

# Two New Species of the Genera *Microdrosophila* and *Drosophila* (Drosophilidae) from Korea

Nam Woo Kim\* and Eun Young Joo

Department of Biology, Faculty of Natural Sciences, Kyungsan University, Kyungbuk 712-715, Korea

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Two new species belonging to the genera *Microdrosophila* and *Drosophila*, collected from Daegwallyeong and Mt. Halla in Korea are described with illustrations of the male genitalia. *Microdrosophila (Microdrosophila) gangwonensis* n. sp. seems close to *M. (M.) purpurata* Okada, 1956, but the new species has different phallic organ. *Drosophila (Drosophila) taekjuni* is close to *D. (D.) brevitabula* Zhang and Toda, 1992, in form, but differs in the shape of aedeagus. Eight species of the genus *Microdrosophila* and five species in the *D. immigrans* species-group of genus *Drosophila*, including the new species are known to be distributed in Korea.

The genus *Microdrosophila* belonging to the family Drosophilidae is a small group. In the world list of Drosophilidae (Wheeler, 1981), 33 species of the genus *Microdrosophila* Malloch were enumerated. Since then, 27 species were added to this genus by Bock (1982), Okada (1985), Zhang (1989), and Lee and Kim (1990). Among the genus *Microdrosophila*, seven species have been known from Korea: *Microdrosophila (Oxystyloptera) fuscata* Okada, *M. (O.) latifrons* Okada, *M. (O.) urashimae* Okada, *M. (O.) matsudairai*, *M. (Microdrosophila) cristata* Okada, *M. (M.) purpurata* Okada and, *M. (M.) chejuensis* Lee and Kim (Lee and Kim, 1990).

The genus *Drosophila* is a very large group in Drosophilidae and over 780 species have been recorded from all around the world (Wheeler, 1981, 1986). *Drosophila (D.) taekjuni* n. sp. belongs to the *D. immigrans* species-group. Three species of the *immigrans* species-group have been known from Korea: *D. (D.) annulipes* Duda, *D. (D.) immigrans* Sturtevant and *D. (D.) curviceps* Okada and Kurokawa (Lee and Kim, 1987).

The authors had an opportunity to examine the interesting species of *Microdrosophila* and *Drosophila* collected by means of net sweeping in Daegwallyeong Hill and Mt. Halla, Korea, in August 1990.

## Description of Species

*Microdrosophila (Microdrosophila) gangwonensis* n. sp.  
(Fig. 1A-D)

Male: Body about 2.3 mm long (female about 2.5

mm), with a broad, black, longitudinal stripe on thorax laterally.

Head slightly broader than thorax. Eyes dark red with piles. Antenna with 2nd segment dark yellowish brown; 3rd yellow, slightly longer than broad. Arista with eight dorsal and three ventral branches and a small terminal fork. Palpus pale yellowish white, with two prominent black bristles. Ocellar triangle, small and black with long ocelli. Occiput yellowish gray. Orb2 minute, situated just inside orb3 slightly shorter than orb1. Fronts grayish white, yellowish orange anteriorly. Carina low, long, yellowish white. Cheeks pale yellowish white, its greatest width about 1/5 the greatest diameter of eye.

Mesoscutum and scutellum pale yellowish brown, with two pairs of obscure longitudinal black stripes on caudal half. Pleural side with a longitudinal black stripe. Humerals two. Acrostichal hairs in about 6 irregular rows. Sterno index about 0.3. Halteres yellowish white, pleura yellow, with a dark longitudinal stripe above.

Legs yellow, preapical on all three tibiae, apical on fore and middle, longest on middle.

Wings hyaline, veins brown, crossveins clear. C1 bristles 2. Wing indices: C-index about 1.6, 4V about 3.7, 4C about 2.1, 5x about 5.0, C3-fringe on basal 7/8.

Abdominal tergites brownish black, somewhat glossy; lateral of each T pale; 7-9 T yellow, sternites quadrate and pale yellowish brown; pleura whitish yellow.

Periphallallic organs (Fig. 1A), genital arch pale yellow, outer margin broadened, distally with a long finger-like yellow process which has about eight small setae and long bristles. Anal plate pale yellow, pubescent, and completely fused with genital arch, with about 18 long bristles. Phallic organ (Fig. 1B, C), aedeagus yellow, broad and at sinuate tip. Apodeme of aedeagus pale

\* To whom correspondence should be addressed.  
Tel: 82-53-819-1438, Fax: 82-53-819-1271  
E-mail: tree@kyungsan.ac.kr

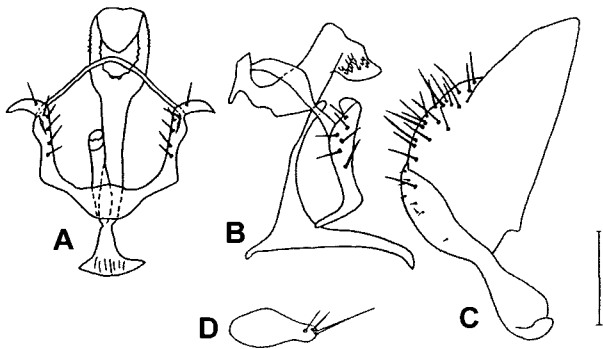


Fig. 1. *Microdrosophila* (*Microdrosophila*) *gangwonensis* n. sp. A, Phallic organs (ventral aspect). B, Aedeagus (lateral view). C,Periphallal organs (ventral aspect). D, Egg guide. Scale bar = 0.1 mm.

yellow, triangular in lateral view. Anterior paramere oblong with six long hairs, basally contiguous with looped ventral fragment, which articulates with aedeagus. Ventral rod yellow, wide plate, apicomedia with an elongate thin projection. Egg-guide (Fig. 1D), lobe yellowish, small, irregularly triangular, apically with long bristle and subapicolaterally with two small bristles.

