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Two New and One Unrecorded Species of the Genus *Chymomyza* (Diptera, Drosophilidae) from China*

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Abstract Two new and one unrecorded species of the genus *Chymomyza* (Diptera, Drosophilidae) are reported from Yunnan Province, southern China.

The present paper deals with two new and one unrecorded species of the genus *Chymomyza* CZERNY, which is new to the drosophilid fauna of the mainland of China.

All flies examined here were collected from timber piles, and the types are deposited in the Kunming Institute of Zoology, Academia Sinica, Kunming, China.

Chymomyza japonica OKADA, 1956

Chymomyza japonica OKADA, 1956, Syst. Study, 65–67.

Diagnosis. Dark brown species with mesoscutum anteromedially darker. Second tarsal joint of fore leg proximally black and distally yellow. Aedeagus asymmetric (OKADA, 1956). Spermatheca black; introvert shallow, ca. 1/4 of height of outer capsule.

Specimens examined. China: 6 ♂, 2 ♀, Dabochin, Dali District, Yunnan Province, 21–22.IX.1988, H. WATABE & X. LIANG leg.

Distribution. Japan; China (n. loc.): Yunnan.

Relationships. This species belongs to the *Cymomyza costata* species-group (OKADA, 1976).

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Chymomyza novobscura sp. nov.

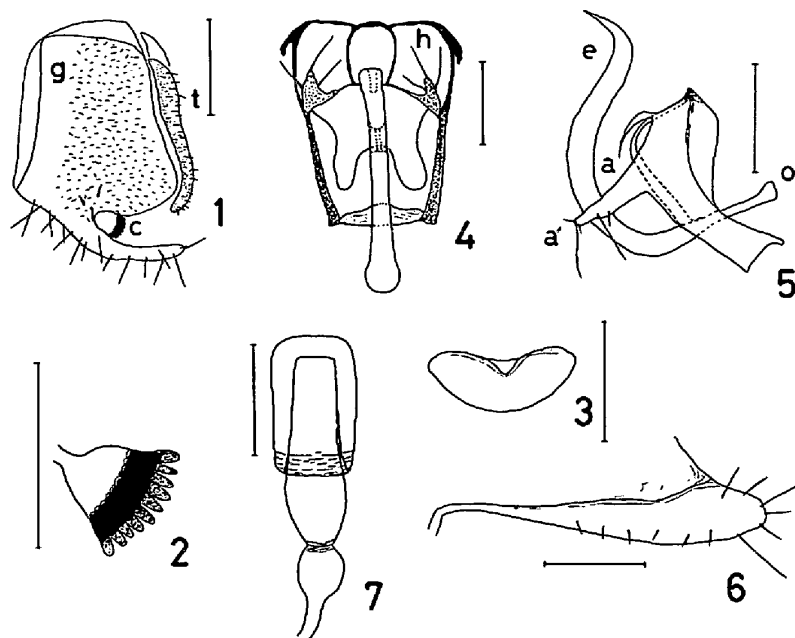
(Figs. 1–7)

Diagnosis. Frons mat black, anteriorly orange. Wing tip milky white. Legs yellow; proximal end of femur, tibia and proximal two tarsal joints of fore legs black. C3-fringe ratio ca. 4/5.

Measurements. Body length, ♂ ca. 2.6 mm (range: 2.3–2.8), ♀ ca. 3.0 mm (2.9–3.2). Thorax length (including scutellum), ♂ ca. 1.1 mm (1.0–1.2), ♀ ca. 1.2 mm. Wing length, ♂ ca. 2.5 mm (2.3–2.7), ♀ ca. 2.9 mm (2.7–3.0).

Head: Eye wine red, bare. Second joint of antenna pale red; 3rd grayish yellow; arisal base much darker. Arista with ca. 3 (3–4) upper and 2 (1–2) lower branches besides a large terminal fork. Frons ca. 0.47 (0.42–0.57) width of head. Anterior reclinate orbital (Orb 2) ca. 0.87 (0.69–1.07) length of posterior reclinate orbital (Orb 1); proclinate orbital (Orb 3) ca. 0.85 (0.47–1.08) length of Orb 1. Face grayish brown; carina low, wider below. Clypeus dark brown. Cheek brown, ca. 0.06 (0.05–0.08) as broad as maximum diameter of eye. Second oral (Or 2) ca. 0.66 (0.50–0.86) length of vibrissa (Or 1). Palpus pale yellow, with a few tiny bristles.

Thorax: Mesoscutum subshining black, anteroventrally orange; scutellum black. One long stout humeral. Anterior dorsocentral (DcA) ca. 0.57 (0.48–



Figs. 1–7. *Chymomyza novobscura* WATABE et LIANG, sp. nov. — 1, Peripheral organs; 2, surstylus; 3, decasternum; 4, phallic organs in ventral view; 5, phallic organs in lateral view; 6, ovipositor; 7, spermatheca. a, paramere; a', lateral arm of hypandrium; c, surstylus; e, aedeagus; g, epandrium; h, hypandrium; t, cercus. Scales: 0.1 mm.

