

# Fungus Gnats, Lauxaniid and Agromyzid Flies (Diptera) of the Imperial Palace, the Akasaka Imperial Gardens and the Tokiwamatsu Imperial Villa, Tokyo

By

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笹川満廣<sup>1)</sup>: 皇居, 赤坂御用地と常盤松御用邸のキノコバエ,  
シマバエおよびハモグリバエ類

## Introduction

Through the courtesy of Dr. S. Shinonaga, a member of the faunistic surveys on Diptera in the Imperial Palace, the Akasaka Imperial Gardens and the Tokiwamatsu Imperial Villa, Tokyo, I had an opportunity to examine many specimens of the fungus gnats, lauxaniid flies and agromyzid leaf-miners collected by him and other members by using the sweeping net and Malaise traps for the period from April 2002 to May 2004.

This paper represents the taxonomic clarification of some of the material I had examined, and is highly desirable as a first step to obtain the fuller understanding of our fauna of the above-mentioned families. In the present paper 32 species of the fungus gnats, 25 of the lauxaniid flies and 27 of the agromyzid leaf-miners are confirmed. The historical reviews on the faunistic characteristics of these gnats and flies are given in detail later in the paper under each family.

## Materials and Methods

All the specimens captured by Malaise trap (abbreviated hereafter as MT) were dried up after the dehydration with pure ethanol by the collector, Dr. S. Shinonaga (SS), Tokyo Medical and Dental University. After the examination or drawings of the dissected male genitalia were done when those are essential for a right understanding of the species, the abdomen with genitalia was put into a polyethylene tubule with glycerol and pinned with the specimen.

The holotypes of new species are deposited in the collection of the Department of Zoology, National Science Museum, Tokyo.

The following abbreviations have been used for chaetotaxy and abdominal segments:

Chaetotaxy: head and thorax- acr, acrostichal setae; dc, dorso-central bristle(s); oh, orbital hairs; ori, lower fronto-orbital bristle(s); ors, upper fronto-orbital bristle(s); pa, post-alar bristle(s); pm, peristomal bristles; ppl, propleural bristles; prsc, pre-scutellar bristles; sa, supra-alar bristle; sc, scutellar bristles; stpl,

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sternopleural (katapisternal) bristle; vte, outer vertical bristle. Leg- a, anterior bristle(s); ad, antero-dorsal (s); d, dorsal(s); p, posterior bristle(s); pd, postero-dorsal(s); v, ventral(s).

Abdominal segments- T1-6, first to sixth tergites; S5-7, fifth to seventh sternites.

### Taxonomy

#### Keroplastidae–Mycetophilidae

Although the fungus gnats, especially of the family Mycetophilidae, are abundant in the hillside and mountains in Japan, our taxonomic knowledge are extremely poor at the present time. Only 53 genera of the Palaearctic total of 89 are presented in Japan at present. Slightly over 1200 species are now known in the Palaearctic region, of which only 14% are in Japan. It seemed, however, reasonably certain that many additional species must be present in Japan, particularly as no continuous studies or intensive collections of the fungus gnats had been done there by specialists.

In this paper 11 new species of four genera, *Neoempheria*, *Epicypa*, *Mycetophila* and *Cordyla* (Mycetophilidae) are described, and 9 species of six genera, *Neoplatyura* (Keroplastidae), and *Mycomya*, *Neoempheria*, *Mycetophila*, *Phronia* and *Cordyla* (Mycetophilidae), are recorded from Japan for the first time.

#### Keroplastidae

##### 1. *Neoplatyura flava* (Macquart)

*Platyura flava* Macquart, 1826, Mém. Soc. Sci. Agric. Lille 1823–24: 105.

Akasaka Imperial Gardens: 5♂, 15.vii.2003 (MT).

Distribution. Japan (Honshu), Russia, Europe. New to Japan.

Remarks. This yellowish species is characterized by the densely spinulose gonocoxite and black process of the mesal stylomere. It was easily identical with these characters.

##### 2. *Neoplatyura nigricauda* (Strobl)

*Platyura nigricauda* Strobl, 1893, Wien. ent. Ztg. 12: 164.

Tokiwamatsu Imperial Villa: 13♂2♀, 11.x.2002 & 29.vii.2003 (MT).

Distribution. Japan (Honshu), Europe. New to Japan.

Remarks. This brownish yellow species is characterized by the dark posterior tergites of abdomen, wing venation and densely spinulose inner apical margin (black) of the gonocoxite with the upturned black process at inner base. The specimens examined were agreeable with the original description, but the following characters of the wing venation will be added to it: wing length 3–3.6 mm in male, costa extending distinctly beyond tip of R<sub>5</sub>, Sc ending at C before forking point of R<sub>5</sub>, Sc<sub>2</sub> present at base of Sc, R<sub>4</sub> ending before midway between R<sub>1</sub> and R<sub>5</sub>.

#### Macroceridae

##### 1. *Macrocera abdominalis* Okada ハラボシヒゲタケカ

*Macrocera abdominalis* Okada, 1937: 21.

Akasaka Imperial Gardens: 1♂, 28.x.2002 (MT).

Tokiwamatsu Imperial Villa: 5♀, 24.vi., 1. & 29.vii.2003 (MT).

Distribution. Japan (Hokkaido, Honshu, Kyushu), S. Kuriles.

## Mycetophilidae

## Subfamily Sciophilinae

1. *Mycomya* (*Calomycomya*) *wuorentausi* Väisänen

*Mycomya* (*Calomycomya*) *wuorentausi* Väisänen, 1984: 271.

Akasaka Imperial Gardens: 2♂, 6.viii. & 2.ix.2003 (MT).

Distribution. Japan (Honshu), Russia (Vladivostok). New to Japan.

Remarks. The specimens examined were quite agreeable with the original description with figures of the male genitalia. There was, however, a minor difference in the shape of proctiger situated below the tergal fork, that is, a pair of black apical processes divergent and slightly hooked dorsally on tips (not straight and not claw-like on tips as illustrated in original figures 886 and 888).

2. *Neoempheria bispinosa* Sasakawa, n. sp. (Figs. 1-3) フタトゲマドキノコバエ

*Male*. Head yellowish brown, ocellar area black; face and clypeus yellow; antenna yellow, flagellomeres very faintly tinged with brown; palpus dark brown. Thorax yellow; mesoscutum with median vitta pale brown and trifurcated before anterior parapsidal suture, antero-lateral area before suture and lateral side broadly brown; scutellum whitish; pleura whitish, mediotergite brown but yellowish dorso-mesally; abdomen yellow, T3 narrowly brownish along posterior margin, T4 with pale brown triangular spot posteriorly; gonocoxite brownish yellow. Wing with central band pale brown, starting at apex of Sc<sub>1</sub>, extending posteriorly A<sub>1</sub>, almost as wide as anterior width of cell R<sub>1</sub> but narrowed just caudad of base of M-petiole; apical cloud broad, starting near tip of R<sub>1</sub>, extending beyond M<sub>2</sub> obscurely, about one-half as wide as length of R<sub>5</sub>; halter yellow, knob brownish at base. Legs yellow, tarsi faintly brown-tinged.

Eye with white hairs. Scape with one long dorso-apical seta; fourth flagellomere about twice as long as wide, first flagellomere slightly longer than the fourth. Fourth palpomere twice as long as third. One supra-alar bristle (sa) and two scutellar bristles (sc) extremely long; propleural bristle (ppl) one. Wing 2.5 mm in length, C ending beyond R<sub>5</sub>, Sc<sub>1</sub> ending at C basad of R<sub>4</sub>, Sc<sub>2</sub> situated almost at base of R<sub>5</sub>, cell R<sub>1</sub> 1.5 times as long as wide, r-m slightly shorter than R<sub>s</sub>, M-petiole nearly 2/3 length of M<sub>1</sub>, forking point of CuA at same level of base of M-petiole. Legs: Fore metatarsus shorter than tibia (2.5 : 3); spurs ratio as 5 : 5, 6 : 7, 8.

Gonocoxite (Fig. 1) slightly projected at postero-lateral end; gonostylus (Fig. 2) with ventral stylomere lobate, with three long setae and four marginal rows of spinulae on inner side; dorsal stylomere conical, with two claw-like spines on tip and its ventral process which is provided with nine spinulae on tip; mesal stylomere composed of five processes with different structures; aedeagus (Fig. 3) 270 μm in length, bifurcated distally and covered with membranous lobes; paramere broad.

*Female*. Unknown.

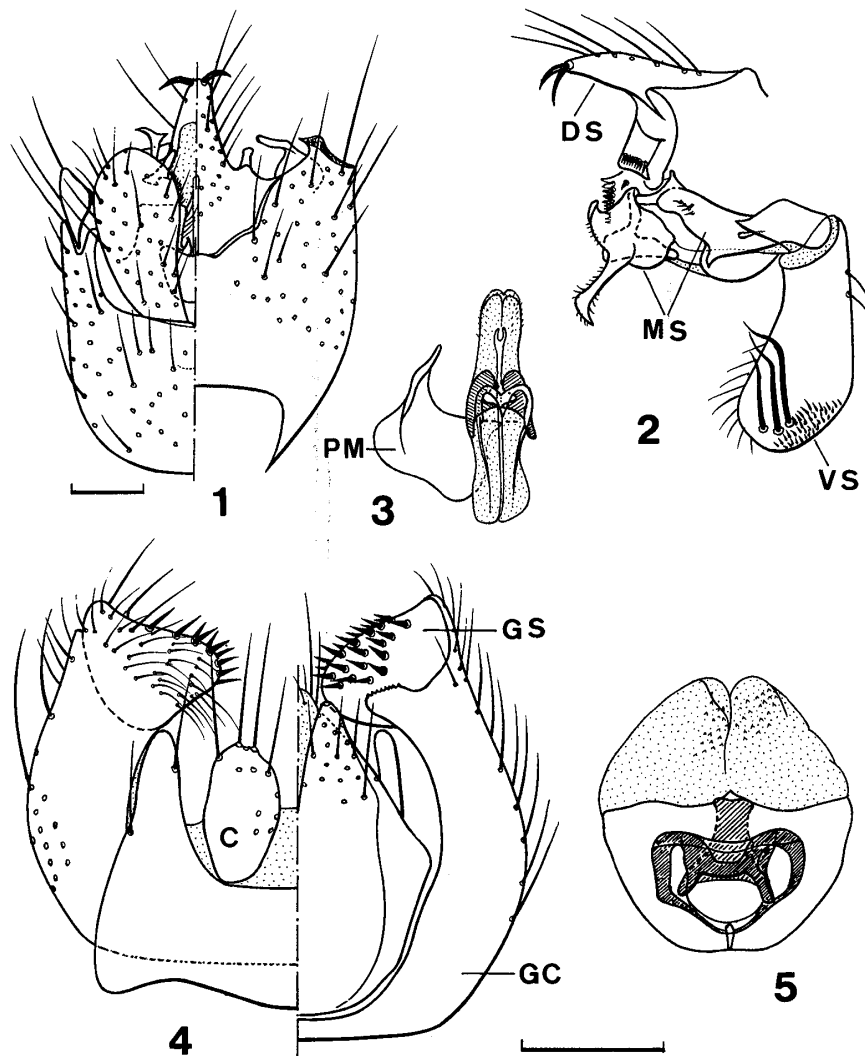
Holotype male, Akasaka Imperial Gardens, Tokyo, 6.viii.2003 (MT); abdomen and genitalia in polyethylene tubule with glycerol and pinned with the specimen.

Remarks. This species is similar to European *N. bimaculata* (von Roser, 1840) in the wing venation and coloration, but is distinguished immediately by its short wing and presence of central triangular spot on T4. The gonostylus is distinctive (hypopygium of *bimaculata*: see Plassmann, 1972, Fig. 1; gonostylus simple and merely setose).

Etymology. The specific name refers to two apical spines on the dorsal stylomere of gonostylus.

3. *Neoempheria cotyla* Sasakawa, n. sp. (Figs. 4-5) クボミマドキノコバエ

*Male.* Head with vertex and frons pale brown, ocellar area black, face and clypeus yellow; antenna yellow, about distal half of flagellomeres tinged with brown; palpus dark brown, fourth palpomere more or less pale. Thorax: Mesoscutum yellow, brown-trivittate, median vitta narrower than lateral ones but broadened anteriorly; median vitta usually trifurcate just before parapsidal suture, lateral stripes of that connected with antero-lateral semicircular spots of lateral vittae and central stripe between two rows of median setulae narrow, extending anterior margin of scutum; scutellum and pleura whitish; mediotergite brown but pale on dorso-median part. Abdomen with T1-4 yellow but T3 largely brown except for posterior and lateral margins, T2 sometimes with pale brown, small and quadrate spot at middle, T5-6 brownish black; S1-4 yellow, S5-6 yellowish brown; pregenital segments and gonocoxite yellow. Wing with pale brown central band starting at tip of Sc<sub>1</sub>, filling entirely cell R<sub>1</sub> (nearly twice as wide as cell) and extending to posterior wing margin (obscure near margin); pale



Figs. 1-5. Male genitalia of *Neoempheria bispinosa* n. sp. (holotype, 1-3) and *Neoempheria cotyla* n. sp. (paratype, 4-5). 1, 4, Gonocoxite, halves of dorsal and ventral views; 2, gonostylus, inner view; 3, 5, aedeagus, ventral view. C, Cercus; DS, dorsal stylomere; GC, gonocoxite; GS, gonostylus; MS, mesal stylomere; PM, paramere; VS, ventral stylomere. Scale 0.1 mm.

brown apical marking broad, about one-half as wide as length of  $R_5$ , starting at tip of  $R_1$ , ending just behind tip of  $M_2$ ; halter yellow, knob brown at base. Legs yellow, coxae whitish yellow, tarsi only a little darkened, spurs brown.

Eye with whitish brown hairs. Antenna with dorso-apical seta on pedicel distinct, first flagellomere 2.5–2.7 times as long as wide, fourth flagellomere 1.5–1.7 times as long as wide. Palpus with second to fourth palpomeres in proportion of 4 : 3.5 : 7.5. Mesoscutum with anterior and lateral setae long; scutellum with two  $sc$ ;  $ppl$  one, extremely long; pleurotergite bare. Wing 2.4 (holotype)–2.7 mm in length, costa ending beyond  $R_5$ ,  $Sc_1$  ending at C distinctly before position of  $R_4$ ,  $Sc_2$  usually at base of  $R_s$  (rarely slightly before base of  $R_s$ ), cell  $R_1$  1.3–1.8 times as long as wide, r-m slightly shorter than  $R_s$ , M-petiole nearly  $2/3$  length of  $M_1$ , forking point of CuA at same level of base of M-petiole. Fore metatarsus almost as long as tibia; spurs ratio as 8 : 10, 13 : 13, 14.

Gonocoxite projected mesally at postero-ventral end, with serration of eight minute teeth; gonostylus depressed on inner side, with about 28 spines marginally. Aedeagus 110  $\mu$ m long, Y-shaped, with semicircular sclerite ventrally, distal membranous lobe minutely spinulose at distal end.

*Female.* Similar to male, but mesoscutum usually pale brown except for yellow postero-lateral margin, scutellum yellow; T2 brown on posterior  $2/3$ – $3/4$ , T4 with brown anterior margin narrowly, T7 and ovipositor yellow; wing length 2.5–2.8 mm.

Holotype male, Akasaka Imperial Gardens, Tokyo, 15.vii.2003 (MT). Paratypes: 7 males and 3 females, same data as holotype; 1 female, Akasaka Imperial Gardens, 6.viii.2003 (MT); 3 males, Tokiwamatsu Imperial Villa, Tokyo, 17.vi. & 8.vii.2003 (MT).

Distribution. Japan (Honshu).

Remarks. The bicolored abdominal tergites of this species are similar to those of *N. brevilineata* Okada, 1939, but the wing markings of this species are two in the center and apex, while in *brevilineata* the central band only. The gonostylus of *cotyla* is distinctive. Also, this species differs from *N. bispinosa* n. sp. in its broad central band on the wing and dark striation on the mesoscutum.

Etymology. The specific name refers to the cup-shaped depression of gonostylus.

4. *Neoempheria ferruginea* (Brunetti, 1912) ナガマドキノコバエ

Tokiwamatsu Imperial Villa: 1♂, 28.x.2002 (MT).

Distribution. Japan (Hokkaido, Honshu, Kyushu), China, India.

Remarks. See Okada (1938, p. 136).

5. *Neoempheria pictipennis* (Haliday, 1833) ハマグラマドキノコバエ

Akasaka Imperial Gardens: 1♂, 11.x.2002 (MT).

Tokiwamatsu Imperial Villa: 2♂7♀, 11.x.2002 (MT); 1. & 29.vii.2003 (MT).

Distribution. Japan (Hokkaido, Honshu, Kyushu), Russia, Europe.

6. *Neoempheria winnertzi* Edwards ヴィンネルツナガマドキノコバエ

*Neoempheria winnertzi* Edwards, 1913: 356.

Tokiwamatsu Imperial Villa: 1♀, 1.vii.2003 (MT).

Distribution. Japan (Honshu), Europe, Russia, Iran. New to Japan.

Remarks. The female examined had the distinctive coloration of abdominal tergites as shown in the original description. This species is also easily distinguished by the wing venation and marking: cell  $R_1$  large, 1.8 times as long as wide,  $Sc_1$  ending at level of  $R_4$  and  $Sc_2$  slightly before middle of cell  $R_1$ , forking point of CuA distinctly before r-m; two bands pale brown, central one extending from cell  $R_1$  to posterior wing margin but distinctly broken between middle of cell  $M_2$  and cell CuA<sub>1</sub>, preapical band starting at distal  $1/5$  of  $R_1$  and extending posteriorly to wing margin but very pale behind CuA<sub>2</sub>; wing

length 4 mm.

7. *Monoclona mikii* Kertész

*Monoclona mikii* Kertész, 1898: 93; Kimura, 1976: 109.

Akasaka Imperial Gardens: 1♀, 29.vii.2003 (MT).

Distribution. Japan (Honshu), Europe.

Remarks. Only first flagellomere yellow; mesoscutum without brown spots posteriorly; abdominal tergites entirely brownish yellow. Male genitalia were described and illustrated by Kimura (1976).

