

## THREE NEW DROSOPHILIDS (DIPTERA : DROSOPHILIDAE) FROM NORTH EAST INDIA

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**Three new species, *Curtonotum neoangustipennis*, *Liodrosophila okadai* and *Leucophenga shillongensis* representing three different genera of the family Drosophilidae, are described from Ramam, Darjeeling and Shillong, Meghalaya. A list of Indian species of Drosophilidae (excluding *Drosophila* species) is also provided.**

(Key words: new *Drosophila*)

Recent studies on the systematics of Indian drosophilid species have accumulated considerably large data; however, these studies in India have been concentrated more on the genus *Drosophila* rather than on other allied genera of the family Drosophilidae. Gupta (1974) made an attempt to provide a comprehensive review of information regarding the Indian species of Drosophilidae, exclusive of the genus *Drosophila*. Since then many species have been added to the list of Indian Drosophilidae (Reddy and Krishnamurthy, 1973-74; Vaidya and Godbole, 1973, 1976; Singh and Gupta, 1974; Sajjan and Krishnamurthy, 1975). The present paper deals with the description of three new species belonging to three different genera, viz., *Leucophenga*, *Curtonotum* and *Liodrosophila*, out of which the latter two are recorded for the first time from India.

### Genus *Curtonotum* Macquart

*Curtonotum* Macquart 1843, Mem. Soc. R. Sci. Agric. Lille, 1842: 350 (1843: 113). Type: *Musca gibba* Fabricius, by monotypy.

*Curtonotum*, correction. *Diplocentra* Loew 1862, Z. Ent. Breslau, 13:13 (1859) (unjusti-

fied n. name for *Curtonotum* Macquart *Parapsinota* Duda 1924, Arch. Naturgesch. A, 90 (3): 177. Type: *Drosophila angustipennis* De Meijere, by monotypy.

Two pairs of orbital bristles, one proclinate and one reclinate, and a minute seta in front or near base of the proclinate orbital; front broad in both sexes; wings fuscous; front femur with a row of short, thick anteroventral spines approximately on distal one half.

### 1. *Curtonotum neoangustipennis* sp. nov.

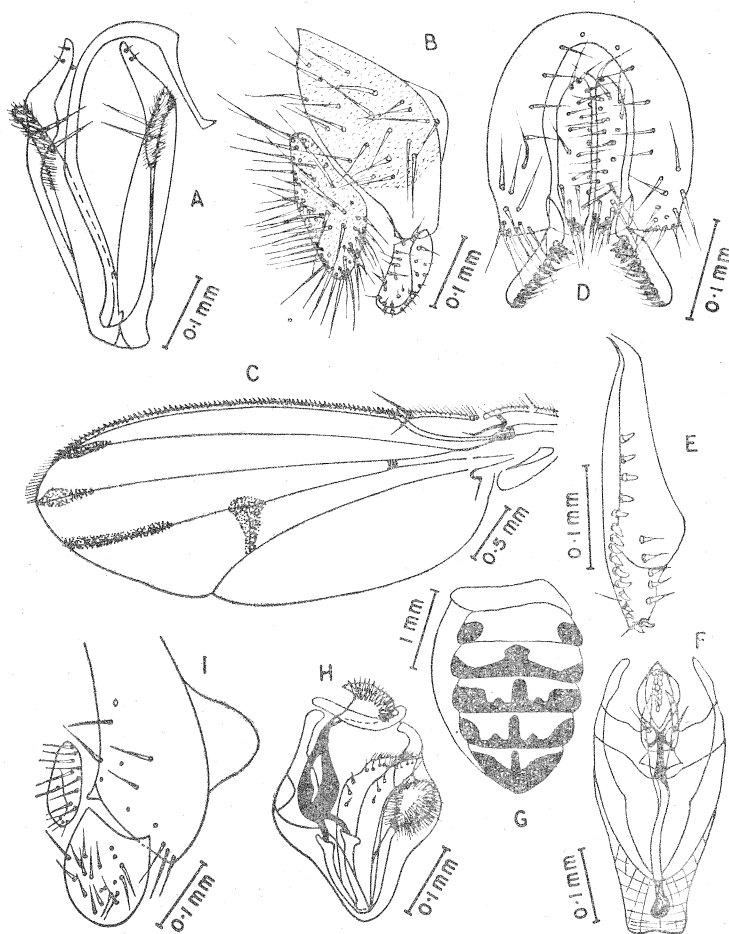
*Male and Female*: Arista with about 7-9 dorsal and 5-6 ventral branches in addition to the terminal fork. Antennae with second segment dark brown; third segment little darker. Frons including ocellar triangle dark brown, frons broad. Anterior reclinate orbital very minute, proclinate about three fourths the length of the posterior reclinate. Second oral thin, about one third the length of vibrissa. Palpi dark brown with few marginal setae. Carina brown, low. Face and cheek orange brown, greatest width of cheek about one ninth the greatest diameter of eye. Clypeus black. Eyes dark red with blackish tint.

