

The genus *Desmometopa* Loew (Diptera, Milichiidae) of Japan

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Abstract: The Japanese species of the genus *Desmometopa* Loew are revised. Of three known species from Japan, two species reported as *D. tarsalis* Loew and *D. tristicula* Hendel are proven to be *D. microps* Lamb and *D. sordida* Fallén, respectively. Two species, *D. m-nigrum* (Zetterstedt) and *D. varipalpis* Malloch are newly recorded from Japan. Short redescriptions of five species are added with illustrations of head, pleuron and male genitalia. A key to the Japanese species is presented.

INTRODUCTION

The flies of the genus *Desmometopa* Loew are distributed in all faunal regions. The adults are found in the vicinity of the cattle house, sewage and decaying material, and they frequently visit flowers. Some species are synanthropic and often enter houses, rooms and latrines, attracted to some odors (Sabrosky, 1983). In Japan, some species are known to enter the food factory and to be attracted to a certain organic solvent. The larvae are saprophagous or coprophagous, feeding on dung, manure, compost, sewage and a wide variety of decaying material.

After Hennig's revision (1937), the Palaearctic and Oriental species were catalogued by Papp (1984) and Sabrosky (1977), respectively. The world *Desmometopa* were reviewed by Sabrosky (1983) and Papp (1993) added one species from the Palaearctic Region. In Japan Fukuhara (1965) listed only specific names of 3 species, but thereafter there is virtually no taxonomic work of the Japanese *Desmometopa*.

In the present paper, I revise the Japa-

nese species of the *Desmometopa* with 2 newly recorded species and give an identification key for the Japanese species.

Genus *Desmometopa* Loew [Japanese name: Kurokobae-zoku]

Desmometopa Loew, 1866, Berlin Ent. Ztschr. (1865) 9: 184. Type-species: *Agromyza m-atrum* Meigen, 1830: Syst. Besch. 6: 170 (by designation of Hendel, 1903: Wien. Ent. Ztg. 22: 251 [= *sordida* (Fallén, 1820)]).

Diagnosis. Eyes large; frons with black M-shaped frontal vitta delineated by the frontal triangle and the fronto-orbital and inter frontal plates (Fig. 1); each fronto-orbital plate with 2 latero-clinate upper orbital and 2 or 3 meso-clinate lower orbital setae; antennae usually small; thorax black, with grayish pollen; mesonotum densely covered with short bristles; pleuron usually bare and with polished areas; subcostal break not deeply incised; legs without striking characteristics; male epandrium bears surstyli which are comparatively slender; male cerci unusually large.

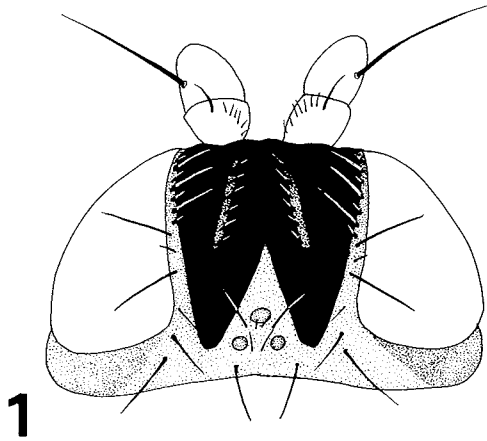


Fig. 1. Male head of *Desmometopa microps*, dorsal view.

Key to the Japanese species of the genus *Desmometopa* (♂ ♀)

1. Gena strikingly broad, exceeding 1/4 height of an eye (Fig. 2); polished spot on pleuron relatively large and bilobed anterodorsally (Fig. 8) *D. m-nigrum* (Zetterstedt)
- Gena not strikingly broad, not exceeding 1/4 height of an eye; polished spot on pleuron small and not bilobed 2
2. Postgenal area broad in both sexes (Figs. 3, 4), and in male postorbital area broad to vertex; basal one-third of palpi light brown *D. microps* Lamb
- Postgenal area not broad in both sexes 3
3. Knob of halter brown to black; gena black in ground color and subocular crescent shining and distinct; palpi clavate and wholly black in both sexes (Fig. 5) *D. sordida* (Fallén)
- Knob of halter yellow to light brown; gena yellow to brown; male palpi broadly expanded and capitate or fusiform 4
4. Gena yellowish in ground color and comparatively narrow about 1/7 to 1/8 height of an eye; male palpi capitate, rounded distally (Fig. 6) *D. singaporensis* Kertész
- Gena brownish in ground color and comparatively broad about 1/5 to 1/6 height of an eye (Fig. 7); male palpi

