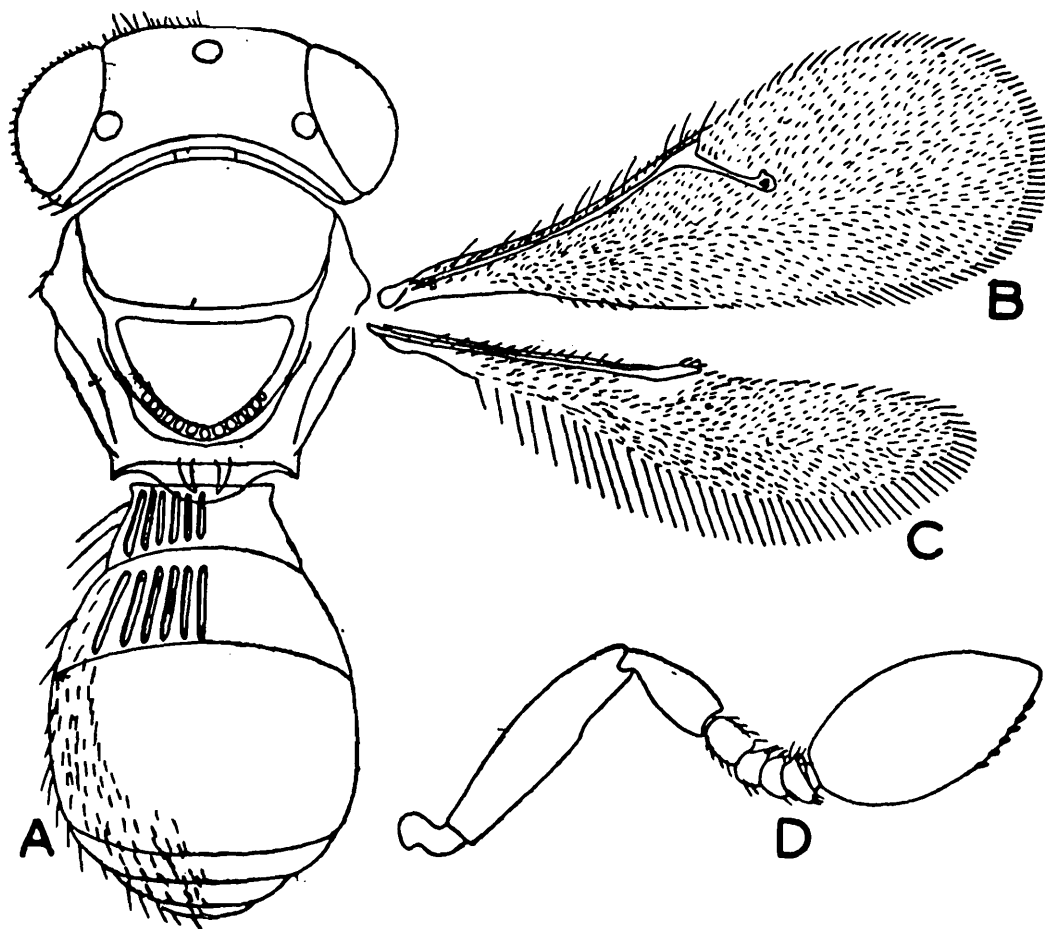


Fig. 18. *Idris annexia*, sp. nov. ♀ : A. body dorsal view ; B. fore wing ; C. hind wing ; D. antenna.

tip of club ; thorax brownish ; legs yellowish ; wings hyaline ; veins brownish, marginal vein darker ; abdomen darker brown except for

the blackening dorsolaterally on second and third tergites, the following tergites completely black.

*Head* matt and with leathery sculpture ; gena with longitudinal striations ; clothed with white pubescence ; eyes finely and very densely pubescent. Head viewed from above (Fig. 18 A) length to width 8.5:28 ; head width slightly more than the maximum width of thorax ; vertex strongly margined behind ; lateral ocelli contiguous with the eye border ; interocellar space about 6.00 times ocellar diameter ; front ocellar space slightly more than 3.00 times ocellar diameter. Head viewed in front length to width 20:28 ; eye length to head length 11:20. *Antenna* (Fig. 18 D) : Segments 7 : 1.1.0.4.1. Scape more or less uniformly thick, 4.00 times longer than thick ; pedicel 0.44 of scape, about 2.00 times longer than thick ; first funicular segment longest, 0.41 of pedicel, 1.16 times longer than thick ; 2-4 funicular segments distinctly shorter than the first segment and gradually becoming more and more transverse ; club greatly swollen, almost subequal to the scape, about 2.00 times longer than thick, subequal to the preceding funicular segments and pedicel combined.

*Thorax* : Mesoscutum and scutellum matt and with leathery sculpture ; clothed with white pubescence : parapsidal furrows absent : metanotum distinctly transverse ; thorax viewed dorsally ( Fig. 18 A) length to width 25:24 ; mesoscutum to scutellum 12:18 : thorax to abdomen 25:30. *Fore wing* (Fig. 18 B) length to width 52:19.5 ; venation *m:pm:st* 4.5:2:13 ; *sm* long, with 8 setae ; *m* and *pm* with 3 setae ; discal ciliation dense and complete ; marginal fringe moderately long. *Hind wing* (Fig. 18 C) to fore wing 48:52 ; length to width 48:9 ; marginal fringe distinctly long. *Legs* normal.

*Abdomen* : Petiole and second tergite longitudinally striated throughout their lengths, rest of the tergites matt and with leathery sculpture ; abdomen clothed with dense white hairs ; viewed dorsally (Fig. 18 A) length to width 30:22 ; second tergite to third tergite 6.5:15.5 ; abdomen 0.46 of body.

*Holotype* : Female, *paratypes* three females, labelled as "Entomology Annexe Compound, St. John's College, Agra (U.P.), coll. M. K. Mukerjee, 28.x.1976."

#### 19. *Idris appangalus* sp. nov.

(Fig. 19)

*Female* : Length of body 0.73 mm. General colour of body brown to dark brown ; head brownish, vertex darker ; eyes and ocelli dark brown ; antenna dark brown except for the whitish apical half of scape and yellowish-brown club with the apical 0.40 a little darker ; fore

leg brown except for the yellowish trochanter, apical 0.30 of tibia, and 2-5 tarsal segments; middle leg whitish except for the femur which is dark brown only dorsally in the middle, dark brown basal 0.50 of tibia and tarsal segments; hind leg whitish except for the dark brown basal 0.45 of tibia, and metatarsus; fore wings hyaline except for a transverse dark brown infumation extending from the region of *m* to the hind margin of the wing; hind wings hyaline; abdomen whitish except for the very dark brown fourth tergite, and brownish fifth and six tergites, and ovipositor.

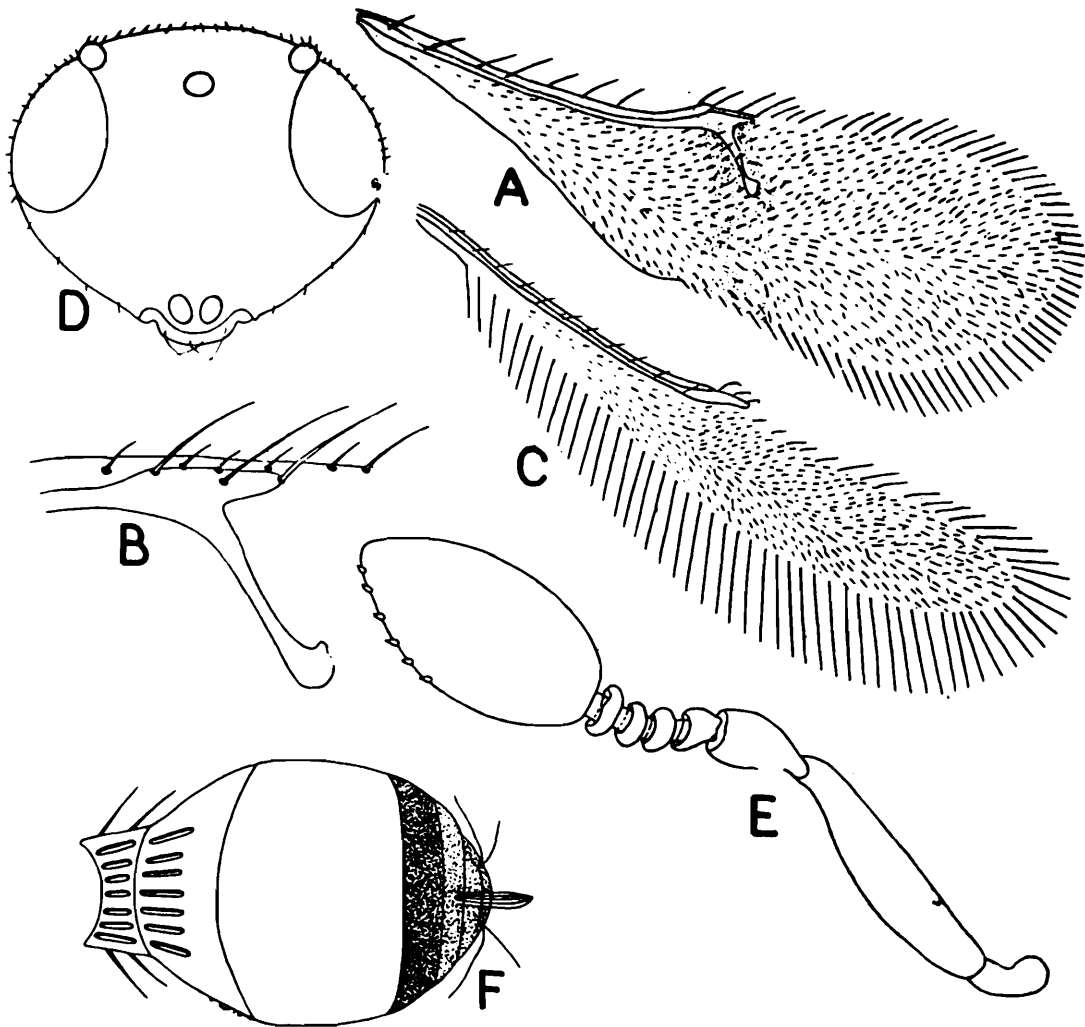


Fig. 19. *Idris appangalus*, sp. nov. ♀ : A. fore wing; B. stigmal vein; C. hind wing; D. head in front view; E. antenna; F. abdomen.

*Head* smooth except for the finely reticulate vertex; mandibles bidentate; vertex with very fine dense hairs; eyes finely and densely pubescent; antennal sockets very close to the clypeal border. Head viewed in front (Fig. 19D) length to width 13:16; eye length to head length 7:13; lateral ocelli contiguous with the eye border; interocellar space about 7.00 time ocellar diameter; front ocellar space 3.00 times ocellar diameter. *Antenna* (Fig. 19 E): segments 7 : 1.1.0.4.1. Scape more reduced apically than basally, long, 4.28 times longer than thick; pedicel 0.33 of scape, 1.53 times longer than thick; first funicular

segment a little less than 0.30 of scape, subglobose, its thickness about 1.70 times its length ; 2-4 funicular segments much shorter than the first segment, and gradually becoming more and more transverse ; club almost subequal to the scape, distinctly swollen, about 1.85 times longer than thick ; club subequal to the preceding funicular segments, pedicel and about 0.16 of scape combined.

*Thorax* : Mesoscutum and scutellum finely reticulate ; propodeum with longitudinal striations ; parapsidal furrows absent ; scutellum semicircular, and with a row of shallow depressions along its hind margin ; metanotum strip-like, and with a row of longitudinal depressions ; mesoscutum to scutellum 6.5:5. *Fore wing* (Fig.19A, B) narrow ; length to width 29:9.5 ; marginal fringe well marked ; *sm* very long, with a row of 8 very long setae directed forward ; *m* and *pm* with 3 setae ; *st* about 3.00 times *m* ; *pm* slightly shorter than *m*. *Hind wing* (Fig. 19C) to fore wing 27:29 ; length to width 27:4 ; marginal fringe long, a little less than the maximum wing width *Legs* ; Hind metatarsus to tibial spur 3.5:1.2.

*Abdomen* : Petiole completely, and second tergite only anteriorly longitudinally striated, rest of the abdomen smooth ; abdomen viewed dorsally (Fig. 19F) its length about 1.50 times the maximum width ; third tergite largest, 2.33 times the second tergite ; petiole distinctly transverse, and with a few very long stiff hairs ; ovipositor slightly exerted beyond the tip of abdomen.

*Holotype* : Female, *paratype* one female, 18.2. Appangala (Coorg Survey), Coll. M. S. Mani & party, 5-7.iv.1977.

## 20. *Idris dubarensis* sp. nov.

(Fig. 20)

*Female* Length 1.35 mm. General colour of body brownish except for some blackening of propodeum and 4-6 abdominal tergites ; eyes and ocelli black ; antenna dark brown except for the brownish-yellow scape ; legs brownish-yellow ; fore wings infumated very pale brown with a transverse darker band extending from the region of *m* to the hind margin of the wing ; veins brownish ; *m* darker ; hind wings hyaline ; abdomen brownish except for the darker narrow posterior margin of the second tergite, and 4-6 tergites.

*Head* matt, with leathery sculpture ; clothed with fine setae ; eyes very finely and densely pubescent. Head viewed from above (Fig. 20A) length to width 10:26 ; head width very slightly more than the maximum width of thorax ; vertex margined behind ; lateral ocelli contiguous

with the eye margin ; interocellar space 6.70 times ocellar diameter ; front ocellar space 4.00 times ocellar diameter ; head viewed in front length to width 19:26 ; eye length to head length 13:19. *Antenna* (Fig. 20D) : Segments 7 : 1.1.0.4.1. Scape narrowed apically, a little more than 4.00 times longer than thick ; pedicel 0.40 of scape, about 2.00 times longer than thick ; first funicular segment longest, 0.43 of pedicel, 1.18 times longer than thick ; 2-4 funicular segments much

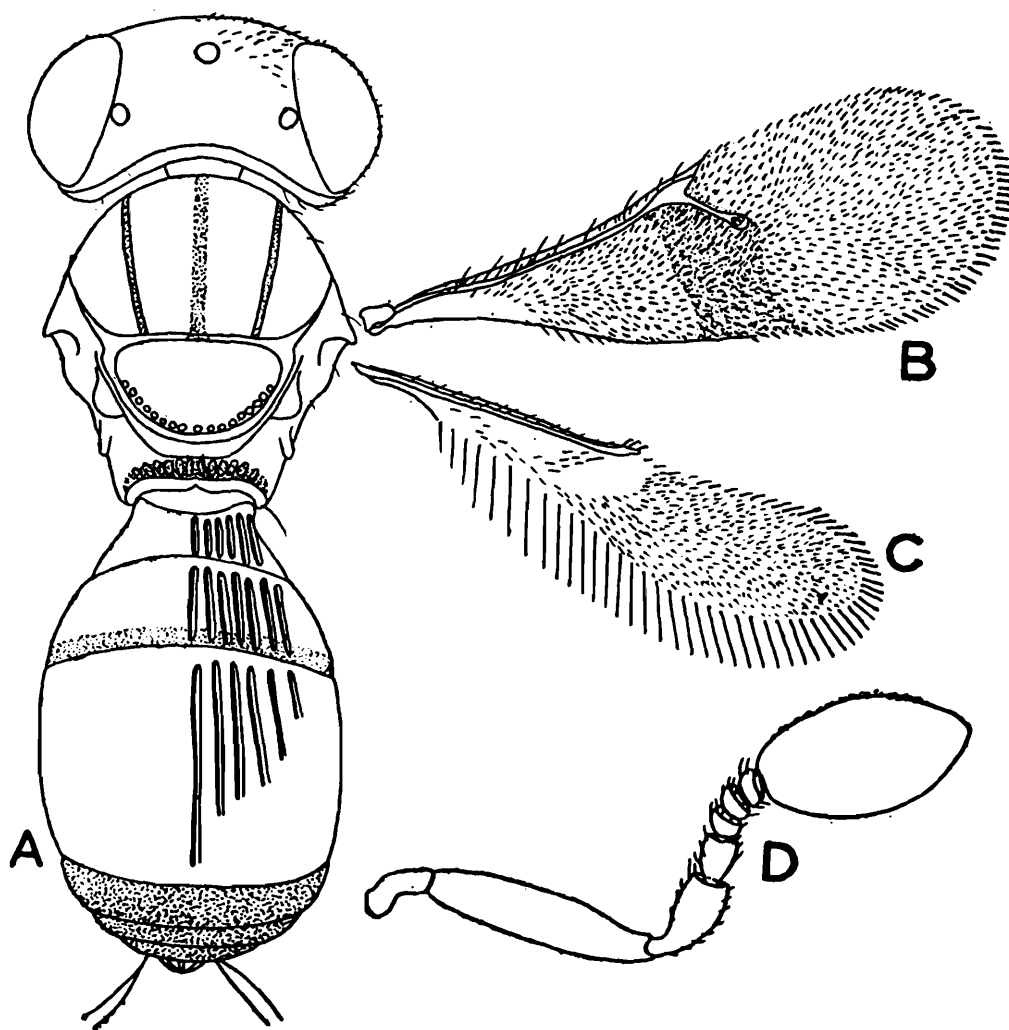


Fig. 20. *Idris dubarensis*, sp. nov. ♀ : A. body dorsal view ; B. fore wing ; C. hind wing ; D. antenna.

shorter than the first segment, and distinctly transverse ; club greatly swollen, very slightly shorter than the scape, 1.80 times longer than thick, subequal to the preceding funicular segments and pedicel combined.

*Thorax* matt, scutellum minutely punctate ; clothed with white setae ; parapsidal furrows present ; thorax viewed dorsally (Fig. 20A) length to width 23:22 ; mesoscutum to scutellum 12:7 ; metanotum transverse ; thorax to abdomen 23:33. *Fore wing* (Fig. 20B) length to width 49:18 ; venation *m:pm:st* 4.5:2.5:12 ; *sm* long, with 7 setae directed forward ; *m* and *pm* with 3 setae ; discal ciliation dense and complete ;

marginal fringe moderately long. *Hind wing* (Fig. 20C) length to width 46:10 ; marginal fringe well developed ; hind wing to fore wing 46:49. *Legs* normal.

*Abdomen* : Petiole and second tergite longitudinally striated throughout their lengths, striations on the third tergite reaching almost to the hind margin, rest of the abdomen smooth and matt ; abdomen clothed with white pubescence ; viewed dorsally (Fig. 20A) length to width 33:21 ; second to third tergite 7:18 ; petiole distinctly transverse ; abdomen 0.48 of body.

*Holotype* : Female, 20.12. Dubare (Karnataka Survey), Coll. M. S. Mani & party, 26.v.- 4, 7.vi.1978.

21. *Idris keethami* sp. nov.

(Fig. 21)

*Female* : Length 0.92 mm. General colour of body very dark brown except for the brownish-yellow abdomen ; face brown, vertex darker ; mandibles brown ; eyes and ocelli black ; antenna yellowish ; legs yellowish ; wings hyaline ; veins yellowish.