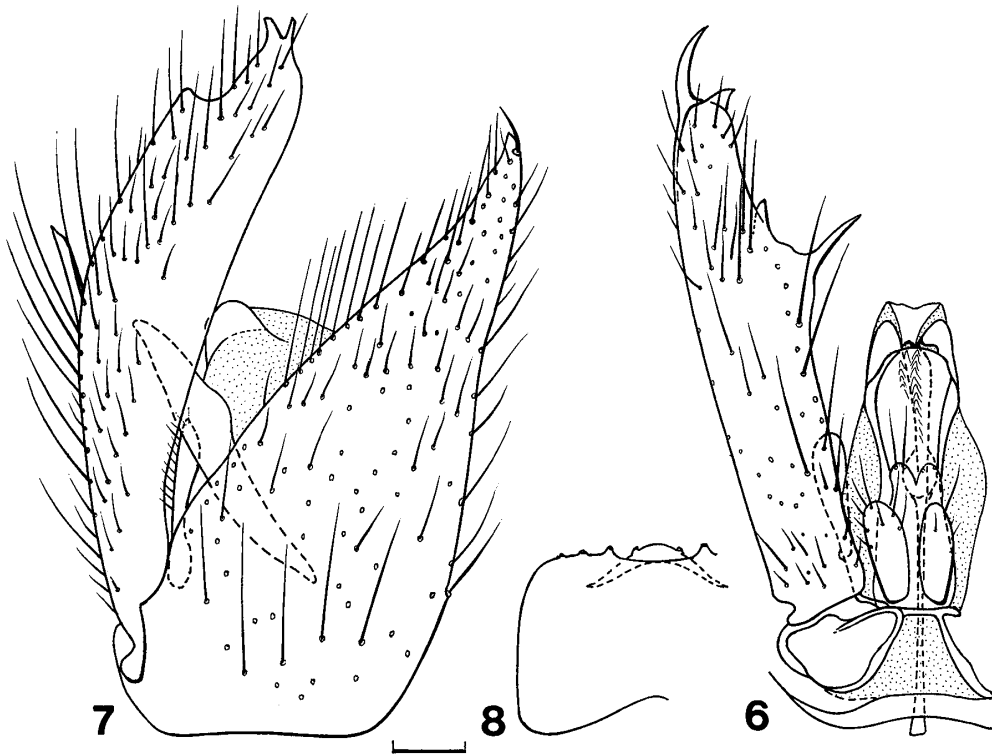
8. *Allactoneura akasakana* Sasakawa, n. sp. (Figs. 6–8)

*Male*. Black; frons and vertex strongly shining; face pale brown; clypeus brownish yellow; antenna with scape, pedicel and basal four or five flagellomeres dark yellowish brown, distal flagellomeres black; mouth part and palpus yellow; mesoscutum weakly shining, covered with silvery scales (mostly missing) and whitish minute setulae; pleura whitish gray dusted on dorsal half but shining on ventral half; abdomen including genitalia weakly shining, T1–5 each with a pair of silvery scale-patches, which are covered with white setulae, in a form of triangle on antero-lateral half; T4 yellow on anterior half; S3 and 4 yellow, with brown posterior margins broadened laterally, S5 brownish at middle. Wing hyaline, with anterior margin and apical one-third slightly brownish clouded and darkened on apical half of cell R<sub>1</sub> and antero-apical half of cell R<sub>5</sub> between vein R<sub>5</sub> and median longitudinal fold; veins brown but bases of Rs, CuA<sub>1</sub> and CuA<sub>2</sub> colorless; halter white. Legs with coxae, fore and mid femora, and fore tibia yellow, but fore femur brown on apical quarter and fore tibia broadly brownish on dorsal and inner sides, mid femur brownish black on apical one-third; hind femur black; hind tibia pale brown; tarsi blackish brown (mid tibia and tarsus missing); spurs yellowish brown and darkened apically, but those on hind tibia yellow.

Head with strong vertical and postorbital bristles, one inclinate fronto-orbital bristle just above ventral margin of frons; face quadrate or only a little higher than broad; antennal flagellomere cylindrical, densely pubescent, fourth 1.5 times as long as wide; fourth palpomere slender, about 1/2 as wide as width of the second and 1.5 times as long as the second. Mesoscutum with dc short; scutellum with apical sc extremely long; laterotergite with row of five marginal setae. Wing with r-m at about distal one-third distance between Sc<sub>2</sub> and R<sub>4</sub>; M<sub>1</sub> entirely, CuA<sub>1</sub> distally and CuA<sub>2</sub> except for base with setulae on under side. Fore tibia as long as first tarsomere; hind tibia with four long dorsal and four long antero-dorsal setae; fore and hind tibial spurs ratio as 1 : 1.3, 1.8.

Gonocoxite with short spine-like seta on ventral tip; gonostylus almost as long as gonocoxite, with two incurved spine-like processes on tip, and one long and one short spine-like processes before tip on inner dorsal margin; mesal stylomere clavate, weakly sclerotized and setose dorsally; aedeagus long, with narrow apodeme basally. Body length 4.2–5.6 (holotype) mm, wing length 3.2–4.2 (holotype) mm.

*Female*. Similar to male, but fourth flagellomere usually darker than basal ones; tergites with silvery patches larger, almost extending whole length of tergite on lateral side; T4 with a pair of yellowish spots at antero-lateral corners (variable in size, sometimes not visible from above); S4 with yellow band on anterior 1/3–2/3 of its whole length, S3 rarely brownish at middle transversely, S5 entirely black; cercus brownish yellow; mid tibia pale brown, with spurs yellow; antennal flagellomeres only a little longer than 2/3 length of male flagellomeres, fourth flagellomere 1.3–1.5 times as long as broad; hind tibia with five long dorsal and five antero-dorsal setae; tibial spurs ratio 1 : 1.2, 1.6 : 1.3, 1.8; T8 parallel-sided, weakly emarginated at middle of posterior margin; body length 4.2–6.0 mm, wing length 3.7–4.8 mm.



Figs. 6–8. Male genitalia of *Allactoneura akasakana* n. sp. (paratype). 6, Gonocoxite and aedeagus, dorsal view; 7, gonocoxite and gonostylus, lateral view; 8, half of eighth sternite. Scale 0.1 mm.

Holotype male, Akasaka Imperial Gardens, Tokyo, 30.ix.2003 (MT). Paratypes: 12 males and 42 females, same locality as holotype, 10.vi., 19.viii., 2., 16. & 30.ix.2003 (MT) and 28.x. & 11.xi.2002 (MT).

Distribution. Japan (Honshu).

Remarks. This is the first record of the species of genus *Allactoneura* in Japan. The species is closely related to *A. cincta* de Meijere, 1907, known from Java, in the coloration of body and legs, but is easily distinguished by the specific structures of male genitalia: in *cincta*, the gonocoxite without apical spine-like seta and gonostylus without an additional process beside inner dorsal long process, and the female T8 truncated at postero-lateral corner (Zaitzev, 1981, Fig. 2).

Etymology. The specific name is derived from the type locality.

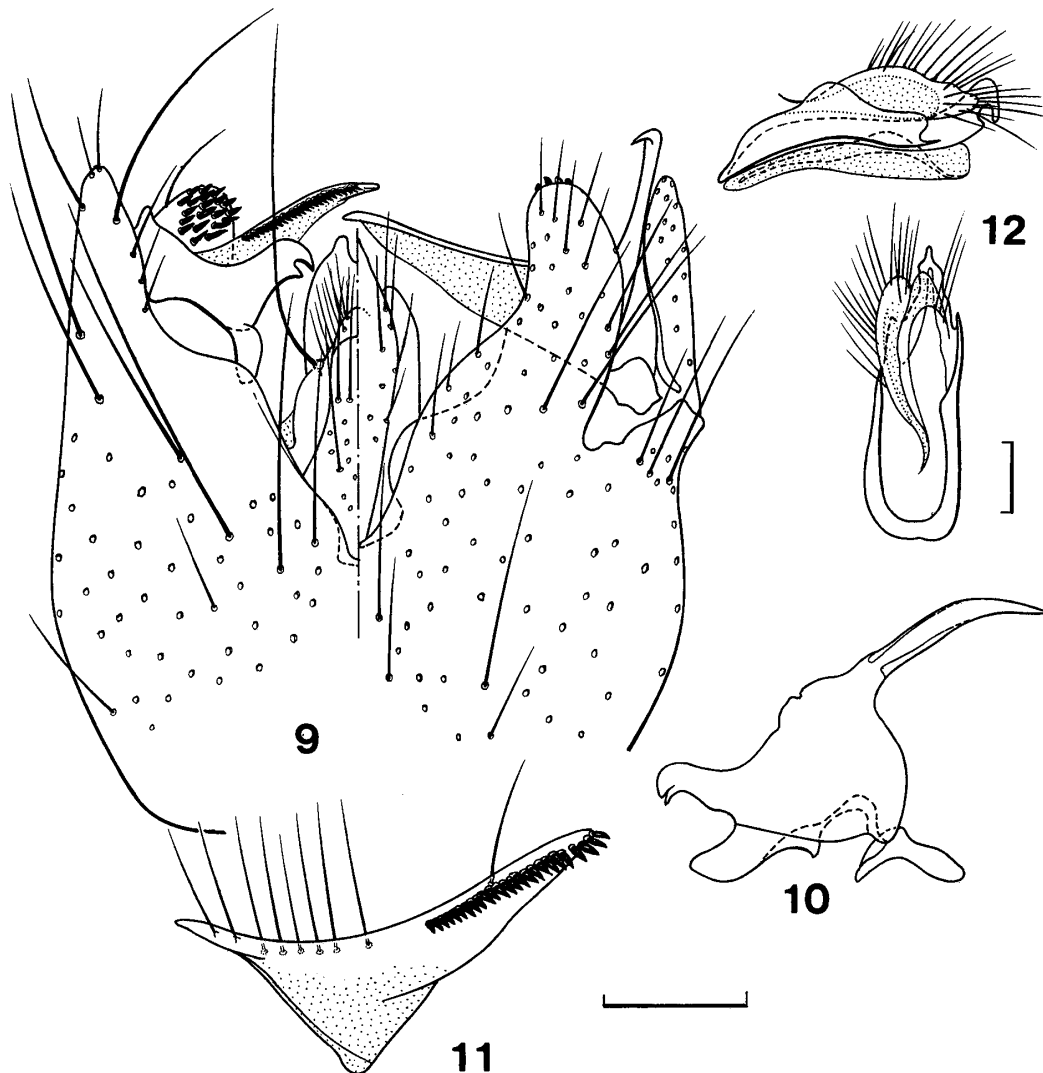
#### 9. *Clastobasis serrulata* Sasakawa, n. sp. (Figs 9–12)

*Male*. Head with vertex and occiput brown, ocellar tubercle black, frons pale brown to yellow ventrally, face, clypeus and palus yellow; antenna brownish yellow, flagellomeres each with brown apical ring, which is broadened gradually on apical flagellomeres and broadest on 14th flagellomere (yellowish only at base). Mesoscutum yellowish brown, shining except for whitish pollinose lateral margin, and yellowish humeral area and postero-lateral corner; anteprepronotum, proepisternum and scutellum brownish yellow, pleura brownish black but posterior part of laterotergite and dorsal part of mediotergite brown. Wing hyaline, faintly tinged with brownish yellow anteriorly; halter whitish yellow. Legs yellow, but apices of coxae, trochanters ventrally, and ventral bases and outer apico-ventral margins of mid and hind femora narrowly brown, hind femur with apex black narrowly, mid and hind tibiae narrowly brown on apices, all tarsi and spurs brownish yellow. Abdomen yellow

to yellowish brown, shiny, T1 with lateral margin brown, T2 brown on posterior 1/3, T3 brown on posterior 1/2, T4 and 5 brownish black triangularly except for antero-lateral corners, T6 and 7 almost entirely brownish black; sternites brownish yellow, S3 (usually) and S4 brown on lateral sides obliquely in inverted V-form, S5 dark brown, S6 brownish black; gonocoxite and gonostylus brownish yellow.

Eye whitish hairy; fourth flagellomere 1.3–1.6 times as long as wide; second palpomere with 2–3 long apical setae, third palpomere 1.5 times as long as the second, fourth palpomere slender, nearly twice as long as the third. Mesoscutum with short dorsal setae; pronotum with three long bristles; scutellum with four sc. Wing with Sc faded distally and ending in C,  $R_1$  almost as long as r-m, M-petiole as long as or slightly shorter than r-m,  $CuA_1$  not connected with  $CuA_2$  at base. Mid and hind femora each with two distinct rows of setae on dorsal side; tibial spurs ratio as 1 : 1.2, 1.8 : 1.1, 2.1.

Gonocoxite with ventral lobe well projected posteriorly, bearing about 20 spines on apex; gonostylus



Figs. 9–12. Male genitalia of *Clastobasis serrulata* n. sp. (paratype). 9, Gonocoxite; 10, dorsal stylomere; 11, ventral stylomere; 12, aedeagus, lateral and ventral views. Scale 0.1 mm. See Figs. 1–5.



with dorsal stylomere black, bidentated shortly on inner dorsal apex, prolonged ventrally and pointed on tip, and ventral stylomere largely membranous above ventral lobe but with narrow sclerite consisted of serration of about 30 spines and row of setae at base; aedeagus about 400  $\mu$ m long, hooked on tip, with basal U-shaped sclerite covered with a pair of setose membranous lobes ventrally. Wing length 3–3.5 (3.3 in holotype) mm.

*Female.* Similar to male, but mesoscutum sometimes brown, and yellowish lateral margin and postero-lateral corner more distinct than in male; blackish posterior triangles on T4–6 usually much smaller than those of male; S3–6 each with oblique brown stripe laterally (largest and triangle in shape on S6); dark striation on outer apico-ventral margins of mid and hind femora more distinct than in male, but apical dark areas on mid and hind tibiae usually distinct on outer side only; ovipositor brownish yellow; fourth flagellomere only a little longer than wide; wing length 3–4 mm.

Holotype male, Akasaka Imperial Gardens, Tokyo, 2.ix.2003 (MT). Paratypes: 14 males and 22 females, same data as in holotype; 1 male and 4 females, same locality but coll. 30.ix.2003 & 11.xi.2002 (MT); 1 female, same locality, 19.viii.2003 (MT).

Distribution. Japan (Honshu).

Remarks. Although the point of furcation of CuA is not clear but is situated probably at level of apex of Sc, this species belongs to the genus *Clastobasis* Skuse, 1890, in the position of lateral ocellus. The species is unique in having the spinose ventral lobe of gonocoxite, long black ventral process of the dorsal stylomere and serrated ventral stylomere, differing from only one Palaearctic species, *C. alternans* (Winnertz, 1863). The coloration of antenna and abdomen is similar to that of *alternans*, but the thoracic pleura of the new species are black and T1 is darkened only on lateral margins only.

Etymology. The specific name refers to the serrulation on stylomere.

10. *Leia bilineata* (Winnertz) フタスジエナガキノコバエ

*Glaphyoptera bilineata* Winnertz, 1863: 789.

*Leia bilineata* (Winnertz), Sasakawa, 2003: 121.

Akasaka Imperial Gardens: 10♂<sup>7</sup>10♀, 1. & 28.iv., 10-24.vi., 15.vii. & 6.viii.2003 (MT).

Tokiwamatsu Imperial Villa: 72♂<sup>7</sup>58♀, 24.xii.2002 (MT); 6. & 23.i., 5. & 18.ii., 4.iii., 15.iv., 13.v. & 4-24.vi.2003 (SS, MT).

Distribution. Japan (Honshu), Europe, Russia.

Remarks. Two shiny black vittae on the mesoscutum are rarely united with each other anteriorly. Characteristic coloration is as follows: antennal flagellomeres 1–2 (3) yellowish on ventral side; T1 entirely brownish black, T2 yellow and with brownish black band on posterior 2/3, T3–5 each with dark triangular area always reaching to anterior margin of tergite; hind femur with brown striation (variable in length) on ventral base in addition to apical blackish ring. Larval host fungus is *Inonotus mikadoi* (Hymenochaetaceae) in Japan.

11. *Leia pilosa* Okada シリアゲエナガキノコバエ

Akasaka Imperial Gardens: 3♂<sup>7</sup>14♀, 1.vii.2003 (MT).

Tokiwamatsu Imperial Villa: 4♂<sup>7</sup>2♀, 28.x.2002 (MT); 24.vi. & 1.vii.2003 (MT).

Distribution. Japan (Hokkaido, Honshu), China (NE).

Subfamily Mycetophilinae

12. *Epicrypta cruciata* Sasakawa, n. sp. (Figs. 13–15)

*Male.* Head brownish yellow, vertex sometimes pale brown, ocellus on brown spot, clypeus brownish yellow; antenna brownish yellow, pale basally; palpus yellow. Mesoscutum yellow, dark

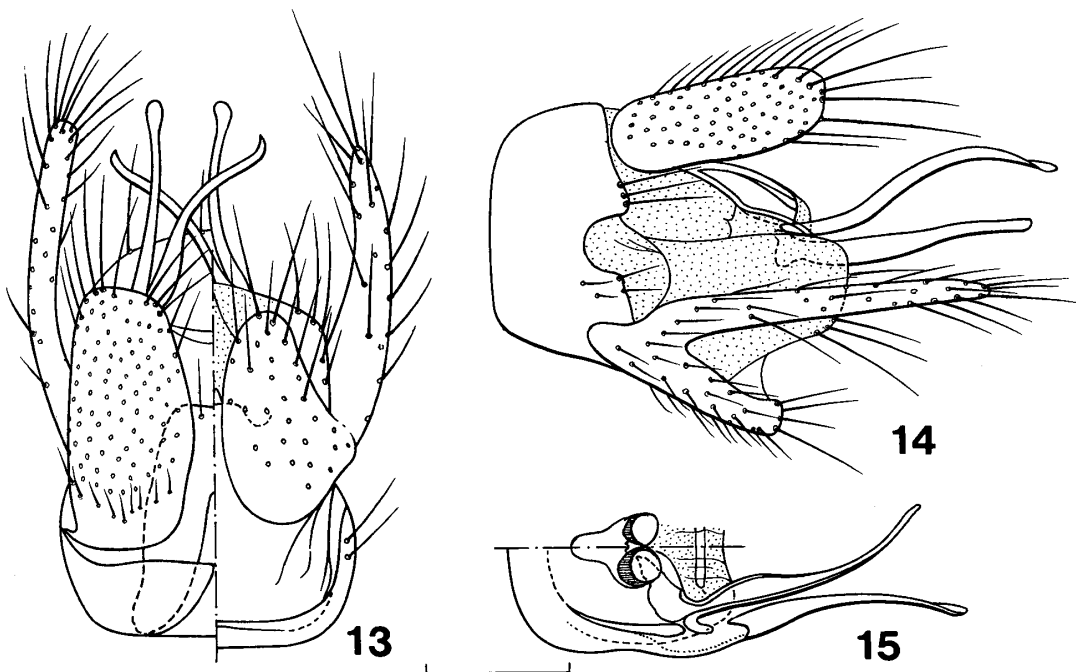
brown trivittate (median vitta paler than lateral ones); pleura brown, anepisternum yellowish on posterior half; scutellum and mediotergite black. Abdomen brown, darkened anteriorly, T2 yellow on lateral side, T3 yellowish antero-mesally and yellow on lateral side, T4-5 each yellow on anterior half and entirely on lateral side, T6 yellow on posterior margin; sternites yellow. Wing faintly tinged with brownish yellow anteriorly; halter yellow. Legs yellow; spurs yellowish brown.

