

ON SOME SPECIES OF *DROSOPHILA* FROM CHINA

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FIVE FIGURES

(Received February 5, 1937)

In this paper, I propose to describe eight species of *Drosophila* obtained from China. One of these seems to be new to science. The names of the species, the localities where they were collected, etc. are shown in the following table.

Species	Locality	Collector	Time
<i>D. busckii</i>	魯山(河南) Lushan	F. T. Peng	July, 1935
<i>D. suzukii</i>	三河(河北) Sanhu	Do.	Do.
<i>D. immigrans</i>	Lushan, Sanhu	Do.	Do.
<i>D. auraria</i> sp. nov.	南昌(湖北) Nanchang, Sanhu	Do.	Do.
Do.	寧波(浙江) Ningpo	T. Komai	Oct., 1936
<i>D. melanogaster</i>	Nanchang, Lushan, Shanghai	F. T. Peng	July, 1935
Do.	Peping	T. Komai	Oct., 1936
<i>D. ananassae</i>	Shanghai	F. T. Peng	July, 1935
Do.	Do.	G. Tomita	Oct., 1936
<i>D. takahashii</i>	Sanhu	F. T. Peng	July, 1935
Do.	杭州(浙江) Hangchow	T. Komai	Oct., 1936
<i>D. virilis</i>	Peping, Hangchow	Do.	Do.

KEY

1. Wing with a blackish spot at tip ..... *D. suzukii* (p. 21).
2. Wing clouded at tips of second and third longitudinal veins and on posterior cross-vein..... *D. immigrans* (p. 22).
3. Wing clear ..... 4.
4. Acrostichal hairs in six rows ..... 5.
4. Acrostichal hairs in eight rows ..... 6.
5. Blackish species ..... *D. virilis* (p. 22)

- Yellowish species; face of the male snowy white ..... *D. auraria* sp. nov. (p. 23).
6. Mesonotum yellowish, with several longitudinal black stripes ..... *D. busckii* (p. 24).  
 Mesonotum yellowish, not distinctly marked or unmarked ..... 7.
7. A few prominent bristles on each palpus ..... 8.  
 Only one prominent bristle on each palpus ..... 9.
8. Male; a comb-like row of short stout black bristles on the inner distal surface of the basal tarsal joint of prothoracic leg ..... *D. melanogaster* (p. 25).
9. Male; several transverse rows of blackish brown bristles on the ventral surface of the first and second tarsal joints of prothoracic leg ..... *D. ananassae* (p. 26).  
 Male: about nine short stout blackish bristles on the ventral surface of the first tarsal joint of prothoracic leg; two such bristles on the ventral surface of the second joint of the same leg ..... *D. takahashii* (p. 27).

## DESCRIPTION

1. *Drosophila suzukii* Kamisawa 1934

*D. suzukii*: Kamisawa (1934) Report of Yamanasi Agricul. Exp. Station, 1: 1-24,  
 2 plates.

*Leucophenga suzukii*: Matsumura (1931) Illustrated insects of Japan Empire: 366,  
 Fig. 158.

♂. Arista with about five branches above and three below. Antennae yellow; third joint yellowish brown. Front about one-third width of head, wider above; yellow. Second orbital bristle about one-half size of other two and situated midway between the other two. Second oral bristle nearly as long as first. Only one prominent bristle on each palpus. Carina narrow and high; face yellow. Cheeks pale yellow; their greatest width about one-sixth height of eye. Eyes with rather thick pile.

Acrostichal hairs in eight rows. Mesonotum, scutellum and pleurae yellow, slightly shining. Sterno-index (length of anterior sternopleural bristle divided by length of its posterior one) about 0.7. Legs yellow. Apical and preapical bristles on first and second tibiae, preapicals on third. A comb of about four black short stout bristles on the inner distal surface of the first tarsal joint of prothoracic leg. A similar comb of a few black bristles on the same surface of the second tarsal joint of prothoracic leg.

Abdomen shining black, with a broad yellowish basal band on each of the basal four segments.

