

DESCRIPTIONS OF THREE NEW SPECIES OF DROSOPHILIDAE (DIPTERA) FROM INDIA

AJAI KUMAR & J. P. GUPTA (1992)

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

ABSTRACT. Three new species representing three genera of the family Drosophilidae, *Hirtodrosophila dolichophallata*, *Drosophila (Sophophora) suborosa* and *Mycodrosophila (Promycodrosophila) kuntii* are described. Their relationships with other species in the respective groups are discussed.

Recent surveys of drosophilid species conducted at Gangtok in Sikkim and Silent Valley in Kerala yielded three new species belonging to three genera, *Hirtodrosophila*, *Drosophila* and *Mycodrosophila* of the family Drosophilidae. The taxonomic descriptions and relationships of these species are given below.

1. *Hirtodrosophila dolichophallata*, sp. nov. (Figs. A-D)

Male and female: Whitish yellow with brownish black frons and thorax. Mean body length, male (2 males) 1.68 mm; female (3 females) 1.98 mm.

Head: Arista with 3 dorsal and 1 ventral branches in addition to terminal fork. Antennae with second and third segments whitish yellow; the latter segment elongate and with long hairs. Frons including ocellar triangle dark brown. Orbitals in ratio of 4:1:5; anterior reclinate closer to proclinate than to posterior reclinate. Face dull yellow; cheek a little darker; greatest width of cheek 0.16x greatest diameter of eye. Palpus brownish, with one conspicuous apical and a few fine marginal setae. Vibrissa strong; second oral undeveloped. Carina yellow and short. Clypeus dark yellow. Eye red.

Thorax: Acrostichal hairs in 8 regular rows. Anterior scutellars nearly parallel; posterior scutellars convergent. Distance between anterior and posterior dorsocentral about 0.33x distance between two anterior dorsocentrals. Mesonotum and scutellum unicolorous, brownish black. Thoracic pleura whitish yellow. Sterno-index 0.5. Legs whitish. Preapicals on mid and hind tibiae; apicals on first and second tibiae. Wings (Fig. D) hyaline. Approximate wing-vein indices: C-0.98-1.2; 4V-2.5; 4C-2.1; 5X-2.2. Heavy bristles on about basal 0.62x of third costal section. Haltere whitish. Wing length 1.64 mm.

Abdomen: Whitish yellow, without distinct bands.

Periphallic organs (Fig. B): Epandrium broad, exceedingly pointed below at anteroventral corner, incised at insertion of surstylus, with about 3 upper and 3 lower long marginal bristles; basal fragma large. Cercus oval, with about 16 bristles. Surstylus crescent, with 6 black teeth including large median one and a few fine setae on distal end.

Phallic organs (Fig. A): Aedeagus straight, unusually long, slightly dilated apically and subapically; basal apodeme short and thick. Anterior gonapophysis elongate, medially swollen, basally contiguous with aedeagus, with 3 apical sensilla. Novasternum with a pair of small submedian spines. Ventral fragma narrow and longer than broad.

Egg guide (Fig. C): Fusiform, apically with 3 isolated curved stout black teeth, and with 3 small dorsal and 6 larger marginal teeth. Basal isthmus short.

Holotype: Male, INDIA: KERALA: Silent Valley, 15.x.1989, Coll. Ajai Kumar & J. P. Gupta. Deposited in the Department of Zoology, Banaras Hindu University, Varanasi (B.H.U.). *Paratypes*: 1M, 3F, same locality and collectors as holotype. In B.H.U. and 1M, Department of Biology, Tokyo Metropolitan University, Tokyo, Japan (T.M.U.).

Relationships: This species belongs to the *latifrontata* species-subgroup of the *hirticornis* species-group wherein it closely resembles *Drosophila (Hirtodrosophila) seminigra* [=now *Hirtodrosophila seminigra*] Duda (1926) in having black mesonotum and yellow abdomen, but clearly differs from it in the shape of aedeagus and distally not concaved ventral fragma.

Distribution: India: Kerala.

2. *Drosophila (Sophophora) suborosa*, sp. nov. (Figs. E-H)

Male and female: Pale brown. Mean body length, male (2 males) 2.4 mm; female (1 female) 3.04 mm.

Head: Arista with 4 dorsal and 2 ventral branches in addition to small terminal fork. Antennae with second segment brown; third segment pale brown. Orbitals in ratio of 3:1:3; anterior reclinate orbital closer to proclinate than to posterior reclinate. Face and cheek brownish yellow; greatest width of cheek 0.14x greatest diameter of eye. Palpus yellow, with one strong apical seta. Vibrissa strong; second oral much smaller. Carina pale brown, narrow and high. Clypeus dark brown. Eyes bright red.

