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A TAXONOMIC REVISION OF *LEPTACIS* FOERSTER (HYMENOPTERA : PLTYGASTERIDAE) OF INDIA

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INTRODUCTION

Cecidomyiidae is one of the economically important families of Diptera. They are known as *gall midges* or *gall gnats*. The larvae of most gall midges feed within plant tissue, creating abnormal plant growths called galls. These are very fragile small insects usually only 2–3 mm in length and many are less than 1 mm long. Many are economically significant especially the important insect pests of agricultural importance. Many natural enemies prey upon them and the parasitic Hymenoptera genus *Leptacis* (most known species) is one among them. So far only ten species of *Leptacis* are known from India (Mukerjee 1978; Mani and Sharma 1982). In this paper we describe thirteen new species with a key to separate Indian species. The ten known species are also commented upon.

RESULTS AND DISCUSSION

Genus *Leptacis* Foerster

Leptacis Foerster, 1856b. *Hym. Stud.*, **2** : 107. Type species : *Ichneumon tipulae* Kirby, 1798.

Mirambyaspis Dodd, 1914. *Ent. News Philad.*, **25** : 455-456. Type species : *Mirambyaspis mirabilis* Dodd, 1914.

Xestonotidea Gahan, 1919. *Proc. U.S. Nat. Mus.*, **56** : 524; Kieffer, 1926, *Das Tierreich*. **48** : 625 (*Axestonotus* = *Xestonotus* Foerster). Type species : *Xestonotidae foersteri* Gahan, 1919. *Prosamblyaspis* Kieffer, 1926. *Daseich*, **48** : 1-885. Type species : *Amblyaspis flavosignata* Kieffer, 1912 by monotypy.

KEY WORDS : Hymenoptera, Platygasteridae, *Leptacis*, revision, India.

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Diagnostic characters : Body smooth and shiny; vertex with fine transverse carina behind; ocellular space less than front ocellar space; antenna 10 segmented with four segmented club; notauli absent or present or with only faint traces; scutellum usually elongates gradually into sharp sublanceolate spine, which often extends beyond base of petiole. Petiole and base of second tergite hairy that do not form tuft like structure.

Distribution : Afro-tropical, Australian, Nearctic, Neotropical, Oriental and Palaearctic.

Biology : Parasites of Cecidomyiidae.

Remarks : 69 species reported over the world, out of this only 9 species are from India.

Key to the Indian Species of *Leptacis* Foerster (Based on females)

1. Scutellum with a long spine (Figs. 11, 13) 2
 - Scutellum with a short straight or upcurved spine (Figs. 3, 5) 10
2. Notauli absent, marginal fringe conspicuously longer (Fig. 13) 3
 - Notauli present, marginal fringe moderate to short and rarely long 5
3. Scutellar spine broad, brown, third and fourth funicular segments unequal 4
 - Scutellar spine slender, dark brown, third and fourth funicular segments subequal; body length : antennal length 100 : 53.5 *L. malabarensis* sp. nov.
4. Eyes bare; POL 4. 3x OOL; Scutellar spine black *L. keralensis* sp. nov.
 - Eyes pubescent, POL 9x OOL; scutellar spine yellowish brown *L. agastmuniae* Mukerjee
5. Marginal fringe long, third and fourth funicular segments unequal; scape 6x its width; fourth club segment elliptically ovate *L. yercaudensis* Mukerjee
 - Marginal fringe moderate or short; antennal character not as above 6
6. Marginal fringe moderate 7
 - Marginal fringe short 9
7. Third and fourth funicular segments subequal *L. brachyceras* Mukerjee
 - Third and fourth funicular segments unequal 8
8. Ovipositor well exerted *L. konkanensis* Mukerjee
 - Ovipositor not exerted *L. coorgensis* Mukerjee
9. Third and fourth funicular segments unequal; ovipositor slightly exerted
 - *L. thanensis* Mukerjee
 - Third and fourth funicular segments subequal; ovipositor not exerted
 - *L. bengalensis* Mukerjee

10. Scutellum with short straight spine (Figs. 7, 15) 11
 – Scutellum with short upcurved spine (Figs. 5, 3) 16
11. Scutellum semicircular 12
 – Scutellum triangular 15
12. Antennal length >60% of body length 13
 – Antennal length <60% of body length 14
13. Vertex deeply angled (Fig. 9); scutellum with nipple like black spine giving a median ridge like appearance for the scutellum (Fig. 9); length of insect 1.21 mm *L. diversus* sp. nov.
 – Vertex rounded; scutellum with a sharp black point like spine (Fig. 21) and not ridge like; length of insect 0.65 mm *L. nuperus* sp. nov.
14. Bluntly rounded black spine (Fig. 17); body length : antennal length 100 : 59; scape length 5.25x its width *L. mustus* sp. nov.
 – Pointed black spine (Fig. 1); body length : antennal length 100 : 50.95; scape length 3.6x its width *L. aeros* sp. nov.
15. Scutellum narrowly triangular (Fig. 7); scutellar spine triangular and with tuft of hairs at the tip; vertex rounded; body length : antennal length-100 : 55 *L. benazeer* sp. nov.
 – Scutellum broadly triangular (Fig. 15); scutellar spine pen nib like without tuft of hairs at the tip; body length : antennal length 100 : 76 *L. manii* sp. nov.
16. Second funicular segment longer than third funicular segment 17
 – Second funicular segment shorter than third funicular segment; third funicular segment larger in length and width than second funicular segment; antennal club forming segments more elongate; ovipositor exerted *L. asiaticus* sp. nov.
17. Antennal club forming segments elongate (Fig. 4); ovipositor not exerted; body length : antennal length 100 : 60.78 *L. alus* sp. nov.
 – Antennal club forming segments broad (Fig. 24); ovipositor exerted; body length : antennal length 100 : 52.2 *L. scaposus* sp. nov.

Key to the Indian species of *Leptacis* Foerster (Based on males)

1. Notauli present; marginal fringe short; scape length 7x its width *L. indicus* Mukerjee
 – Notauli absent; marginal fringe long; scape length <7x its width 2
2. Metasoma with anterior pits; marginal cilia on anterior and posterior margin, short and apical margin long 3
 – Metasoma without anterior pits; marginal cilia moderately long to much longer 4

3. Antennal segments more elongate; third funicular segment with a spiny process towards half the length *L. stom* sp. nov.
 – Antennal segments slightly broader; third funicular segment without a spiny process
 *L. thrissurensis* sp. nov.
4. First funicular segment subglobose; ocellocular space subequal to ocellar diameter : marginal cilia moderately long *L. atturensis* Mukerjee
 – First funicular segment 1.5x longer than thick; ocellocular space 0.50 of ocellar diameter; marginal cilia long *L. maldarensis* Mukerjee

1. *Leptacis aeros* Ushakumari and Narendran sp. nov.

(Figs. 1-2)

Female : Length 0.9 mm; black; antenna yellowish brown except the terminal club forming segments which is dark brown; eyes black; ocelli glassy white; mandible brown; legs with coxa and last tarsal segment dark brown and others yellowish brown; wings hyaline with pilosity dark brown; body pubescence white.

Head : Frons and vertex matt; eyes bare; antennal sockets close to clypeal border. Head viewed in front length to width 32 : 47; head width in dorsal view about 2.6x its median length; POL about 5x OOL; scrobe and interantennal projection indistinct; malar groove absent; hyper-occipital carina distinct; posterior margin of gena ecarinate; occipital carina distinct; head wider than mesosoma in dorsal view; maximum diameter of eye in lateral view about 3.25x malar space. Antenna (Fig. 2) 10 segmented; relative length of antenna : body length 49 : 100. Relative length : width of antennal segments : scape-33 : 9; pedicel-13 : 7; F₁-5 : 4; F₂-6 : 4; F₃-5 : 3; F₄-5 : 4; F₅-7 : 9; F₆-7 : 12; F₇-6 : 12; F₈-10 : 9.

Mesosoma : Finely reticulate; notauli absent; mesoscutum width slightly more than its length; scutellum slightly convex with few hairs, somewhat semicircular and ends in a short black spine; scutellum length up to the tip of spine as long as wide; propleuron partially reticulate; mesopleuron smooth and shiny; metapleuron with white hairs on its posterior margin. Forewing (Fig. 1) length 3x its maximum width, *sm* not distinct, marginal fringes much shorter; propodeum hairy on its lateral side; hind coxa as long as wide; hind femur 2x length of trochanter, about 3x its own maximum width and shorter than hind tibia; hind tibia dilated at its distal end and 2.5x length of hind metatarsus and as long as combined length of hind tarsal segments.

Metasoma : Petiole transverse, 1.8x as wide as its length, tuft of hairs present on its lateral side, with longitudinal grooves on petiole; second tergite smooth; posterior tergites finely punctate; metasoma length 2.5x its maximum width and tapering.

Male : Unknown.

Host : Unknown (probably paddy pests).

Etymology : The species name is an arbitrary combination of letters.

