

FIVE NEW SPECIES OF SCIARID GNATS (DIPTERA : SCIARIDAE)
FROM INDIA

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INTRODUCTION

The sciarid gnats are generally looked upon as the "problem children" of the order Diptera for their tiny size and apparently superficial homogeneity. These flies often called dark winged fungus gnats usually prevail around the fungus and other decaying plants and animals. The knowledge of economic importance of the sciarid gnats is incomplete and superficial. According to Steffan (1966) sciarids cause considerable damage to green house plants and mushrooms. Adults are involved in carrying spores of various mushroom diseases (Ware, 1933) and hypopial stages of tyroglyphid mites (Thomas, 1942).

Studies on the Indian sciarid gnats though meagre, owe to Brunetti (1912, 1920) who first, recorded a large number of sciarids. Later, Steffan (1972 a, b) made revision of Oriental sciarids and redescribed some of the Indian species of Brunetti (1920). This paper contributes descriptions of six species under the genera *Epidapus* Haliday, *Lobosciara* Steffan, *Lycoriella* Frey, *Plastosciara* Berg, *Scythropochroa* Enderlein and *Trichosia* Winnertz.

MATERIAL AND METHODS

The sciarids of the present study were collected through operation of light traps in various localities in India. For better understanding, the specimens were mounted on microslides after the techniques of Wirth and Blanton (1959) as modified by Steffan (1966). The gross morphology and body colouration were observed on the insects mounted on paper points and preserved in small shell vials containing 70% alcohol in the laboratory.

The morphological terminologies used in the descriptions of species are based on Steffan (1966, '69) and Alam *et al.*, (1988).

Types and other material are at present kept with the senior author and will be deposited to the National Zoological Collections, Calcutta ; USNM Washington. The Natural History Museum, London and Bishop Museum, Honolulu in due course.

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SYSTEMATIC ACCOUNT

1. *Epidapus nullusanalis* Alam & Das Gupta, n. sp.

(Figs. 1 A-F)

Male :

Head—Dark brown, subglobular. Length 0.24 (0.23–0.25, n=3) mm, Interfacetal hairs short and sparse, barely extending beyond outer curvature of facets. Eye bridge (Fig. 1A) moderately broad and contiguous, 2 facets long at junction. Median ocellus

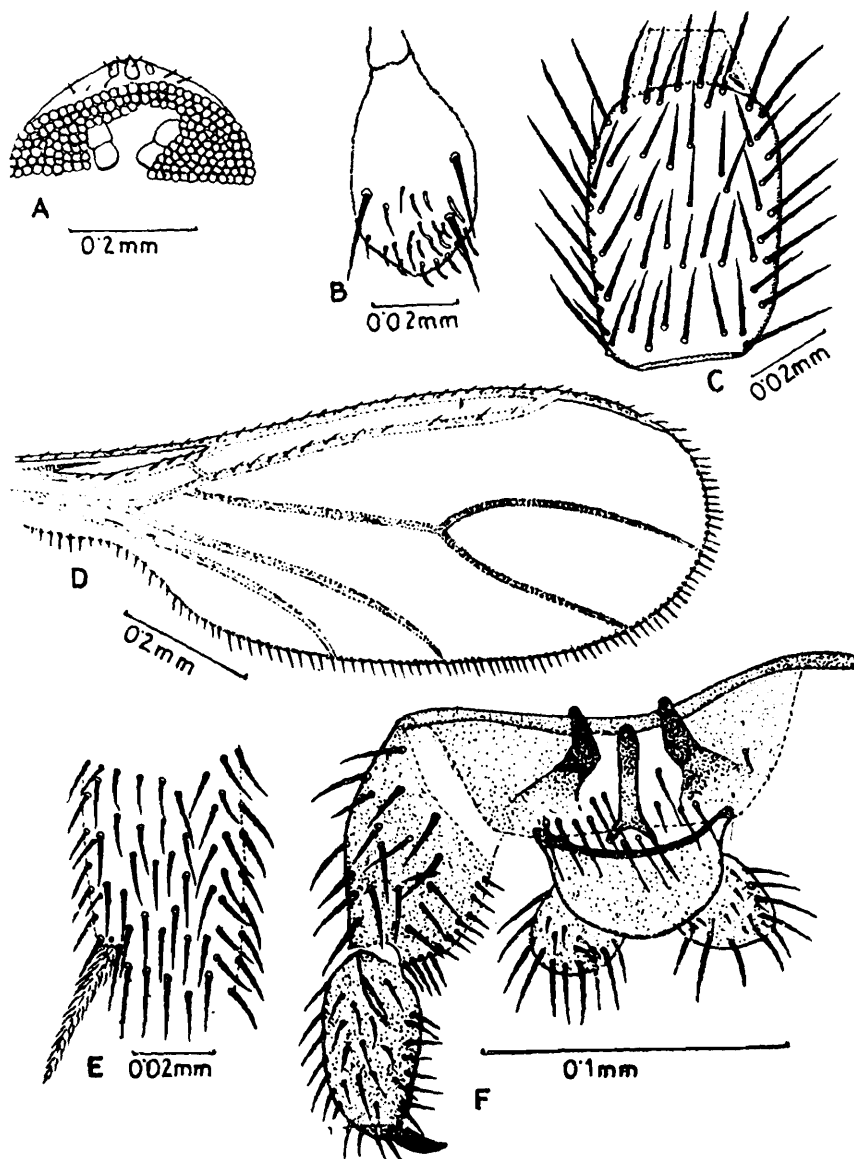


FIG. 1

Fig. 1A—F. *Epidapus nullusanalis* Alam & Das Gupta, n. sp. : A, eye bridge ; B, palpus, C, flagellomere 4 ; D, wing ; E, tibial comb and F. terminalia.

separated from eye bridge by about 1/2 width of ocellus, lateral ocelli little farther. Anterior vertex $0.18\times$ length of head with 10-12 strong setae, posterior vertexal setae numerous and subequal to anterior vertexal setae. Prefrons with a median patch of

5-7 strong setae. Clypeus bare. Labrum short, triangular. Proboscis and labellum reduced. Palpus (Fig. 1 B) light brown, 1 segmented and ovoid with 3 strong setae and numerous large hyaline sensillae on dorsum. Antenna brown. Scape slightly broader in diameter than pedicel with 1 transverse row of 7 median setae; pedicel with 1 row of shorter setae on distal 1/2 relatively longer and narrower; neck distinct; flagellar hairs almost straight about 2/3 width of flagellomeres; flagellomere 4 (Fig. 1 C) 0.05 (0.04-0.05, n=3)mm. long about 1.6× longer than wide; neck well developed about 1/3 length of flagellar joint.

Thorax—Brown. Acrostichals moderately developed and restricted to anterior 1/3 of scutum; dorsocentrals subequal to acrostichals and extending the entire length of scutum; supraalars strong, about 2× length of dorsocentrals. Scutellum with 2 long setae at posterior margin and several weak lateral setae scattered above the longer ones. Posterior pronotum with 3-4 short setae; anterior pronotum with 5 well developed setae. Proepimeron broadly triangular, posterior epimeron of mesothorax about 1.8× longer than wide. Metanotal apodeme short, inflated distally.

