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Records of drosophilid species from West Bengal with description of one new and two previously unrecorded species from India

(Insecta: Diptera: Drosophilidae)

ABHIJIT DE & JAI PAL GUPTA

With 12 figures

Abstract

Taxonomic account of a new sophophoran species, *Drosophila cryptica* and new distribution records of two other species, *Lordiphosa aurantifrons* (OKADA) and *Dettopsomyia argentifrons* OKADA from India are given. A list of drosophilid species so far recorded from West Bengal is also included.

During the last few years faunal surveys of Drosophilidae have yielded over 254 species representing 23 genera from India (GUPTA 1993). However, these species in no way furnish a complete picture of the Indian Drosophilidae since a vast area of the Indian subcontinent still awaits exploration.

From the perusal of literature it seems that among the various states of India, West Bengal has long been the center of great interest to the drosophilid workers (STURTEVANT 1921, BRUNETTI 1923, DUDA 1923, 1924, RAY-CHAUDHURI & MUKHERJEE 1941). In recent years our surveying studies in various parts of this state have uncovered the occurrence of several interesting species of Drosophilidae (DWIVEDI 1979, DWIVEDI et al. 1979, DWIVEDI & GUPTA 1979, 1980, GUPTA & DWIVEDI 1980, SINGH & GUPTA 1980, 1981, GUPTA & SINGH 1981, DE & GUPTA 1994a, 1994b).

This report deals with the description of one new and two previously unrecorded species of Drosophilidae in addition to the list of species recorded so far from West Bengal, India.

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Genus *Drosophila* FALLÉN 1823

Drosophila (Sophophora) cryptica n. sp.

Figs. 1–5

Holotype: ♂, Chinsura, Hooghly Distr., West Bengal, India, II.1995, DE and GUPTA leg. – In Coll. Department of Zoology, Banaras Hindu University.

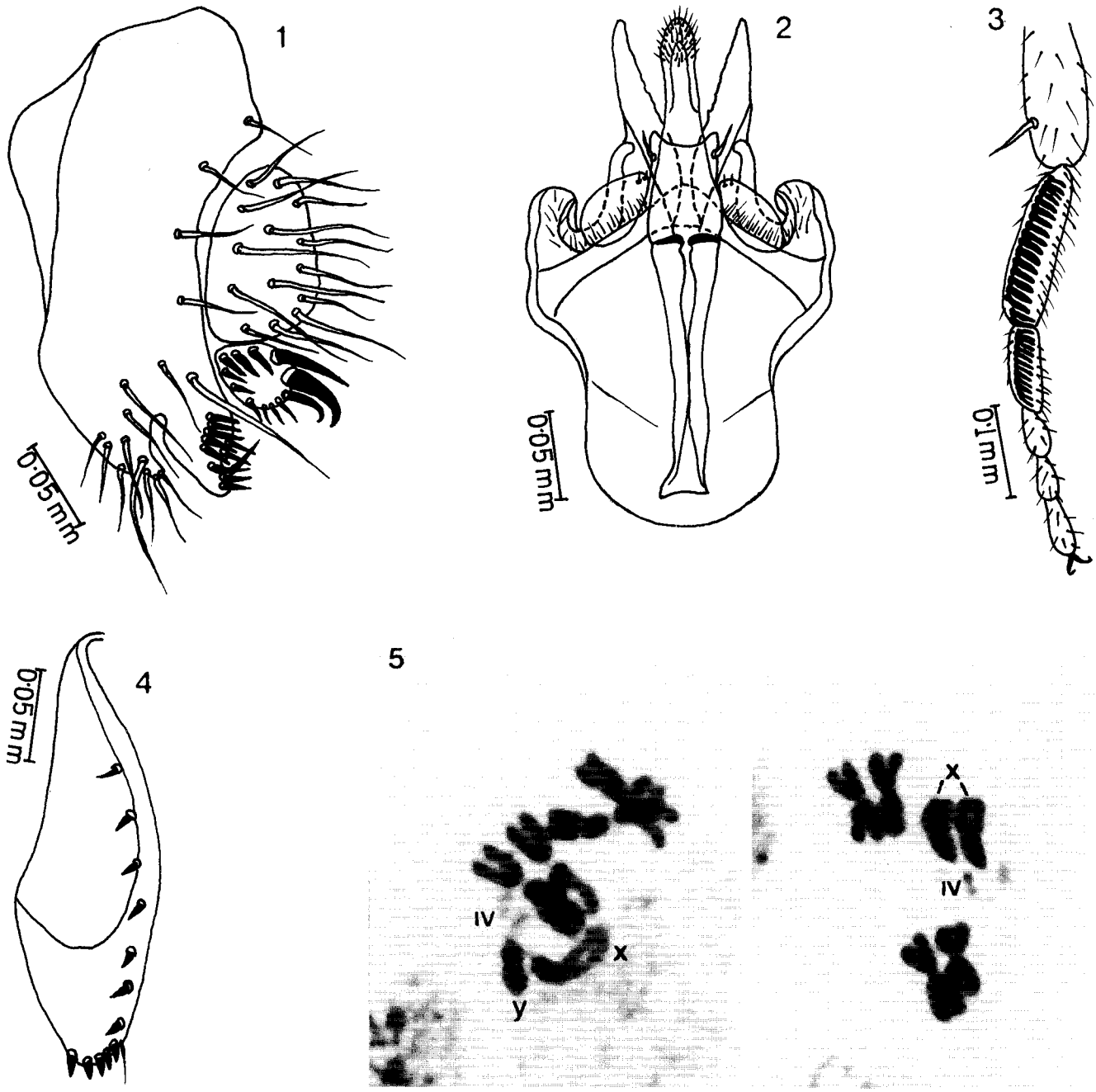
Paratypes: 15 ♂♂ 13 ♀♀ in *"Drosophila* Collection", Genetics Lab., Department of Zoology, Banaras Hindu University, Varanasi; all same data as holotype.