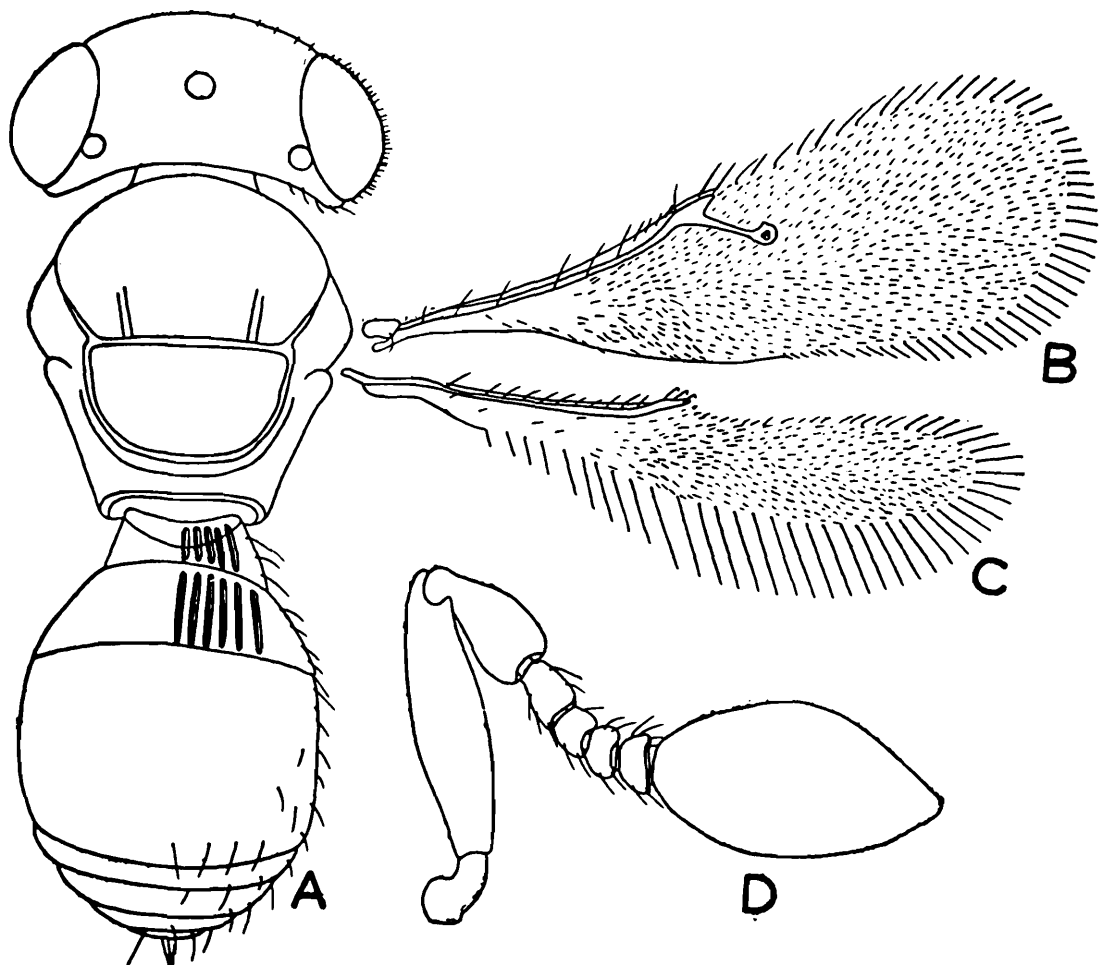


Fig. 21. *Idris keethami*, sp. nov. ♀ : A. body dorsal view ; B. fore wing ; C. hind wing ; D. antenna.

*Head* finely rugulose ; vertex clothed with very dense fine hairs ; vertex strongly margined behind ; eyes finely and very densely pubescent. Head viewed from above (Fig. 21A) length to width 8:18 ; head width almost equal to the maximum width of thorax ; lateral ocelli contiguous with the eye border ; interocellar space 7.30 times ocellar diameter ; front ocellar space 3.80 times ocellar diameter. Head viewed in front length to width 14:18 ; eye length to head length 8:14. *Antenna* (Fig. 21D) : Segments 7: 1.1.0.4.1. Scape thickened in the middle, 3.41 times longer than thick ; pedicel 0.50 of scape, about 2.00 times longer than thick ; first funicular segment longest, 0.40 of pedicel, 1.13 times longer than thick ; 2-4 funicular segments distinctly shorter than the first segment and transverse ; club greatly swollen, 1.15 time the scape, 1.92 times longer than thick ; club subequal to the preceding funicular segments and about 0.90 of pedicel combined.

*Thorax* matt, with reticulations ; clothed with white pubescence ; parapsidal furrows indicated only behind ; thorax viewed dorsally (Fig. 21A) length to width 17:16.5 ; mesoscutum to scutellum 8:5.5 ; metanotum transverse and strip-like ; thorax to abdomen 17:21. *Fore wing* (Fig. 21B) length to width 39:13 ; venation *m:pm:st* 4.5:3:12.5 ; *sm* long, with 6 setae directed forward, *m* and *pm* with 3 setae ; discal ciliation dense and complete ; marginal fringe moderately long. *Hind wing* (Fig. 21C) to fore wing 35:39 ; length to width 35:6 ; marginal fringe distinctly long. *Legs* normal.

*Abdomen* : Petiole and second tergite longitudinally striated throughout their lengths, third tergite finely reticulate, rest of the abdomen smooth ; abdomen clothed with white pubescence ; petiole short and distinctly transverse ; abdomen viewed dorsally (Fig. 21A) length to width 21:15 ; second to third tergite 4:11 ; abdomen 0.45 of body.

*Holotype* : Female, 8.4. Keetham : Agra (U.P.) Coll. M. K. Mukherjee, 8.x.1977.

## 22. *Idris sancti-johani* sp. nov.

(Fig. 22)

*Female* : Length 1.14 mm. General colour of body black except for the yellowish-brown abdomen ; eyes and ocelli dark brown ; mandibles brown ; antenna brownish-yellow except for some dark browning only dorsally in the club ; legs yellowish ; wings hyaline, veins very pale brown.

*Head* close finely reticulate, matt ; antennal sockets close to the clypeal border ; eyes finely and densely pubescent ; vertex sparsely

pubescent; head viewed from above (Fig. 22 A) vertex strongly margined behind; almost as wide as the maximum width of the thorax; length to width 10:26; lateral ocelli contiguous with the eye border; interocellar space about 7.00 times ocellar diameter; front ocellar space a little more than 4.00 times ocellar diameter; head viewed in front length to width 15:22; eye length to head length 10:15. *Antenna* (Fig. 22 D): Segments 7: 1.1.0.4.1. Scape slightly thickened in the middle, 3.18 times longer than thick; pedicel 0.43 of scape, 1.70 times longer than thick; first funicular segment longest, 0.32 of pedicel,

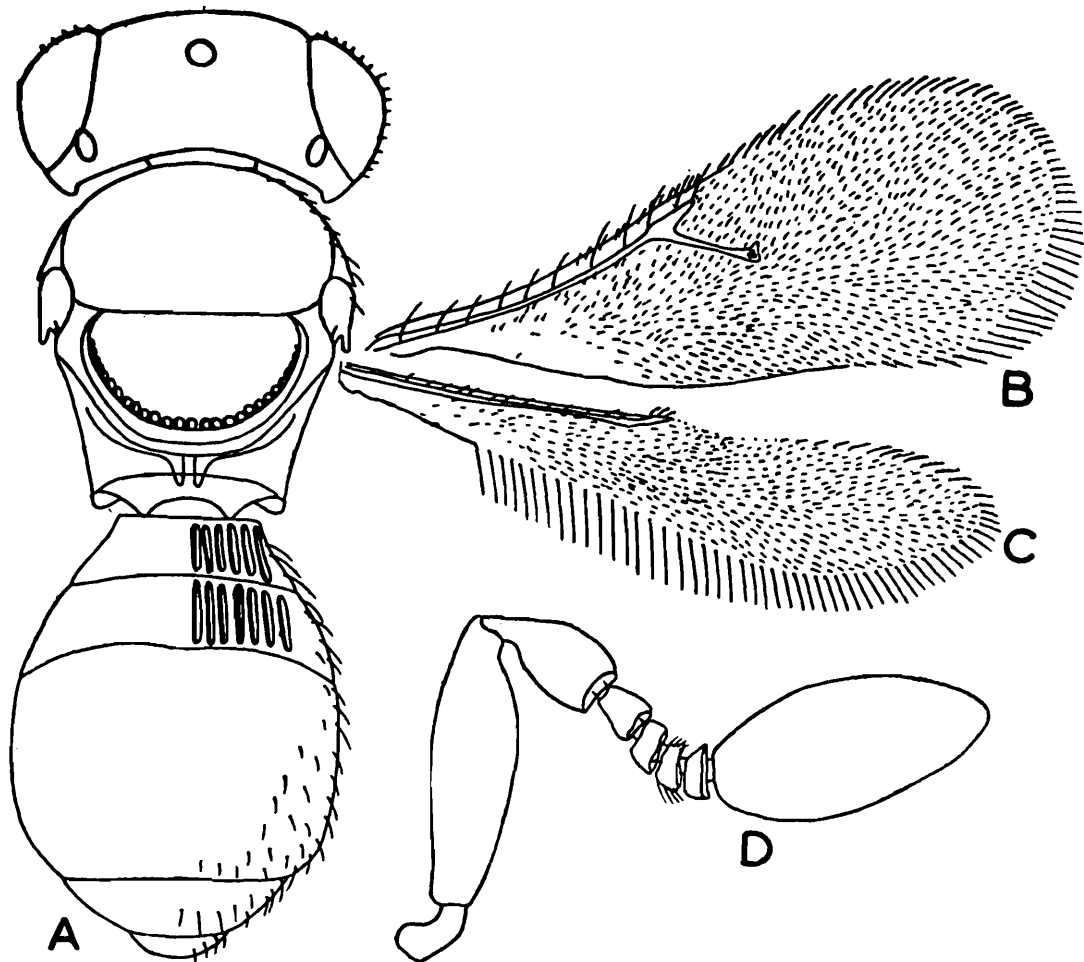


Fig. 22. *Idris sancti-johani*, sp. nov. ♀ : A. body dorsal view; B. fore wing; C. hind wing; D. antenna.

almost as long as its maximum thickness; second funicular segment 0.57 of the first segment, transverse; third and fourth funicular segments subequal, each 0.75 of the second segment, and distinctly transverse; club greatly swollen, about 2.00 times longer than thick, subequal to the preceding funicular segments and pedicel combined.

*Thorax*: Mesoscutum and scutellum finely reticulate, matt; propodeum with longitudinal striations; parapsidal furrows absent; mesoscutum separated from the scutellum by a deep groove; scutellum semi-circular, scutellar margin with a row of small rounded depressions; postnotum transverse and strip-like, with a bidentate median projection; thorax viewed dorsally (Fig. 22 A) length to width 21:20; mesoscutum

to scutellum 9:7 ; thorax to abdomen 21:26. *Fore wing* (Fig. 22 B) length to width 44:16.5 ; *sm* very long, with 8 setae directed forward ; *pm* subequal to *m* ; *st* 3.00 times *pm* ; *m* and *pm* with 3 bristles directed forward ; marginal fringe moderately developed ; discal ciliation fine, dense and complete except for the extreme base. *Hind wing* (Fig. 22 C) to fore wing 40:44 ; length to width 40:7.5 ; marginal fringe well developed. *Legs* normal.

*Abdomen* : Petiole and second tergite longitudinally striated throughout their lengths, otherwise abdomen finely closely reticulate ; petiole with a few distinctly long white setae ; third tergite dorsolaterally and the following tergites even dorsally pubescent ; abdomen viewed dorsally (Fig. 22 A) length to width 26:20 ; third tergite largest, third tergite to second tergite 14:4.2.

*Holotype* : Female, on card, *paratype* one female, labelled as "Entomology Annexe Compound, St. John's College, Agra (U.P.), Coll. M. K. Mukerjee, 28.x.1976"

### 23. *Idris triangularis* sp. nov.

( Fig. 23)

*Female* : Length 1.27 mm. General colour of body brownish-black except for the brownish-yellow 1-3 abdominal tergites, rest of the tergites brownish ; eyes and ocelli brown ; mandibles yellowish-brown except for the reddish-teeth ; antenna brown except for the basal 0.75 of scape and apical 0.50 of club darkened ; legs yellowish-brown except for the dark brown coxae ; wings hyaline ; veins very pale brown.

*Head* : Vertex upto the region of median ocellus finely reticulate and shiny, frons and genae very distinctly longitudinally striate ; head with a median carina extending from the clypeus to the median ocellus ; vertex densely hairy ; eyes finely and sparsely pubescent ; head viewed from above (Fig. 23 A) vertex strongly margined behind ; slightly wider than the maximum width of thorax ; length to width 8:30.5 ; lateral ocelli contiguous with the eye border ; interocellar space 14.00 times ocellar diameter ; front ocellar space 7.66 times ocellar diameter ; head viewed in front length to width 25:30.5 ; eye length to head length 13:25 ; antennal sockets close to the clypeal border. *Antenna* (Fig. 23D) segment, 7, 1.1.0.4.1. Scape almost uniformly thick throughout its length, 4.90 times longer than thick ; pedicel 0.43 of scape, 2.37 times longer than thick ; first funicular segment distinctly longer than the others, 0.60 of pedicel, about 2.10 times longer than thick ; second funicular segment 0.39 of the first segment, almost as long as thick ; third and fourth funicular segments almost subequal to the second

segment ; third funicular segment 0.80 of its thickness ; fourth funicular segment distinctly transverse ; club greatly swollen, 2.16 times longer than thick, subequal to the preceding funicular segments and 0.55 of pedicel combined.

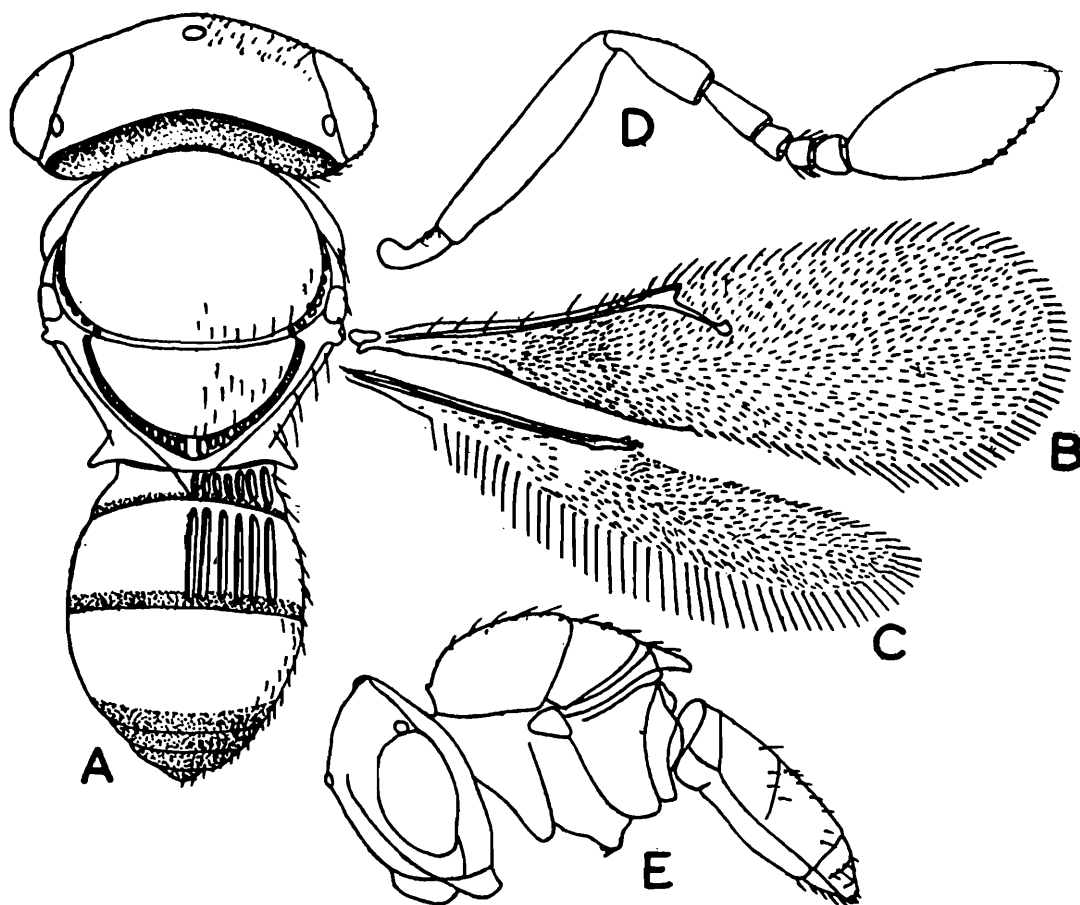


Fig. 23. *Idris triangularis*, sp. nov. ♀ : A. body dorsal view ; B. fore wing ; C. hind wing ; D. antenna ; E. body in profile,

**Thorax :** Mesoscutum and scutellum finely reticulate and shiny ; propodeum longitudinally striate ; parapsidal furrows absent ; mesoscutum separated from scutellum by a deep groove ; thorax clothed with white pubescence ; scutellar margin with a row of rounded depressions ; postnotum transverse, narrow and continued behind into an angular tooth-like projection over the petiole of abdomen (as shown in figure) ; thorax viewed dorsally (Fig. 23 A) length to width 28.5:26 ; mesoscutum to scutellum 16:9 ; thorax to abdomen 28.5:27. **Fore wing** (Fig. 23 B) length to width 60:20 ; *sm* very long ; *m* 2.00 times *pm* ; *st* 3.00 times *m* ; marginal fringe well developed ; discal ciliation dense, fine and complete. **Hind wing** (Fig. 23 C) to fore wing 53:60 ; length to width 53:8 ; marginal fringe well developed. **Legs** normal.

**Abdomen :** Petiole and second tergite longitudinally striated throughout their lengths, the following tergites finely reticulate ; petiole with a few distinctly long hairs ; second tergite dorsolaterally and the following tergites even dorsally clothed with long white pubescence ;

petiole distinctly transverse; abdomen viewed dorsally (Fig. 23 A) length to width 27:20.5; second tergite to third tergite 9:10.5; abdomen 0.43 of body.

*Holotype*: Female, on card, 18.6. Thalacauvery (Coorg Survey), Coll. *M.S. Mani & party*, 7.iv.1977.

24. *Idris velakkadaiensis* sp. nov.

(Fig. 24)

*Male*: Length of body 1.26 mm. General colour of body yellowish-brown; eyes and ocelli black; mandibles yellowish-brown except for the reddish teeth; antenna brown except for the yellowish-brown scape; thorax brownish; legs yellowish-brown; wings hyaline; abdomen yellowish.

*Head*: Ocellar area finely reticulate; gena distinctly longitudinally striate; vertex clothed with yellowish pubescence; face near the eye border and gena with white pubescence; eyes provided with dense

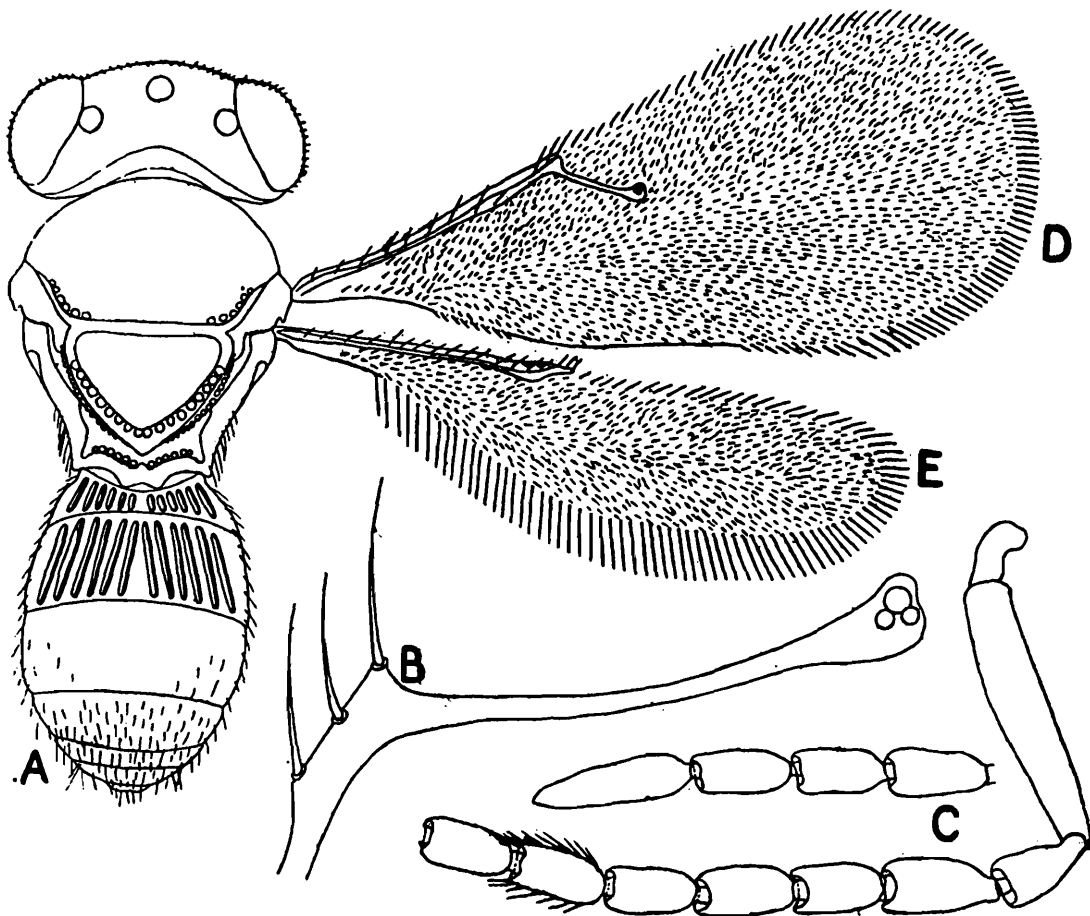


Fig. 24. *Idris veiakkadaiensis*, sp. nov. ♂: A. body dorsal view; B. stigmal vein; C. antenna; D. fore wing; E. hind wing.

white hairs; mandibles bidentate; genal carina well marked; antennal sockets close to the clypeal border. Head viewed from above (Fig. 24A) length a little more than 0.33 of the width; occiput deeply margined; lateral ocelli contiguous with the eye border; interocellar space about

5.00 times ocellar diameter ; front ocellar space about twice ocellar diameter. *Antenna* (Fig. 24C) : Segments 12:1.1.0.9.1. Scape slightly thickened in the basal 0.66, slender, more or less cylindrical, 5.50 times longer than thick ; pedicel 0.31 of scape, 1.75 times longer than its maximum thickness ; first funicular segment longest, 1.14 times the pedicel, 1.74 times longer than thick ; second funicular segment slightly shorter than pedicel, 1.50 times longer than thick ; following funicular segments subequal to the second segment ; club tapering apically, 3.42 times longer than thick, 1.62 times the first funicular segment ; funicular and club segments clothed with moderately long dense setae.

