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THE GENUS *MICRODROSOPHILA* MALLOCH FROM JAPAN (Diptera, Drosophilidae)

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Burla (1954)[1] inclines to treat *Microdrosophila* Malloch, 1921 and *Oxystyloptera* Duda, 1924 as the subgenera of *Dettopsomyia* Lamb, 1914 or, at least, to put these three genera together into his "*Dettopsomyia*-complex", enumerating the following characters to be common to them. Front broad and low; periorbits extend far anteriorly; orb_2 minute or absent; arista with 1–3 branches below fork; 3rd costal section apt to be elongated beyond the 2nd costal breakage; C-index lower (ca. 1–2); 4v-index high (ca. 3–6); 5x-index high (ca. 2–6). The author found, comparing the Japanese representatives of these three genera, that the length distance of *dc* is subequal to the cross distance in all of them but that there are several features shared in common by *Microdrosophila* and *Oxystyloptera* but not by *Dettopsomyia*, e. g., anteriorly strikingly broaden periorbits (not broaden below in *Dettopsomyia*), long claw and pulvilli which are nearly as long as the ultimate tarsal joint (much shorter in *D.*), single oval or elliptical seminal reservoir on which the testes are inserted (a pair of slender tubes each contiguous with a testis in *D.*) and the absence of the male clasper or, if it is present, absence of distinct teeth on it (both present in *D.*). These characters are rather unique among Drosophilidae, while those of *Dettopsomyia* (in parentheses) are largely common in the general members of the family. The low C-index and high 4v- as well as 5x-index seen in *Dettopsomyia* seems to be responsible, if not entirely, for the small size of the wings, eventually agreeing to the Burla's rule (Okada, 1959)[2], and not necessarily for the "close relationships" as supposed by Burla between this genus and the other two. So far as the Japanese species are concerned, the male phallic organs of *Dettopsomyia* are rather simple and closely resembling that of *Mycodrosophila* Oldenberg, 1914, the "difference values" (Okada, 1959)[2] determined by comparing 13 characteristics of the organs being 0.5 between *Dettopsomyia* and *Mycodrosophila*, 3.5 between *Mycodrosophila* and *Microdrosophila* and 4.0 between *Microdrosophila* and *Dettopsomyia*. Although *Oxystyloptera* has extremely complicate phallic organs (Pl. 13, E), it shows the "difference value" to *Microdrosophila* (6.0) smaller than that to *Mycodrosophila* (8.5) and to *Dettopsomyia* (9.0). Consequently it seems to be safe at least to treat *Oxystyloptera* as a subgenus of *Microdrosophila*, and *Dettopsomyia* as a separate genus forming

1 Burla, H. 1954. Rev. Suiss. Zool., 58 : 23–175.
2 Okada, T. 1959. Kontyû, 27 : 21–34.

probably a bridge between *Microdrosophila* and *Mycodrosophila*. To treat *Incisurifrons* Duda as a subgenus of *Microdrosophila* as done by the author (1956)[3] is proved non-acceptable because the pregenital plate in the female uterus, which has been thought characteristic to "*Microdrosophila* s. str.", is found in a new species (*M. cristata*) which has the mesopleural coloration of the "*Incisurifrons*-type." Thus as indicated by Sturtevant (1942)[4] and Wheeler (1952)[5] *Incisurifrons* should be synonymized with *Microdrosophila*.

Key to subgenera and species of *Microdrosophila* s. lat. in Japan

1. Distal costal incision exceedingly deep, about 1/4 or more as deep as the length of the lst costal section between the two costal breakages. ..... subgenus *Oxystyloptera* s. meo. ..... *matsudairai* sp. nov.
— Distal costal incision not exceedingly deep, about 1/5 or less as deep as the length of the lst costal section. ..... subgenus *Microdrosophila* ..2.
2. orb_3 situated outside orb_2 and orb_1; 3rd costal section with heavy bristles on its basal 3/4 or 4/5; aedeagus neither slender nor awl-like; genital arch curved posteriorly at the lower tip, or truncate below; egg-guide not elongated, only slightly longer than broad. Malpighian tubes with common stalks ~~shorter~~ Long er than the branches. ..... 3.
— orb_3 situated inside orb_2 and orb_1; 3rd costal section with heavy bristles on its nearly entire length; aedeagus slender, awl-like and simple. Malpighian tubes with common stalks ~~longer~~ short er than the branches. ..... 5.
3. Mesonotum and mesopleura with merely indistinct black longitudinal stripes; genital arch narrowing below and with a bottle-shaped clasper; aedeagus tripartite at tip; male 6th sternite with a pair of lateral combs of black teeth; egg-guide triangular, blunt at tip. ..... *cristata* sp. nov.
— Mesonotum and mesopleura with rather distinct black longitudinal stripes; genital arch truncate below, with or without caudal process; aedeagus single or bifid at tip; male 6th sternite without combs; egg-guide triangular and pointed at tip, or quadrate. ..... 4.
4. Abdominal tergite uniformly dark brown; 6th tergite with a pair of distinct black lateral spots; inner mesonotal black stripes extending before suture, outer stripe as broad as the inner one and close to the latter, the space between the two stripes narrower than the inner stripe; egg-guide quadrate. .. .. *maculata* sp. nov.
— Abdominal tergite darker at lateral sides; 6th tergite usually without distinct black spots; inner mesonotal black stripe not extending before suture, outer stripe usually broader than or as broad as the inner stripe; aedeagus single at tip, ax-like; genital arch with a caudally projected process; anal plate with a club-shaped ventral process; egg-guide triangular and pointed at tip. .... *purpurata* Okada (1956).
5. Head and thorax orange brown; genital arch curved posteriorly at the lower tip, but without distinct clasper; egg-guide exceedingly elongated. .....