Eye covered with brown hairs. Antenna with dorso-apical seta on pedicel longer than other marginal setae; fourth flagellomere about twice as long as wide, slightly shorter and narrower than the first. Palpus with first to fourth palpomeres in proportion of 0.7 : 1.5 : 2 : 3.6 (paratype). Mesoscutum with inner post-alar bristle (pa) slightly longer than four prescutellars (prsc, almost equal in length); scutellum with four long sc; pronotum with three bristles ventrally; anepisternum with three bristles; anepimeron with two or three bristles; laterotergite with two or three setae at middle. Wing 2.8 (holotype)–3.1 mm long; Sc ending obscurely before level of Rs, Rs slightly shorter than M-petiole, which is slightly shorter than r-m, forking point of CuA distinctly before that of M, A<sub>1</sub> almost reaching wing margin. Legs: Fore metatarsus slightly longer than tibia; mid tibia with 2-3a, 5 pd, 0(-1) p, 4v; hind hind tibia with 5a, 6 pd, 5 p; spurs ratio 1 : 1.2, 1.3 : 1, 1.2.

Gonocoxite small, cercus very broad; gonostylus furcate at base, dorsal stylomere sinuate and almost equal to mesal stylomere in length, mesal stylomere crossing each other; aedeagus 50 μm long, oculated distally, paramere indistinct.

*Female.* Similar to male, but thoracic pleura darker than those of male; T4-5 with yellow anterior bands broader than those of male; ovipositor yellow; usually hind coxa with brown stripe on posterior 1/3, hind femur with brown apex; wing length 2.7–3.2 mm.

Holotype male, Akasaka Imperial Gardens, Tokyo, 6.viii.2003 (MT). Paratypes: 1 male and 3 females, same data as in holotype.



Figs. 13–15. Male genitalia of *Epicypta cruciata* n. sp. (paratype). 14, Gonocoxite and gonostylus, lateral view; 15, stylomeres and aedeagus, ventral view. Scale 0.1 mm. See Figs. 1–5.

Distribution. Japan (Honshu).

Remarks. Two species, *Epicypa aterrma* (Zetterstedt, 1852) and *E. ornatipennis* (Okada, 1939), are known to occur in Japan. Both of them have the entirely black abdomen, and the latter has the brown central marking on the wing. All the new species described here have the bicolored abdomen, the clear wing and usually the bare  $M_{1+2}$  (rarely with one setula) before r-m, and the very fine pitting at point of insertion of the setae. Therefore, *E. cruciata* is similar to *E. longistylis* n. sp. in general appearance, especially in the coloration, but their stylomeres of gonostylus are much different from each other.

Etymology. The specific name refers to the cruciform mesal stylomere.

13. *Epicypa dolabrata* Sasakawa, n. sp. (Figs. 16–18)

*Male*. Head pale brown, shiny, but yellow from vertex to postgena; face and clypeus yellow; antenna brownish yellow but scape, pedicel and three basal flagellomeres paler; palpus whitish yellow. Mesoscutum yellow, with black marking starting slightly behind anterior parapsidal suture and narrowing behind suture toward level of outer prsc, ending before posterior margin of scutum, and cleft shortly at middle of posterior part, and with brown median stripe just before marking, extending 1/3–2/3 of distance between parapsidal suture and anterior margin of scutum; scutellum black; pronotum and propleuron yellow; pleura dark brown but anterior part of anepisternum pale, preepisternum pale brown on anterior half and yellow on posterior half. Abdomen with T1–2 dark brown, T3 brown, with yellow median spot anteriorly and narrowly yellow on lateral sides, T4–6 yellow, T4–5 each with brown band on posterior half, projecting forward shortly at middle, T6 with brown large median spot excepting posterior margin; sternites, gonocoxite and gonostylus yellow. Wing tinged with brownish yellow on anterior half; halter whitish yellow. Legs yellow, spurs yellowish brown.

Eye with pale brown, minute hairs. Antenna with dorso-apical seta on pedicel distinct; fourth flagellomere 1.5 times as long as wide, slightly shorter than the first. Palpus with first to fourth palpomeres in proportion of 1 : 2 : 3.5 : 6. Mesoscutum with inner pa almost as long as four prsc; scutellum with four long sc; pronotum with 3–4 bristles ventrally; anepisternum with three bristles; anepimeron with two bristles; laterotergite with row of four setae at middle. Wing 3.1 mm in length, Sc ending obscurely at level of Rs, Rs nearly 1/2 length of r-m, M-petiole 3/4 length of r-m and slightly longer than Rs, forking point of CuA distinctly before that of M,  $A_1$  almost reaching wing margin. Legs: Mid tibia with 3a, 1–2d, 5–6 pd, 4v; hind tibia with 4–5a, 3d, 6–7 pd; fore tarsus missing; spurs ratio as 1 : 1.2, 1.3 : 1, 1.2.

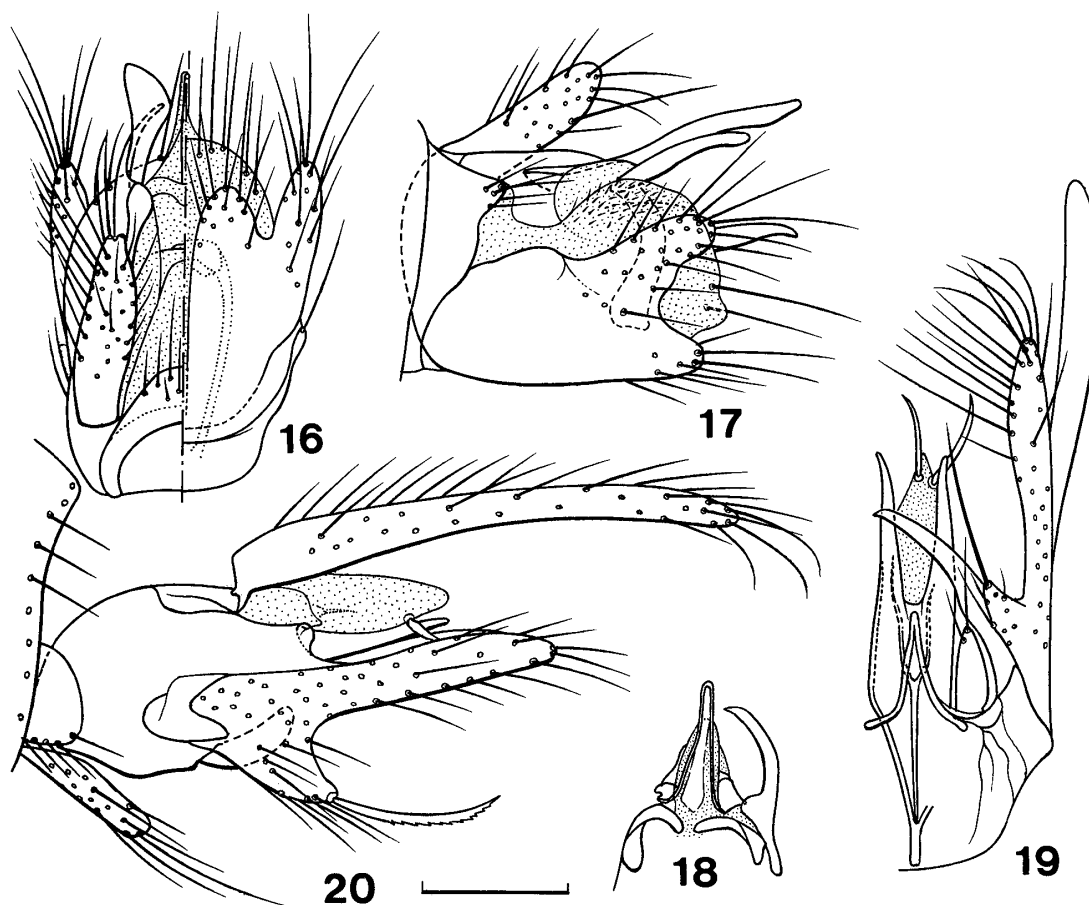
Gonocoxite small, cercus of normal size; gonostylus bifurcate near tip, dorsal stylomere longer than mesal claw-like stylomere and broadened apically in form of ax; aedeagus 80  $\mu$ m long, paramere small at base of aedeagus.

*Female*. Similar to male, but T4–5 with brown posterior bands narrow and the former without median projection of marking, T6 with smaller antero-median spot; ovipositor yellow; wing length 3.2 mm.

Holotype male, Akasaka Imperial Gardens, Tokyo, 28.iv.2003 (MT); posterior abdomen and genitalia in polyethylene tubule with glycerol and pinned with the specimen. Paratype: 1 female, same locality as holotype, 6.viii.2003 (MT).

Distribution. Japan (Honshu).

Remarks. This species is nearly related to *E. cruciata* n. sp. in the coloration of body, differing in the more dark and large marking on the mesoscutum and the differently shaped ventral, dorsal and mesal stylomeres, and aedeagus. In Chandler's key (1981) it runs near *E. torquata* Matile, 1977, but



Figs. 16–20. Male genitalia of *Epicypta dolabrata* n. sp. (holotype, 16–18) and *Epicypta longistylis* n. sp. (paratype, 19–20). 17, 20, Gonocoxite and gonostylus, lateral view; 18, aedeagus, ventral view; 19, gonostylus and aedeagus, ventral view. Scale 0.1 mm.

differs in the coloration of thorax and the structures of male genitalia.

14. *Epicypta longistylis* Sasakawa, n. sp. (Figs. 19–20)

*Male*. Head with vertex and frons pale brown, the former with lateral side including postorbit yellow; face, clypeus, antenna and palpus yellow, but several distal flagellomeres slightly tinged with brown. Mesoscutum yellow but largely brown centrally except for antero-lateral area before anterior parapsidal suture and lateral margin, darkened posteriorly; scutellum dark brown, with margin yellowish brown; pleura brown; mediotergite brownish black. Abdomen with T1 blackish brown, T2–6 brown but yellow on lateral side, T3–5 with yellow anterior margin except for lateral side, T6 with yellow posterior margin broadened dorso-mesally; sternites, gonocoxite and gonostylus yellow, long ventral stylomere slightly brown-tinged apically. Wing faintly tinged with yellowish brown anteriorly, without dark marking; halter whitish yellow. Legs yellow, hind femur narrowly brown on apex; spurs yellowish brown.

Fronto-orbital setae very short. Eye covered with whitish hairs. Antenna: Pedicel with dorso-apical seta slightly longer than other apical setae; fourth flagellomere about 1.7 times as long as wide, slightly shorter than first. Palpus with first to fourth palpomeres in proportion of 0.8 : 1.3 : 2.2 : 3.5 (paratype). Mesoscutum with one inner pa longer than four prsc (inner two shorter than outer two); scutellum with four sc; pronotum with four setae ventrally; anepisternum with four bristles;

anepimeron with two or three bristles; laterotergite with two or three setae at middle. Wing: Sc weakened distally, usually ending at level of Rs (rarely before or beyond the level), Rs only a little longer than M-petiole, forking point of CuA distinctly before that of M, A<sub>1</sub> almost reaching wing margin. Legs: Fore metatarsus slightly longer than tibia; mid tibia with 2-3a, 4-5 pd, 1p, 4v; hind tibia with 5a, 6 pd, 5-6p; spurs ratio as 1 : 1.2, 1.3 : 1, 1.2.

Gonocoxite small; gonostylus long, dorsal stylomere furcate at base and dorso-basal process with serrated broad setae, ventral stylomere distinctly longer than dorsal stylomere, mesal stylomere with dorsal process curved mesally and ventral membranous lobe with two apical spine-like setae; aedeagus 280 μm long, paramere Y-shaped, with side piece extending to base of distal aedeagal process.

Wing length 2.6 (holotype)-2.7 mm.

*Female.* Similar to male, but vertex and frons yellowish brown; mesoscutum with distinct trivittae anteriorly but fused as one broad vitta on posterior half, scutellum brownish black, pleura yellowish brown; T1-3 dark brown, T4-6 pale brown, T4-5 with anterior margins pale; ovipositor yellow; antenna 4/5 length of male antenna; wing length 3 mm.

Holotype male, Akasaka Imperial Gardens, Tokyo, 6.viii.2003 (MT). Paratypes: 1 male, same data as in holotype; 1 male and 1 female, same locality as holotype, 14.x.2003 & 28.iv.2003 (MT).

Distribution. Japan (Honshu).

Remarks. This species is closely related to European *E. scatophora* (Perris, 1849) in having the extremely long ventral stylomere of gonostylus (0.35 mm in this species, while 0.7 mm in *scatophora* measured by Chandler, 1981), the long aedeagus, and two spine-like setae on apex of the ventral membranous lobe. There are, however, many differences in the details of dorsal and mesal stylomeres and the abdominal coloration. The long cercus termed by Chandler for the conspicuous ventral stylomere was clearly a mistake.

Etymology. The specific name refers to the long gonostylus.

15. *Mycetophila fungorum* (De Geer) イグチナミキノコバエ

Akasaka Imperial Gardens: 1♂, 11.xi.2002 (MT).

Distribution. Japan; Holarctic.

16. *Mycetophila marginisetosa* Sasakawa, n. sp. (Figs. 21-23)

*Male.* Head with vertex and clypeus dark brown, face dorsally and median part between bases of antennae brownish black but ventrally yellowish brown; antenna yellowish brown to pale brown, scape, pedicel and first flagellomere yellowish; first flagellomere with brown ring at basal 1/3; palpus yellow but first and second palpomeres orangish. Thorax brown; mesoscutum mat, sparsely pruinose, with anterior and lateral margins, postero-lateral corner and small median area before scutellum yellow; scutellum yellow, with a pair of brownish black triangular spots at antero-lateral corners; pronotum and propleuron yellowish; pleura darker than notum, pleurotergite and mediotergite blackish brown but the latter yellowish centrally. Abdomen brown, T1 dark brown, T2-6 each with yellow posterior margin, T2-3 also yellow antero-mesally, T7 brown; S1-6 yellowish brown. Wing with anterior margin faintly yellowish brown, central spot brown, preapical band pale brown, starting at C well beyond tip of R<sub>1</sub>, filling the apex of cell R<sub>1</sub>, proximally extending CuA<sub>1</sub>, but connecting usually with spot on M<sub>1</sub> obliquely through narrow longitudinal stripe at middle between R<sub>4+5</sub> and M<sub>1</sub>, and slightly constricted at middle between M<sub>2</sub> and CuA<sub>1</sub>, sometimes interrupted into two spots on M<sub>2</sub> and CuA<sub>1</sub>; apical wing margin narrowly and faintly clouded; halter yellow. Legs mostly yellow, hind coxa brown on posterior distal half, mid and hind trochanters dark brown, mid and hind femora each with two brown stripes at ventral base and apex; spurs yellowish brown.

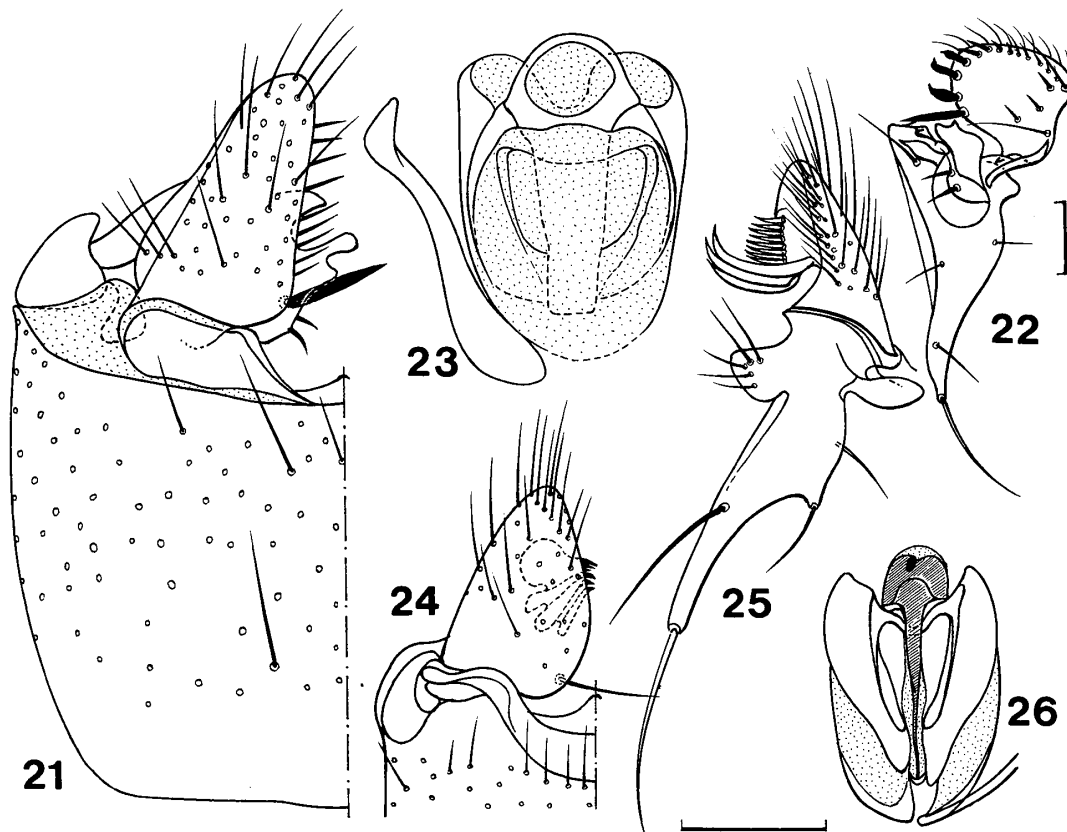
Eye densely with brown hairs. Antenna: Scape with 3–4 long setae on dorsal side, pedicel with one long dorso-apical seta, first flagellomere 3–4 times as long as wide, fourth flagellomere 2.3–2.8 times as long as wide. Palpus with second to fourth palpomeres in proportion of 9 : 10 : 15. Mesoscutum with dc distinctly weaker than lateral bristles; propleuron with 4–5 ppl; anepimeron with 3–4 bristles; pleurotergite setose centrally. Wing with r-m and M-petiole bare below, ratio of r-m : M-petiole 1.3–1.4. Legs: Hind coxa with one external apical seta; mid tibia 3a, 1ad, 6d, 4–5p, 2v; hind tibia with 7a, 4p; spurs ratio 1 : 1.5, 1.6 : 1.4, 1.8. T8 emarginated at middle of anterior and posterior margins and two extremely long bristles on lateral side.

Gonocoxite large; gonostylus with ventral stylomere lobate, with four stout setae and 12–13 yellowish brown spine-like setae along margin, dorsal stylomere extremely long, extending near base of cercus, with long apical bristle in addition to four setae, and mesal stylomere composed of four processes, which are quite characteristic in shape, bearing two setae at base. Aedeagus 200  $\mu$ m long, with dorsal sclerite somewhat U-shaped; paramere as long as aedeagus.

Wing length 5.0–5.8 (holotype) mm.

*Female*. Similar to male, but T7 with broadly yellow posterior margin; cercus orangish; hind femur with pale brown striation, which is variable in length, on dorsal side; wing length 4.3–5.6 mm.