Type. Holotype: male, Daegwallyeong, Gangwon-do, August 1990, N. W. Kim. The holotype is deposited in the Department of Biology, Kyungsan University. Allotype: female, data same as the holotype. Paratypes: 6 males, 5 females, collected together with the holotype.

Remarks: This species somewhat resembles *Microdrosophila* (*M.*) *purpurata* Okada (1956) in having a longitudinal stripe on head and mesonotum, and in sharing the general colour patterns of body, but differs from it by the structure of the male genitalia. In *M. purpurata*, anal plate is separated from genital arch, but they are connected in *M. gangwonensis*. Moreover, the shapes of ventral fragments are different from each other.

Etymology: The specific name *gangwonensis* is derived from its type locality.

*Drosophila* (*Drosophila*) *taekjuni* n. sp.  
(Fig. 2A-D)

Male: Body about 2.5 mm long (female about 2.7 mm), yellowish brown, wings about 2.6 mm in length. Antenna yellow. Arista branches four above and one below in addition to a large terminal fork. Eyes red, with sparse reddish piles. Palpus yellow, with one apical and one subapical bristles. Anterior reclinate orbital 1/2 length of proclinate orbital and 2/5 length of posterior reclinate orbital. Oral one, very prominent. Ocellar triangle reddish black. Face yellow. Carina brown, narrow and slightly sulcate. Front yellowish orange. Clypeus blackish gray with a thin black band. Cheek orange, about 1/5 as broad as greatest diameter of eye.

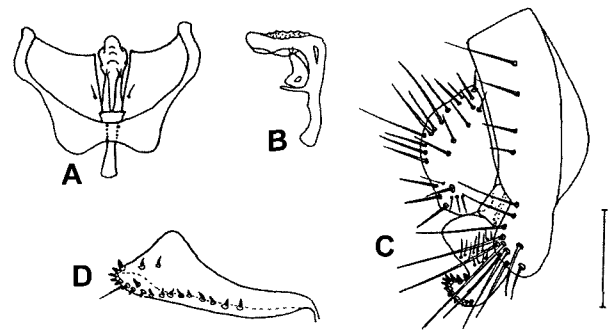


Fig. 2. *Drosophila* (*Drosophila*) *taekjuni* n. sp. A, Phallic organs (ventral aspect). B, Aedeagus (lateral view). C,Periphallal organs (ventral aspect). D, Egg guide. Scale bar = 0.1 mm.

Mesonotum and scutellum dark brown. Scutellum black, yellowish brown at lateral and posterior margins. Pleura dark brown, with 2 obscure black longitudinal stripes. Acrostichal hairs in 6 laws. No prescutellar bristles. Humerals 2, upper one a little longer than lower one. Pleura yellowish brown. Sterno-index about 0.5.

Legs yellowish brown: Fore femur with a row of about 9 stout bristles inside distally. Preapicals on all three tibiae, apicals on fore and middle.

Wings clear: Posterior crossveins slightly clouded. C-index about 3.2, 4V-index about 1.5, 4C-index about 0.7, Ac-index about 2.0 5X-index about 1.5. C3-fringe about 2/5. Halteres yellowish brown. First costal section with 2 long apical bristles.

Abdominal tergites orange brown, each segment with non-interrupted broad black caudal band.

Periphallal organ (Fig. 2A), genital arch yellowish brown, and truncate at tip, upper portion with about 4 setae, lower portion with about 14 hairs. Clasper yellow, broad, ventrally narrowing and curved upward. The curved lower tip with about 7 black teeth, arranged in a convex row, upper portion with about 15 hairs. Anal plate separated from genital arch, yellowish brown, oval, and with about 25 hairs. Decasternum yellowish brown, half moon shaped, and with about 30 stout bristles. Phallic organs (Fig. 2B, C), aedeagus yellowish brown, curved downward in lateral view. Anterior paramere separated from novasternum, with 2 distinct sensilla. Novasternum broad, with a short submedian spine. Egg-guide (Fig. 2D), lobe yellowish orange; upper margin much convex beyond middle, and apical pointed; marginal teeth about 17 and discal teeth 3, all being brownish. Basal isthmus short, black.

Type. Holotype: male, Mt. Halla, Cheju-do, August 1990, N. W. Kim. The holotype is deposited in the Department of Biology, Kyungsan University. Allotype: female, same data as in the holotype. Paratypes: 8 males, 10 females, collected together with holotype.

Remarks. This species resembles *Drosophila* (*D.*) *brevitabula* Zhang and Toda (1992) in the shape of periphallal organ and general appearance, but clearly differs in the features of the aedeagus. Apical part of

dorsal process of aedeagus is not bifid, and its oviscapt is more slender. Stout setae are arranged on ventrally expanded plate of cercus.

Etymology: The specific name is in honor of Dr. Taek Jun Lee in recognition of his contribution to the study of Drosophilidae in Korea.

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