FURTHER RECORDS OF TWO MORE DROSOPHILID SPECIES
(Diptera : Drosophilidae) FROM KASHMIR, INDIA

A. KUMAR & J. P. GUPTA

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

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Altogether seventeen species representing two genera of Drosophilidae are collected from
Kashmir valley, India. Among them, D. kashmiirenisis belonging to the polychaeta species
group of the genus Drosophila is discovered as a new species, whereas Scaptomyza himalayana
Takada is recorded for the first time from India. A key to the species of the polychaeta
species group is provided. The metaphase chromosomes of D. kashmiirenisis consist of 2 une-
qual pairs of rods, 1 pair of metacentric and 3 unequal pairs of submetacentric chromosomes.
(Key words: Drosophila, new species, key, Kashmir)

During recent years there have been numerous efforts to explore the Indian
fauna of Drosophilidae. As a result, several ecologically interesting areas of
the Indian subcontinent could be surveyed, yielding considerable data on Indian
Drosophilidae (Gupta, 1974; Prakash and Reddy, 1977; Sajjan and Krishn-
murthy, 1975; Dwivedi et al., 1979; Singh and Gupta, 1981; Gai and Kris-
namurthy, 1982). However, a vast area of the subcontinent still awaits explora-
tion. Parshad and Duggal (1966) carried out some field collections in
different places of Kashmir valley. These studies yielded a total of twenty
species including D. pentaspina, D. epiobscura and D. ebonata detected as
the new species. This paper embodies the results of our recent field collections
conducted in this region during June 1983.

The species under study were largely collected by net-sweeping over leaf
foliage, fallen flowers, decaying fruits and also by using different fermenting
fruits as bait in small containers. The metaphase chromosome preparations
were made from the neuroblast cells of the third instar larvae following air-
dried technique of Guest and Hsu (1973).

Genus Drosophila, Fallen

Drosophila Fallen 1823, Geomyzides
Sueciae 2:4. Type-species: Musca funebris
Fabricius; Sweden.

Subgenus Drosophila Fallen, S. Sr.

Drosophila Fallen 1823, Geomyzides
Sueciae 2:4. Type-species: Musca funebris
Fabricius; Sweden; Sturtevant 1939,
Proc. Nat. Acad. Sci. 25:139; Sturtevant
1942, Univ. Texas Publ. 4213:30,
The polychaeta species group
Reddish brown species; three pairs
of post-sutural dorsoentral bristles; large
elliptical aedeagus; ventral receptacle
relatively short and loosely coiled.
Drosophila (Drosophila) kashmiirenisis sp.
nov.
Male and female: Average body length of male 2.8 mm and of female 3.09 mm. Arista with 3-4 dorsal and 2 ventral branches in addition to the terminal fork. Antennae with second segment brown; third segment little darker. Frons including ocellar triangle brownish. Orbitals in ratio of 1:2:7:17. Second oral bristle half the length of first oral bristle. Palpi brown, with one prominent apical seta. Carina light brown, greatest width of cheek one-fifth greatest diameter of eye. Clypeus dark. Eyes dark red.

Acrostichal hairs regular, in eight rows. Anterior scutellars convergent; posterior ones crossing each other. One additional pair of bristles in the line of dorsocentrals present. Anterior dorsocentral subequal to the posterior dorsocentral; distance between anterior and posterior dorsocentral 3/5 of the distance between two anterior dorsocentrals. Mesonotum and scutellum gray, becoming slightly darker with age. Halteres two, equal. Thoracic pleura yellowish brown sterno-index 0.76.

Legs yellowish brown. Preapicals on all three tibiae; apicals on first and second tibiae.

Abdomen, tergites shiny yellow, with well developed dark brown apical bands, broadly interrupted mediately.

Wings (Fig. 1, D): Clear, posterior crossveins distinctly darker. Two unequal bristles on the apex of first costal section; heavy bristles on about basal two-thirds of third costal section.

C-index 4V-index 4C-index 5X-index
♂ 3.14 2.10 0.97 1.5
♀ 3.09 2.13 0.89 1.4

Halteres shiny yellow. Average wing length in male 2.86 mm and in female 3.06 mm.

Periphallic organs (Fig. 1, A): Epandrium pubescent, pale yellow, narrow, triangularly pointed at lower tip and with about 17 marginal bristles. Surrstylus much broader than long, with 9 stout large black teeth arranged in a straight row on outer margin and with 3 ventral setae. Cerci pubescent, fusiform, separated from genital arch, upper portion with about 25 bristles, lower tip narrowing and with 5-6 stout setae.