Holotype male, Akasaka Imperial Gardens, Tokyo, 4.iii.2003 (MT); abdomen and genitalia in polyethylene tubule with glycerol and pinned with the specimen. Paratypes: 1 male and 6 females,



Figs. 21–26. Male genitalia of *Mycetophila marginisetosa* n. sp. (holotype, 21–23) and *Mycetophila penicillata* n. sp. (holotype, 24–26). 21, 24, Gonocoxite and gonostylus, ventral view; 22, 25, gonostylus, inner view; 23, 26, aedeagus, ventral view. Scale 0.1 mm.

same locality as holotype, 4. & 18.iii.2003 (MT).

Distribution. Japan (Honshu).

Remarks. This species is somewhat similar to European *M. mikii* Dziedzicki, 1884, in the coloration of body and the wing marking, but is clearly distinguishable by its large size and structures of the gonostylus.

Etymology. The specific name refers to the marginally setose ventral stylomere of gonostylus.

17. *Mycetophila penicillata* Sasakawa, n. sp. (Figs. 24–26)

*Male.* Very similar to *M. marginisetosa* n. sp. excepting the following points: first flagellomere without brown ring, yellow posterior median spot on mesoscutum smaller, scutellum with anterior margin brown, connecting narrowly with antero-lateral spots, pleura dark brown, mediotergite entirely brown, yellow posterior margins of T2–6 indistinct excepting on T5–6, S2 yellow; wing with preapical band starting at C slightly beyond tip of R<sub>1</sub>, filling about apical 1/3 of cell R<sub>1</sub>, extending CuA<sub>1</sub> but slightly narrowing and becoming pale before end, apical wing margin slightly darkened and connecting with preapical band as dusky stripes along veins of M<sub>1</sub> and M<sub>2</sub> and with that near apex of CuA<sub>1</sub>; mid and hind femora, and hind tibia brown on apices, mid tibia narrowly brownish on apex. Propleuron with three ppl; wing 3.5 mm in length, r-m with three setulae below, ratio of r-m: M-petiole 1.5; mid tibia with 3a, 1ad, 5d, 3p, 2v; hind tibia with 5–6a, 3–4p; spurs ratio as 1 : 1.4, 1.5 : 1.5, 2.1. Other characters quite similar to those of *marginisetosa* (antennal flagellomeres and palpus largely not visible by mounted glue).

Genitalia: Gonostylus with ventral stylomere lobate, bearing three long spines which are curved dorsally on apices and tuft of many slender spine-like setae on inner side; mesal stylomere projected at base of dorsal stylomere; dorsal stylomere almost similar to that of *marginisetosa*, but with five setae on basal process; aedeagus 250 μm long, globular on tip, lateral piece of dorsal sclerite convergent basally; paramere longer than aedeagus.

*Female.* Unknown.

Holotype male, Akasaka Imperial Gardens, Tokyo, 21.i.2003 (MT); abdomen and genitalia in polyethylene tubule with glycerol and pinned with the specimen.

Distribution. Japan (Honshu).

Remarks. This species is distinguishable from *M. marginisetosa* n. sp. by its small size, broad preapical band on the wing, and peculiar structures of the ventral stylomere.

Etymology. The specific name refers to the penicillate ventral stylomere of gonostylus.

18. *Mycetophila scalprata* Zaitzev (Figs. 27–29)

*Mycetophila scalprata* Zaitzev, 1998: 214 (♂, Sakhalin I.).

Tokiwamatsu Imperial Villa: 1♂, 15.iv.2003 (MT).

Distribution. Japan (Honshu), Sakhalin. New to Japan.

Remarks. The male agrees in the essential characters of genitalia with *scalprata*, but the preapical band on wing is not entirely extended to spot on M<sub>2</sub>, and dark brown T2–6 are yellow on the posterior 1/5, respectively. The aedeagus is 140 μm long and distinctly chitinized on both distal ends of sclerite; the parameres are longer than aedeagus.

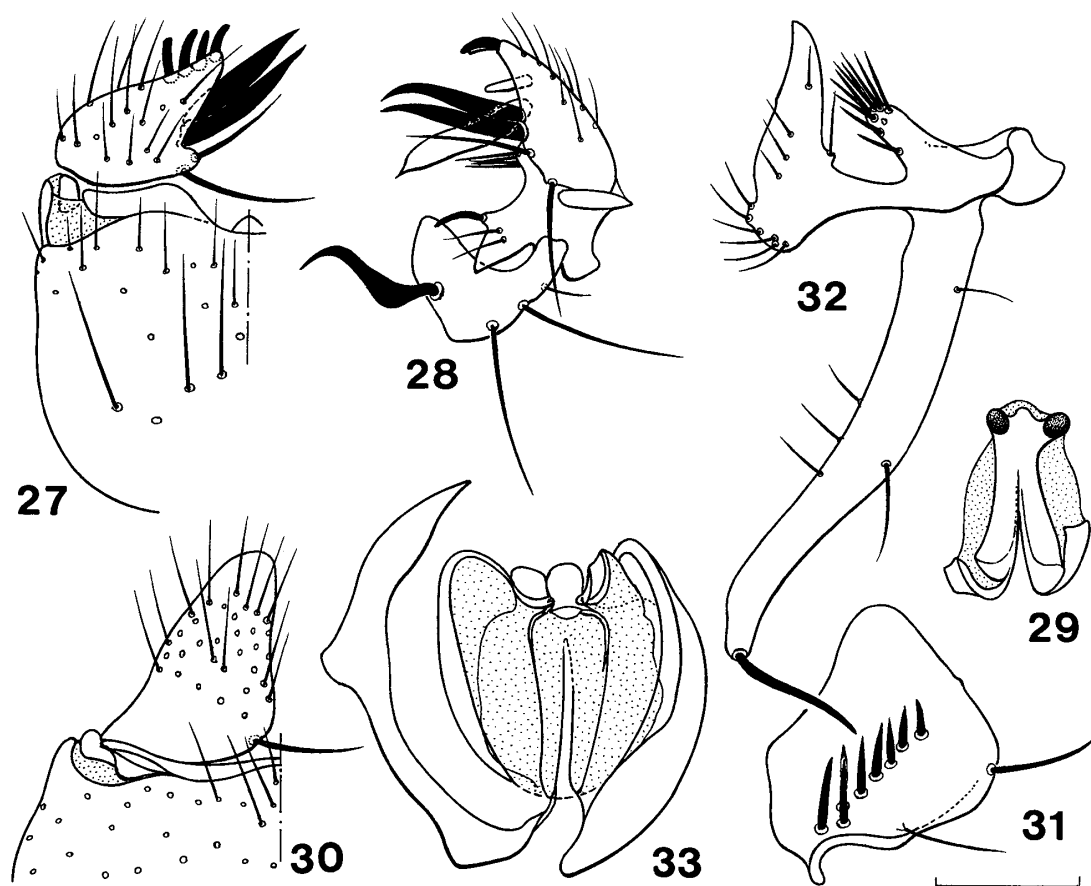
19. *Mycetophila spinilineata* Sasakawa, n. sp. (Figs. 30–33)

*Male.* Head with vertex and clypeus brownish black, face pale brown; antenna pale brown but scape, pedicel and base of first flagellomere yellowish; palpus yellow. Thorax dark brown, sparsely pruinose; mesoscutum with broadly yellow antero-lateral margin, and yellow short postero-median and long lateral stripes (the latter about 1/2 of notal length and just inside of brown lateral margin of

scutum); scutellum yellow, with a pair of brown triangular spots at antero-lateral corners; mediotergite more darkened laterally. Abdomen brown, T2-6 each with yellow posterior margin, T7-8 yellow; sternites pale to yellowish brown; gonocoxite and gonostylus pale brown. Wing with brown central spot, pale brown preapical band starting at C beyond tip of  $R_1$ , filling apex of cell  $R_1$ , proximally extending  $CuA_1$  but narrowing beyond  $M_1$ ; halter yellow. Legs mostly yellow, hind coxa faintly tinged with brown on postero-distal 1/3, trochanters brown, all femora with pale brown spots at ventral bases, apices of hind femur and tibia brown, all tarsi brown-tinged; spurs pale brown.

Eye covered with whitish brown hairs. Antenna: Scape with three (-2) long dorso-apical bristles, pedicel with one bristle dorso-apically, first flagellomere 2.7 times as long as wide, fourth flagellomere 2.3 times as long as wide. Palpus with second to fourth palpomeres in proportion of 7:7:12. Mesoscutum with dorsal setae shorter than lateral bristles; propleurals four; anepimeron with five bristles; pleurotergite with many long and short setae. Wing 4.3 mm long, r-m with four setulae below, ratio of r-m: M-petiole 1.5. Legs: Hind coxa with one external apical seta; mid tibia with 4a, 1ad, 6d, 1p, 3v; hind tibia with 7a, 4p; spurs ratio as 1:1, 1.4:1.2, 1.6.

T8 with posterior concavity at middle. Gonocoxite with ventral posterior margin almost straight; gonostylus with ventral stylomere almost triangular in outline, bare on tip, with a row of 8-10 spines on inner central part; dorsal stylomere elongate, with strong apical seta; mesal stylomere composed of



Figs. 27-33. Male genitalia of *Mycetophila scalprata* Zaitzev (27-29) and *Mycetophila spinilineata* n. sp. (holotype, 30-33). 31, Ventral stylomere, inner view; 32, dorsal and mesal stylomeres, inner view. Scale 0.1 mm. See Figs. 21-26.



two processes, of which inner one sparsely setose but outer one with about twelve setae on tip; aedeagus 215  $\mu\text{m}$  long, knob-like at end; paramere longer than aedeagus.

*Female.* Similar to male, but antenna with scape usually pale brown; T2–7 with yellow posterior margins, sometimes distinctly broadened laterally on T4–7; ovipositor pale to yellowish brown; anepimeron with 4–6 bristles; wing length 4.7–5.2 mm, preapical band sometimes ending at  $M_2$  or rarely extending  $\text{CuA}_2$ , ratio of r-m: M-petiole 1.6–2.2; mid tibia with 3a, 1–2ad, 5–7d, 1–2p, 3v; hind tibia with 6–7a, 4–5p.

Holotype male, Akasaka Imperial Gardens, Tokyo, 6.xii.2002 (MT); abdomen and genitalia in polyethylene tubule with glycerol and pinned with the specimen. Paratypes: 5 females, same locality as holotype, 5.ii. and 4.iii.2003 (MT).

Distribution. Japan (Honshu).

Remarks. This species is immediately distinguishable by the characteristic male genitalia from *M. marginisetosa* n. sp. and *penicillata* n. sp. with almost similar wing marking.

Etymology. The specific name refers to the central line of spines on inner side of the ventral stylomere.

20. *Mycetophila unicolor* Stannius

*Mycetophila unicolor* Stannius, 1831, Observ. Mycetoph.: 15.

Akasaka Imperial Gardens: 2♂6♀, 28.x. & 11.xi.2002 (MT); 29.vii., 6.viii. & 14.x.2003 (MT).

Distribution. Japan (Honshu), Europe, Russia. New to Japan.

Remarks. The specimens examined were agreeable with the original description. The shiny black species is characterized by the dark brown flagellomeres of antenna, yellow palpus, coxae and femora, presence of brown central spot on wing (2.3–2.5 mm in length) and two long ventral bristles on mid tibia.

21. *Mycetophila uninotata* Zetterstedt

*Mycetophila uninotata* Zetterstedt, 1852: 4172; Sasakawa, 2002: 30.

Akasaka Imperial Gardens: 8♂11♀, 28.x., 11. & 25.xi., 6.xii.2002 (MT); 4.iii. & 1.vii.2003 (MT).

Tokiawatsu Imperial Villa: 2♂3♀, 15.iv., 11. & 28.x.2002 (MT); 23.i. & 29.vii.2003 (MT).

Distribution. Japan (Honshu), Europe.

22. *Phronia forcipula* Winnertz

*Phronia forcipula* Winnertz, 1863, Verh. zool.-bot. Ges.Wien 13: 866.

Tokiawatsu Imperial Villa: 1♀, 4.vi.2003 (SS).

Distribution. Japan (Honshu), Holarctic. New to Japan.

Remarks. Although the female examined was the pale form in the coloration of mesoscutum (yellow in ground color and brown trivittate), other coloration of body and wing marking make this the distinctive species occurs in Japan.

23. *Allodiopsis domestica* (Meigen) ナミトモナガキノコバエ

Akasaka Imperial Gardens: 1♂, 11.xi.2002 (MT).

Distribution. Japan (Hokkaido, Honshu), Holarctic.

24. *Cordyla fissa* Edwards

*Cordyla fissa* Edwards, 1925: 615.

Akasaka Imperial Gardens: 4♂1♀, 28.x.2002 (MT); 6. & 21.i.2003 (MT).

Tokiawatsu Imperial Villa: 1♀, 6.xii.2002 (MT).

Distribution. Japan (Honshu), Europe, Russia. New to Japan.

Remarks. This species differs from *C. fusca* and *flavipes* (Staeger, 1840) in the following points:

brown flagellomeres 11-segmented in male and 9 in female; second palpomere black; thorax gray-pollinose brown;  $M_2$  ending before wing margin; forking point of CuA before that of M; hind femur with brown apex; mesal stylomere pointed on tip and with minute tooth before apex. The specimens examined were provided with the brown thoracic pleura (not yellowish brown but only a little paler than scutum) and pale brown apex on the mid femur (narrower than that of hind femur).

25. *Cordyla fusca* Meigen

Tokiwamatsu Imperial Villa: 25♂<sup>7</sup>12♀, 11. & 28.x., 6. & 24.xii.2002 (MT); 6.i., 18.ii., 4.iii., 15.iv. & 1.vii.2003 (SS, MT).

Distribution. Japan (Honshu), Europe, Russia.

Remarks. The gonostylus of male genitalia is specific (Sasakawa and Ishizaki, 2003). The specimens exhibit the seasonal variation in the coloration of mesoscutum and second palpomere, that is, the dark form with blackish brown scutum and palpomere is usually seen in winter (Dec. to early March), while the pale form with yellowish brown scutum and palpomere (sometimes yellow) in summer and autumn (July to Oct.).

26. *Cordyla geminata* Sasakawa, n. sp. (Figs. 34–37)

*Male.* Black; head and thorax densely gray-dusted; antenna black, scape and pedicel faintly tinged with brown or entirely brown; palpus with second palpomere black and other palpomeres yellow; mesoscutum with anterior and antero-lateral margins linearly brownish; abdomen entirely black, gray-dusted, very weakly shining; gonocoxite and gonostylus dark brown. Wing hyaline, very faintly tinged with brown; halter yellow but stalk slightly brownish. Legs yellow, coxae slightly brownish at bases, mid and hind femora brown on apices, mid and hind tibiae faintly brown-tinged apically, all tarsi dark brown, spurs yellowish brown.

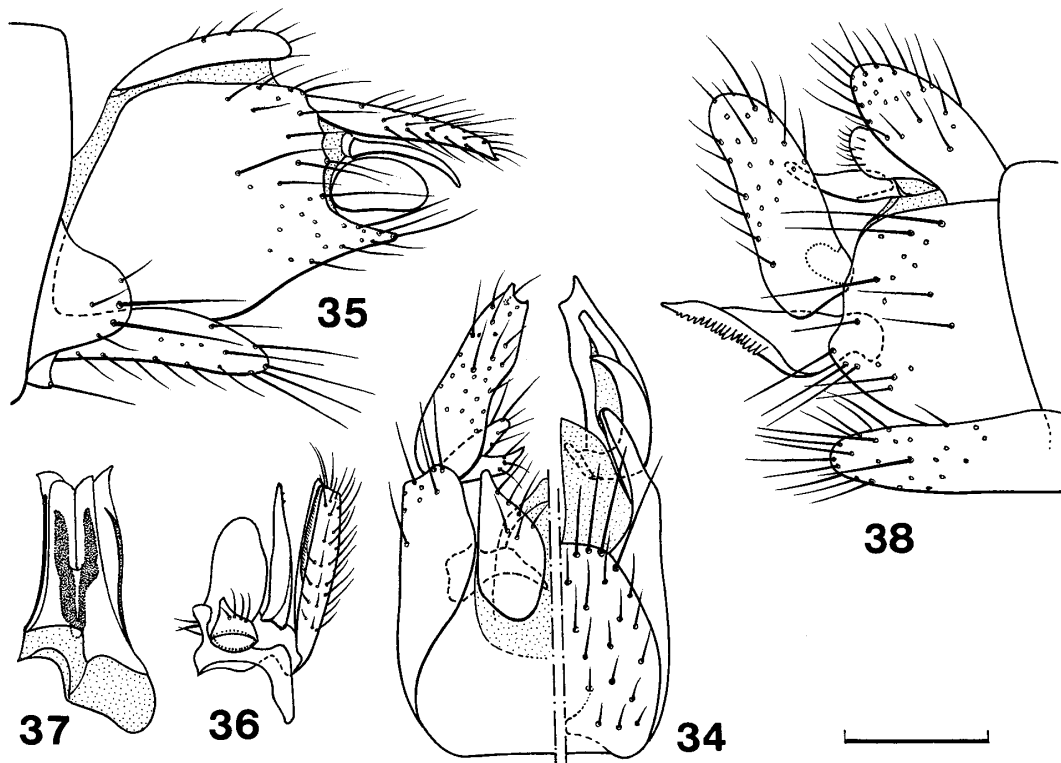
Head with orbital setae longer than setulae on vertex; antenna 2 + 10-segmented, with relative length of scape and pedicel as 2.2 : 1, flagellomeres 0.3–0.4 (rarely 0.25) mm in length and with relative length of first, second-ninth and tenth flagellomeres as 1 : 0.5–0.6 : 1.6, fourth flagellomere 3.5 times as wide as long; palpomeres in relative length as 1 : 4.6 : 3.5 : 4.1, second palpomere four times as wide as third. Mesoscutum with antero-lateral and posterior bristles longer than other notal setae; scutellum with four sc; pleurotergite with two long setae at middle. Wing: Sc indistinct except for base only, r-m about 1/3 length of M-petiole,  $M_2$  ending slightly before wing margin, forking point of CuA before that of M. Legs: Fore metatarsus about 3/4 length of tibia; spurs ratio as 1 : 1.1, 2 : 1.6–1.9, 2.1.

Gonocoxite projected posteriorly at ventral corner, only setose posteriorly, with claw-like process projecting mesally before dorso-distal end; gonostylus with dorsal stylomere pointed on ventral tip and with chitinized ridge on inner side, ventral stylomere composed of rod-like process with two minute teeth before tip and lobate process, mesal stylomere also composed of short bladed process projecting mesally and very small knobby process; aedeagus bifurcate distally, about 80  $\mu$ m in length, surrounded by two pairs of membranous plates on dorsal and ventral sides.

Body length 2.5–3.0 (holotype) mm, wing length 2.0–2.8 (2.6 in holotype) mm.