Wing (Fig. 1D)—Brown, numerous dark microtrichia over the entire wing surface and many fine pale setae at posterior margin. Length 1.07 (1.05–1.09, n=3) mm; breadth 0.4 (0.39–0.42, n=3) mm; Costa, R₁ R₄₊₅ with microtrichia posterior veins bare; R₁ very short, joining costa considerably proximad of the base of M fork; M fork symmetrical but M₁ slightly arcuate near base; stem of CuA absent, CuA₁ arising from the basal point of bM distad of the base of CuA₂; anal veins totally absent. RM index 5.12 (5.0–5.25, n=3), CM 0.51 (0.5–0.52, n=3). Haltere light brown and club-shaped, setae restricted on the knob and disposed in a single uneven row.

Legs—Coxa and femur yellowish, remainder of segments yellowish brown. Fore leg: length of femur 0.28 mm; tibia 0.31 mm; basitarsomere 0.12 mm; 2nd tarsomere 0.06 mm. Hind leg: femur 0.33 mm; tibia 0.35 mm; basitarsomere 0.15 mm; 2nd tarsomere 0.08 mm. Fore tibial setae subequal; tibial comb (Fig. 1E) without differentiated setae. Mid tibial setae also undifferentiated but hind tibial setae differentiated by slightly enlarged posterodorsals and few apicals. Tibial spurs 1 : 2 : 2, hind tibial spurs subequal in length to the diameter of tibial apex. Tarsal claws simple.

Abdomen—Tergum dark brown with moderately developed, sparse setae; sternum brownish, setae subequal to tergal setae; Sternum VIII with 1 posterior row of setae.

Terminalia (Fig. 1F)—tergum IX broad and quadrate with several long setae along the posterior margin, remainder of the surface bare. Dorsal apodeme highly developed, thumb-like, with dark sclerotization and extending to anterior margin of genital cavity. Ejaculatory apodeme long, rod-like, with 'V' shaped short fork. Aedeagus (Fig. 1F) with thin basal margin which is densely sclerotized, moderately to lightly

over remainder of surface. Tergum X bilobed, lobes somewhat rounded apically with long apical setae distinct from other short setae scattered over entire surface. Gonocoxites broadly joined, simple, and with scattered setae—those along dorsomesal surface short, weak and more in number; mesoapical setae poorly developed. Gonostylus oblong, clothed with numerous strong setae and with dark strong terminal spur; gonostylus about $0.7\times$ length of gonocoxite and $1.86\times$ longer than wide.

Female: Unknown.

Etymology: The name derives from the absence of anal vein of the wing.

Specimen examined: Holotype male (Type No. Ent. Ep 1 PCZM), Mazaffarpur, 16. V. 1983. Coll. S. K. Dasgupta. Paratypes: 4 males with data same as type.

Comments: This new species is very similar in general appearance to *F. johannseni* Shaw (1941) reported from North America but it is distinctly separated by the following chief characteristics: eye bridge with 2 facets long at junction, labellum greatly reduced, flagellomere 4 relatively wider, RM index (5.12) much higher, stem of CuA vein totally absent, anal veins invisible, greatly developed dorsal, and ejaculatory apodeme with short 'V' shaped terminal fork.

2. *Lobosciara spinipennis* (Sasakawa)

1962. *Bradysia spinipennis* Sasakawa 2: 130.

Specimens examined: 2 males, Simla, 2. IV. 1975; Coll. S. Alam; 2 males from Kalimpong, 26. V. 1978, 27. V. 1978 and 29. V. 1978, Coll. P. K. Chaudhuri.

Comments: The Indian forms of *L. spinipennis* (Sasakawa) studied now are almost identical to their counterparts described from Micronesia and Thailand except for few less setae on 1st and 2nd palpal segment and indistinct apical hook of ejaculatory apodeme.

3. *Lycoriella crassisetosa* Alam & Dasgupta, n.sp.

(Figs. 2. A-F)

Male:

Head—Brownish black, ovoid, and 0.43 (0.42–0.44, $n=3$) mm. long. Interfacetal hairs as frequent as facets, extending at least 1 facet width beyond outer curvature of facets. Eye bridge (Fig. 2A) strikingly broad and contiguous, 4 facets long at junction, 5 facets elsewhere. Ocelli subequal, median ocellus with 2 strong bristles and separated from eye bridge by about width of ocellus. Anterior vertex with well developed scattered setae, $0.22\times$ length of head; posterior vertexal setae more in number, subequal to anterior vertexal setae. Prefrons with radially arranged 22–25 setae. Clypeus with 2 dorsomedian and 1 ventral setae. Labrum narrowly triangular, $1/5$ length of head. Proboscis well developed, $0.3\times$ length of head and subequal to the total width of labellar lobes. Palpus (Fig. 2B)—light brown, 3 segmented; PP. 31 : 23 : 31; segment

1 club-shaped with numerous hyaline sensillae disposed in a distinct oval sensory pit, distal 1/2 with 6 dorsal setae ; segment 2 about 2/3 length of segment 1, with 6-7 setae ; segment 3 elongate, subequal to segment 1 but narrower with 9 setae of which 6 dorsolateral, 1 ventral, and 2 apicals. Antenna dark brown at proximal 2/3, yellowish brown at distal 1/3. Scape globose, broader in diameter than pedicel with 2 rows of

