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## *Drosophila* Survey of Hokkaido IX. On *Drosophila okadai* sp. nov. with Supplementary Notes on the Female of *Scaptomyza polygonia* Okada<sup>1)</sup>

With 2 Text-figures

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(Communicated by S. MAKINO)

The present paper describes a new species of the *robusta* group of *Drosophila*, with supplementary notes on the female characters of *Scaptomyza polygonia* Okada.

Before going further the author wishes to express his gratitude to Professor Sajiro Makino, Hokkaido University, for his keen interest in this study and for revision of the manuscript, and to Dr. Eiji Momma for his kind guidance and encouragement throughout this work. Cordial thanks are also due to Dr. Toyohi Okada of Tokyo Metropolitan University, for his valuable advice.

### I

A survey of *Drosophila* was made in August, 1958, on Mt. Raus, Shiretoko Peninsula, in the eastern extremity of Hokkaido with the use of traps consisting of fermenting banana, when a total of 419 flies were collected. They comprised the following 13 species; *Leuco-phenga* sp., *Drosophila coracina*, *D. bifasciata*, *D. helvetica*, *D. testacea*, *D. nigromaculata*, *D. brachynephros*, *D. funebris*, *D. moriwakii*, *D. lacertosa*, *D. ezoana*, *D. histrio* and a species of *robusta* group. Among these, there were found eight specimens of the genus *Drosophila* which have not as yet been described; they closely resemble, but clearly differ from *D. lacertosa* Okada. Close examination has revealed that the species under consideration is a member of the *robusta* group and new to science. It has been named as *D. okadai* in honor of Dr. Toyohi Okada, Tokyo Metropolitan University. The description of the characters is given below.

### *Drosophila okadai* sp. nov.

Japanese name: Raus-Shōjōbae.

♂ and ♀: Body large, dark brownish black, mat, about 4.2 mm in length. Head; Antenna dark brown. Arista with about 7 branches including a fork, 2 below it. Palpus greyish brown, with about 2-3 long and several shorter bristles.

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Eyes dark reddish brown, with brown piles. Middle orbital about 1/3 anterior orbital, 1/2 posterior orbital. Second oral bristle about 1/2 the size of vibrissa. Ocellar triangle, large and black. Periorbits black. Carina yellowish brown and high. Cheeks dark brown, about 1/3 as broad as the greatest diameter of eyes.

Mesonotum dark brownish black, with black median longitudinal stripe. Acrostichals in 6 rows, no prescutellars. Anterior scutellars somewhat convergent.

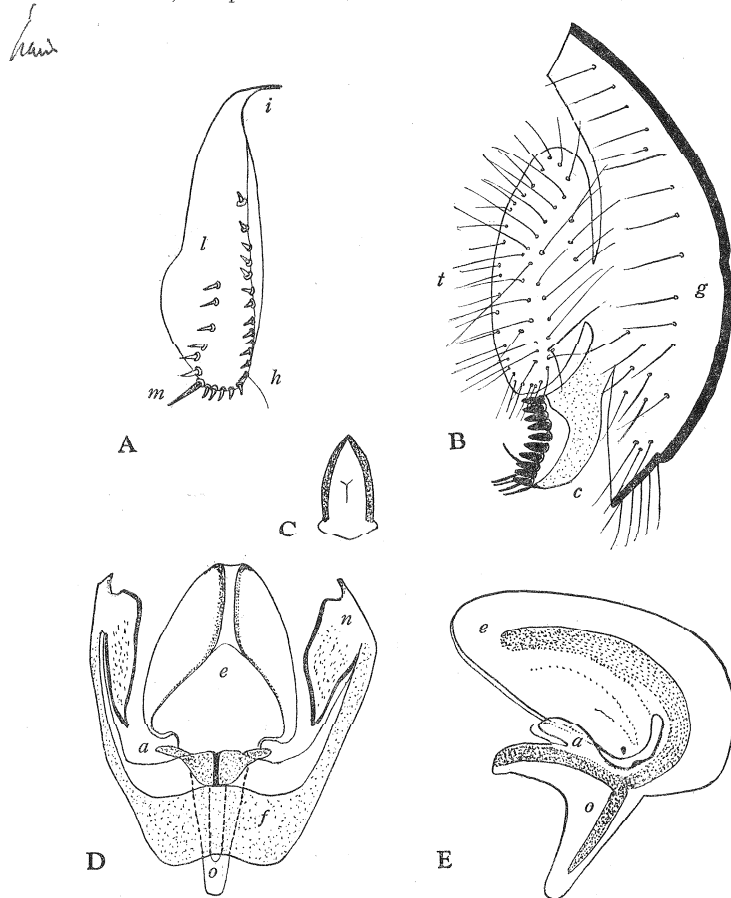


Fig. 1. *Drosophila (Drosophila) okadai* sp. nov. A; Egg-guide. B; Peripheral phallic organs (lateral aspect). C; Decasternum. D; Phallic organs (ventral aspect). E; Aedeagus and anterior paramere (lateral aspect). a, anterior paramere. c, clasper. e, aedeagus. f, ventral fragma. g, genital arch. h, subterminal hair. i, basal isthmus. l, egg-guide lobe. m, ultimate marginal tooth. n, novasternum. o, basal apodeme of aedeagus. t, anal plate.

