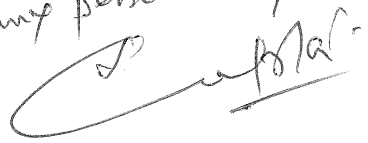


*Oriental Insects*, Vol. 24: 427-431, 1990.

To, Prof. Okada  
with my personal regards  


**THREE NEW SPECIES OF *DROSOPHILA* (DIPTERA: DROSOPHILIDAE)  
FROM NORTHEAST INDIA**

J. P. GUPTA & K. K. GUPTA

Genetics Laboratory, Department of Zoology  
Banaras Hindu University, Varanasi-221 005, India

**ABSTRACT.** Three new species of *Drosophila*. *D. ciliotarsa* (Subgenus *Drosophila*), and *D. metanthia* and *D. kohimaensis* (Subgenus *Scaptodrosophila*) are described. Their external morphology and male genital structures are described and relationships with other species are discussed.

Northeast India consists of several relatively smaller states. Our earlier surveys have shown that members of the family Drosophilidae are widespread in this region (Singh & Gupta, 1977; Gupta & Singh, 1979; Dwivedi & Gupta 1979, 1980; Dwivedi et al., 1979; Gupta & Kumar, 1986; Kumar & Gupta, 1988; Gupta & Gupta, 1989). Three additional new species collected from Basar, Arunachal Pradesh, and Kohima, Nagaland are described below.

1. ***Drosophila (Drosophila) ciliotarsa*, sp. nov.** (Figs. A-E)

*Male and female:* Brown. Mean body length, male (3 males) 3.12 mm; female (2 females) 3.17 mm.

*Head:* Arista with 3 dorsal and 1 ventral branches in addition to a small terminal fork. Antennae with second segment brown; third segment little darker. Frons including ocellar triangle brown to black. Orbitals in ratio of 8:4:12, anterior reclinate orbital placed outside and much closer to proclinate than to posterior reclinate. Cheeks brown, greatest width of cheek, 0.25x greatest diameter of eye. Palpus brown, slender, with a long apical seta. Carina brownish, mildly ridged posteriorly. Clypeus black. Eyes dark red.

*Thorax:* Acrostichal hairs in 8 regular rows. Anterior scutellars convergent and posterior scutellars crossed. Distance between anterior and posterior dorsocentrals 0.33x distance between two anterior dorsocentrals. Mesonotum pale brown with a pair of dark brown longitudinal median stripes along dorsocentral lines. Scutellum dark brown. Humerals two. Thoracic pleura dark brown. Sterno index 0.7. Legs (Fig. D) brown, tarsal segments of male fore legs with small recurved bristles, preapicals on all three tibiae; apicals on first and second tibiae. Wings (Fig. E) dusky. Anterior and posterior crossveins mildly fuscous. Approximate indices: C-index 4.27; 4V-index 1.67; 4C-index 0.64; 5X-index 1.2. Heavy bristles on about basal 0.33x of third costal section. Stalk of haltere brown, knob whitish. Wing length 2.89 mm.

*Abdomen:* Abdominal tergites with broad, black bands, band on 2T mildly interrupted medially. Sternites black.

*Periphallic Organs* (Fig. A): Epandrium black, pubescent and broad below, lower portion with about 13 large bristles. Surstyles pale brown, quadrate, with about 8 large black teeth arranged in a concave row on entire distal margin, first tooth being largest, also with about 7-8 setae on the inner surface. Cercus large, separated, with about 30 large bristles and 3-4 fine setae below.

*Phallic organs* (Fig. B): Aedeagus large and broad, tapering apically. Anterior gonapophysis rod-like, anteriorly somewhat swollen, with 3-4 small apical sensilla. Posterior gonapophysis absent. Hypandrium notched medially. Ventral fragma triangular.

*Egg guide* (Fig. C): Lobe yellowish brown, rounded at tip, with about 19 marginal and 4 discal teeth.