*Thorax* finely reticulate, clothed with short brown setae ; the maximum width almost equal to the width of the head ; scutellum separated from mesoscutum by a distinct and deep suture ; scutellum semicircular, with a row of well marked shallow depressions along the lateral and posterior margins ; parapsidal furrows absent ; sides of propodeum with especially long yellow hairs ; metanotum transverse, with longitudinal striations ; propodeum with distinct longitudinal striations ; thorax viewed dorsally (Fig. 24A) length to width 28:26 ; mesoscutum to scutellum 14:11 ; scutellum length to width 11:16. *Fore wing* (Fig. 24B, D) length to width 70:28 ; marginal fringe well developed ; *sm* very long, with 9 moderately long setae directed forward ; *m* with 3 setae ; *m:st* 2.4:8 ; *pm* absent. *Hind wing* (Fig. 24E) to fore wing 58:70 ; length to width 58:13 ; marginal fringe about 0.38 of the maximum wing width. *Legs* normal.

*Abdomen* subequal to the thorax ; petiole with white, moderately long hairs ; petiole and second tergites with longitudinal striations throughout their lengths, rest of the abdomen smooth ; abdomen viewed dorsally (Fig. 24A) length to width 28:20 ; clothed laterally with white hairs ; third tergite with a few dorsolaterally and fourth tergite onwards with dense pubescence ; second and third tergites longest and almost equal in their lengths ; petiole and last two tergites distinctly transverse ; aedeagus not well exerted ; abdomen about 0.44 of body.

*Holotype* : Male, 17.7. Yercaud : Velakkadai (Eastern Ghats Survey), Coll. *M. S. Mani & Party*, 31.i.1977.

## KEY TO SPECIES

- |  |     |     |     |                                    |
|--|-----|-----|-----|------------------------------------|
| 1. Male  | ... | ... | ... | 2                                  |
| — Female   | ... | ... | ... | 3                                  |
| 2. <i>pm</i> absent ; interocellar space 5.00 times ocellar diameter | ... | ... | ... | <i>I. velakkadaiensis</i> sp. nov. |

- |   |        |                                  |
|---|--------|----------------------------------|
| 3. Striations on dorsum of abdomen continued on tergites I, II and most of III  | ...    | <i>I. dubarensis</i> sp. nov.    |
| — Striations only on tergites I and II  | ...    | 4                                |
| 4. Tergite II longitudinally striae reaching basal half ; fore wing banded transverse ; <i>pm</i> short but distinct ; eyes pubescent | ...    | <i>I. appangalus</i> sp. nov.    |
| — Tergite II longitudinal striae reaching hind margin   | ... .. | 5                                |
| 5. Eyes bare ; <i>pm</i> moderately long  | ...    | <i>I. agraensis</i> sp. nov.     |
| — Eyes pubescent  | ... .. | 6                                |
| 6. Parapsidal furrows absent  | ... .. | 7                                |
| — Parapsidal furrows indicated posteriorly  | ...    | <i>I. keethami</i> sp. nov.      |
| 7. Tergites 2 and 3 subequal  | ... .. | <i>I. triangularis</i> sp.       |
| — Tergite 3 longer than 2   | ... .. | 8                                |
| 8. Gena longitudinally striate ; <i>pm</i> shorter than <i>m</i> ; head with leathery sculpture                                       | ...    | <i>I. annexia</i> sp. nov.       |
| — Gena not longitudinally striate ; <i>pm</i> subequal to <i>m</i> ; head closely finely reticulate, matt                             | ... .. | <i>I. sancti-johani</i> sp. nov. |

#### Family PLATYGASTRIDAE

#### 25. *Fidiobia coorgensis* sp. nov.

(Fig. 25)

*Male*: Length of body 0.80 mm. General colour of body brownish-black to black ; head black ; eyes and ocelli dark brown ; mandibles brown ; antenna brown except for the yellowish-brown scape and third funicular segment ; thorax brownish-black ; legs brownish except for the little darker tip to hind femur and very dark brown apical 0.40 of hind tibia ; fore wing uniformly very light brown with the brown apical margin ; vein brown hind wing uniformly very light brown ; abdomen black except for the yellowish-brown petiole and second tergite only basally.

*Head* finely reticulate ; vertex and eyes bare ; antennal sockets close to the clypeal border. Head viewed in front (Fig. 25A) length to width 91:100 ; eye length to head length 52:100 ; ocellular space equal to the ocellar diameter, interocellar space 4.00 times ocellar diameter ; front ocellar space about 1.50 times ocellar diameter. *Antenna* (Fig. 25B) : Segments 9:1.1.0.3.4. Scape slightly thickened medially, 4.50 times longer than thick ; pedicel 0.33 of scape, 2.14 times longer than thick ; first funicular segment longest, 0.83 of the pedicel, 2.50 times longer than thick ; second funicular segment 0.56 of the first segment, 1.75 times longer than thick ; third funicular segment

very slightly shorter than the preceding one, 1.30 times longer than thick ; first club segment 1.53 times the preceding funicular segment, 1.53 times longer than thick ; second and third club segments subequal to each other, very slightly shorter than the first segment in length ; fourth club segment 1.50 times the first club segment, 2.50 times longer than thick ; club subequal to the preceding three funicular segments and pedicel combined.

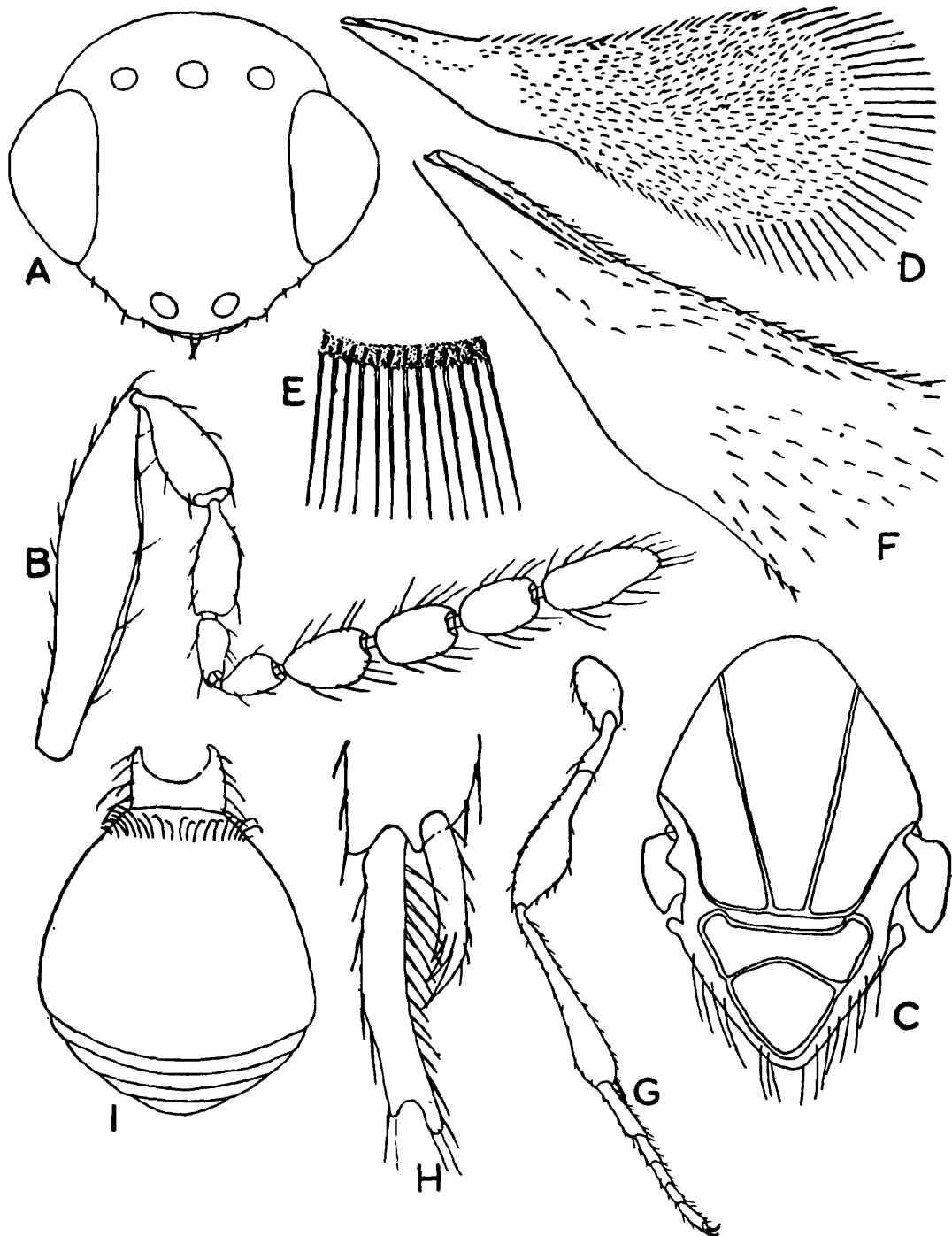


Fig. 25. *Fidiobia coorgensis*, sp. nov. ♂ : A. head in front view ; B. antenna ; C. thorax ; D. fore wing ; E. tip of the fore wing enlarged ; F. base of the fore wing enlarged ; G. hind leg ; H. tip of fore tibia and metatarsus enlarged ; I. abdomen.

*Thorax* (Fig. 25C) : Finely reticulate, matt ; parapsidal furrows distinct and complete ; mesoscutum to scutellum 10.00:3.50 ; *Fore wing* (Fig. 25 D, E, F) length to width 100:40 ; *sm* short, not touching the

wing margin ; marginal fringe long. *Fore leg* (Fig. 25H) : Femur 3.20 times longer than thick ; tibia subequal to femur, 3.47 times longer than thick ; tibial spur bifurcated, tibial spur to metatarsus 2.50:3.50 ; tarsus 1.18 times tibia ; metatarsus 0.43 of tibia and 0.36 of tarsus. *Middle leg* : Femur 3.46 times longer than thick ; tibia 1.22 times femur, 5.50 times longer than thick, tibial spur to metatarsus 1.40:3.00 ; tarsus about 0.91 of tibia ; metatarsus 0.27 of tibia and 0.30 of tarsus. *Hind leg* (Fig. 25G) : Femur thickened subapically, 3.33 times longer than thick ; tibia thickened apically, 1.30 times femur, 5.41 times longer than thick, tibial spur to metatarsus 1.80:4.00 ; tarsus 0.88 of tibia ; metatarsus about 0.31 of tibia and about 0.34 of tarsus.

*Abdomen* smooth and shiny ; 0.36 of body ; viewed dorsally (Fig. 25 I) length to width 100:75 ; petiole transverse, with a few hairs laterally ; second tergite longest, basally with a tuft of hairs (as shown in figure) ; ovipositor not exerted.

*Holotype* : Male, 18.8. Galibeedu (Coorg Survey), Coll. M. S. Mani & party, 11.iv.1977.

This species clearly belongs to the genus *Fidiobia* because of the absence of spine on scutellum and 9-segmented antenna ; it is unlikely to be one of *Leptacis*.

## 26. *Inostemma anamalaianus* sp. nov.

(Fig. 26)

*Male* : Length of body 1.90 mm ; length of fore wing 1.40 mm ; length of abdomen 0.96 mm. General colour of body black ; head black ; eyes and ocelli black ; mandibles brown ; antenna black except for the yellowish-brown apical ventral expansion of scape ; thorax black ; legs brown except for the black coxae and femur of all the legs, and darker apical 0.60 of hind tibia ; fore wings uniformly light brown ; vein very dark brown ; abdomen black.

*Head* smooth ; vertex with a row of very small hairs ; eyes bare ; antennal sockets close to the clypeal border. Head viewed in front (Fig. 26B) length to width 71:100 ; eye length to head length 57:100 ; ocellular space 1.60 times ocellar diameter ; interocellar space 4.50 times ocellar diameter ; front ocellar space about 2.00 times ocellar diameter. *Antenna* (Fig. 25C) : Segments 10:1.1.0.3.5. Scape curved, widened apically, 3.55 times longer than thick ; pedicel small, 0.18 of scape, 1.50 times longer than thick ; first funicular segment about 1.35 times the pedicel, 2.00 times longer than thick ; second funicular segment subequal to the first segment ; third funicular segment 0.57 of the first

segment, 1.15 times longer than thick ; first club segment subequal to the first funicular segment, 1.60 times longer than thick ; 2-4 club segments subequal to the first segment ; terminal segment of club tapering apically, 1.57 times the first funicular segment, 3.15 times longer than thick ; club subequal to the preceding funicular segments, pedicel and 0.50 of scape combined.

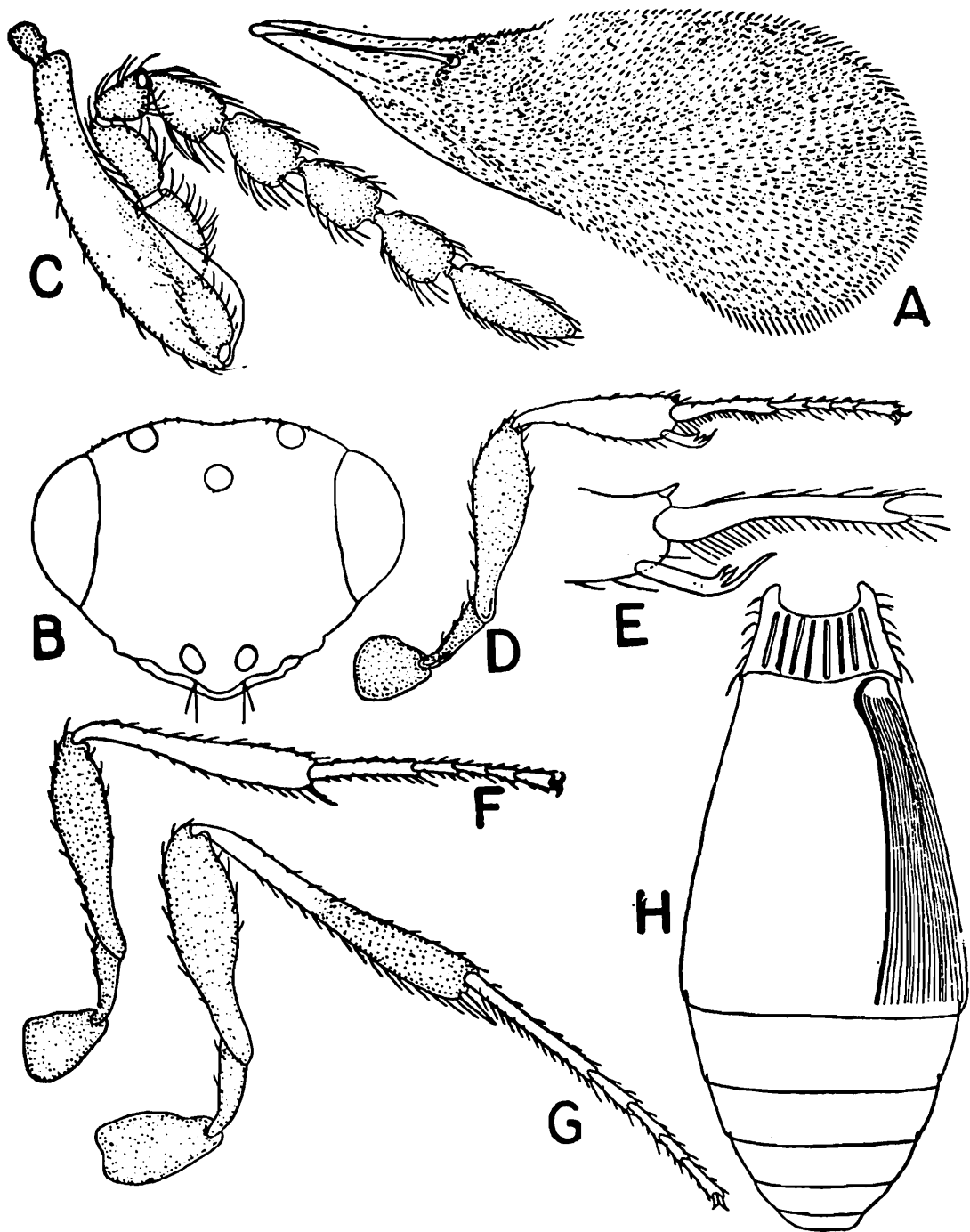


Fig. 26. *Inostemma anamalaianus*, sp. nov. ♂ : A. fore wing ; B. head in front view ; C. antenna ; D. fore leg ; E. tip of fore tibia and metatarsus enlarged ; F. middle leg ; G. hind leg ; H. abdomen.

*Thorax* very finely reticulate ; parapsidal furrows present. *Fore wing* (Fig. 26A) length to width 100:43 ; *sm* not touching the wing margin, and distally forming a node ; marginal fringe short. *Fore leg* (Fig. 26D, E) : Coxa 1.14 times longer than thick ; femur thickened in

the middle, 3.40 times longer than thick ; tibia thickens apically, 0.80 of femur, 3.63 times longer than thick, tibial spur trifold, tibial spur to metatarsus 4.50:7.50 ; tarsus 1.45 times tibia ; metatarsus 0.62 of tibia and 0.42 of tarsus. *Middle leg* (Fig. 26F) : Coxa 1.40 times longer than thick ; femur thickened in the middle, 4.25 times longer than thick ; tibia thickens apically, very slightly longer than femur, 6.00 times longer than thick, tibial spur to metatarsus 3.00:8.00 ; tarsus subequal to tibia ; metatarsus 0.44 of tibia or tarsus. *Hind leg* (Fig. 26G) : Coxa 1.50 times longer than thick ; femur thickened in the middle, 3.65 times longer than thick ; tibia thickens apically, 1.21 times femur, about 7.00 times longer than thick, tibial spur to metatarsus 3.60:11.00 ; tarsus subequal to tibia ; metatarsus 0.46 of tibia or tarsus.

*Abdomen* : Petiole with longitudinally striations, second tergite raised in front in the middle with paired lateral sulci continued behind into fine striations, third tergite onwards with fine microsculpture ; abdomen about 0.50 of body ; viewed dorsally (Fig. 26H) length to width 100:44 ; petiole transverse, with a tuft of short hairs ; second tergite longest, length to width 77:66.

*Holotype* : Male, 5.15. Valparai : Annamalai Range, Coll. *Mani & party* 31.iii.1972.

### 27. *Inostemma coorgensis* sp. nov.

(Fig 27)

*Female* : Length 1.50 mm. General colour of body black except for the brownish-black abdomen ; mandibles black ; antenna very dark brown except for the brownish scape and pedicel ; legs brown except for the darker coxae ; wings hyaline ; vein brown.

*Head* : Frons finely reticulate, vertex smooth, gena finely sparsely punctate ; eyes finely and sparsely pubescent ; clypeal margin with a few distinctly long white setae ; antennal socket very close to the clypeal border ; vertex moderately pubescent ; head viewed from above (Fig. 27 A) almost as wide as the maximum width of thorax ; length to width 10.5:21.5 ; ocellular space almost equal to ocellar diameter ; interocellar space 4.25 times ocellar diameter ; front ocellar space 2.33 times ocellar diameter ; head viewed in front length to width 16:21.5 ; eye length to head length 10:16. *Antenna* (Fig. 27 D) : Segments 10:1.1.0.4.4. Scape slightly curved, 4.14 times longer than thick ; pedicel 0.21 of scape, 1.72 times longer than thick ; first funicular segment longest, subequal to the pedicel, 2.11 times longer than thick ; second funicular segment 0.68 of the first segment, 1.36 times longer than thick ; third funicular segment 0.77 of the second segment, as long as thick ; fourth funicular segment 0.80 of the third segment, transverse,

its length 0.80 of its thickness ; first club segment about 2.00 times the fourth funicular segment, almost as long as its maximum thickness ; second club segment very slightly longer than the first segment, transverse, its length 0.84 of its thickness ; third club segment subequal to the first segment, distinctly transverse, its length 0.75 of its thickness ; terminal club segment elongately ovate, about 2.00 times the preceding segment, 1.70 times longer than thick ; club subequal to the preceding funicular segments and pedicel combined.

