

**Further record of three new species of *Microdrosophila* from India**  
(Insecta: Diptera: Drosophilidae)

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With 12 figures

Abstract

Eleven species of the genus *Microdrosophila* are known from India so far including three species described in this paper: *M. peniciliata* n. sp., *M. paradistincta* n. sp., and *M. chinsurae* n. sp. Keys to the Indian species representing two subgenera of the genus *Microdrosophila* are also provided.

India possesses a rich but still little known fauna of Drosophilidae. However, in recent years considerable data have been accumulated on Indian species, representing twenty genera of Drosophilidae (see GUPTA 1993). Among them, the genus *Microdrosophila* has been known so far by eight species only (SUNDARAN & GUPTA 1990, KUMAR & GUPTA 1991). The present paper deals with the description of three more new species of *Microdrosophila* from India.

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***Microdrosophila (Oxystyloptera)* DUDA 1924**

*Oxystyloptera* DUDA, Arch. Naturgesch., 90 (A3): 192.

Relatively larger body size; proclinate orbital usually inside posterior reclinate; mesonotum unicolorous; wing tip strongly pointed; second costal break very deep; cercus slender and separated from epandrium.

***Microdrosophila (Oxystyloptera) peniciliata* n. sp.**

Figs. 1–4

**Holotype:** ♂, Chinsura, Hooghly Distr., West Bengal, India, X.1993, DE & GUPTA leg. — In Dept. Zool., Banaras Hindu University.

**Paratypes:** 4♂♂ (*Drosophila*-Collection, Genetics Lab., Dept. Zoology, Banaras Hindu University, Varanasi, 1♂ 1♀ (SMF D 3677), all same data as holotype.

**Diagnosis:** C<sub>3</sub> fringe reaching apex of 3rd vein; abdominal tergites with medially interrupted dark bands, terminal tergite with two dark spots.

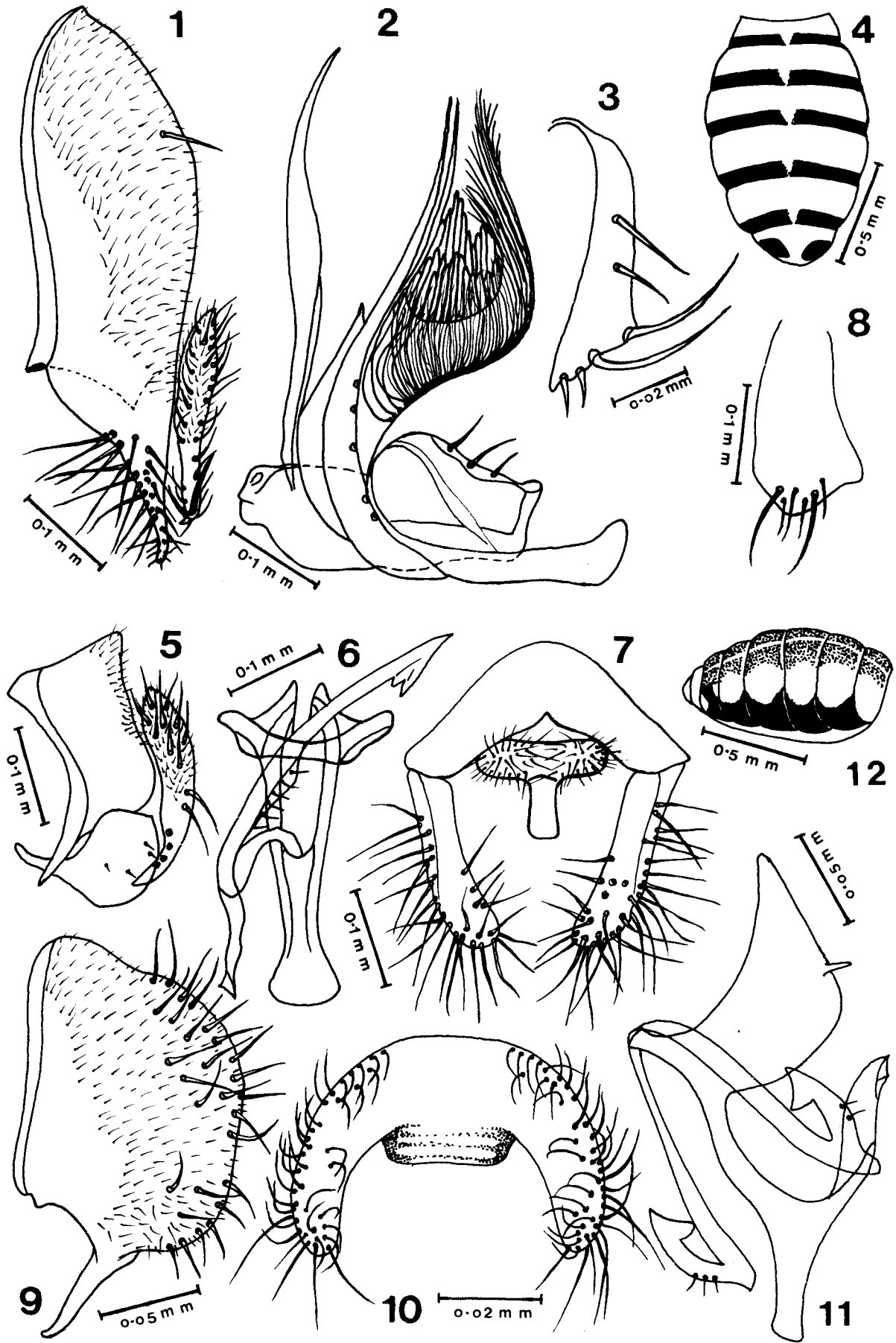
**Description:** Head (♂ ♀): Arista with 6–7 branches above and 1–2 below in addition to the small terminal fork. Antennae with pedicel pale tan; first flagellomere light yellow. Fronto-orbital plate pale tan. Anterior reclinate orbital minute; proclinate orbital <sup>2</sup>/<sub>3</sub> posterior reclinate orbital. Vibrissa large and single. Palpus yellowish, with three tough setae. Facial carina pale tan, present as a low ridge. Gena pale yellow, greatest width of gena <sup>1</sup>/<sub>4</sub> greatest diameter of eye. Clypeus yellow. Eyes dark red.

