

✓ *DROSOPHILA CAUVERII*—A NEW SPECIES OF *DROSOPHILA* FROM
COORG DISTRICT WESTERN GHATS, SOUTH INDIA

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A new species *Drosophila cauverii*, a member of the *montium* sub-group of the *melanogaster* species group, collected from the banks of river Cauvery in Coorg district is described. The taxonomic status and relationships are discussed.

(Key words: *Drosophila cauverii*, new species, *montium* sub group)

Coorg district is a part of Western Ghats situated on the South-Western part of Karnataka state between north latitude $11^{\circ} 56'$ and $12^{\circ} 50'$ and east longitude $75^{\circ} 22'$ and $76^{\circ} 11'$. It is a picturesque highland occupying the eastern and western slopes of the Western Ghats, clothed with primeval forests and grassy lands, broken by a few cultivated valleys with heavy rain fall for nearly half of the year providing congenial environment for colonization by the members of genus *Drosophila*. The *Drosophila* survey made at the banks of river Cauvery near Kudige about 30km to the north-east of Madikeri has yielded a new species, *Drosophila cauverii*, which is herein described.

24632 *Drosophila cauverii*, sp. nov.

Body length: Male 2.3 mm; Female 2.5 mm.

Head: ♂ and ♀: Arista with 8 branches (5/3) including the terminal fork. Front pale brown. Antenna dark brown. Basal segment of the antenna orange yellow. Greatest width of cheek 0.1 greatest diameter of eye. Carina narrow. Palpi yellow and slender. Ocellar triangle small and orange. Ocellar bristles long, proclinate.

Inner verticals longer, outer verticals slightly shorter than inner ones. Orbital bristles in the ratio of 3:1:3. Eyes red.

Thorax: ♂ and ♀: Brown. Acrostichal hairs in 8 rows, regularly placed. Ratio anterior: posterior dorsocentrals 0.6. Mesonotum light yellow. Scutellum light brown. Anterior scutellars convergent; posterior scutellars crossing each other. Sterno-index 0.6. Prescutellars absent. Halteres yellow.

Legs: Preapical bristles on all tibiae. Apicals on first and second tibiae. Male fore legs (Fig. 1) with longitudinal sex-combs along entire length of metatarsal and second tarsal segments. Metatarsal comb consisting of 15—18 teeth, smaller basally, longer distally, the distal 2 displaced from axis of remaining teeth. Comb on second tarsal segment with 11—13 uniform teeth.

Wings: ♂ and ♀: Transparent. C-index, 2.00; 4V-index, 2.6; 5X-index, 1.6; M-index, 0.9 (Wing indices calculated after Bock, 1976). Third costal section with heavy setation on basal 0.5. Wing lengths: 1.8mm (male); 2.1mm (female).



Drosophila (sophophora) caaverii sp. nov.
Fig. 1. Fore leg of male showing sex-combs.

Abdomen: ♂ and ♀: Tergites of both sexes yellowish. First five tergites of female and first four tergites of male with dark apical bands, remaining tergites of both sexes unbanded.

Periphallic organs: (Fig. 2): Epandrium (Genital arch) yellow, broad dorsally and laterally. Toe small and rounded with about 6 bristles. Primary and secondary surstyli (claspers) present. Primary surstylus yellow, broad with 6—7 randomly

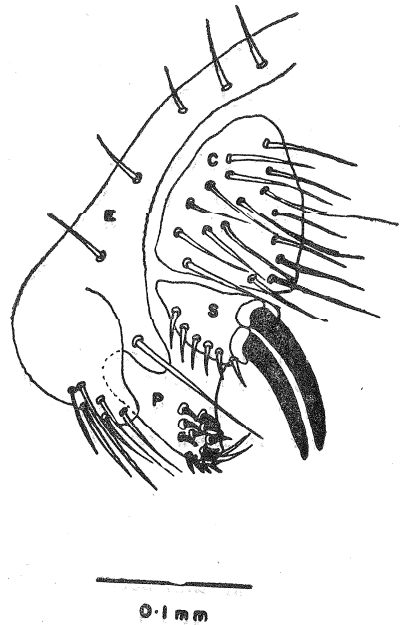


Fig. 2. Periphallic organs. C — Cerci; E — Epandrium; P — Primary surstylus, S — Secondary surstylus.

distributed lateral teeth and a ventro medial cluster of 8—9 bristles, two of which are long and curved. Secondary surstylus dark yellow separated from cerci (anal plates), with 2 large curved black medial teeth and a row of 5—6 small bristles along the ventral border. Cerci light black, triangular with 16—18 bristles.