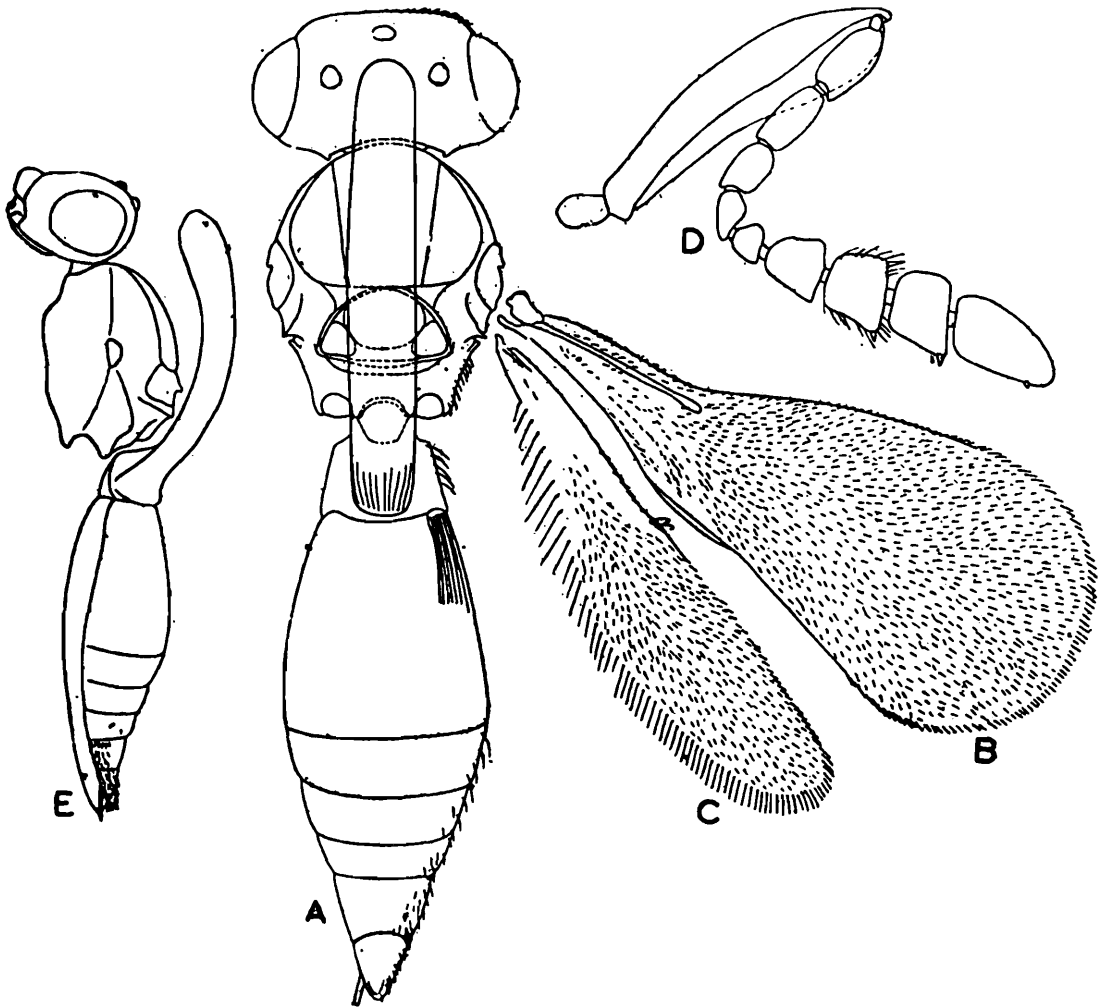


Fig. 27. *Inostemma coorgensis*, sp. nov. ♀ : A. body dorsal view ; B. fore wing ; C. hind wing ; D. antenna ; E. body in profile.

**Thorax** : Smooth and shiny ; parapsidal furrows present and complete ; propodeum laterally with pubescence ; thorax viewed dorsally (Fig. 27 A) length to width 24:19 ; mesoscutum to scutellum 12:6.5. **Fore wing** (Fig. 27 B) length 51:22 ; *sm* restricted to the base of the wing, and distally forming a node ; marginal fringe present but short ; discal ciliation dense and complete. **Hind wing** (Fig. 27 C) to fore wing 44:61 ; length to width 44:9.5 ; marginal fringe well developed. **Legs** normal.

**Abdomen** : Petiole and horn with longitudinal striations ; second tergite smooth except for the anterolateral longitudinal striations (as shown in the figure), third tergite onwards very finely minutely

punctate; petiole transverse, with a row of hairs laterally; abdomen viewed dorsally (Fig. 27 A) length to width 44:17; horn to abdomen 31:44; second tergite largest, length to width 18:17; horn of the petiole extending upto a little beyond the median ocellus.

*Holotype*: Female, *paratype* one female, 18.7. Nelji (Coorg Survey), Coll. M. S. Mani & party 10.iv.1977.

28. *Inostemma dalhousianus* sp. nov.

(Fig. 28)

*Male*: Length of body 1.50 mm; length of fore wing 1.14 mm; length of abdomen 0.72 mm. General colour of body black; head

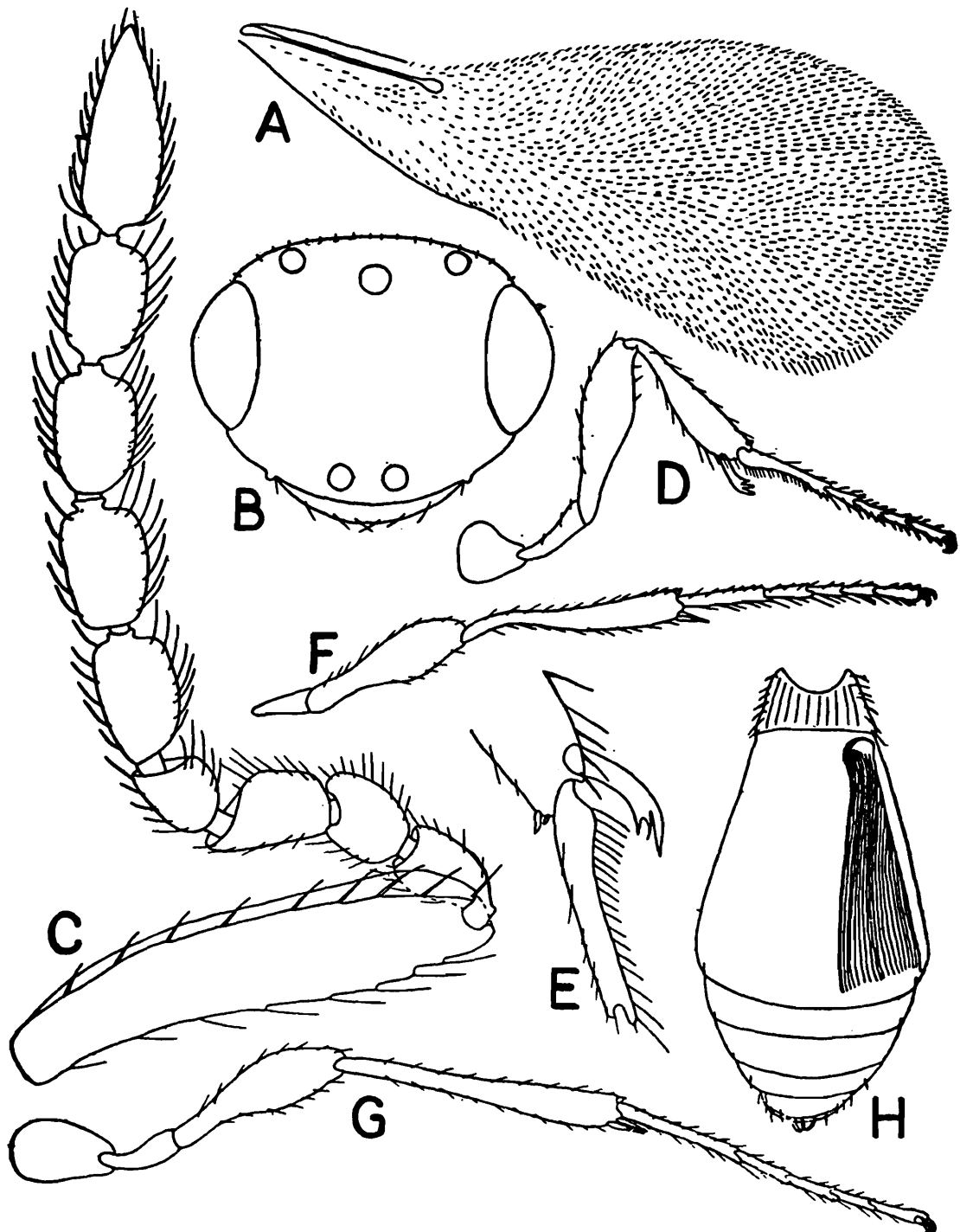


Fig. 28. *Inostemma dalhousianus* sp. nov. ♂ : A, forewing; B, head in front view; C, antenna; D, fore leg; E, tip of fore tibia and metatarsus enlarged; F, middle leg; G; hind leg; H, abdomen.

**black** ; eyes and ocelli black ; mandibles brown ; antenna black ; thorax black ; legs black, larsi brown ; wings hyaline ; abdomen black.

*Head* : Vertex finely reticulate ; frons smooth and shiny ; vertex flat, with a row of very fine hairs ; eyes bare ; antennal sockets close to the clypeal border. Head viewed in front (Fig. 28 B) length to width 73:100 ; eye length to head length 56:100 ; ocellocular space about 1.60 times ocellar diameter ; interocellar space 5.50 times ocellar diameter ; front ocellar space 2.25 times ocellar diameter. *Antenna* (Fig. 28 C) : Segment 10:1.1.0.3.5. Scape more or less slender, with moderately long hairs, 4.31 times longer than thick ; pedicel 0.22 of scape, 1.55 times longer than thick ; first funicular segment 0.71 of pedicel, almost as long as thick ; second funicular segment 1.50 times the first segment, 1.50 times longer than thick ; third funicular segment subequal to the first segment ; first club segment 1.75 times the first funicular segment, 1.59 times longer than thick ; 2-4 club segments subequal to the first segment ; terminal segment of club tapering apically, 1.57 times the first club segment, about 2.80 times longer than thick ; club subequal to the preceding funicular segments, pedicel and about 0.75 of scape combined.

*Thorax* matt, finely reticulate ; parapsidal furrows present ; thorax reduced posteriorly ; scutellum rounded behind. *Fore wing* (Fig. 28 A) length to width 100:42 ; *sm* straight, not touching the wing margin, forming a distal node ; marginal fringe very short. *Fore leg* (Fig. 28 D, E) : Coxa almost as long as thick ; femur thickened in the middle, 3.42 times longer than thick ; tibia thickened subapically, 0.87 of femur, 4.37 times longer than thick, tibial spur trifold, tibial spur to metatarsus 3.00:6.00 ; tarsus 1.42 times tibia ; metatarsus 0.57 of tibia and 0.40 tarsus. *Middle leg* (Fig. 28 F) : Femur thickened subapically, 3.33 times longer than thick ; tibia thickens apically, 1.27 times femur, 7.00 times longer than thick ; tarsus 1.10 times tibia ; metatarsus 0.39 of tibia and 0.35 of tarsus. *Hind leg* (Fig. 28 G) ; Coxa 1.50 times longer than thick ; femur thickened medially, 3.15 times longer than thick ; tibia thickens apically, 1.50 times femur, about 8.00 times longer than thick, tibia with 2 apical spurs ; tarsus 1.11 times tibia ; metatarsus 0.44 of tibia and 0.40 of tarsus.

*Abdomen* : Petiole with weak longitudinal striations ; second tergite raised in front in the middle with paired lateral sulci continued behind into fine striations, rest of the tergites very finely reticulate ; abdomen 0.48 of body ; viewed dorsally (Fig. 28 H) length to width 100:50 ; petiole transverse, with a few hairs laterally ; second tergite longest, length to width 66:55.

*Holotype* : Male, 1.1. Ahla : Dalhousie, Coll. *M. S. Mani & party*, 14-25.v.1971. *Other material examined* one male, 18.4. Nagarhole

(Coorg Survey) Coll. *M. S. Mani & party*, 6.iv.1977.

29. *Inostemma nelgiensis* sp. nov.

(Fig. 29)

*Male* : Length of body 1.22 mm. General colour of body black ; head black ; eyes and ocelli very dark brown ; mandibles black with the reddish-brown teeth ; antennae black except for the very dark brown scape and pedicel ; thorax black ; legs brownish except for the very dark brown coxae, femur and last tarsal segments ; wings hyaline ; vein brown ; abdomen black ; aedeagus very light brown.

*Head* : Frons, gena and vertex finely reticulate ; vertex and eyes bare ; antennal sockets close to the clypeal border Head viewed in front (Fig. 29 A) length to width 74:100 ; eye length to head length 57:100 ; ocellocular space 1.30 times ocellar diameter ; interocellar space about 4.50 times ocellar diameter ; front ocellar space about 1.60 times ocellar diameter. *Antenna* (Fig. 29 D) : Segments 10, 1.1.0.3.5. Scape moderately thickened apically, 4.16 times longer than thick (including the lamellar width) ; pedicel 0.20 of scape, 1.17 times longer than thick ; first funicular segment 1.15 times the pedicel, 1.64 times longer than thick ; second funicular segment longest, 1.13 times the first segment, 1.73 times longer than thick ; third funicular segment 0.57 of the second segment, 1.15 times longer than thick ; first club segment 1.60 times the preceding funicular segment, 1.33 times longer than thick ; second club segment 1.08 times the first segment, 1.36 times longer than thick ; third and fourth club segments subequal to the second segment ; fifth club segment about 1.77 times the second segment, 2.55 times longer than thick ; club subequal to the preceding three funicular segments, pedicel, and about 0.58 of scape combined.

*Thorax* finely reticulate ; parapsidal furrows distinct and complete ; mesoscutum to scutellum 12:5.7 ; thorax ; viewed dorsally ( Fig. 29 A) length to width 100:78. *Fore wing* (Fig. 29 B) length to width 100:42 ; *sm* not touching the wing border, distally forming a node ; marginal fringe short. *Hind wing* (Fig. 29 C) to fore wing 87:100 ; length to width 100:20 ; marginal fringe moderate. *Fore leg* (Fig. 29 A) : Femur 3.16 times longer than thick ; tibia thickens apically, 0.84 of femur, 3.47 times longer than thick, tibial spur trifurcated, tibial spur to metatarsus 3.00:5.00 ; tarsus 1.37 times tibia ; metatarsus 0.62 of tibia and 0.45 of tarsus ; *Middle leg* (Fig. 29 A) : Femur 3.44 times longer than thick ; tibia thickens apically, 1.20 times femur, 6.00 times longer than thick, tibial spur to metatarsus 2.00:4.50 ; tarsus subequal to tibia ; metatarsus 0.37 of tibia or tarsus. *Hind leg* ( Fig. 29 A) : Femur 3.14 times longer than thick ; tibia thickened apically, 1.27 times femur, 6.08 times longer

than thick, tibial spur to metatarsus 3.0:7.00 ; tarsus 1.14 times tibia ; metatarsus 0.50 of tibia and 0.43 of tarsus.

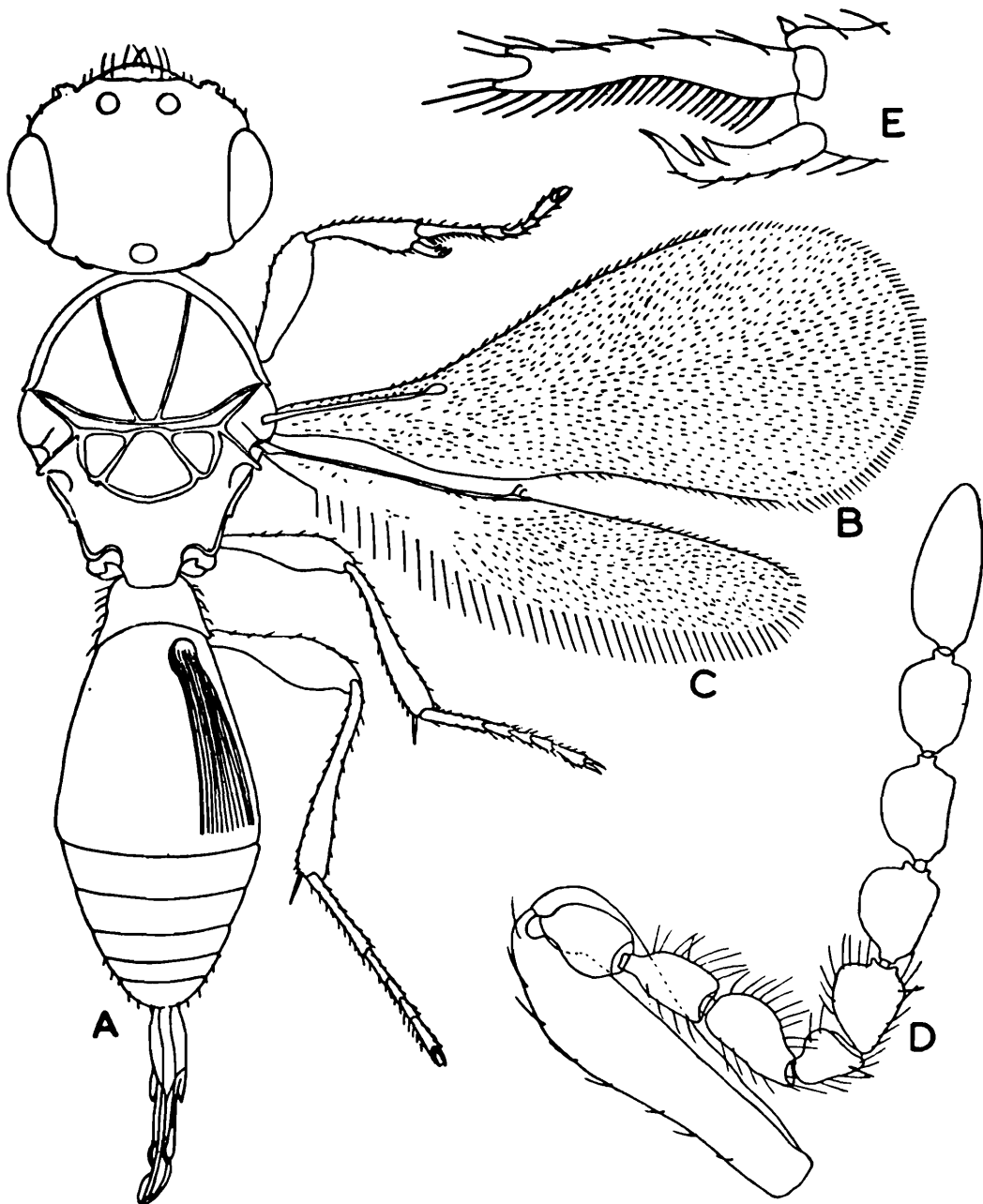


Fig. 29. *Inostemma neligensis*, sp. nov. ♂ : A, body dorsal view ; B, fore wing ; C, hind wing ; D, antenna ; E, tip of fore tibia and metatarsus enlarged.

**Abdomen :** Second tergite raised in front in the middle with paired lateral sulci continued behind into fine striations, rest of the tergites smooth and shiny ; abdomen about 0.51 of body ; viewed dorsally (Fig. 29 A) length to width 100:47 ; petiole transverse, with a tuft of hairs ; second tergite longest, 0.55 of abdomen, length to width 20:17.5 ; abdomen to aedeagus 100:48.

**Holotype :** Male, 18.7. Nelgi (Coorg Survey), Coll. *M. S. Mani & Party*, 10.iv.1977.

30. *Inostemma shencottahensis* sp. nov.

(Fig. 30)

*Female* : Length of body 1.54 mm ; length of fore wing 1.00 mm ; length of abdomen including petiole 0.82 mm. General colour of body black ; head black ; eyes and ocelli very dark brown ; mandibles brownish-black ; antenna brownish-black except for the brown scape ; thorax black ; legs brown except for the very dark brown coxae ; wings hyaline ; abdomen black and shiny.