Material examined : Holotype : female, INDIA : Kerala, Attupuzha, 27-viii-1999, Coll. R. Ushakumari (DZCU).

Discussion : This species comes near *Leptacis thanensis* in the key to species of *Leptacis* by Mukerjee (1978). It resembles *L. thanensis* in having; second funicular segment much longer than the first; marginal fringes of forewing short and fourth funicular segment shorter than the third. However it differs from the species *L. thanensis* Mukerjee in having : notauli absent (notauli present in *L. thanensis*); scutellum with a short black spine (very long spine and apically with tuft of hairs in *L. thanensis*); length of insect 0.9 mm (*L. thanensis* 1.52 mm in length); scape length 4x its maximum width (in *L. thanensis* 5x longer than thick); scutellum with hairy tuft on propodeum and petiole (not like this in *L. thanensis*) and ovipositor not exerted (ovipositor exerted in *L. thanensis*).

2. *Leptacis alus* Ushakumari and Narendran sp. nov.

(Figs. 3-4)

Female : Length 0.85 mm; black; antenna with all segments except scape dark brown; scape brown; eyes black, ocelli glassy with black tint; mandible dark brown; tegula brown; legs with coxa dark brown to black; distal region of hind femur and tibia swollen and dark brown and its basal half yellowish brown; wings hyaline with pilosity dark brown; pubescence on body white.

Head : Frons and vertex finely reticulate; eyes bare; antennal sockets close to clypeal border. Head viewed in front length to width 33 : 42; head width in dorsal view 2.16x its median length; POL about 4.66x OOL; hyperoccipital carina distinct and vertex angled; malar groove absent; scrobe not distinct; interantennal projection slightly distinct; posterior margin of gena ecarinate; occipital carina distinct; head wider than mesosoma in dorsal view; maximum diameter of eye in lateral view about 8.5x malar space. Antenna (Fig. 4) 10 segmented; relative length of antenna : body length 60.78 : 100. Relative length : width of antennal segments : scape-50 : 12; pedicel-13 : 5; F₁-4 : 4; F₂-9 : 4; F₃-5 : 3.5; F₄-5 : 4; F₅-9 : 8; F₆-10 : 9; F₇-9 : 10; F₈-14 : 8.

Mesosoma : Finely reticulate; notauli absent; mesoscutum length as long as its width; sparsely hairy and somewhat humped. Scutellum hairy and with an up curved pointed short black spine; scutellar length including the spine as long as its maximum width; propodeum with tuft of white hairs on its lateral side and lateral ridges; propleuron partially and finely reticulate; mesopleuron smooth and shiny; metapleuron hairy on its distal end. Forewing (Fig. 3) length 2.5x its maximum width; *sm* short, straight, not reaching wing margin and without distal knob; marginal fringe short;

hind coxa length as long as wide; hind femur 1.9x length of trochanter, about 3.16x its own maximum width and shorter than hind tibia; hind tibia length about 1.95x length of metatarsus and shorter than combined length of hind tarsal segments.

Metasoma : Petiole transverse, its width about 2.5x its length, lateral margin with tuft of hairs; posterior end of second tergites and rest of the tergites finely punctured; metasoma longer than mesosoma but distinctly shorter than head and mesosoma combined, its length about 2.12x its maximum width in dorsal view.

Male : Unknown.

Host : Unknown (probably paddy pests).

Etymology : Species name is an arbitrary combination of words.

Material examined : Holotype : Female, INDIA : Kerala, Thrissur, 24-viii-1998, Coll. R. Ushakumari (DZCU).

Discussion : This species comes near *Leptacis konkanensis* Mukerjee in the key to species by Mukerjee (1978). It resembles *L. konkanensis* in having : second funicular segment much longer than the first; marginal fringes of forewing short and fourth funicular segment not shorter than the third. However it differs from *L. konkanensis* in the following characters : scutellum with an up curved pointed short black spine (long spine in *L. konkanensis*); notauli absent (in *L. konkanensis* is notauli present); body size 0.85 mm (*L. konkanensis* is 1.16 mm) : scape length 4.16x its maximum width (5.52x longer than thick in *L. konkanensis*); legs with coxa dark brown to black, hind femur and distal region of tibia dilated and dark brown and basal half yellowish brown (in *L. konkanensis* legs brown) and ovipositor not exerted (ovipositor exerted in *L. konkanensis*).

3. *Leptacis asiaticus* Ushakumari and Narendran sp. nov.

(Figs. 5-6)

Female : Length 1.24 mm; black; antenna except scape dark brown; scape brown; eyes dark brown; front and back ocelli glassy with yellow tint; mandible dark brown; legs with coxa and last tarsal segment dark brown; wings hyaline with pilosity dark brown : body pilosity white.

Head : Matt; eyes bare; antennal sockets close to clypeal border; head viewed in front (Fig. 5) length to width 32 : 50; head width in dorsal view about 2.69x its median length; POL about 5.66x OOL; scrobe and interantennal projection indistinct; malar groove absent : posterior margin of gena ecarinate; occipital carina distinct; head slightly wider than mesosoma in dorsal view; maximum diameter of eye in lateral view about 2.14x malar space. Antenna (Fig. 6) 10 segmented; relative length of antenna : body length 66 : 100. Relative length : width of antennal segments : scape-47 : 9; pedicel-11 : 5; F₁-6 : 4; F₂-7 : 4; F₃-13 : 7; F₄-7 : 6; F₅-11 : 8; F₆-12 : 9; F₇-11 : 10; F₈-18 : 9. Third funicular segment length 2x that of first funicular segment and 1.5x its width.

Mesosoma : Matt; notauli absent; scutellum somewhat conical with a short up curved spine; scutellum width about 1.27x its length including length of spine; propleuron finely reticulate; meso and metapleuron smooth, posterior margin of metapleuron hairy. Forewing (Fig. 5) length 2.66x its maximum width; *sm* short, not reaching wing margin and without distal knob; marginal fringe short; propodeum with a median ridge and lateral tuft of hairs giving a triangular appearance; hind coxa, distal end of hind femur, tibia and last tarsal segment dark brown; hind femur and tibia dilated at its distal end; first and second femora distally not dark brown; hind coxa only slightly longer than its width; hind femur 2.3x length of trochanter and about 3.5x its own maximum width and shorter than hind tibia; hind tibia 2.8x length of hind metatarsus and as long as combined length of hind tarsal segments.

Metasoma : Petiole transverse, 3x as wide as its length, hairy, which cover anterior margin of second tergite; second tergite smooth; posterior tergites punctate; metasoma more compressed, slightly longer than mesosoma but shorter than combined length of head and mesosoma, its length 1.6x its maximum width; ovipositor exerted.

Male : Unknown.

Host : Unknown.

Etymology : The species is named after Asia.

Material examined : Holotype : Female, INDIA : Kerala, Thrksur, 6-iii-1995, Coll. T.C. Narendran and party (DZCU).

