

**A NEW *DROSOPHILA* (*HIRTODROSOPHILA*) FROM
MALAYSIA WITH BROAD-HEADED MALES
(DIPTERA: DROSOPHILIDAE)**

DAVID GRIMALDI

Department of Entomology, Cornell University,
Ithaca, New York 14853

Abstract.—*Drosophila caputudis*, new species, from Kuala Lumpur, Malaysia is described and figured. It is the only *Hirtodrosophila* known to have males with heads that are laterally distended.

After completing a revision on South American *Chymomyza*, I received specimens of *Drosophila* with a sexual dimorphism similar to that of some of the *Chymomyza*. This extends our knowledge of the repeated arisal of broad-headed male Drosophilidae, and the trait is now known in *Drosophila* (*Idiomyia*) *heteroneura* (Perkins) [endemic to Hawaii], several described and undescribed *Zygothrica* [all of them neotropical (Burla, 1954; Grimaldi, unpublished)], 5 neotropical species of *Chymomyza* (Grimaldi, 1986), and in the southeast Asian species *Lissocephala asiatica* Okada. The last was transferred to *Zygothrica* when the bizarre males were discovered (Okada, 1965), but has since been returned to *Lissocephala* (Okada, in manuscript and personal communication) since closer examination shows its affinities to be quite distant from *Zygothrica* and to truly lie with some southeast Asian forms. A forthcoming paper of mine will treat the occurrence, anatomy, allometry, and functional consequences of the trait in Drosophilidae.

Hirtodrosophila is presently considered as a subgenus in the huge (and paraphyletic) genus *Drosophila*. Burla (1957) provided the most thorough exposé on *Hirtodrosophila*, but for South American forms in particular. Duda (1923, 1924) was the first to deal in depth with those from southeast Asia, then Okada (1967) and Bächli (1973). Okada divided the Old World species into three groups and some of these again into subgroups.

† ***Drosophila* (*Hirtodrosophila*) *caputudis*, new species**

Figs. 1, 3

Description. Male head with expanded fronto-orbital plates (head width/thorax length = 1.25, 6♂♂). Eyes rosy pink; interfacetal setulae short but dense apically. Anterior reclinate seta anterior to proclinate by less than its length, lateral to proclinate by about equal to its length. Postocellars cruciate. Inner verticals subparallel, outer verticals divergent; 1-2 very long postverticals. Ocellars slightly divergent. Cranial setae lengths (longest to shortest): inner verticals-posterior reclinates-outer verticals-ocellars/postocellars-proclinate-anterior reclinate. Vibrissa very fine, length about that of proclinate, projecting anterodorsad, subtended by about 5 very fine setae. Prominent, long thin genal seta per side. Ocelli light, contrasting with dark brown