*Female.* Similar to male, but antenna 2 + 9-segmented, dark brown, relative length of scape and pedicel as 1.3 : 1, flagellomeres 0.23 mm in length, relative length of first, second to eighth and ninth flagellomeres as 5–6 : 3–4 : 8, fourth flagellomere about 3.2 times as wide as long; thorax brown-tinged; T6–8 and ovipositor dark brown.

Holotype male, Akasaka Imperial Gardens, Tokyo, 4.iii.2003 (MT). Paratypes: 3 males, same locality as holotype, 4. & 18.iii.2003 (MT); 2 males and 1 female, Tokiwamatsu Imperial Villa, 6.xii.2002 (MT), 15.iv. & 4.vi.2003 (MT).



Figs. 34–38. Male genitalia of *Cordyla geminata* n. sp. (paratype, 34–37) and *C. murina* Winn. (38). Scale 0.1 mm. See Figs. 16–20.

Distribution. Japan (Honshu).

Remarks. The new species is similar to European *Cordyla brevicornis* (Staeger, 1840) in body color, and to *C. bicornuta* (Landrock, 1926) in the structure of gonostylus, but it is distinguishable from the former by the structures of ventral and mesal stylomeres, and from the latter by the coloration of mesoscutum and anterior abdominal tergites. Also, the mesal stylomere of this species is quite different from that of *bicornuta* (Landrock, 1927, Fig. X-1).

27. *Cordyla murina* Winnertz (Fig. 38)

*Cordyla murina* Winnertz, 1863, Verh. zool.-bot. Ges. Wien, 13: 954.

Tokiwamatsu Imperial Villa: 1♂, 28.x.2002 (MT).

Distribution. Japan (Honshu), Europe, Russia, Mongolia. New to Japan.

Remarks. This yellowish brown species is characterized by the dark brown head and second palpomere, the sparsely grayish-dusted and mat mesoscutum, the presence of twelve flagellomeres of male antenna, and the position of CuA-forking point before that of M. The gonostylus differs from that of *C. bidenticulata* Sasakawa, 2003, in the shape of dorsal stylomere and the presence of a row of serration on the ventral stylomere.

28. *Cordyla pusilla* Edwards

*Cordyla pusilla* Edwards, 1925: 615; Sasakawa and Ishizaki, 2003: 108.

Akasaka Imperial Gardens: 11♂2♀, 6.i., 5.ii., 11.xi.2002 (MT); 15. & 29.vii. 2003 (MT).

Tokiwamatsu Imperial Villa: 12♂75♀, 25.ix., 28.x., 11.xi., 6. & 24.xii.2002 (MT); 4. & 17.vi., 8.vii. 2003 (MT).

Distribution. Japan (Honshu), Europe.

Remarks. The male is distinguishable from *C. murina* by the presence of ten flagellomeres. Genitalia: See Sasakawa and Ishizaki (2003). Female abdomen brown, T2–5 with yellow posterior margins, T6 and ovipositor brownish yellow. Wing length 1.6–2.2 mm in male, 2.0–2.5 in female. Second palpomere in male rarely pale brown; mesoscutum usually grayish brown but rarely brownish black in male; tergites brownish black but T2–4 usually with yellow triangular parts at antero-lateral corners.

29. *Cordyla* sp.

Akasaka Imperial Gardens: 3♀, 6. & 21.i., 6.viii.2003 (MT).

Remarks. Coloration of body including antenna and palpus is similar to that of *geminata* n. sp., but the mid and hind femora have blackish brown stripes on dorsal side throughout the whole length (almost 1/2 width of femur in lateral view); antenna 2+9-segmented, flagellomeres 0.25 mm in length, relative length of first-second, third-eighth and ninth flagellomeres as 6 : 4–5 : 10, fourth flagellomere nearly four times as wide as long.

30. *Exechia arisaemae* Sasakawa

*Exechia arisaemae* Sasakawa, 1993: 784.

Akasaka Imperial Gardens: 4♂, 5.ii.2003 (SS); 6.viii., 2. & 30.ix.2003 (MT).

Distribution. Japan (Honshu).

Remarks. This species is characterized by the presence of very long seta-like spine on the gonostylus. One male collected in winter has the three distinct vittae as in the holotype, but two males collected in summer have the laterally grayish white pollinose mesoscutum without distinct vittae, except for the presence of short posterior ends of lateral vittae, and T2–4 are entirely yellowish brown.

### Lauxaniidae

Twelve species of the Lauxaniidae have hitherto been known to occur in the Imperial Palace, Tokyo (Hayashi and Shinonaga, 2000). In this paper 16 species are recorded from the Imperial Palace, the Akasaka Imperial Gardens and the Tokiwamatsu Imperial Villa. The 11 species of the genus *Homoneura* van der Wulp, 1891, which is dominant in Japan, are represented mainly in the Akasaka Imperial Gardens. One species, *Homoneura shinonagai*, is described as new to science, and two species, *Homoneura insularis* Shatalkin, 1995, and *H. fulgida* Shatalkin, 1992, are recorded from Japan (Honshu) for the first time. *H. shinonagai* has the apomorphic character in the sixth abdominal sternite as a member of the *interstincta*-group (Sasakawa, 1983). The genus *Itomyia* Okadome, 1998, was established for two species, with a distinct conical tubercle on the face, from Japan. Two further new species, *Itomyia curvata* and *I. lobata*, differing from the known species in the coloration, respectively, are described in this paper. One new species, *Luzonomyza interrupta*, is described hereinafter. *Sciasminettia dicaetophora* Hendel, 1907, is recorded from Japan for the first time. *Steganopsis dichora* Shatalkin, 1999, *Salebrifacies czurkini* Shatalkin, 1992, *Sapromyza laticincta* Shatalkin, 1998, and *S. takagaii* Elberg, 1993, are recorded newly from Honshu.

### Subfamily Homoneurinae

1. *Homoneura euaresta* (Coquillett) シモフリシマバエ

*Sapromyza euaresta* Coquillett, 1898, Proc. U. S. natn. Mus. 21: 340.

*Homoneura euarsta* (Coquillett), Czerny, 1932: 13; Sasakawa and Ikeuchi, 1982: 478.

Imperial Palace: 1♂, 13.xi.2003 (SS).

Akasaka Imperial Gardens: 1♂, 18.iii.2003 (SS).

Distribution. Japan, Russia, N. Korea.

Remarks. This is one of the commonest species, with the numerously hyaline-spotted, brown wings, in Japan.

2. *Homoneura fulgida* Shatalkin

*Homoneura fulgida* Shatalkin, 1992: 86.

Tokiwamatsu Imperial Villa: 1♀, 13.v.2003 (MT).

Distribution. Japan (Honshu), Russia. New to Japan.

Remarks. The female was agreeable with the original description (female, Primorye region). This black species is characterized by the orange frons, face and antenna (arista brown), gray-dusted mesoscutum with four rows of acr (lateral rows sparser than median ones), clear wing and yellow legs; wing length 2.8 mm.

3. *Homoneura insularis* Shatalkin

*Homoneura insularis* Shatalkin, 1995: 57 (♂, Kunashir I.).

Akasaka Imperial Gardens: 2♂3♀, 6.xii.2002 (MT); 5.ii., 18.iii. & 15.iv.2003 (MT).

Distribution. Japan (Honshu, S. Kuriles).

Remarks. The specimens agree exactly with the original description and illustrations of wing and male genitalia (Shatalkin, 1995, fig. 2d; 2000, fig. 29). It is characterized by the presence of seven brown spots on the wing (two spots before apical one on  $R_{4+5}$  and preapical spot connected with apical spot on  $R_{2+3}$ ) and the surstylus bifurcated shortly near apex.

4. *Homoneura lagena* Sasakawa et Ikeuchi

*Homoneura lagena* Sasakawa et Ikeuchi, 1983: 295.

Akasaka Imperial Gardens: 6♂11♀, 24.i., 1.vii., 19.viii., 2-30.ix. 11. & 14.2003 (MT).

Distribution. Japan (Hokkaido, Honshu, Shikoku).

Remarks. The specimens examined were smaller (2.2–2.5 mm in male wing length, 2.4–3.2 mm in female), not fuscous along the anterior margin of wing as described in the original description and only a little yellowish-tinged, and had usually four rows of acr, but were identified by their characteristic sixth abdominal sternite of male.

5. *Homoneura matsumurai* Sasakawa et Ikeuchi

*Homoneura matsumurai* Sasakawa et Ikeuchi, 1983: 290.

Akasaka Imperial Gardens: 1♂2♀, 8.vii.2002 (SS); 17♂50♀, 13.v. & 11.x.2002 (MT); 10. & 24.vi., 15.vii., 6. & 15.viii., 2-30.ix. & 14.x.2003 (MT).

Tokiwamatsu Imperial Villa: 2♂19♀, 24.vi., 12. & 25.ix., 11. & 28.x.2002 (MT); 4-24.vi. & 15.vii. 2003 (MT).

Distribution. Japan, Sakhalin.

Remarks. The male sixth abdominal sternite is distinctive, and several pairs of acr on the median rows are distinctly longer than others (in preceding *lagena* those are slightly longer than others).

6. *Homoneura pyriformis* Sasakawa et Ikeuchi

*Homoneura pyriformis* Sasakawa et Ikeuchi, 1985: 491.

Akasaka Imperial Gardens: 2♂5♀, 11.x.2002 (MT); 10.vi., 29.vii., 16.ix., 14.x.2003 (MT).

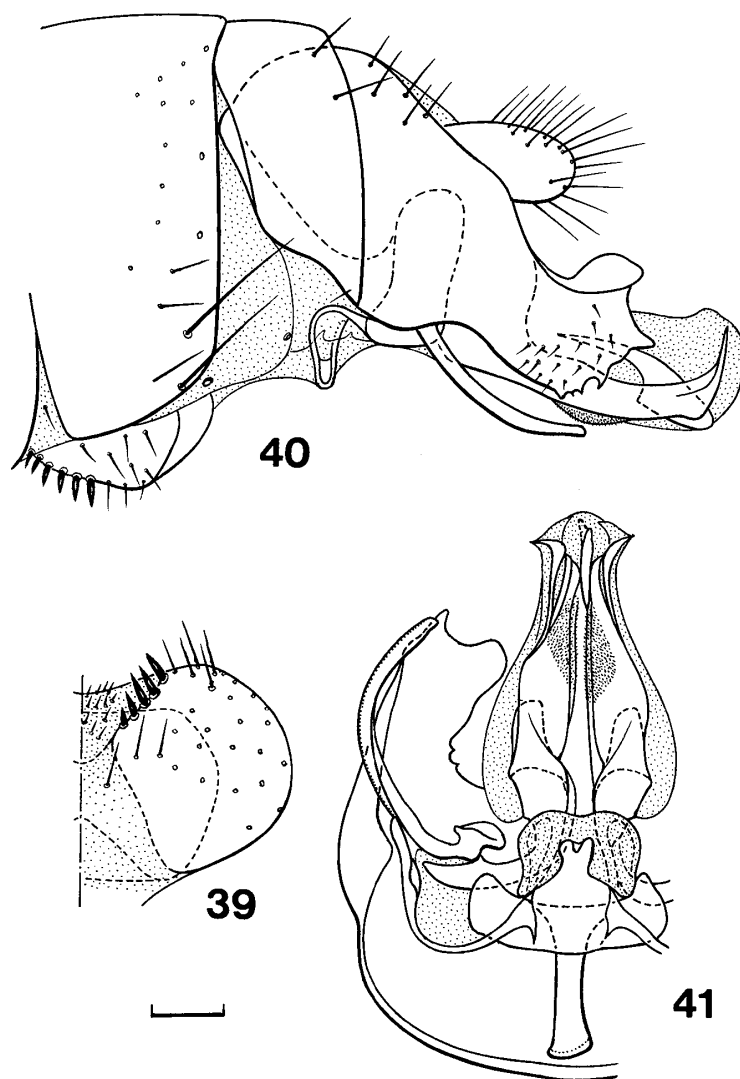
Tokiwamatsu Imperial Villa: 1♀, 4.vi.2003 (MT).

Distribution. Japan (Honshu).

Remarks. This black species is not common.

7. *Homoneura shinonagai* Sasakawa, n. sp. (Figs. 39–41)

*Male*. Brownish yellow; frons mat; occiput faintly tinged with brown on dorso-lateral sides; antenna orange, arista brown; palpus yellow; posterior margin of mesoscutum, scutellum and dorsal half of



Figs. 39–41. Male genitalia of *Homoneura shinonagai* n. sp. (paratype). 39, Right half of sixth sternite; 40, protandrium and genitalia, lateral view; 41, genitalia, ventral view. Scale 0.1 mm.

pleura paler; mesoscutum very sparsely whitish gray dusted, weakly shining, with brownish narrow median vitta and lateral vittae on dc-lines; pleura densely whitish gray dusted; abdomen weakly shiny. Wing hyaline, very faintly tinged with yellow; veins yellow except for both cross veins infuscated indistinctly together with their surroundings; calypter with fringe whitish yellow; halter pale yellow. Legs yellow, fore tibia with very small brown spot on dorsal base.

Frons about 1.3 times as wide as eye, parallel-sided; parafrontalia projecting beyond eye dorsad of antennal base in profile; lower or nearly  $2/3$  length of the upper; oc slightly longer than lower or; gena  $1/7$  of eye height; face vertical; antenna with first flagellomere about 1.4 times as long as wide, rounded apically; arista as long as eye height, minutely pubescent.

Mesoscutum with  $0+3$  dc and six rows of acr; lateralmost acr-row sparse, five to seven pairs of median acr-rows slightly longer than those of lateral ones; prsc long; stpl two. Wing 3.0 mm long, costa with sections in proportion of  $3.5 : 1 : 0.7$ , r-m at or slightly beyond middle of discal cell, ultimate section of  $M_{1+2}$  1.7–2 times as long as penultimate, ultimate section of  $M_{3+4}$   $1/5$ – $1/6$  length of

penultimate. Legs: Fore femur with ctenidium of 8–10 spinulae and one or two long pv, mid femur with 3–5 a; all tibiae with pd, mid tibia with one long and one short spurs.

Protandrium horseshoe-shaped; S6 sclerotized laterally, with about ten spines in two separate rows along excavated postero-mesal margin; S7 almost quadrate, weakly sclerotized. Epandrium projected postero-ventrally, surstylus serrated irregularly along margin. Hypandrium with black ring-like process on lateral side and membranous lobe dorsally; gonapophysis extremely long; aedeagus with lateral sclerite strongly projected dorsally at end, about 2.5 times as long as apodeme which is 200  $\mu\text{m}$  long.

*Female.* Similar to male, but gena 1/4 of eye height, wing length 3.2 mm, fore femur with 4–5 pv.

Holotype male, Akasaka Imperial Gardens, Tokyo, 28.x.2002 (MT). Paratypes: 1 male, same locality as in holotype, 14.x.2002 (MT); 1 female, 24.vi.2003 (MT).

Distribution. Japan (Honshu).

Remarks. This species belongs to the *interstincta*-group in having the spines on posterior margin of the male sixth abdominal sternite which is broadened distally as in *matsumurai*. The arrangement of spines on S6, serration of the surstylus and the dorsally projecting apices of aedeagal sclerites in this new species are distinctive, differing from those of *matsumurai* (Sasakawa and Ikeuchi, 1983, Fig. 16). Also, it is related to European *H. minor* (Becker, 1895), but is recognized without trouble by its male genitalia.

Etymology. The species is named after the collector of the holotype, Dr. S. Shinonaga, Section of International Environmental Parasitology, Tokyo Medical and Dental University.

8. *Homoneura sphincta* Sasakawa et Ikeuchi

*Homoneura sphincta* Sasakawa et Ikeuchi, 1983: 292.

Akasaka Imperial Gardens: 1♂1♀, 29.vii. & 14.x.2003 (MT).

Distribution. Japan (Honshu, Shikoku, Kyushu).

Remarks. This yellowish species is distinguishable from *matsumurai* and *lagena* by the absence of spines on the male sixth abdominal sternite.

9. *Homoneura spinicauda* Sasakawa et Ikeuchi

*Homoneura spinicauda* Sasakawa et Ikeuchi, 1982: 490.

Akasaka Imperial Gardens: 4♂5♀, 8.vii. & 28.x.2002 (MT), 6.i., 18.iii., 6.viii., 2. & 30.ix.2003 (MT); 1♂1♀, 8.ix.2003 & 13.v.2004 (SS).

Distribution. Japan (Honshu, Kyushu, Ryukyus), N. Korea.

Remarks. Male of this species has the unguiform surstylus as seen in the clear-winged *H. unguiculata*, but the wing is brown-spotted on apices of  $R_{2+3}$ ,  $R_{4+5}$  and  $M_{1+2}$ , and around both cross veins.

10. *Homoneura tridentata* Sasakawa et Ikeuchi

*Homoneura tridentata* Sasakawa et Ikeuchi, 1985: 494.

Imperial Palace: 1♂, 17.vi.2004 (SS).

Akasaka Imperial Gardens: 12♂22♀, 15.viii., 28.x., 11. & 25.xi., 6. & 24.xii.2002 (MT); 15. & 28. iv., 10.vi., 1-29.vii., 6. & 19.viii., 30.ix., 14.x.2003 (MT).

Tokiwamatsu Imperial Villa: 5♂18♀, 25.ix., 11.x. & 24.xii.2002 (MT); 18.ii., 22.iv., 13.v., 4-24.vi., 8-29.vii.2003 (MT).

Distribution. Japan (Honshu, Kyushu, Ryukyus).

Remarks. This yellowish species is provided with a pair of large, black spots on the fifth abdominal tergite.

11. *Homoneura unguiculata* (Kertész)

*Homoneura unguiculata* Kertész, 1913: 100; Sasakawa & Ikeuchi, 1982: 494.

*Homoneura japonica* Czerny, 1932: 15.

Akasaka Imperial Gardens: 19♂79♀, 15.viii., 11.x. & 11.xi.2002 (MT); 18.iii., 4-24.vi., 1-29.vii., 6. & 19.viii., 2-30.ix. & 14.x.2003 (MT).

Tokiwamatsu Imperial Villa: 2♂6♀, 28.x.2002 (MT); 18.ii., 1.iv., 13.v., 17-24.vi. & 8.vii.2003 (MT).

Remarks. This Oriental species is very common in Honshu to the Ryukyus.

12. *Homoneura yamagishii* Sasakawa et Ikeuchi

*Homoneura yamagishii* Sasakawa et Ikeuchi, 1982: 496.

Akasaka Imperial Gardens: 7♂8♀, 11.xi.2002 (MT); 29.vii.2003 (MT).

Tokiwamatsu Imperial Villa: 4♂9♀, 12.ix., 11. & 28.x., 11. & 25.xi., 6. & 24.xii.2002 (MT); 4.vi. & 1.vii.2003 (MT).