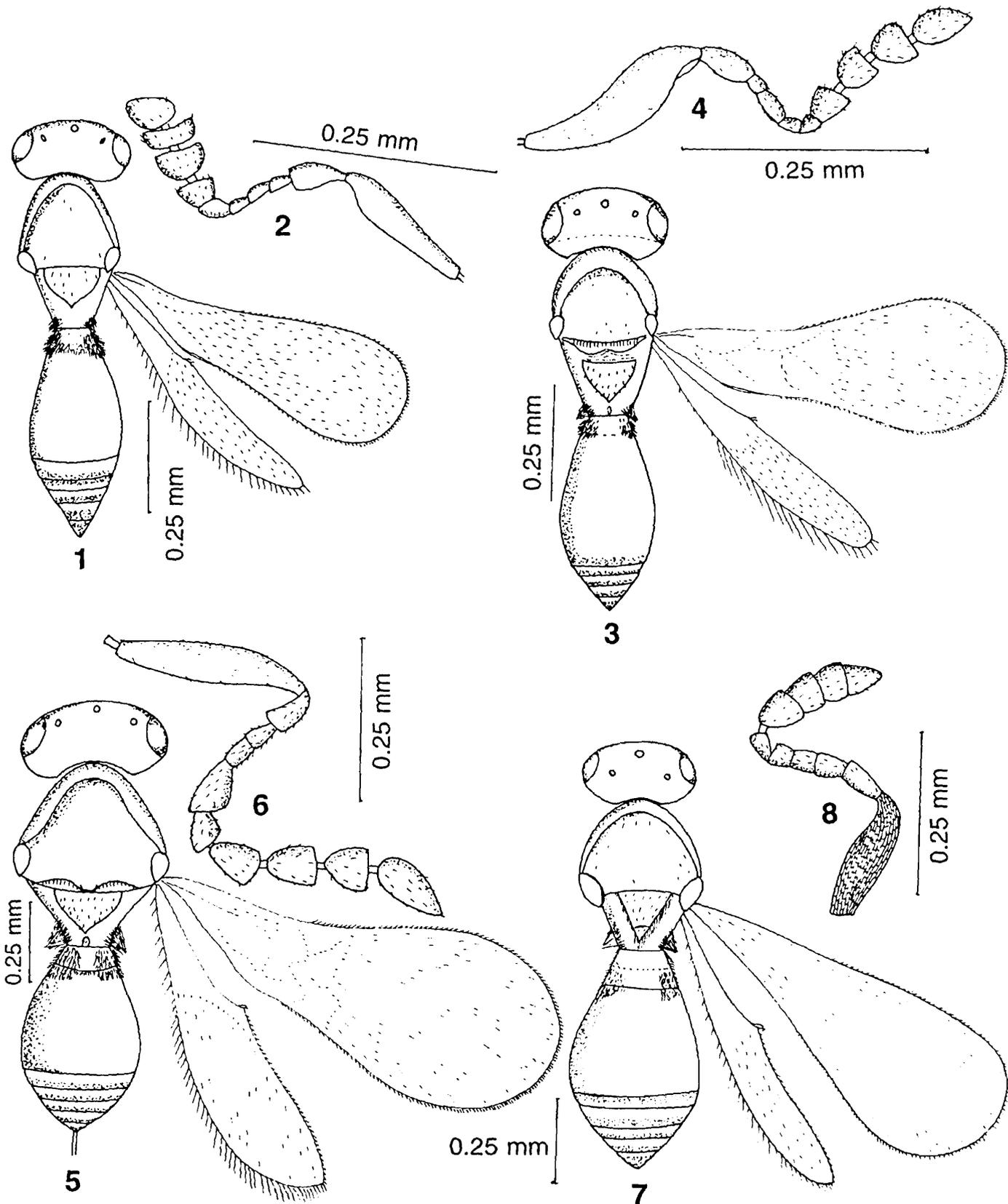
Discussion : This species comes near *L. brachycerus* Mukerjee in the key to species by Mukerjee (1978). It resembles *L. brachycerus* in having : second funicular segment much longer than first funicular segment and notauli absent. However it differs from *L. brachycerus* in having third funicular segment larger in length and width than the fourth funicular segment; (third funicular segment short in *L. brachycerus*) more elongate club forming segments; short up curved black spine for scutellum (long spine in *L. brachycerus*); compressed metasoma and dark brown colour for coxa, distal end of femur and tibia (in *L. brachycerus* legs brown except for the dark brown hind tibia apically).

4. *Leptacis benazeer* Ushakumari and Narendran sp. nov.

(Figs. 7-8)

Female : Length 1.17 mm; reddish brown; antenna dark brown except scape which is reddish brown; eyes glassy with a light red tint; ocelli glassy and brown; mandible reddish brown; tegula brown; all legs reddish brown; wings opaque with pilosily dark brown; body pubescence white.

Head : Frons and vertex reticulate; vertex rounded; eyes bare; antennal sockets close to elypeal border. Head viewed in front (Fig. 7) length to width 39 : 41; head width in dorsal view about 1.9x



Figs. 1-8. : 1-2. *Leptacis aeros* Ushakumari & Narendran sp. nov. (Female) Part of body : Dorsal view.

3-4. *Leptacis alus* Ushakumari & Narendran sp. nov. (Female) Part of body : Dorsal view;
 5-6. *Leptacis asiaticus* Ushakumari & Narendran sp. nov. (Female) Part of body : Dorsal view;
 7-8. *Leptacis benazeer* Ushakumari & Narendran sp. nov. (Female) Part of body : Dorsal view.

its median length; POL about 4.3x OOL; scrobe indistinct; interantennal projection distinct; malar groove absent; posterior margin of gena ecarinate; occipital carina distinct, head slightly narrower than mesosoma in dorsal view; maximum diameter of eye in lateral view about 6x malar space. Antenna (Fig. 8) 10 segmented; relative length of antenna : body length 55 : 100; relative length : width of antennal segments : scape-32 : 9; pedicel-11 : 5; F₁-6 : 5; F₂-6 : 5; F₃-5 : 5; F₄-7 : 4; F₅-9 : 8; F₆-6 : 10; F₇-6 : 8; F₈-9 : 7.

Mesosoma : Matt; notauli absent; scutellum somewhat triangular, with an apical small brown spine, hairy, hairs arranged like a beard at its tip; pro, meso and metapleuron finely reticulate, metapleuron with backwardly arranged hairs. Forewing (Fig. 7) length 2.64x its maximum width; marginal fringes rudimentary; wing lamina thickly hairy, *sm* indistinct; propodeum hairy, hairs arranged in such a way as to give a spine like appearance, a median ridge present; hind coxa as long as wide; lemur 1.9x length of trochanter and its length about 3.8x its own maximum width and shorter than hind tibia; hind tibia about 2.7x of hind metatarsus and as long as combined length of hind tarsal segments.

Metasoma : Compressed; petiole transverse, its maximum width 1.8x its length, hairy : second tergite smooth and posterior tergites with minute punctures; metasoma slightly longer than mesosoma as long as combined length of mesosoma and head; its length about 1.8x its maximum width.

Female : Unknown.

Host : Unknown.

Etymology : The species name is taken from the Urdu word benazeer meaning 'beautiful'

Material examined : Holotype : Female, INDIA : Kerala, Kurarkutty, (6-v-1989, Coll. T.C. Narendran and party (DZCU).

Discussion : This species resembles *Leptacis brachycerus* Mukerjee in the key to *Leptacis* by Mukerjee (1978) in having : second funicular segment much longer than first funicular segment and in absence of notauli. However it differs from *L. brachycerus* in having : body colour reddish brown (in *L. brachycerus* black); vertex more rounded (vertex strongly margined in *L. brachycerus*); scutellum triangular with beard like hairs; (scutellum without tuft of hairs at its tip in *L. brachycerus*), and metasoma elongate, compressed and slightly curved upwards (metasoma more convex in *L. brachycerus*).

5. *Leptacis diversus* Ushakumari and Narendran sp. nov.

(Figs. 9-10)

Female : Length 1.21; black; antenna reddish brown with four segmented club; eyes dark brown to black; ocelli black glassy; tegula black; all legs reddish brown with coxa and last tarsal segment dark brown; distal one-fourth of tibia and femur dark brown; wings opaque with pilosity reddish brown; body pubescence white.

Head : Finely reticulate, sparsely pubescent; vertex deeply angled; hyper-occipital carina well distinct; eyes bare; antennal sockets close to clypeal border. Head viewed in front (Fig. 9) length : width 30 : 49; head width in dorsal view about 3x its median length; POL about 4.25x OOL; scrobe indistinct and inter antennal projection distinct; malar groove absent; posterior margin of gena ecarinate; occipital carina distinct; head wider than mesosoma in dorsal view; maximum diameter of eye in lateral view about 3.6x malar space. Antenna (Fig. 10) 10 segmented; relative length of antenna; body length 69 : 100. Relative length : width of antennal segments : scape-48 : 8; pedicel-13 : 5; F₁-4.5 : 4; F₂-11 : 5; F₃-5 : 3; F₄-5 : 3; F₅-9 : 7; F₆-8 : 9; F₇-8 : 8; F₈-13 : 8.

Mesosoma : Finely reticulate; notauli absent; scutellum somewhat semicircular with a short bluntly rounded nipple shaped dark brown process that extends to the proximal end as a median smooth ridge; except the ridge scutellum hairy; pro, meso and metapleura matt : metapleuron with hairs on its posterior end; scutellum length including tip of process 1.36x its maximum width; scutellar suture well distinct with bristle like hairs on its anterior margin. Forewing (Fig. 9) length 2.68x its maximum width; *sm* much shorter, not reaching the wing margin and without a knob; marginal fringe much shorter; propodeum with two median process; lateral side carry hairs arranged in a triangular pattern; hind coxa length 1.37x its maximum width; hind femur 2.75x length of trochanter and about 2.75x of its own maximum width and shorter than hind tibia; hind tibia 3.6x length of hind metatarsus and shorter than the combined length of hind metatarsus; distal end of femur and tibia dilated.

Metasoma : Petiole transverse, its width about 3.25x its length, hairy with longitudinal carina; second metasomal tergite matt and posterior segments with minute punctures : metasoma longer than mesosoma but shorter than combined length of head and mesosoma. Its length about 1.67x its own maximum width.

Male : Unknown.

Host : Unknown.

Etymology : The species name is taken from Latin meaning different.

Material examined : Holotype : female; INDIA : Kerala, Eravikulam, 28-xi-1993; Coll. T.C. Narendran and party (DZCU).

Discussion : This species comes near *L. coorgensis* in the key to species of Mukerjee (1978). It resembles *L. coorgensis* in having : second funicular segment much longer than first, and fourth funicular segment not shorter than third; second funicular segment 3x longer than thick; head and metasoma finely reticulate and hairy tuft on petiole. However it differs from *L. coorgensis* in having : notauli absent (notauli present in *L. coorgensis*); scutellum passing into a short nipple like spine which extends dorso-medially to the posterior end as a ridge (in *L. coorgensis* scutellar spine long); colour of antennae reddish brown, (antenna black except brownish scape in *L. coorgensis*) and marginal fringe of forewing much shorter (marginal fringe moderate in *L. coorgensis*).