Wing hyaline. A blackish spot at tip of the second longitudinal vein. Costal-index about 4.0; 4v-index about 2.2; 4c-index about 0.8; 5x-index about 1.6.

\* Descriptions are given after Sturtevant's scheme in "The North American Species of *Drosophila*", 1921.

*D. nigrifemur*: Duda (1925) Arch. f. Naturgesch., 91: 192-193.

♂ ♀. Arista with about five branches above and two below. Antennae brown; third joint dark brown. Front over one-third width of head, wider above; brown. Second orbital bristle one-third size of other two. Second oral bristle one-half length of first. Only one prominent bristle on each palpus. Carina broad and high; face brown, slightly shining. Cheeks yellowish brown; their greatest width about one-third height of eye. Eyes pilose.

Acrostichal hairs in six rows. Mesonotum dull brown with indistinct four dark-brown longitudinal stripes. Scutellum, pleurae dark dull brown. Sterno-index about 0.9. Legs pale brown. Apical and preapical bristles on first and second tibiae, preapicals on third. In male, there are many long brownish hairs which erect upward on the tarsal joints of prothoracic leg.

Abdomen dark brown. Hypopygium is shown in Fig. 1. Wings clear. Costal-index about 2.5; 4v-index about 1.8; 4c-index about 1.0; 5x-index about 1.0.

Length body 2.5-3.0 mm.; wing 2.5-3.0 mm.

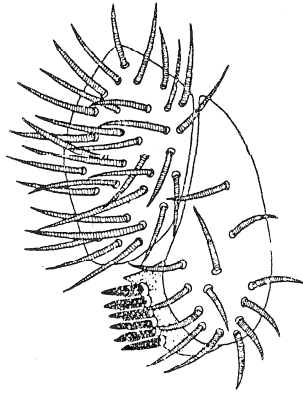


Fig. 1. Hypopygium of *D. virilis* ♂. × ca. 100.

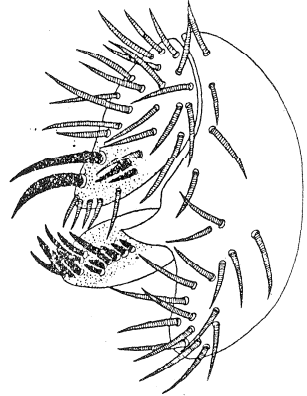


Fig. 2. Hypopygium of *D. auraria* ♂. × ca. 100.

#### 4. *Drosophila auraria* sp. nov.

♂. Arista with about five branches above and three below. Antennae brown. Front over one-third width of head, wider above; yellow. Second orbital bristle about one-third size of other two. Second oral bristle nearly as long as first. Carina narrow, slightly flat; face snowy white. Only one prominent bristle on each palpus.

Length body 2.0-2.2 mm. : wing 2.0-2.2 mm.

♀. Differs from the male in having no tarsal combs and in that each abdominal segment has a basal yellowish band, and also in that the blackish spot in the wing is very indistinct. The egg-guides are well developed upward.

### 2. *Drosophila (Spinulophila) immigrans* Sturtevant 1921

*D. immigrans*: Sturtevant (1921) Carnegie Inst. Wash., 301: 83-84. Pl. III 1; Fig. 29. (1927) Philippine Journ. Sci., 32: 367.

*D. tripunctata*: Sturtevant (1918) Bull. Amer. Mus. Nat. His., 38: 445. Becker (1908)? Mitt. Zool. Mus. Berlin, 4: 155.

*S. tripunctata*: Duda (1924)? Arch. f. Naturgesch., 90: 210; Fig. 71. (1924) Entomologische Meddelelser, 14: 262-265; Figs. 4, 5, 6, 7.

♂. Arista with about six branches above and three below. Antennae dull-brownish yellow. Front over one-third width of head, wider above; dull-brownish yellow. Second orbital one-fourth size of other two. Second oral bristle nearly as long as first. Carina slightly high; face yellowish brown. A few prominent bristles on each palpus. Cheeks yellow; their greatest width about one-third height of eye. Eyes with thick pile.