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[3] Okada, T. 1956. Systematic study of Drosophilidae and allied families of Japan, 183 pp., Gihôdo, Tokyo.
[4] Sturtevant, A. H. 1942. Univ. Texas Publ., 4213: 5–51.
[5] Wheeler, M. R. 1952. Ibid., 5204: 162–218.

..... *urashimae* sp. nov.

— Head and thorax dark brown; genital arch truncate at the lower tip and with a triangular clasper; egg-guide elliptical, not exceedingly elongated. .....
..... *fuscata* sp. nov.

Microdrosophila (Oxystyloptera) matsudairai sp. nov.

(Pl. 13, A—H)

♂ and ♀; Body about 2.7 mm, pale yellow, paler at venter. Head (Pl. 13, B) pale yellow; eye dark purplish red, shinning green and with thick white piles. Antenna pale yellow, 3rd joint with long hairs on its anterior surface. Arista with about 11 long or moderate branches, 2 distal branches below fork. Palpus pale yellowish white, with a few long stout setae near apex. Ocellar triangle pale yellow, black at the inner margins of ocelli. Periorbits whitish yellow, much broaden below almost to reach the buccal margin. orb_2 minute, hair-like, scarcely distinguishable from the neighboring hairs. orb_1 situated just behind orb_2 and outside orb_3, thrice as apart from *vti* as from orb_3. Only one long stout apical oral. Front yellow, somewhat darker below and at the lateral sides, nearly 2/5 as broad as the head width. A few frontal hairs present. Face yellowish white; carina low and broaden below. Cheek yellowish white, 1/4 as broad as the greatest diameter of eye. Clypeus and mouth-parts pale yellow.

Mesonotum and scutellum pale yellowish orange, somewhat glossy; scutellum comparatively long and exceedingly flat. Thoracic pleura paler below. Sterno-index about 0.8. Humerals only one, stout. *ac* in about 10 somewhat irregular rows. *dc* stout, anterior *dc* located slightly before middle of mesonotum; cross distance of *dc* subequal to the length distance. Anterior scutellars somewhat divergent; posterior ones parallel. Legs pale yellowish grey; preapicals on fore and hind tibiae; apicals on all three. Claws and pulvilli nearly as long as the ultimate tarsal joint. Wings (Pl. 13, C) pointed at tip; R_{2+3} nearly straight; R_{4+5} ending on the costa before apex of the wing. R_{4+5} and M somewhat divergent distally. C-index about 1.7; 4v-index about 4.5; 4C-index about 2.5; 5x-index about 3.1. 1st costal section with 2 stout subequal apical bristles; apical incision very deep, as deep as 1/4 or more length of the 1st costal section itself. 3rd costal section with heavy bristles on its entire length.

Abdominal tergites pale yellowish grey, with black narrow caudal bands, which are narrowing at sides and at middle; the caudal bands on the 1st, 2nd and 6th tergites interrupted at middle. Caudal tergites paler. Abdominal sternites quadrate, pale grey. Halteres yellow.

Periphallic organs (Pl. 13, D); Genital arch pale yellow, ventral half exceedingly narrowing and with sparse long hairs. Clasper attached to the anal plates, hyaline, exceedingly narrow, somewhat curved anteriorly at tip, and with several sensillae and short setae near apex. Anal plate pale yellow, fusiform, pubescent and sparsely hairy, and with a long tapering ventral projection which is sparsely hairy and with 2 yellowish lobe-like bristles near tip.

Phallic organs (Pl. 13, E); Aedeagus gross, orange brown, tapering at apex, with intricate fine feather-like sculpture, and submedially with a pair of dorsal processes which look like the bird-wings. Anterior paramere pale, flagellate, longer than the aedeagus and with several sensilla arranged in a row along its long axis.

Apodeme of aedeagus rod-like, shorter than the aedeagus and makes an acute angle with aedeagus at side view. Ventral fragma pale grey, semicircularly looped. Vertical rod large, quadrate and folded like a roof. Posterior parameres fused with each other to form a filamentous organ which is as long as the anterior parameres and tripartite apically.

Female genitalia (Pl. 13, A); Egg-guides paired, only weakly projected, pale yellowish white, basally membranous and apically with a few short setae. Anal cerci pale yellow, pubescent and hairy, divided into a upper and a lower lobes, each obscurely divided into 2 lateral lobes.