6. *Leptacis keralensis* Ushakumari and Narendran sp. nov.

(Figs. 11-12)

Female : Length 0.73 mm; black; antenna brown except terminal four funicular segments which are dark brown; eyes black; ocelli glassy with a black tint; mandible dark brown; tegula brown; all legs brown; wings subhyaline with pilosity brown; pubescence on body white.

Head : Frons smooth and shiny; vertex weakly reticulate without pubescence; eyes bare; antennal sockets close to clypeal border. Head viewed in front (Fig. 11) length to width 32 : 40; head width in dorsal view about 1.38x its median length; POL about 4.3x OOL; malar groove absent; scrobe and interantennal projection indistinct; posterior margin of gena ecarinate; occipital carina distinct; head wider than mesosoma in dorsal view; maximum diameter of eye in lateral view about 3.2x malar space. Antenna (Fig. 12) 10 segmented; relative length of antenna : body length 72.7 : 100. Relative length : width of antennal segments : scape-40 : 8; pedicel-11 : 5; F₁-7 : 3; F₂-12 : 3.5; F₃-6 : 4; F₄-5 : 3; F₅-11 : 9; F₆-10 : 10; F₇-11 : 10; F₈-14 : 9.

Mesosoma : Finely reticulate, shiny; notauli absent; mesoscutum length 1.2x its maximum width; scutellum somewhat triangular, long and gradually passing into a long brown spine behind; scutellar length about 1.4x its maximum width, few hairs on its lateral margin; propodeum with tuft of white hairs on the lateral sides; pro and mesopleura partially punctate, shiny; inetapleuron smooth with tuft of white hairs on its posterior margin. Forewing (Fig. 11) length 3.25x its maximum width; *sm* short, straight, not touching wing margin and without distal knob; anterior and posterior marginal fringe shorter and apical fringe longer; wing lamina densely hairy. Hind coxa length as long as wide; hind femur 2.85x length of trochanter, about 4x its own maximum width and shorter than hind tibia; hind tibia 2.45x length of metatarsus and as long as combined length of hind tarsal segments; all femora and tibiae swollen apically.

Metasoma : Petiole transverse, 1.37x wide as its length, longitudinal carina on petiole, tuft of white silvery hairs present on ventral side; dorsolateral region of second metasomal tergite with anterior pits; metasoma little longer than mesosoma but shorter than combined length of head and mesosoma and about 1.78x its maximum width in dorsal view. Posterior metasomal tergites weakly punctuate.

Male : Unknown.

Host : Unknown.

Etymology : This species is named after Kerala state.

Material examined : Holotype : Female, INDIA : Kerala, Calicut University Campus, 18-vi-2000, Coll. T.C. Narendran and party (DZCU).

Discussion : In the key to Indian *Leptacis* by Mukerjee (1978) it comes closer to *L. yercaudensis* Mukerjee in having : the second funicular segment longer than first and third and fourth funicular

segments unequal; marginal fringes of forewing conspicuously long and forewing length to width 100 : 31. However it differs from this species in having : notauli absent (in *L. yercaudensis* notauli present) and second metasomal tergite with oval shaped anterior pits (without oval shaped anterior pits in *L. yercaudensis*).

7. *Leptacis malaburensis* Ushakumari and Narendran sp. nov.

(Figs. 13-14)

Female : Length 0.95 mm; black; antenna black except brown basal one fourth of scape; eyes black; ocelli white glassy; mandible yellowish brown; tegula dark brown; all legs with coxa brown, dilated portion of femur and tibia dark brown and basal narrow cylindrical portion light brown, tarsal segments light brown; wings subhyaline with pilosity dark brown; body pubescence silvery white.

Head : Frons, vertex and occiput punctate, shiny without pubescence; eyes bare; antennal sockets close clypeal border. Head viewed in front (Fig. 13) length to width 32 : 43; head width in dorsal view about 2.4x its median length; hyperoccipital carina not distinct; POL about 3.66x OOL; maximum diameter of eye in lateral view about 2.66x malar space. Antenna (Fig. 14) 10 segmented; relative length of antenna : body length 53.5 : 100. Relative length : maximum width of antennal segments : scape-42 : 9; pedicel-11 : 5; F₁-7 : 3.5; F₂-12 : 3; F₃-5 : 3; F₄-5 : 3; F₅-10 : 9; F₆-8 : 10; F₇-9 : 11; F₈-11 : 11.

Mesosoma : Weakly reticulate, shiny, sparsely hairy; notauli absent; mesoscutum length 1.1x its maximum width; scutellum somewhat triangular, flat, sparsely hairy and is produced into a slender long brown spine, length of scutellum with spine 1.3x its maximum width, lateral margin with few hairs; propodeum with white tuft of hairs almost converging to a point; propleuron smooth, shiny and upper part partially reticulate; mesopleuron shiny and upper part with weak transverse carina; metapleuron smooth, shiny, and distal end with white silvery tuft of hairs. Forewing (Fig. 13) length 2.9x its maximum width, *sm* short, straight, not touching wing margin and without distal knob; apical marginal fringe longer and anterior and anal marginal fringes much shorter; femur and tibia dilated apically, hind coxa length 2x its-maximum width; hind femur 2x length of trochanter and about 3.6x its own maximum width; hind tibial length 1.77x length of metatarsus and as long as combined length of hind tarsal segments.

Metasoma : Petiole as long as wide with white silvery hairs on its sides; second tergite smooth with line of hairs on its anterior margin; posterior metasomal tergites weakly punctate; metasoma little longer than mesosoma but shorter than combined length of head and mesosoma; its length about 1.79x its maximum width in dorsal view.

Male : Unknown.

Host : Unknown.

Etymology : The species named after Malabar, the region of collection.

Material examined : Holotype : Female, INDIA : Kerala, Muthanga, 6-v-2000, Coll. R. Ushakumari (DZCU).

Discussion : This species comes near *Leptacis yercaudensis* Mukerjee in the key to species by Mukerjee (1978). This species resembles *L. yercaudensis* in having : second funicular segment longer than the first and marginal fringes longer. However it differs from this species in having : notauli absent (in *L. yercaudensis* notauli present); third and fourth funicular segments subequal (unequal in *L. yercaudensis*); scutellum somewhat triangular which ends in a narrow, slender and brown scutellar spine (scutellum long gradually passing into a long spine in *L. yercaudensis*) and white silvery tuft of hairs on propodeum radiating to a point (this character not indicated in the available description by Mukerjee, 1978.)

8. *Leptacis manii* Ushakumari and Narendran sp. nov.

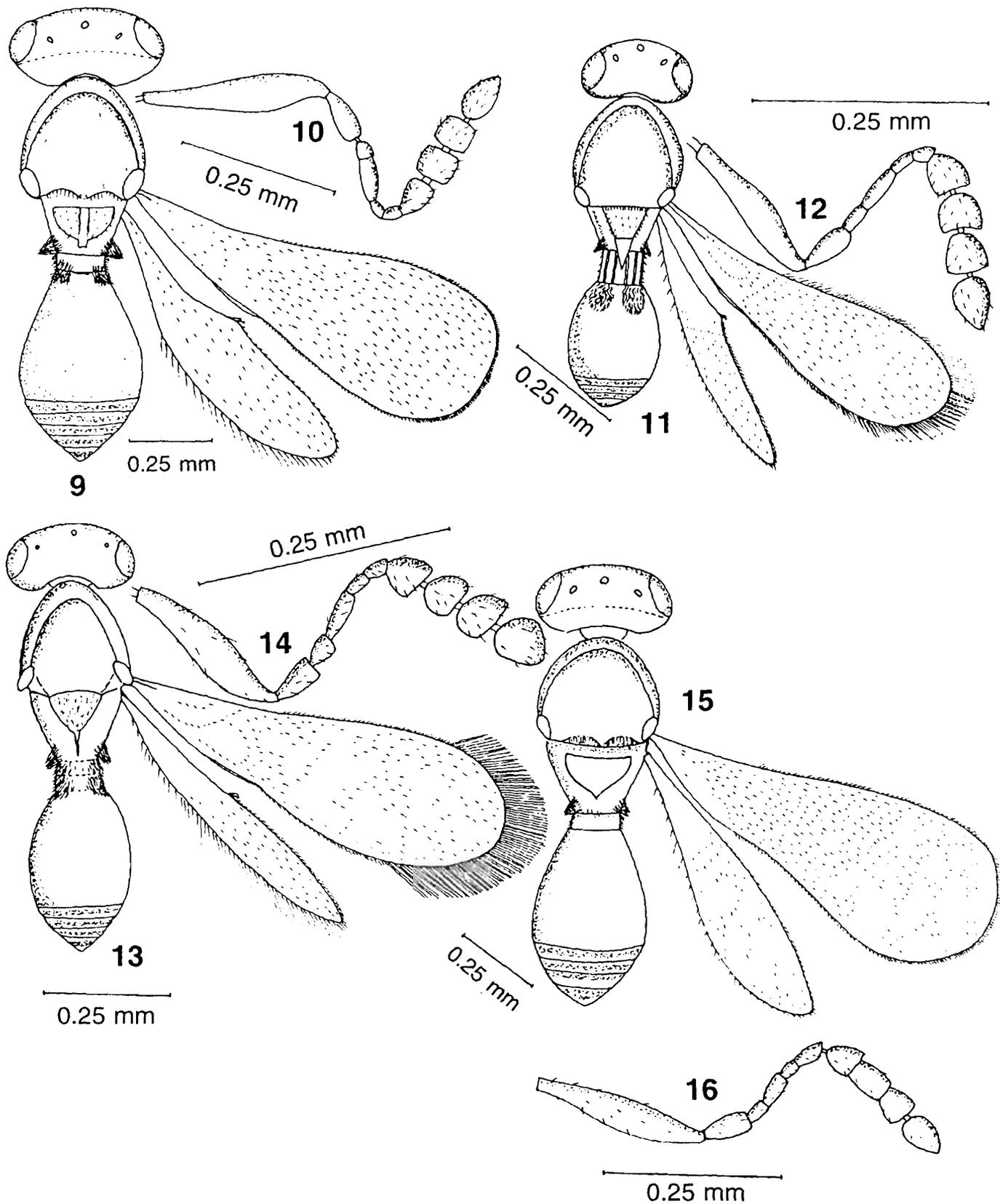
(Figs. 15-16)

