

FURTHER RECORD OF TWO NEW AND ONE KNOWN SPECIES OF *DROSOPHILA* (DIPTERA : INSECTA) FROM KARNATAKA, INDIA

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TWO TEXT-FIGURES

Abstract

Systematic account of two new species, *Drosophila (Drosophila) purpurea*, *D. (Sophophora) maggulae* and new distribution record of one known species, *D. (Dudaica) senilis* from Karnataka are given.

Introduction

Though studies associated with the geographic distribution of Drosophilidae in India have taken rapid strides in last few years (see Gupta, 1981, 1985), yet only cursory surveys have been undertaken in certain areas whereas a vast area of the Indian subcontinent still awaits exploration. Karnataka is one of the few states of India which has yielded considerable data on Drosophilidae (see Prakash and Reddy, 1984 for other references), but they in no way furnish a complete picture of species inhabiting this state. This paper deals with the description of two more new species and one newly recorded species of *Drosophila* recently collected from Karnataka.

The type-specimens are deposited in the "*Drosophila* Collection" of the Department of Zoology, Banaras Hindu University, Varanasi, India and Department of Biology, Tokyo Metropolitan University, Tokyo, Japan.

Material and Methods

The material for the present study was collected from the near-by area of Maggula in Coorg district of Karnataka using different fermenting fruits as bait. Occasionally net-sweeping was also done with a viewpoint to collect those flies which were not attracted towards fermenting fruits. The flies were preserved in 70% alcohol on the spot and the systematic analysis was carried out following the method described by Gupta (1969).

Systematic Account

Drosophila (Drosophila) purpurea n. sp.

Mean body length : 2.1 mm ♂ and 2.3 mm ♀

Head : Arista with 5 dorsal and 3 ventral branches besides terminal fork. Antennae with second segment yellowish brown; third segment little light. Frons including ocellar triangle yellowish brown. Orbitals in ratio 8:2:5. Vibrissa single and strong; second oral not differentiated. Palpi yellow, with one prominent apical and few marginal setae. Carina yellow, high and basally broad. Face and cheek brownish; greatest width of cheek 1/6 the greatest diameter of eye. Clypeus brownish. Eye dark red.

Thorax : Acrostichal hairs in 6 regular rows between dorsocentrals. Anterior scutellars convergent; posterior scutellars crossed each other. Distance between anterior and posterior dorsocentrals 1/2 the distance between two anterior dorsocentrals. Mesoscutum (mesonotum = mesoscutum + scutellum) dark brown with bluish lustre, posteriorly much darker. Scutellum broad and much darker. Thoracic pleura yellow. Sterno-index 0.5.

Legs (Text-fig. 1E) : Yellowish, fore femur with a row of 8-10 black spinules. First and second tarsal segments of fore legs in male with tuft of hairs. Preapicals on all tibiae; apicals on second and third tibiae.

Wings (Text-fig. 1D) : Hyaline. Approximate wing-vein indices: C- index 3.8; 4V-index 1.1; 4C-index 0.5; 5X-index 1.0. C₃ fringe 1/5. Halteres yellow, with upper surface of the knob brownish.

Abdomen : Abdominal tergites dark brown with bluish lustre.

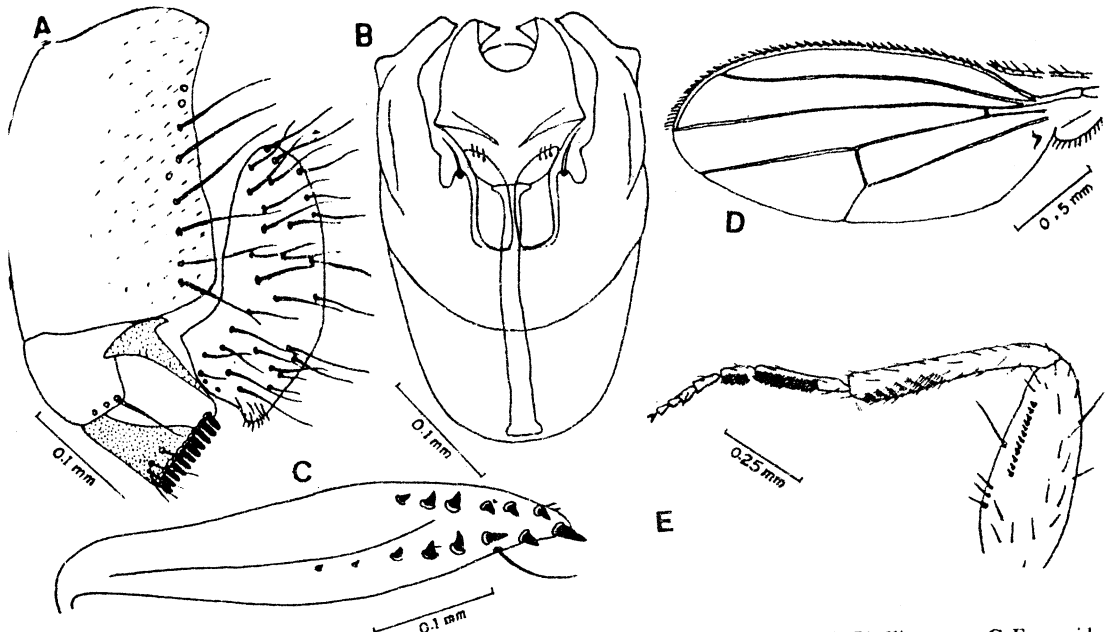
Periphallalic organs (Text-fig. 1A) : Epandrium broad and somewhat truncate ventrally, with 9 bristles on upper portion and 3 bristles basally. Surstylus quadrate, with a straight row of 11 black teeth and few setae posteriorly. Cercus nearly quadrate, separated from epandrium, with about 35 large bristles and few fine setae at lower tip.