Thorax: Acrostichal hairs in 8 regular rows. Scutellar bristles convergent. Distance between anterior and posterior dorsocentral about 0.33x distance between two anterior dorsocentrals. Mesonotum brownish. Scutellum pale brown. Thoracic pleura brownish yellow and with dark brown stripe. Sterno-index 0.6. Legs (Fig. G) dull yellow. Preapicals on all three tibiae; apicals on first and second tibiae. Metatarsal and second tarsal segments of male fore leg with two large sex-combs; metatarsal comb with 25-28 upper closely placed and lower separated teeth and 2 distal teeth displaced from main axis of remaining teeth; comb on second tarsal segment with 22-24 closely placed teeth and one stouter distal tooth. Wings (Fig. H) hyaline. Approximate wing-vein indices: C-2.1; 4V-2.9; 4C-1.5; 5X-2.8. Heavy bristles on about basal 0.4x of third costal section. Haltere whitish. Wing length 1.92 mm.

Abdomen: Apical dark bands present on tergites, but faint on terminal tergite.

Periphallic organs (Fig. F): Epandrium broad dorsally and narrowing ventrally, with about 12 large and a few small bristles. Primary clasper small, with about 8 large marginal teeth including 1 relatively large tooth, and a row of 4 short thick medial

teeth. Secondary clasper less differentiated, not separated from cercus, with 2 large curved black teeth and 6 stout secondary bristles. Cercus triangular, with about 16 large bristles.

Phallic organs (Fig. E): Aedeagus elongate, rod-shaped, apically hairy. Anterior gonapophysis triangular, broad distally and tapering ventrally, with 3 upper marginal sensilla. Posterior gonapophysis club-shaped, apically with many denticles. Novasternum with median projection and a pair of small submedian spines.

Holotype: Male, INDIA: SIKKIM: Gangtok District: Ranipool, 10.iii.1989, Coll. Ajai Kumar & J. P. Gupta. Deposited in B.H.U. *Paratype*: 1F, same locality and collectors as holotype. In B.H.U. and 1M, T.M.U.

Relationships: This species belongs to the *montium* species-subgroup of the *melanogaster* species-group wherein it closely resembles *D. orosa* Bock & Wheeler (1972), but distinctly differs from it in having second tarsal comb with more teeth, epandrium narrowing ventrally and novasternum with a pair of small submedian spines.

Distribution: India: Sikkim.

3. *Mycodrosophila* (*Promycodrosophila*) *kuntii*, sp. nov. (Figs. I- L)

Male and female: Whitish with dark brown abdomen. Mean body length, male (2 males) 1.48 mm, female (1 female) 1.78 mm.

Head: Arista with 3 dorsal and 1 ventral branches in addition to small terminal fork. Antennae with second segment dull yellow; third segment pale. Frons tan, much darker around ocelli and orbits; Ocellar triangle brownish. Orbitals in ratio of 6:1:4; anterior reclinate minute, placed between two other orbitals. Face yellow. Cheek brown; greatest width of cheek 0.2x greatest diameter of eye. Palpus brown, with 1 prominent apical seta. Vibrissa feebly developed. Carina brownish, narrow and high. Clypeus brownish. Eyes red.

Thorax: Acrostichal hairs in about 8 rows. Anterior scutellars parallel; posterior scutellars convergent. Mesonotum and scutellum brownish black. Thoracic pleura yellowish. Sterno-index 0.47. Legs whitish. Preapicals on all three tibiae; apicals on first and second tibiae. Wings (Fig. L) hyaline; distal costal break deeply incised, but without forming black lappet. Approximate wing-vein indices; C-1.0; 4V-3.2; 4C-2.6; 5X-3.0. Heavy bristles on about basal 0.5x of third costal section. Haltere whitish. Wing length 1.84 mm.

Abdomen (Fig. J): 1T yellowish; 2T with medially notched dark brown band; 3T and 4T with dark bands; 5T with slightly medially projected dark band; 6T completely yellow.

Periphallic organs (Fig. K): Epandrium broad, with 3 upper and 3 lower marginal bristles; anteroventral corner forming obtuse angle. Surstylus triangular, narrowing at base, with 9 large black teeth. Cercus broad, with about 24 bristles.

Phallic organs (Fig. I): Aedeagus broad, narrowing and bilobed apically. Anterior gonapophyses small, with 4 marginal sensilla. Novasternum notched medially, with a pair of small spines placed apart. Ventral fragma hemispherical.