Female : Length 1.24 mm; dark brown to black; antenna dark brown; eyes black; ocelli black; mandible brown; tegula black; legs with coxa, femur, tibia and last tarsal segment dark brown, other tarsal segments light brown; wings opaque with pilosity brown; body pubescence white.

Head : Frons and vertex finely reticulate and without pubescence; eyes bare; antennal sockets close to clypeal border; head viewed in front (Fig. 15) length to width 27 : 41; head width in dorsal view about 3.09x its median length; POL about 3.66x OOL; malar groove absent; malar space less; scrobe indistinct and interantennal projection distinct; posterior margin of gena ecarinate; hyper-occipital carina distinct; head wider than mesosoma in dorsal view. Antenna (Fig. 16) 10 segmented; relative length of antenna : body length 100 : 79 : relative length : width of antennal segments : scape-42 : 7; pedicel-11 : 5; F₁-4 : 3; F₂-8 : 4; F₃-4 : 3; F₄-7 : 4; F₅-8 : 7; F₆-9 : 7; F₇-7 : 8; F₈-10 : 7.

Mesosoma : Finely reticulate; notauli absent; mesoscutum as long as wide; scutellum broadly triangular, with a pen-nib like knob at apex and sparsely hairy; scutellar width including spine 1.5x its length; propodeum with hairs on its side and with a median ridge; propleuron finely reticulate; meso and metapleura smooth and metapleuron with few hairs at its posterior end. Forewing (Fig. 15) length 2.6x its maximum width; *sm* short, straight, not touching wing margin and without distal knob; marginal fringe short and wing lamina densely hairy; hind coxa length 1.5x its maximum width; hind femur length 2.2x length of trochanter and about 3.3x its own maximum width and shorter than hind tibia; hind tibia 2.75x length of metatarsus and longer than combined length of hind tarsal segments.

Metasoma : Petiole transverse, 2.5x as wide as its length, few hairs present; metasoma more compressed; metasoma little longer than mesosoma but shorter than combined length of head and



Figs. 9-16. : 9-10. *Leptacis diversus* Ushakumari & Narendran sp. nov. (Female) Part of body : Dorsal view.

11-12. *Leptacis keralensis* Ushakumari & Narendran sp. nov. (Female) Part of body : Dorsal view;

13-14. *Leptacis malabarensis* Ushakumari & Narendran sp. nov. (Female) Part of body : Dorsal view;

15-16. *Leptacis manii* Ushakumari & Narendran sp. nov. (Female) Part of body : Dorsal view.

mesosoma and its length about 1.74x its maximum width in dorsal view; second metasomal tergite smooth and shiny and rest of the segments finely punctate.

Male : Unknown.

Host : Unknown.

Etymology : The species named after Prof. M.S. Mani for his significant contribution to the study of parasitic hymenoptera.

Material examined : Holotype : Female, INDIA : Kerala, Ernakulam, 28-ii-1998, Coll. T.C. Narendran and party (DZCU).

Discussion : This species resembles *Leptacis konkanensis* Mukerjee in having : second funicular much longer than first and longest; marginal fringe of forewing short; fourth funicular segment not shorter than third and second funicular segment about 2x longer than thick. However it differs from *L. konkanensis* in having : notauli absent (notauli present in *L. konkanensis*); scape length 7x its maximum width (in *L. konkanensis* scape 5.52x longer than thick); scutellum with short pen nib like spine (scutellar spine long in *L. konkanensis*) and ovipositor not exerted (ovipositor exerted in *L. konkanensis*).

9. *Leptacis mustus* Ushakumari and Narendran sp. nov.

(Figs. 17-18)

Female : Length 1.19 mm; black; antenna with scape, pedicel and first to fourth funicular segments brown and four segmented club dark brown; eyes black; ocelli glassy and white; mandible dark brown; tegula dark brown to black; all legs with coxa dark brown; mid hind femur and distal end of hind tibia dark brown; all the other segments yellowish brown; wings subhyaline with pilosity brown; body pubescence white.

Head : Finely reticulate without pubescence; eyes bare; antennal sockets close to clypeal border; vertex angular. Head viewed in front (Fig. 17) length to width 42 : 51; head width in dorsal view about 3x its median length; POL about 6.5x OOL; malar groove absent; scrobe indistinct; interantennal projection slightly distinct; hyperoccipital carina distinct; posterior margin of gena ecarinate; mandible well developed; occipital carina distinct; head wider than mesosoma in dorsal view; maximum diameter of eye in lateral view about 4.6x malar space. Antenna (Fig. 18) 10 segmented; relative length of antenna : body length 59 : 100. Relative length : width of antennal segments : scape-42 : 8; pedicel-12 : 4; F₁-4 : 3; F₂-8 : 5; F₃-5 : 5; F₄-3 : 3; F₅-9 : 9; F₆-9 : 10; F₇-9 : 10; F₈-10 : 9.

Mesosoma : Finely reticulate and sparsely hairy; notauli absent; mesoscutum as long as wide; scutellum somewhat semicircular, finely punctate, hairy, and ends in a small spine like process; scutellar length to the tip of spine 1.6x shorter than its maximum width; scutellar groove deep with

hairs on its anterior margin; propodeum with, white hairs on its lateral side and a median ridge; propleuron finely reticulate; mesopleuron smooth and metapleuron hairy on its posterior margin. Forewing (Fig. 17) length 2.4x its maximum width; *sm* short, straight, not touching the wing margin and without a distal knob, marginal fringe much shorter and wing lamina moderately hairy; hind coxa length 1.5x its maximum width; hind femur 2.4x length of trochanter and 3.6x its own maximum width and shorter than hind tibia; hind tibia length 2.4x length of hind metatarsus and as long as combined length of hind tarsal segments.

Metasoma : Petiole transverse, hairy and not distinctly visible because of hairy tuft; second tergite smooth and posterior segments punctate; metasoma slightly shorter than mesosoma but longer than combined length of head and mesosoma.

Male : Unknown.

Host : Unknown.

Etymology : The species name is taken from Latin meaning new.

Material examined : Holotype : Female, INDIA : Kerala, Rravikulam, 25-ii-1995. Coll. T.C. Narendran and Party (DZCU).

Discussion : This species comes near *L. thanensis* Mukerjee in the key to species by Mukerjee (1978). It resembles *L. thanensis* in having : second funicular segment much longer than first; fourth funicular segment shorter than third; marginal fringe short; and antenna with four segmented club. However it differs from *L. thanensis* in having : notauli absent (notauli present in *thanensis*); scutellum semicircular ending in a small process (scutellum long gradually passing into a long spine in *thanensis*); body size small—1.19 mm (*L. thanensis* is 1.52 mm); petiole transverse and not distinctly visible because of the hairy tuft (petiole transverse with only few hairs in *thanensis*); ovipositor not exerted (ovipositor slightly exerted in *thanensis*).

10. *Leptacis stom* Ushakumari and Narendran sp. nov.

(Figs. 19-20)

Male : Length 0.98 mm; dark brown to black; antenna elongate; slender and brownish; eyes brown to black; ocelli glassy with an yellowish tint; mandible brown; tegula dark brown; all legs brownish and long; distal end of hind tibia reddish brown; wings hyaline with pilosity dark brown; body pubescence white.