Acrostichal hairs in eight rows. Mesonotum and scutellum dull-brownish yellow. Pleurae and legs yellow. Sterno-index about 0.75. Apical and preapical bristles on first and second tibiae, preapicals on third. A row of about ten black bristles on lower apical part of first femur. The first and second joints of prothoracic leg shortened and thickened with many long blackish hairs on undersurface of those joints.

Abdomen dull yellow, with a posterior black band on each segment, which is broadened and interrupted in mid-dorsal part. Band of last segment broader than others.

Wing clouded at tips of second and third longitudinal veins, and on posterior crossveins. A single bristle at tip of first costal section. Costal-index about 4.5; 4v-index about 1.2; 4c-index about 0.5; 5x-index about 1.1.

Length body 3.0 mm.; wing 3.0 mm.

♀. Same as above, except that the first and second tarsal joints of prothoracic leg are not shortened and thickened, and that no blackish dense hairs are found on those joints.

### 3. *Drosophila virilis* Sturtevant 1916

*D. virilis*: Sturtevant (1916) Ann. Ent. Soc. Amer. 9: 330. (1921) Carnegie Inst. Wash., 301: 97. Figs. 12, 42, 48 Esaki (1932) Nippon Konchu Zukan: 28, Fig. 48.

Cheeks yellow; their greatest width about one-sixth height of eye. Eyes with rather thick pile.

Acrostichal hairs in six rows. Mesonotum, scutellum and pleurae shining yellow. Sterno-index about 0.5. Legs yellow. Apical and preapical bristles on first and second tibiae, preapicals on third. A comb of about 26 stout black bristles on the inner surface of the first tarsal joint of prothoracic leg. A similar comb of about 18 black bristles on the same surface of second tarsal joint of the same leg.

Abdomen shining yellow, with a blackish posterior band on each segment (the sixth segment black). Hypopygium is shown in Fig. 2.

Wing clear; Costal-index about 2.0; 4v-index about 2.7; 4c-index about 1.5; 5x-index about 2.0.

Length body 2.0 mm; wing 2.0 mm.

♀. Differs from the male in having no tarsal combs, and that the face color is pale instead of white of the male.

##### 5. *Drosophila buschii* Coquillett 1901

*D. buschii*: Coquillett (1901) Ent. News, 12: 18. Sturtevant (1921) Carnegie Inst. Wash., 301: 77, Pl. II 2, Fig. 24. Duda (1924) Arch. f. Naturgesch., 90: 221, Fig. 95. (1924) Entomologische Meddelelser, 14: 301-302, Fig. 29.

*D. rubrostriata*: Becker (1908) Mitt. Zool. Mus., 4.

*D. plurilineata*: Villeneuve (1911) Wien. Ent. Zeit., 30.

♂ ♀. Arista with about six branches above and two below. Antennae yellow; third joint dark brown. Front over one-half width of head, wider above; yellow. Second orbital bristle nearly as long as third which is about three-fourth length of first. Second oral bristle nearly as long as first. Only one prominent bristle on each palpus. Carina high and slightly flattened; face whitish. Cheeks whitish; their greatest width about one-third height of eye. Eyes with rather thick pile.

Acrostichal hairs in eight rows. Mesonotum and scutellum yellow, with five dark brownish stripes on the mesonotum; one median stripe being bifid behind and divergent into two branches at the parts of dorsocentral bristles; one in each dorsocentral line, does not reach the anterior margin of thorax; one in each outer scutellar line, less darker and arises at near the region of anterior dorsocentral bristle. There is also a stripe running from just above the humerus to just above the wing. Pleurae pale yellow, with three dark brownish stripes on each side: one below the humerus, one long stripe across the mesopleurae, halteres and the margin of each dorsolateral plate. There is also a

stripe formed by three blackish spots; two on sternopleura, one on hypopleura. Sterno-index about 0.3. Legs yellow. Apical bristles on first and second tibiae, preapicals evident only on third.