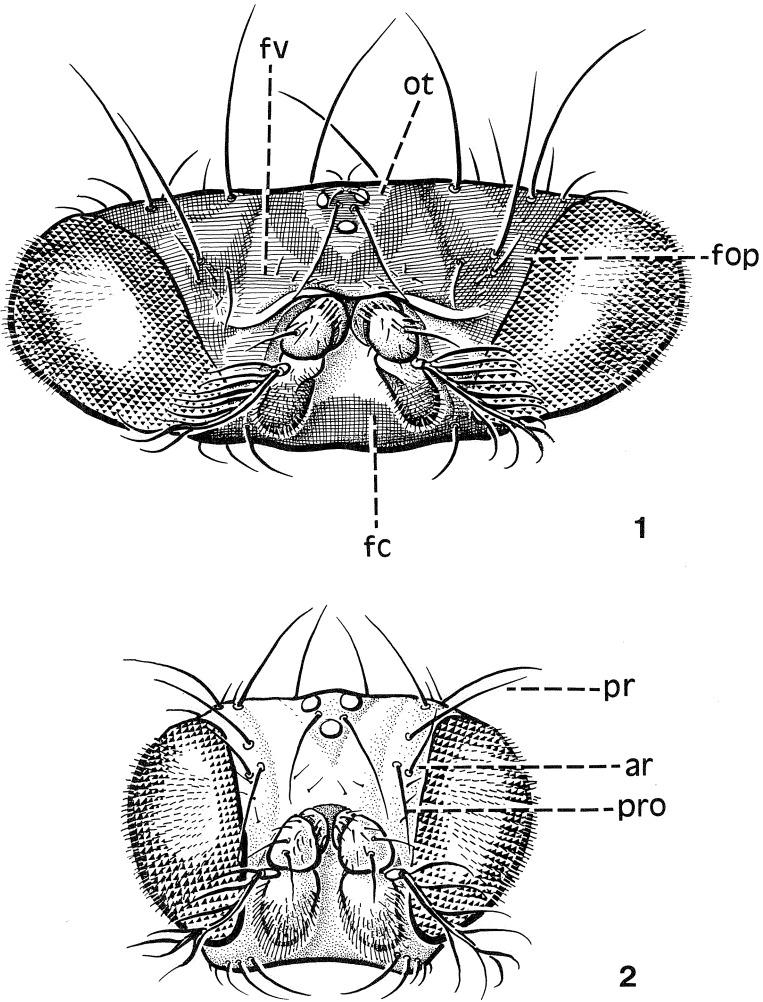


Fig. 1, 2. 1. Male *Drosophila* (*Hirtodrosophila*) *caputudis*, n. sp. Frontal view of head. fc, face; fop, fronto-orbital plate; fv, frontal vitta; ot, ocellar triangle. 2. Male *Drosophila* (*Hirtodrosophila*) *duncani* Sturt. (Ithaca, N.Y.) Frontal view of head. ar, anterior reclinate seta; pr, posterior reclinate orbital seta; pro, proclinate orbital seta.

ocellar triangle. Frontal vitta dark brown; brown markings circumscribing bases of orbital setae and connect to frontal vitta. Occiput with dark brown area near eyes. Scapes and lunule yellow, like flagellomeres I and II. Pedicel light to dark brown, arista dark brown. Face light yellow, no carina. Ventral margin of face with distinctive, discrete dark brown border extended dorsad to just past tips of flagellomere I. Clypeus dark brown; each palpus with 2 apical setae. Proboscis short, labellum yellow. Oral

