

## *DROSOPHILA LONGIVITTATA*, A NEW SPECIES OF *HIRTODROSOPHILA* FROM SALEM (TAMILNADU: INDIA)

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This report describes a new species, *Drosophila (Hirtodrosophila) longivittata* from India and also gives its taxonomic relationship with other species of *Hirtodrosophila*.

(Key words: *Drosophila longivittata*, Salem, *Hirtodrosophila*)

The Indian subcontinent with its vast array of vegetation and climate harbours many species of *Drosophila*. During the last few decades several investigators have surveyed the *Drosophila* fauna in various parts of South India (Reddy and Krishnamurthy, 1968, 1977; Sajjan and Krishnamurthy, 1975; Gowda, 1979; Gai, 1985). However, these workers have concentrated their attention only on the Western Ghats, the Andaman and Nicobar Islands etc. (Prakash and Reddy, 1979; Ranganath *et al.*, 1983). Therefore, the survey of *Drosophila* was made in Salem, Tamil Nadu, located at the foot of the Servarayana Hill ranges which forms part of Eastern Ghats. The town is characterised by low rain fall and high temperature (max. 42°C). Collections were made by trapping the flies on banana baits and net sweeping over rotting fruits in the backyards of houses. A new species collected in the net during sweeping is described here under.

26230 *Drosophila longivittata*, sp. nov.

*Males and females*: Light gray flies with five remarkably dark longitudinal stripes; one median dorsal, two are dorsolateral and two are lateral (Figs. 1a & 1b). Females are larger than males. The mean body length for female 1.35 and for male 1.28 mm.

*Head*: Arista with 4 dorsal branches in addition to the terminal fork. Antenna gray;

\* /ventral branch

basal segment of the antenna bears a pair of dark bristles. The median stripe originates on the lower segment of each antenna, the two meet together below the antenna and run posteriorly. Palp with a large and many small bristles. Vibrissae with two anterior and two posterior large bristles. In between the anterior and posterior bristles are 10-12 small bristles. Dorsal portion of the vibrissae is darkly pigmented. Carina narrow greyish, cheeks broad, anterior orbitals small reclinate median reclinate, anterior orbitals half the size of median, posterior equal to anterior. Anterior verticals large and directed inwards; posterior convergent and crossed. Ocellar triangle dark with a pair of large dark bristles. Eyes dark red. Longest axis of eye nearly rectangular.

*Thorax*: Greyish with 5 stripes. Acrosticals in 8 regular rows. Dorsocentrals convergent. Anterior dorsocentrals are shorter than the posterior approximately half the length of the posterior. Anterior scutellar convergent, posterior scutellar convergent and crossed. Both anterior and posterior scutellars are of equal length. Prescutellars are absent. Scutellum has three stripes. Median stripe ends blindly at the posterior tip of the scutellum. The two dorsolateral stripes originate on the dorsal side of head near the inner margin of eyes and run posteriorly up to the tip

of the abdomen. The lateral stripes originate on the lateral side of thorax and run posteriorly on the lateral side up to the tip of the abdomen. Two humerals. Upper humerals half the length of the lower. Posterior alars slightly longer than anterior. Notopleurals and supra-alars are of equal length. Anterior sternopleurals  $3/4$  the length of posterior. There are 20–25 smaller bristles along with anterior and posterior sternopleurals. Halteres translucent.

*Wings:* Smoky and hyaline. Wing length, male: 0.79 mm, female 0.85 mm. The wing indices are calculated following the formula of Okada (1956) and presented in Table 1.

*Legs:* No sex comb or cuneiform bristles. Preapicals on all the three tibiae, apicals on the middle.

*Abdomen: males and females:* Greyish with four stripes, all four stripes confluent at the posterior end of the abdomen. Tergites heavily pigmented near stripes. No sexual dimorphism in males and females.

*Internal characters:* Malpighian tubules colourless, posterior tubules are free at the tips. Testes long with 5–6 coils, colourless (Fig. 2). Ovary with large number of ovarioles, ventral receptacle long with 20–25 loose coils. Spermatheca pale yellowish brown, roundish (Fig. 3).

*Periphallial organ:* (Fig. 4): Epandrium broad, apically narrow, deeply concave. Heel constricted, toe rounded with about 3–4 bristles curved inwards. Surstylus with

about 15 thick teeth unevenly distributed. On the inner margin of primary surstylus there are about 10 thick curved bristles. Cercus rounded on the outer side and slightly curved on inner side, and with about 25 long and short bristles.