Internal structures (Pl. 13, F—H); Mid-intestine folded thrice. Rectal papillae four, oval, over twice as long as broad. Malpighian tubes with common stalks moderately long, posterior branches fused at tips to form a loop. Testis hyaline, rod-like and with a slender stem, or once folded with a short stem. Paragonia hyaline, banana-shaped, basally narrowing and folded once. Ejaculatory duct thick. Oviduct comparatively long; spermathecae 2, elliptical, with slender stems which are subapically swollen slightly. Ventral receptacle entangled in a mass, composed of 3 folds which are together folded twice again. Parovaria seems to be absent.

Holotype: ♂, Meguro, Tokyo, 13. XI. '56, collected by sweeping (Y. Matsudaira).
Allotopotype: ♀, 1. XII. '56, collected by sweeping (Y. Matsudaira).
Paratypes: 1♂, 1♀, Gôtokuji, Tokyo, 15. XI. '59 (T. Okada).
Distribution: Honshu (Kanto).

Relationships: Closely resembles *O. tectifrons* (de Meijère) from Java, but distinguished from it in having 4v-index (2.3 in the related species) and 5x-index (2.4).

Remarks: The species name is dedicated to Mr. Yoriaki Matsudaira who kindly collected the materials and offered them to the author.

Japanese name: Hagoromo-shôjôbae (nov.).

Microdrosophila (Microdrosophila) cristata sp. nov.

(Fig. 1, A—H)

♂ and ♀; Body about 2.1–2.5 mm, yellowish brown, with noninterrupted abdominal black bands. 6th abdominal sternite of male has a pair of crest-like dental rows, thus the species name is given. Eye red and pubescent. Antenna yellowish grey, 3rd joint pale, pubescent, and only slightly longer than broad. Arista with about 8–12 branches, 2 or 3 below fork. Palpus yellow sometimes darker at tip, triangular and with a few prominent subapical bristles. Front broad, about 5/9 as broad as the head width, slightly narrowing below and without frontal hairs. Front and periorbits orange brown. Clypeus pale brown. Carina long and high, reaching buccal margin. Occiput black. Cheek yellow, its greatest width about 1/3 the greatest diameter of eye. Vibrissa long and stout, remaining orals weak. orb_2 minute, about 1/5 length of orb_1, situated just inside orb_3. orb_3 slightly shorter than orb_1, situated just outside or slightly before and outside orb_1, which is nearly 1/4 as apart from orb_3 as from inner vertical.

Mesonotum and scutellum dark yellowish brown; pleura yellow and darker at upper half. Sterno-index about 0.5. *hu* 1, *ac* in about 6–8 somewhat irregular rows. Cross distance of *dc* about 1.2 times length distance. Posterior scutellars divergent.

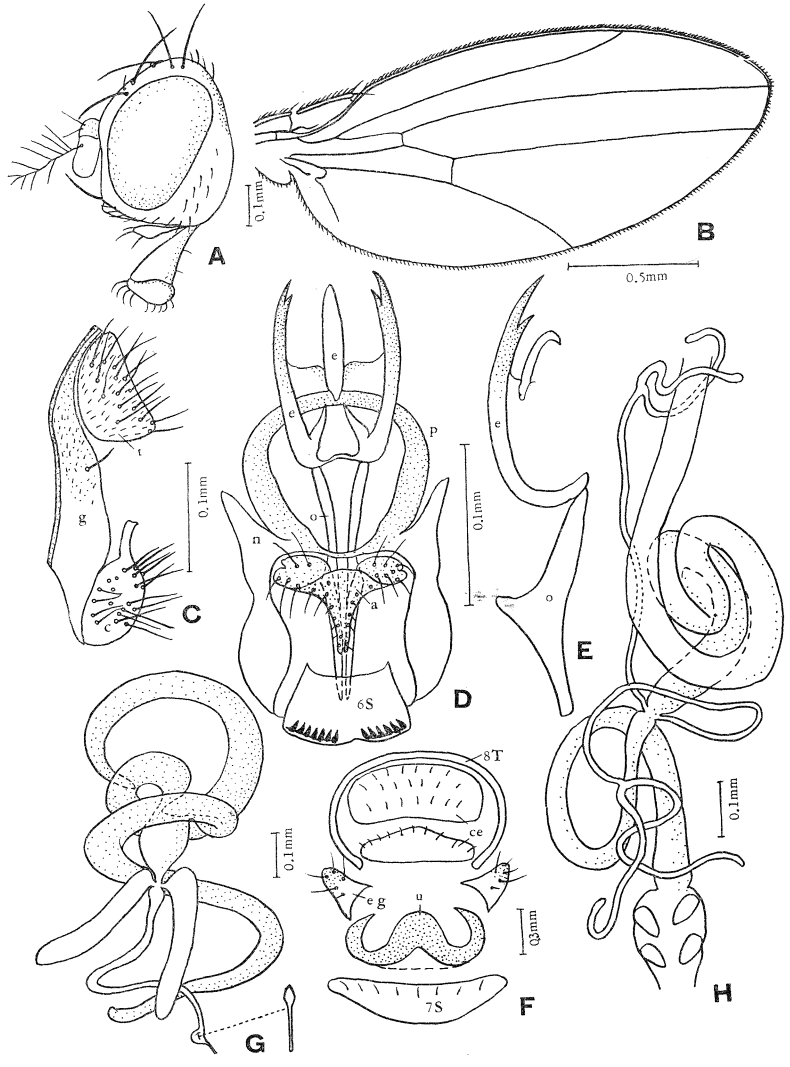

Fig. 1. *Microdrosophila* (*Microdrosophila*) *cristata* sp. nov.