Phallic organs (Text-fig. 1B) : Aedeagus expanded, mildly projected at sides, apically incised and curved; basal apodeme nearly twice the length of aedeagus. Anterior gonapophysis large, slightly curved anteriorly and with 3 apical sensilla. Novasternum with a pair of small submedian spines. Ventral fragma nearly quadrate.

Egg-guide (Text-fig. 1C) : Lobe slender, with 8 marginal and 6 discal teeth.

Holotype ♂ : INDIA, KARNATAKA, Coorg district, Maggula, September, 1988. Coll. A. K. Sundaran and J. P. Gupta. Paratypes : 2♂, 7♀ data same as holotype.

Relationships : This species belongs to *immigrans* group, somewhat resembles *Drosophila (Drosophila) burmae* Toda, 1986, in having expanded aedeagus, but distinctly differs from it in having dark brown mesonotum with bluish lustre (brownish yellow in *burmae*), surstylus with teeth arranged in a straight row (concave row in *burmae*) and first and second tarsal segments of fore legs in male with tuft of hairs (not present in *burmae*).



TEXT-FIGURE 1. *Drosophila purpurea* Gupta and Sundaran (A-E). A, Peripheral organs; B, Phallic organs; C, Egg-guide; D, Male wing. E, Male fore leg.

Drosophila (Sophophora) maggulae n. sp.