*Phallic organ* (Fig. 5): Aedeagus and anterior gonapophysis are fused to form a stout structure (spindle). Posterior gonapophysis absent. Novasterum with three pairs of long median spines. Ventral fragma broad and concave. Basal apodeme is thick and short.

*Egg guide* (Fig. 6): Brown in colour, with about 15–18 marginal and 4–5 discal teeth. The teeth are also brownish.

*Egg* (Fig. 7): Egg with 4 filaments. Anterior two filaments are thin and pointed while the posterior two are club shaped.

*Pupae* (Fig. 8): Yellow with about 10 spiracular filaments. At the posterior end there are 5 pairs of projections, two pairs are lateral, two pairs are dorsal and one pair is ventral in position.

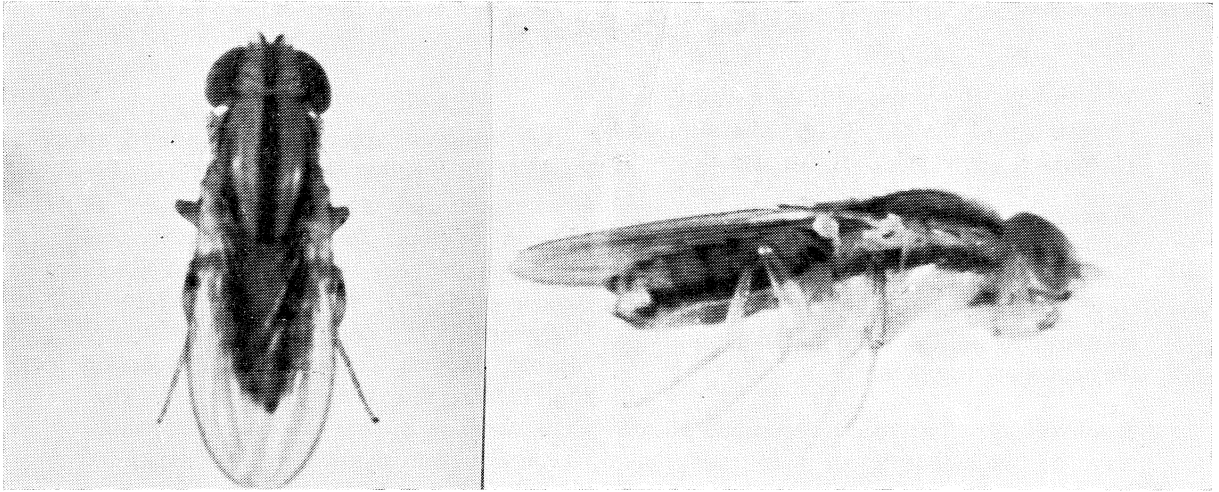
**Holotype:** Male: INDIA, TAMILNADU, Salem, 27.vi.1988. Coll. S. N. Hegde, V. Vasudev, M. K. Naseerulla and M. Jayashankar. Deposited in the *Drosophila* vivarium of Department of Zoology, University of Mysore, Manasagangotri, Mysore-570 006, India.

*Allotype:* Female: Same as above.

**Paratype:** 5♂♂ and 5♀♀, INDIA, TAMILNADU, Salem, Coll. S. N. Hegde, V. Vasudev, M. K. Naseerulla and M. Jayashankar.

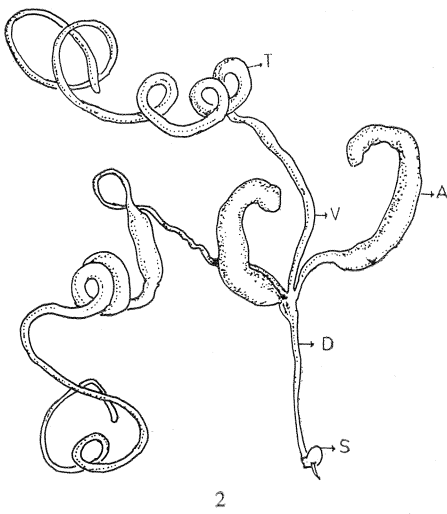
TABLE 1. Wing indices of *D. longivittata* (Mean values for 10 flies).