A. Head; B. Wing; C. Periphallic organs; D. Phallic organs; E. Aedeagus; F. Female abdominal tip; G. Male internal reproductive organs; H. Digestive organs. a. anterior paramere; c. clasper; ce. cerci; e. aedeagus; eg. egg-guide; g. genital arch; n. novasternum; o. apodeme of aedeagus; p. posterior paramere; t. anal plate; u. pregenital plate; S. sternite; T. tergite.

Legs yellow; preapicals on all three tibiae, apicals on fore and middle. Wings (Fig. 1, B) hyaline, slightly angular at tip. Crossveins clear, veins yellowish grey. C–index about 2.0; 4v–index about 5.7; 4C–index about 3.8; 5x–index about 5.0. lst costal section with 2 subequal bristles; 3rd costal section with heavy bristles on its basal 3/4 or 4/5. Halteres yellowish white.

Abdominal tergites pale yellow, each with a broad black caudal band, which is not interrupted at middle. Abdominal sternites pale yellowish brown; 6th sternite in male with a pair of crest–like transverse combs, each composed of about 6 black stout teeth (Fig. 1, D).

Periphallic organs (Fig. 1, C); Genital arch narrow, pale yellow, pubescent and tapering and darker above, heel high, toe low and pointed. Upper margin of genital arch with a long caudal seta, lower margin bare. Clasper pale yellow, oval, dorsoapically pointed like a bottle–neck and with about 20 stout setae. Anal plate yellow, semicircular, distal margin straight, pubescent and with about 20 long hairs.

Phallic organs (Fig. 1, D, E); Aedeagus elongated, trilobed, lateral lobe black, apically bifid and basally curved dorsally. Apodeme of aedeagus slightly shorter than aedeagus and medioventrally projected triangularly. Anterior parameres (?) brownish black, fused with each other to form a triangular setigerous flap. Posterior parameres brownish black, fused with each other to become a broad arch surrounding the aedeagus. Novasternal plate hyaline, large and wing–shaped.

Female genitalia (Fig. 1, F); Egg–guides separated from each other, conical, yellow and apically fuscous, about twice as long as broad and with a few short setae. Behind 7th sternite there is a yellowish orange W–shaped pregenital plate.

Internal structures (Fig. 1, G, H); Mid–intestine twice coiled. Malpighian tubes yellow, basally white, common stalks very long and branches short, posterior branches ending free. Rectal papillae ovoid, about half as broad as long. Testis bright yellow, twice coiled, seminal reservoir bright yellow, thick and oval. Accessory gland oblong and hyaline. Ejaculatory bulb minute, without diverticula. Ejaculatory apodeme pale yellow, with oval plate and slender stem, which is about 2.5 times as long as the plate. Ventral receptacle with 3 semicircular folds.

Holotype: ♂, Kirigamine, 16. VIII. '57, collected by sweeping (K. Yamazaki).

Allotype: ♀, Hiroshima, X. '56 (M. Kiyoku).

Paratypes: 1♀, Kakinokizaka, Tokyo, 7. XII. '56, collected by sweeping (Y. Matsudaira); 1♀, Todoroki, Tokyo, 3. II. '57, collected by sweeping (Y. Matsudaira).

Other specimens examined: 1♂, collected together with the holotype (K. Yamazaki); 1♂, 1♀, Nachi, Wakayama Pref., 10. X. '56 (T. Okada); 1♀, Shinbo, Fukui Pref., 24. X. '59 (T. Okada).

Distribution: Honshu (Kanto, Chûbu, Kinki, Chûgoku).

Relationships: Closely allied to *M. congesta* (Zetterstedt), but slightly differs from it in having *orb*$_2$ inside to *orb*$_3$ (outside in *congesta*) and non–sulcate carina (sulcate).

Remarks: The presence of distinct clasper in male of this species is a rare case hitherto known in Japanese members of this genus, and the qualification of this genus by the absence of clasper (Okada, 1956)[3] should be emended. Regarding the

pregenital plate found in this species, see the introduction.

Japanese name: Minoge-shôjôbae (nov.).

Microdrosophila (Microdrosophila) maculata sp. nov.

(Fig. 2, A–F)

♂ and ♀; Body about 1.6–2 mm, slender and pale yellow. Eye reddish brown and pubescent. Antenna with 2nd joint brown; 3rd yellow, about 1.5 times as long as broad. Arista with about 10 rather long branches, 2 long distal branches below a small fork. Palpus yellow, conically rounded at tip, with a few shorter but stouter apical and subapical setae. Ocellar triangle pale yellowish brown, paler at the inner margins of ocelli. Periorbits pale yellow, wider below and almost reach the lower end of front. *orb*$_2$ minute, situated close to and just inside *orb*$_3$; *orb*$_1$ just behind *orb*$_2$, somewhat longer than *orb*$_3$ and about 1/4 as apart from *orb*$_3$ as from inner vertical. Front pale yellowish brown, about 3/5 as broad as the head width, slightly narrowing below and deeply concaved at the anterior margin. Frontal hairs apparently absent. Face pale yellow; carina high, narrow and not reaching buccal margin. Occiput pale yellowish brown; cheek pale yellowish brown, its greatest width about 3/10 the greatest diameter of eye. Vibrissa stout and very long, succeeding orals minute.