fusiform *D. varipalpis* Malloch

Desmometopa m-nigrum (Zetterstedt, 1848)
 (Japanese name: Hohobuto-kurokobae)
 Figs. 2, 8, 11, 12

Agromyza m-nigrum Zetterstedt, 1848,
 Dipt. Scand. 7: 2743.

Desmometopa m-nigrum: Malloch, 1924,
 Proc. Linn. Soc. N. S. Wales 49: 331.

♂ ♀. 1st and 2nd antennal segments dark brown, 3rd segment black; gena especially broad, exceeding 1/4 height of an eye and with large triangular polished subocular crescent (Fig. 2); postgena also with polished area; palpi clavate and yellow, only apical area black (Fig. 2); mesonotum and pleuron black, with dark grayish pollen; large bilobed shining spot present in area from anterior part of sternopleuron to mesopleuron (Fig. 8); wings hyaline, slightly tinged with milky white; halteres yellow; all legs black; abdomen black, with grayish pollen; male epandrium broad in lateral view (Fig. 11); male cerci large and expanded (Figs. 11, 12).

Specimens examined. [Hokkaido]—24♂, 10♀, Obihiro, 19 July 1994, M. Iwasa; 49♂, 4♀, same locality, 21 July 1994, M. Iwasa.

Distribution. Cosmopolitan. New to Japan (Hokkaido).

Bionomics. The adult flies were mainly collected on flowers neighboring the swine hut. Chicken dung is known as rearing medium of this species (Sabrosky, 1983).

Remarks. This species is a distinctive member of the genus in having unusual broad genae.

Desmometopa microps Lamb, 1914
 [Japanese name: Minami-kurokobae]
 Figs. 1, 3, 4, 9, 13

Desmometopa microps Lamb, 1914, Trans. Linn. Soc. London, Ser. 2 (Zool.) 16: 364.