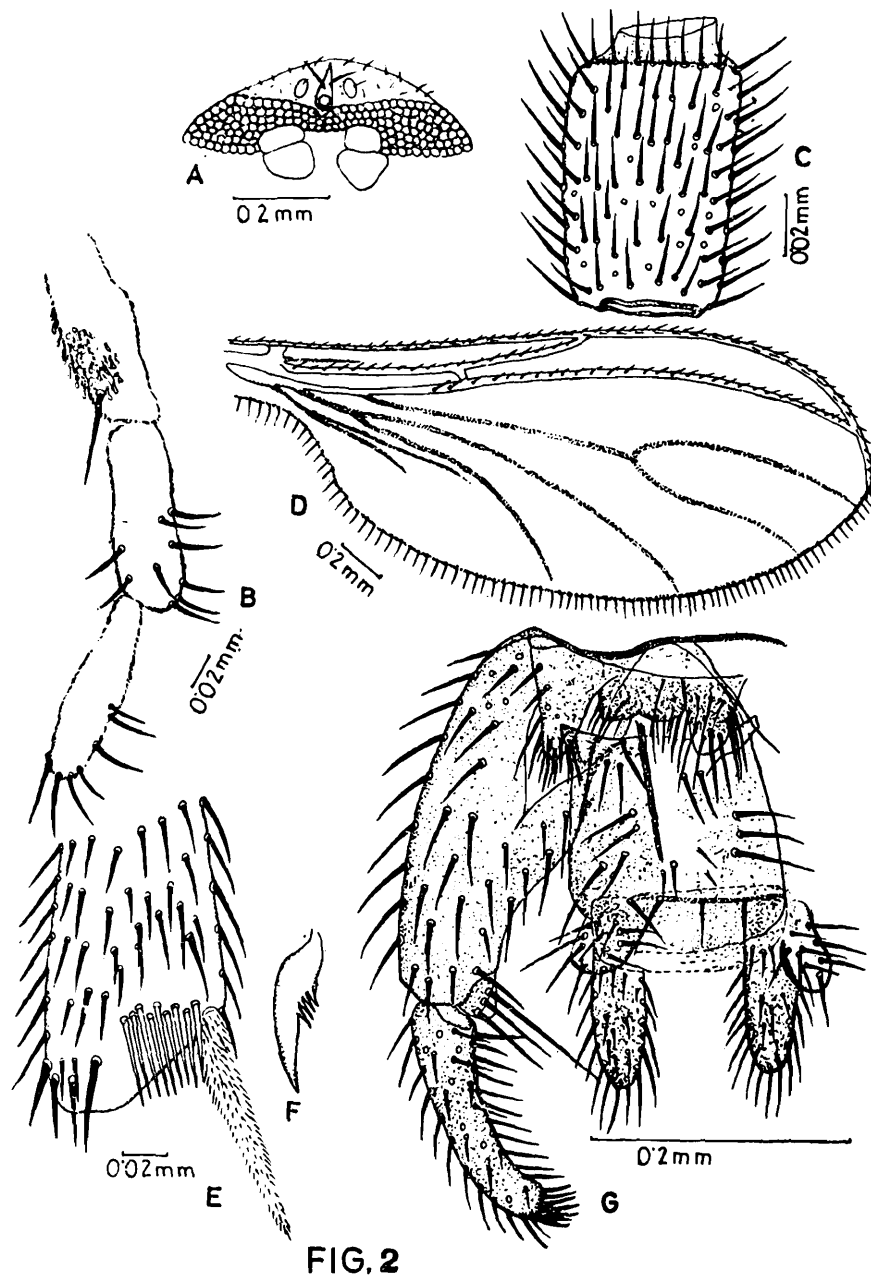


FIG. 2

Fig. 2A—F. *Lycoriella crassisetosa* Alam & Das Gupta, n. sp. : A, eye bridge ; B, palpus, C, flagellomere 4 ; D, wing ; E, tibial comb and F, terminalia.

5-6 moderately developed setae ; pedicel with 9 strong setae scattered on distal 1/2. Flagellomeres elongate and darkly sclerotized with densely arranged setae, flagellar neck short ; flagellomere 4 (Fig. 2 C) 0.17 (0.15–0.18, n=3) mm. long, about 2.4×width ; neck 0.18×length of flagellar joint ; flagellar hairs pale and short, about 1/3 diameter of flagellomeres.

Thorax—Orange brown. Acrostichals weak, irregularly biserial, restricted along 1/3 of scutum; dorsocentrals anteriorly subequal to acrostichals, posteriorly longer setae; supraalars with short and long setae, longest one about 2.5×longest dorsocentral. Scutellum with 4 long subapical and 6-8 medium-sized scattered setae. Posterior pronotum bare; anterior pronotum with 6 setae. Proepisternum with 7-9 scattered setae subequal to apn. setae. Proepimeron moderately developed; posterior mesoepimeron elongate, 2.3×longer than wide.

Wing (Fig. 2D)—Brownish, clothed with dark brown microtrichia and numerous fine setae along posterior margin. Length 2.81 (2.75–2.9, n=3) mm. breadth 0.91 (0.9–0.92, n=3) mm. Costa, R₁, R₄₊₅ with macrotrichia, posterior veins bare; R₁ joining costa a little before base of M fork which is symmetrical; M₁ slightly arcuate near base; stem of M and anal vein evanescent. RM index 1.72 (1.64–1.8, n=3), CM 0.65 (0.64–0.67, n=3), RM/bM 0.97 (0.88–1.02, n=3), st CuA/bM 0.28 (0.27–0.31, n=3). Haltere yellowish brown, knob with 1 row of 10-12 dorsal setae.

Legs—Coxa and femur bright, brownish yellow, other segments light brown. Fore leg: length of femur 0.67 mm; tibia 0.84 mm; basitarsomere 0.47 mm; 2nd tarsomere 0.22 mm. Hind leg: femur 0.92 mm; tibia 1.13 mm; basitarsomere 0.58 mm; 2nd tarsomere 0.23 mm. Fore tibial setae undifferentiated except for 4 slightly enlarged preapicals; fore tibial comb (Fig. 2E) with an ovoid patch of dense setae, set in a shallow pit. Mid tibial setae largely subequal except for 6 stout and dark preapicals. Hind tibia with differentiated posterodorsal along distal 2/3, few scattered and little enlarged dorsal and apex with unilateral row of 16-18 dark stout setae. Tibial spurs: fore tibia with 1, mid tibia with 2 unequal, and hind tibia with 2 subequal spurs; hind tibial spurs short, 0.85×longer than diameter of tibial apex. Tarsal claws simple.

Abdomen—Dusky brown; tergal setae short, sparse and subequal to sternal setae; sternum VIII with 1 row of setae along the apical margin. Terminalia (Fig. 2F)—Tergum IX trapezoidal and longer than wide, with moderate-sized scattered setae and distal margin with 6 long setae. Dorsal apodeme darkly sclerotized, proximally somewhat flattened, extending about 1/2 way into genital cavity. Ejaculatory apodeme long and strongly sclerotized with broad apical fork. Aedeagus (Fig. 2F) sub conical, basal margin dark, rest of the surface with moderate sclerotization. Tergum X bilobed, squared to slightly rounded at apex, clothed with minute setae and posteriorly several enlarged setae. Gonocoxites narrowly joined ventrally with scattered moderately developed setae; mesal surface with weak short and dense; mesoapically a long whip-like seta extending posteriorly about 2/3 length of gonostylus. Gonostylus elongate, terminating in a dark strong apical spur encircled by 3 apicomesal and 3 subapical spines; 2 whip-like mesal setae proximad of apicomesal spines; gonostylus about 2.7× longer than wide and 0.69×length of gonocoxite.

Female: Unknown.

Etymology : The name "crassisetosa" denotes the densely distributed setae in the flagellomere.

Specimens examined : Holotype male (Type No. Ent Ly I PCZM), Darjeeling, 20.XI. 1978. Coll. S. Alam. Paratypes : 3 males with data same as type.

Comments : The new species appears to be very similar to *L. caeser* (Johannsen) reported from Canada and South Georgia Is. and also to *L. agarici* Loudon (1978) described from New South Wales (Australia). However, it differs from the two in the following characteristics : flagellomere 4 darkly sclerotized and densely setigerous ; flagellar hairs distinctly shorter than the width of flagellomeres ; wing elongate and larger ; RM index lower (1.72), value of st CuA/bM less than 0.3, and a differently shaped gonostylus.