**Thorax (♂ ♀):** Mesonotum unicolorous, shiny yellow. Acrostichal setulae in 8 regular rows. Thoracic pleura yellow. Katepisternal setae two, middle one not distinct. Anterior scutellars divergent; posterior scutellars nearly parallel. Distance between anterior and posterior dorsocentrals <sup>4</sup>/<sub>5</sub> distance between two anterior dorsocentrals. Sterno-index 0.85. Legs whitish yellow.

**Wings (♂ ♀):** Hyaline, distal costal incision rather deep. Approximate indices: C-index 1.5; 4V-index 3.3; 4C-index 2.1; 5X-index 2.75. C<sub>3</sub> fringe reaching apex of the third vein. Halteres whitish yellow.

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Abdomen (♂ ♀): Tergites whitish yellow, with medially interrupted dark bands, terminal tergite with two large dark spots.

Average length of the body: 2.1 mm (♂), 2.8 mm (♀).

Periphallic organs: Epandrium broad with finger-like process below, pubescent, with one seta above and many setae below. Cercus elongate, separated from epandrium, with several small setae and two distinctly tough setae below.

Phallic organs: Aedoeagus large, apically pointed, medially swollen ventrally and with numerous compactly arranged cilia. Paramere smaller than aedoeagus.

Ovipositor: Triangular, with two large and two small apical and two marginal setae.

Remarks: This species closely resembles *M. (O.) tectifrons* OKADA 1985 particularly in having aedoeagus medially swollen ventrally and with numerous compactly arranged cilia, but clearly differs from the latter in having triangular ovipositor (rod-shaped in *tectifrons*), abdominal tergites with medially interrupted dark bands (mostly mat black in *tectifrons*), and in wing vein indices.

### *Microdrosophila (Oxystyloptera) paradistincta* n. sp.

Figs. 5–8

Holotype: ♂, Chinsura, Hooghly Distr., West Bengal, India, X. 1993, DE & GUPTA leg. — In Dept. Zool., Banaras Hindu University.

Paratypes: 11♂♂ 10♀♀ (*Drosophila*-collection, Genetics Lab., Dept. Zoology, Banaras Hindu University, Varanasi), 4♂♂ 2♀♀ (SMF D 3678), all same data as holotype.