0.61) length of posterior one (DcP); length distance of dorsocentrals ca. 0.46 (0.43–0.54) cross distance. Anterior scutellars (SctA) parallel and posterior ones (SctP) convergent; SctA ca. 0.56 (0.48–0.63) length of SctP. Acrostichal hairs (Ac) in 8 rows. Sterno-index ca. 0.54 (0.44–0.67).

Wing hyaline. Veins brown; crossveins clear. Costa and C-cell black. R_{2+3} straight; R_{4+5} and M medially divergent and distally convergent slightly. Wing indices: C ca. 1.59 (1.14–1.94), 4C ca. 2.14 (2.00–2.23), 4C ca. 1.30 (1.15–1.47), 5x ca. 2.84 (2.67–3.17), Ac ca. 3.99 (3.44–4.44), C3-fringe ca. 0.81 (0.76–0.86). Halteres white.

Abdomen: Tergites subshining black; sternites brown, nearly rectangular, with several bristles on margin.

Periphallic organs (Figs. 1–3): Epandrium grayish brown, pubescent except lower caudal portion and anterior margin, with ca. 3 short and ca. 15 long bristles on ventral portion. Surstylus dark brown, palm-shaped, with ca. 9 apically obtuse primary teeth. Decasternum pale yellow. Cercus grayish brown, narrow, with ca. 32 short bristles.

Phallic organs (Figs. 4–5): Aedeagus yellow, slender, gently curved dorso-ventrally, apically narrowing in lateral view and slightly broadened in ventral view. Paramere short, with 1 tiny sensillum at tip. Hypandrium pale yellow; lateral arm of hypandrium brown, apically with sensilla and laterally with a few bristles. Ventral fragma brown.

Female reproductive organs (Figs. 6–7): Lobe of ovipositor pale orange, slender, marginally with ca. 11 setae and 1 long sensillum. Spermatheca cylindrical, slightly wrinkled on basal 1/5; introvert deep, ca. 4/5 height of outer capsule; outer duct constricted outside capsule.

Holotype. ♂, China: Dabochin, Dali District, Yunnan Province, 22.IX.1988, X. LIANG leg.

Paratypes. China: 3 ♂, 2 ♀, same data as for the holotype.

Distribution. China: Yunnan.

Relationships. *Chymomyza novobscura* belongs to the *obscura* species-group (cf. OKADA, 1981). This species resembles *C. obscura* (DE MEIJERE) in the external morphology, but distinguishable from the latter by the characters of C3-fringe and aedeagus.

Chymomyza demae sp. nov.

(Figs. 8–14)

Diagnosis. Male broad-headed. Frons mat black, anteriorly orange. Legs light yellow; distal half of fore femur black, with pale gray spot on inner side, and fore tibia and tarsus entirely black. Wing tip milky white. Surstylus with black spots at basal portion.

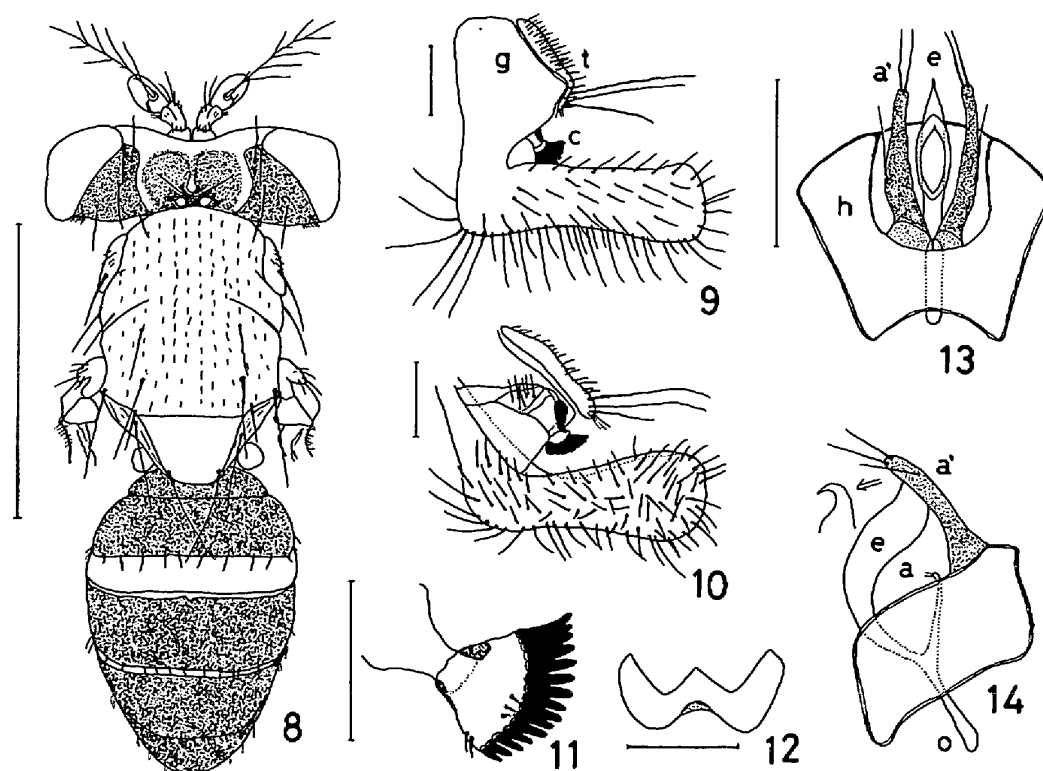
Measurements. Body length, ca. 2.1 mm, thorax length, ca. 1.0 mm and