*Head* matt ; finely reticulate ; maxillary palpus biarticulate ; labial palpus uniarticulate ; vertex without pubescence ; eyes bare ; mandibles bidentate ; antennal sockets close to the clypeal border. Head viewed in front (Fig. 30 C) length to width 80:100 ; eye length to head length 58:100 ; ocellular space about 0.75 of ocellar diameter ; inter-ocellar space about 3.50 times ocellar diameter ; front ocellar space about 1.33 times ocellar diameter. *Antenna* (Fig. 30 B) : Segments 10, 1.1.0.4.4. Scape long, slender, about 5.00 times longer than thick ; pedicel 0.24 of the scape, 1.88 times longer than thick ; first funicular segment subequal to the pedicel, 2.00 times longer than thick ; second funicular segment 0.64 of the first segment, about 1.30 times longer than thick ; third funicular segment 0.50 of the second segment, transverse, its length 0.64 of its thickness ; fourth funicular segment very slightly shorter than the third segment, distinctly transverse, its length 0.50 of its thickness ; first segment of club 1.45 times the third funicular segment, transverse, its length 0.66 of its thickness ; second club segment 1.25 times the first segment, transverse, its length 0.69 of its thickness ; third club segment subequal to the second segment ; fourth club segment obtuse at tip, 1.75 times the third segment, 1.45 times longer than thick ; club subequal to the preceding four funicular segments and about 0.50 of pedicel combined.

*Thorax* finely reticulate ; parapsidal furrows complete ; scutellum not conical ; thorax reduced posteriorly ; viewed dorsally length to width 30:22. *Fore wing* (Fig. 30 A) without closed basal cell ; length to width 100:42 ; *sm* straight, not touching the wing margin, distally forming a node ; marginal fringe almost absent. *Fore leg* (Fig. 30 D) : Femur thickened in the middle ; 3.23 times longer than thick ; tibia thickens apically, slightly shorter than femur, 3.84 times longer than thick, tibial spur trifurcated, tibial spur to metatarsus 3.50:5.50 ; tarsus 1.35 times tibia ; metatarsus 0.55 of tibia and 0.40 of tarsus. *Middle leg* (Fig. 30E) : Femur thickened in the middle, 3.60 times longer than thick ; tibia thickens apically, 1.13 times femur, 5.41 times longer than thick, tibial spur to metatarsus 2.20:5.00 ; tarsus very slightly longer than tibia ; metatarsus 0.38 of tibia and 0.35 of tarsus. *Hind leg* (Fig. 30 F) :

Femur thickened in the middle, 3.00 times longer than thick ; tibia thickens apically, 1.33 times femur, about 6.00 times longer than thick, tibial spur to metatarsus 3.00:8.00 ; tarsus 1.18 times tibia ; metatarsus 0.50 of tibia and 0.42 of tarsus.

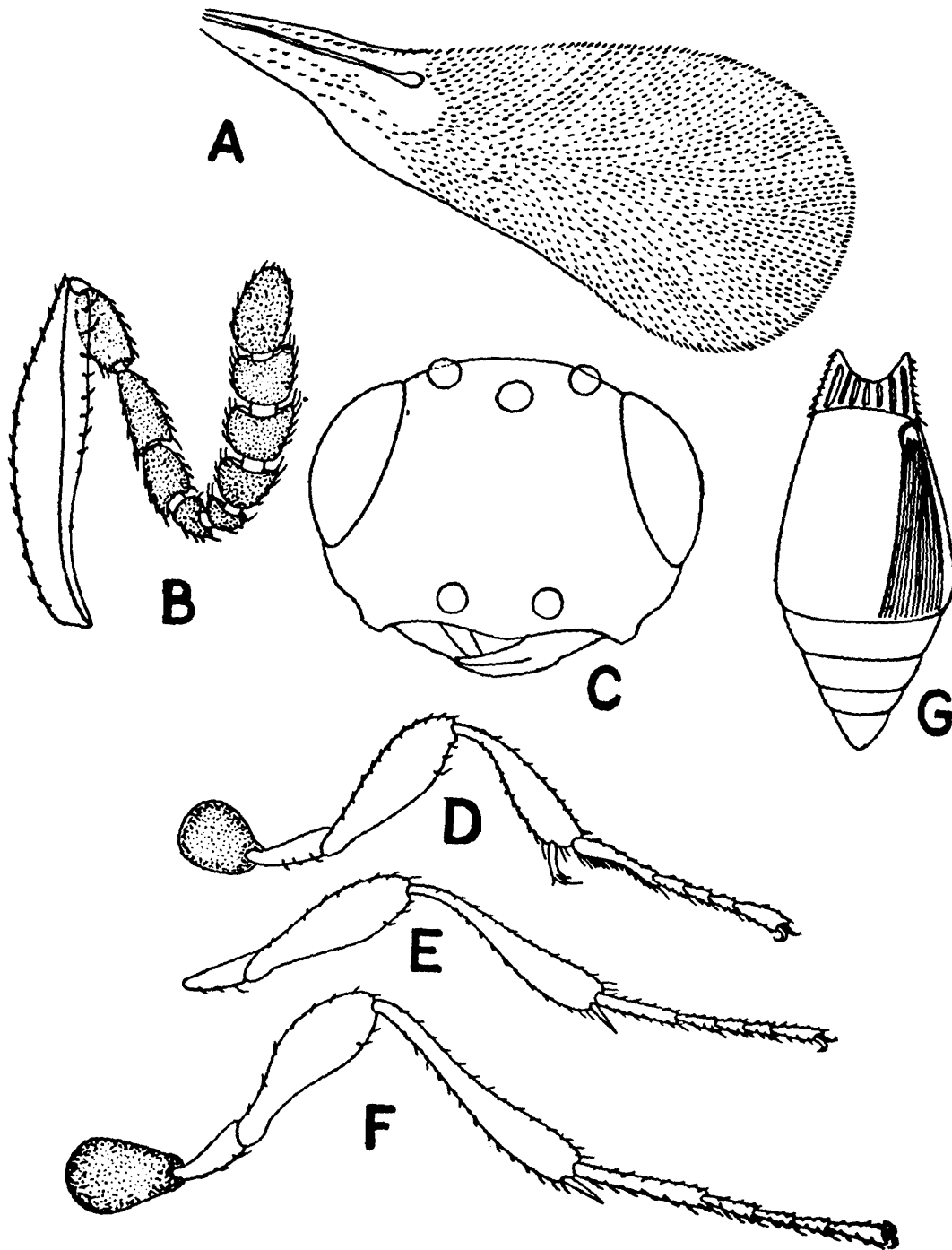


Fig. 30. *Inostemma shencottahensis*, sp. nov. ♀ : A, fore wing ; B, antenna ; C, head in front view ; D, fore leg ; E, middle leg ; F, hind leg ; G, abdomen.

*Abdomen* : Petiole longitudinally striated ; second tergite raised in front in the middle with paired lateral sulci continued behind into fine striations, rest of the tergites very finely shagreened ; abdomen 0.53 of body ; viewed dorsally (Fig. 30 G) length to width 100:46 ; petiole transverse, with a tuft of short hairs ; second tergite largest, length to width 49:40.

*Holotype* : Female, 9.12. Shencotah Gap. Coll. *M. S. Mani & party*, 26.iv. 1973 ; *Other material examined*, one female, 12.5. Pechiparai (Kerala Survey), Coll. *M.S. Mani & party*, 25-27.viii.1974.

KEY TO SPECIES OF *INOSTEMMA* SO FAR KNOWN FROM INDIA

1. Males	...	...	...	2
—. Females	...	...	...	4
2. First funicular segment longest			...	<i>I. anamalaianus</i> sp. nov.
—. Second funicular segment longest			...	3
3. Second tergite almost 0.70 abdomen ; frons smooth, vertex finely reticulate			...	<i>I. dalhousianus</i> sp. nov.
—. Second tergite a little over 0.50 of abdomen ; head finely reticulate	...	...	...	<i>I. neljiensis</i> sp. nov.
4. Horn well developed	...	...	...	5
—. Horn absent	...	...	...	<i>I. shencottahensis</i> sp. nov.
5. Scape about four times as long as thick ; vertex smooth, gena minutely sparsely punctate, frons finely reticulate			...	<i>I. coorgensis</i> sp. nov.
—. Scape five times as long as thick ; frons and vertex finely reticulate	...	...	...	<i>I. berijama</i> Mani

31. *Isostasius poroicus* sp. nov.

(Fig. 31)

*Female* : Length of body 1.10 mm ; length of fore wing 0.82 mm ; length of abdomen 0.46 mm. General colour of body black ; head black ; eyes very dark brown ; ocelli black ; mandibles brown ; antenna very dark brown except for the paler basal 0.50 of scape ; thorax black ; legs brown except for the dark brown coxae of all the legs and dark brown femur and tip of tibia of hind leg ; wings hyaline ; vein brown ; abdomen black.

*Head* matt ; very finely reticulate ; vertex finely and sparsely pubescent ; eyes bare ; antennal sockets far below the lower orbital border ; maxillary palpus biarticulate ; labial palpus unarticulate and long. Head viewed in front (Fig. 31 C) length to width 78:100 ; eye length to head length 57:100 ; ocellular space about 2.00 times ocellar diameter ; interocellar space about 4.30 times ocellar diameter ; front ocellar space about 1.15 times the diameter of median ocellus. *Antenna* (Fig. 31 B) : Segments 10, 1.1.0.4.4. Scape not expanded medially into a lamella, slightly thickened subapically, 4.25 times longer than thick ; pedicel 0.35 of scape, 1.50 times longer than thick ; first funicular segment shortest, 0.16 of pedicel, distinctly transverse ; second funicular segment 2.00 times the first segment, transverse, its length about 0.50 of

its thickness ; third and fourth funicular segments subequal to the second ; first club segment 1.50 times the preceding funicular segment, transverse, its length about 0.65 of its thickness ; second and third club segments subequal to the first segment ; fourth club segment longest, tapering apically, 3.00 times the preceding segment and 1.80 times longer than thick ; club subequal to the preceding 4 funicular segments, pedicel and about 0.40 of scape combined.

*Thorax* matt ; reticulately sculptured ; parapsidal furrows complete ; scutellum slightly bulging and sculptured like the rest of thorax. *Fore wing* (Fig. 31 A) without closed basal cell ; length to width 100:44 ; *sm* straight, not touching the wing margin, distally forming a node ; marginal fringe short. *Fore leg* (Fig. 31 D) : Femur 2.50 times longer

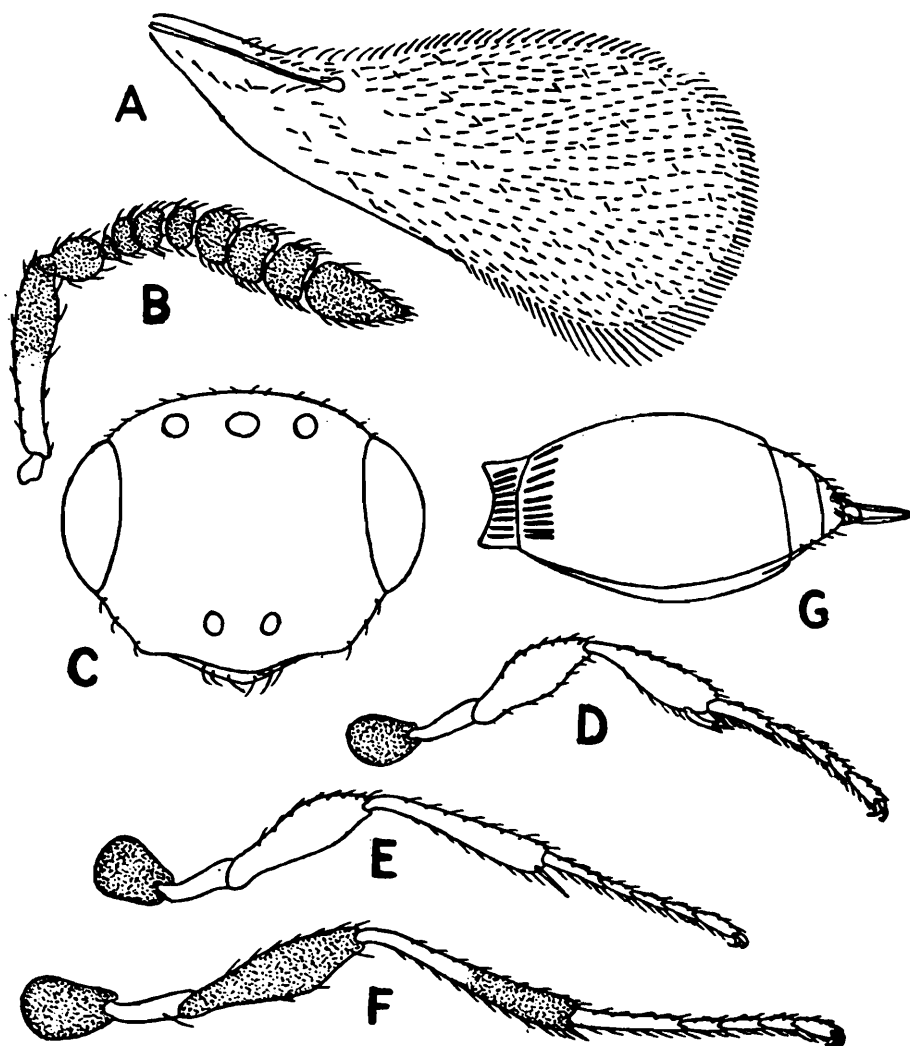


Fig. 31. *Isostasius poroicus*, sp. nov. ♀ : A, fore wing ; B, antenna ; C, head in front view ; D, fore leg ; E, middle leg ; F, hind leg ; G, abdomen.

than thick, thickened in the middle ; tibia thickens apically, subequal to femur, 3.50 times longer than thick, tibial spur trifid, tibial spur to metatarsus 3.00:3.50 ; tarsus 1.57 times tibia ; metatarsus 0.50 of tibia and 0.31 of tarsus. *Middle leg* (Fig. 31 E) : Coxa as long as thick ;

femur 3.33 times longer than thick ; tibia slightly longer than femur, thickens apically, 5.00 times longer than thick, tibial spur to metatarsus 2.20:3.20 ; tarsus 1.10 times tibia ; metatarsus about 0.33 of the tibia and about 0.30 of the tarsus. *Hind leg* (Fig. 31 F) : Coxa 1.33 times longer than thick ; femur thickened in the middle, about 3.70 times longer than thick ; tibia thickens apically, slightly longer than femur, 6.00 times longer than thick ; tarsus 1.25 times the tibia ; metatarsus 0.50 of tibia and 0.40 of tarsus.

*Abdomen* smooth ; 0.41 of body ; petiole short, without horn, transverse ; petiole completely and second tergite only basally with longitudinal striations ; second segment largest, length to width 65:42 ; abdomen viewed dorsolaterally (Fig. 31 G) length to width about 100:50 ; ovipositor slightly exerted beyond the tip of abdomen.

*Holotype* : Female, 16.4. Poro North (North-Bengal Survey), Coll. M. S. Mani & party, 6-24.iv. 1976.

This species comes close to *I. punctiger* (Nees)\* in the presence of parapsidal furrows and *sm* not exceeding one-third of the wing, but differs in the third antennal segment being transverse, in the completely hyaline wings, in the colouration of legs and in third abdominal tergite not being very narrow.

### 32. *Leptacis atturensis* sp. nov.

(Fig. 32)

*Female* : Length 1.20 mm. General colour of body black except for the reddish-brown petiole ; eyes and ocelli brown ; mandibles brown ; antenna dark brown except for the yellowish-brown scape and radicle ; legs brown ; wings hyaline.

*Head* finely reticulate ; antennal sockets close to the clypeal border ; vertex strongly convex and with a few, fine, sparse hairs ; eyes finely and very sparsely pubescent ; head viewed from above (Fig. 32 A) very slightly wider than the maximum width of thorax ; length to width 9:18 ; ocellocular space equal to the ocellar diameter ; interocellar space 5.00 times ocellar diameter ; front ocellar space 2.40 times ocellar diameter ; head viewed in front length to width 17:18 ; eye length to head length 9:17. *Antenna* (Fig. 32 D) : Segments 10, 1.1.0.3.5. Scape slightly thickened a little beyond the middle, 5.33 times longer than thick ; pedicel 0.20 of scape, 1.62 times longer than thick ; funicular and club segments with long hairs ; first funicular segment shortest, 0.38 of pedicel, subglobose and distinctly more slender than the pedicel ; second funicular segment longest, 0.34 of scape, 2.58 times longer than thick ;

---

\* Nees, 1834. *Hym. Monogr.*, 2 : 307 (*Platygaster*).

third funicular segment 0.68 of the second segment, 2.14 times longer than thick ; first club segment very slightly longer than the second funicular segment, about 3.00 times longer than thick ; second club segment 1.18 times the first segment, 3.22 times longer than thick ; third and fourth club segments subequal to the second segment but more slender ; terminal club segment 1.43 times the preceding segment, 6.57 times longer than thick ; club distinctly longer than the preceding funicular segments, pedicel and scape combined.

*Thorax* smooth and shiny ; clothed with long white hairs ; sides of scutellum with dense pubescence ; propodeum with a dense tuft of long hairs as shown in figure ; parapsidal furrows absent ; mesoscutum separated from scutellum by a deep groove ; scutellum continued behind into a long spine ; thorax viewed dorsally (Fig. 32A) length to width 27:15 ; mesoscutum to scutellum 15:10.5. *Fore wing* (Fig. 32B) length to width 74:39 ; *sm* restricted to the extreme base of the wing ; marginal fringe moderately long ; discal ciliation fine and complete. *Hind wing* (Fig. 32C) to fore wing 60:74 ; length to width 60:5.8 ; marginal fringe long. *Legs* normal.

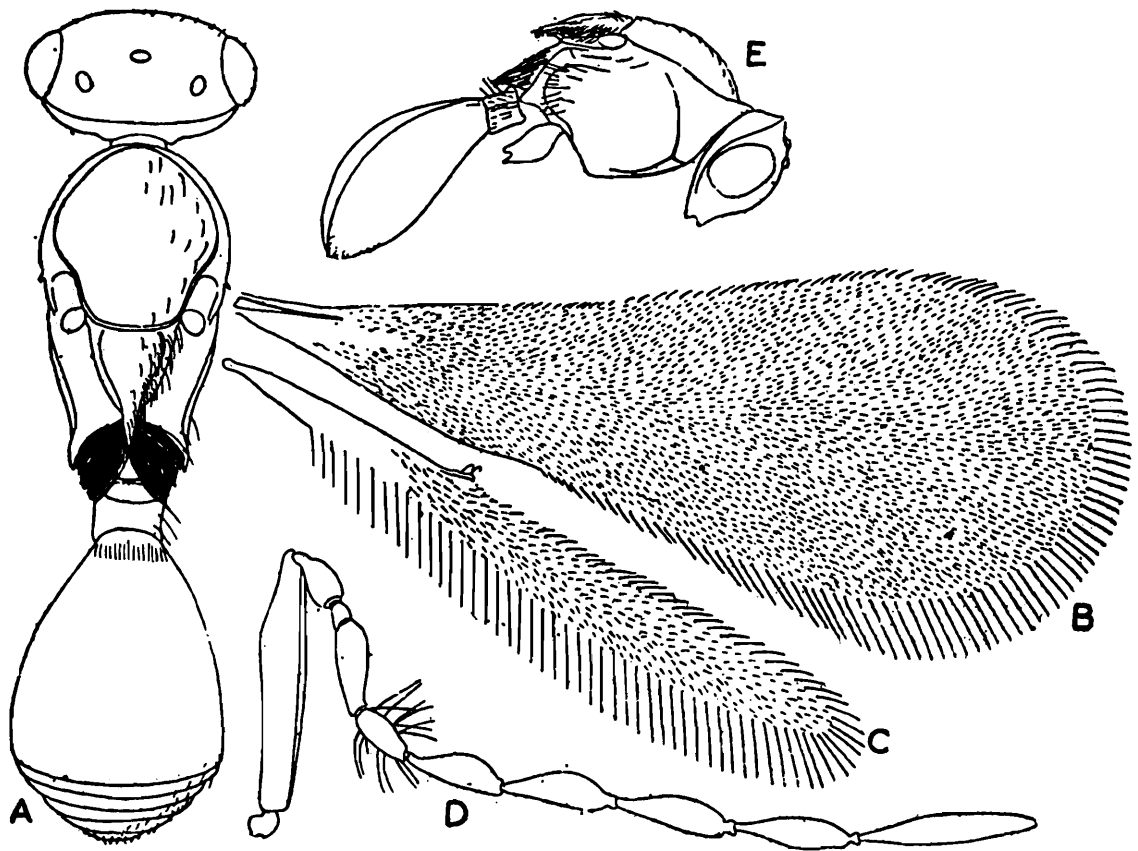


Fig. 32. *Lepticis atturensis*, sp. nov. ♂ : A, body dorsal view ; B, fore wing ; C, hind wing ; D, antenna ; E, body in profile.