Phallic organs: (Fig. 3): Aedeagus yellow, slender, bare, tapered and curved dorsally. Anterior gonopophyses (anterior parameres) short, broad, tip rounded with 4—5 minute sensilla. Posterior gonopophyses (posterior parameres) long slender, reaching the tip of aedeagus. Caudal margin of novasternum with elongate median truncate process, apically with a pair of short sub-median spines. Basal apodeme projecting the anterior border of ventral fragma.

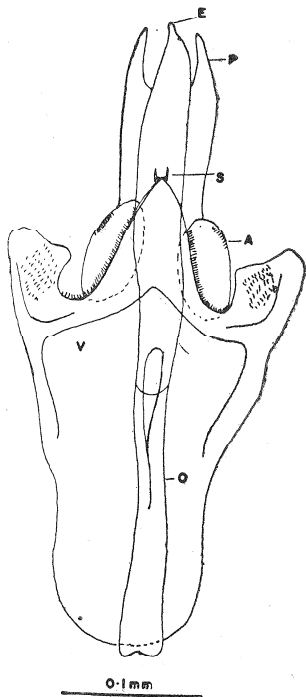


Fig. 3. Phallic organs. A — Anterior gonopophyses; E — Aedeagus; O — Basal apodeme of Aedeagus; P — Posterior gonopophyses; S — Submedian spine of novasternum; V — Ventral fragma.

Egg guide: (Fig. 4): Lobe brown, with 15 marginal teeth and a sub-terminal hair inserted between 3rd and 4th marginal teeth.

Internal structures: Testes (Fig. 5) yellowish with three and half coils. Accessory glands large and transparent. Spermathecae (Fig. 6) vestigial, par ovaria small, ventral receptacle long, tightly coiled. Malpighian tubules two pairs, free.

Egg filaments: (Fig. 7): 2. long slender, not flattened apically.

Pupae: Anterior spiracle with 10 black branches.

Distribution: Coorg district (Western Ghats), Karnataka, India.

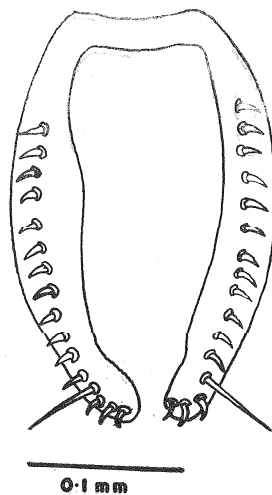


Fig. 4. Egg guide.

Holotype ♂, INDIA, KARNATAKA, Coorg district (Western Ghats), banks of river Cauvery near Kudige, 12.1.1980. Coll. N. Muniyappa, G. Sreerama Reddy, H. S. Prakash and D. Theertha Prasad. **Paratypes** 10 ♂♂ and 10 ♀♀: same data as

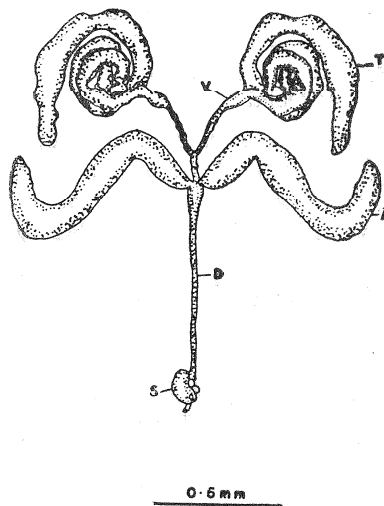


Fig. 5. Male Reproductive organs. A — Accessory gland; D — Anterior ejaculatory duct; S — Ejaculatory bulb; T — Testes; V — Vas deferens.