Phalic organs (Fig. 1, B): Aedeagus pale yellow, large and elliptical, with narrowly rounded tip apically, basal

Fig. 1: *Drosophila kashmirensis* Sp. nov.: A, Periphallic organs; B, Phallic organs; C, Egg-guide; D, Wing ♂; *Scaptomyza himalayana* Takada; E, Periphallic organs; F, Phallic organs.
apodeme of aedeagus short, about half the length of aedeagus. Anterior gonapophyses large and without sensilla. Posterior gonapophyses obscure. Notosternum with a pair of submedian spines. Ventral fragma narrow, triangular.

Egg-guide (Fig. 1, C): Lobe yellowish, narrowing proximally and broadly rounded distally, with 14 marginal and 4 discal brown teeth. Basal isthmus narrow.

HoLOTYPE: One male from Shalimar Garden, KASHMIR, INDIA June, 1983, Collectors Kumar and Gupta.

Paratypes: 20 ♂️, 17 ♀️, collection data same as holotype.

All type species are at present deposited in the "Drosophila Collection" Deptt, of Zoology, Banaras Hindu University, VARANASI, INDIA. 4 ♂️ and 3 ♀️ from the paratype series are also deposited in the "Drosophila collection" of the Department of Biology, Tokyo Metropolitan University, Setagaya-Ku, JAPAN.
Chromosomes (Fig. 2): The chromosome number in this species as revealed by air-dried technique consists of $2n=12$, comprising 2 unequal pairs of rods, 1 pair of metacentric and 3 unequal pairs of submetacentric chromosomes. The $X$ and the $Y$ chromosomes represent the larger pair of rods, the $Y$ being completely hetero-chromatic.

Relationship: The presence of three pairs of post-sutural dorsocentral bristles and its large elliptical aedeagus warrants its inclusion in the *polychaeta* species group of genus *Drosophila*, where it closely resembles *D. polychaeta* Patterson and Wheeler in having identical rows of acrostichal hairs, second oral bristle half the length of first oral bristle, but distinctly differs from it in having well developed dark brown abdominal bands (abdomen grayish brown uniformly in *polychaeta*), and narrow triangular ventral fragma (broad in *polychaeta*).

The above relationship has been further strengthened on the basis of chromosomes. Since both the species possess chromosome number $2n = 12$. However, the present species clearly differs from *D. polychaeta* in having a small pair of submetacentric chromosomes instead of a pair of dot chromosomes.

**Distribution:** India.

Genus *Scaptomyza* Hardy


*Parascaptomyza* Duda, 1924 Arch. Naturgesch. 90A(3):203. Type-species; *Drosophila pallida* Zetterstedt; Europe.

*Scaptomyza* (Parascaptomyza) *himalayana* Takada

**Male and Female:** Antennae with second segment brownish black; third segment pale brown. Frons including ocellar triangle dark brown. Face and cheek yellowish brown, greatest width of cheek one-fifth greatest diameter of eye.

Anterior dorsocentral, little smaller than the posterior one; distance between anterior and posterior dorsocentrals about 5/8 of the distance between two anterior dorsocentrals. Other details as described by Takada (1970).

Periphallic organs (Fig. 1, E): Genital arch yellowish brown, lower portion of genital arch narrow having two large bristles; posterior margin with a long conical process at middle, with two apartly placed basal bristles, under margin concave. Anal plate pubescent, upper portion with 11 large bristles; lower portion protruded in the form of secondary clasper, having 3 teeth at tip. Lower one largest, upper portion with two large hairs; lower portion with 4–5 fine setae. Clasper bow-shaped, with a row of about 20 long bristles like teeth.

Phallic organs (Fig. 1, F): Aedeagus pale yellow, compact, apically notched, connected with a transverse membrane and covered with several wart-like structures. Anterior parameres small, dark brown, with about 3 apical sensilla. Hypandrium with large processes obliquely truncate apically. Ventral fragma slightly longer than broad, anteriorly with lateral projections.


**Distribution:** Nepal, Japan and India (new record).
KEY TO SPECIES OF THE POLYCHAETA SPECIES GROUP

1 4V-index below 2.0..................illota Williston
   — 4V-index 2.0 or above 2.0................ 2
2 Legs dark brown............................asper Lin and Tseng
   — Legs yellowish or yellowish brown..............
      ........................................... 3
3 Abdomen grayish brown uniformly, without distinct apical bands..............
   ......................Polychaeta Patterson and Wheeler
   — Abdomen yellowish, with well developed dark brown medially interrupted apical bands...................kashmirensis Sp. nov.

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