Sex	Costal index	4V index	4C index	5X index
Male	1.90	2.11	1.29	1.61
Female	1.83	2.53	1.60	1.71

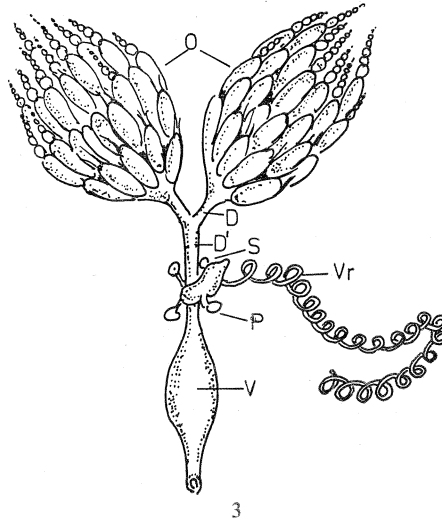


1a

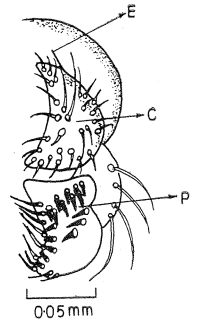
1b



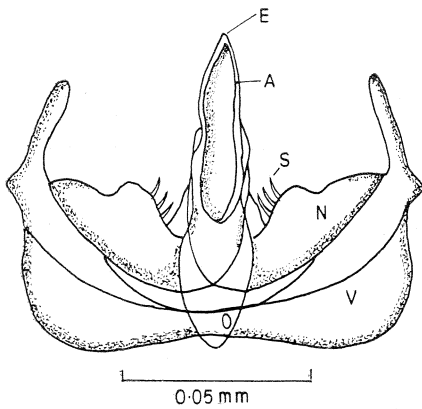
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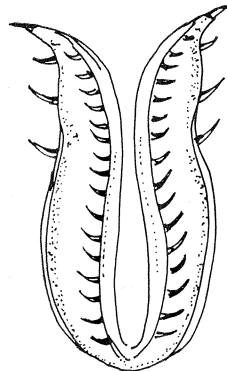
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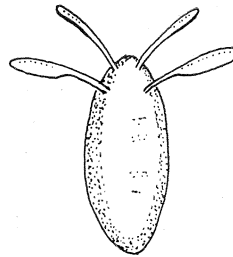
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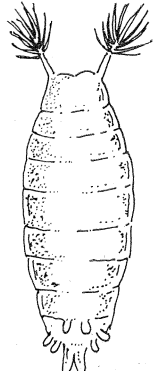
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7



8

Fig. 1(a) Dorsal view; (b) side view. Fig. 2. Male and female reproductive system respectively: T-Testis; V-Vasa deferentia; A-Paragonia; D-Anterior ejaculatory duct; S-Sperm pump. Fig. 3. Female reproductive system: O-Ovaries; D-Oviduct; D'-Common oviducts; S-Spermathecae; Vr-Ventral receptacle; P-Paraovaria; V-Vagina. Fig. 4. Periphallalic Organ: E-Epandrium; C-Anal cercus; P-Primary surstylus; Fig. 5. Phallic Organ: E-Aedeagus; A-Anterior gonopophysis; S-Spines; N-Novasternum; O-Basal apodeme; V-Ventral fragma; Fig. 6. Egg guide. Fig. 7. Egg. Fig. 8. Pupa.

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3♂♂ and 3♀♀ deposited with Prof. T. Okada, Department of Biology, Tokyo Metropolitan University, Setagayaku, Tokyo, Japan.

*Remarks:* The flies are collected from the backyards of houses, by sweeping on rotting fruits. They may be cultured in the laboratory with wheat cream-agar medium or cornmeal agar medium. In the laboratory they are slow breeders.

*Relationships:* The species described above may be included under the subgenus *Hirtodrosophila* because it has the following features: the longest axis of the eye rectangular, the novasternum with submedian spines, egg guide with yellowish brown bristles. The presence of dark longitudinal stripes on the body; Malpighian tubules free at the tips and common stalk at the base, long coiled ventral receptacle are characteristic features that demand the inclusion of the species under *quadrivittata* species group. The species differs from *D. pentavittata* (Gupta and Raychaudhuri, 1970) and *D. pentastrata* (Okada, 1966), in characters such as the nature of stripes, number of branches in the arista, colour of spermatheca, non-annular stalk of spermatheca in the present species and the structure of phallic organ.

According to Okada (personal communication) the new species is related to *D. trivittata* (Strobl, 1893) of *quadrivittata* species group. The common characters between *D. trivittata* and the new species are: humerals 2, upper one longer than lower, preapicals on all tibia and apicals on middle etc. The new species has certain distinct features such as presence of 5 longitudinal stripes, four egg filaments, absence of tuft of three stout bristles on the cerci, nature and number of teeth on the surstylus. Hence the species has been given an independent status and named as *Drosophila longivittata*.

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