*Holotype*: Male, INDIA: Arunachal Pradesh: West Siang District: Basar, 7.IV.1988, Coll. J.P. Gupta & K.K. Gupta. Deposited in the Department of Zoology, Banaras Hindu University, Varanasi. *Paratypes*: 5M, 4F, same locality and collectors as holotype. In the Department of Zoology, B.H.U., Varanasi and Department of Biology, Tokyo Metropolitan University, Tokyo, Japan.

*Relationships*: This species superficially resembles *D. pullata* Tan, Hsu & Sheng (1949), but differs from it in having mesonotum with a pair of dark brown longitudinal median stripes along dorsocentral lines and tarsal segments of male fore legs with small recurved bristles.

*Distribution*: India: Arunachal Pradesh.

*robusta* sp

✓ 2. *Drosophila* (*Scaptodrosophila*) *metanthia*, sp. nov.

(Figs. F-H)

*Male*: Yellowish brown. Mean body length, male (5 males) 3.5 mm.

*Head*: Arista with 4 dorsal and 2-3 ventral branches in addition to the terminal fork. Antennae with second segment brown; third segment pale brown. Frons including ocellar triangle brown. Orbitals in ratio of 8:3:6, anterior reclinate placed outside and much closer to proclinate than to posterior reclinate. Face and check yellowish brown, greatest width of cheek 0.2x greatest diameter of eye. Palpus brown, with two prominent setae. Vibrissa large and strong, second oral not differentiated. Carina narrow and high. Clypeus dark brown. Eyes dark red.

*Thorax*: Acrostichal hairs in 8 irregular rows. Prescutellars well developed. Anterior scutellars convergent, posterior scutellars nearly divergent. Distance between anterior and posterior dorsocentrals about 0.5x the distance between two anterior dorsocentrals. Mesonotum pale yellow, with a dark brown, broad patch on its lower half. Scutellum pale yellow, blackish laterally. Humeral two. Thoracic pleura dark brown with a yellow median stripe. Sterno-index 0.7. Legs pale brown, knee joints lighter, coxa and femora of fore legs much darker. Preapicals on all three tibiae; apicals on first and second tibiae. Wings (Fig. F) hyaline, anterior and posterior crossveins clear. Approximate wing-vein indices: C-index 2.19; 4V-index 2.18; 4C-index 1.05; 5X-index 2.2. Heavy bristles on about basal 0.75x of third costal section. Wing length 2.47 mm. Haltere whitish.

*Abdomen*: Yellow, with medially interrupted dark brown bands on 2 and 3 tergites, the remaining tergites with uninterrupted bands and the terminal one completely dark brown.

*Periphalllic organs* (Fig. G): Epandrium pubescent, broad, narrow apically, with about 21 bristles along entire posterior margin. Surstylus narrow, with 7 black teeth on upper half of distal margin, lower half with several fine long setae and a few small setae on its inner surface. Cercus oblong, separated from epandrium, with about 26 large bristles above and few small bristles at lower tip.

*Phallic organs* (Fig. H): Aedeagus narrowing apically and pointed. Anterior gonapophysis large, curved and with about 7 sensilla on lower half. Posterior gonapophysis fused with the aedeagus. Novasternum with a pair of long submedian spines. Ventral fragma quadrate.

*Holotype*: Male, INDIA: Arunachal Pradesh: West Siang District: Basar, 7.1V.1988, Coll. J.P. Gupta & K.K. Gupta. Deposited in the Department of Zoology, Banaras Hindu University, Varanasi. *Paratypes*: 8M, same locality and collector as holotype. In the Department of Zoology, B.H.U., Varanasi and Department of Biology, Tokyo Metropolitan University, Tokyo, Japan.

*Relationships*: *Drosophila metanthia* appears close to *D. anthia* Okada & Carson (1982), especially in the details of periphalllic organs, but differs from it in having medially interrupted dark abdominal bands on 2T and 3T, in the shape of anterior gonapophysis, and novasternum with a pair of closely placed submedian spines.