Abdomen yellow, each segment with an apical black band that is interrupted in the mid-dorsal line, and attenuated or interrupted between that line and each lateral margin of abdomen.

Wing clear. Costal-index about 3.0; 4v-index about 2.2; 4c-index about 1.0; 5x-index about 2.0.

Length body 2.0-2.1 mm.; wing 2.2-3.0 mm.

#### 6. *Drosophila melanogaster* Meigen 1830

*D. melanogaster*: Meigen (1830) Syst. Besch., 6: 85. Sturtevant (1921) Carnegie Inst. Wash., 301: 89-91, Pl. III 2 Figs. 2, 8, 11, 13, 31, 45. Kurisaki (1925) Repesajo de la Bulteno Scienca de la Fakultato Terkultura 1: 274-284. Esaki (1932) Nippon Konchu Zukan: 28, Fig. 47. Strasburger (1935) Berlin Verlag v. Julius Springer: 1-60.

*D. ampelophila*: Loew (1862) Berlin Ent. Zeit. 6: 231. Duda (1924) Arch. f. Naturgesch. 90: 214, Fig. 82. (1924) Entomologische Meddelelser, 14: 280-285, Figs. 17, 18, 19. (1925) Arch. f. Naturgesch., 91: 147. Malloch (1934) British Mus. (Nat. Hist.) Part 6: 300.

Described species assumed to be synonymous with *D. melanogaster*. *D. fasciata* Meigen (1830). *D. nigriiventris* Zetterstedt (1847). *D. melanogaster* Schiner (1864). *D. uvarum* Rondani (1875). *D. pilosula* Becker (1908).

♂. Arista with about five branches above and three below. Antennae yellow. Front nearly one-half width of head, wider above; yellow. Second orbital bristle one-third size of other two. Second oral bristle nearly as long as first. Carina broad and flat; face yellow. A few prominent bristles on each palpus. Cheeks yellow; their greatest width about one-fourth height of cyc. Eyes with rather thick pile.

Acrostichal hairs in eight rows. Mesonotum and scutellum reddish yellow, shining. Pleurae and legs pale yellow. Sterno-index about 0.5. Apical and preapical bristles on first and second tibiae, preapicals on third. A comb of about ten stout black bristles on the inner distal surface of the first tarsal joint of prothoracic leg, in oblique direction.

Abdomen shining black, with a basal reddish yellow band on each of the basal four segments. Hypopygium is shown in Fig. 3.

Wing clear. Costal-index about 2.2; 4v-index about 2.4; 4c-index about 1.5; 5x-index about 2.1.

Length body 2.0-2.2 mm; wing 2.0-2.2 mm.

♀. Differs from the male in having no tarsal comb and in that there is a basal reddish yellow band also on the fifth and sixth abdominal segments.

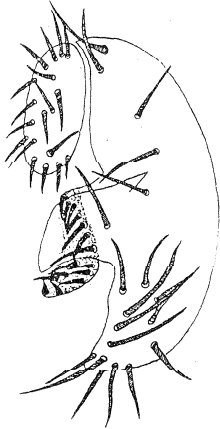


Fig. 3. Hypopygium of *D. melanogaster* ♂. ×ca. 100.

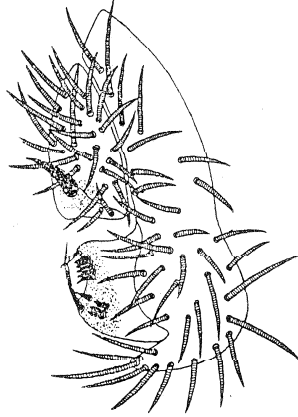


Fig. 4. Hypopygium of *D. ananassae* ♂. ×ca. 100.

#### 7. *Drosophila ananassae* Doleschall 1858

*D. ananassae*: Doleschall (1858) Nat. Tijd. Ned. Ind., 17, 128: 89. De Meijere (1908) Tijds. v. Entom., 51: 159. (1911) Ibid., 54: 399 Fig. 40. Duda (1924) Arch. f. Naturgesch., 90: 214. (1925) Ibid., 91: 211-212, Figs. 80, 81. (1926) Supplementa Entomologica, 14: 98.