Acrostichal hairs regular, in eight rows. Anterior scutellars strongly divergent.

Prescutellars present. Anterior dorsocentrals about two thirds the length of the posterior dorsocentrals; distance from anterior dorso-central to posterior dorsocentral about two-thirds the distance between two anterior dorsocentrals. Mesonotum and scutellum unicolourous, blackish. Thoracic pleura brownish black. Legs greyish yellow, coxa with 6-7 black bristles at base, forefemora brownish and with a row of 8 short black spine like teeth near base, of which one is twice the length of others. Preapicals on all three tibiae.

*Wings*: (Fig. 1C) dusky; both cross veins clouded and 2, 3, 4th longitudinal veins with elongated black patches at apices. Approximate indices: C-index 6.1; 4 V-index 1.17; 4 C-index 0.36, 5 X-index 1.34. Two unequal bristles at the apex of first costal section; heavy bristles on about basal one ninth of the third costal section. Halteres white.

Abdominal tergites dark brown to black. Length of male body (from 1 male) = 4.61 mm.



(A-C): *Curtonotum neoangustipennis* sp. nov. A-phallic organs; B-periphalliac organs; C-wing. (D-F): *Liodrosophila okadai* sp. nov. D-periphalliac organs; E-egg guide; F, Phallic organs. (G-I): *Leucophenga shillongensis* sp. nov. G-male abdomen; H-phallic organs; I-periphalliac organs.

*Periphallidic organs* (Fig. 1B): Genital arch brown, pubescent, large, somewhat broadened in middle; upper margin with about 21 bristles. Clasper longer than broad, with about 11 fine bristles and several setae. Anal plate elliptical, pubescent, and with about 57 large bristles.

*Phallic organs* (Fig. 1A): Aedeagus large, curved and narrowing apically. Anterior parameres large, with apical sensilla. Ventral fragma narrow.

**Holotype** ♂, INDIA: WEST BENGAL, Ramam, Darjeeling district, May 1977 (Dwivedi and Gupta). **Paratypes**: 1 ♂, 1 ♀, same locality and collectors as holotype. Deposited in the Department of Zoology, Banaras Hindu University, Varanasi, India.

*Distribution*: India.

This species is somewhat related to *Curtonotum angustipennis* (De Meijere) but differs from it in having clasper while it is absent in the latter species.

Genus *Liodrosophila* Duda.

*Liodrosophila* Duda 1922, Arch. Naturgesch A, 88 (4): 153 Type: *Camilla coeruleifrons* De Meijere, Java; Okada 1956, Syst. Study Dros. Japan, 57; HARRISON 1954, Trans. R. ent. Soc. London, 105: 113; Wheeler and Takada 1964, Insects of Micronesia 14 (6): 222.

Small species; body shiny, often with metallic colours; postverticals and anterior reclinate orbitals minute; acrostichal hairs in 2-8 rows, forefemur often with a row of short black spinules.