Holotype: Male, INDIA: KERALA: Silent Valley, 15.x.1989, Coll. Ajai Kumar & J.P. Gupta. Deposited in B.H.U. *Paratype*: 1F, same locality and collectors as holotype. In B.H.U. and 1M, T.M.U.

Relationships: This species closely resembles *Mycodrosophila (Promycodrosophila) separata* de Meijere (1911), but differs clearly from it in having scutellum entirely brownish black and in wing vein indices.

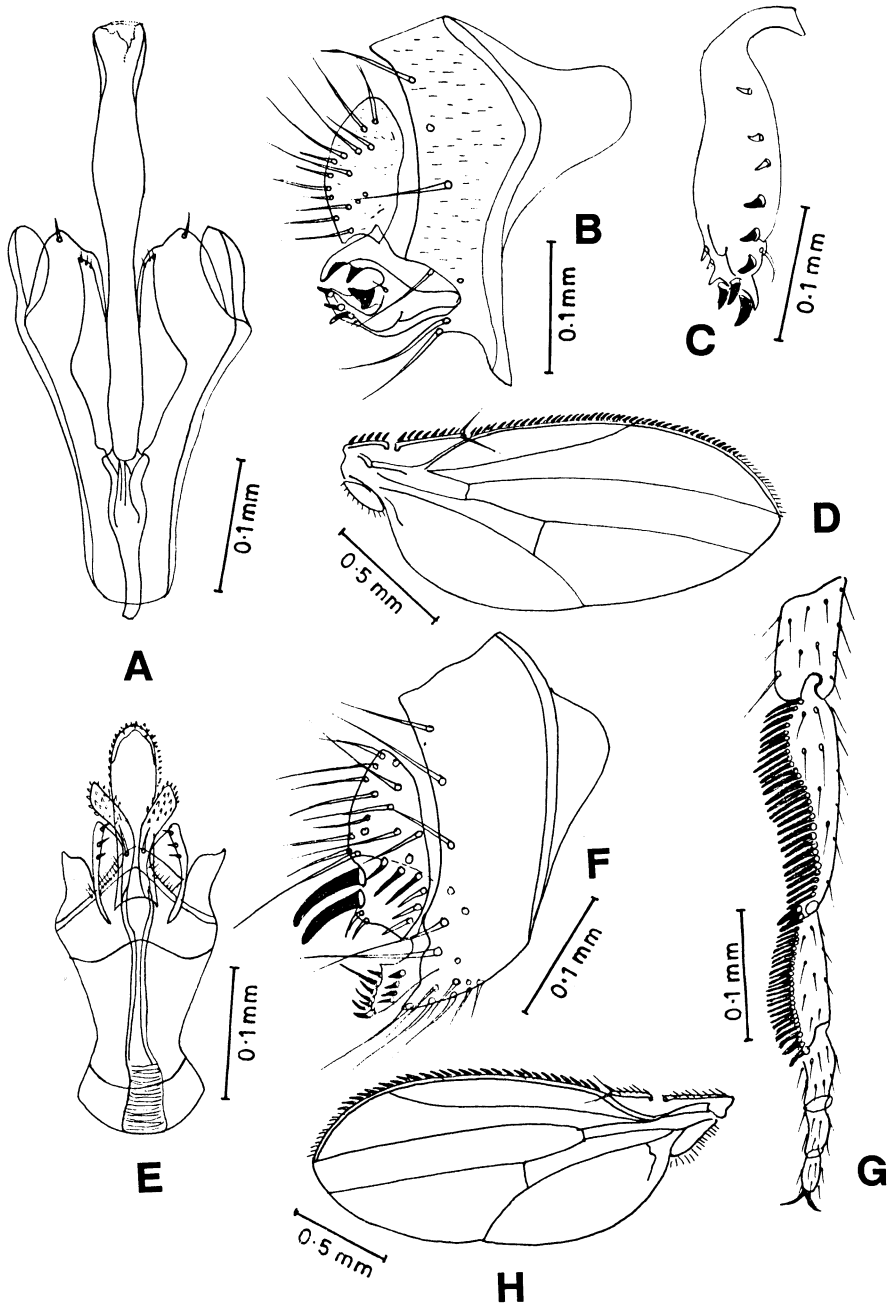
Distribution: India: Kerala.

Acknowledgments

We express our gratitude to Dr. T. Okada, Professor Emeritus, Tokyo Metropolitan University for his help in confirming the identifications. Financial support in form of a Teacher Fellowship to one of the authors (AK) from the University Grants Commission, New Delhi is duly acknowledged.