*Distribution*: India: Arunachal Pradesh.

3. ***Drosophila (Scaptodrosophila) kohimaensis***, sp. nov. (Figs. I-K)

*Male*: Shining pale yellow. Mean body length, male (4 males) 1.6 mm.

*Head*: Arista with 3-4 dorsal and 2 ventral branches in addition to the terminal fork. Antennae with second segment yellowish brown; third segment little darker. Frons including ocellar triangle dull brown. Orbitals in ratio of 5:3:6, anterior reclinate more closer to proclinate than to posterior reclinate. Cheeks narrow. Vibrissa single and strong. Greatest width of cheek 0.166x the greatest diameter of eye. Palpus pale brown, with about 2 prominent setae. Carina yellow and flat. Clypeus pale brown. Eyes bright red.

*Thorax*: Acrostichal hairs in 6 regular rows between dorsocentrals. Prescutellars well differentiated. Anterior scutellars convergent; posterior scutellars crossed. Distance between anterior and posterior dorsocentrals about 0.5x the distance between two anterior dorsocentrals. Mesonotum and scutellum pale yellow. Humeral two. Thoracic pleura pale brown. Legs pale yellow. Preapicals on all three tibiae; apicals on first and second tibiae. Wings (Fig. K) hyaline, anterior and posterior crossveins clear. Approximate wing-vein indices; C-index 1.75; 4V-index 2.66; 4C-index 1.6; 5X-index 2.4. Heavy bristles on about basal 0.77x of third costal section. Wing length 1.66 mm. Haltere yellowish.

*Abdomen*: Tergites 2 and 3 with medially interrupted dark bands, the remaining tergites with complete bands.

*Periphalllic organs* (Fig. I): Epandrium pubescent, somewhat broadened below, with 16 bristles along entire posterior margin. Surstylus triangular, with 11 short teeth along distal margin, few strong setae below and with 5 tough bristles like setae on the inner surface. Cercus oblong, with 15 large bristles and 5 tough small bristles below.

*Phallic organs* (Fig. J): Aedeagus bifid, narrowing apically and pointed. Anterior gonapophysis large, middle portion with 3 small sensilla and numerous fine hairs. Posterior gonapophysis absent. Hypandrial plate semicircular and with a pair of large submedian spines. Ventral fragma distally rounded.

*Holotype*: Male, INDIA: Nagaland: Kohima, 11.IX.1987, Coll. J.P. Gupta & K.K. Gupta. Deposited in the Department of Zoology, Banaras Hindu University, Varanasi. *Paratypes*: 6M, same locality and collectors as holotype. In the Department of Zoology, B.H.U., Varanasi and Department of Biology, Tokyo Metropolitan University, Tokyo, Japan.

*Relationships*: This species resembles *D. fuscopalpis* Wheeler & Takada (1964), but differs from it in having distinct dark brown bands on the abdominal tergites, bands on 2T and 3T medially interrupted, surstylus with small teeth, and cercus with 5 tough small bristles below.

*Distribution*: India: Nagaland.

### Acknowledgments

We are grateful to Professor T. Okada, Emeritus Scientist, Tokyo Metropolitan University for confirming the determinations. Thanks are also due to the Head of the Zoology Department, Banaras Hindu University, for facilities, and to the University Grants Commission, New Delhi, for awarding a Junior Research Fellowship to K.K.G.

