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## A New Species of *Drosophila* (*Scaptodrosophila*) from Varanasi, India

**ABSTRACT:** *Nine species of Drosophila and one species of Scaptomyza were collected during the present study. One of them is new to science, Drosophila (Scaptodrosophila) bambuphila sp. n., while D. bryani Malloch is recorded for the first time from India.*

### INTRODUCTION

During the last few years intensive collections were made around Varanasi, Uttar Pradesh, and several new species of *Drosophila* were recorded (Gupta, 1969, 1970; Gupta and Ray-Chaudhuri, 1970). The present study deals with the result of surveys made in the vicinity of the university during August and September 1969.

### TAXONOMIC ACCOUNT

#### *Scaptomyza pallida* (Zetterstedt)

*Drosophila pallida* Zetterstedt, 1847, Dipt. Scandinaviae 6:2571 (Europe: type in Stockholm).

**Habitats:** Most of the species of this genus have leaf-mining larvae, although there are apparently some exceptions. On the whole, they are attracted to banana bait only slightly, but sweeping in grass and weeds of various sorts will often reveal certain species in great numbers (Wheeler, 1952).

While surveying the agricultural farm of the university, a small field of the garden pea (*Pisum sativum*) was found heavily infected by this species, and it proved easy to collect them in large numbers by net-sweeping. The leaves of the plants were becoming dry and fruiting was infrequent and very poor.

**Distribution:** World-wide.

*Drosophila melanogaster* Meigen, 1830. Syst. Besch., 6:85.

**Habitats:** This was found as a most frequent species at all collecting stations.

**Distribution:** Cosmopolitan.

*Drosophila ananassae* Doleschall, 1858. Nat. Tijd. Ned. Ind., 17:128.

**Habitats:** Only a very few individuals were collected at the Old Botanical Garden.

Distribution: Widely distributed in tropical and subtropical regions of the world.

*Drosophila* sp. Okada, 1964. Nature and life in South-east Asia, 3, 439.

*Drosophila malerkotliana* Parshad and Paika, 1964. Res. Bull. (N.S.) Punjab Univ., Vol. 15, Parts III-IV, 235.

Habitats: It was collected in great numbers at all places.

Distribution: India, Sabah.

Remarks: Recently, Dr. E. B. Basden, Scotland wrote to Professor S. P. Ray-Chaudhuri that he has examined this species from two areas of Africa.

*Drosophila bipectinata* Duda, 1923. Ann. Mus. Nat. Hung., 20:52.

Habitats: Rarely seen at other stations, but found as a dominant species at the Old Botanical Garden of the university.

Distribution: Japan, Formosa, India, Nepal, Borneo, Sumatra and Micronesia.

*Tanygastrella gracilis* Duda, 1924. Arch. Naturg. 90 A (2):192;215;90A (3): 253 (Java).

*Drosophila (Tanygastrella) gracilis* Duda, 1929. Treubia 7:420 (Buru: Moluccas).

Habitats: Only a single male individual could be collected in the Old Botanical Garden of the university.

Distribution: Borneo, Sumatra, Java, Moluccas and India.

*Drosophila nasuta* Lamb, 1914. Trans. Linn. Soc. 16:346 (Seychelles).

Habitats: A very few individuals were collected during the entire survey.

Distribution: Borneo, Sumatra, Seychelles, Formosa, Moluccas, New Guinea, Samoa, Fiji, Hawaii, Micronesia and India.

*Drosophila paratriangulata* Gupta and Ray-Chaudhuri, 1970. Proc. Royal Ent Soc. London. (B). 39(5-6). 57-72.

Habitats: It was seen only at the University Ayurvedic Garden, and then rarely.

Distribution: India.

*Drosophila bryani* Malloch, 1934. Ins. Samoa, 6(8):310.

Habitats: A large number of individuals were collected by net-sweeping while the flies were hovering over broken limbs of bamboo.

Distribution: Samoa, Australia, Philippines, Japan, Micronesia and India.

Remarks: It is a new record from India.

#### *Drosophila (Scaptodrosophila) bambuphila* sp. n.

*External characters*.—Male and female: Arista with about three dorsal and two ventral branches in addition to the terminal fork. Antennae dull yellow; third segment a little darker. Front including ocellar triangle pale yellow. Anterior reclinate orbital about 2/5 other two, situated just outside and very near to proclinate. Carina yellow and high. Second oral not differentiated. Palpi yellow, with 3-4 marginal setae. Cheek dull yellow, the greatest width of cheek from the base of oral bristle to eye border about 1/7 greatest diam of eye. Eyes bright red.

Acrostichal hairs regular, in eight rows, precutellars well differentiated. Anterior scutellars divergent; posterior scutellars cross each other. The distance from anterior dorsocentral to posterior dorsocentral about 2/5 the distance between two anterior dorsocentrals. Mesonotum and scutellum uniformly pale yellow. Thoracic pleura slightly darker. All three sternopleurals well developed. Legs pale yellow, preapicals on all three tibiae; apicals on first and second tibiae.

Wings clear (Fig. 1D) C-index about 1.96; 4V-index about 2.18 to 2.42; 4C-index about 1.28; 5X-index about 1.59. Single bristle at the apex of first costal section; heavy bristles on basal about 3/4 third costal section. Halteres yellow.

