Studies on the Calypterate Muscoid flies from Japan XII. One new and two newly recorded species of sarcophagid flies (Diptera: Sarcophagidae)

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(Received: 25 April 2004; Accepted: 11 August 2004)

Abstract: One new species of the sarcophagid fly, *Metopia togashii* sp. nov. is described and illustrated from Honshu, Japan. Two species, *Myorhina villeneuvei* (Böttcher) and *M. tsintaoensis* (Ye) are newly recorded for the first time from Japan. These two little known species are redescribed and their male genitalia are illustrated. Surstyli and cerci of the previously known species, *Myorhina sexpuncta* (Fabricius) and *M. olsouffjevi* (Rohdendorf), are also illustrated together with those of *M. tsintaoensis* for identification purposes.

Key words: Sarcophagidae, *Metopia*, *Myorhina*, new species, new record, Japan

During the course of study, I had a chance to examine the collections of Japanese sarcophagid flies made by Drs. I. Togashi and H. Shima and found three interesting species, one of which is new to science and two are new to Japan. The new species belongs to the genus *Metopia* Meigen of the subfamily Miltogramminae and is characteristic in having yellowish basicosta and setulose vein R₁. The two newly recorded species are members of the subfamily Sarcophaginae and belong to the genera *Myorhina* Robineau-Desvoidy, 1830 (= *Pierretia* Robineau-Desvoidy, 1863). In Pape's catalogue (1996), *Myorhina* Robineau-Desvoidy, 1830 was classified in the same group previously known as *Pierretia* Robineau-Desvoidy, 1863 and treated as a subgenus of *Sarcophaga* s. lat. Here in the present paper, I resurrected it to a full genus following the previous authorities (Rohdendorf, 1937; Fan, 1965; Kano et al., 1967; Lopes, 1977; Verves, 1986; Nandi, 2002) for practical purposes.

The present paper deals with the description of the new species and redescriptions of these two newly recorded species, together with illustrations of male genitalia. Surstyli and cerci of *Myorhina olsouffjevi* (Rohdendorf) and *M. sexpunctata* (Fabricius) are also illustrated because these characters are very useful to separate *M. tsintaoensis* from them.

DESCRIPTION

Metopia togashii sp. nov.

(Japanese name: Togashi-yadorinikubae)

(Figs. 1, 2)

♂.-Head: dichoptic, eyes bare, large, separated at level of posterior ocelli by 0.34 of head width; frons parallel-side, but slightly narrowed towards vertex; frontal vitta broad, narrowed towards lunule, black, slightly reddish anteriorly, slightly more than 4× as broad as width of one of

Fig. 1. Habitus photographs of *Metopia togashii* sp. nov., holotype ♂ (length: 7.0 mm). Left, dorsal view; right, lateral view.

parafrontalia at level of anterior ocellus, ratio of width of anterior to posterior parts 1: 1.6; parafrontalia silver-dusted, darkened at vertex, sparsely setulose on entire length, provided with ca. 10 pairs of *ori*; *ors* 2+2; *oc* strong; *poc* parallel; *iv* and *ov* well developed; 1 occipital hair present; occiput grey-dusted; parafacial bare except for a few black setulae near antennal base, with a complete row of strong black bristles along anterior margin; vibrissa strong; vibrissarium and mediana reduced; gena very narrow, fuscous to black, grey-dusted, clothed with fine black hairs, less than 0.04 height of head; 2nd antennal segment orange; 3rd antennal segment fuscous black, ca. 7× as long as 2nd; arista fuscous black, pubescent, dilated on basal 1/2, shorter than length of 3rd antennal segment. Palpus slender, fuscous black, subequal to length of prementum, with black hairs apically.