4. *Plastosciara alia* Alam & Dasgupta, n. sp. (Figs. 3 A-F)

Male :

Head—Brown, sub-globular, and 0.41 (0.39–0.42, n=3) mm. long. Interfacetal hairs sparse, generally shorter, barely extending beyond outer curvature of facets. Eye bridge (Fig. 3 A) contiguous and broad, 4 facets long at junction, some places 5 facets long. Median ocellus almost touching edge of eye bridge, lateral ocelli a little farther. Anterior vertex 1/6 length of head with few scattered shorter setae ; posterior vertexal setae strong and numerous. Prefrons narrow with 3-4 strong ventral setae. Clypeus bare. Labrum moderately developed, apex somewhat blunt. Proboscis relatively smaller. Labellum moderately developed. Palpus (Fig. 3 B) brown, 2-segmented ; segment 1 slightly swollen at distal 1/2 with numerous dorsal and lateral hyaline sensillae, 4 dorsolateral strong and long setae ; segment 2 ovoid, slightly shorter than 1, with 1 apical and 4 dorsolateral setae which are about 1/2 length of setae of the 1st segment. Antenna brownish yellow. Scape subequal to slightly broader in diameter than pedicel with 1 median transverse row of strong setae ; pedicel with scattered 6-8 moderately developed setae. Flagellomeres sub equal, long and with very short neck ; 4th flagellomere (Fig. 3, C) 0.09 (0.09-0.11, n=3) mm. long about 2.28× longer than wide ; neck about 1/6 length of flagellar joint ; flagellar hairs about 0.7× diameter of flagellomeres.

Thorax : Dark brown. Acrostichals weakly developed, extending slightly beyond posterior 1/2 of scutum ; dorsocentrals moderately developed ; supraalars very long. Scutellum well developed with 4-5 long posterior and 7-8 moderately developed median setae. Posterior pronotum bare ; anterior pronotum with 3 strong posterior setae. Proepisternum with 12 scattered setae subequal to apn. setae. Posterior epimeron of mesothorax well developed, about 1.5× longer than wide. Metanotal apodeme broad.

Wing: (Fig. 3 D)—Brown, entire wing surface clothed with microtrichia; posterior margin with numerous fine setae. *Length*: 3.08 (2.85-3.35, $n=3$) mm; *breadth* 1.16 (1.15-1.2, $n=3$) mm. *Costa*, R_1 , R_{4+5} , and distal 2/3 of *RM* with macrotrichia, other veins bare; *ST M* evanescent; *M* fork symmetrical. *RM* index 0.75 (0.73-0.78, $n=3$), *CM* 0.63 (0.59-0.68, $n=3$), *RM/bM* 1.32 (1.28-1.35, $n=3$), at *CuA/bM* 0.65 (0.64-0.67, $n=3$). Haltere yellowish brown, stem elongated, knob with 1 irregular row of dorsal setae.

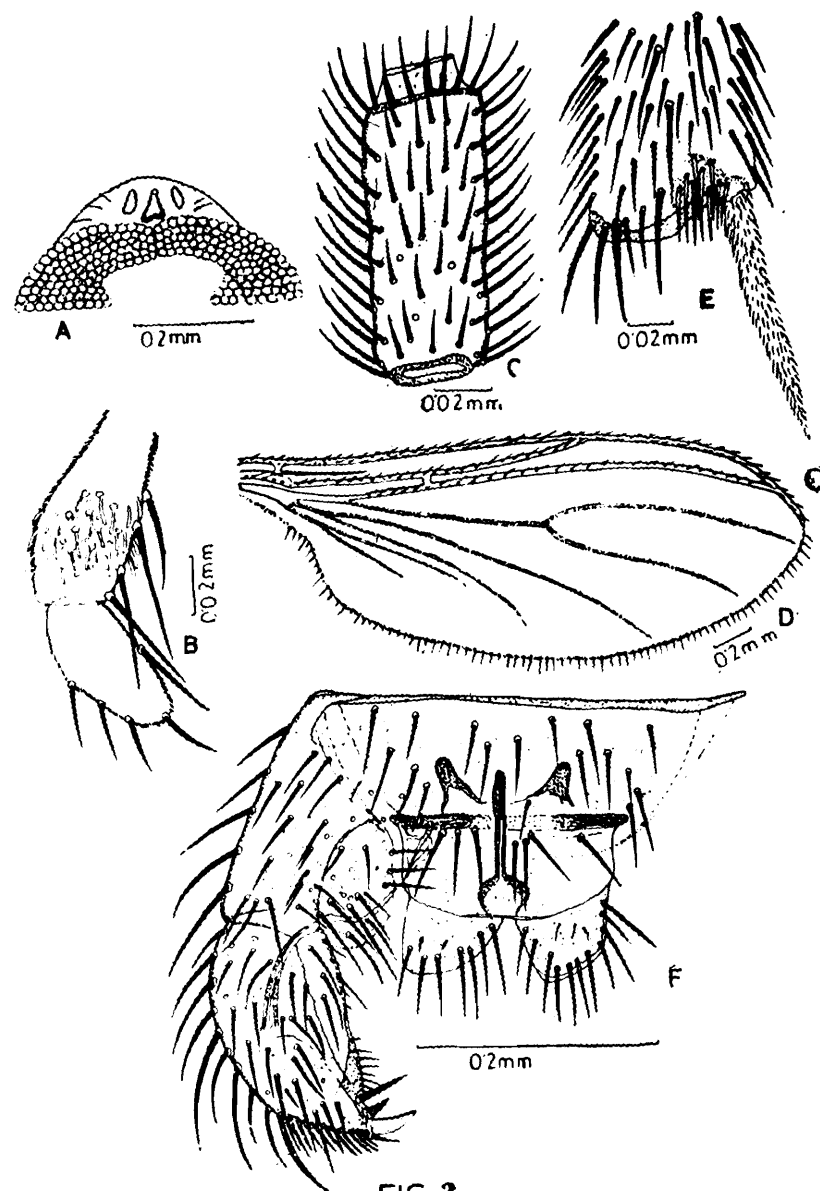


FIG. 3

Fig. 3A—F. *Plastosciara alia* Alam & Das Gupta, n. sp.: A, eye bridge; B, palpus; C, flagellomere 4; D, wing; E, tibial comb and F, terminalia.

Legs: Coxa and femur yellowish, rest of the segments dark brown. Fore leg: length of femur: 0.8 mm; tibia 1.32 mm; basitarsomere 1.0; 2nd tarsomere 0.39 mm. Hind leg: femur 1.36 mm; tibia 1.88 mm; basitarsomere 0.85 mm; 2nd tarsomere 0.36 mm. Fore tibia with 3 distinctly enlarged dorsal and 4 stout pre-apical setae; fore tibial comb (Fig. 3E) composed of an ovoid patch of slightly differentiated setae

contiguous with other tibial setae. Mid tibia with several enlarged posterodorsal and dorsal setae, apex with 6 strong setae. Hind tibia with several enlarged posterodorsal along distal 1/3, slightly enlarged dorsal and posterior setae, apex with 6 enlarged setae. Tibial spurs 1 : 2 : 2 ; hind tibial spurs about $2.33\times$ longer than diameter of tibial apex. Tarsal claws simple.