*Abdomen* smooth and shiny ; second tergite onwards finely punctate only along the posterior margins ; petiole laterally clothed with distinctly long pubescence ; second tergite at its extreme base with a tuft

of dense white hairs directed above; abdomen viewed dorsally (Fig. 32A) length to width 28:18; second tergite longest, length to width 21:18; the following tergites distinctly transverse; petiole transverse.

*Holotype*: Male, *paratypes* six males, 20.9. Attur (Karnataka Survey), Coll. M. S. Mani & party, 20, 23. 31.v.-8, 10, vi. 1978 and 20.13. Hudukeri (Karnataka Survey), Coll. M. S. Mani & party, 27.v.1978.

It comes close to *L. indicus* Mukerjee\* but is distinguished by the much shorter first funicular segment, longer marginal fringe of fore wing, and longer terminal club segment. It also differs from *L. maldarensis*, sp. nov. in the ocellocular space being almost equal to the ocellar diameter and the first funicular segment being subglobose.

### 33. *Leptacis bengalensis* sp. nov.

( Fig. 33 )

*Male*: Length of body 2.10 mm. General colour of body black; head black; eyes and ocelli very dark brown; mandibles black with reddish-brown teeth; antenna brown except for the brownish-yellow scape, and 1-4 funicular segments; thorax black; scutellar spine brown; legs brown except for the black coxae; wings uniformly infuscated light brown; vein brown; abdomen black.

*Head* finely rugulose; vertex and eyes bare; antennal sockets very close to the clypeal border. Head viewed in front (Fig. 33A) length to width 91:100; eye length to head length 60:100; ocellocular space about 0.58 of ocellar diameter; interocellar space 4.00 times ocellar diameter; front ocellar space about 1.60 times ocellar diameter. *Antenna* (Fig. 33B): Segments 10, 1.1.0.4.4. Scape slightly thickened subapically, about 5.00 times longer than thick; pedicel 0.20 of scape, 1.60 times longer than thick; first funicular segment 0.62 of pedicel, 1.66 times longer than thick; second funicular segment longest, 2.30 times the first segment, 2.55 times longer than thick; third funicular segment slightly shorter than the first segment, almost as long as thick; fourth funicular segment subequal to the preceding one, very slightly longer than its thickness; first club segment about 0.27 of scape, 1.59 times longer than thick; 2-4 club segments elongated, distinctly more slender than the first; second club segment 1.39 times the first segment, 2.61 times longer than thick; third club segment 0.96 of the second segment, 2.90 times longer than thick; fourth club segment 1.55 times the third segment, 4.50 times longer than thick; club subequal to the

\*Mukerjee, 1978, *Mem. Sch. Ent.*, 5 : 82-84.

preceding 4 funicular segments, pedicel and about 0.83 of scape combined.

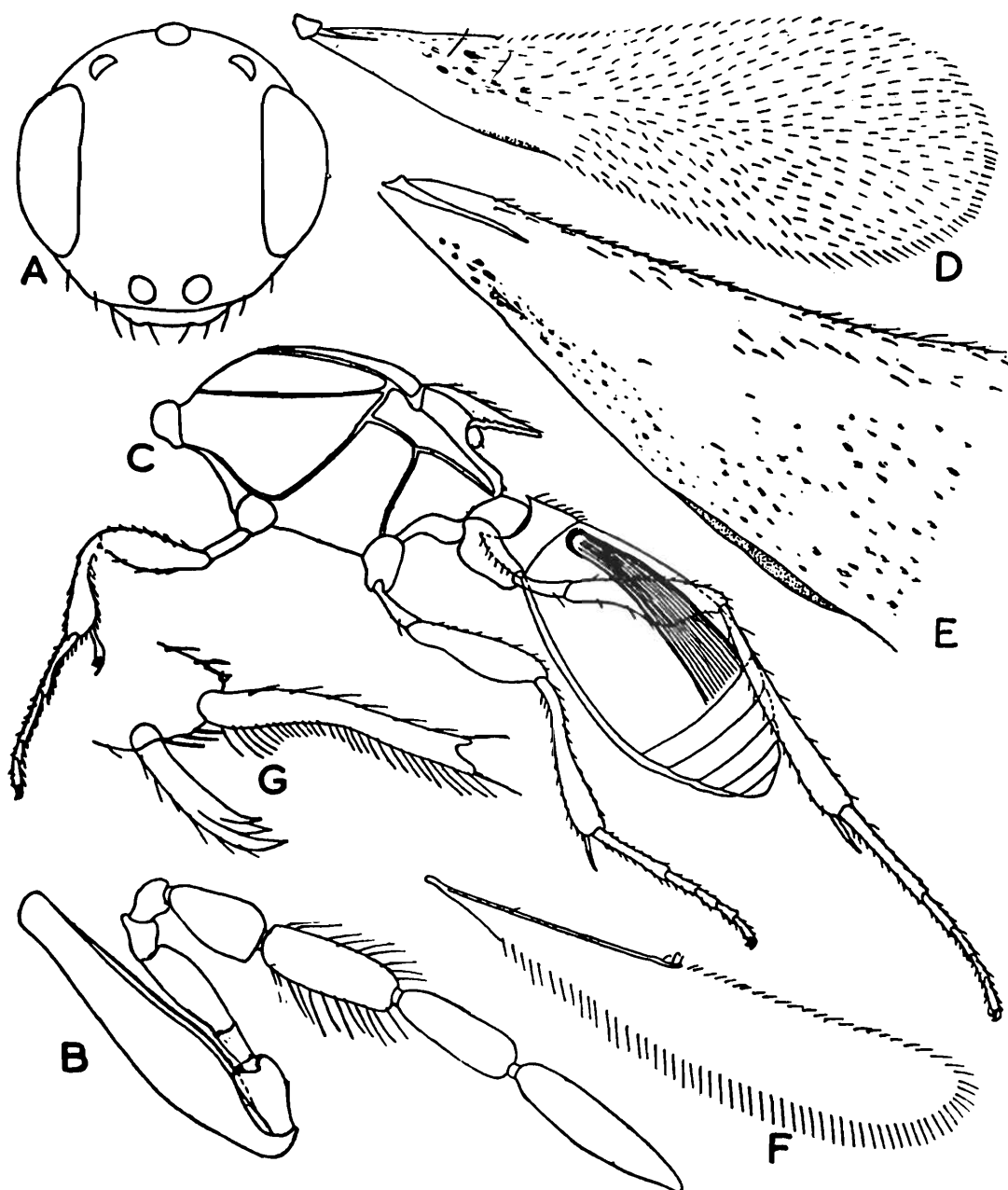


Fig. 33. *Leptacis bengalensis*, sp. nov. ♂ : A, head in front view ; B, antenna ; C, thorax and abdomen in profile ; D, fore wing ; E, base of fore wing enlarged ; F, hind wing ; G, tip of fore tibia and metatarsus enlarged.

*Thorax* very finely reticulate, scutellum closely punctate ; parapsidal furrows present and complete ; propodeum with moderately long hairs ; thorax viewed laterally (Fig. 33C) length to height 100:56. *Fore wing* (Fig. 33D, E) length to width 100:34 ; *sm* not touching the wing margin ; marginal fringe short ; discal ciliation sparse and fine. *Hind wing* (Fig. 33F) to fore wing 82:100 ; length to width 100:16 ; marginal fringe moderate. *Fore leg* (Fig. 33C, G) : Femur thickened medially, 3.00 times longer than thick ; tibia thickens apically, slightly shorter than femur, 3.50 times longer than thick, tibial spur trifurcated, tibial

spur to metatarsus 6.00:9.00 ; tarsus 1.57 times tibia ; metatarsus 0.64 of tibia and about 0.41 of tarsus. *Middle leg* (Fig. 33C) : Femur 3.60 times longer than thick ; tibia thickened apically, 1.16 times femur, about 6.00 times longer than thick, tibial spur to metatarsus about 50:100 ; tarsus 1.14 times tibia ; metatarsus 0.50 of tibia and 0.43 of tarsus. *Hind leg* (Fig. 33C) : Femur 3.27 times longer than thick ; tibia thickens apically, 1.52 times femur, 7.25 times longer than thick, tibial spur to metatarsus 6.00:15.00 ; tarsus 1.13 times tibia ; metatarsus 0.51 of tibia and 0.45 of tarsus.

*Abdomen* smooth and shiny except for the very fine microsculpture distally on all the tergites ; second tergite raised in front in the middle with paired lateral sulci continued behind into fine striations ; abdomen 0.46 of body ; viewed dorsolaterally (Fig. 33C) length to width 100:45 ; petiole transverse, with a tuft of hairs ; second tergite longest, length to width 51:37 ; ovipositor not exerted.

*Holotype* : Male, 16.4. Poro North (North-Bengal Survey), Coll. M. S. Mani, & party, 6-24.iv.1976.

#### 34. *Leptacis brachycerus* sp. nov.

(Fig. 34)

*Female* : Length 0.92 mm. General colour of body black ; vertex darker than the rest of the head ; mandibles dark brown ; antenna yellowish-brown except for the dark brown club ; scutellar spine brown ; legs brown except for the dark brown hind tibia only apically ; wings hyaline ; abdominal petiole dark brown.

*Head* with fine reticulations ; vertex strongly margined ; antennal sockets below the lower orbital border ; eyes conspicuously pubescent ; head viewed in front length to width 12:13.5 ; eye length to head length 6:12 ; head viewed from above (Fig. 34A) slightly wider than the maximum width of thorax ; length to width 6:13.5 ; ocellocular space 0.60 of the ocellar diameter ; interocellar space about 7.00 times ocellar diameter ; front ocellar space 3.00 times ocellar diameter. *Antenna* (Fig. 34D) : Segments 10, 1.1.0.4.4. Scape long, slightly curved, 5.22 times longer than thick ; pedicel 0.34 of scape, 2.00 times longer than thick ; first funicular segment 0.37 of the pedicel, 1.12 times longer than thick ; second funicular segment about 1.30 times the preceding segment, about 1.45 times longer than thick ; third and fourth funicular segments subequal to the first funicular segment in their lengths, each almost as long as thick ; first club segment 0.75 of the pedicel, 1.12 times longer than thick ; second and third club segments distinctly shorter than the first segment and distinctly transverse ; terminal club segment broadly ovate, 1.55 times the first club segment, 1.55 times longer than thick ;

club subequal to the preceding four funicular segments and pedicel combined.

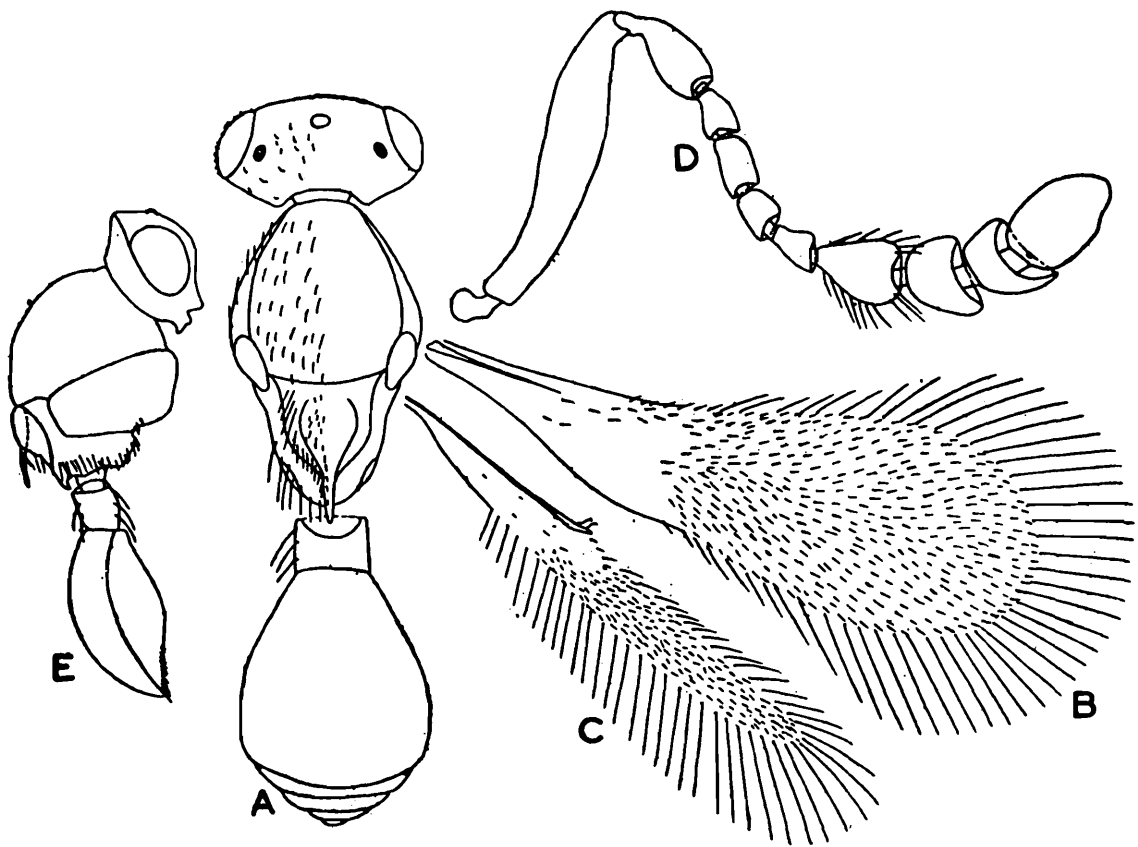


Fig. 34. *Leptacis brachycerus*, sp. nov. ♀ : A, body dorsal view ; B, fore wing ; C, hind wing ; D, antenna ; E, body in profile.

*Thorax* smooth and shiny ; parapsidal furrows absent ; thorax clothed with white pubescence, pubescence more distinctly marked on the scutellum and propodeum ; scutellum gradually passing into a more or less long spine ; thorax viewed dorsally (Fig. 34A) length to width 20:12 ; mesoscutum to scutellum (upto the tip of scutellar spine) 12:9 ; thorax to abdomen 20:19 ; thorax viewed laterally (Fig. 34E) length to height 20:15 ; marginal fringe very long ; discal ciliation dense except basally. *Hind wing* (Fig. 34C) to fore wing 30:37 ; length to width 30:3 ; marginal fringe distinctly long. *Legs* normal.

*Abdomen* smooth and shiny ; petiole short and transverse ; second tergite longest, length to width 21:18, other tergites distinctly transverse ; petiole with a few long setae ; abdomen viewed dorsally (Fig. 34A) length to width 19:11.5 ; abdomen 0.41 of body.

*Holotype* : Female, 20.8. Appangala (Karnataka Survey), Coll. M. S. Mani & party, 19, 24.v.-3.vi.1978.

### 35. *Leptacis coorgensis* sp. nov.

(Fig. 35)

*Female* : Length of body 1.00 mm. General colour of body dark

brown to black ; head brownish-black ; eyes and ocelli brown ; mandibles dark brown ; antenna black except for the brownish scape ; thorax very dark brown to black ; scutellar spine light brown ; legs brownish ; wings hyaline ; abdomen dark brown.

*Head* finely reticulate ; vertex and eyes bare. Head viewed in front (Fig. 35A) length to width 87:100 ; eye length to head length 62:100 ; interocellar space 6.00 times ocellar diameter ; ocellocular space equal to ocellar diameter ; front ocellar space about 2.40 times ocellar diameter. *Antenna* (Fig. 35B) : Segments 10, 1.1.0.4.4. Scape long, slightly

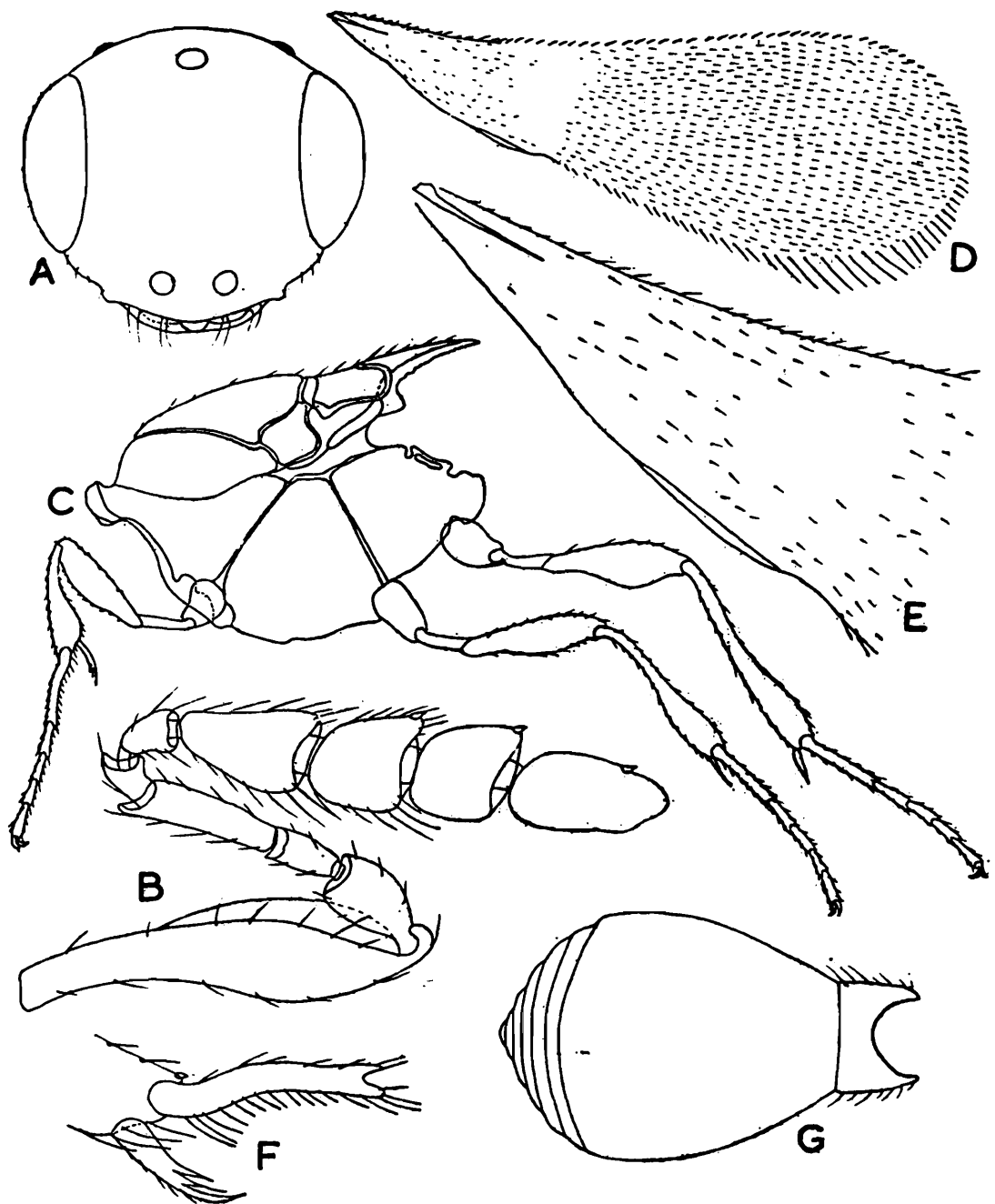


Fig. 35. *Leptasis coorgensis*, sp.nov. ♀ : A, head in front view ; B, antenna ; C, thorax in profile ; D, fore wing ; E, base of fore wing enlarged ; F, tip of fore tibia and metatarsus enlarged ; G, abdomen.

curved, thickened subapically, 5.05 times longer than thick ; pedicel 0.25 of scape, 1.71 times longer than thick ; first funicular segment 0.54 of

pedicel, 1.44 times longer than thick ; second funicular segment longest, 0.33 of scape, 3.20 times longer than thick ; third funicular segment about 0.25 of the preceding segment, its length 0.80 of its thickness ; fourth funicular segment 1.25 times the third segment and very slightly longer than thick ; first club segment very slightly shorter than the second funicular segment, 1.50 times longer than thick ; second club segment 0.66 of the first segment, its length slightly less than its thickness ; third club segment subequal to the preceding one ; fourth club segment obtuse apically, 1.15 times the second funicular segment, 2.00 times longer than thick ; club subequal to the preceding four funicular segments, pedicel and about 0.18 of scape combined.