Diagnosis: Terminal abdominal tergites yellow in both sexes; 1st and 2nd tarsomeres of male forelegs with two large sex-combs having 16 and 12 black teeth, respectively; caudal margin of hypandrium broadly projected, medianly having concavity.

Description: Head (♂ ♀): Arista with 4 dorsal and 3 ventral branches in addition to small terminal bifurcation. Antennae with pedicel pale yellow; first flagellomere brownish yellow. Facial carina high. Clypeus yellow. Palpus pale yellow, with one apical seta. Vibrissa large and stout, subvibrissal seta about 2/3 of vibrissa. Frons yellow. Gena yellow; greatest width of gena 1/7 greatest diameter of eye. Orbital setae in the ratio of 5:2:6. Eyes bright red.

Thorax (♂ ♀): Scutum shiny yellow; scutellum somewhat darker. Acrostichal setulae in 6 regular rows. Distance

Authors' address:
ABHIJIT DE & Prof. JAI PAL GUPTA, Genetics Laboratory, Department of Zoology, Banaras Hindu University, Varanasi – 221 005, India.



Figs. 1–5. *Drosophila (Sophophora) cryptica* n. sp. – 1) Epandrium, cercus, ventral cercal lobe and surstylus; 2) aedoeagus, paramere, gonopod and hypandrium; 3) male tarsomeres with sex-combs; 4) oviscapt; 5) mitotic metaphase chromosomes.

between anterior and posterior dorsocentrals 2/5 the distance between two anterior dorsocentrals. Basal scutellars convergent; apical scutellars crossed each other. Thoracic pleura yellow. Sterno-index 0.6.

Legs (♂ ♀): Pale yellow. Preapicals on all three tibiae; apicals on fore and mid tibiae. Male forelegs with two sets of large sex-combs. Comb on first tarsomere with 15–17 (average 16) dissimilar black teeth, smaller above and larger below, the lowermost two teeth slightly displaced from the axis of the remaining teeth; comb on 2nd tarsomere with 9–12 (average 12) similar black teeth.

Wings (♂ ♀): Clear. Approximate wing vein indices: C-index 1.7; 4V-index 2.6; 4C-index 1.6; 5X-index 2.7. C_3 fringe 0.6. Halteres yellow.

Abdomen (♂ ♀): Shiny yellow. Tergites II–IV in male with narrow, apical, black bands, Vth tergite with faint bands. In female tergites II–V with narrow black bands, VIth tergite entirely yellow in both sexes.

Average length of body: 2.1–2.2 mm (♂), 2.4–2.6 mm (♀).