Mesonotum and scutellum pale yellowish brown, with a pair of faint dark longitudinal stripes, closely inside and outside *dc* lines, the inner stripes extending forward, the outer postward. Metanotum dark brown. Mesopleuron with a faint but broad dark brown longitudinal stripe at middle, pale yellow below it. *hu* 1; *ac* in 6 rows. Anterior *dc* slightly shorter than the posterior ones; cross distance of *dc* about 1.2 times the length distance. Anterior scutellars minute, divergent, close to the base of scutellum; posterior scutellars near the apex. Sterno-index about 0.5.

Legs pale yellow, metatarsus much longer than the succeeding 2 tarsal joints taken together. Preapicals on all three tibiae; apicals on 2nd and 3rd, those on the 2nd very long and stout. Wings (Fig. 2, B) hyaline, rather broad and slightly darker due to thick covering of the microtrichia. R_{2+3} eminently curved forward apically; R_{4+5} and M nearly parallel. C-index about 1.2; 4v-index about 4.8; 4C-index about 3.3; 5x-index about 4.5. 1st costal section with 2 subequal terminal bristles; 3rd costal section with heavy bristles on its basal 3/4. Halteres brown, stem paler.

Abdomen slender, tergum yellowish brown, each tergite with a faint narrow caudal cross band at each side. 6th tergite with a pair of large round black lateral spots, by which the species name is given. Abdominal sternites pale.

Periphallic organs (Fig. 2, D); Genital arch pale yellow, narrow above, truncate below. Clasper absent. Anal plate fusiform, pale yellow, with sparse short macrotrichia and dense microtrichia, caudoventrally with a curved finger-like darker process, which seems to be partially contiguous with genital arch.

Phallic organs (Fig. 2, C and partly E); Aedeagus pale brown, apically tripartite, basally thick and contiguous with a distally tapering apodeme, and dorsobasally with a pair of short conical processes, which are connected with a crescent pale yellowish mass of posterior parameres. Anterior parameres (?) fuse with each other to become a thick semicircular, basally bifid, apically black and pointed rod,

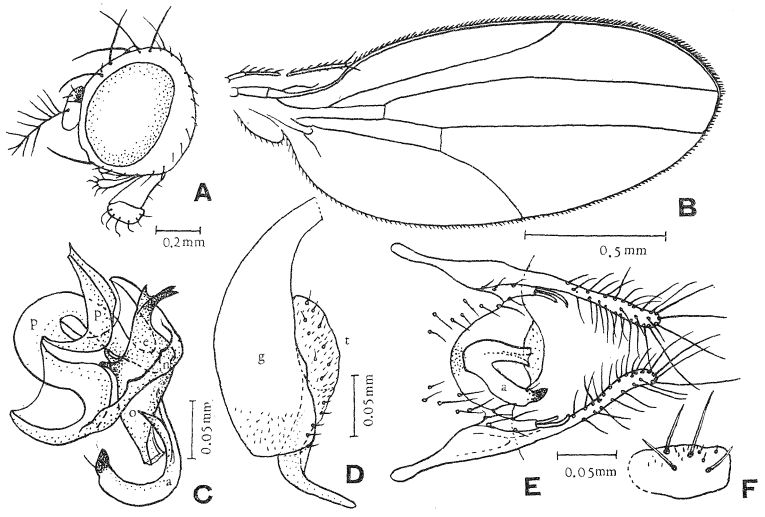

Fig. 2. *Microdrosophila* (*Microdrosophila*) *maculata* sp. nov.

A. Head; B. Wing; C. Phallic organs; D. Periphallic organs; E. Pregenital sternites; F. Egg-guide. a. anterior paramere; e. aedeagus; g. genital arch; n. novasternum; o. apodeme of aedeagus; p. posterior paramere; t. anal plate.

which has a prominent sensillum subapically. Pregenital sternites (Fig. 2, E) with 2 pairs of caudal processes, outer pair long, club-shaped and setigerous, inner pair short, rod-like, each having 2 long conical appendages.

Egg-guides (Fig. 3, F); Lobes paired, quadrate, pale yellow and with 4 setae and a few microtrichia.

Internal structures of female; Mid-intestine coiled about 2.5 times. Rectal papillae elliptical, about twice as long as broad. Malpighian tubes with common stalks exceedingly long and branches very short, about 1/4 length of the common stalks, posterior branches ending free. Oviduct comparatively short. Spermathecae hyaline, with round knobs and short subapically slightly swollen stems. Parovaria hyaline, slightly shorter than the spermathecae and without swellings on the stems. Ventral receptacle with about 4 transverse semicircular folds.