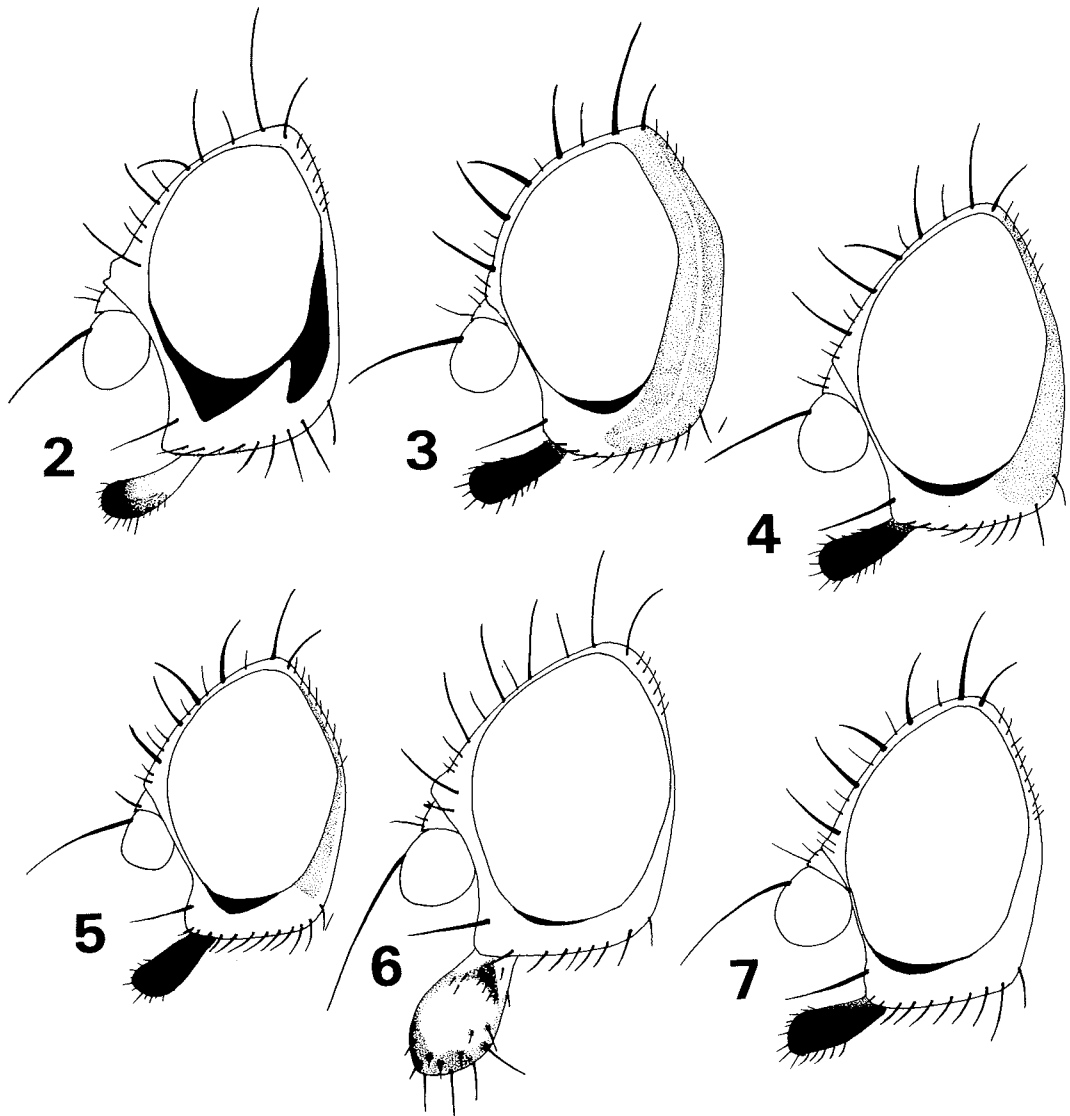
Desmometopa microps: Sabrosky, 1983, Contr. Amer. Ent. Inst. 19: 25; Papp, 1984, Catalog. Dipt. Palae. Reg. 10: 114.



Figs. 2-7. (female);

♂ ♀. Head frontal vitta 1); antennae broad and s 3, 4; dotted area broad t and black, brown (Figs. black, with spot in area pleuron to r

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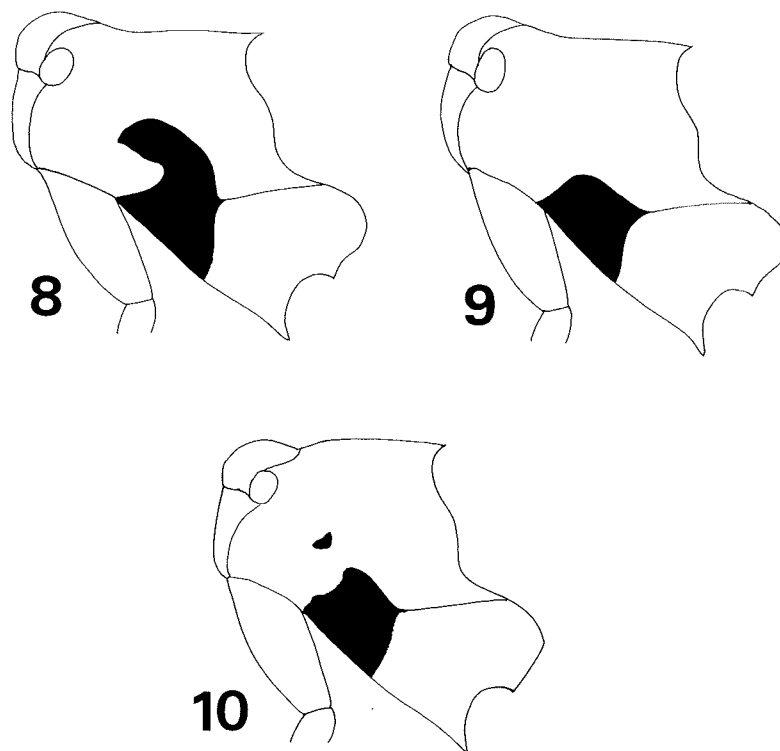
Figs. 2-7. Head, lateral view — 2, *Desmometopa m-nigrum*; 3, *D. microps* (male); 4, *D. microps* (female); 5, *D. sordida*; 6, *D. singaporensis*; 7, *D. varipalpis*.

