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

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

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**Synopsis**

BEPPU, K. 1988——Systematic positions of three *Drosophila* species (Diptera: Drosophilidae) in the *virilis-repleta* radiation. *Proc. Japn. Soc. syst. Zool., Tokyo*, No. 37: 55–58.

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 moriwakii* OKADA et KUROKAWA, 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 (BURLA, 1951), and in 1985 it was transferred to the *melanica* species group (BÄCHLI and BURLA, 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).

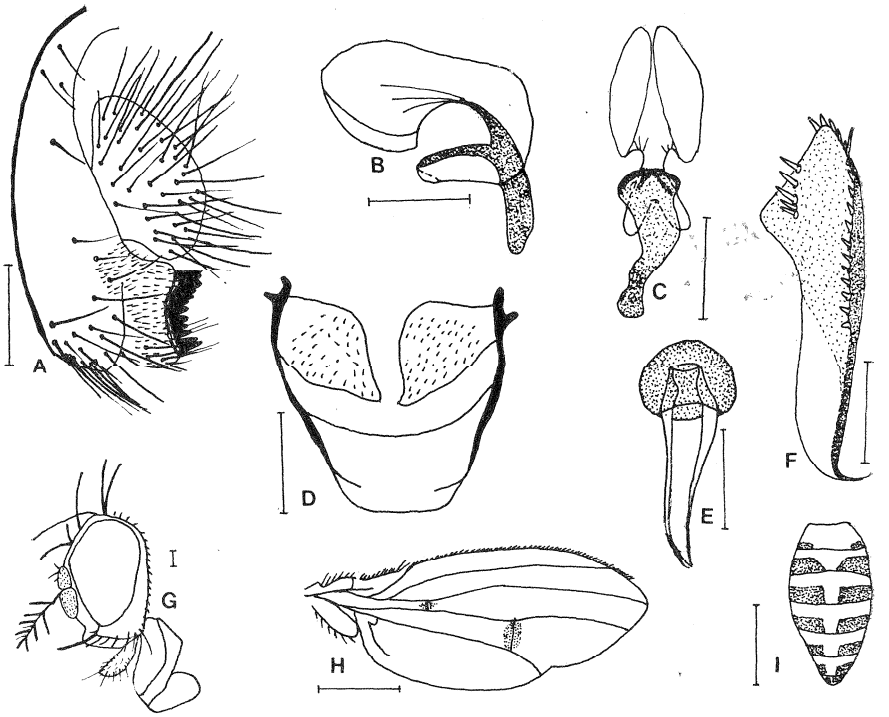


Fig. 1. *Drosophila unimaculata* STROBL, 1893. A: Periphallic organs (lateral aspect), B: Adeagus (lateral aspect), C. do. (ventral aspect), D: Phallic organs except aedeagus (ventral aspect), E: Spermatheca, F: Egg-guide, G: Head, H: Wing, I: Male abdomen (Scales: A–G=0.1 mm, H and I=1 mm).

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 BURLA (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. BÄCHLI 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 quadrate 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.

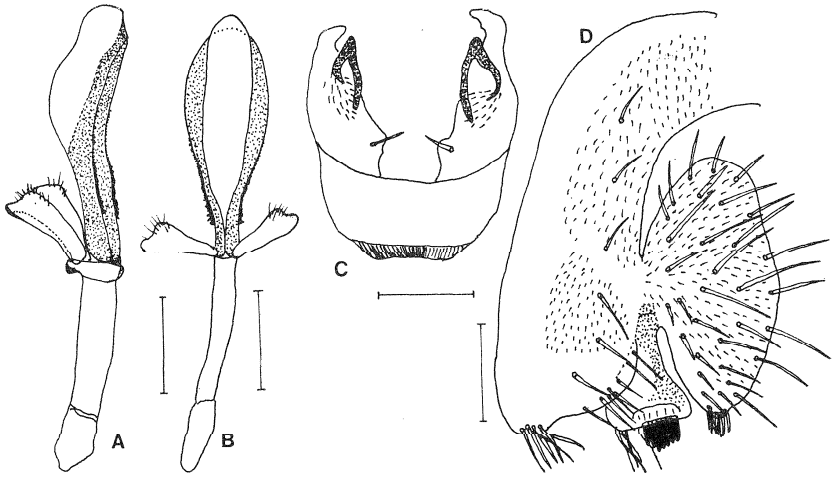


Fig. 2. *Drosophila colorata* WALKER, 1849. A: Aedeagus (lateral aspect), B: do. (ventral aspect), C: Phallic organs except for aedeagus (ventral aspect), D: Periphallic organs (lateral aspect) (Scale: 0.1 mm).

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## 摘　　要

別府　柱（信州大学教育学部附属志賀自然教育研究施設）——ショウジョウバエ科（双翅目）内の *virilis-repleta* 放散に属する種の分類学上の位置について.

主に挿入器（phallic organs）の比較形態学的研究により，*Drosophila unimaculata* STROBL, 1893 は *melanica* 種群から *robusta* 種群に，また *Drosophila colorata* WALKER, 1849 及び *Drosophila moriwakii* OKADA et KUROKAWA, 1957 は *robusta* 種群から *melanica* 種群へと移動させた.

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