Thorax: fuscous black, densely grey-dusted; humeral and postalar calli more or less reddish brown; mesonotum (scutum) with 2 narrow submedian and broad lateral vittae; propleuron, prosternum and suprasiracular convexity bare; postalar declivity bare, but with a few short black hairs just below posterior *pa*; undersurface of scutellum without hairs except for both lateral sides; notopleuron with single fine, rather long hair between anterior and posterior *n*. Chaetotaxy: *ac* 2+1, presutural one fine, postsutural one weakly developed as prescutellars; *dc* 2+3; *ia* 1+3; *h* 3; *ph* 2; *prs* 1; *sa* 3; *pa* 2; *n* 2; *sc* 3+1; *st* 1+1; *pp* 2; *pst* 2.

Wing: hyaline; veins yellowish brown; epaulet blackish; basicosta yellowish white; *R*₁ hairy on more than basal 1/2 above; *R*₂₊₃ hairy beyond r-m above, a few black hairs on basal node below; cell *R*₅ open; *M*₁₊₂ bent with right angle; *CS*₂+*CS*₃: *CS*₄: *CS*₅: *CS*₆=0.69+0.31: 0.87: 0.38: 0.07. Alar and thoracic squamae both yellowish white. Halter yellow.

Legs: fuscous black, more or less grey-dusted on femora; claws and pulvilli small in size; fore tibia with 3 short *ad* medially and 1 *p* at apical 1/3; mid femur with 3-4 *a* on basal 1/2; mid tibia with an incomplete row of short *pd*; hind tibia dorso-ventrally curved, with incomplete rows of *ad* and *pd*, with 3 *av* medially.

Abdomen: black, more or less silver-grey dusted; tergite 1+2 largely blackish, thinly grey-dusted in part; tergites 3 with large triangular glossy spot posteriorly; tergites 4-5 with broad

Fig. 2. *Metopia togashii* sp. nov., male genitalia.—a, epandrium, surstylus and cercus, lateral view; b, cercus and surstylus, caudal view; c, aedeagus, left lateral view; d, aedeagus, posterior view; e, pregonite and postgonite, left lateral view; f, sternite 5, ventral view. Short bar of 0.2 mm only for "f".

marginal band and fine median vitta; tergite 3 with a row of fine decumbent marginal bristles; tergite 4 with strong median marginal and several lateral marginal bristles; tergite 5 with a row of erect marginal bristles. Hypopygium rather small in size, fuscous brown. Male genitalia as shown in Fig. 2.

Length: 7.0 mm.

Type material. Holotype: ♂, "Holotype [red card]//Kashima/Kaga-shi/Ishikawa Pref./4.ix.1987/I. TOGASHI//Metopia ♂/togashii/sp. nov./ Det. H. Kurahashi [red perimeter]", NSMT-Dip-4330, with a small tube containing dissected genitalia.

Etymology. The specific epithet is named in honour of Dr. I. Togashi, Tsurugi-machi, Ishikawa Pref., Japan.

Remarks. The present new species is morphologically similar to *Metopia grandii* Venturi, 1953, but easily distinguished from the previously known species by the hairy R_1 and yellow basicosta.

Bionomics. Unknown.

Distribution. Japan (Honshu).

Kurahashi's key (1970: 105) to the Japanese species of *Metopia* should be slightly modified in order to incorporate the present new species.

Key to *Metopia togashii* sp. nov.

4.	Basicosta black	5
–	Basicosta yellow	5a
5.	Vein R_1 hairy	<i>M. nudibasis</i> (Malloch)
–	Vein R_1 bare	<i>M. sauteri</i> (Townsend)
5a.	Vein R_1 hairy	<i>M. togashii</i> sp. nov.
–	Vein R_1 bare	6

REDESCRIPTION

Myorhina villeneuvei (Böttcher) (Japanese name: Tairiku-konikubae) (Fig. 3)

Sarcophaga villeneuvei Böttcher, 1912: 347. Type locality: "Berlin, Schlesien, Westpreußen, Franzensbad" [Germany].

This species closely resembles to *Myorhina josephi* (Böttcher) and *M. crinitula* (Quo) in general appearance, but it is easily differentiated by having no postsutural *ac* and such a characteristic shape of aedeagus as shown in Fig. 3b.