Abdomen—Brownish yellow ; tergal setae strong subequal to sternal setae.

Terminalia (Fig. 3F)—Tergum IX broadly semicircular with scattered long setae. Dorsal apodeme short and broad, inflated proximally, well sclerotized anteriorly, extending about 3/4 way into genital cavity. Ejaculatory apodeme long and narrow, moderately sclerotized, apical fork distinct. Aedeagus (Fig. 3 F) densely sclerotized along basolateral corners, lightly sclerotized on remainder. Tergum X bilobed, lobes slightly squared at apex, densely setigerous, several long setae along the apical margins. Gonocoxites broadly joined ventrally with triangular mid ventral lobe, clothed with many strong setae ; mesoapical setae slightly differentiated from other setae. Gonostylus acuminate distally with strong apical spur surrounded by 2-3 spines, outer margin with long and strong setae, rest of the surface clothed with moderately developed setae ; gonostylus about $1.84\times$ longer than wide and $1.05\times$ length of gonocoxite.

Female : Unknown.

Etymology : The name "*alia*" comes from characters of different nature.

Specimen examined : Holotype male (Type No. *Ent Pl. I. PCZM*), Darjeeling 15. VI. 1983. Coll. P. K. Chaudhuri. Paratypes : 4 males, North Bengal University campus, 4.V. 1981, Coll. S. K. Dasgupta.

Comments : This new species is separated from all other known species of *Plastosciara* by the following distinct features : RM index less than 1.0, basitarsomere of fore leg longer than fore femur, fore tibial comb ovoid with dense setae and differentiated from general tibial vestiture, hind tibial spurs distinctly longer than width of tibial apex, armature of gonostylus unique in having strong apical spur surrounded by fine spines.

5. *Scythropochroa subovopalpi* Alam & DasGupta, n. sp.

(Figs. 4 A-F)

Male :

Head—Black, subglobular. Length 0.42 (0.37–0.46, n=14) mm. Interfacetal hairs short and sparse, extending about 1/2 x height of facet. Eye bridge (Fig. 4A) moderately contiguous with 2 facets long at junction, becoming 3 facets long on next lateral row, facetal rows irregular. Ocelli subequal and equidistant from eye bridge by about 1/3 width of ocellus, median ocellus with 3-4 strong bristles. Anterior vertex apparently bare, 1/5 length of head ; posterior vertex with strong scattered setae. Prefrons with a

central patch of 12-16 strong setae. Clypeus bare. Labrum short, about $\frac{1}{8}$ length of head. Proboscis and labellum reduced. Palpus (Fig. 4B) 1-segmented, almost oval, about 2.5 x longer than wide; posterior $\frac{1}{2}$ darkly sclerotized with numerous dorsal hyaline sensillae and 3-4 dorsolateral, 2 subapical, and 1-2 short anterior setae. Antenna blackish brown. Scape broader and slightly longer than pedicel with 10 strong setae arranged in irregular double rows at dorsomedian region; pedicel globose

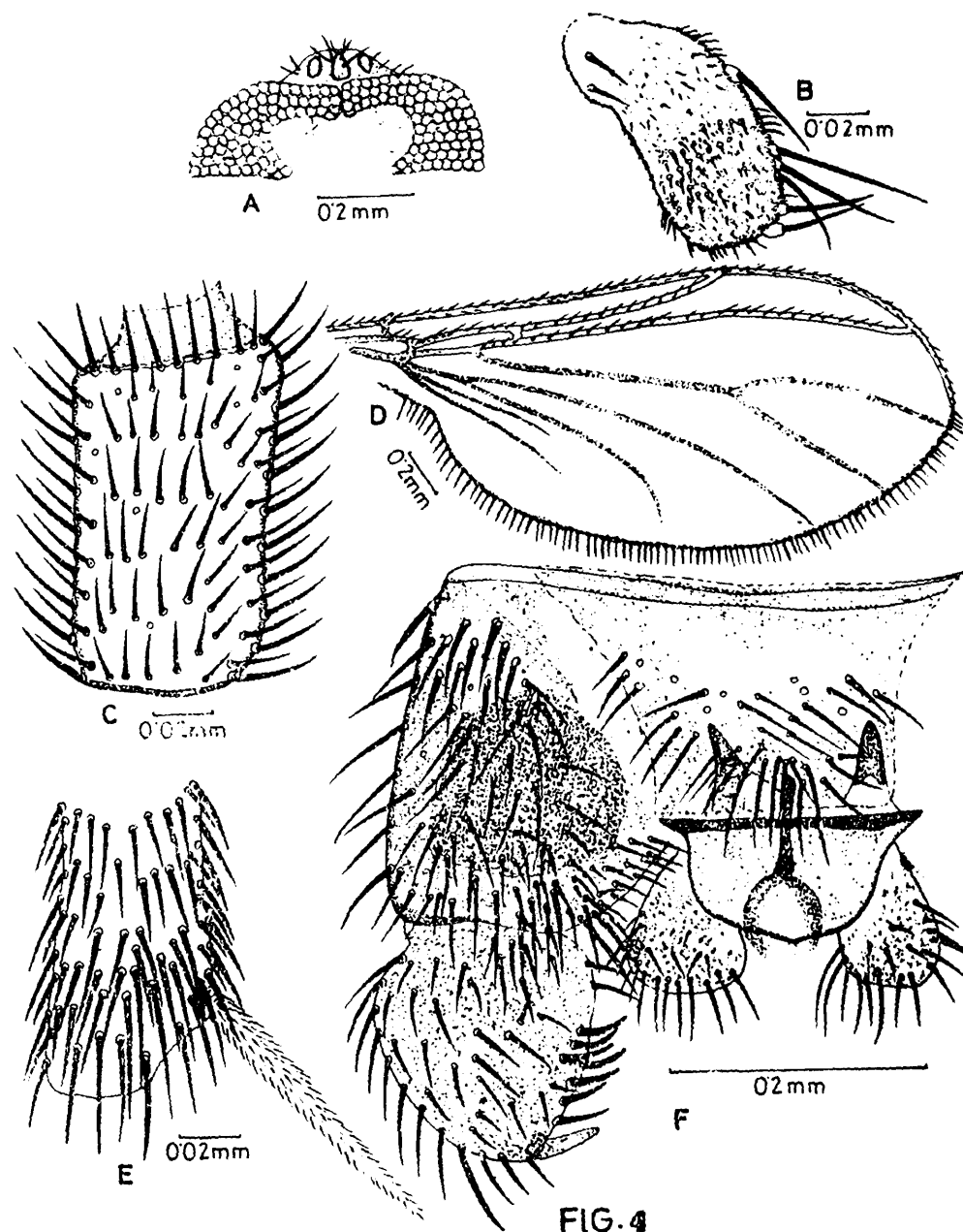


Fig. 4A—F. *Scythropochroa subovopalpi* Alam & Das Gupta, n. sp.: A, eye bridge; B, palpus; C, flagellomere 4; D, wing; E, tibial comb and F, terminalia.

with 6 shorter setae arranged in a single row. Flagellomeres moderately long, apical segments narrower and longer; flageller necks distinct; flagellar hairs about 0.6 x of flagellomeres; 4th flagellomere (Fig. 4C) 0.1 (0.09–0.12, n=14) mm. long, about diameter 1.78 x longer than wide; neck 0.19 x length of flagellar joint.