Male terminalia: Epandrium broad, narrowing below and with about 16 marginal setae. Cercus somewhat triangular, with about 15 long setae. Ventral cercal lobe with 2 upper large stout and one small curved black prensisetae, encircled dorsally as well as laterally by 5–6 small black tough setae and two to three setulae below. Surstylus with a straight row of 4–5 black prensisetae and a few marginal setae clustered at lower tip. – Aedoeagus long, straight,

broadened basally and hirsute apically. Aedoeagal apodeme little longer. Parameres ovoid, with minute apical sensilla. Gonopod long, basally bilobed, inner margin finely serrated. Caudal margin of hypandrium broadly projected, medianly with a concavity and a pair of small paramedian spines subapically. Hypandrial apodeme rounded distally.

Female terminalia: Oviscapt broad, tip rounded, with 12 marginal ovisensilla and single subapical trichoid ovisensillum.

Remarks: This species closely resembles *Drosophila (Sophophora) bicornuata* BOCK & WHEELER 1972 in general external morphology as well as male terminalia, but distinctly differs from it in having first tarsomere sex-comb with 16 black teeth and second tarsomere sex-comb with 12 teeth (1st tarsomere sex-comb with 27 and 2nd tarsomere sex-comb with 20 teeth in *bicornuata),* 6th tergite in female yellow (black in *bicornuata*), caudal margin of hypandrium broadly projected having median concavity (narrowly projected medianly and without concavity in *bicornuata*), and the ventral cercal lobe with 5–6 small, tough, black setae dorsolaterally (with 7–8 tiny setae along the ventral and lateral border in *bicornuata*).

Karyotype: Male mitotic metaphase plate consists of two pairs of metacentric, one pair of dots, a submetacentric X-chromosome with heterochromatic short arm and a smaller rod-like Y-chromosome.

Genus *Lordiphosa* BASDEN 1961

Diagnosis: Acrostichal setulae in 4–6 rows; ventral receptacle long and loosely looped; eggs with two short filaments; parameres often hairy; aedoeagus with dense microsetae at apex.

Lordiphosa aurantifrons (OKADA 1984)

Figs. 6–8

Material: 10 ♂♂ 19 ♀♀, Darjeeling, Darjeeling district, West Bengal, March 1993. DE and GUPTA leg.

Distribution: Taiwan; India (new record).

Description ♂♀: General features as described by OKADA (1984).

Male terminalia: Epandrium dark brown, pubescent, basally narrowing and curved, terminating into a hook-like process. Cercus oval, pubescent, dorsally with about 30 setae and ventrally with a tuft of 8–9 small stout black setae. Surstylus somewhat quadrate, with upper darker portion bearing 10–12 large pointed black marginal prensisetae and 7–8 yellow setae below in lighter portion. – Aedoeagus fusiform and finely pubescent, aedoeagal apodeme nearly double the length of aedoeagus. Parameres long, apically truncate, subapically with hairy branches. Hypandrium with a pair of small paramedian spines; hypandrial apodeme much longer than broad, laterally concaved.

Female terminalia: Oviscapt broad at tip, with 11 marginal and 6 lateral ovisensilla.

Genus *Dettopsomyia* LAMB 1914

Diagnosis: Eyes oblique to the body axis; ocellars inside the ocellar triangle; gena not very broad; costal lappet large; C-index less than 1.0; tibia ringed; acrostichal setulae in 2 rows.

Dettopsomyia argentifrons OKADA 1956

Figs. 9–12

Material: 12 ♂♂ 20 ♀♀, Kurseong, Darjeeling district, West Bengal, March 1993, DE and GUPTA leg.

Distribution: Japan; India (new record).