Diagnosis: C<sub>3</sub> fringe reaching apex of 3rd vein; male sixth sternite having two large processes with numerous setae; abdominal tergites uniformly brownish.

Description: Head (♂ ♀): Arista with 6–7 branches above and 1–2 below in addition to the small terminal fork. Antennae with pedicel pale, brownish marginally; first flagellomere dull yellow. Fronto-orbital plate yellow to yellowish brown. Anterior reclinate orbital minute; proclinate orbital  $\frac{4}{5}$  posterior reclinate orbital. Facial carina yellow and high. Clypeus yellow. Vibrissa large and single. Palpus yellowish, with three distinct apical setae. Gena yellow; greatest width of gena  $\frac{1}{3}$  greatest diameter of eye. Eyes dark red.

Thorax (♂ ♀): Mesonotum yellowish, two faint broad bands seen between dorsocentrals in old specimens. Distance between anterior and posterior dorsocentrals  $\frac{3}{5}$  distance between two anterior dorsocentrals. Acrostichal

setulae in eight regular rows. Anterior scutellars convergent; posterior scutellars nearly parallel. Thoracic pleura with large brownish patch. Only two katepisternal setae present. Sterno-index 0.5. Legs yellow.

Wings (♂ ♀): Hyaline, pointed at tip; distal costal incision deep. Approximate indices: C-index 0.85–0.87; 4V-index 4.4; 4C-index 3.4; 5X-index 5.0–5.5. C<sub>3</sub> fringe reaching apex of the 3rd vein. Halteres brownish yellow.

Abdomen (♂ ♀): Tergites uniformly brownish. Male 6th sternite having two large processes with numerous setae.

Average length of the body: 1.9 mm (♂), 2.2 mm (♀).

Periphallic organs: Epandrium with a narrow process at heel. Cercus slender, narrowing basally, separated from epandrium, with about 15 setae. Surstylus rounded, narrowing basally, with about 4 small setae.

Phallic organs: Aedoeagus elongate, hooked subapically, basal apodeme small. Ventral phragma elongate and triangular.

Ovipositor: Triangular, with about six apical setae.

Remarks: This species closely resembles *M. (O.) distincta* WHEELER & TAKADA 1964 in having male 6th sternite with two large bristly processes, but clearly differs from the latter in having mesonotum with two faint broad bands between dorsocentrals (mesonotum tan in *distincta*), C<sub>1</sub> setae two, small (C<sub>1</sub> seta single and stout in *distincta*), acrostichal setulae in regular rows (irregular in *distincta*), cercus with 4 small basal setae (no basal setae in *distincta*), and in certain structures of phallic organs.

Key to Indian species of *Microdrosophila (Oxystyloptera)*:

1. Sixth sternite with bristly processes in male ..... 2.
- Sixth sternite without bristly processes in male .....  
..... *peniciliata* n. sp.
2. 5X-index greater than 5.0. Surstylus with four small setae  
..... *paradistincta* n. sp.
- 5X-index less than 5.0. Surstylus without setae .....  
..... *neodistincta* SUNDARAN & GUPTA.

### *Microdrosophila (Microdrosophila) MALLOCH* 1921

*Incisurifrons* DUDA 1924, Arch. Naturgesch., 90 (A3): 202.

Relatively smaller body size; proclinate orbital usually outside posterior reclinate; mesonotum with dark longitudinal stripes; Wing tip gently pointed; second costal break not very deep; Cercus usually fused to epandrium.

Figs. 1–4. *Microdrosophila (O.) peniciliata* n. sp. — 1) Periphallid organs; 2) phallic organs; 3) ovipositor; 4) abdomen, dorsal view.

Figs. 5–8. *Microdrosophila (O.) paradistincta* n. sp. — 5) Periphallid organs; 6) phallic organs; 7) male sixth abdominal sternite; 8) ovipositor.

Figs. 9–12. *Microdrosophila (M.) chinsurae* n. sp. — 9) Periphallid organs; 10) male sixth abdominal sternite; 11) phallic organs; 12) abdomen, lateral view.

*Microdrosophila (Microdrosophila) chinsurae* n. sp.

Figs. 9–12

Holotype: ♂, Chinsura, Hooghly Distr., West Bengal, India, X. 1993, DE & GUPTA leg. — In Dept. Zool., Banaras Hindu University.