*D. caribbea*: Sturtevant (1916) Ann. Ent. Soc. Amer., 9: 335. (1921) Carnegie Inst. Wash., 301: 92-93, Fig. 25.

*D. errans*: Malloch (1934)? British Mus. Nat. Hist.) Part 6: 301.

♂. Arista with about five branches above and three below. Antennae yellow; third joint brown. Front nearly one-half width of head, wider above; yellow. Second orbital bristle about one-half size of other two. Second oral bristle nearly as long as first, but usually smaller than first. Carina broad and flat; face pale yellow. Only one prominent bristle on each palpus. Cheeks yellow; their greatest width about one-sixth height of eye. Eyes with thick pile.

Acrostichal hairs somewhat irregular, but generally in eight rows. Mesonotum and scutellum reddish yellow, slightly shining. Pleurae and legs yellow. Sterno-index about 0.5. Apical and preapical bristles on first and second tibiae, preapicals on third. Several transverse rows of stout blackish bristles on the ventral surface of the first and second tarsal joints of prothoracic leg.

Abdomen yellow; each segment with a dull brown posterior band. Hypopygium is shown in Fig. 4.

Wing clear: Costal-index about 1.2; 4v-index about 2.3; 4c-index about 2.0; 5x-index about 2.0.

Length body 2.0–2.3 mm.; wing 2.0–2.3 mm.

♀. Differs from the male only in having no blackish bristles on the tarsal joints of prothoracic leg.

#### 8. *Drosophila takahashii* Sturtevant 1927

*D. takahashii*: Sturtevant (1927) Philippine Journ. Sci. 32: 371.

♂. Arista with about five branches above and three below. Antennae brownish yellow. Front about one-half width of head, wider above; brownish yellow. Second orbital bristle about one-sixth size of other two. Second oral bristle nearly as long as first. Only one prominent bristle on each palpus. Carina narrow and flat; face brownish yellow. Cheeks brownish yellow; their greatest width about one-eleventh height of eye. Eyes pilose.

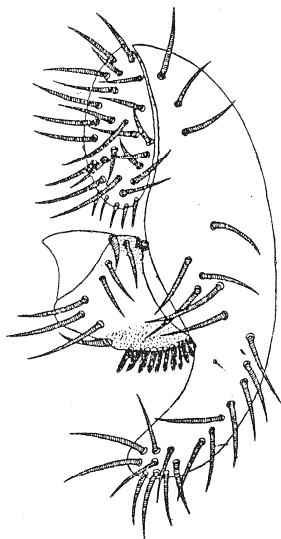


Fig. 5. Hypopygium of *D. takahashii* ♂.  $\times$  ca. 100.

Acrostichal hairs in eight rows. Mesonotum scutellum and pleurae brownish yellow. Sterno-index about 0.8. Legs yellow. Apical and preapicals on first and second tibiae, preapicals on third. About nine short stout blackish bristles on the ventral surface of the first tarsal joint of prothoracic leg; two such bristles on the same surface of the second joint of prothoracic leg.

Abdomen brownish yellow, with a posterior blackish band on each of three basal segments; the fourth and fifth segments entirely black. Hypopygium is shown in Fig. 5.

Wing clear. Costal-index about 2.4; 4v-index about 2.1; 4c-index about 1.0; 5x-index about 2.8.

Length body 2.0 mm; wing 2.0 mm.

♀. Agrees with the male except that there are no short stout blackish bristles on the front tarsi and that each abdominal segment has a blackish posterior band.

In conclusion I wish to express my hearty thanks to Professor T. Komai and Mr. H. Kikkawa for their guidance and help, and to other members of the Section of Genetics of this Institute for their valuable advice. My sincere thanks are also due to the Hattori Hōkōkwai for its financial aid.