Systematic Positions of Three *Drosophila* Species
(Diptera: Drosophilidae) in the *Virilia-Repleta* Radiation

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Synopsis


By a comparative study of phallic organs, Drosophila unimaculata Strobl, 1893, was transferred from the melanica species group to the robusta species group, while Drosophila colorata Walker, 1849, and Drosophila moriakii Okada and Kubokawa, 1957, were transferred vice versa.

By courtesy of Drs. G. Bächli and T. Okada, the author had an opportunity to examine genitalia of two drosophilid species (Drosophila unimaculata Strobl, 1893, and Drosophila colorata Walker, 1849) whose phallic organs have not been illustrated up to date. After a comparative study of genitalia, in particular phallic organs, the author arrived at a conclusion that systematic positions of the following three drosophilid species in the virilis-repleta radiation should be transferred as follows.

A. Drosophila unimaculata Strobl, 1893

Since 1951 this species had been included in the virilis species group (Burka, 1951), and in 1985 it was transferred to the melanica species group (Bächli and Burka, 1985). However, this species seems to belong to the robusta species group by the following reasons (Fig. 1, B and C).

1. Aedeagus is distally broadened and curved ventrad in lateral aspect.
2. There is a vertical rod at the base of aedeagus.
3. Anterior paramere is rather small.

In the robusta species group, this species seems to be a close relative of Drosophila neokadai Kaneko et Takada, 1966, by the following features (Fig. 1).

1. The shape of aedeagus is similar (Fig. 1, B).
2. There are no submedian spines on novasternum (D).
Fig. 1. *Drosophila unimaculata* STROBL, 1893. A: Periphallie organs (lateral aspect), B: Adeagus (lateral aspect), C: do. (ventral aspect), D: Phallic organs except aedengus (ventral aspect), E: Spermatheca, F: Egg-guide. G: Head, H: Wing, I: Male abdomen (Scales: A-G=0.1 mm, H and I=1 mm).

3. Hypandrium is pubescent (D).

On the other hand, the following features of *D. unimaculata* are different from other members of the *robusta* species group.

1. Cross veins are clouded conspicuously (H).
2. Spermatheca is relatively small, hemispherical and slightly broader than long (E).

Although the general description of this species was already given by DUDA (1935) and BUKLA (1951), the author illustrated genitalia with other features which would be useful to discriminate this species from close relatives (Fig. 1). Specimens used in this study were collected by Dr. G. BACHLI at Dobro Polje, Yugoslavia, during 4 days from 25 to 28 of July, 1984.
B. *Drosophila colorata* Walker, 1849, and *Drosophila moriwakii*  
**OKADA** et **KUROKAWA**, 1957

Since 1942 *D. colorata* has been included in the *robusta* species group (STURTEVANT, 1942), and *D. moriwakii* has been also included in the same species group since 1953 (OKADA, 1953; 1956; OKADA and KUROKAWA, 1957). However, these two species seem to belong to the *melanica* species group by the following reasons (Fig. 2, and Fig. 81 in OKADA, 1956).

1. There are no vertical rod at the base of aedeagus (A and B in Fig.2, and E in OKADA’s Fig. 81).
2. Aedeagus is straight and not curved ventrad (*Ibid.*).
3. Anterior parameres are rod-like and situated aslant at the base of aedeagus (*Ibid.*).
4. Dorsal margin of aedeagus is minutely serrated (*Ibid.*).
5. Novasternum is nearly quadrated and has submedian spines (C in Fig. 2, and D in OKADA’s Fig. 81).

Periphallic organs of *D. colorata* were also illustrated for reference (Fig. 2, D). Specimens of *D. colorata* used in this study were collected by Dr. H.L. CARSON at Petoskey in Michigan, U.S.A., on 10th of October, 1966.

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**Fig. 2. *Drosophila colorata* Walker, 1849.** A: Aedeagus (lateral aspect), B: do. (ventral aspect), C: Phallic organs except for aedeagus (ventral aspect), D: Periphallic organs (lateral aspect) (Scale: 0.1 mm).
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