*Thorax* finely reticulate ; parapsidal furrows present ; scutellum gradually passing into a conspicuously long spine behind. *Fore wing* (Fig. 35D, E) length to width 100:37 ; marginal fringe moderate ; *sm* short, not touching the wing margin. *Fore leg* (Fig. 35C, F) : Femur 3.26 times longer than thick ; tibia thickens apically, very slightly shorter than femur, 3.60 times longer than thick ; tibial spur trifurcated, tibial spur to metatarsus 3.50:5.00 ; tarsus 1.80 times tibia ; metatarsus 0.69 of tibia and 0.38 of tarsus. *Middle leg* (Fig. 35C) : Femur 3.33 times longer than thick ; tibia thickens apically, 1.27 times femur, 5.75 times longer than thick, tibial spur to metatarsus 2.50:5.00 ; tarsus 1.13 times tibia ; metatarsus 0.43 of tibia and 0.38 of tarsus. *Hind leg* (Fig. 35C) : Femur 3.00 times longer than thick ; tibia 1.55 times femur, 7.00 times longer than thick, tibial spur to metatarsus 2.50:5.30 ; tarsus subequal to tibia ; metatarsus 0.37 of tibia or tarsus.

*Abdomen* smooth ; petiole transverse, with a hairy tuft ; second tergite longest, length to width 24.5:22 ; abdomen 0.41 of body ; viewed dorsally (Fig. 35G) length to width 100:58 ; ovipositor not exerted.

*Holotype* : Female, 18.3. Hudukeri (Coorg Survey), Coll. *M. S. Mani & party*, 6.iv.1977.

### 36. *Leptacis maldarensis* sp. nov.

(Fig. 36)

*Male* : Length 1.08 mm. General colour of body black except for the brownish spine of scutellum ; eyes and ocelli brown ; antenna very dark brown except for the yellowish-brown scape ; legs brownish except for the tip of hind tibiae dark brown ; wings hyaline.

*Head* finely reticulate ; antennal sockets close to the clypeal border clypeal border with a few distinctly long hairs ; occiput margined ; vertex and eyes bare. Head viewed from above (Fig. 36A) almost as wide as the maximum width of thorax ; length to width 53:14 ; ocellocular space about 0.50 of ocellar diameter ; interocellar space 6.00 times ocellar

diameter ; front ocellar space about 3.00 times ocellar diameter. *Antenna* (Fig. 36 D) : Segments 10, 1.1.0.3.5. Radicle stout ; scape slightly thickened subapically, 5.50 times longer than thick ; pedicel 0.21 of scape, 1.84 times longer than thick ; funicular and club segments with long hairs ; first funicular segment shortest, 0.50 of pedicel, very slightly longer than its thickness ; second funicular segment longest, 0.38 of scape, 4.20 times longer than thick ; third funicular segment about 0.50 of the second segment, 2.00 times longer than thick ; first club segment more slender, almost subequal to the second funicular segment 3.63 times longer than thick ; second club segment 1.15 times the first segment, about 3.00 times longer than thick ; third and fourth club segments subequal to the second segment ; terminal club segment elongated, apically with a short nipple-like projection, about 1.40 times the preceding segment, 5.33 times longer than thick ; club slightly longer than the preceding funicular segments, pedicel and scape combined.

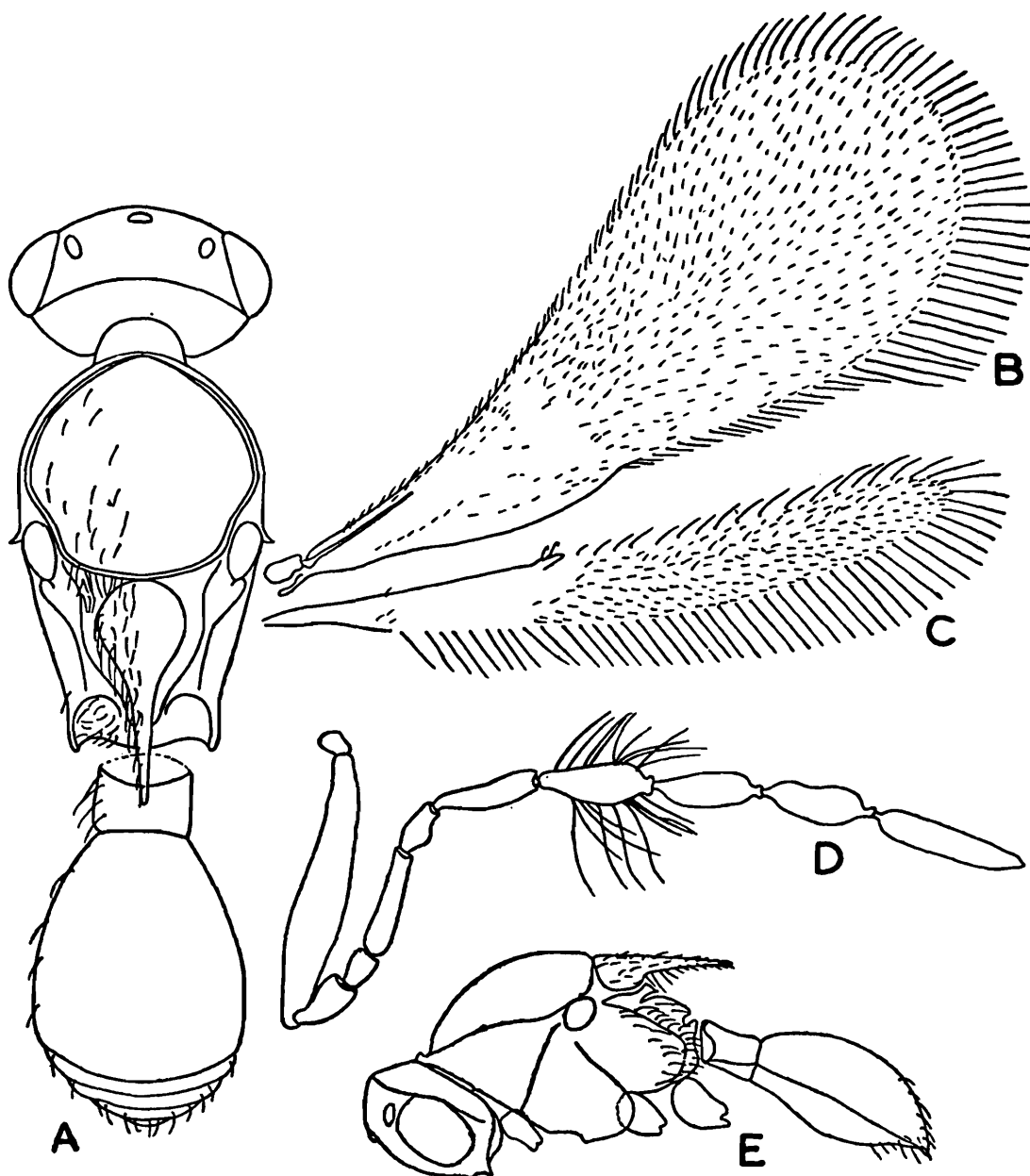


Fig. 36. *Leptacis maldarensis*, sp. nov. ♂ ; A, body dorsal view ; B, fore wing ; C, hind wing ; D, antenna ; E, body in profile.

*Thorax* : Mesoscutum and scutellum finely reticulate ; parapsidal furrows absent ; thorax clothed with white pubescence ; sides of scutellum with dense pubescence ; scutellum circular and forming a long median spine behind ; thorax viewed dorsally (Fig 36 A) length to width 80:49 ; mesoscutum to scutellum (upto the tip of the spine) 44:45. *Fore wing* (Fig. 36 B) length to width 157:60 ; *sm* restricted to the extreme base of the wing ; marginal fringe long ; discal ciliation sparse and almost complete. *Hind wing* (Fig. 36 C) to fore wing 141:157 ; length to width 141:16 ; marginal fringe very well developed. *Legs* normal.

*Abdomen* smooth and shiny, the tergites along the posterior margins minutely punctate ; petiole short, transverse and laterally with a few long hairs ; abdomen viewed dorally (Fig. 36 A) length to width 72:43 ; second tergite longest, length to width 51:43 ; the following tergites distinctly transverse.

*Holotype* : Male, *paratype* four males, 20.11. Maldare (Karnataka Survey), Coll. *M. S. Mani & party*, 25.v.-1, 6.vi.1978 & 20.9. Attur (Karnataka Survey), Coll. *M. S. Mani & party*, 20, 23, 31.v.-8, 10.vi.1978.

It differs from *L. indicus* Mukerjee\* in the finely reticulate head and thorax, in the long marginal fringe of fore wing, and the terminal club segment being distinctly longer than the second club segment.

### 37. *Leptacis yercaudensis* sp. nov.

( Fig. 37)

*Female* : Length of body 0.88 mm. General colour of body dark brown to black ; head dark brown ; vertex black ; eyes and ocelli brown ; mandibles yellowish-brown ; antenna yellowish-brown except for the dark brown club ; thorax black ; scutellar spine yellowish-brown ; legs brownish ; wings uniformly very light brown with the margins brown ; abdomen very dark brown ; petiole brownish.

*Head* very finely reticulate ; mandibles bidentate ; vertex with a few very short hairs ; eyes bare ; antennal sockets close to the clypeal border. Head viewed in front (Fig. 37A) length to width 85:100 ; eye length to head length 64:100 ; ocellular space about 0.75 of ocellar diameter ; interocellar space about 5.00 times ocellar diameter ; front ocellar space 2.00 times ocellar diameter. *Antenna* (Fig. 37B) : Segments 10, 1.1.0.4.4. Scape long, slightly thickened subapically, 6.00 times longer than thick ; pedicel 0.27 of scape, 2.16 times longer than thick ; first funicular segment 0.46 of scape, 1.50 times longer than thick ; second funicular segment longest, about 2.00 times the preceding funicular segment, 2.75

---

\*Mukerjee, 1978. *Mem. Sch. Ent.* 5 : 82-84.

times longer than thick ; third funicular segment subequal to the first segment, 1.33 times longer than thick ; fourth funicular segment 0.66 of the third segment, its length 0.80 of its thickness ; 1-3 club segments subequal ; first club segment subequal to the second funicular segment in length, 1.22 times longer than thick ; second club segment subequal to the first segment, almost as long as thick ; third club segment subequal to the preceding segment ; fourth club segment elliptic-ovate, 1.72 times the first segment, 2.11 times longer than thick ; club subequal to the preceding four funicular segments, pedicel and about 0.18 of scape combined.

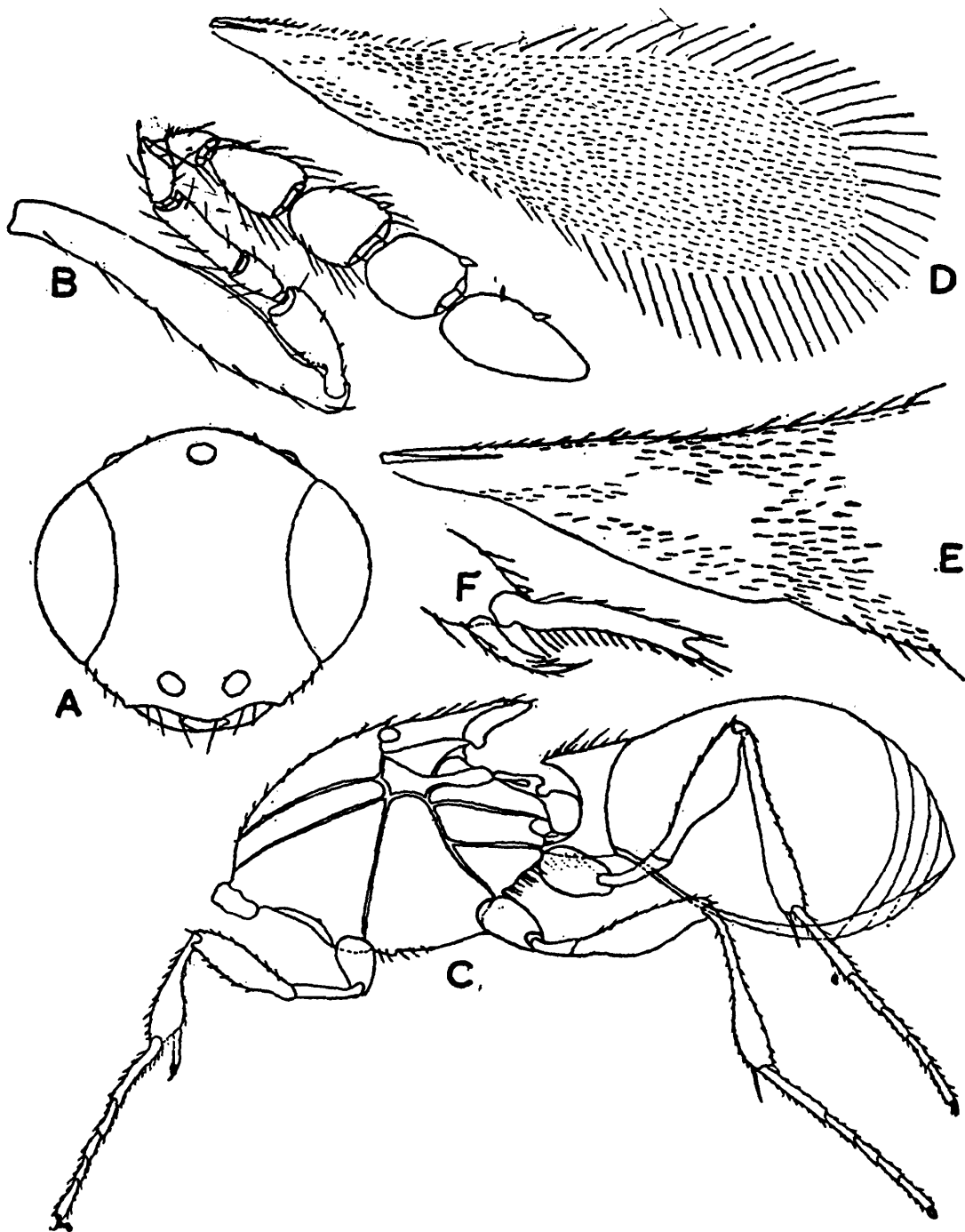


Fig. 37. *Leptacis yercaudensis*, sp. nov. ♀ : A, head in front view ; B, antenna ; C, thorax and abdomen in profile ; D, fore wing ; E, base of fore wing enlarged ; F, tip of fore tibia and metatarsus enlarged.

*Thorax* (Fig. 37C) finely reticulate ; parapsidal furrows present ; scutellum long and gradually passing into a long spine behind. *Fore wing* (Fig. 37D, E) length to width 100:30 ; *sm* short, not touching the wing margin ; marginal fringe long. *Fore leg* (Fig. 37C, F) : Femur thickened medially, about 3.00 times longer than thick ; tibia thickened subapically, subequal to femur, 3.50 times longer than thick, tibial spur trifurcated, tibial spur to metatarsus 3.00:4.70 ; tarsus 1.78 times tibia ; metatarsus 0.67 of tibia and 0.37 of tarsus. *Middle leg* (Fig. 37C) : Femur thickened in the middle, 3.60 times longer than thick ; tibia thickened apically, 1.22 times femur, 5.50 times longer than thick, tibial spur to metatarsus 2.50:5.00 ; tarsus 1.27 times tibia ; metatarsus 0.45 of tibia and 0.35 of tarsus. *Hind leg* (Fig. 37C) : Femur 3.16 times longer than thick ; tibia thickened apically, 1.31 times femur, 6.25 times longer than thick, tibial spur to metatarsus 2.50:5.30 ; tarsus 1.20 times tibia ; metatarsus 0.42 of tibia and 0.35 of tarsus.

*Abdomen* smooth ; petiole transverse, with a hairy tuft ; abdomen about 0.41 of body ; viewed dorsolaterally (Fig. 37C) length to width 100:58 ; second tergite longest, length to width 26:20 ; ovipositor not exerted.

*Holotype* : Female, 17.5. Yercaud (Eastern Ghats Survey,) Coll. M. S. Mani & party, 29-31. i, 2.ii.1977.

#### KEY TO SPECIES OF *LEPTACIS* SO FAR KNOWN FROM INDIA

- |   |                                 |
|---|---------------------------------|
| 1. Female ... ..  | 2                               |
| —. Males ... ..   | 4                               |
| 2. Second funicular segment not much longer than the first funicular segment, third and fourth funicular segments a little shorter ... .. | <i>L. brachycerus</i> sp. nov.  |
| —. Second funicular segment much longer than the first, and longest ... ..  | 3                               |
| 3. Marginal fringe of fore wing short ... ..  | 5                               |
| —. Marginal fringe conspicuously long ; third and fourth funicular segments unequal ... ..  | <i>L. yercaudensis</i> sp. nov. |
| 4. Third and fourth funicular segments short, and subequal ... ..   | <i>L. bengalensis</i> sp. nov.  |
| —. Third and fourth funicular segments unequal, elongate, not short ... ..  | 7                               |
| 5. Fourth funicular segment shorter than the third ... ..   | <i>L. thanensis</i> Mukerjee    |
| —. Fourth funicular segment not shorter than the third ... ..   | 6                               |

6. Second funicular segment 2.00 times longer than thick ... .. *L. konkanensis* Mukerjee
- . Second funicular segment 3.20 times longer than thick ... .. *L. coorgensis* sp. nov.
7. Head and thorax smooth and shiny ; marginal fringe of fore wing short ... .. *L. indicus* Mukerjee
- . Head finely reticulate ; marginal fringe long ... .. 8
8. First funicular segment subglobose ; ocellular space subequal to ocellar diameter ... .. *L. atturensis* sp. nov.
- . First funicular segment 1.50 times longer than thick ; ocellular space 0.50 ocellar diameter ... .. *L. maldarensis* sp. nov.

### 38. *Platygastoides indicus* sp. nov.

(Fig. 38)

*Female* : Length 1.88 mm. General colour of body black ; eyes, ocelli and mandibles dark brown ; antenna light brown except for the very faint lamellar expansion of scape, and dark brown club ; postnotum and propodeum yellowish-brown ; legs light brown except for the black coxae ; wings hyaline ; abdomen black except for the dark brown tip.

*Head* closely umbilicately shallowly punctate ; occiput margined ; antennal sockets very close to the clypeal border ; eyes bare ; width of head is subequal to the maximum width of thorax. Head viewed from above (Fig. 38A) width a little less than thrice its length ; ocellular space about 1.40 times ocellar diameter ; interocellar space about 3.00 times ocellar diameter ; front ocellar space about 1.20 times ocellar diameter. *Antenna* (Fig. 38D) : Segments 9, 1.1.0.4.3. Scape greatly expanded into a lamella, lamella reticulately sculptured, about 1.55 times longer than its maximum width (including lamellar width) ; pedicel 0.27 of scape, about three times longer than thick ; first funicular segment longest, 0.79 of the pedicel, 3.00 times longer than thick ; second funicular segment slightly less than half the first segment, 1.16 times longer than thick ; third funicular segment 0.57 of the second segment, transverse, its length 0.50 of its maximum thickness ; fourth funicular segment slightly shorter than the third segment and distinctly transverse ; first club segment almost subequal to the first funicular segment in its length, its length 0.77 of its thickness ; second funicular segment 0.80 of the first segment, distinctly transverse, its length 0.62 of its thickness ; terminal segment conical, almost subequal to the first segment in its length, and very slightly longer than its thickness ; club subequal to the preceding four funicular segments and about 0.30 of pedicel combined.

*Thorax* : Mesoscutum closely umbilicately shallowly punctate ; scutellum smooth, with a row of moderately long yellow setae along the posterior margin ; postnotum and propodeum matt ; postnotum triangular as shown in figure ; parapsidal furrows distinct and complete ; thorax viewed dorsally (Fig. 38A) length to width 34:32 ; mesoscutum to scutellum 19:5.5 ; scutellum to postnotum 5.5:9.5 ; postnotum length to its maximum width 9.5:16. *Fore wing* (Fig. 38B) length to width 100:43 ; marginal fringe absent ; *sm* short, restricted to the base of the wing, and enlarged into a knob at its end ; discal ciliation dense and complete. *Hind wing* (Fig. 38C) to fore wing 88:100 ; length to width 100:25 ; marginal fringe moderately long. *Legs* normal.