Thorax—Blackish brown. Acrostichals moderately developed, restricted along 1/4 or slightly more of scutum; dorsocentrals well developed, posterior setae slightly longer; supraalars strong, longest one about 1.5 x largest dorsocentral. Scutellum well developed with 5-6 long setae posteriorly and 19-22 weak scattered setae ahead of longer ones. Posterior pronotum with 4 setae; anterior pronotum with 7-8 posterior setae. Proepisternum with 9 strong median setae. Proepimeron well developed; posterior epimeron of mesothorax broad, about 0.95 x longer than wide.

Wing (Fig. 4D)—Dark brown. Length 2.27 (2.1-2.4, n=14) mm; breadth 1.11 (1.0-1.22, n=14) mm. Entire wing surface clothed with microtrichia and posterior margin with numerous fine setae. Costa, R₁, R₄₊₅ and RM with macrotrichia, other veins bare; R₁ joining costs opposite or slightly beyond the base of M fork. M fork symmetrical; all the veins distinct. RM index 1.04 (1.0-1.13, n=14), CM 0.73 (0.7-0.78, n=14), RM/bM 0.89 (0.78-1.08, n=14), St CuA/bM 1.02 (0.78-1.25, n=14). Haltere brown; mid-halteres subequal to slightly longer than haltere knob with 2-3 rows of dorsal setae disposed irregularly on the knob.

Legs—Coxa and femur brownish yellow, tibia and tarsal segments deep brown. Fore leg: length of femur 0.69 mm; tibia 1.07 mm; basitarsomere 0.58 mm, 2nd tarsomere 0.22 mm. Hind leg: femur 0.91 mm; tibia 1.28 mm; basitarsomere 0.58 mm; 2nd tarsomere 0.22 mm. Setae of fore and mid tibia largely subequal; fore tibial comb (Fig. 4E) composed of a large patch of slightly enlarged dark setae not separated from tibial vestiture by any bare area. Hind tibia with slightly enlarged posterodorsal setae along distal 1/2; apex with 6 enlarged setae. Tibial spurs 1 : 2 : 2; hind tibial spurs about 1.55 x longer than diameter of tibial apex. Tarsal claws simple.

Abdomen—Brownish black; tergal setae strong, evenly distributed; sternal setae subequal to slightly shorter than tergal setae; sternum VIII with 2-3 rows of posterior setae.

Terminalia (Fig. 4F)—Tergum IX almost quadrate with numerous strong setae at posterior 1/2. Tergum X bilobed, rounded to squared at apex, apical margin with several long setae distinct from other short setae. Dorsal apodeme moderately developed, distal 2/3 strongly sclerotized, little inflated proximally, extending about 1/2 or slightly less in way of genital cavity. Ejaculatory apodeme long rod-like, apical fork distinct 'U' shaped. Aedegus (Fig. 4F) a densely sclerotized along basal margin, lightly on remainder. Gonocoxites broadly joined ventrally with broad oval darkly sclerotized areas, entire surface clothed with strong dense setae; setae along dorsomesal surface more in number but short; mesoapical setae undifferentiated from nearby setae. Gonostylus subglobular clothed with numerous strong setae, terminating in a strong spur and a group of 7-9 inwardly directed mesal spines; gonostylus about 1.25 x longer than wide and 0.75 x length of gonocoxite.

Female : Unknown.

Etymology : The name "*subovopalpi*" is derived from the nearly oval palpus.

Specimen examined : Holotype male (Type No. *Ent Scy I PCZM*), Ranchi, 12. VIII. 1967. Coll. S. K. DasGupta. Paratypes ; 5 males, Raniganj, 8. V. 1967 ; 4 males, Belpahari, 27. V. 1981, 28. V. 1981. Coll. P. K. Chaudhuri ; 4 males, Burdwan town, 17-18. VIII. 1979, Coll. P. K. Chaudhuri.

Comments : The present species is distinctly separated from other known Oriental and Micronesian species by almost-egg shaped palpus with different setal arrangements, RM index above 1.0, gonocoxites with darkly sclerotized areas, broader gonostylus with strong apical spur along with 7 or more recurved spines.

6. *Trichosia dolioflagellomera* Alam & DasGupta, n. sp.

(Figs. 5 A—K)

Male :

Head—Yellowish brown, subglobular to ovoid, and 0.43 mm. long. Interfacetal hairs sparse and short, rarely extending beyond outer curvature of facets. Eye bridge (Fig. 5A) broadly contiguous, 1-2 facets long at junction, rest of the eye bridge with 3 facets long, rows irregular. Median ocellus with 2 strong bristles separated from eye bridge by 1/2 width of ocellus, lateral ocelli slightly ahead. Anterior vertex 0.23x length of head with 7 short median and 8-9 moderately developed scattered setae ; posterior vertex with strong scattered setae. Prefrons with 18-21 scattered setae. Clypeus with 4 setae. Labrum subtriangular, 1/5 length of head. Proboscis about 0.3x length of head and subequal to the width of labellar lobes. Palpus (Fig. 5B) yellowish, 3-segmented. PP. 33 : 24 : 35 ; segment 1 slightly swollen medially with a patch of numerous dorsal hyaline sensillae and 10 setae ; segment 2 short, 0.65x length of segment 1, with 9 setae on distal 2/3 ; segment 3 elongate, little swollen at the region of distal 1/3, subequal to slightly longer than 1st segment, with 7 setae on distal 1/2. Antenna yellowish brown. Scape broader than pedicel with 1 row of 5 long median setae ; pedicel with 1 transverse row of 5-6 weaker setae, Flagellomeres cask shaped with indistinct neck ; flagellar hairs slightly shorter in length than the diameter of flagellomeres ; 4th flagellomere (Fig. 5C) 0.14 mm. long, 2.2x longer than wide.

Thorax—Yellowish brown with dark brown scutellum. Acrostichals moderately developed and disposed along anterior 3/4 ; dorsocentrals about 2x length of acrostichals ; supraalars slightly longer than dorsocentrals. Scutellum with 1 row of strong setae posteriorly and remainder of surface with weak scattered setae. Posterior pronotum with 5 setae ; anterior pronotum with 4-6 setae. Proepimeron 2 times longer than wide, posterior apex blunt ; anterior mesoepimeron slightly concave.

Wing (Fig. 5D)—Yellowish brown ; 2.0 mm long and 0.82 mm. wide ; entire wing membrane with densely arranged microtrichia and numerous scattered macrotrichia. Costa, R₁, R₄₊₅, stM. M₁ & M₂, CuA₁ & CuA₂ with macrotrichia ; M fork

symmetrical ; stM evanescent. RM index 0.94, CM 71, RM/bM 1.0 st CuA/bM 0.33. Haltere dark brown with club-shaped knob possessing 3 rows of dorsal setae.