Last two abdominal terminal tergites in both the sexes completely dark

brown to blackish; other tergites yellow, becoming dark brown at lateral edges reducing anteriorly and with faint narrow bands apically.

Length, male body: 2.7 mm; wing: 2.2 mm. Length, female body: 2.8 mm; wing: 2.4 mm.

Periphallic organs (Fig. 1A): Genital arch broad below, with about 19-22 bristles running from top of posterior margin along that margin down to toe, heel prominent, toe nearly roundish at same level as heel. Anal plate oval, slightly tapering below. Clasper one, primary teeth 11-12, arranged in a slightly concave row; first tooth being longest, 2-3 bristles on upper surface of clasper, marginal bristles tough 2-3.

Decasternum (Fig. 1B): Pale, oblong and slightly dilated anteriorly.

Phallic organs (Fig. 1C): Aedeagus fused, spindle-shaped, apparently bifid

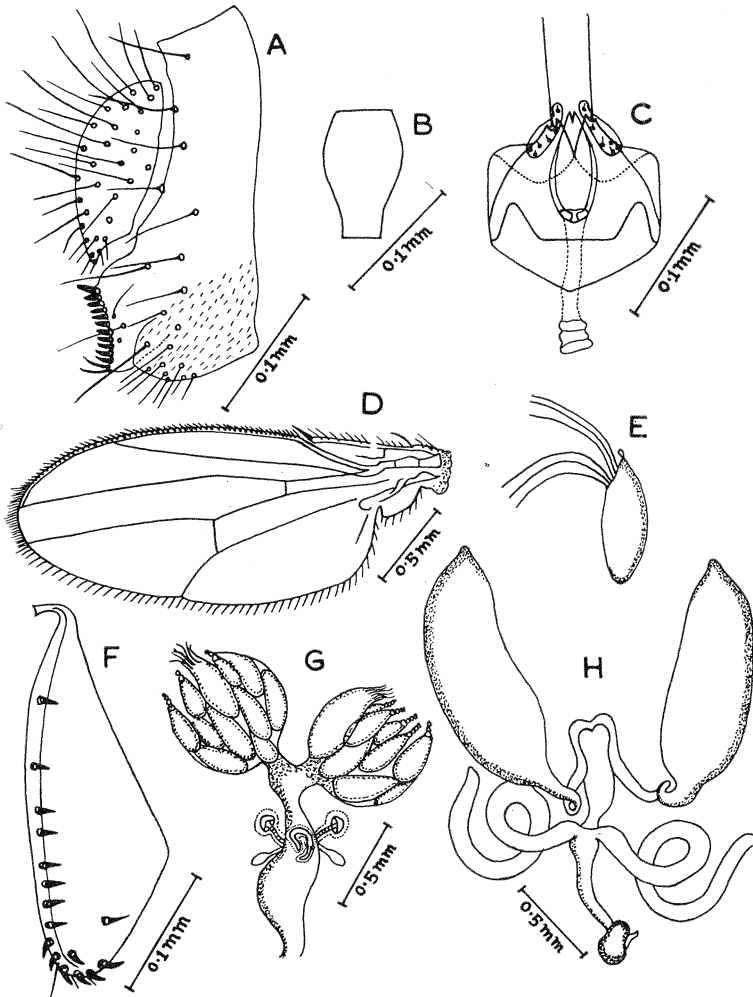


Fig. 1—*Drosophila bambuphila* sp. n. A, periphallic organs; B, decasternum; C, phallic organs; D, male wing; E, egg; F, egg-guide; G, female reproductive organs; H, male reproductive organs

apically. Anterior paramere broad abruptly narrowing near apex and with about 6-7 sensilla arranged on entire length. Novasternum without lateral processes, but with a pair of long submedian spines. Ventral phragma quadrate.

Egg-guide (Fig. 1F): Lobe pale yellow, fusiform, rounded at tip and with about 15 marginal and 1 discal teeth. Basal isthmus of moderate length.

*Internal structures.*—Proximal intestine:  $C = 2.5$ , Rectal papillae:  $R = 1.25$ . Malpighian tubules whitish yellow, free at tips. Testis orange red, uncoiled; paragonia large coiled (Fig. 1H). Spermatheca with chitinized center; ventral receptacle very small (Fig. 1G).

*Other characteristics and relationships.*—Egg (Fig. 1E): with 5-6 filaments.

Holotype: ♂, Old Botanical Garden, Banaras Hindu University, Varanasi, collected by J. P. Gupta, September 1969.

Paratypes: 35 ♂♂, 47 ♀♀, other data as for the holotype.

The types are deposited at the Department of Zoology, Banaras Hindu University, Varanasi, India. Paratypes have been deposited in the National Museum, Washington, D.C. Accession No. 291453.

*Relationships:* This species belongs to the subgenus *Scaptodrosophila*. It is allied to *Drosophila (Scaptodrosophila) setifera* Wheeler and Takada (1964), but differs from it distinctly in having lower costal index, more primary teeth in the clasper, absence of spurlike projection at heel and in many other important characters.

*Remarks:* The specimens were found in large numbers hovering around the oozing sap from broken limbs of bamboo (*Bambusa indica*). It is rather difficult to maintain the species in the laboratory as the larvae do not pupate in the standard food medium and usually dry out.

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