Remarks. This yellowish species differs from *unguiculata* in its ventrally projecting surstylus and absence of silvery pruinose parafacialia, and is widespread from Hokkaido to the Ryukyus.

## Subfamily Lauxaniinae

13. *Itomyia curvata* Sasakawa, n. sp. (Figs. 42-43)

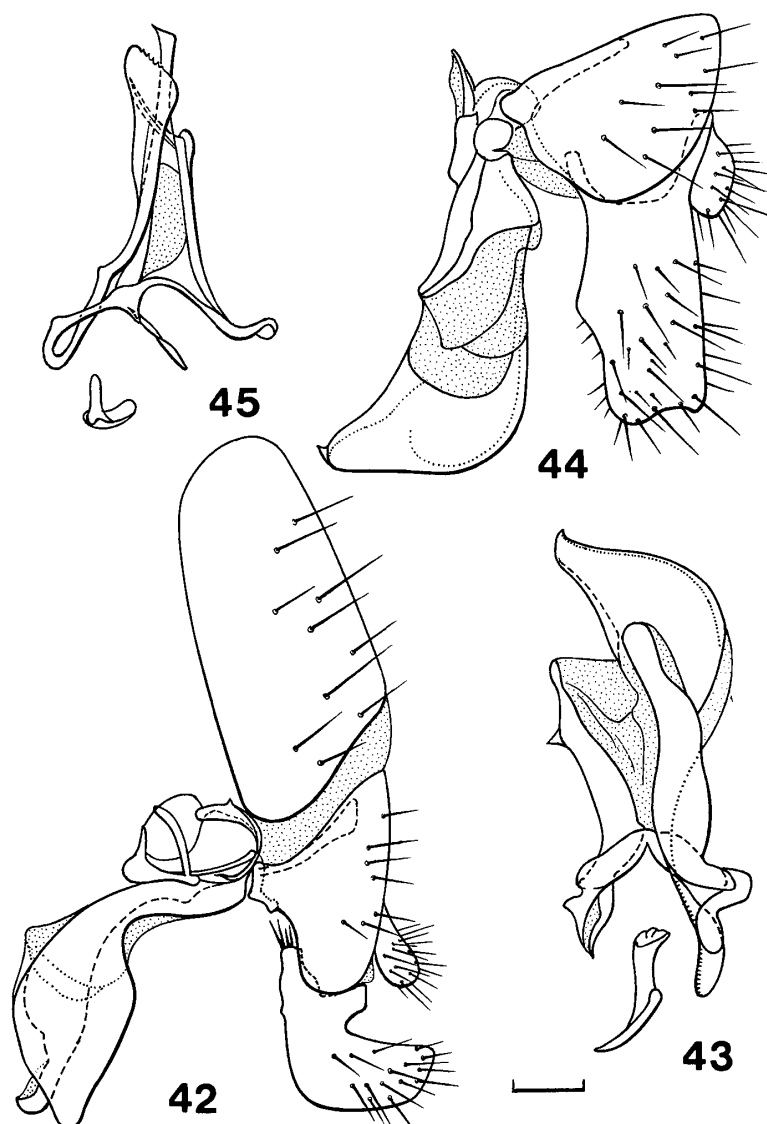
*Male*. Head black, but posterior 2/3 of gena and shiny oral margin laterad of facial tubercle yellow; occiput and postorbit densely gray-dusted, the dusting extends dorsally to posterior margin of ocellar triangle and parafacialia through vertical angle, lower or growing at ventral end of gray stripe; parafacialia with two gray-dusted spots just ventrad of level of antennal base and at ventralmost level of eye, face with gray-dusted lateral margin connected with spots on parafacialia at both ends; frontalia mat, sparsely grayish pollinose along ventral margin; ocellar triangle mat; tubercle on face glossy; gena slightly pruinose; antenna yellowish brown, arista brownish black excepting base brown; palpus brownish yellow. Thorax dark brown, densely gray-dusted; mesoscutum more or less pale on lateral side, with a pair of brown median vittae between rows of acr and dc. Abdomen blackish brown but broadly yellowish on lateral sides; sternites yellow except for S6 brown; protandrium and epandrium brownish yellow, cercus yellow. Wing tinged with brown, especially darkened anteriorly and apically; calypter grayish, with fringe brown; halter with stalk yellow, knob pale brown and darkened on tip. Legs brownish yellow; distal 1/3 of femur, tibia except for base and tarsus of fore leg dark brown; fifth tarsomeres of mid and hind legs slightly brown-tinged.

Frons broader than long, 1.4 times as wide as eye, slightly diverging ventrally; parafacialia and parafacialia distinctly projecting above eye margin in profile; upper or reclinate, lower or inclinate; oh several, laterad of lower or; oc 2/3 length of upper or; eye slightly higher than wide; gena nearly 1/4 of eye height; facial tubercle slightly higher than genal height; antenna with first flagellomere long, about 4.3 times as long as basal width, slightly narrowed at middle; arista lanciformally plumose.

Mesoscutum with 0+3 dc, two rows of long acr (1/3-1/2 length of posteriormost dc); prsc slightly longer than anteriormost dc. Wing: Costa extending to M<sub>1+2</sub>, with second to fourth sections in proportion of 3.9 : 1 : 0.7, r-m slightly before middle of discal cell, ultimate section of M<sub>1+2</sub> 1.4 times as long as penultimate, ultimate section of M<sub>3+4</sub> about 1/6 length of penultimate. Legs: Fore femur with a row of six strong postero-dorsal setae and a row of four long postero-ventral setae; tibiae each with long preapical dorsal seta, mid tibia with one spur.

Protandrium longer than T6, emarginated posteriorly. Epandrium small, surstylus L-shaped, with





Figs. 42–45. Male genitalia of *Itomyia curvata* n. sp. (holotype, 42–43) and *Itomyia lobata* n. sp. (holotype, 44–45). 42, 44, Epandrium, surstylus and aedeagus, lateral view; 43, 45, hypandrium, aedeagus and ejaculatory apodeme, ventral view. Scale 0.1 mm.

ventral apex curved mesally; hypandrium narrow, horizontal, with gonites asymmetrical, left gonite longer than the right, broadened apically, minutely serrated along ventro-distal margin and pointed on tip. Aedeagus fused with right gonite at base, strongly chitinized apically but membranous at base, with basal apodeme almost 1/3 as long as whole length of aedeagus; ejaculatory apodeme small, 60  $\mu$ m long.

Body length 2.9 mm, wing length 3.0 mm.

*Female.* Unknown.

Holotype male, Akasaka Imperial Gardens, Tokyo, 14.x.2003 (MT); abdomen and genitalia in polyethylene tubule with glycerol and pinned with the specimen.

*Distribution.* Japan (Honshu).

*Remarks.* The genus *Itomyia* is characterized by a glossy, conical tubercle on face, and has hitherto

been known to occur only in Japan (Okadome, 1998). This species is related to *I. atrifrons* Okadome in the dark coloration of densely plumose arista, but has the velvety black frons, brownish bivittate mesoscutum and L-shaped surstylus, while in *atrifrons* frons velvety yellowish brown, mesoscutum trivittate and surstylus lobate.

Etymology. The specific name refers to the incurvate surstylus.

14. *Itomyia lobata* Sasakawa, n. sp. (Figs. 44–45)

*Male.* Head black but gena largely and oral margin laterad of facial tubercle entirely yellow excepting epistome brown; frontalia except for ocellar triangle and vertical angle dusted with whitish gray, the dusting of the former extending to base of lower or as short transverse stripe; dorsal parafrontalia shining; parafacialia extremely whitish pruinose; posterior half of gena slightly pruinose; dorsal part of occiput weakly shining; antenna with scape and pedicel dark brownish yellow, first flagellomere blackish brown, arista including pubescence white but brownish yellow at base; palpus black. Thorax brown, scutellum with margin yellow and all sc growing at edge of pale area, very sparsely dusted with whitish gray; mesoscutum weakly shining when viewed from rear, with three densely dusted vittae (median vitta between lateral acr-rows, lateral one just laterad of dc-row, each equal in width, running throughout whole length of scutum). Abdomen shiny brown, paler than thorax; protandrium brownish yellow. Wing hyaline, very faintly tinged with brownish yellow anteriorly; calypter whitish gray, with fringe ochereous; halter yellow but knob brown on tip. Legs brownish yellow, fore tibia except for base and tarsus, fifth tarsomeres of mid and hind legs brown.

Frons distinctly broader than long, 1.7 times as wide as eye, slightly diverging ventrally; parafrontalia with ventral half extremely projecting beyond eye in profile; upper or reclinate, lower or inclinate; oc less than 1/2 of upper or; oh one or two laterad of lower or; eye slightly higher than broad; gena about 1/4 of eye height; facial tubercle glossy, about twice as high as genal height; antenna with first flagellomere long, about six times as long as basal width; arista 1.3 times as long as eye height, minutely pubescent.

Mesoscutum with 0+3 dc, four rows of acr, prsc as long as anteriormost dc. Wing: Costa extending to  $M_{1+2}$  and with sections in proportion of 4.5 : 1 : 0.7, r-m almost at middle of discal cell, ultimate section of  $M_{1+2}$  about 1.5 times as long as penultimate, ultimate section of  $M_{3+4}$  1/6 of penultimate. Chaetotaxy on legs similar to that of *curvata*.

Protandrium and epandrium similar to those of *curvata*, but surstylus elongated ventrally as lobular projection, setose on outer side and setulose on inner side. Hypandrium inverted V-shaped, gonites each almost equal in length, left gonite minutely pointed before ventral apex. Aedeagus fused with right gonite at middle, strongly chitinized and pointed on tip, membranous on basal half, with basal apodeme about 1/2 as long as whole length of aedeagus; ejaculatory apodeme 100  $\mu$ m long, 50  $\mu$ m in apical broadest width.

Body and wing length 3.6 mm, respectively.

*Female.* Unknown.

Holotype male, Tokiwamatsu Imperial Villa, Shibuya-ku, Tokyo, 1.iv.2003 (MT); abdomen and genitalia in polyethylene tubule with glycerol and pinned with the specimen.

Distribution. Japan (Honshu).

Remarks. This species resembles *I. tsushimaana* Okadome, 1998, in having the snowy white pubescent arista and the elongate surstylus, but differentiates distinctly in the coloration of head, thorax and legs, that is, head largely black, mesoscutum trivittate with gray, and fore tibia and tarsus brown.

Etymology. The specific name refers to the long lobular surstylus.

15. *Steganopsis dichroa* Shatalkin

*Steganopsis dichroa* Shatalkin, 1999: 57 (♂, Kita-kyushu).

Akasaka Imperial Gardens: 1♂2♀, 22. & 29.vii.2003 (MT).

Tokiwamatsu Imperial Villa: 1♀, 28.x.2002 (MT).

Distribution. Japan (Honshu, Kyushu).

Remarks. Female is recorded from Honshu for the first time, and differs from male in the following points: antenna with scape yellow, pedicel and first flagellomere yellowish brown, apical 2/5–3/4 of flagellomere dark brown; abdomen entirely brown to black, shining; wing 2.6 mm long; mid and hind femora dark brown to brownish black, but basal and distal 1/4–1/5 yellow, respectively; fifth tarsomeres of mid and hind legs brown.

16. *Luzomyza (Tetroxyrhina) forficula* (Shatalkin)

*Trigonometopus (Tetroxyrhina) forficula* Shatalkin, 1997: 166 (♂, Kita-kyushu).

*Luzomyza (T.) forficula* (Shatalkin), 2000: 39.

Akasaka Imperial Gardens: 1♂10♀, 11. & 25.xi., 6. & 24.xii.2002 (MT); 5.ii., 15.iv. & 14.x.2003 (MT).

Tokiwamatsu Imperial Villa: 1♀, 15.iv.2003 (MT).

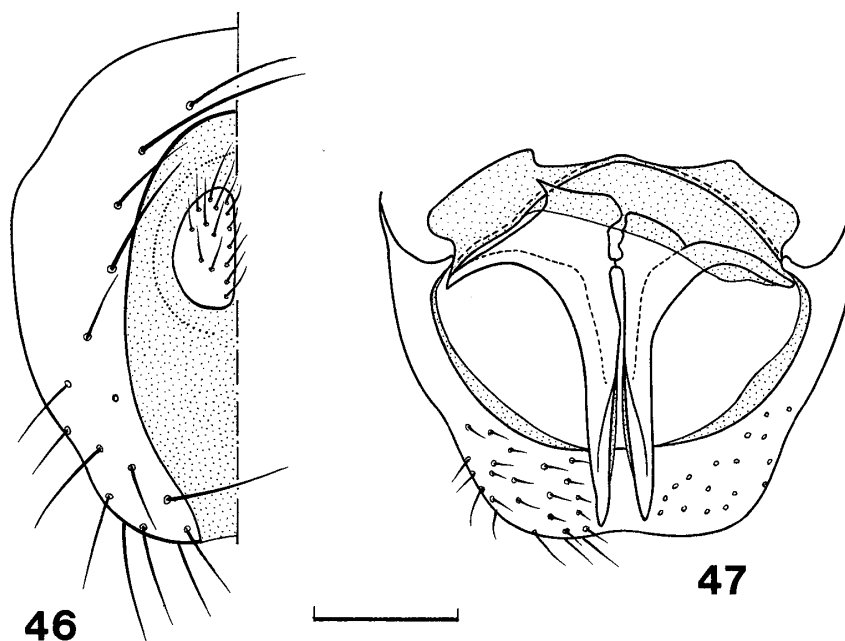
Distribution. Japan (Honshu, Kyushu).

Remarks. Face yellow, with pale brown triangular spots below bases of antennae, extending ventrally as pale brown line along ptilinal suture; wing 3.2–3.9 mm in length, ultimate section of  $M_{1+2}$  1.7–2 times as long as penultimate; T2–3 each with yellow V-shaped median spot; T4–6 each with yellow median spot connected with yellow anterior band, but spots on T5–6 small; T1–7 each with posterior margin linearly yellow. Other characters are similar to those of male in the original description.

17. *Luzomyza (Tetroxyrhina) interrupta* Sasakawa, n. sp. (Figs. 46–47)

*Male*. Head yellow; frontalia faintly tinged with brown, ocellar triangle brownish black; occiput pale brown, extending dorso-laterally to eye margin through base of vte; parafrontalia ventrally with blackish narrow stripe between eye and antennal base; face with or without pale brown band just ventrad of antennal base, extending ventrally as pale brown short lines along both ptilinal sutures; postgena with pale brown large spot (triangular in outline) just below eye, postgenal seta growing on dark area; antenna yellowish brown but yellow on inner side of scape and pedicel, arista dark brown excepting base pale; palpus yellow. Thorax brownish yellow, mesoscutum and scutellum sparsely gray-dusted; scutum with four brown vittae, of which median pair between dc-rows extending posteriorly to base of apical sc, lateral one running above sa, and indistinct vitta on ia-line behind transverse suture; pleura yellow between posterior margin of anepisternum and pleurotergite, anepisternum ventrally and katepisternum dorsally with brown bands (the former paler than the latter) along suture. Abdomen with tergites yellowish brown, shiny, each with blackish band, which is clearly interrupted at middle, on posterior half; sternites and epandrium yellow. Wing hyaline, without distinct clouds around both cross veins; halter yellowish, knob brown-tinged at base. Legs yellow.

Frons 1.5 times as long as wide, with dense setulae ventrally and about four sparse median rows of setulae extending dorsally near level of upper or; oc slightly longer than frontal setulae; or two, reclinate, lower or at level of anterior 1/5 of eye width; eye about 3/4 as high as wide; gena 2/5–1/2 of eye height; pm long two and short two; parafacialia with 4–5 short setae along anterior margin; gena anteriorly with 2–3 setulae just above row of pm. Antenna with first flagellomere 1.3 times as long as



Figs. 46–47. Male genitalia of *Luzonomyza interrupta* n. sp. (paratype). 46, Epandrium, caudal view, left half; 47, aedeagus, ventral view. Scale 0.1 mm.

wide, slightly narrowing and rounded apically; arista microscopically pubescent.

Mesoscutum with 0+3 dc, first dc close to suture, four rows of acr but median two rows ending behind level of second dc, prsc 1/2 of first dc, without ph and ia; katepiternum with short seta before stpl. Wing 3.0 mm in length, with r-m at or slightly beyond middle of discal cell, ultimate section of  $M_{1+2}$  1.8–2.3 times as long as penultimate, ultimate section of  $M_{3+4}$  slightly longer than 1/5 of penultimate. Tibiae each with pd; mid tibia with one spur.

Epandrium broadened at middle on lateral side, narrowing ventrally and curved mesally on ventral end in posterior view but conjunctive in anterior view, entirely covered with membrane posteriorly; hypandrium weakly sclerotized as narrow semicircular ring; aedeagus consisted of two sclerites, weakly pointed on tips, about 200  $\mu$ m long.

*Female.* Similar to male, but face only with pale brown short dorso-lateral lines along ptilinal sutures; abdominal tergites brownish yellow in ground color, posterior band on T6 pale brown and small; ovipositor yellow; wing length 3.5 mm.

Holotype male, Imperial Palace, Tokyo, 12.ii.2004, S. Shinonaga. Paratypes: 1 male and 1 female, same data as in holotype; 1 female, Akasaka Imperial Gardens, 18.ii.2003 (MT).

Distribution. Japan (Honshu).

Remarks. This species is distinguishable from *L. forficula* (Shatalkin) by the presence of brown spot at antero-ventral corner of the postgena, brown stripes on the anepisternum and katepisternum, and the epandrium covered by membrane posteriorly, and also the absence of long surstylus as in *forficula*.

*Etiymology.* The specific name refers to the interrupted bands on abdominal tergites.

18. *Trigonometopus frontalis* (Meigen)

*Tetanocera frontalis* Meigen, 1830, Syst. Besch. bekan. europ. zweifl. Insekt. 6: 44.

*Trigonometopus frontalis* (Meigen), Czerny, 1932: 8; Sasakawa, 1985: 1.

Akasaka Imperial Gardens: 4♂<sup>9</sup>♀, 11.x., 11.xi. & 24.xii.2002 (MT); 21.i., 15.vii. & 14.x.2003 (MT).