♂ ♀. Head black; frons with M-shaped frontal vitta subshining velvet black (Fig. 1); antennae wholly black; postgenal area broad and subshining in both sexes (Figs. 3, 4; dotted area) and in male postorbital area broad to vertex (Fig. 3); palpi clavate and black, only basal one-third light brown (Figs. 3, 4); mesonotum and pleuron black, with dark grayish pollen; shining spot in area from anterior part of sternopleuron to mesopleuron rounded lozenge-

shaped (Fig. 9); wings hyaline; halteres brown; all legs black; abdomen black, with grayish pollen; male epandrium like as Fig. 13; posterior view of epandrium and cerci similar to those of *sordida* (Fig. 15).

Specimens examined. [Hokkaido]—1♂, 1♀, Memuro, 12 June 1988, A. Iwasa; 2♂, Toyonuka, 3 July 1978, M. Iwasa; 1♂, 1♀, Obihiro, 23 July 1994, M. Iwasa; 3♂, 10♀, Obihiro, 1-5 Aug. 1994, M. Iwasa. [Honshu]—1♂, 1♀, Nurukawa,

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Figs. 8-10. Thoracic pleuron (left) — 8, *Desmometopa m-nigrum*; 9, *D. microps*; 10, *D. sordida*.

Aomori Pref., 5 Aug. 1953, S. Kato; 4♂, 5♀, Hayachine, Iwate Pref., 29 Jul. 1970, T. Saigusa; 1♂, Maoka, Tochigi Pref., 7 Aug. 1981, K. Kanmiya; 3♂, Tokyo, 26 Jul. 1953, N. Fukuhara; 3♂, Tokyo, 24-25 Aug. 1954, N. Fukuhara. [Kyushu]—72♂, 10♀, Nii, Tsushima Is., Nagasaki Pref., 20 Sept. 1970, K. Kanmiya; 12♂, 3♀, Kuwa, same locality, 21 Oct. 1970, K. Kanmiya; 5♂, 2♀, Aji, same locality, 20 Oct. 1970, K. Kanmiya; 3♂, 3♀, Tsutsu, same locality, 21 Oct. 1970, K. Kanmiya; 2♂, Kurume, Fukuoka Pref., 5 May 1975, K. Kanmiya. [Ryukyu Is.]—4♂, Funaura, Iriomote Is., 15 May 1991, K. Kanmiya; 1♂, 1♀, Sonai, Iriomote Is., 15 Mar. 1991, K. Kanmiya; 2♂, 8♀, Ishigaki Is., 12 Oct. 1988, K. Kanmiya.

Distribution. Afrotropical and Oriental Regions and bordering area of south Palearctic Region. Japan (Hokkaido, Honshu, Kyushu and Ryukyu Is.).

Bionomics. This species is commonly found in the vicinity of the cattle house

and sewage water throughout Japan. The adults frequently visit flowers.