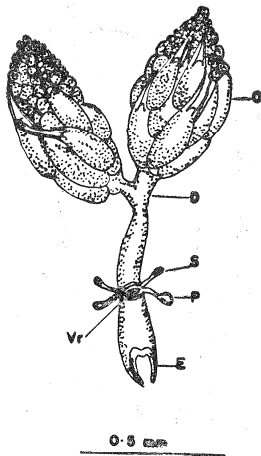


Fig. 6. Female Reproductive organs.
D — oviduct; E — Egg guide, O — Ovary;
P—Parovaria, S — Spermatheca, Vr = Ven-
tral receptacle.

holotype. The holotype and some paratypes are deposited in the Department of Zoology, University of Mysore, Manasa Gangothi, Mysore. Other paratypes are also deposited in the department of Biology, Tokyo, Metropolitan University, Setagayaku, Tokyo, Japan, Zoological survey of India, Calcutta and some will be deposited in the Indian Agricultural Research Institute, New Delhi.

Taxonomic status: The nature of the banding pattern of abdominal tergites, egg with 2 filaments, presence of posterior pair of malpighian tubules which are free and the type of puparia warrant its inclusion in the *melanogaster* species group of sub genus *Sophophora*. The characters like yellowish abdomen with distinct apical bands, presence of sex-combs in male along the entire length of metatarsal and second tarsal segments, secondary surstylus with curved black medial teeth, permit its inclusion in the *montium* sub group (Bock and Wheeler, 1972).

Relationships and remarks: Okada (personal communication, February 1980)

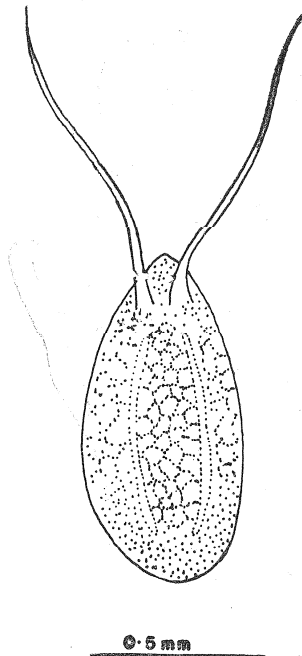


Fig. 7. Egg.

has pointed out that the new species resembles *Drosophila barbata* Bock and Wheeler 1972, in the abdominal banding pattern and in general features of peripheral and phallic organs. However, the two species differ from one another in the number of teeth in the sex-combs, in the structure of peripheral and phallic organs. Recently Tsacas and David (1977) distinguished a group of nine species of the *montium* sub group allied to *Drosophila kikkawai* and named this cluster of species as *kikkawai* complex. (*D. Kikkawai*, Burla, 1954; *D. barbata* Bock and Wheeler, 1972; *D. lini* Bock and Wheeler, 1972; *D. pennae* Bock and Wheeler, 1972; *D. brevis* Parshad and Singh, 1971; *D. leontia* Tsacas and David, 1977; *D. diplacantha*, Tsacas and David, 1977; *D. anomelani*, Ready and Krishnamurthy, 1973; *D. mysorensis* Reddy and Krishna Murthy, 1970). The new species described here shows the presence

of essential features of *kikkawai* complex and can be tentatively included in this complex. However, on comparison with the known species of this complex it was found that the new species differs from them in the number of teeth in the sex-combs, number and arrangement of lateral teeth and in the absence of median long bristles above the ventro-median cluster of teeth in primary surstylus, in having short sub median spines and in the absence of serrated dorsal margin of posterior parameres. Thus the presence of the combination of the above mentioned characters are unique to this species and are not found in any known species of *kikkawai* complex of the *montium* sub group. Therefore it deserves the status of a new species in this complex.

The new species can be cultured in the laboratory with standard wheat-cream agar medium. The specific name *Drosophila cauvei* is coined to denote the river Cauvery, originating from Coorg district and on the banks of which it was collected for the first time.

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