- Tokiwamatsu Imperial Villa: 1♀, 18.ii.2003 (MT).  
 Distribution. Japan (Hokkaido, Honshu), Mongolia, Europe.
19. *Protrigonometopus maculifrons* Hendel  
*Protrigonometopus maculifrons* Hendel, 1938: 3.  
 Akasaka Imperial Gardens: 3♀, 18.iii.2003 (SS); 1♂, 18.xi.2003 (SS).  
 Distribution. Japan, China, N. Korea.
20. *Salebrifacies czurkini* Shatalkin  
*Salebrifacies czurkini* Shatalkin, 1992: 72 (♀, Kunashir I.).  
 Akasaka Imperial Gardens: 1♀, i.iv.2003 (MT).  
 Distribution. Japan (Honshu), S. Kuriles.  
 Remarks. The specimen was agreeable with the original description except for the following points: gena 1/3 of eye height; fore coxa yellowish brown, mid and hind coxae black; fore and hind femora with apices yellow, mid femur and all tibiae brownish yellow, two blackish brown rings on mid femur incomplete on dorsal side; prsc longer than twice as long as length of acr; wing length 3.4 mm, body length 2.8 mm.
21. *Sciasminettia dicaetophora* (Hendel)  
*Sciasmomyia dicaetophora* Hendel, 1907, Wien. ent. Ztg. 26: 235; Czerny, 1932: 39.  
*Sciasminettia dicaetophora* (Hendel), Shewell, 1971: 2.  
 Akasaka Imperial Gardens: 1♀, 18.iii.2003 (SS).  
 Distribution. Japan (Honshu), Russia (Far East), Mongolia. New to Japan.  
 Remarks. One female examined was agreeable well with the original and Czerny's descriptions except for the wing length (3.7 mm) and the yellow meron.
22. *Minettia longipennis* (Fabricius) ヤブクロシマバエ  
*Musca longipennis* Fabricius, 1794: 323.  
 Imperial Palace: 1♂1♀, 29.vii. & 24.ix.2003 (MT).  
 Akasaka Imperial Gardens: 24♂24♀, 30.iv., 13.v., 8.vii., 15.viii. & 8–28.x.2002 (MT); 4–24.vi., 8–29.vii., 6. & 19.viii., 2–30.ix. & 14.x.2003 (MT); 5♂, 13.v. & 8.ix.2003 (SS).  
 Tokiwamatsu Imperial Villa: 2♂1♀, 28.x.2002, 17.vi.2003 (MT).  
 Remarks. This is one of the commonest species in Japan.
23. *Melinomyia flava* Kertész  
*Melinomyia flava* Kertész, 1915: 500; Sasakawa, 1997: 34.  
 Imperial Palace: 1♀, 24.ix.2003 (SS).  
 Distribution. Japan (Honshu), Formosa.
24. *Sapromyza laticincta* Shatalkin  
*Sapromyza laticincta* Shatalkin, 1998: 214 (♂, Kita-kyushu).  
 Akasaka Imperial Gardens: 1♂, 5.ii.2003 (SS).  
 Distribution. Japan (Honshu, Kyushu).  
 Remarks. Only one male was identical with the original description. This yellow species is characterized by the dark brown interrupted bands on T2–4 and two brown spots on both cross veins.
25. *Sapromyza takagii* Elberg  
*Sapromyza takagii* Elberg, 1993: 253 (♀, Kunashir I.).  
 Imperial Palace: 1♂, 29.vii.2003 (SS).  
 Akasaka Imperial Gardens: 11♂12♀, ii.x.2002 (MT); 10.vi., 15. & 29.vii., 6. & 19.viii., 2–30.ix. & 11.x.2003(MT).

Distribution. Japan, S. Kuriles.

Remarks. The specimens examined were agreeable with the original description, excepting the male was 1.8–2.0 mm in wing length and had long ultimate section of  $M_{1+2}$  (2.4–2.9 times as long as penultimate) and yellow halter with pale brown outer side of knob.

### Agromyzidae

Information on Agromyzidae in Tokyo has hitherto been based on two purely taxonomic papers by Isitani (1938, 1939) and Sasakawa (1998). Isitani made an excellent start in the studies of six barley and wheat leaf-miners occurred in Tokyo and its adjacent prefectures: *Agromyza yanonis* (Matsumura) (as *Stomacrypeolus ambigua* Fallén), *Chromatomyia nigra* (Meigen) (as *Phytomyza nigra*), *Cerodontha* (C.) *denticornis* (Panzer) (as *Cerodonta*), *Cer. (Poemyza) incisa* (Meigen) (as *Dizygomyza* sp.), *Cer. (Poe.) lateralis* (Macquart) (as *Dizygomyza* sp.) and *Agromyza albipennis* Meigen (as *Agromyza* sp.), and the garden pea leaf-miner, *Chromatomyia horticola* (Goureau) (as *Phytomyza atricornis* Meigen). He had also collected many leaf-mining species on the different host plants from early April 1937 to mid-July 1938 in the Metropolitan district. In the second larger paper by Sasakawa, five new species, collected by Isitani and other staffs of the Division of Entomology, National Agricultural Experiment Station, Nishigahara, Tokyo, were described and 34 new or well-known Japanese species were recorded. Also, Sasakawa identified ten species (5 recorded newly from Tokyo) collected by Hayashi in the Imperial Palace, in 1996–1997 and 2000 (Hayashi and Shinonaga, 2000). At that time the total recorded was 44 species.

Seventeen more, including two new species of the genus *Agromyza* Fallén, 1810, and one of the genus *Japanagromyza* Sasakawa, 1958, are hereinafter added to the agromyzid fauna in Tokyo. The larvae or mines of two additional species were collected by Prince Hitachinomiya in the garden of Tokiwamatsu Imperial Villa: *Tropicomyia* sp. (probably *T. styricicola* Sasakawa) on *Phyllocactus* sp. (Cactaceae), *Liriomyza trifolii* (Burgess, 1880) on egg-plant and *Chromatomyia horticola* on *Raphanus* sp. (Brassicaceae) (these adults were not emerged). Moreover, four species, *Melanagromyza sojae* (Zehntner, 1900), *Japanagromyza elaeagni* (Sasakawa, 1954) and *J. tokunagai* (Sasakawa, 1953), and *Liriomyza trifolii*, are known to occur on Hachijo I. and Ogasawara Is.

### Subfamily Agromyzinae

#### 1. *Hexomyza simplicoides* (Hendel)

*Melanagromyza simplicoides* Hendel, 1920, Arch. Naturgesch., A 84(7): 128.

Akasaka Imperial Gardens: 1♀, 10.vi.2003 (MT).

Distribution. Japan (Honshu); Holarctic.

Remarks. The larva is known as a gall-causer on the twig of *Salix* sp.

#### 2. *Melangromyza pubescens* Hendel

*Melanagromyza pubescens* Hendel, 1923, Konowia 2: 144.

Akasaka Imperial Gardens: 1♂, 30.iv.2002 (SS).

Distribution. Japan (Honshu, Kyushu, Ryukyus); China, Europe.

Remarks. This species is so close to *Ophiomyia pulicaria* (formerly *Melanagromyza*) in general appearance that they may be easily distinguishable by their male genitalia. In *pubescens*, the phallus is covered ventrally with extensive membrane and distiphallus is provided with tube distally. Host plant is unknown.

#### 3. *Ophiomyia puerarivora* Sasakawa クズサヤモグリバエ

*Ophiomyia puerarivora* Sasakawa, 1981: 149.

Akasaka Imperial Gardens: 1♂1♀, 16.ix.2003 (MT).

Distribution. Japan (Honshu).

Remarks. Male has not vibrissal fasciculus and conspicuous facial carina as in *O. pulicaria*. The larva of this species is the pod-feeder on *Pueraria lobata*.

4. *Ophiomyia pulicaria* (Meigen) タンポポハモグリバエ

*Agromyza pulicaria* Meigen, 1830, Syst. Besch. Bekann. eur. zweifl. Insekt. 6: 170.

*Ophiomyia pulicaria* (Meigen), Sasakawa, 1986: 6.

Akasaka Imperial Gardens: 2♀, 30.ix. & 14.x.2003 (MT).

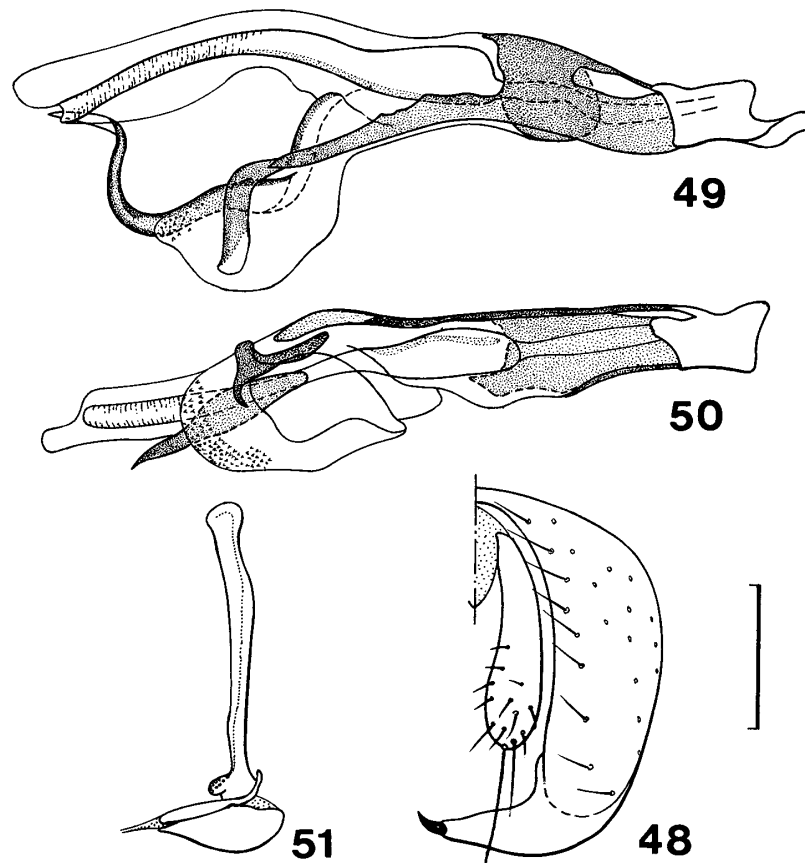
Distribution. Japan (Hokkaido, Honshu); Holarctic.

Remarks. The larva forms the whitish mine along the leaf midrib of dandelion, *Taraxacum platycarpum* in Japan.

5. *Japanagromyza angulosa* Sasakawa, n. sp. (Figs. 48–51)

*Male*. Black; parafrontalia shiny; ocellar triangle scarcely shining; lunule whitish gray pruinose; thorax very sparsely gray-dusted, scutellum weakly shining; abdomen brownish black, shiny; epandrium black. Wing hyaline; calypter gray, with margin brown and fringe black; halter yellow but stalk and base of knob faintly tinged with brown.

Frons narrower than long, as wide as eye, parallel-sided; parafrontalia not projecting above eye margin in profile; ors two, reclinate; ori two, first ori reclinate, second ori short and inclinate; ocellar



Figs. 48–51. Male genitalia of *Japanagromyza angulosa* n. sp. (holotype). 48, Epandrium and cercus, caudal view; 49–50, phallus, lateral (49) and ventral (50) views; 51, ejaculatory apodeme. Scale 0.1 mm.

triangle with ventral apex reaching at middle between first and second ors; lunule lower than semicircle; gena 1/13 of eye height; first flagellomere of antenna circular, as long as wide; arista 1.3 times as long as height of eye, microscopically pubescent.

Mesoscutum with 0+2 dc, 9–10 rows of acr and long prsc. Wing 2.0 mm long, costal sections 2–4 in proportion of 3.5 : 1 : 0.8, r-m slightly before middle of discal cell (8 : 10), ultimate section of  $M_{1+2}$  thrice as long as penultimate, ultimate section of  $M_{3+4}$  about 2/3 of penultimate. Legs: Fore tibia with an external bristle; mid tibia with two pd.

S6 about 1.5 times as long as wide, emarginated on distal one-third; S5 about quarter of S6 in length and almost as wide as S6. Epandrium with surstylus distinctly angulated inward, bearing an apical spine (Fig. 48); cercus narrow, with two distal setae longer than others; hypandrium slightly longer than phallapodeme (1.2 : 1), with basal apodeme about 1/5 length of side piece. Phallus (Figs 49–50) with distinct ventral processes, basiphallus with only left-side sclerite elongated, distiphallus including tube membranous. Ejaculatory apodeme (Fig. 51) rod-like, 200  $\mu$ m long.

*Female.* Unknown.

Holotype male, Akasaka Imperial Gardens, Tokyo, 16.ix.2002 (MT); abdomen and genitalia in polyethylene tubule with glycerol and pinned with the specimen.

*Distribution.* Japan (Honshu).

*Remarks.* General coloration and structures of the phallus in this new species show the close relationship with *Japanagromyza eucalypti* Spencer, 1963, known from Australia, and *J. eucalypti paganensis* Spencer, 1963, from Mariana Is., Micronesia. The angulated surstylus, sinuous ventral process of the basiphallus and short membranous tube of the distiphallus in *angulosa* are distinctive.

*Etymology.* The specific name refers to the strongly angulated surstylus.

6. *Japanagromyza tristella* (Thomson) ダイズクロハモグリバエ

*Agromyza tristella* Thomson, 1869, *Eugenies Resa*, Dipt. 1869: 609.

*Japanagromyza varihalteredata* (Malloch), Sasakawa, 1961: 334.

*Japanagromyza nawai* Kato, 1961: 197.

*Japanagromyza tristella* (Thomson), Spencer, 1965: 25 (as *trispina* Thom.)

Akasaka Imperial Gardens: 1♂<sup>3</sup>♀, 30.iv.2002 (SS) & 24.xii.2002 (MT); 3♂<sup>3</sup>♀, 6.i., 5.ii., 18.iii. & 1.ix.2003 (MT) & 14.x.2003 (SS).

*Distribution.* Japan (Honshu, Shikoku, Kyushu), China, Formosa, Java, Flores, Malaya, Singapore, Viet Nam, Bismarck Archipelago, Nepal, India, Ceylon.

*Remarks.* The larvae form the upper surface, blotch mines on the leaves of *Pueraria lobata* and *Glycine soja* in Japan.

7. *Agromyza albipennis* Meigen ムギクロハモグリバエ

*Agromyza albipennis* Meigen, 1830: 171; Sasakawa, 1961: 312.

Akasaka Imperial Gardens: 3♀, 16.ix.2003 (MT) & 14.x.2003 (SS).

*Distribution.* Japan (Honshu, Kyushu), Holarctic.

*Remarks.* This is one of the barley pests in Japan.

8. *Agromyza albitarsis* Meigen

*Agromyza albitarsis* Meigen, 1830: 171.

Akasaka Imperial Gardens: 1♀, 15.iv.2003 (MT).

*Distribution.* Japan (Honshu), Holarctic. New to Japan.

*Remarks.* This black species is characterized by the silvery fringe on the calypter and yellowish tibiae and tarsi. The larva is known as the leaf-miner of *Salix* and *Populus* spp. in Europe.



9. *Agromyza cercispinosa* Sasakawa, n. sp. (Figs. 52–55)

*Male.* Black but frons with ventral part below level of first ors and lunule orange to pale brownish yellow; dorsal parafrontalia above base of second ors and orbit laterad of ori black; gena yellowish brown; epistome yellow; antenna and palpus black, but scape and pedicel tinged with brown, distal margin of pedicel sometimes paler; thorax and abdomen gray-dusted, mesoscutum and scutellum mat, abdomen weakly shining. Wing hyaline, calypter gray, with margin and fringe black. Legs black, only fore knee narrowly yellowish.

Frons almost as long as wide, about 1.3 times as wide as eye, parallel-sided; dorsal part of parafrontalia not projecting but distinctly projecting before eye margin between levels of ori and antennal base; ors two, ori two (rarely three); oh in a sparse row; gena 1/6 of eye height; lunule very low; face with epistome narrow, about 1/6 of facial height; antenna with first flagellomere large, almost quadrate and as long as wide, about twice as wide as genal height, with dense pile whitish; arista short, about 2/3 as long as height of eye, minutely pubescent.

Mesoscutum with 1+3 dc, presutural dc 1/3 length of first postsutural which is more close to suture than the former; acr in eight rows; prsc 2/5 length of fourth dc. Wing 1.9 mm long, costa extending to  $M_{1+2}$ , with sections 2–4 in proportion of 3 : 1 : 0.7, r-m beyond middle of discal cell (9 : 5), ultimate section of  $M_{1+2}$  nearly six times as long as penultimate, ultimate section of  $M_{3+4}$  almost equal to penultimate section in length (15 : 14). Leg: Mid tibia without pd.

S6 2/3 as long as wide, excavated semicircularly on posterior half; S5 slightly shorter and narrower than S6. Epandrium small; cercus higher than epandrium, with 33–35 spines on anterior ventral half; surstylus small, conical, incurved, only with one long, two short setae, and three setulae near apex. Hypandrium V-shaped, 3/5 length of phallapodeme, with basal apodeme a little less than 1/4 length of side piece; pregonite with one seta and 3–4 sensillae, setulose along inner margin. Phallus almost as long as hypandrium, basiphallus twisted once, distiphallus tubular, minutely setulose on dorsal side. Ejaculatory apodeme large, strongly chitinized, 180  $\mu\text{m}$  long, 230  $\mu\text{m}$  in greatest width.

*Female.* Similar to male, but differing in the following points: abdomen more shining than in male; gena 1/7 of eye height; presutural dc 2/3 of first postsutural; ovipositor sheath weakly shining; wing length 2.0–2.2 mm.

Holotype male, Tokiwamatsu Imperial Villa, Shibuya-ku, Tokyo, 13.v.2003 (MT); abdomen and genitalia in polyethylene tubule with glycerol and pinned with the specimen. Paratypes: 2 females, same data as in holotype.

Distribution. Japan (Honshu).

Remarks. This species is unique in having the orange frontalia and lunule, narrow epistome, large first antennal flagellomere, and broad and anteriorly spinose cercus. The spinose cercus and tubular distiphallus of this species are similar to those of *Agromyza cinerascens* Macquart, 1835, but in this species the costa extends to  $M_{1+2}$  (ends at  $R_{4+5}$  in *cinerascens*), ors are two (only one in *cinerascens*) and fringe on the calypter is black (whitish in *cinerascens*).

Etymology. The specific name refers to the spinose cercus.

10. *Agromyza hendeli* Griffiths

*Agromyza hendeli* Griffiths, 1963: 136.

Akasaka Imperial Gardens: 1♀, 16.ix.2003 (MT).