Desmometopa sordida (Fallén, 1820)

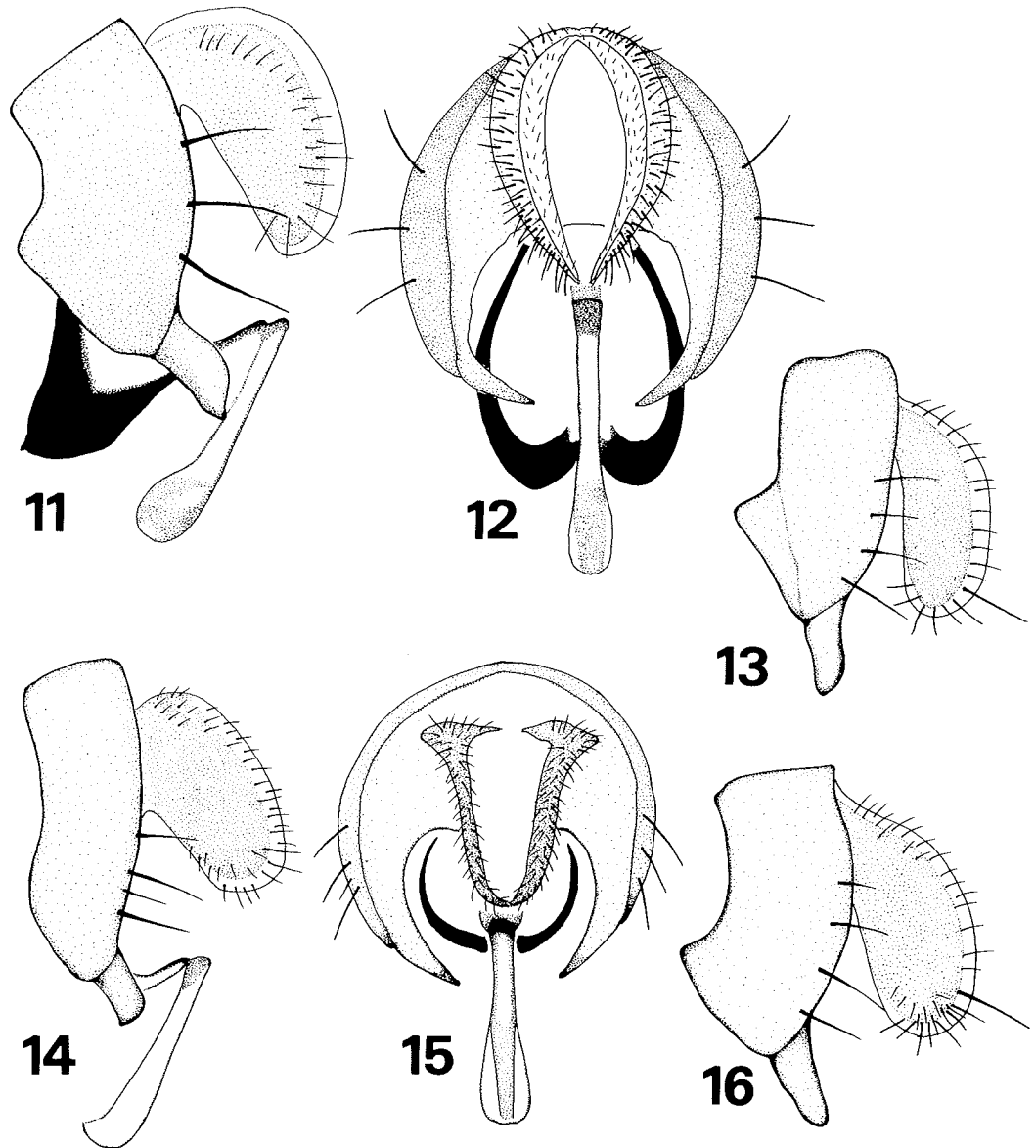
[Japanese name: Hime-kurokobae]

Figs. 5, 10, 14, 15

Madiza sordida Fallén, 1820, *Oscinides Sveciae*, p. 10.

Desmometopa sordida: Sabrosky, 1983, *Contr. Amer. Ent. Inst.* **19**: 47; Papp, 1984, *Catalog. Palae. Reg.* **10**: 114.