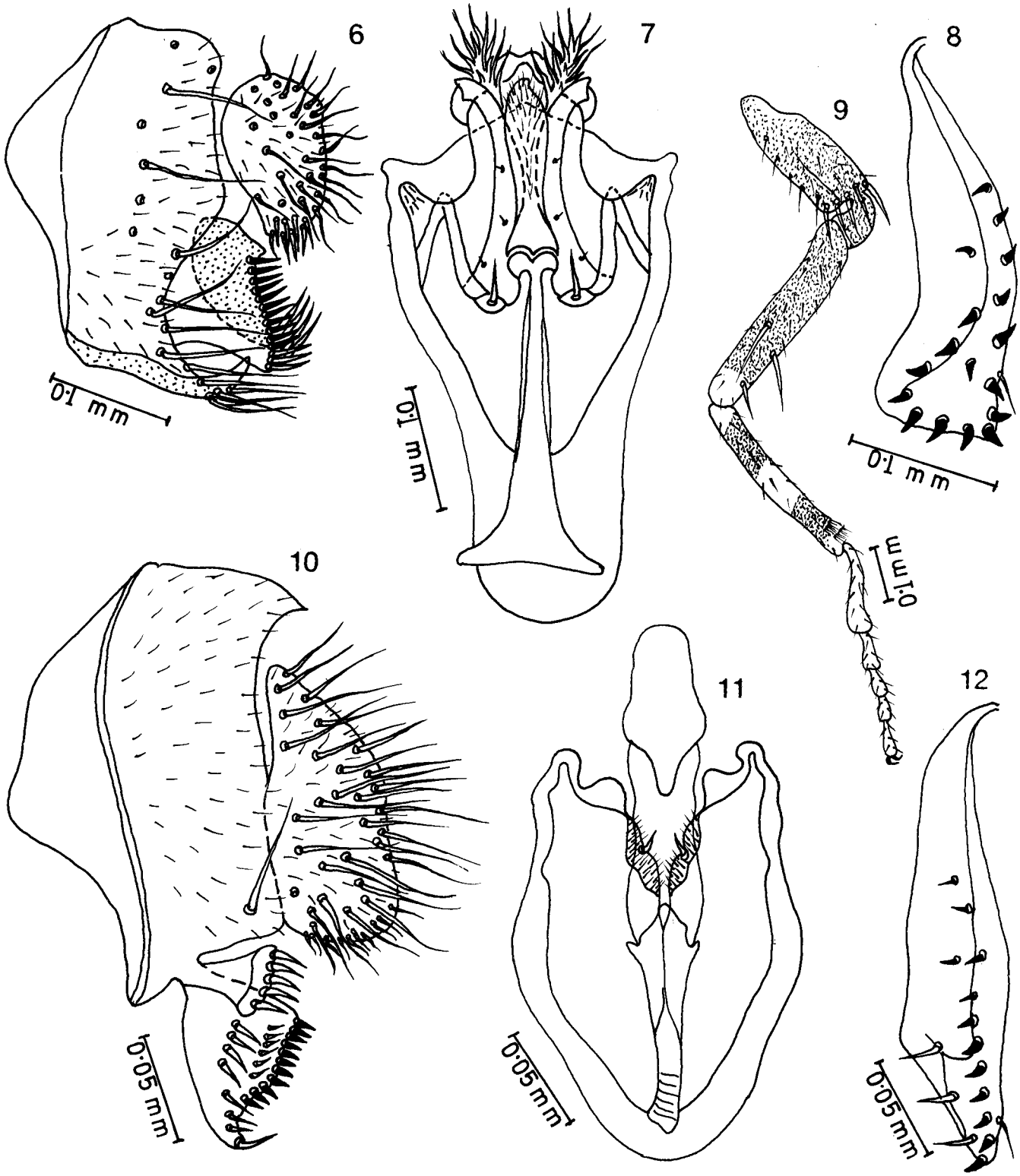
Description: General features as described by OKADA (1956).

Male terminalia: Epandrium dark brown, pubescent, uniformly broad, truncate below and with a single basal seta. Cercus slender, broadened below, contiguous, with numerous setae around and a few fine setae at lower margin. Ventral cercal lobe triangular, above surstylus, with 5 long marginal setae. Surstylus large, somewhat triangular, with about 25 prensisetae arranged in 3 rows on outer half, marginal row comprising 11 short stout prensisetae, the middle row of 6 short and thin setae and inner row of 4 large, 3 short and 1 large setae, the latter one inserted at the lower tip. – Aedoeagus rod-like and rounded apically. Parameres fused to hypandrium, with numerous sensilla. Gonopod obscure. Hypandrial apodeme rounded at tip.

Female terminalia: Oviscapt dark brown, slender, apically pointed with about 11 small marginal and 3 seta-like lateral ovisensilla.