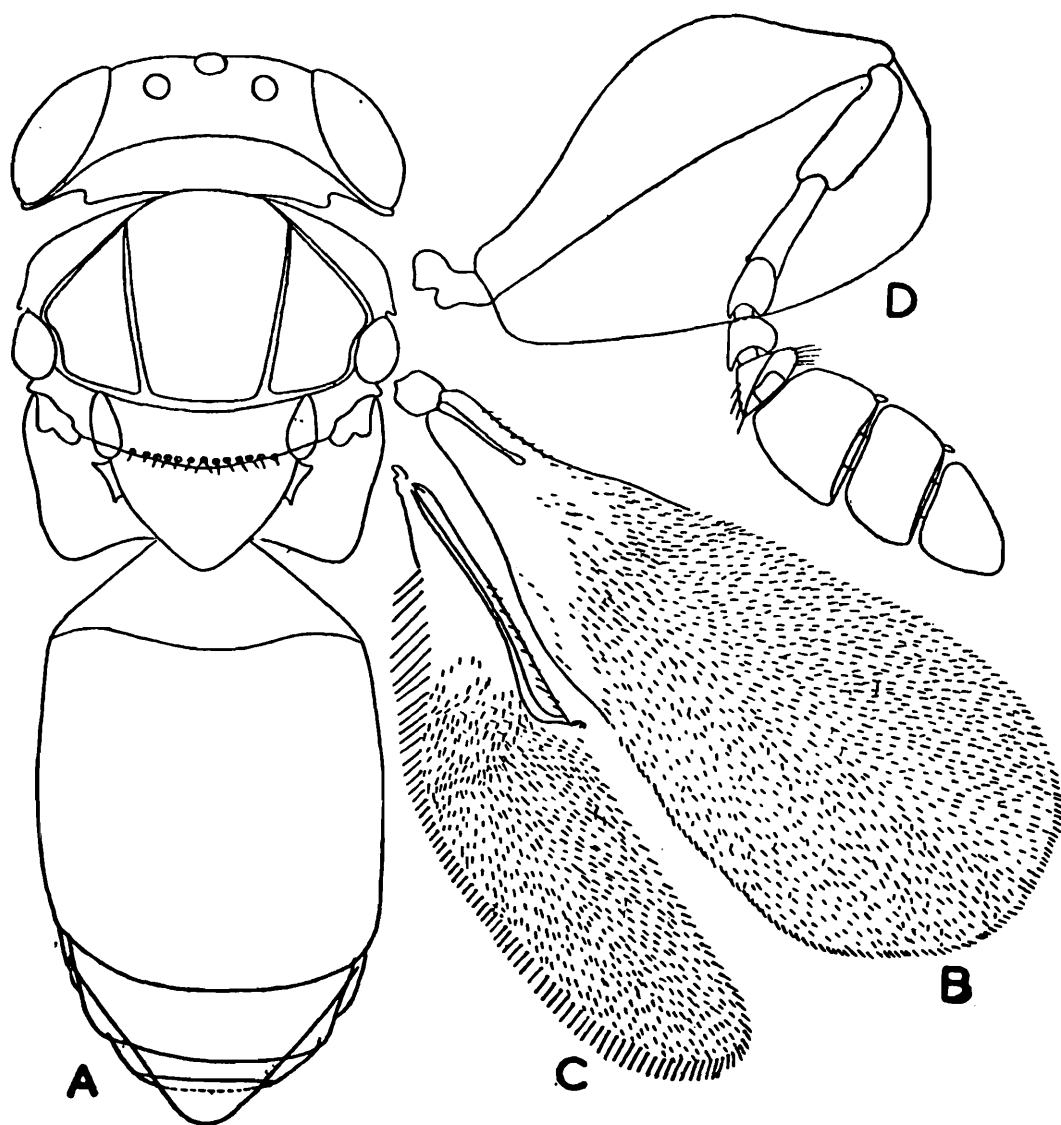


Fig. 38. *Platygastoides indicus*, sp. nov. ♀ : A, body dorsal view ; B, fore wing ; C, hind wing ; D, antenna.

*Abdomen* smooth and shiny except third tergite minutely closely punctate ; 0.53 of body ; abdomen viewed dorsally (Fig. 38A) length to width 100:56 ; second tergite longest, length to width 100:90 ; remaining tergites distinctly transverse ; ovipositor not exerted.

*Holotype* : Female, 13.3. Netarhat (Chota-Nagpur Survey), Coll. M. S. Mani and party, 30.xi., 1-2.xii.1974.

This species comes close to *P. nitens* Dodd\* in the third antennal segment being elongate, but differs in all the three proximal segments of club not being transverse, median carina on scutellum being absent, in the smaller body size and difference in the colour of the legs and antenna.

Dr. Masner in a personal correspondence suggests that this species may prove to be a new genus of Inostemmatinae. The species is, however, retained in *Platygastoides* for the present.

### 39. *Synopeas atturensis* sp. nov.

(Fig. 39)

*Female* : Length 2.08 mm. General colour of body black ; eyes and ocelli very dark brown ; mandibles black except for the reddish-brown teeth ; antenna black except for the brown scape ; legs brown except for the black coxae, brownish-black middle femur and black hind legs ; wings hyaline.

*Head* finely reticulate ; clypeal border with distinctly long white setae ; antennal sockets very slightly below the lower orbital border, eyes finely and sparsely pubescent ; vertex sparsely hairy ; head viewed in front length to width 19:23.5 ; eye length to head length 11:19 ; head viewed from above (Fig. 39 A) almost subequal to the maximum width of thorax ; length to width 11:23.5 ; ocellular space subequal to the ocellar diameter ; interocellar space 3.50 times ocellar diameter ; front ocellar space 1.40 times ocellar diameter. *Antenna* (Fig. 39 D) : Segments 10, 1.1.0.3.5. Scape long, slightly thickened subapically, 6.30 times longer than thick ; pedicel 0.24 of scape, 2.42 times longer than thick ; first funicular segment 0.40 of the pedicel, 1.33 times longer than thick ; second funicular segment 1.50 times the first segment, about 2.33 times longer than thick ; third funicular segment longest, slightly longer than the pedicel, about 3.00 times longer than thick ; first club segment 0.66 of the preceding funicular segment, 1.60 times longer than thick ; second club segment 1.32 times the first segment, 1.65 times longer than thick ; third club segment very slightly shorter than the second segment, 1.13 times longer than thick ; fourth club segment 0.88 of the third segment, as long as thick ; terminal club segment elongately ovate very slightly longer than the third funicular segment in its length, 1.47 times longer than thick ; club subequal to the preceding three funicular segments, pedicel, and about 0.43 of scape combined.

---

\* Dodd, 1914. *Proc. R. Soc. Queensland*, 26 : 131.

*Thorax* reticulately rugose ; clothed with white hairs ; sides of scutellum and propodeum with conspicuously long, dense, white pubescence ; parapsidal furrows present and complete ; scutellum continued behind into a more or less long relatively slender spine ; thorax viewed dorsally (Fig. 39 A) length to width 35:22 ; mesoscutum to scutellum (upto the tip of the scutellar spine) 21:14 ; thorax to abdomen 35:58. *Fore wing* (Fig. 39 B) length to width 78:28 ; marginal fringe short ; discal ciliation dense and complete except basally. *Hind wing* (Fig. 39 C) to fore wing 68:78 ; length to width 68:11 ; marginal fringe moderately developed. *Legs* normal.

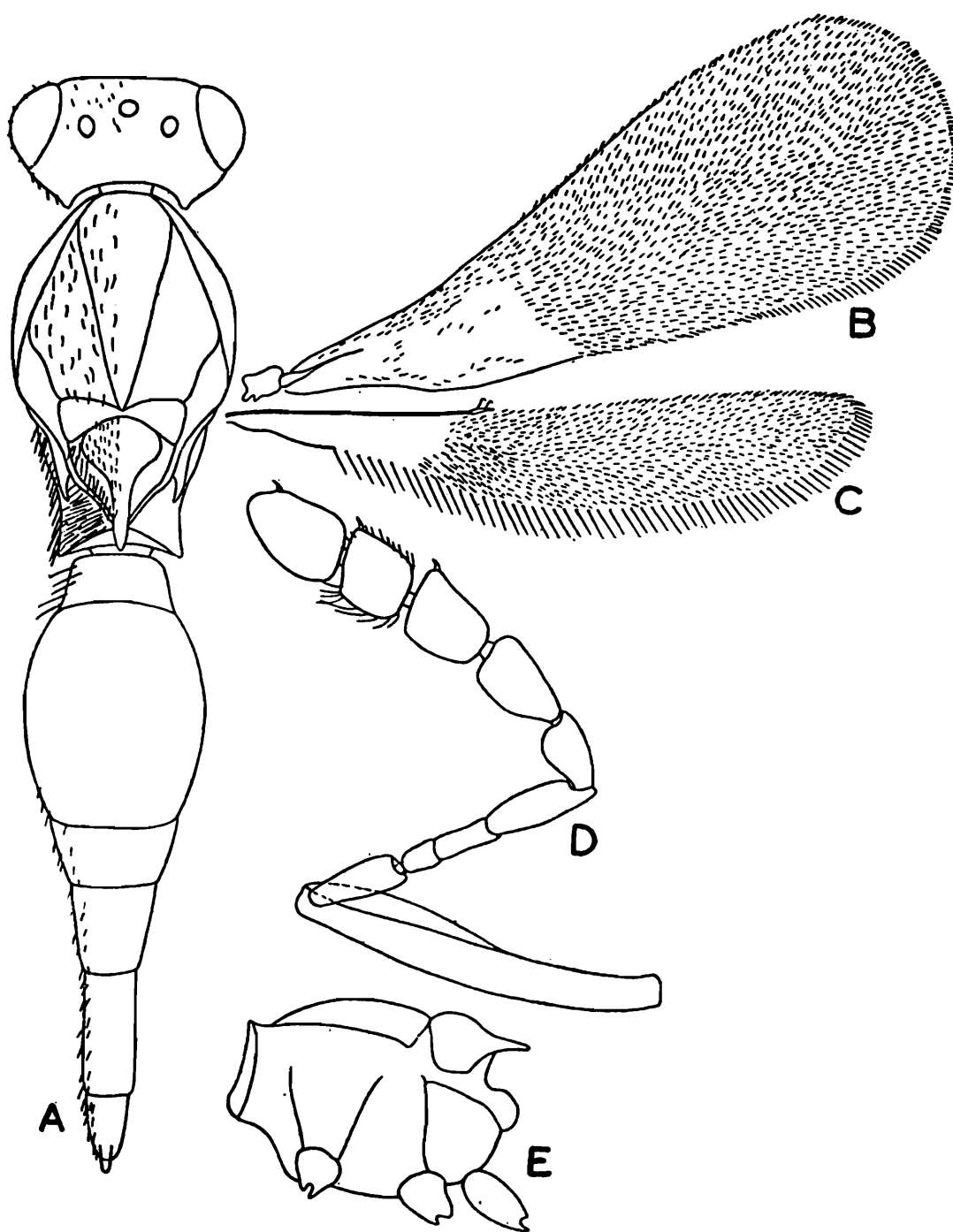


Fig. 39. *Synopeas atturensis*, sp. nov. ♀ : A, body dorsal view ; B, fore wing ; C, hind wing ; D, antenna ; E, thorax in profile.

*Abdomen* : Petiole and second tergite smooth, rest of the tergites with very minute setigerous punctae ; petiole transverse, with distinctly long white hairs laterally ; abdomen 6-segmented, the last 4 segments forming a tail ; abdomen viewed dorsally (Fig. 39 A) length to width 58:18 ; abdomen 0.55 of body ; second tergite length to width 19:15.

*Holotype* : Female, on card (antennae and one set of wings on slide), 20.9. Attur (Karnataka Survey), Coll. *M.S. Mani & party*. 20, 23, 31. v.-8, 10.vi.1978.

#### 40. *Synopeas nepalensis* sp. nov.

(Fig. 40)

*Female* : Length of body 1.76 mm. General colour of body black ; head black ; eyes and ocelli very dark brown ; mandibles black except for the reddish-brown teeth ; scape reddish-brown, funicular segments brown, club black ; thorax black ; fore leg black except for the brown tibia and 1-4 tarsal segments ; middle and hind legs black except for the brown tibiae with the apical 0.50 dark brown and brownish 1-4 tarsal segments ; wings hyaline with brown discal ciliation ; abdomen black.

*Head* very finely reticulate ; mandibles bidentate ; eyes and vertex bare ; antennal sockets close to the clypeal border. Head viewed in front (Fig. 40 A) length to width 85:100 ; eye length to head length 59:100 ; ocellular space almost subequal to the ocellar diameter ; interocellar space 4.25 times ocellar diameter ; front ocellar space about 1.60 times ocellar diameter. *Antenna* (Fig. 40 B) : Segments 10, 1.1.0.4.4. Scape thickened subapically, 4.50 times longer than thick ; pedicel 0.27 of scape, 2.17 times longer than thick ; first funicular segment about 0.50 of pedicel, 1.50 times longer than thick ; second funicular segment longest, elongated, 0.81 of the pedicel, about 2.75 times longer than thick ; third and fourth funicular segments subequal, each almost as long as thick ; third funicular segment about 0.50 of the second segment ; first club segment 0.83 of the second funicular segment, transverse, its length about 0.90 of its thickness ; second and third club segments distinctly transverse ; second club segment 0.80 of the first segment, its length 0.57 of its thickness ; third club segment subequal to the preceding segment ; fourth club segment obliquely ovate 2.50 times the second segment, 1.66 times longer than thick ; club subequal to the preceding 4 funicular segments, pedicel and about 0.87 of scape combined.

*Thorax* (Fig. 40 C) : Very finely reticulate ; parapsidal furrows present and complete ; thorax viewed laterally length to height 100:79 ;

scutellum continued behind into a short tubercle ; *Fore wing* (Fig. 40 D) length to width 100:37 ; *sm* short, not touching the wing margin ; marginal fringe very short. *Hind wing* (Fig. 40 E) to fore wing 83:100 ; length to width 100:14 ; marginal fringe moderate. *Fore leg* (Fig. 40 C, F) : Tibia thickened subapically, tibial spur trifurcated, tibial spur to metatarsus 4.00:7.50 ; tarsus 1.62 times tibia, metatarsus 0.71 of tibia and 0.44 of tarsus. *Middle leg* (Fig. 40C) : Tibia thickened apically, tibial spur to metatarsus 2.00:8.00 ; tarsus 1.17 times tibia ; metatarsus 0.47 of tibia and 0.40 of tarsus. *Hind leg* (Fig. 40 C) : Tibial spur to metatarsus 3.50:11.50 ; tarsus 1.16 times tibia ; metatarsus 0.53 of tibia and 0.46 of tarsus.

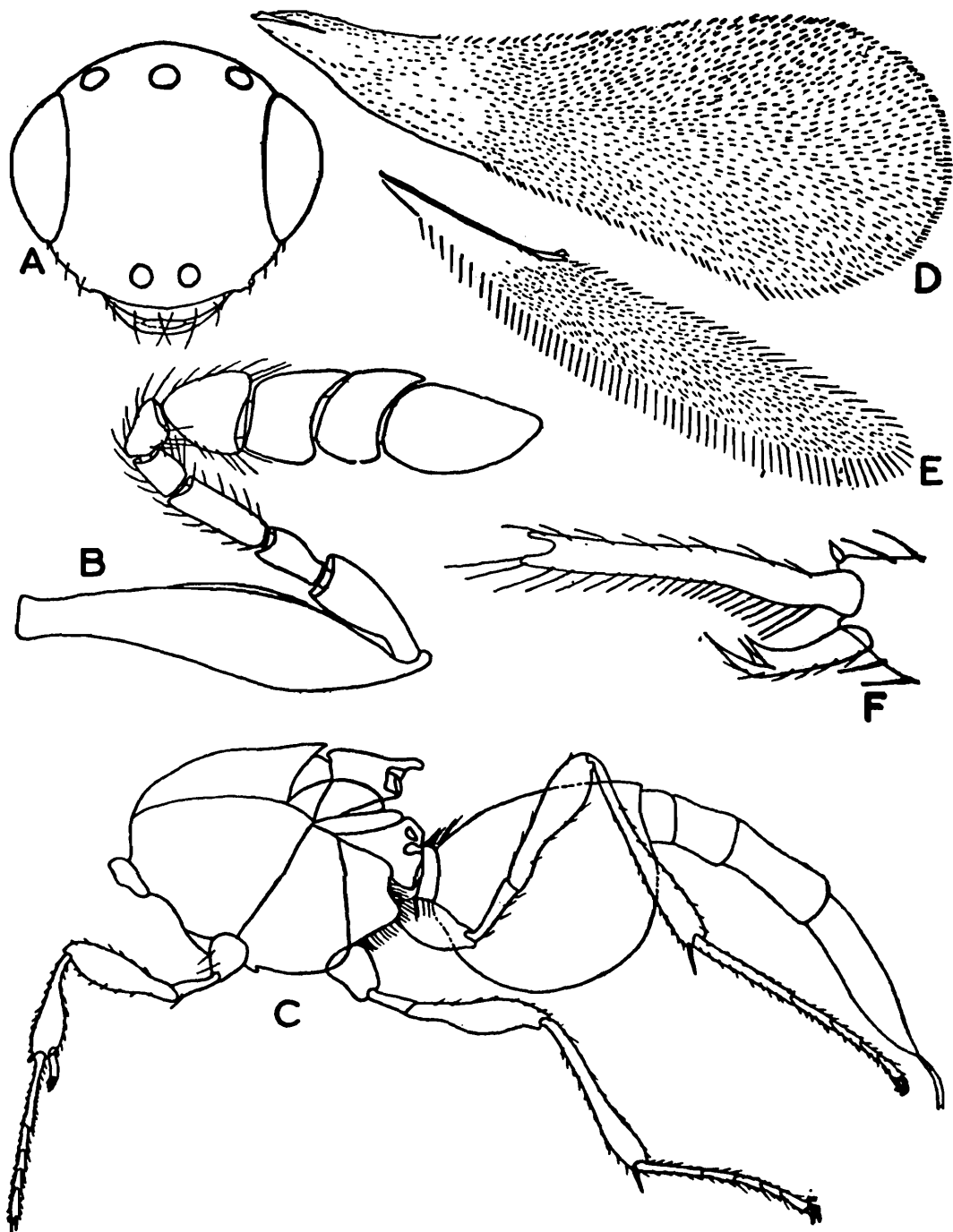


Fig. 40. *Synopeas nepalensis*, sp. nov. ♀ : A, head in front view ; B, antenna ; C, thorax and abdomen in profile ; D, forewing ; E, hind wing ; F, tip of fore tibia and metatarsus enlarged.

*Abdomen* : Petiole and second tergite smooth and shiny ; third tergite with minute punctae ; fourth tergite onwards with fine reticulations ; abdomen 0.60 of body ; abdomen viewed laterally (Fig. 40C) length to height 100:38 ; petiole transverse, with a tuft of hairs ; second tergite sac-like, length to height 100:91 ; second tergite to abdominal tail 63:100 ; third tergite distinctly transverse ; sixth tergite very much elongated ovipositor slightly exerted.

*Holotype* : Female, 7.2. Nagarjuna Hill (Nepal), Coll. *M. S. Mani & party*, 29.viii.1972 ; *Other material examined* : 3 females, 11.2. Ramgarh (Kumaon Survey), Coll. *M. S. Mani & party*, 18, 20, 22-24.vi.1974 ; 5.6. Kollimalai : Salem, Coll. *M. S. Mani & party*, 20.iii.1972 ; 5.7 Kallar Coonoor : Nilgiri Hills, Coll. *M. S. Mani & party*, 22.iii.1972.

#### KEY TO THE SPECIES OF *SYNOPEAS*, SO FAR KNOWN FROM INDIA

- |   |        |                                 |
|---|--------|---------------------------------|
| 1. Second funicular segment longest   | ...    | 2                               |
| — Third funicular segment longest   | ...    | <i>S. atturensis</i> sp. nov.   |
| 2. Body size less than 1.5 mm ; usually only 1.00 mm ; head finely reticulate ; funicular segments 1-4 reddish-brown ; club black | ... .. | <i>S. indicus</i> Mani.         |
| — Body size only 1.5 mm   | ... .. | 3                               |
| 3. Scape reddish-brown, funicular segments brown, club black  | ... .. | <i>S. nepalensis</i> sp. nov.   |
| — Scape black or reddish-brown  | ... .. | 4                               |
| 4. Scape black ; rest of antenna very dark brown ; head with fine microsculpture  | ...    | <i>S. bengalensis</i> Mukerjee  |
| — Scape reddish-brown ; rest of antenna dark reddish-brown ; head finely closely punctate   | ... .. | <i>S. indopeninsularis</i> Mani |