♂♀. Head black; frons with M-shaped frontal vitta subshining velvet black; antennae wholly black; gena nearly 1/6 height of an eye, with rounded subocular crescent (Fig. 5); palpi clavate and wholly black (Fig. 5); mesonotum and pleuron black, with dark grayish pollen; a large shining spot and a small shining dot present in area from anterior part of sternopleuron to mesopleuron (Fig. 10); wings hyaline; halteres brown, darkened basally; coxae, femora and tibiae black; tarsi light



Figs. 11–16. Male genitalia — 11, *Desmometopa m-nigrum*, lateral view (left); 12, ditto, posterior view; 13, *D. microps*, lateral view (left); 14, *D. sordida*, lateral view (left); 15, ditto, posterior view; 16, *D. singaporensis*, lateral view (left).

brown, darkened in 4th and 5th segments; abdomen black, with grayish pollen; male epandrium slender in lateral view (Fig. 14).

Specimens examined. [Hokkaido]—20♂, 5♀, Obihiro, 23 Jul. 1994, M. Iwasa; 2♂, 3♀, Obihiro, 1 Aug. 1994, M. Iwasa. [Honshu]—1♂, 1♀, Kyoto, ? June 1964, S. Ishii. [Kyushu]—4♂, Mt. Korasan, Kuru-

me, Fukuoka Pref., 8 May 1978, K. Kanmiya; 5♂, 1♀, Nii, Tsushima Is., Nagasaki Pref., 20 Sept. 1972, K. Kanmiya; 2♂, 5♀, Kuwa, same locality., 21 Oct. 1970, K. Kanmiya; 1♂, 4♀, Tsutsu, same locality, 21 Oct. 1970, K. Kanmiya. [Ryukyu Is.]—2♀, Ishigaki Is., 12 Oct. 1988, K. Kanmiya.

Distribution. Palearctic and Holarctic Regions. Japan (Hokkaido, Honshu, Kyu-

shu and Ryukyu Is.).

Bionomics. The adult flies were collected on flowers near hen house. They were also attracted to odor of a certain organic solvent.

Remarks. Females of *D. sordida* Fallén and *D. microps* Lamb are often indistinguishable in teneral specimens with collapsed gena, but the former can be distinguished from the latter by having wholly black palpi.

***Desmometopa singaporensis* Kertész, 1899**
[Japanese name: Yamato-kurokobae]

Figs. 6, 16

Desmometopa singaporensis Kertész, 1899,
Természetr. Füz. **22**: 194.

Desmometopa tristicula Hendel, 1914,
Suppl. Ent. **3**: 96.

Desmometopa palpalis de Meijere, 1914,
Tijd. Ent. **57**: 251.

Desmometopa singaporensis: Sabrosky,
1983, Contr. Amer. Ent. Inst. **19**: 44;
Papp, 1984, Catalog. Palae. Reg. **10**: 114.

♂. Head black; frons with M-shaped frontal vitta subshining velvet black; fronto-orbital plates relatively narrow; antennae wholly black; gena not broad, about 1/10 height of an eye (Fig. 6); palpi yellow, broadly expanded, and with brownish pattern (Fig. 6); mesonotum and pleuron black, with dark grayish pollen; shape of shining spot in area from anterior part of sternopleuron to mesopleuron similar to that of *microps* (Fig. 9); wings hyaline; halteres yellow, darkened basally; all legs black; abdomen with grayish pollen; male epandrium like as Fig. 16 in lateral view; posterior view of male epandrium and cerci similar to those of *sordida* (Fig. 16).

Specimens examined. [Honshu]—1♂, Nishiikuta, Kanagawa Pref., 10 Oct. 1961, N. Fukuhara. [Kyushu]—2♂, Nii, Tsushima Is., Nagasaki Pref., 20 Sept. 1972, K. Kanmiya; 1♂, Kuwa, same locality, 21 Oct. 1970, K. Kanmiya. [Ryukyu Is.]—1♂, Ohtomi, Iriomote Is., 13–15 Oct. 1988, K. Kanmiya.

Distribution. Widely distributed in the Old World Tropics, the Pacific Islands and Neotropical Region. Japan (Honshu, Kyushu and Ryukyu Is.).

Bionomics. This species is rare in Japan. According to Sabrosky (1983), this species was collected on decaying giant African snail and human excrement.