♂.-Head: dichoptic; frons index 0.25–0.26 ($n=3$); frontal vitta black; parafrontalia and parafacialia silver-grey pollinose; parafrontalia darkened toward vertex, provided with ca. 5–7 *ori*; parafacialia with fine black setulae above, with at least 3 strong bristles below; *ov* well developed, longer than 1/2 length of *iv*; antenna black, 3rd segment slightly longer than $2\times$ as long as 2nd; arista short plumose; gena black, grey pollinose, with numerous black hairs, 0.18 of head height and 0.22 of eye height; postgena with numerous yellowish brown hairs intermixed with some black one along anterior oral margin; occiput with 3 rows of black postocular setae. Palpus black, slender.

Thorax: black, grey pollinose, with 3 broad black longitudinal stripes on dorsum; propleuron

Fig. 3. *Myorhina villeneuvei* (Böttcher), male genitalia.—a, pregonite and postgonite, left lateral view; b, aedeagus, left lateral view; c, surstylus and cercus, outline in left lateral view.

bare; prosternum hairy on posterior 2/3; mesothoracic spiracle blackish, metathoracic one brownish. Chaetotaxy: *ac* 2+0; *dc* 3+3; *ia* 0+2; *h* 3–4, at least 3 strong; *ph* 1; *prs* 1; *sa* 3; *n* 4; *pa* 2; *sc* 2+1, apicoscutellar bristle absent.

Wing: entirely brownish hyaline; epaulet black; basicosta creamy white; R_1 bare above; R_{4+5} with row of 9–10 setae extending almost entire length from basal node to r-m above; basal node of R_{2+3} and R_{4+5} with several black setae below; CS_3 shorter than length of CS_5 ; CS_5 with short spines along more than basal 1/2 of anterior margin. Alar and thoracic squamae both creamy white. Halter brownish.

Legs: black; fore femur with each row of strong *pd*, *p* and *pv*; fore tibia with 2–3 short *ad* basally, 1 *p* at apical 1/3; mid femur with 3–4 short *a* medially, 2–3 *p-pd* apically, rows of *av* and *pv* including 2–3 strong ones, without long hairs exceeding width of femur on posteroventral surface; mid tibia with 2 *ad*, 2–3 *pd* medially, 1 *p* at apical 1/3, 1 strong *v* at apical 1/3; hind femur with each row of strong *a*, *ad* and *av*, 2 short *p-pd* apically, a row of long *pv* and hairs on posteroventral surface; hind tibia with a row of *ad* including 2 strong ones, 2 *pd*, 2 *av*, without fringe of long hairs, but sometimes with ca. 3 moderately long hairs on middle part of posteroventral surface.

Abdomen: black, silver-grey pollinose, tessellate; tergite 3 with strong median marginal bristle; tergites 4–5 with a row of erect marginal bristles; sternite 5 V-shaped; GS_1 black, greyish pollinose, without marginal bristle; GS_2 black shining.

Hypopygium: as shown in Fig. 3.

♀.—No available material.

Length: 5.5 mm.

Specimens examined. HOKKAIDO: 3♂, Mt. Raus, 200–900 m, 3. viii. 1967, H. Shima (NIID).

Bionomics. Unknown.

Distribution. Japan (Hokkaido). Widely spread in the Palaearctic Region.

Myorhina tsintaoensis (Ye)

(Japanese name: Chintao-konikubae)

(Fig. 4)

Pierretia tsintaoensis Ye, 1965: 300. Type locality: Tsin-Tao, Shandong, China.

Fig. 4. *Myorhina tsintaoensis* (Ye), *M. sexpunctata* (Fabricius) and *M. olsoufjevi* (Rohdendorf), male genitalia.—a-c, *M. tsintaoensis*; a, pregonite and postgonite, left lateral view; b, aedeagus, left lateral view; c, surstylus and cecus, outline in left lateral view; d, surstylus and cecus of *M. sexpunctata*, outline in left lateral view; e, surstylus and cercus of *M. olsoufjevi*, outline in left lateral view. Arrows show criteria.