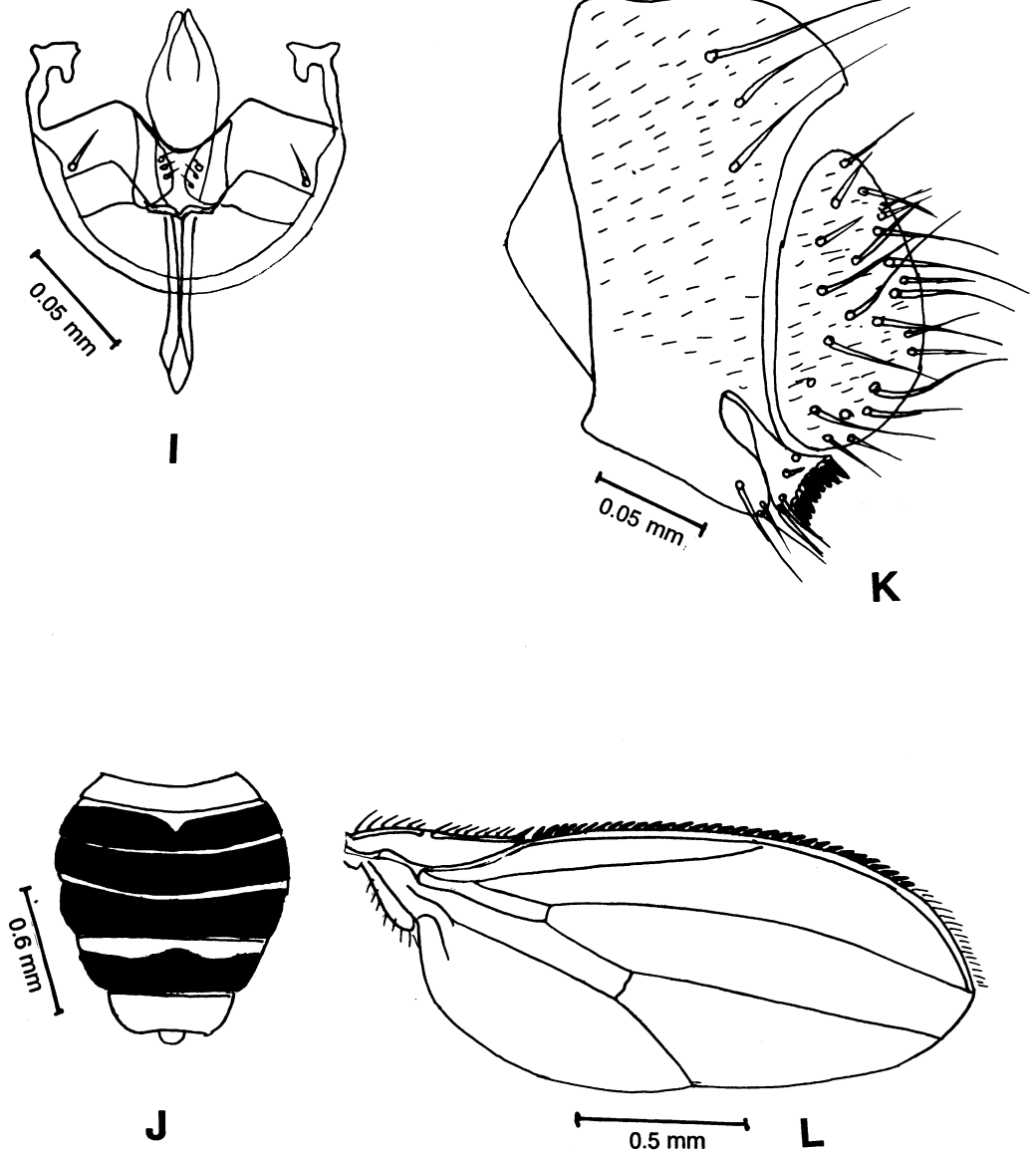
References

- BOCK, I. R. & WHEELER, M. R., 1972. The *Drosophila melanogaster* species group. Univ. Texas Publ., 7213: 1-102.
- DUDA, O., 1926. Fauna Sumatrensis. Drosophilidae (Dipt.). Suppl. Entomol., 14: 42-116.
- DE MEIJERE, J. C. H., 1911. Sudostasiatische Dipteran, VI. Tijdschr. v. Ent., 54: 258-432.



Figs. A-D. *Hirtodrosophila dolichophallata*: A, phallic organs; B, periphallic organs; C, egg guide; D, male wing.

Figs. E-H. *Drosophila (Sophophora) suborosa*: E, phallic organs; F, periphallic organs; G, male fore leg; H, male wing.



Figs. I-L. *Mycodrosophila* (*Promycodrosophila*) *kuntii*: I, phallic organs; J, male abdomen; K, periphallic organs; L, male wing.