Humeralis 2. Scutellum brownish black. Sterno-index about 0.75. Halteres white.

Abdominal tergites brownish black, and with a broad blackish band on each tergite. Legs dark brown, preapicals on all three tibiae; apicals on fore and middle.

p.f. = a B C d E f g H i k l m n

Wings slightly fuscous, veins brown, cross-veins clear. C-index about 3.7; 4V-index about 1.6; 4c-index about 0.7; 5x-index about 1.4. Third costal section with heavy bristles on basal 2/3.

Periphallallic organs (Fig. 1 B): Genital arch dark brown, paler below and darker at margin. Upper margin with about 10 hairs, lower margin with about 17 hairs. Lower tip narrowly pointed. Clasper quadrate proximally narrowing, upper margin concaved, posterior margin orange brown, somewhat hyaline; primary teeth black, about 10, arranged in a concaved row. Anal plate large, fusiform, brownish black and contiguous to genital arch at middle, and with about 50 hairs. Decasternum (Fig. 1 C) yellow, lateral margin dark brown, oval.

Phallic organs (Fig. 1 D, E): Aedeagus brownish orange, large, elliptical in lateral view, broadened and ventrally curved, basally bilobed. Anterior parameres small, and without sensilla separated from novasternum. Novasternum brown, divided into paired lateral pieces, medially pubescent. Ventral fragma quadrate, dark brown. P.I.=2.4.

Egg-guides (Fig. 1 A): Lobe reddish brown, narrowly rounded at tip, and with about 18 marginal and 6 discal orange brown pointed teeth, ultimate marginal tooth being longer than the penultimate, brown.

Holotype: ♂, Mt. Raus, Shiretoko Peninsula, Hokkaido, 10 VIII, 1958 (Takada). Deposited at the Zoological Institute, Faculty of Science, Hokkaido University.

Allotype: ♀, collected together with holotype. Deposited at the Zoological Institute, Faculty of Science, Hokkaido University.

Paratype: 4♂♂ and 2♀♀, collected together with holotype.

Distribution: Hokkaido, Japan.

Relationship: *D. okadai* belongs to the *robusta* group of the subgenus *Drosophila*. It is generally similar to *D. lacertosa* Okada, but clearly differs from the latter in <sup>which</sup> having about 10 branches on the arista, mesonotum with two pairs of obscure paler longitudinal stripes. Further this species is also distinguishable from the latter in the phallic organ, especially in the form of the aedeagus.

## II

In August of 1954, the collections of drosophilid flies were made by net sweeping on various kinds of herbs in the neighbourhood of Hakodate, southern Hokkaido, and at Asamushi, northern Honshu. A total of 776 flies were obtained. The following 13 species were represented; *Parascaptomyza disticha*, *Scaptomyza graminum*, *S. polygonia*, *S. apicalis*, *Drosophila nipponica*, *D. lutea*, *D. auraria* (type A), *D. auraria* (type B), *D. suzukii*, *D. nigromaculata*,

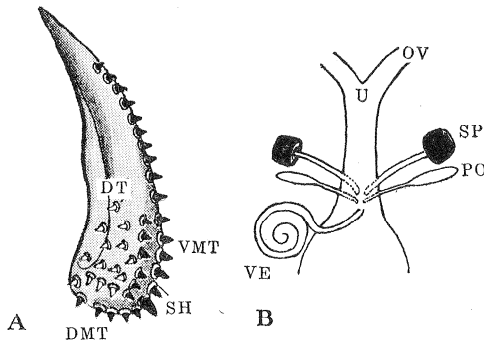


Fig. 2. *Scaptomyza polygonia* Okada. A; Egg-guide (lateral aspect). DT, discal teeth. DMT, dorsal marginal teeth. VMT, ventral marginal teeth. SH, subterminal hair. B; Female reproductive organs (ventral aspect). OV, oviduct. U, uterus. SP, spermatheca. PO, parovaria. VE, ventral receptacle.

*D. brachynephoros*, *D. immigrans* and *D. histrio*. Among these *Scaptomyza polygonia* Okada was remarkable, since female specimens of it had never been recorded from Hokkaido. Okada (1956) described this species on the basis of the male characters. Twenty-one females and forty-three males of this species were collected in Hakodate, and two females and three males in Asamushi. It is therefore apparent that this species is distributed from the southern part of Hokkaido to the northern part of Honshu. The description of the female characters is presented below:

Pulpus dark brown. Antennal 3rd joints dark brown below. Legs darker, especially fore tibia and its tarsi dark brown. Halter somewhat brownish yellow.

Egg-guides (Fig. 2, A): Lobe dark brown, obliquely truncate at tip, with about 6 dorsal marginal teeth, about 15 ventral marginal teeth and about 20 discal teeth.

Reproductive organs (Fig. 2, B): Spermatheca brownish black, apically flattened and much thicker than long. Parovaria with long and slender, elliptical knobs. Ventral receptacle with 3 coils.

#### REFERENCES

- Okada, T. 1956 Systematic study of Drosophilidae and allied families of Japan. Gihodo Co., Tokyo.  
Takada, H. 1958 Jour. Fac. Sci. Hokkaido Univ. Ser. VI (Zool.), **14**, 120.

genital arch not recurved anteriorly at tip  
egg guide more truncate at tip  
than in *D. histrio*