Species of Drosophilidae recorded from West Bengal

Genus	*Stegana*
	1. *shirozui* OKADA 1971
Genus	*Leucophanga*
	2. *bellula* (BERGROTH 1894)
	3. *interrupta* DUDA 1924
	4. *rimbickana* SINGH & GUPTA 1981
Genus	*Chymomyza*
	5. *pararufithorax* VAIDYA & GODBOLE 1973
Genus	*Dettopsomyia*
	6. *argentifrons* OKADA 1956
Genus	*Mycodrosophila*
	7.*gratiosa* (DE MEIJERE 1911)
Genus	*Microdrosophila*
	8. *paradistincta* DE & GUPTA 1994
	9. *peniciliata* DE & GUPTA 1994
	10. *chinsurae* DE & GUPTA 1994
Genus	*Nesiodrosophila*
	11. *pleurostriata* SINGH & GUPTA 1981
	12. *lindae* WHEELER & TAKADA 1964
Genus	*Hypselothyrea*
	13. *guttata* DUDA 1926
	14. *rotata* DE & GUPTA 1994
	15. *bengalensis* DE & GUPTA 1994
Genus	*Liodrosophila*
	16. *angulata* DWIVEDI & GUPTA 1979
	17. *okadai* DWIVEDI & GUPTA 1979
	18. *penispinosa* DWIVEDI & GUPTA 1979
	19. *ceylonica* OKADA 1974
	20. *rufa* OKADA 1974



Figs. 6–8. *Lordiphosa aurantifrons* (Okada). – 6) Epandrium, cercus, and surstylus; 7) aedoeagus, parameres, gonopod and hypandrium; 8) oviscapt.

Figs. 9–12. *Dettopsomyia argentifrons* Okada. – 9) Male foreleg; 10) epandrium, cercus, ventral cercal lobe and surstylus; 11) aedoeagus, paramere and hypandrium; 12) oviscapt.

Genus *Scaptomyza*
21. *elmoi* TAKADA 1970
22. *tistai* KUMAR & GUPTA 1991
23. *clavata* OKADA 1973
24. *pallida* (ZETTERSTEDT) HACKMAN 1959

Genus *Hirtodrosophila*
25. *neokurokawai* SINGH & GUPTA 1981
26. *fascipennis* OKADA 1967

Genus *Scaptodrosophila*
27. *latifshahi* GUPTA & RAY-CHAUDHURI 1970
28. *minima* OKADA 1966

Genus *Lordiphosa*
29. *coei* OKADA 1966
30. *parantillaria* KUMAR & GUPTA 1990
31. *aurantifrons* OKADA 1984

Genus *Drosophila*

Subgenus *Dorsilopha*
32. *busckii* COQUILLETT 1901

Subgenus *Sophophora*
33. *ananassae* DOLESCHALL 1858
34. *bipectinata* DUDA 1923
35. *brunetti* RAY-CHAUDHURI & MUKHERJEE 1941
36. *fruhstorferi* DUDA 1924
37. *jambulina* PARSHAD & PAIKA 1964
38. *kikkawai* BURLA 1954
39. *kurseongensis* GUPTA & SINGH 1977
40. *lucipennis* LIN 1972
41. *malerkotliana* PARSHAD & PAIKA 1964
42. *melanogaster* MEIGEN 1830
43. *neoelegans* GUPTA & SINGH 1977
44. *nepalensis* OKADA 1955
45. *prashadi* BRUNETTI 1923
46. *pulchrella* TAN, HSU & SHENG 1949
47. *punjabiensis* PARSHAD & PAIKA 1964
48. *takahashii* STURTEVANT 1927
49. *trilutea* BOCK & WHEELER 1972
50. *trapezeifrons* OKADA 1966
51. *tristipennis* DUDA 1924
52. *unipectinata* DUDA 1924

Subgenus *Drosophila*
53. *bimorpha* SINGH & GUPTA 1980
54. *guptai* DWIVEDI 1979
55. *immigrans* STURTEVANT 1921
56. *lacertosa* OKADA 1956
57. *maryensis* GUPTA & DWIVEDI 1980
58. *mediobandes* DWIVEDI & GUPTA 1980
59. *neomakinoi* GUPTA & SINGH 1981
60. *notostriata* OKADA 1966
61. *novazonata* GUPTA & DWIVEDI 1980
62. *nasuta* LAMB 1914
63. *neoimmigrans* GAI & KRISHNAMURTHY 1982
64. *pentastriata* OKADA 1966
65. *parazonata* GUPTA & DWIVEDI 1980
66. *paralongifera* GUPTA & SINGH 1981
67. *penniclubata* SINGH & GUPTA 1980
68. *quadrilineata* (DE MEIJERE 1911)
69. *ramamensis* DWIVEDI 1979
70. *repleta* WOLLASTON 1858
71. *setitarsa* GUPTA & DWIVEDI 1980
72. *tetradentata* SINGH & GUPTA 1980
73. *trisetosa* OKADA 1966

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