Holotype: ♂, Tsu, Mie Pref., 9. X. '56, collected by sweeping (T. Okada).

Allotype: ♀, Tadotsu, Kagawa Pref., 4. XI. '53, collected by sweeping (T. Okada).

Paratypes: 1 ♂, Ochide, Kôchi Pref., 6. XI. '53, collected at a glass-window of a bas-stop (T. Okada); 2 ♀♀, Asakawa, Tokyo, 3. V. '60, collected on the fallen leaves of *Quercus* (T. Okada).

Distribution: Honshu (Kanto, Kinki), Shikoku.

Relationships: Closely resembles *M. purpurata* Okada, 1956, from Japan, especially

in having broad distinct black mesopleural stripe, but distinguishable from it in having mesonotal black stripes inside and outside *dc* line subequal in width and closely apposed to each other, inner stripe extending before suture (outer stripe broader and widely separated from inner one which does not extend before suture in *purpurata*), genital arch truncate below (pointed posteriorly below in *purpurata*), anal plate caudoventrally projected like a finger (ventrally projected like a club in *purpurata*) and egg-guide lobes quadrate (triangular in *purpurata*).

Japanese name: Atohoshi-shôjôbae (nov.).

Microdrosophila (Microdrosophila) urashimae sp. nov.

Microdrosophila (Incisurifrons) congesta Okada, 1956. Systematic study of Drosophilidae and allied families of Japan: 41 (nec Zetterstedt, 1847).

Microdrosophila congesta Okada and Kurokawa, 1957. Kontyû, 25: 2 (nec Zetterstedt, 1847).

♂ and ♀; orb_3 nearly half as long as orb_1, situated inside orb_1 and orb_2. orb_2 minute, equally distant from orb_1 and orb_3. orb_1 about 2/5 times as apart from orb_3 at from *vti*. Palpus club-shaped, yellow, with a few stout apical bristles. Ocellar triangle much broaden anteriorly, reaching the anterior margin of the front and with a few fine hairs. Median *fr* absent. Mesonotum and scutellum yellowish brown, pleura dark brown. Anterior *scut* slightly divergent, as long as posteriors, which are nearly parallel. Wings usually pointed at tip, 3rd costal section with heavy bristles on its almost entire length except a short distance subequal to that between 2 or 3 heavy bristles. Other structures including male and female genitalia* and internal structures as reported by Okada (1956) and Okada and Kurokawa (1957).

Holotype: ♂, Ôkurayama, Kanagawa Pref., 7 XII. '52 (K. Toda).

Allotopotype: ♀, collected together with the holotype (T. Okada).

Paratypes: 8 ♂♂, 5 ♀♀, collected together with the holotype (K. Toda and T. Okada).

Other specimens examined: 2 ♀♀, Kirigamine, Nagano Pref., 16. VIII. '57 (K. Yamazaki); 23 ♂♂, 20 ♀♀, Kinpuzan, Yamanashi Pref., 21. VI. '59 (M. Seta); also as recorded in the previous reports (1956, 1957): Aburatsubo, Kanagawa Pref., Futtsu, Chiba Pref., Senjôdake, Nagano Pref.

Distribution: Honshu (Kanto, Chûbu).

Relationships: According to a kind suggestion given by Dr. E. B. Basden (1957)[6], the Zetterstedt's type specimen of *M. congesta* has a wholly yellow abdomen and the strong costal fringe extending only 6/7 to the 3rd costal section, different from the present species. Further it is found that in the present species orb_1 is about 2/5 times as apart from orb_3 as from *vti* (about 1/4 in *congesta*, after Duda, 1935[7]) and orb_3 is situated slightly inside orb_1 (outside in *congesta*). In this point it rather resembles *M. zetterstedti* Wheeler, 1959[8] (syn. *Drosophila nigriventris* Zetterstedt, 1847, preoc.) from northern Europe, which shows orb_1 about 2/3 as apart from orb_3 as from *vti* and orb^3 situated inside orb_1. The present species differs, how-

* Genital arch curved or pointed posteriorly, not anteriorly as described and figured previously (1956, 1957).

6 Basden, E. B. 1957. Entomologist's Month. Mag., 98 : 208–211.

ever, from *zetterstedti* in having more than 8 rows of *ac* (6 rows in *zetterstedti*, after Duda, 1935[7]), 2 branches of arista below fork (only one in *z.*) and no outer occipital bristles (present in *z.*).

Japanese name; Urashima-shôjôbae (Okada, 1956).

Microdrosophila (Microdrosophila) fuscata sp. nov.

(Fig. 3, A–E)

♂ and ♀; Body about 2.5 mm, dark yellowish brown. Eye dark red, with thick piles. Antenna with 2nd joint dark brown, 3rd yellowish brown, nearly quadrate and about 3/4 as broad as long. Arista with about 8–10 rather long branches, 2 below moderate fork. Palpus clup-shaped, yellowish grey, apically swollen and with about 3 short but stout setae, ventrally with a few short hairs. Ocellar triangle brownish black. Mouth-parts yellowish grey. Periorbits dark brown, much broaden below, reaching the lower tip of the front. Front dark brown, nearly half as broad as the head width. Clypeus black. Face yellowish brown; carina broad low, reaching buccal margin. Cheek brown, about 1/4 as broad as the greatest diameter of eye. orb_3 about 2/3 as long as orb_1 and situated inside orb_1 and orb_2. orb_2 minute, situated at equal distance from orb_1 and orb_3. orb_1 about 1/2–2/5 times as apart from orb_3 as from *vti.* Vibrissa strong, the remaining *or* minute.