wing length, ca. 2.7 mm.

Head laterally broadened, ca. 1.5 times of thorax width (Fig. 8). Eye dark red, large, bare. Second joint of antenna yellowish brown, with several stout setae; 3rd grayish yellow, roundish at tip. Arista with ca. 3 upper and 2 lower branches in addition to a terminal fork. Frons ca. 0.55 of head width. Orb 2 ca. 0.75 length of Orb 1; Orb 3 ca. 0.71 length of Orb 1. Face orange; carina very low, nearly straight. Clypeus black. Cheek reddish brown, ca. 0.29 as broad as maximum diameter of eye. Or 2 ca. 0.75 length of Or 1. Palpus pale yellow, club-shaped, without long setae.

Thorax: Mesoscutum entirely black, anteroventrally light orange; scutellum black. Humerus dark brown, with 1 prominent humeral and ca. 8 tiny setae. Ac in 6 regular rows. DcA ca. 0.52 length of DcP; length distance of dorsocentrals ca. 0.45 cross distance. SctA ca. 0.63 length of SctP. Sterno-index ca. 0.50.

Wing hyaline, with black spot at tip of submarginal cell; C-cell and costa black. Veins dark brown; crossveins clear. R_{2+3} straight; R_{4+5} and M parallel. Wing indices: C ca. 1.74, 4V ca. 2.96, 4C ca. 2.65, 5x ca. 2.05, Ac ca. 4.20, C3-fringe ca. 0.70. Halteres white, proximally grayish yellow.



Figs. 8–14. *Chymomyza demae* WATABE et LIANG, sp. nov. — 8, Male; 9, periphallic organs; 10, inner side of epandrium; 11, surstylus; 12, decasternum; 13, phallic organs in ventral view; 14, phallic organs in lateral view. Signs and scales as in Figs. 1–7, except Fig. 8 (scale: 1.0 mm).

Abdomen: Tergites subshining black. Sternites dark brown, each with ca. 8 bristles on margin.

Periphallic organs (Figs. 9–12): Epandrium dark brown, bare, expanded on submedian portion; caudal projection laterally bilobed on upper portion, with numerous bristles on both inner and outer sides. Surstylus palm-shaped, distally with ca. 15 black primary teeth and ca. 5 tiny spines. Decasternum pale yellow, dorsally convex and ventrally concave in middle. Cercus brown, narrow, with 3 extraordinarily long bristles at lower apex.

Phallic organs (Figs. 13–14): Aedeagus pale yellow, curved dorsoventrally, narrowing and recurved at tip; apodeme relatively long, ca. 5/9 length of aedeagus. Parameres small, apically with sensilla. Hypandrium parallelogram-shaped in lateral view; lateral arm of hypandrium black, with ca. 2 bristles at tip and 1 bristle at middle.

Holotype. ♂, China: Dabochin, Dali district, Yunnan Province, 22.IX.1988, H. WATABE leg.

Distribution. China: Yunnan.

Relationships. *Chymomyza demae* belongs to the *obscura* species-group in having the black frons, milky white wing tip and bilaterally symmetrical aedeagus (OKADA, 1976; 1981), but distinguishable from the other species of this group by the diagnostic characters.

Remarks. In the family Drosophilidae, male flies with broad heads have been found in the four genera, namely *Drosophila*, *Mulgravea*, *Zygothrica* and *Chymomyza* (GRIMALDI & FENSTER, 1989). In the genus *Chymomyza* five species have hypercephalic males, all of which belong to the *aldrichi* species-group mostly distributed in the Neotropical Region. Thus, *Chymomyza demae* is the sixth species for the broad-headed males in this genus.

Etymology. The specific name, *demae* means protruded eye in Japanese.

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