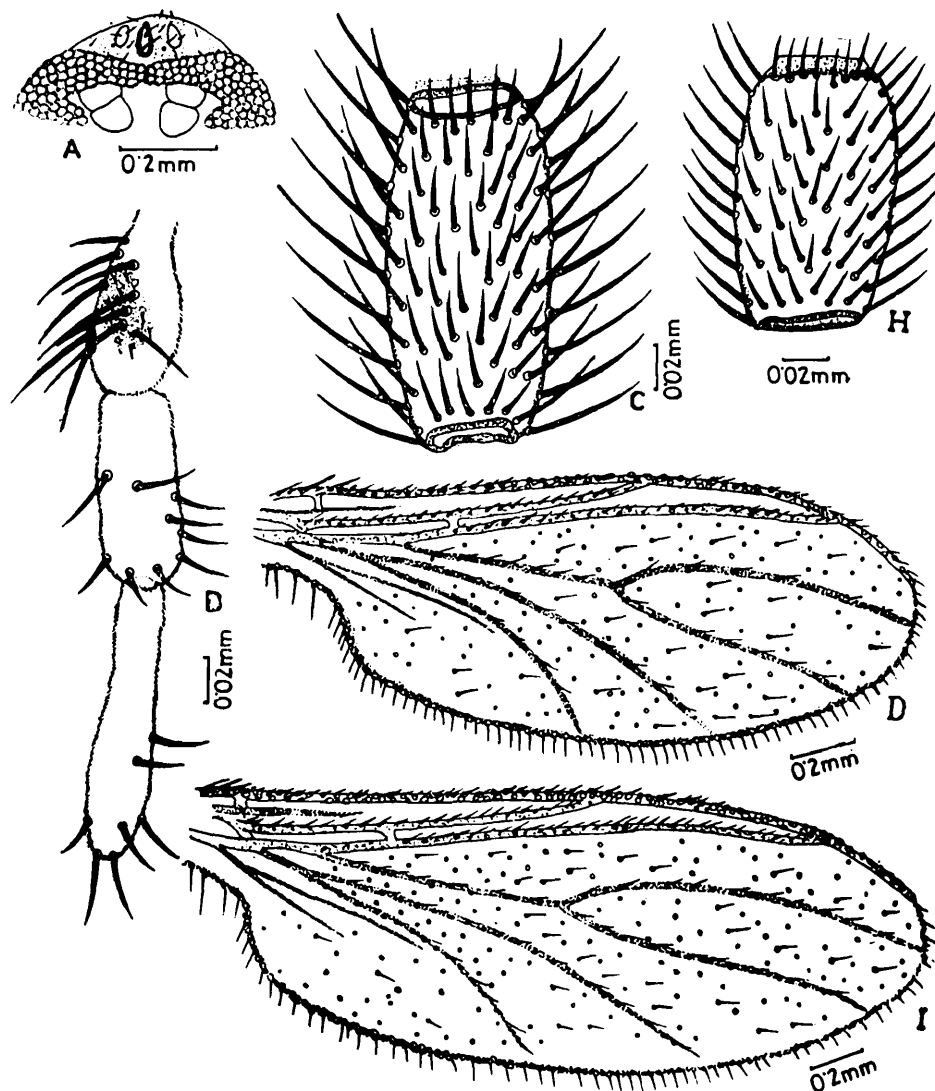


FIG. 5

Figs. 5A, B, C, D, H, I : *Trichosia dolioflagellomera* Alam & Das Gupta, n. sp. : A, eye bridge ; B, palpus ; C, flagellomere 4 ; D, wing ; H, flagellomere 4 ; I, wing.

Legs : Coxa and femur pale yellow, other segments hellowish brown. Fore leg : length of femur 0.6 mm ; tibia 0.86 mm ; basitarsomere 0.48 mm ; 2nd tarsomere 0.2 mm. Hind leg : femur 0.85 mm ; tibia 1.26 mm ; basitarsomere 0.53 mm ; 2nd tarsomere 0.22 mm. Fore tibia with few strong differentiated dorsal setae ; tibial comb (Fig. 5 E) with a patch of strong dark setae, not distinctly separated from general tibial vestiture ; 4 stout setae preapically. Mid tibia with differentiated dorsal, posterodorsal, ventral, and 8 preapical setae. Hind tibia with enlarged posterodorsal along median 1/2, scattered dorsal, ventral, and a row of strong preapical setae. Tibial spurs 1 : 2 : 2 ; hind tibial spurs 1.67 x longer than diameter of tibial apex. Tarsal claws simple.

Abdomen : Tergum brownish yellow with strong setae ; sternum pale yellow with weaker setae. *Terminalia* (Fig. 5 F)—Tergum IX trapezoidal with numerous long scattered setae. Dorsal apodeme well developed and thumb-like with moderate sclerotization, extending more than 1/2 way into genital cavity. Ejaculatory apodeme narrowed with broad apical fork. Aedeagus (Fig. 5 G) subtriangular and well sclerotized,