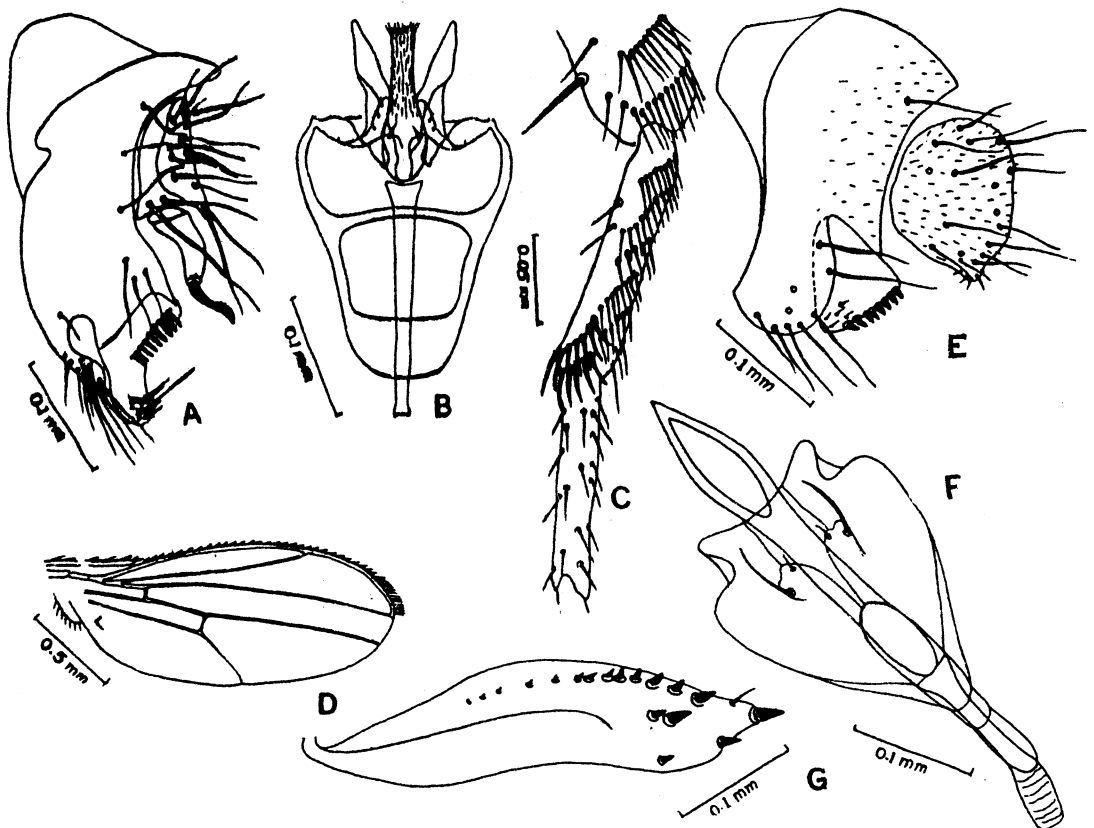
Mean body length : 1.6 mm ♂

Head : Arista with 5 dorsal and 3 ventral branches besides terminal fork. Antennae with second segment yellowish brown; third segment pale yellow. Frons including ocellar triangle pale brown. Orbitals in ratio 4:1:6. Vibrissa strong; second oral subequal. Palpi yellow, with one prominent apical seta. Carina yellow, narrow and high. Face and cheek yellow, greatest width of cheek 1/4 the greatest diameter of eye. Clypeus dull yellow. Eyes red.

Thorax : Acrostichal hairs in 6 regular rows between dorsocentrals. Anterior and posterior scutellars convergent. Distance between anterior and posterior dorsocentrals 1/2 the distance between two anterior dorsocentrals. Mesoscutum yellow. Scutellum little darker. Thoracic pleura yellow. Sterno-index 0.6.

Legs (Text-fig. 2C) : Yellow preapicals on all tibiae; apicals on first and second tibiae. Metatarsal segment of fore legs with two distally placed sex combs, upper one with 5-7 and lower with 5 strong bristle-like black teeth.

Wings (Text-fig. 2D) : Hyaline. Approximate wing-vein indices : C-index 3.0, 4C-index 1.8; 5X-index 2.8. C₃ fringe 2/3. Halteres yellow.



TEXT-FIGURE 2.

Drosophila maggulae Gupta and Sundaran (A-D). A, Periphallic organs; B, Phallic organs; C, Male fore leg; D, Male wing. *Drosophila senilis* Duda (E-G). E, Periphallic organs; F, Phallic organs; G, Egg-guide.

Abdomen : 1T yellow, 2T-4T with narrow black caudal bands. 5T and 6T completely shining black.

Periphallalic organs (Text-fig. 2A) : Epandrium broad at middle and narrowing ventrally, with about 18 marginal bristles. Primary surstylus semi-circular, with 9 large black teeth on upper portion, lower portion with few small bristles. Secondary surstylus with a large, stout, apically broad and finely serrated black tooth. Cercus triangular and somewhat prolonged at outer lower tip, with about 14 bristles.

Phallic organs (Text-fig. 1B) : Aedeagus straight, strongly hirsute; basal apodeme much longer than aedeagus. Anterior gonapophysis with 3 sensilla anteriorly. Posterior gonapophysis large, dilated ventrally. Novasternum with a pair of very small submedian spines. Ventral fragma longer than broad.

Holotype ♂ : INDIA, KARNATAKA, Coorg district, Maggula, September, 1988. Coll. A. K. Sundaran and J. P. Gupta. Paratypes : 10♂♂ data same as holotype.

Relationships : This species belongs to ^{ananasae} ~~mentum~~ species subgroup of *melanogaster* species group, somewhat resembles *Drosophila (Sophophora) atripex* Bock and Wheeler, 1972, in having similar arista branches, costal index and strongly hirsute aedeagus, but distinctly differs from it in having 5th and 6th abdominal tergites completely black (4th - 6th tergites black in *atripex*), primary surstylus with one set of teeth (two sets of teeth in *atripex*) and fore metatarsal segment with two distally placed sex-combs (similar combs on both metatarsal and second tarsal segments in *atripex*).

Drosophila (Dudaica) senilis Duda

Drosophila (Macropalpus) senilis Duda, 1926, suppl. Ent. 14 : 42-116.

Male and female : General features as described by Duda (1926).

Periphallalic organs (Text-fig. 2E) : Epandrium broad, narrowing and broadly rounded below, with one bristle on upper portion and 10 bristles on lower portion. Surstylus triangular, with a straight row of 8 black teeth and few minute setae ventrally. Cercus oval, slightly protruded at ventral tip and with about 18 large bristles and few fine setae below.

Phallic organs (Text-fig. 2F) : Aedeagus long slightly swollen subapically; basal apodeme nearly half the length of aedeagus. Anterior gonapophysis large, with one small apical sensillum. Novasternum with a pair of submedian spines. Ventral fragma triangular.

Egg-guide (Text-fig. 2G) : Lobe elongate, with about 12 marginal and 4 discal teeth.

Specimen examined : INDIA, KARNATAKA, Coorg district, Maggula, 8♂♂ 26♀♀ September 1988.

Distribution : Java, Sumatra, India (New record).

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