Head : Frons and vertex finely reticulate without pubescence; somewhat globular; vertex rounded; eyes bare; antennal sockets close to clypeal border; head viewed in front (Fig. 19) length to width 32 : 46; head width in dorsal view about 3.36x its median length; POL about 6.3x OOL; malar groove absent; scrobe indistinct; interantennal projection distinct; posterior margin of gena ecarinate; mandible well developed; hyperoccipital carina not distinct; occipital carina distinct;

head wider than mesosoma in dorsal view; maximum diameter of eye in lateral view about 4.5x malar space. Antenna (Fig. 20) long, 10 segmented; second funicular segment elongate with a spiny appearance; relative length of antenna : body length 96.5 : 100. Relative length : width of antennal segments : scape-53 : 9; pedicel-10 : 7; F₁-7 : 5; F₂-22 : 4; F₃-11 : 5.5; F₄-20 : 4; F₅-15 : 5; F₆-20 : 6; F₇-17 : 6; F₈-26 : 6.

Mesosoma : Finely reticulate; notauli absent; mesoscutum as long as wide; scutellum somewhat triangular and gradually passing into a long and stout brown spine; scutellum length including spine 1.9x its maximum width; scutellum without spine as long as scutellar spine and sparsely hairy; propodeum with short hairs on its side and with a median ridge; propleuron finely reticulate; mesopleuron with a few transverse striations on upper region; metapleuron smooth, shiny and with tuft of white short silvery hairs at its posterior margin. Forewing (Fig. 19) length 3.09x its maximum width; *sm* short; marginal fringe long and wing lamina thinly hairy; hind coxa length 1.37x its maximum width; hind femur 3.12x length of trochanter, about 3.57x its own maximum width and shorter than hind tibia; hind tibia length 2.33x length of metatarsus and shorter than combined length of hind tarsal segments.

Metasoma : Petiole brown, transverse, 1.66x wide as its length and with short hairs. Metasoma more convex on its dorsal side; second metasomal tergite smooth, anterior pits present; metasoma as long as mesosoma but shorter than combined length of head and mesosoma; metasomal length 2x its maximum width; posterior metasomal segments weakly punctate.

Female : Unknown.

Host : Unknown.

Etymology : The species name is an arbitrary combination of letters.

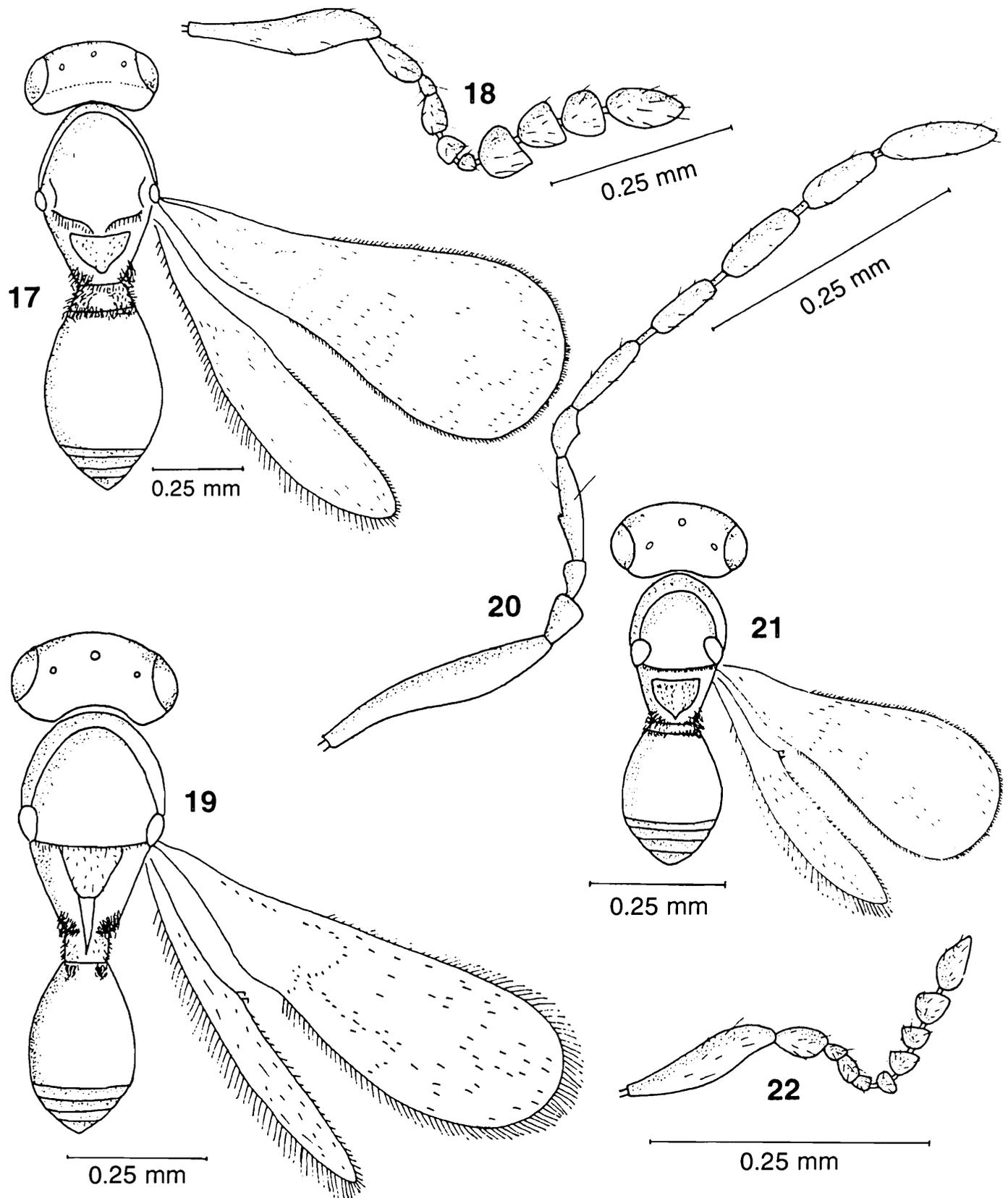
Material examined : Holotype : Female, INDIA : Kerala, Thiruvannur, 21-xi-1994. Coll. T.C. Narendran and party (DZCU).

Discussion : In the key to Indian *Leptacis* by Mukerjee (1978) this species resembles *L. maldarensis* in having : third and fourth funicular segments unequal and elongate; head finely reticulate and marginal fringe long; first funicular segment 1.6x longer than thick; long brown spine on scutellum; notauli absent and funicular segments with long hairs. However it differs from *L. maldarensis* in having : head more rounded (vertex angled in *L. maldarensis*); wing lamina thinly hairy and small anterior pits on second metasomal tergite (not indicated in *L. maldarensis*).

11. *Leptacis nuperus* Ushakumari and Narendran sp. nov.

(Figs. 21-22)

Female : Length 0.65 mm; dark brown to black; antenna with scape, pedicel and first four funicular segments yellowish brown and the four segmented club brown; eyes grey to black; ocelli



Figs. 17-22. : 17-18. *Leptacis mustus* Ushakumari & Narendran sp. nov. (Female) Part of body : Dorsal view.
 19-20. *Leptacis stom* Ushakumari & Narendran sp. nov. (Male) Part of body : Dorsal view;
 21-22. *Leptacis nuperus* Ushakumari & Narendran sp. nov. (Female) Part of body : Dorsal view.

black and glassy; tegula dark brown; coxa of all legs dark brown, first femur brown, second and third femora dark brown and distal end of hind tibia brown and others yellowish brown; wing subhyaline with pilosity dark brown; body pubescence white.

Head : Frons and vertex finely reticulate sparsely pubescent; eyes bare; antennal sockets close to clypeal border; vertex not distinctly angular; head viewed in front (Fig. 21) length to width 39 : 54; head width in dorsal view about 3x its median length; POL about 7x OOL; malar groove absent; scrobe indistinct; interantennal projection slightly distinct; hyperoccipital carina not distinct; occipital carina slightly distinct; head wider than mesosoma in dorsal view; maximum diameter of eye in lateral view about 4.3x malar space. Antenna (Fig. 22) 10 segmented; relative length of antenna : body length 62 : 100. Relative length : width of antennal segments : scape-35 : 8; pedicel-11 : 6; F₁-4 : 3; F₂-6 : 4; F₃-3 : 3; F₄-4 : 3; F₅-5 : 6; F₆-5 : 7; F₇-7 : 6; F₈-13 : 6.

Mesosoma : Finely reticulate, sparsely hairy; notauli absent; mesoscutum slightly wider than its length; scutellum somewhat semicircular, hairy; scutellum in its lateral view with a black sharp point; transcutal suture with hairs on its anterior margin; propleuron partially reticulate; mesopleuron smooth; metapleuron with transverse carina and posterior margin hairy; propodeum hairy on its lateral side, arranged in a triangular pattern and with a median ridge. Forewing (Fig. 21) length 2.4x its maximum width; *sm* not distinct; marginal fringe much shorter and wing lamina moderately hairy; hind coxa length 1.5x its maximum width; hind femur 1.6x length of trochanter, about 3x its own maximum width and shorter than hind tibia; hind tibia length 2.4x length of metatarsus and as long as combined length of hind tarsal segments.