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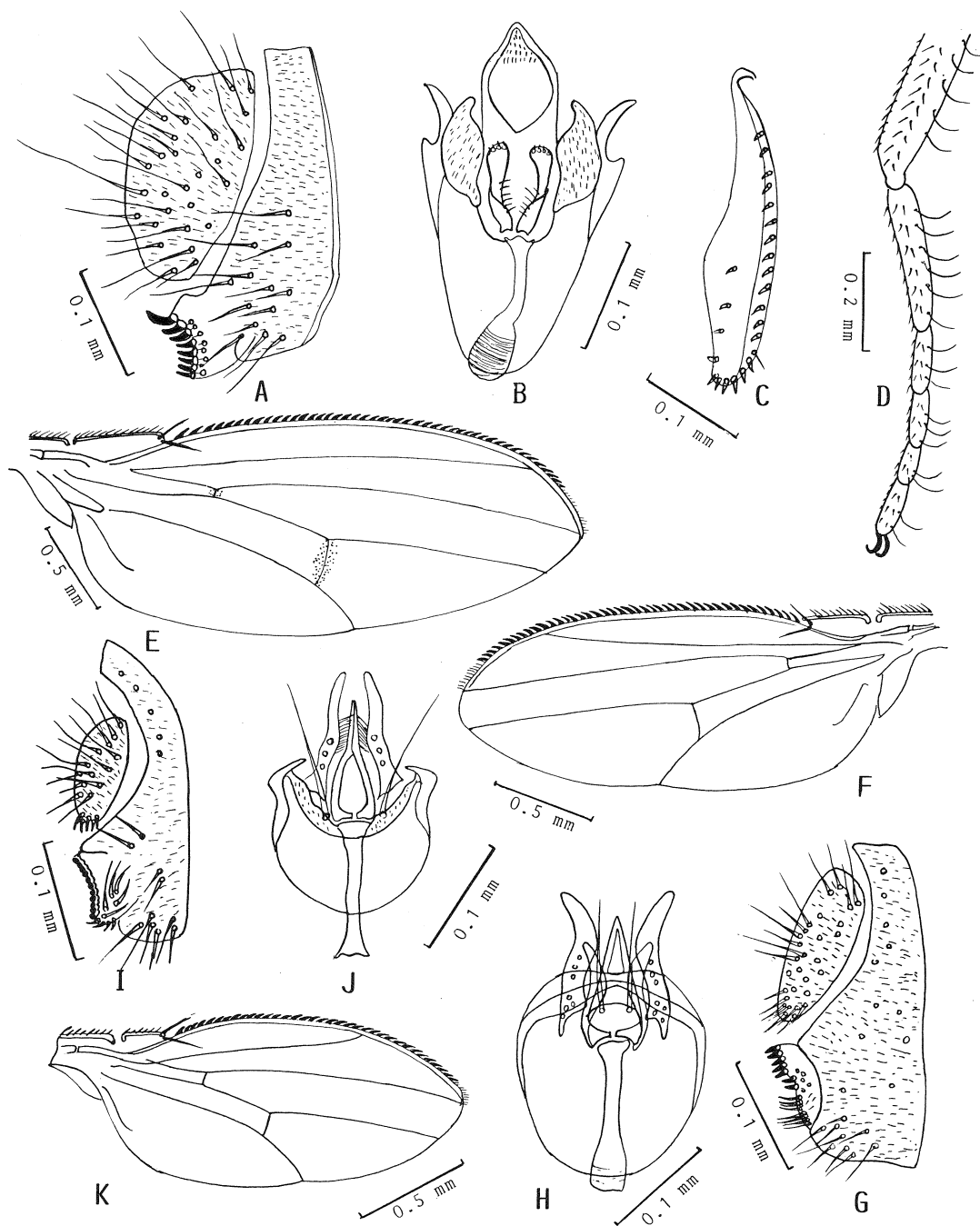


Fig. A-E. *Drosophila (Drosophila) ciliotarsa*: A, periphallic organs; B, phallic organs; C, egg guide; D, male fore leg; E, male wing. Figs. F-H. *D. (Scaptodrosophila) metanthia*: F, male wing; G, periphallic organs; H, phallic organs. Figs. I-K. *D. (S.) kohimaensis*: I, periphallic organs; J, phallic organs; K, male wing.