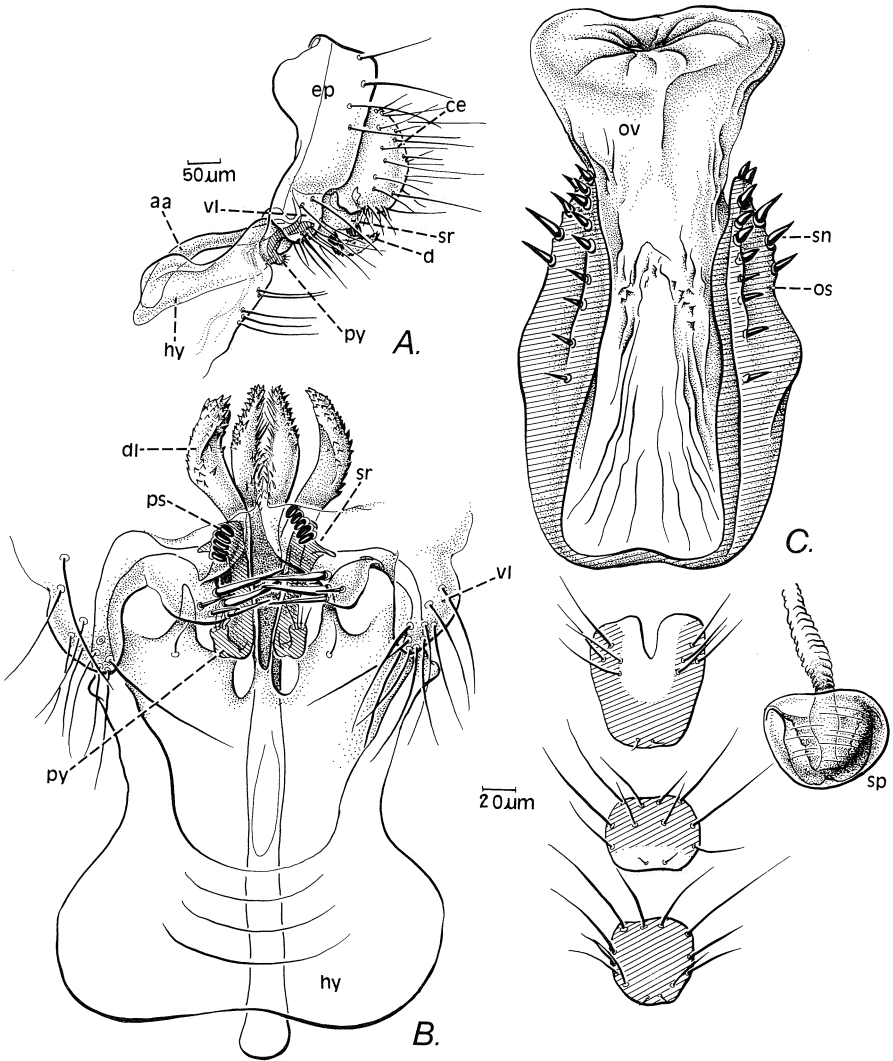


Fig. 3. a) Lateral view, male terminalia of *D. caputudis*, n. sp. aa, aedeagal apodeme; ce, cercus; d, distiphallus; dl, distiphallus, lateral lobe; ep, epandrium; hy, hypandrium; ps, prensisetae; py, paraphysis; sr, surstylus; vi, ventral lobe of epandrium. b) Male genitalia of *D. caputudis*, n. sp., ventral view. c) Female terminalia of *D. caputudis*, n. sp., ventral view. os, oviscape (=sternite VIII); ov, ovipovector; sn, sensillum; sp, spermatheca.

cavity wide. Flagellomere about twice length of pedicel. Arista with 6–7 dorsal and 1–3 (usually 2) ventral rays. Postoccipt dark brown, cheeks and genae contrasting light yellow.

Mesonotum dark brown, indistinct edge extended about $\frac{4}{5}$ width of notum. Apical $\frac{2}{3}$ scutellum dark brown, margin light yellow. Six rows acrostichal setulae. Pleura light yellow, except for dark to light brown area at wing base. Two prominent katipisternal setae. 1 large postpronotal seta, 2 large supra-alar, 1 lateral prescutellar (length about twice that of acrostichals). Anterior scutellars parallel, posterior ones divergent, lengths equal. Posterior dorsocentral thoracic seta longest, lying $\frac{1}{2}$ distance between anterior dorsocentral and scutellar suture. Subscutellum and halteres light yellow. Anepimeron and anepisternum with dark markings, but variable for this trait. Legs yellow to tan, no distinctive markings or ornamentations. Pleura mostly yellow. Wings hyaline, veins dark, very dense microtrichia on membrane.

Abdominal tergites dark brown, epandrium and cercus light yellow like lateral portions of tergites 3–6. Sterna and surrounding membrane light yellow. Tergal setae evenly arranged in 3–5 transverse rows, the posterior one with longest setae. Male terminalia with evenly rounded cercus (in profile), its ventral surface with numerous short setae. Ventral epandrial lobe small, bearing 14–16 setae; smaller medial lobe on each side with 4–5 sharp, straight setulae projecting mediad. Surstyli each with 5 short prenisetae. Anterior margin of hypandrium bilobed; length about that of aedeagal apodeme. Paraphyses small. Hypandrium with anterior lobes curved ventroapicad, each with 4 short setulae. Aedeagal apodeme bent ventrad in profile. Endophallus ornamented, with 3 lobes, median one cleft with sharp setulae and scales on inner margins and distal half of lateral margins, each lateral lobe also with some sharp scales. Oviscape (sternite VIII) with 13 sharp sensilla on each laterally-broadened surface (valve), 9 of them ventral. Membranous, eversible egg guide (oviprovector) without well-developed scales. Posterior margin of sternite 7 cleft, 2 groups of 4 setae on each side. Spermathecal capsule smooth and large, heavily sclerotized, dome-shaped, with a small apical indentation.

Holotype. ♂, MALAYSIA: Kuala Lumpur (no dates available), D. Burkhardt, I. de la Motte, colls. (in National Museum of Natural History, Washington, D.C.).

Paratypes. 9♂♂, 6♀♀, all with same label data as holotype (NMNH).

Comments. This species is in the *quadrivittata* species-subgroup of the *Drosophila* (*Hirtodrosophila*) *quadrivittata* species-group, based on Okada's (1967) phylogenetic groupings. It will key out to couplet 20 in his key, as *D. latifrontata* "var. *sublineata*," although it shares closer relationships with other species. Subgroup placement is based on the possession of flagellomere I setulae lengths being relatively reduced, and an endophallus that has lateral lobes. It is very similar to the Japanese species *D. yakushimana* Okada, the most exceptional differences being that the new species has a flat face (no carina) and a broad head in the males, the oviscape is apically pointed and has 13 instead of 20 sensilla, and the male terminalia vary in several details. Any comments on distribution must await better collecting in southeast Asia.

Male head structure shows remarkable convergence with that of *Chymomyza jamaicensis* and *C. diatropa* (Grimaldi, 1985). All 3 species have the eyes expanded ventrally, but not dorsally, and a slightly expanded facial plate bears a distinct dark anterior margin. The fronto-orbital plate expansion accounts for most of the head

broadening since the frontal vitta width (relative to thorax length) is normal in comparison to other *Drosophila*.

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