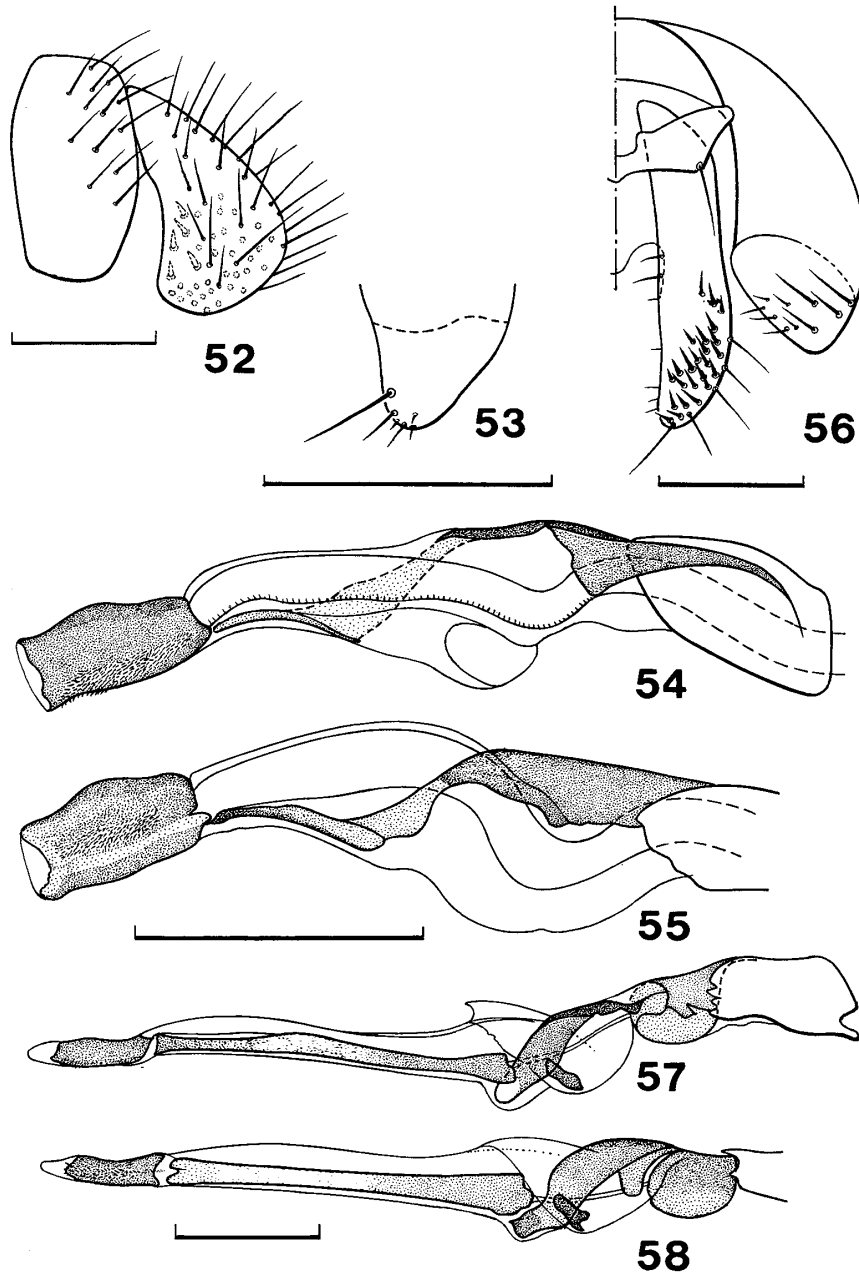
Distribution. Japan (Honshu), Europe. New to Japan.

Remarks. The female was exactly identified with *hendeli* by the original description. This black species is characterized by the large and cut away below first antennal flagellomere, 3–4 ori, the narrow

gena (1/11 of eye height) and black fringe on the calypter. The larva is known as the leaf-miner of *Phragmites communis* in Europe.

11. *Agromyza leptinomentula* Sasakawa, n. sp. (Figs. 56–58)

*Male*. Black; coloration of head such as frons and lunule same as in *A. cercispinosa* n. sp., but gena pale brownish yellow, face yellowish brown, epistome yellow, and antenna with scape and pedicel pale brownish yellow as well as in frontalia, first flagellomere brownish yellow and with dark brown spot on



Figs. 52–58. Male genitalia of *Agromyza cercispinosa* n. sp. (holotype, 52–55) and *Agromyza leptinomentula* n. sp. (holotype, 56–58). 52, 56, Epandrium and cercus, lateral (52) and caudal (56) views; 53, surstylus, inner view; 54, 57, phallus, lateral view; 55, 58, phallus, ventral view. Scale 0.1 mm.

outer side at base of arista, arista brownish black; palpus yellow; mesoscutum and scutellum mat, more densely gray-dusted than in *cercispinosa*; fore knee yellow, mid and hind knees indistinctly brownish yellow; coloration of calypter similar to that of *cercispinosa*.

Frons 1.4 times as wide as eye, slightly converging ventrally; ori two; parafacialia linearly visible before eye margin in profile; gena about 1/4 of eye height; first flagellomere 1.5 times as wide as genal height.

Mesoscutum with presutural dc 1/2 length of first postsutural, six rows of acr, prsc only a little shorter than fourth dc. Wing 2.2 mm long, with costal sections 2-4 as 4.2 : 1 : 0.9, r-m at distal 1/3 of discal cell, ultimate section of  $M_{3+4}$  slightly shorter than penultimate (11 : 15).

Other characters are similar to those of *cercispinosa* n. sp.

S6 3/4 as long as wide, excavated semicircularly on posterior 1/3; S5 2/3 length of S6, slightly narrower than S6; S7 present in a pair of narrow sclerites at postero-lateral margin of S6. Cercus narrow, with 25-26 spines on antero-ventral part; surstylus as wide as epandrium, incurved, with several setae and several setulae. Hypandrium 2/3 length of phallapodeme, without apodeme basally; pregonite with one seta and 4-5 sensillae. Phallus as long as hypandrium, basiphallus shorter than distiphallus, distal short tube only a little broader than distiphallic sclerite, with minute setulae on dorsal side. Ejaculatory apodeme with blade weakly chitinized except for margin, 120  $\mu$ m long, 160  $\mu$ m in greatest width.

*Female.* Similar to male, but epistome higher than that of male, gena 1/7 of eye height, first flagellomere twice as wide as genal height, presutural dc as long as first postsutural dc; wing length 2.5 mm; yellow knees of mid and hind legs distinct; ovipositor sheath mat, excepting shiny base.

Holotype male, Akasaka Imperial Gardens, Tokyo, 15.iv.2003 (MT); abdomen and genitalia in polyethylene tubule with glycerol and pinned with the specimen. Paratypes: 2 females, Tokiwamatsu Imperial Villa, Shibuya-ku, Tokyo, 1. & 15.iv.2003 (MT).

Distribution. Japan (Honshu).

Remarks. The general coloration and structures of male genitalia of this species are somewhat similar to those of *A. cercispinosa* n. sp. But, in this species, the face, gena and antenna are paler, mesoscutum is more mat, knees of posterior legs are distinctly pale, cercus is narrow, surstylus is broader and distiphallus is longer. This species differs also from European *Agromyza anthracina* Meigen, 1830, in the pale antenna, the position of cross-vein r-m and structures of the phallus.

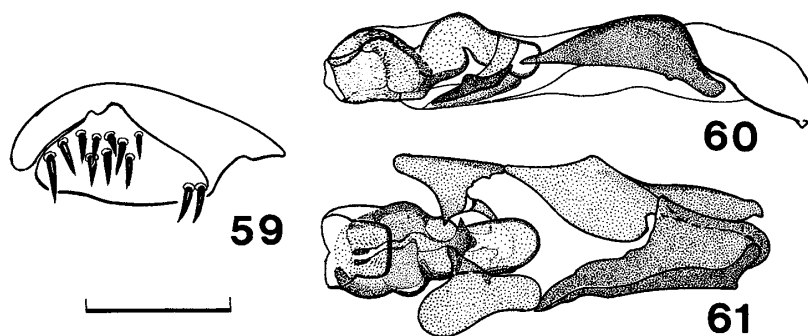
Etymology. The specific name refers to the slender distiphallus.

12. *Agromyza lunulata* Sasakawa (Figs. 59-61)

*Agromyza lunulata* Sasakawa, 1956: 124.

Akasaka Imperial Gardens: 1♂, 1.vii.2003 (MT).

Remarks. This shiny black species with black fringe on the calypter is allied to Holarctic *Agromyza lucida* Hendel, 1920, and European *A. prespana* Spencer, 1957, which are both leaf-miners on grasses. It was described by the female from Japan. The male differs from female in the following points: frons slightly converging ventrally; gena 1/9 of eye height; first flagellomere slightly longer than broad, with pile distinctly longer than that of female (as long as pubescence on arista); mesoscutum shiny, with 0 + 3 dc, first postsutural dc 2/3 length of the second, presutural dc weak (little longer than acr); wing 1.8 mm in length, costa extending to  $M_{1+2}$  but very weakly beyond  $R_{4+5}$  and with sections 2-4 in proportion of 2.4 : 1 : 0.7, r-m at middle of discal cell, ultimate section of  $M_{1+2}$  nearly thrice as long as penultimate, ultimate section of  $M_{3+4}$  2/3 length of penultimate; mid and hind knees indistinctly pale; abdomen distinctly shiny.



Figs. 59–61. Male genitalia of *Agromyza lunulata* Sasa. 59, Surstylus, inner view. Scale 0.1 mm. See Figs. 52–58.

Male genitalia: Surstylus with a group of 10–12 spines and two isolated spines; hypandrium slightly longer than half of phallopodeme, with basal apodeme short (less than 1/3 length of side piece); pregonite with 3–4 sensillae; phallus as long as hypandrium, basiphallus with a pair of divergent sclerites at ends of phallic sclerites, distiphallus well-developed; ejaculatory apodeme 160  $\mu\text{m}$  long, 170  $\mu\text{m}$  in greatest width. The male genitalia of this species are quite similar to those of Swedish *Agromyza anderssoni* Spencer, 1976 (Figs. 143–144), with the ochrous fringe on the calypter, and it seems that the two are closely related.

13. *Agromyza luteitarsis* (Rondani)

*Domomyza luteitarsis* Rondani, 1875; Bull. Soc. ent. ital. 7: 175.

Akasaka Imperial Gardens: 3♂2♀, 1.iv.2003 (SS, MT).

Distribution. Japan (Honshu), Europe. New to Japan.

Remarks. The male and female specimens were agreeable with the original description. The distinctive characters of the species are the yellowish brown ventral part of frons, yellow face and whitish epistome, orange-yellow antenna (first lagellomere variable from entirely yellowish brown to basal 2/3 of outer side or entirely black), wing with costa weakly extending to apex of  $M_{1+2}$  (not ending at  $R_{4+5}$  as stated by Spencer, 1976), and thorax and abdomen grayish black. Rye, barley and wheat are known as the larval hosts in Europe.

14. *Agromyza mobilis* Meigen

*Agromyza mobilis* Meigen, 1830: 169; Sasakawa, 1961: 316.

Akasaka Imperial Gardens: 7♀, 15. & 28.iv., 10.vi. & 30.ix.2003 (MT); 6.v.2003 (SS).

Distribution. Japan (Honshu, Shikoku), Europe, China.

Remarks. The larvae of this species mine the leaves of grasses.

15. *Agromyza potentillae* (Kaltenbach) バラハモグリバエ

*Phytomyza potentillae* Kaltenbach, 1864, Verh. naturh. Ver. preuss. Rheinl. 21: 351.

*Agromyza spiraeae* Kaltenbach, 1867: 104; Sasakawa, 1961: 325.

Akasaka Imperial Gardens: 2♂6♀, 11.x. & 6.xii.2002 (MT); 6.i., 15.iv. & 10.vi.2003 (MT).

Distribution. Japan; Holarctic.

Remarks. This is the common leaf-miner of wild rose (*Rosa multiflora*).

Subfamily Phytomyzinae

16. *Amauromyza plectranthi* Sasakawa

*Phytobia* (*Amauromyza*) *plectranthi* Sasakawa, 1961: 366.

Akasaka Imperial Gardens: 2♀, 11.x.2002 & 30.ix.2003 (MT).

Distribution. Japan (Honshu, Kyushu).

Remarks. The larva forms the blotch mine on the leaves of *Plectranthus* (= *Rabdosia*) spp. (Lamiaceae).

17. *Cerodontha* (*Cerodontha*) *denticornis* (Panzer) ムギキイロハモグリバエ  
*Chlorops denticornis* Panzer, 1806, Fauna. insect. german. init., Tab. 22.  
*Cerodontha denticornis* (Panzer), Hensel, 1932: 269; Sasakawa, 1961: 387.  
 Akasaka Imperial Gardens: 1♂1♀, 30.iv. & 13.v.2002 (SS).  
 Distribution. Japan (Hokkaido, Honshu), Europe.
18. *Cerodontha* (*Poemyza*) *incisa* (Meigen) オカザキハモグリバエ  
*Agromyza incisa* Meigen, 1830: 182.  
*Phytobia* (*Poemyza*) *okazakii* (Matsumura), Sasakawa, 1961: 372.  
*Cerodontha* (*Poemyza*) *incisa* (Meigen), Sasakawa and Imura, 1993: 342.  
 Akasaka Imperial Gardens: 4♀, 24.vi. & 2.ix.2003 (MT); 30.vi. & 18.xi.2003 (SS).  
 Tokiwamatsu Imperial Villa: 1♀, 13.v.2003 (MT).  
 Distribution. Japan; Holarctic.  
 Remarks. This is the barley pest in Japan; various kinds of grasses (Poaceae) are known as the larval hosts.
19. *Cerodontha* (*Dizygomyza*) *bimaculata* (Meigen) スズメノヤリハモグリバエ  
*Agromyza bimaculata* Meigen, 1830: 182.  
*Cerodontha* (*Dizygomyza*) *bimaculata* (Meigen), Nowakowski, 1962: 135; Sasakawa, 1961: 380 (as *luctuosa* Meigen).  
 Akasaka Imperial Gardens: 1♀, 30.vi.2003 (SS).  
 Distribution. Japan, Europe.  
 Remarks. This is the common leaf-miner of *Luzula* spp. (Juncaceae).
20. *Liriomyza* *decempunctata* Sasakawa ヤブランハモグリバエ  
*Liriomyza decempunctata* Sasakawa, 1961: 396.  
 Tokiwamatsu Imperial Villa: 1♂2♀, 4.vi.2003 (SS & MT).  
 Distribution. Japan (Honshu).  
 Remarks. This is the leaf-miner of *Liriope platyphylla* and *Ophiopogon japonicus* (Liliaceae).
21. *Liriomyza* *ptarmicae* de Meijere  
*Liriomyza ptarmicae* de Meijere, 1925, Tijdschr. Ent. 68: 286; Sasakawa, 1994: 60.  
 Akasaka Imperial Gardens: 1♀, 14.x.2003 (SS).  
 Distribution. Japan (Honshu); Holarctic.  
 Remarks. This is one of the commonest mugwort leaf-miners in Japan.
22. *Phytoliriomyza* *hilarella* (Zetterstedt)  
*Agromyza hilarella* Zetterstedt, 1848, Dipt. Scand. 7: 2776.  
*Phytoliriomyza hilarella* (Zetterstedt), Spencer, 1976: 296.  
 Imperial Palace: 2♀, 13.xi.2003 (SS).  
 Distribution. Japan (Honshu); Holarctic. New to Japan.  
 Remarks. This species is small, with the wing 1.6–2.0 mm in length, and is known as the leaf-miner of *Pteridium aquilinum* (Dennstaedtiaceae) in Europe. The female specimens examined were provided with only one ori and brown-tinged antenna, but were easily identical with other specific characters such as coloration and venation.

23. *Napomyza lateralis* (Fallén)  
*Phytomyza lateralis* Fallén, 1823, Phytom. Ocht. Suec., p. 3.  
 Akasaka Imperial Gardens: 1♀, 28.iv.2003 (MT).  
 Distribution. Japan (Hokkaido, Honshu); Holarctic.  
 Remarks. See Sasakawa (1955, 1961); oligophagous stem-borer of the Asteraceae.
24. *Phytomyza glechomae* Kaltenbach  
*Phytomyza glechomae* Kaltenbach, 1862: 21; Sasakawa and Imura, 1993: 348.  
 Imperial Palace: 1♀, 13.xi.2003 (SS).  
 Akasaka Imperial Gardens: 3♂6♀, 21.i., 5.ii. & 15.iv. 2003 (MT); 18.xi.2003 (SS).  
 Distribution. Japan (Honshu), Europe.
25. *Phytomyza japonica* Sasakawa ニッポンキクハモグリバエ  
*Phytomyza japonica* Sasakawa, 1953: 15.  
 Akasaka Imperial Gardens: 1♂3♀, 15. & 28.2003 (MT).  
 Distribution. Japan.  
 Remarks. This is the oligophagous leaf-miner of the Asteraceae.
26. *Chromatomyia nigra* (Meigen) ムギスジハモグリバエ  
*Phytomyza nigra* Meigen, 1830: 191.  
 Akasaka Imperial Gardens: 3♀, 18.iii. & 10.vi.2003 (MT); 18.xi.2003 (SS).  
 Distribution. Japan; Holarctic.  
 Remarks. This is the common leaf-miner of the Poaceae, especially barley (Sasakawa, 1953, 1954).
27. *Chromatomyia suikazurae* Sasakawa スイカズラハモグリバエ  
*Chromatomyia suikazurae* Sasakawa, 1993: 154.  
 Akasaka Imperial Gardens: 2♂7♀, 25.xi. & 24.xii.2002 (MT); 15. & 22.iv.2003 (SS).  
 Tokiwamatsu Imperial Villa: 1♂7♀, 6.xi.2002 (MT); 22.iv. & 25.xi.2003 (SS).  
 Distribution. Japan (Honshu, Kyushu).  
 Remarks. This is the common leaf-miner of suikazura, *Lonicera* spp. (Caprifoliaceae).

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#### Summary

This paper represents the taxonomic clarification of the dipterous material I had an opportunity for examination. The occurrence of two species of the Keroplatidae, 1 of the Macroceridae, 29 of the Mycetophilidae, 25 of the Lauxaniidae and 27 of the Agromyzidae, in the Imperial Palace, Akasaka Imperial Gardens and Tokiwamatsu Imperial Villa, Tokyo, are confirmed. Among them, 18 species are newly described, 2 species belonging to the genus *Neoempheria*, 1 to each of *Allactoneura*, *Clastobasis* and *Cordyla*, 3 to each of *Epicrypta* and *Mycetophila*, of the Mycetophilidae, 1 species to each of the genera *Homoneura* and *Luzomyza*, and 2 to *Itomyia*, of the Lauxaniidae, and 1 species to the genus *Japanagromyza* and 2 to *Agromyza*, of the Agromyzidae. Two species of the keroplatid fungus gnats, 7 of the mycetophilid fungus gnats, 2 of the lauxaniid flies and 4 of the agromyzid leaf-miners, are newly recorded from Japan.

## 要 約

東京医科歯科大学大学院の篠永 哲博士によって皇居, 赤坂御用地および常盤松御用邸で採集 (主としてマレーズトラップによる) されたハエ類のうち, ツノキノコバエ科, ヒゲタケカ科, ナミキノコバエ科, シマバエ科, ハモグリバエ科などの貴重な標本を調べる機会を得たので, ここに報告する. 分布を確認したツノキノコバエ 2 種, ヒゲタケカ 1 種, ナミキノコバエ 29 種, シマバエ 25 種, ハモグリバエ 27 種のうち, ナミキノコバエ (11), シマバエ (4) およびハモグリバエ (3) の計 18 種は新種として, また 15 種を日本初記録種としてそれぞれ記載した. なお手許にはナミキノコバエおよびクロバネキノコバエ両科の未同定標本が多くあるが, 逐次報告することにする.

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