Paratypes: 4♂♂ 6♀♀ (*Drosophila*-collection, Genetics Lab., Dept. Zoology, Banaras Hindu University, Varanasi), 2♂♂ 2♀♀ (SMF D 3679), all same data as holotype.

Diagnosis: C<sub>3</sub> fringe not reaching apex of 3rd vein; male 6th sternite having two processes with numerous small setae, abdominal tergites with medially interrupted faint bands confined in mid region and each tergite laterally with dark patches.

Description: Head (♂♀): Arista with 7–8 branches above and 3 below in addition to the small terminal fork. Antennae with pedicel yellow to yellowish brown; first flagellomere yellow. Anterior reclinate orbital minute, proclinate orbital 1/2 posterior reclinate. Facial carina yellowish, slightly ridged. Fronto-orbital plate orange yellow. Clypeus yellow. Palpus whitish yellow, with three distinct apical setae. Vibrissa large and single. Gena orange yellow; greatest width of gena 2/5 greatest diameter of eye. Eyes dark red.

Thorax (♂♀): Mesonotum shiny yellow, with two pairs of faint stripes, inner pair confined between anterior and posterior dorsocentrals and outer pair in alar region, extending below along lateral margins of scutellum. Acrostichal setulae in six regular rows. Distance between anterior and posterior dorsocentrals about 3/4 distance between two anterior dorsocentrals. Anterior scutellars thin and small, convergent; posterior scutellars large, nearly parallel. Thoracic pleura with a distinct black band. Katepisternal setae two. Sterno-index 0.6. Legs yellow.

Wings (♂♀): Hyaline; distal costal incision not very deep. Approximate indices: C-index 1.15; 4V-index 4.1; 4C-index 2.85; 5X-index 4.0 and C<sub>3</sub> fringe 0.85. Halteres dull yellow.

Abdomen (♂♀): Tergites yellow, with medially interrupted faint bands confined in mid region, each tergite

laterally with dark patch giving the impression of a band on either side of the abdomen. Sixth sternite having two processes with numerous small setae.

Average length of body: 1.79 mm (♂); 1.95 mm (♀).

Pheriphallic organs: Epandrium broad, pubescent, ventrally with elongated process. Cercus pubescent, fused to epandrium and with about 27 setae.

Phallic organs: Aedoeagus broad, pointed apically with a small finger-like projection mediodorsally. Basal apodeme rod-like. Anterior paramere flap-like, with 2–3 sensilla medially. Posterior paramere looped dorsomedially and contiguous with aedoeagus.

Remarks: This species closely resembles *M. (M.) submarginata* OKADA 1965, but differs distinctly from it in having sixth sternite in male with two processes bearing numerous setae (absent in *submarginata*), abdominal tergites with interrupted faint bands mid-dorsally (tergites with diffuse broad brownish caudal bands in *submarginata*), and sterno-index 0.6 (0.4 in *submarginata*).

Key to Indian species of *Microdrosophila (Microdrosophila)*:

1. Cercus fused to epandrium ..... 2.  
— Cercus not fused to epandrium ..... *purpurata* OKADA.
2. Thoracic pleura with a dark brown stripe ..... 3.  
— Thoracic pleura without dark brown stripe ..... 4.
3. Abdominal tergites uniformly brown .....  
..... *gangtokensis* GUPTA & GUPTA.  
— Abdominal tergites not uniformly brown ..... 5.
4. Distal portion of femora and proximal portion of tibiae darker .....  
..... *bilineata* KUMAR & GUPTA.  
— Distal portion of femora and proximal portion of tibiae not darker ..... 6.
5. Arista with 10 upper and 2 lower branches .....  
..... *sikkimensis* KUMAR & GUPTA.  
— Arista with 7–8 upper and 3 lower branches .....  
..... *chinsurae* n. sp.
6. Lower tip of epandrium pointed .....  
.....  
— Lower tip of epandrium broadly rounded .....  
..... *pleurolineata* WHEELER & TAKADA.
7. Palpus dark brown; ovipositor oblong .....  
..... *virajpetiensis* SUNDARAN & GUPTA.  
— Palpus yellow; ovipositor triangular .... *elongata* OKADA.

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