Metasoma : Petiole not distinctly visible as it is hairy, hairs extends to the anterior margin of second tergite; metasoma as long as mesosoma but distinctly shorter than the combined length of head and mesosoma; second tergite smooth; posterior segments finely punctate.

Male : Unknown.

Host : Unknown.

Etymology : The species name is taken from Latin meaning new.

Material examined : Holotype : Female, INDIA : Kerala, Calicut University Campus. 3-xii-1994, Coll. T.C. Narendran and party (DZCU).

Discussion : This species comes near *L. konkanensis* Mukerjee in the key to *Leptacis* species by Mukerjee (1978). It resembles *L. konkanensis* in having : second funicular segment much longer than first; fourth funicular segment not shorter than third; second funicular segment about 2x longer than thick (1.5x longer than thick) and scape 5.6x longer than wide. However it differs from *L. konkanensis* in having : notauli absent (present in *L. konkanensis*); scutellum with a short black spine (in *L. konkanensis* long scutellar spine); body size small 0.65 mm (*L. konkanensis* is 1.16 mm); legs with coxa dark brown, first femur brown, second and third femora dark brown and

distal end of hind tibia brown and others yellowish brown, (in *L. konkanensis* all legs brown); antenna with scape, pedicel and first four funicular segments yellowish brown and the four segmented club brown. (Antenna dark brown except for the light brown scape in *L. konkanensis*); ovipositor not exerted (in *L. konkanensis* ovipositor exerted).

12. *Leptacis scaposus* Ushakumari and Narendran sp. nov.
(Figs. 23-24)

Female : Length 0.91 mm; black; antenna with four segmented dark brown club, rest of segments light brown; eyes black; ocelli glassy with a black tint; mandible brown; tegula brown; coxa of all legs, distal end of middle, hind femur, hind tibia and last tarsal segment dark brown; foreleg and second tibia light brown; wings hyaline with pilosity dark brown : body pubescence scarce and white.

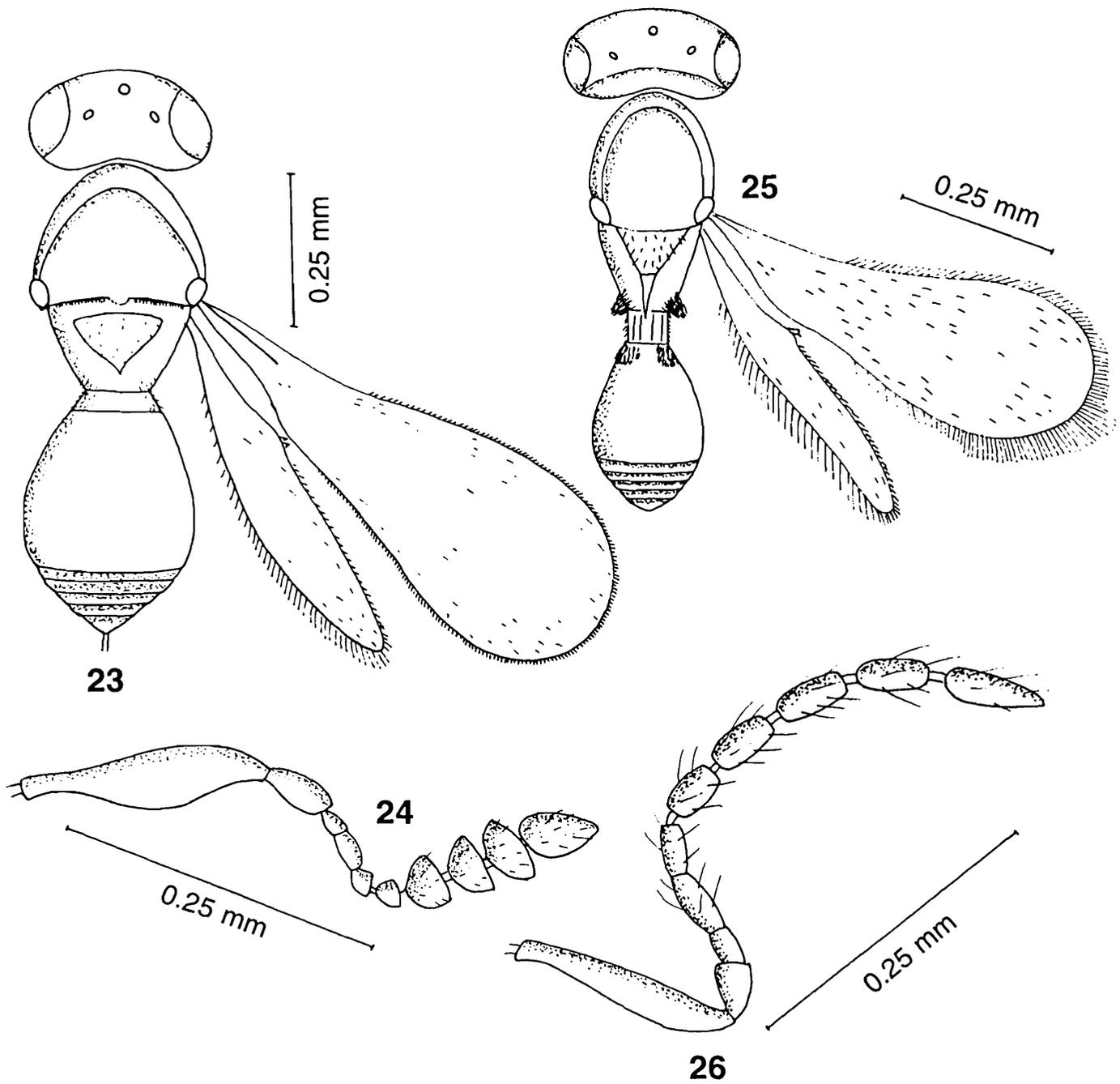
Head : Frons and vertex finely reticulate without pubescence; eyes bare; antennal sockets close to clypeal border; vertex angular. Head viewed in front (Fig. 23) length to width 51 : 65; head width in dorsal view about 2.5x its median length; POL about 4.8x OOL : malar groove absent; scrobe indistinct; interantennal projection slightly distinct, posterior margin of gena ecarinate; hyper-occipital carina distinct; occipital carina distinct; head wider than mesosoma in dorsal view; maximum diameter of eye in lateral view about 3.6x malar space. Antenna (Fig. 24) 10 segmented; relative length of antenna : body length 52.2 : 100. Relative length : width of antennal segments : scape-46 : 11; pedicel-12 : 6; F₁-5 : 4; F₂-7 : 3; F₃-4 : 4; F₄-5 : 4; F₅-8 : 8; F₆-6 : 10; F₇-7 : 12; F₈-12 : 9.

Mesosoma : Finely reticulate, sparsely hairy; notauli absent; mesoscutum slightly wider than its length; scutellum somewhat triangular, hairy with a small up curved spine : scutellum length to the tip of spine as long as its base; scutellar groove hairy on its margin : propodeum with a medium ridge like process; propleuron weakly reticulate, meso and metapleura smooth and shiny; mesopleuron with a few transverse carinae. Forewing (Fig. 23) length 2.8x its maximum width; *sm* short; straight, not touching the wing margin and without a distal knob; marginal fringe much shorter and wing lamina moderately hairy; hind coxa length 1.37x its maximum width; hind femur 2.3x length of trochanter, about 3x its own maximum width and shorter than hind tibia; hind tibia length 2.8x length of metatarsus and as long as combined length of hind tarsal segments.

Metasoma : Petiole short transverse, 4x wide as its length; second tergite larger : posterior tergites punctate; metasoma slightly longer than mesosoma but distinctly shorter than combined length of head and mesosoma; metasomal length 1.56x its own maximum width.

Male : Unknown.

Host : Unknown.



Figs. 23-26. : 23-24. *Leptacis scaposus* Ushakumari & Narendran sp. nov. (Female) Part of body : Dorsal view.
 25-26. *Leptacis thrissurensis* Ushakumari & Narendran sp. nov. (Male) Part of body : Dorsal view.

Etymology : The species is named after relatively short antennal scape.

Material examined : Holotype : Female, INDIA : Kerala, Calicut University Campus, 3-xii-1994, Coll. T.C. Narendran and party (DZCU).

Discussion : This species comes near *L. konkanensis* Mukerjee in the key to species by Mukerjee (1978). It resembles *L. konkanensis* in having : second funicular segment much longer than first; fourth funicular segment not shorter than third; second funicular segment 2x longer than thick (2.6x longer than thick) and ovipositor exerted. However it differs from *L. konkanensis* in having : scape only 3.8x longer than thick (in *L. konkanensis* 5.52x longer than thick); notauli absent. (Notauli present in *L. konkanensis*) and scutellum somewhat triangular ending in a small up curved spine (in *L. konkanensis* scutellum long, gradually passing into a more or less long spine).

13. *Leptacis thrissurensis* Ushakumari and Narendran sp. nov.

(Figs. 25-26)

Male : Length 0.716 mm; dark brown to black; antenna dark brown except for the brownish scape; front and hind ocelli white glassy; mandible brown; all legs brown; tegula dark brown; wings hyaline with pilosity brown; body pubescence silvery white.