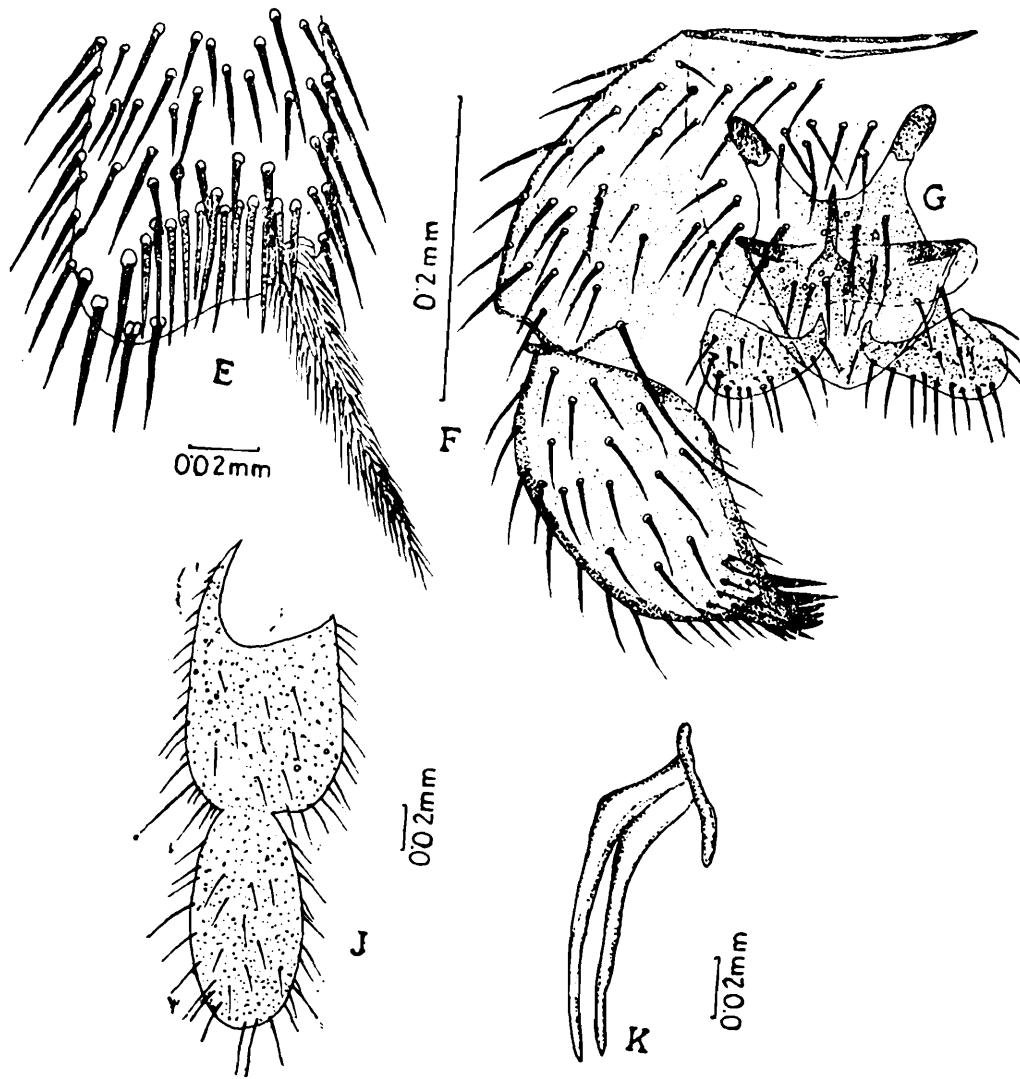


FIG. 5

Figs. 5E, F, G, J, K : E, tibial comb ; F, terminalia ; G, aedeagus of male ; J, cerci and K, vaginal furca of female.

dark at basal corners. Tergum X bilobed with long apical setae separated from other short setae. Gonocoxite simple with scattered setae ; 1 long whip-like seta to each gonocoxite, about 2/3 x length of gonostylus. Gonostylus cuneate ; apex with a patch of short spines separated from 2 long, stout spines mesoapically ; gonostylus 1.92 x longer than wide and 0.96 x length of gonocoxite.

Female :

Head—Blackish brown ; 0.47 (0.46-0.48 n=4) mm. long. Proboscis slightly longer than male. Flagellomere 4 (Fig. 5 H) about 0.7 x length of male, slightly

narrower. Palpus : PP. 45 : 33 : 47 ; segment 1 with 10, 2 with 12, and 3 with 10-13 setae.

Wing : (Fig. 5 I) greater than male ; length 2.77 (2.5-2.95, n=4) mm ; breadth 1.07 (0.98-1.12, n=4) mm ; macro and microtrichial distribution on the wing surface and veins strikingly similar to that of male. RM index 0.89 (0.82-0.94, n=4), CM as male, RM/bM 1.12(1.0-1.25 n=4), stCuA/bM 0.34 (0.33-0.35, n=4).

Legs—Fore leg : femur 0.79 mm ; tibia 1.08 mm ; basitarsomere 0.64 mm ; 2nd tarsomere 0.25 mm ; Hind leg : femur 1.11 mm ; tibia 1.64 mm ; basitarsomere 0.75 mm ; 2nd tarsomere 0.28 mm. Fore tibial comb similar to male. Hind tibial spurs about 2 x longer than the diameter of tibial apex.

Abdomen : relatively longer than male. Terminalia : (Fig. 5 J) about 4 x length of hypogynal valves. Vaginal furca (Fig. 5 K) with narrowed stem ; arms anteriorly flattened and joining the stem near anterior 1/3.

Etymology : The name “*dolioflagellomera*” denotes the cask shaped flagellomere.

Specimen examined : Holotype male (Type No. Ent Tr 1 PCZM), Siliguri, 8.V.1973, Coll. S. K. Dasgupta. Allotype female, data same as holotype.

Paratypes : 4 females with data same as type.

Comments : This new species is somewhat allied to *T. ussurica* Mohrig and Antonowa (1978), described from U. S. S. R. and also to the Indian species *T. trilineata* (Brunetti 1912) but distinguishable features like cask-shaped flagellomeres with very indistinct neck, 10 setae on 1st palpal segment, cuneate gonostylus with short apical and long mesoapical spines, and differently shaped vaginal furca of female establishing it as a new species.

SUMMARY

Five species of Sciardid gnats, *Epidapus nullusanalis* n. sp., *Lycoriella crassisetosa* n. sp., *Plastosciara alia* n. sp., *Scythropochroa subovopalpi* n. sp., *Trichosia dolioflagellomera* n. sp. are described and one species, *Lobosciara spinipennia* (Sasakawa) is recorded in India.

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REFERENCES

Alam, S., Dasgupta, S. K. and Chaudhuri, P. K. 1988. Indian species of the genus *Corynoptera* Winnertz (Diptera : Sciaridae) *Tijdschr. Ent.* **131** : 113-133.

- Brunetti, E. A. 1912. The Fauna of British India, including Ceylon and Burma. Nematocera (excluding Chironomidae and Culicidae), Calcutta and London. Thacker, Spenk & Co. 581. pp.
- Brunetti, E. A. 1920. Catalogue of the Oriental and South Asiatic Nematocera. *Rec. Indian Mus.* **17** : 1-276.
- Loudon, B. J. (1978). A new species of *Lycoriella* Frey (Diptera : Sciaridae) infesting cultivated mushrooms in New South Wales. *J. Aust. ent. Soc.* **17** (2) : 163-166.
- Mohrig, W., and E. D. Antonowa, 1978. Neue Palaerktische Sciariden (Diptera). *Zool. Jb. Syst.* **105** (4) : 539-547.
- Sasakawa, M. 1962. Diptera from South East Asia (Part II). *Nature and life S. E. Asia*, **2** : 125-133.
- Shaw, F. R. (1941). New Sciarinae from Oklahoma and New Mexico. *Amer. Midl. Nat.* **26** : 320-324.
- Steffan, W. A. 1966. A generic revision of the family Sciaridae (Diptera) America, North of Mexico. *Univ. Calif. Publs ent.* **44** : 1-77.
- Steffan, W. A. 1969. Diptera : Sciaridae. *Insects of Micronesia*, **12** (7) : 669-732.
- Steffan, W. A. 1972a. Family Sciardae. In M. Delfinado & D. E. Hardy. eds. A catalogue of Diptera of the Oriental Region. *Univ. Hawaii. Pres.* **1** : 464-476.
- Steffan, W. A. 1972b. Oriental Sciaridae (Diptera) I. Redescription and review of species described by Edwards and Brunctii. *Pacif. Ins.* **15** (1) : 85-94.
- Thomas, C. A. 1942. Mushroom insects : Their biology and control. *Bull. Penn. St. Coll. Agric. Exp. Stn.* **419** : 1-43.
- Ware, W. M. 1933. Carrying of *Verticillium* spores by sciara flies. *Aux. Bot.* **188** : 764.
- Wirth, W. W. and Blanton, F. S. 1959. Biting midges of the genus *Culicoides* from Panama (Diptera : Heleidae) *Proc. U. S. Natn. Mus.* **109** : 237-248.