## 2. *Liodrosophila okadai* sp. nov.

Male and female: Arista with about 3-4 dorsal and 2 ventral branches in addition to the terminal fork. Antennae with second segment dark brown; third segment pale

brown in male, little darker in female. Frons including ocellar triangle glossy brownish black. Anterior reclinate orbital minute, proclinate about two thirds the length of the posterior reclinate. Second oral thin, about half the length of vibrissa. Palpi orange brown, with one long prominent apical seta. Carina pale, narrow, high. Face and cheek reddish brown, greatest width of cheek about one eighth the greatest diameter of eye. Clypeus black. Eyes red.

Acrostichal hairs regular, in six rows. Anterior scutellars convergent. Anterior dorsocentrals about two thirds the length of the posterior dorsocentrals; distance from anterior dorsocentral to posterior dorsocentral half the distance between two anterior dorsocentrals. Mesonotum and scutellum unicolourous, shining black. Thoracic pleura brownish black. Legs pale yellow, forecoxae and femora black in both sexes, inner side of forefemur with a row of about 14-15 spinules, preapicals on all three tibiae; apicals on first and midtibiae.

*Wings*: Hyaline. Approximate indices: C-index 2.22; 4 V-index 2.0; 4 C-index 1.15; 5 X-index 1.68. Two bristles at the apex of first costal section; heavy bristles on about basal half of the third costal section. Halteres whitish.

Abdominal tergites uniformly shining black.

Average length of male body (from 2 males): 2.46 mm.

Average length of female body (from 2 females): 2.71 mm.

*Periphallidic organs* (Fig. 1D): Genital arch dark brown, narrow, with about 17 marginal bristles. Clasper narrow and elongated, with about 13-14 black teeth arranged in a straight row and out of them 4-5 upper teeth slightly more thicker and larger, and

with 7 setae ventrally. Anal plate yellowish brown, oblong, with several large bristles.

*Phallic organs* (Fig. 1F): Aedeagus straight, somewhat swollen subapically. Basal apodeme nearly twice as long as aedeagus. Hypandrium with a pair of small submedian spines. Ventral fragma longer than broad.

*Egg guides* (Fig. 1E): Lobe yellowish brown, narrowing apically, with 16 marginal brown teeth and 5 discal yellow teeth. Basal isthmus narrow and short.

**Holotype** ♂, INDIA: WEST BENGAL, Ramam, Darjeeling district, May 1977 (Dwivedi and Gupta). **Paratypes**: 1 ♂, 2 ♀♀, same locality and collectors as holotype. Deposited in the Department of Zoology, Banaras Hindu University, Varanasi, India.

*Distribution*: India.

#### Genus *Leucophenga* Mik

*Leucophenga* Mik 1886, Wiener Ent. Zeitung 5:317. Type: *Drosophila maculata* Dufour, Europe; Duda 1924, Arch. Naturgesch A, 90 (3): 185.

Arista plumose, with numerous branches, acrostichal hairs in numerous rows; prescutellars well differentiated; all three orbital bristles strong; posterior reclinate arising nearer to inner vertical than to proclinate; discal and second basal cells confluent; third costal section with thorn like spines.

### 3. *Leucophenga shillongensis* sp. nov.

*Male and female*: Arista with about 5-6 dorsal and 2-3 ventral branches in addition to the terminal fork. Antennae with second segment dark brown; third segment yellowish. Frons including ocellar triangle reddish brown, anteriorly yellowish. Anterior reclinate minute, proclinate orbitals nearly equal to the posterior reclinate. Second

oral thin, about one fourth the length of vibrissa. Palpi yellow, tip brownish, with one large apical and 3-4 marginal setae. Carina brown, low. Face and cheek brown, greatest width of cheek about one ninth the greatest diameter of eye. Clypeus orange brown. Eyes bright red.