Mesonotum and scutellum nearly uniformly dark brown, pleura paler. *hu* one, long. *ac* in about 8 rows. Cross distance of *dc* about 4/5 the length distance. Anterior *scut* nearly parallel, short and thin, about 2/5 length of the posterior ones, which are divergent. Sterno-index about 0.6. Legs yellowish grey, femora slightly darker. Preapicals prominent on 2nd and 3rd tibiae, apicals on 2nd. Wings (Fig. 3, A) hyaline; costal incision at the end of the lst costal section about 1/5 length of that section between two costal breakages. The wing tip rounded or slightly pointed; R_{2+3} nearly straight. C-index about 1.4–1.6; 4v-index about 4.0–4.2; 4C-index about 2.3–2.5; 5x-index about 4.5–4.8. lst costal section with 2 subequal apical bristels. 3rd costal section with heavy bristles on its about 19/20, remaining a short distance subequal to that between 4 or 5 heavy bristles. Halteres yellowish grey.

Abdominal tergites dark brown, somewhat paler than thorax; sternites paler and laterally dark.

Periphallic organs (Fig. 3, E); Genital arch pale brown, narrow, bare, slightly broaden below, caudoventrally gently concaved and with a darker triangular clasper which has a few discal setae and several sensory pits on distal margin, but without distinct teeth. Anal plate large, oblong, pale grey, pubescent and setigerous, ventrally projecting narrowly.

Phallic organs (Fig. 3, B, C); Aedeagus slender, pale grey, subapically darker and somewhat constricted, apically slightly pointed ventrad. Apodeme of aedeagus slender, curved ventrally. Novasternum narrow, pale grey, deeply notched distally and weakly pointed proximally. A narrow curved vertical rod is projected from the base of aedeagus to be contiguous with the novasternum at the bottom of the

[7] Duda, O. 1935. Die Fliegen d. Paläark. Reg., 58g : 1–118.
[8] Wheeler, M. R. 1959. Univ. Texas Publ., 5914: 181–205.

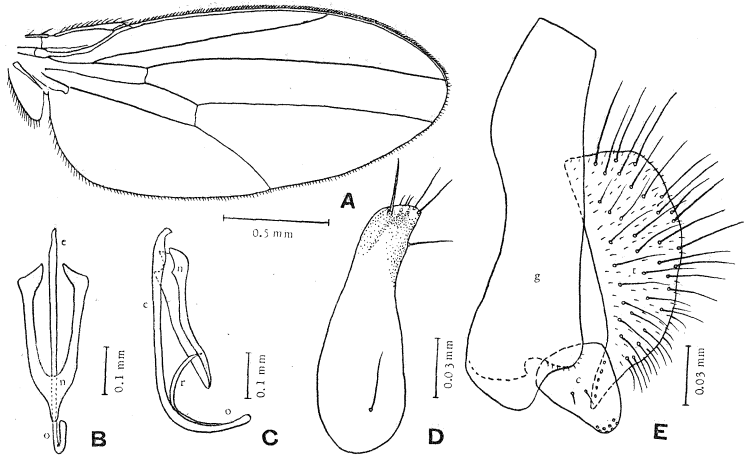

Fig. 3. *Microdrosophila* (*Microdrosophila*) *fuscata* sp. nov.

A. Wing; B. Phallic organs (ventral aspect); C. ibid. (lateral aspect); D. Egg-guide; E. Periphallic organs. c. clasper; e. aedeagus; g. genital arch; n. novasternum; o. apodeme of aedeagus; r. vertical rod; t. anal plate.

median notch. Parameres seem to be absent.

Egg-guides (Fig. 3, D); Lobes separated from each other, pale yellow, distally narrowing and darker, proximally rounded, subbasally with a rather long discal hair, subapically with a stout long seta on the ventral margin, and apically with about 3 stout long setae and a few minute hairs.

Internal structures; Mid-intestine coiled about twice. Rectal papillae four, elongate, more than twice as long as broad. Malpighian tubes with common stalks rather long and branches rather short, posterior branches closely apposed. Oviduct very slender; spermatheca with oval head and subapically swollen stem; parovaria as long as spermatheca and with oval head. Ventral receptacle with 3 semicircular folds. Male internal reproductive organs unknown.

Holotype: ♂, Kakinokizaka, Tokyo, 8. XI. '56, collected by sweeping (Y. Matsudaira).

Allotopotype: ♀, collected together with the holotype (Y. Matsudaira).

Paratopotypes: 5 ♂♂, and 3 ♀♀, collected together with the holotype (Y. Matsudaira).