***Desmometopa varipalpis* Malloch, 1927**

[Japanese name: Nami-kurokobae]

Fig. 7

Desmometopa varipalpis Malloch, 1927,
Proc. Linn. Soc. N. S. Wales **52**: 7.

Desmometopa varipalpis: Sabrosky, 1983,
Contr. Amer. Ent. Inst. **19**: 41; Papp,
1984, Catalog. Palae. Reg. **10**: 115.

♀. Head black; frons with M-shaped frontal vitta subshining velvet black; antennae wholly black; gena not broad, about 1/7 height of an eye and with narrow polished subocular crescent (Fig. 7); palpi clavate, anteroventrally black and posterodorsally yellow (Fig. 7); mesonotum and pleuron black, with dark grayish pollen; shape of shining spot in area from anterior part of sternopleuron to mesopleuron similar to that of *microps* (Fig. 9); wings hyaline; halteres yellow, darkened basally; femora and tibiae black, but middle and hind 1st to 3rd tarsi yellow; abdomen black with grayish pollen.

♂. Not available. According to Sabrosky (1983), male palpi are yellow, broadly expanded and fusiform.

Specimens examined. [Hokkaido]—1♀, Sapporo, 25 Aug. 1986, A. Iwasaki; 1♀, Sapporo, 2 Sept. 1986, A. Iwasaki. [Honshu]—1♀, Hirosaki, Aomori Pref. 4 Aug. 1953, I. Hattori; 1♀, Nishigahara, Tokyo, 14 Sept. 1960, N. Fukuhara; 1♀, same locality, 30 Aug. 1961, N. Fukuhara; 1♀, same locality, 8 Oct. 1962, N. Fukuhara; 1♀, same locality, 2 Sept. 1967, N. Fukuhara; 1♀, same locality, 5 Aug. 1968, N. Fukuhara; 5♀, Sugunami, Tokyo, 26 Jul. 1953, N. Fukuhara; 2♀, Hatsudai, Tokyo, 15 Aug. 1962, T. Okazaki. [Kyushu]—6♀,

Nii, Tsushima Is., Nagasaki Pref., 20 Sept. 1972, K. Kanmiya. [Ryukyu Is.]—2 ♀, Ishigaki Is., 12 Oct. 1988, K. Kanmiya.

Distribution. Widely distributed in all faunal regions. New to Japan (Hokkaido, Honshu, Kyushu and Ryukyu Is.).

Bionomics. Unknown in Japan. It is known that the adult flies are attracted to some odors; they enter operating and surgery rooms in hospital and a dairy cheese room; and also gather around outdoor latrine, septic tank and sewage water (Sabrosky, 1983).

Remarks. Females of *D. varipalpis* Malloch and *D. singaporensis* Kertész are closely similar each other, but they are distinguishable by the characteristics mentioned in the key if the specimens are not teneral.

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摘 要

日本産クロコバエ属 (Genus *Desmometopa*) (双翅目, クロコバエ科) について

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クロコバエ科 (Milichiidae) の Genus *Desmometopa* (クロコバエ属; 新称) のハエの日本産の種については、福原 (1965) が 3 種を記録して以来、分類学的研究はなされていなかった。本報告では、いまままで記録されていた 3 種について次のように整理し、さらに 2 新記録種を追加した。 *D. tarsalis* Loew (ミナミクロコバエ) と同定されていたものは *D. microps* Lamb で、 *D. tristicula* Hendel (ヒメクロコバエ) と同定されていたものは *D. sordida* Fallén であることがわかった。また、 *D. palpalis* de Meijere (ヤマトクロコバエ) は、現在 *D. singaporensis* Kertész の synonym になっている。日本新記録種は、 *D. m-nigrum* (Zetterstedt) (ホホブトクロコバエ; 新称) と *D. varipalpis* Malloch (ナミクロコバエ; 新称) の 2 種であった。日本産 5 種について特徴となる図とともに再記載を加え、検索表を付した。本属の幼虫は腐食性または糞食性で、糞、堆肥、動植物質の腐敗物などから発生する。成虫は人類親和性の種が含まれ、しばしば大発生し、食品工場や家屋、病院の室内、トイレなどに侵入することが知られている。