Head : Frons smooth; vertex weakly reticulate, shiny without pubescence; eyes bare; antennal sockets close to clypeal border. Head viewed in front (Fig. 25) length to width 31 : 46 : head width in dorsal view about 2x its median length; POL about 3.75x OOL; scrobe indistinct; interantennal projection distinct; hyperoccipital carina distinct; posterior margin of gena ecarinate; occipital carina distinct; head wider than mesosoma in dorsal view : maximum diameter of eye in lateral view about 6x malar space. Antenna (Fig. 26) 10 segmented, long hairs; relative length of antenna : body length 94.18 : 100. Relative length : width of antennal segments : scape—42 : 6; pedicel—10 : 6; F₁—7 : 4; F₂—14 : 5; F₃—9 : 5; F₄—11 : 6; F₅—12 : 6; F₆—14 : 5; F₇—12 : 6; F₈—19 : 5.

Mesosoma : Finely reticulate, shiny, sparsely hairy; notauli absent; mesoscutum length 1.14x its width; scutellum somewhat triangular, with a stout long dark brown spine; scutellum length up to tip of spine 2x its maximum width, hairy on its lateral and dorsal side; pro, meso and metapleura smooth and shiny; posterior end of metapleuron hairy. Forewing (Fig. 25) length 2.7x its maximum width; *sm* short, straight, not touching wing margin and without distal knob; wing lamina thinly hairy; forewing with moderately long fringes of hairs on upper and lower margin and with much longer fringes on apical lower margin. Propodeum laterally hairy, hairs arranged converging to a point and a median carina. Hind coxa length 1.28x its width; hind femur swollen and 3.2x length of trochanter, about 3.8x its own maximum width and shorter than hind tibia; hind tibia dilated at its distal end, its length 3x length of hind metatarsus and as long as combined length of hind tarsal segments.

Metasoma : Petiole transverse, 1.3x as wide as its length, few hairs on its lateral side and longitudinal carina; second tergite smooth, shiny with paired oval depression situated antero-laterally and with dense small hairs; ventral side with white silvery hairs; metasoma little shorter than mesosoma and distinctly shorter than combined length of head and mesosoma, a little less than 2x its width in dorsal view; metasoma more convex dorsally.

Male : Unknown.

Host : Unknown (probably paddy pests).

Etymology : The species is named after its locality.

Material examined : Holotype : Male, INDIA : Kerala, Thrissur, 15-x-1998, Coll. R. Ushakumari (DZCU).

Discussion : This species comes near *Leptacis maldarensis* Mukerjee in the key to species by Mukerjee (1978). It resembles *L. maldarensis* in having : long second funicular segment of antennae and presence of long hairs on the segments; absence of notauli and presence of long brown scutellar spine. However it differs from *L. maldarensis* in having : marginal fringes of wing being moderately long on the upper and lower margin and much long on the lower portion of apical margin (in *L. maldarensis* marginal hairs long); petiole with longitudinal carina (not indicated in *L. maldarensis*) and small oval shaped anterior pits on second metasomal tergite (not indicated in *L. maldarensis*).

14. *Leptacis coorgensis* Mukerjee

1981. *Leptacis coorgensis* Mukerjee, *Rec. zool. surv. India, Occ. Paper No.*, **27** : 65-67 (ZSI).

Diagnosis : Female : Length 1.00 mm. General body colour dark brown to black; antenna black except for the pale brown scape; scutellar spine light brown. Eyes bare. Antennal formula : 11044. Mesosoma with notauli distinct. Forewing about 2.9x as long as wide; marginal fringe longest seta as long as submarginal vein; metasoma with petiole transverse with a hairy tuft; second tergite longest.

Type locality : India : Karnataka, Coorg, Hudukri.

Remarks : The above diagnosis is from the original description (Courtesy to Mukerjee, 1981).

15. *Leptacis maldarensis* Mukerjee

1981. *Leptacis maldarensis* Mukerjee, *Rec. zool. surv. India, Occ. Paper No.*, **27** : 67-68 (ZSI).

Diagnosis : Male : Length : 1.08 mm. Black; antenna dark brown with scape yellowish brown; legs pale brown with tip of hind tibiae dark brown. Eyes bare; OOL 0.50 of OD, antennal formula 11035. Metasoma with petiole short and with a few hairs on sides. Mesosoma with notauli absent.

Type locality : Karnataka, Malda (Courtesy : Mukerjee 1981).

16. *Leptacis agastmuniae* Mukerjee

1992. *Leptacis agastmuniae* Mukerjee : *Hexapoda*, 4(2) : 175-176, 180 (ZSI?).

Diagnosis : Female : length 0.80 mm. Brownish black to black; antenna pale yellow except for brown clava; scutellar spine yellowish brown; legs yellowish brown. Eyes sparsely pubescent; POL : OOL = 9 : 1; malar sulcus absent.

Type locality : India, Agastmuni (Chamoli) (Courtesy : Mukerjee 1992).

17. *Leptacis indicus* Mukerjee

1978. *Leptacis indicus* Mukerjee : *Mem. School. Ent.*, 5 : 82-84. (ZSI)

Diagnosis : Male : Length : 1.38mm. Black; fore and mid legs yellowish brown; hind leg yellowish brown except for the darker tip of femur, apical 0.45 of tibia and last tarsal segment; metasoma brownish black except for the brown petiole. Eyes bare; OOL about 0.60 of OD; POL about 4x OD; marginal fringe of forewing shorter than OD.

Type locality : India, Maharastra, Poona, Khandala Ghat (Courtesy : Mukerjee 1978).

18. *Leptacis konkanensis* Mukerjee

1978. *Leptacis konkanensis* Mukerjee : *Mem. School. Ent.*, 5 : 84-86. (ZSI)

Diagnosis : Female : Length 1.16 mm. Dark brown; scape light brown; legs brown. Eye bare; OOL about 2.25x OD, POL about 5x OD; antennal formula 11044; scape without laminar expansion; longest marginal fringe of forewing as long as submarginal vein; notauli present.

Type locality : India, Karnataka, Mahabaleshwar (Courtesy : Mukerjee 1978).

19. *Leptacis thanensis* Mukerjee

1978. *Leptacis thanensis* Mukerjee : *Mem. School. Ent.*, 5 : 86-88. (ZSI)

Diagnosis : Female : Length 1.52 mm. Black; antenna brown except for the brownish black clava; scutellar spine brown. Eyes bare; OOL about 60x of OD; POL about 4.30x OD. Forewing with marginal fringe about one-fourth as long as submarginal vein.

Type locality : India, Maharastra, Bombay, Thana Hills (Courtesy to Mukerjee 1978).

20. *Leptasis atturensis* Mukerjee

1981. *Leptasis atturensis* Mukerjee *Rec. zool. Surv. India. Occ. Paper No.*, 27 : 60-62. (ZSI).

Diagnosis : Male : Length 1.20 mm. 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. Eyes finely and sparsely pubescent; POL 5x OD; antennal formula 11035.

Mesosoma with notauli absent. Metasoma with long dense pubescence on petiole laterally. (Courtesy Mukerjee 1981).

Type locality : India, Karnataka, Attur.

21. *Leptacis yercaudensis* Mukerjee

1981. *Leptacis yercaudensis* Mukerjee, *Rec. zool. Surv. India, Occ. Paper No.*, **27** : 69-71 (ZSI)

Diagnosis : Female : Length : 0.88 mm. Dark brown to black; antenna yellowish brown except for the dark brown clava; scutellar spine yellowish brown; legs brownish. Eyes bare, antennal formula 11044; mesosoma with notauli; metasoma with a hairy tuft on petiole.

Type locality : India, Yercaud (Courtesy Mukerjee 1981).

22. *Leptacis brachycerus* Mukerjee

1981. *Leptacis brachycerus* Mukerjee : *Rec. Zool. Surv. India, Occ. Paper No.*, **27** : 64 (ZSI)

Diagnosis : Female : Length 0.92mm. Black; antenna yellowish brown except for the dark club; scutellar spine brown; legs brown except for the dark brown apical part of hind tibia; metasomal petiole brown. Eyes conspicuously pubescent; antennal formula 11044. Mesosoma with notauli absent. Metasoma with petiole short and transverse.

Type locality : India, Karnataka, Appangala (Courtesy : Mukerjee 1981).

23. *Leptacis bengalensis* Mukerjee

1981. *Leptacis bengalensis* Mukerjee : *Rec. zool. Surv.. India, Occ. Paper No.*, **27** : 62-64 (ZSI)

Diagnosis : Male : Length 2.10 mm. Black; antenna brown except for brownish-yellow scape; scutellar spine brown; legs brown except for the black coxae. Eyes bare; antennal formula 11044; mesosoma with notauli present; metasoma smooth with very fine micro-sculpture. Metasoma with petiole short and transverse.

Type locality : India : West Bengal, Poro North (Courtesy Mukerjee 1981).

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