Other specimens examined: 1 ♂, Meguro, Tokyo, 11. X. '53 (T. Okada); 1 ♀, Kunitachi, Tokyo, 12. VII. '52 (T. Okada); 1 ♂, Kakinokizaka, Tokyo, 12. XI. '55 (T. Okada); 1 ♀, Senjôdake, Nagano Pref., 15. VIII. '53 (O. Kitagawa and A. Ono); 1 ♀, Anjô, Aichi Pref., 21. XI. '53 (K. Nozawa); 2 ♂♂, Kinpuzan, Yamanashi Pref., 21. VI. '59 (M. Seta).

Distribution: Honshu (Kanto, Chûbu).

Relationships: Closely allied to the preceding species, *M. urashimae*, especially

in having slender aedeagus, and in the disposition of orbitals, but distinguished from the latter in the smaller and darker body, usually rounded wing-tip, heavy bristles on the 3rd costal section less extending to the tip, much shorter anterior scutellars, distinct triangular clasper, less narrowing egg-guide lobes, and ventrally more narrowly projected anal plate.

Japanese name: Usuzumi-shôjôbae (nov.).

Remarks: In the previous reports (1956, 1957, loc. cit.) some specimens of this species were erroneously mixed in the collection data (but not in the description of the characters) of the preceding species: e. g. the specimens from Meguro, Kunitachi, Anjô and partially from Senjôdake.

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The type-specimens are deposited at the Department of Biology, Tokyo Metropolitan University.

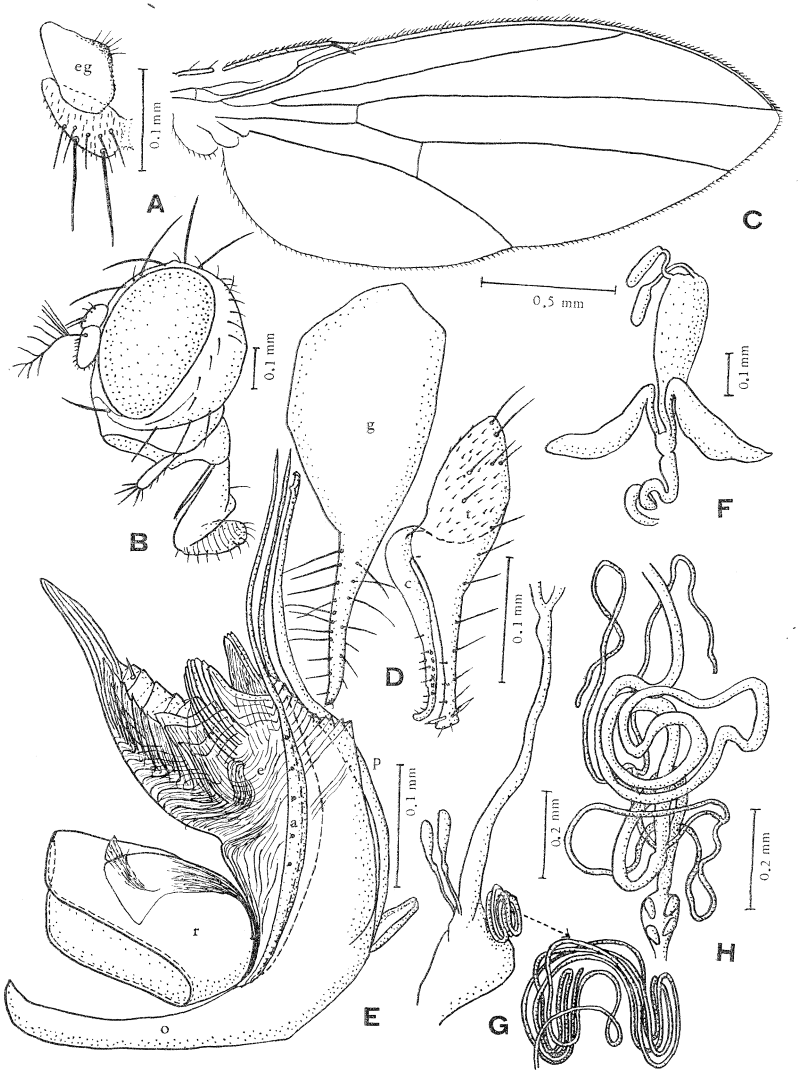
Abbreviations used in the text

ac, acrostichal hairs; *dc*, dorsocentrals; *fr*, frontal hairs; *hu*, humerals; *or*, orals; orb_1, orb_2 and orb_3, posterior reclinate, anterior reclinate and proclinate orbitals respectively; *scut*, scutellars; *vti*, inner verticals.

Explanation of Plate 13

Microdrosophila (Oxystyloptera) matsudairai sp. nov.

A. Female genitalia; B. Head; C. Wing; D. Periphallic organs; E. Phallic organs (ventral fragma omitted); F. Male internal reproductive organs; G. Female internal reproductive organs; H. Digestive organs. a. anterior paramere; c. clasper; e. aedeagus; eg. egg-guides; g. genital arch; o. apodeme of aedeagus; p. posterior paramere; r. vertical rod; t. anal plate.



Okada — *Microdrosophila* from Japan