This species very closely resembles to *Myorhina sexpunctata* (Fabricius) and *M. olsoufjevi* (Rohdendorf) in general appearance. It is very difficult to distinguish them without examining male genitalia. The criteria are shown by arrows in Figs. 4c-d.

♂.-Head: dichoptic; frons index 0.17 ($n=1$); frontal vitta black; parafrontalia and parafacialia silver-grey pollinose; parafrontalia darkened toward vertex, provided with ca. 10-11 *ori*; parafacialia with fine, rather long black setulae on entire length, at least lower 3 strong; *ov* absent; antenna black, 3rd segment slightly shorter than $2\times$ as long as 2nd; arista plumose; gena black, grey pollinose, with numerous black hairs, 0.15 of head height and 0.18 of eye height; postgena largely clothed with black hairs intermixed with 1-2 brownish ones on posterior margin; occiput with more than 3 irregular rows of black setae. Palpus blackish, slender.

Thorax: black, grey pollinose, with 3 broad black longitudinal stripes on dorsum; propleuron bare; prosternum hairy on posterior 2/3; mesothoracic spiracle blackish, metathoracic one fuscous brown. Chaetotaxy: *ac* 3-4 + 1-2, presuturals weakly developed, irregular in row, but prescutellars well developed; *dc* 4+3; *ia* 1+3; *h* 3-4, at least 3 strong; *ph* 2; *prs* 1; *sa* 3; *n* 4; *pa* 2; *sc* 3+1, apicocutellar bristle present.

Wing: hyaline, slightly brown tinged along veins basally; epaulet black; basicosta creamy white; R_1 bare above; R_{4+5} with row of 6-7 setae extending on 1/2 way from basal node to r-m above; basal node of R_{2+3} and R_{4+5} with a few black setae below; CS_3 subequal to length of CS_5 ; CS_5 with short spines along more than basal 2/3 of anterior margin. Alar and thoracic squamae both creamy white. Halter brownish.

Legs: black; fore femur with each row of strong *pd*, *p* and *pv*; fore tibia with 2–3 short *ad* basally, 1 *pd* at basal 1/3, 1 *p* at apical 1/3; mid femur with 1–2 short *a* medially, 2–3 *p–pd* apically, rows of *av* and *pv* including 2–3 strong ones, with some long hairs exceeding width of femur on posteroventral surface at base; mid tibia with 2 *ad*, 2–3 *pd* medially, 1 *p* at apical 1/3, 1 strong *v* at apical 1/3; hind femur with each row of strong *ad* and *av*, irregular row of *a*, 2 short *pd–p* apically, row of long *pv* and hairs on posteroventral surface; hind tibia with a row of *ad* including 2 strong ones, 2 *pd*, 1 *av*, without fringe of long hairs on anteroventral surface except for 1–2 fine long hairs, but with fringe of moderately long hairs on apical 2/3 of posteroventral surface.

Abdomen: black, silver-grey pollinose, tessellate; tergite 3 with strong median marginal bristle; tergites 4–5 with a row of erect marginal bristles; sternite 5 V-shaped; GS₁ black, greyish pollinose, with some weakly developed lateral marginal bristles; GS₂ black shining.

Hypopygium: as shown in Fig. 4.

♀.—No available material.

Length: 7.5 mm.

Specimen examined. HOKKAIDO: 1♂, Ashoro, Berabonai, 200–900 m, 22. vii. 1967, H. Shima (NIID).

Bionomics. Unknown.

Distribution. Japan (Hokkaido). PALAEARCTIC—China (Shandong).

ACKNOWLEDGEMENTS

The present author wishes to express his sincere thanks to Drs. I. Togashi, Tsurugimachi, Ishikawa Pref., Japan and H. Shima, Biosystematic Laboratory, Kyushu University, Fukuoka, for offering me the relevant material from their collections. Thanks are also due to Dr. M. Kobayashi, Director, Department of Medical Entomology, National Institute of Infectious Diseases, for providing working facilities.

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