Acrostichal hairs irregular, in ten rows. Anterior scutellars divergent. Prescutellars present. Anterior dorsocentrals about half the length of the posterior dorsocentrals; distance from anterior dorsocentral to posterior dorsocentral about one third the distance between two anterior dorsocentrals. Mesonotum reddish brown. Scutellum little darker. Thoracic pleura pale yellow, sternopleural plate brown. Sterno-index about 0.75. Legs straw yellow, preapicals on all three tibiae; apicals on mid- and hindtibiae.

*Wings*: Clear. Approximate indices: C-index 3.21; 4 V-index 1.8; 4 C-index 0.87; 5 X-index 1.23. Two bristles at the apex of first costal section; heavy bristles on about basal two thirds of the third costal section. Halteres whitish yellow.

Abdominal tergites (Fig. 1G) yellow with black spots as follows: 1T yellow; 2T with two lateral black spots; 3T-6T with caudal bands projecting laterally and medially.

Average length of male body (from 3 males): 3.24 mm.

Average length of female body (from 2 females): 3.5 mm.

*Periphalllic organs* (Fig. 1I): Genital arch pale yellow, broadly truncate at lower end, with about 14 marginal bristles. Clasper quadrate, with about 21 long setae. Anal plate small, with about 15 bristles.

*Phallic organs* (Fig. 1H): Aedeagus black, bifurcated basally and somewhat swollen apically. Anterior parameres long, with few

sensilla on upper half. Ventral fragma triangular.

**Holotype** ♂, INDIA: MEGHALAYA, Motinagar forest, Khasiya Hill, Shillong district, November 1976 (Dwivedi and Gupta). **Paratypes**: 4 ♂♂, 2 ♀♀, same locality and collectors as holotype. Deposited in the Department of Zoology, Banaras Hindu University, Varanasi, India.

*Distribution*: India.

LIST OF INDIAN DROSOPHILIDAE  
(EXCLUDING *DROSOPHILA* SPECIES)

Genus *Gitonides* Knab.

1. *perspicax* Knab, 1914.

Genus *Mycodrosophila* Oldenberg

2. *gratiosa* (De Meijere, 1911).

Genus *Leucophenga* Mik

3. *albicincta* (De Meijere, 1908).
4. *flavicosta* Duda, 1926.
5. *guttiventris* (De Meijere, 1911).
6. *interrupta* Duda, 1924.
7. *neoangusta* Vaidya and Godbole, 1976.
8. *shillongensis* sp. nov.
9. *subpollinosa* De Meijere, 1914.

Genus *Paraleucophenga* Hendel

10. *invicta* (Walker, 1857).

Genus *Scaptomyza* Hardy

11. *graminum* (Fallén, 1823).
12. *pallida* (Zetterstedt, 1847).

Genus *Chymomyza* Czerny

13. *vaidyai* Okada, 1976: Nom. nov. for *Chymomyza pararufithorax* Vaidya and Godbole (1973) *Drosoph. Inf. Serv.*, 50:71.

Genus *Microdrosophila* Malloch

14. *purpurata* Okada, 1956.

Genus *Stegana* Meigen

15. *subexcavata* Vaidya and Godbole, 1976.

Genus *Lissocephala* Malloch

16. *sabroskyi* Wheeler and Takada, 1964.

Genus *Hypselothyrea* De Meijere

17. *varanasiensis* Gupta, 1974.

Genus *Sinophthalmus* Coquillett Syn. of subgenus *Erima* Kertész of genus *Amiota* Loew. Ref. Okada, 1971. *Kontyû* 39:83.

18. *pictus* Coquillett, 1904.

Genus *Curtonotum* Macquart

19. *neoangustipennis* sp. nov.

Genus *Zaprionus* Coquillett

20. *indiana* Gupta, 1970.
21. *paravittiger* Godbole and Vaidya, 1972.
22. *striata* Sajjan and Krishnamurthy, 1975.

Genus *Liodrosophila* Duda

23. *okadai* sp. nov.

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