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Three New Species of *Xanthocampoplex* Morley Bred from Microlepidoptera from Japan (Hymenoptera, Ichneumonidae)

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Introduction

The genus *Xanthocampoplex* Morley is a relatively large group of the subfamily Porizontinae. It has been represented by about 10 known species which are mostly Indo-Australian but only one of the species is described also from the Nearctic region. So far as I am aware, no species of this genus has hitherto been known to occur in Japan. Recently I have examined many specimens bred from Microlepidoptera collected in Hokkaido, Honshu and Kyushu by Dr. T. Kumata. All of them are new to science, and will be described herein. The species of *Xanthocampoplex* have been known as solitary internal parasites of the larvae or pupae of Lepidoptera belonging to Pyralidae, while Japanese species are solitary internal parasites of the larvae of Microlepidoptera belonging to Gracillariidae. The holotypes of the new species are preserved in the collection of the Entomological Institute, Hokkaido University, Sapporo.

Genus *Xanthocampoplex* Morley

Xanthocampoplex Morley, Fauna of British India...Hymenoptera 3(1): 455, 1913. [Type-species: *Xanthocampoplex orientalis* Morely (=*Zachresta nigromaculata* Cameron)].

This genus is discussed in details by H. Townes (1970), M. L. Gupta and V. K. Gupta (1971), and M. L. Gupta (1973). The Japanese species can be distinguished by the following key:—

Key to the Japanese species of *Xanthocampoplex*

1. Head with malar space about as long as basal width of mandible. Propodeum with median basal area rectangular, 1.3–1.5 times as long as wide at base (Fig. 5). Hind femur comparatively slender, 4.8–5.2 times as long as wide in lateral view. Ovipositor sheath long, about as long as hind tibia. Face black in both sexes; hind coxa black, with the apex yellowish brown in both sexes. .....3. *kumatai*, sp. nov.
— Head with malar space shorter than basal width of mandible. Propodeum with median basal area triangular, 0.8–1.0 times as long as wide at base (Figs. 6 & 7). Hind femur comparatively stout, 3.8–4.6 times as long as wide in lateral view. Ovipositor sheath short, 5/7–4/5 as long as hind tibia. Face black in female, pale yellow in male; hind coxa pale yellow in both sexes. 2
2. Head with face strongly mat; inner margin of eyes almost parallel-sided (Fig. 1); occipital

carina weak, and incomplete; genal carina obsolete, the lower end not joining oral carina. Forewing with portion of cubitus between intercubitus and 2nd recurrent vein 2/5–1/2 as long as intercubitus (Fig. 8). Mesopleurum and mesosternum black in both sexes.

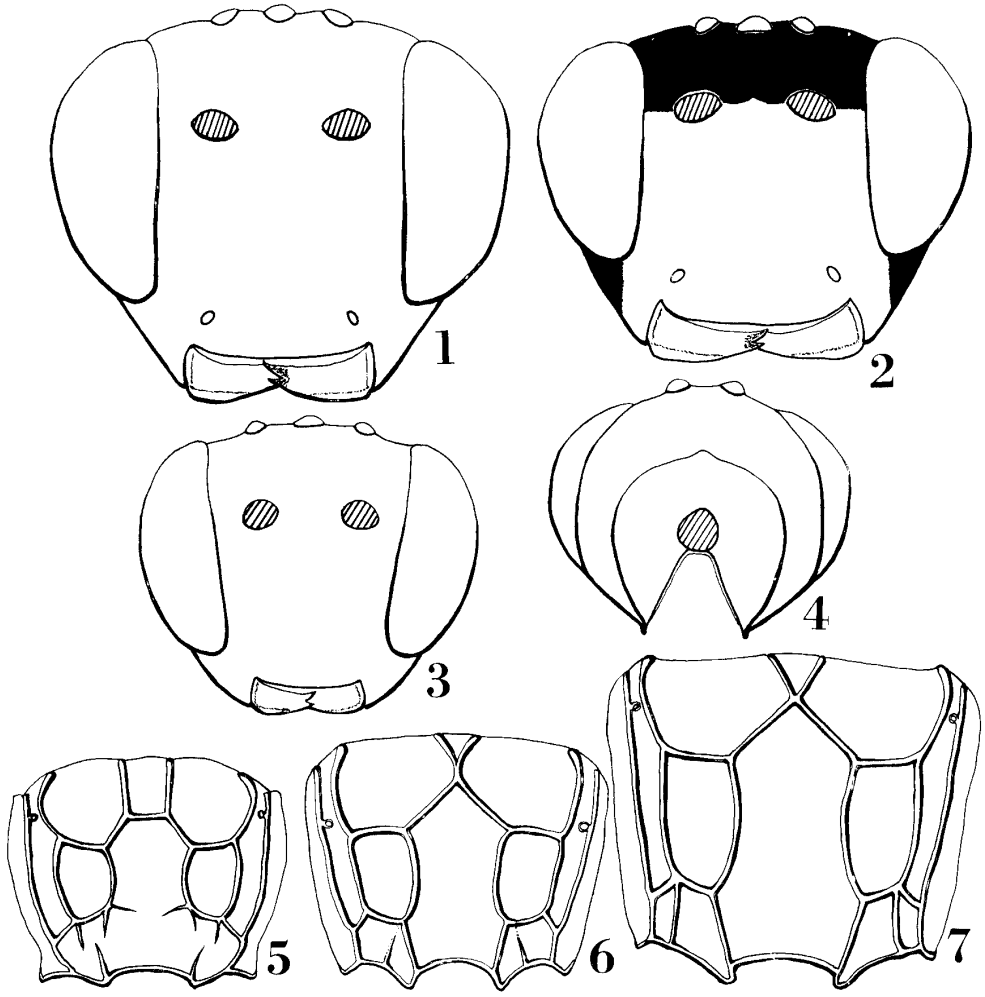
..... 1. *caloptiliae*, sp. nov.

— Head with face weakly mat; inner margin of eyes weakly convergent ventrad (Fig. 3); occipital carina complete and strong, the lower end joining mandibular base. Forewing with portion of cubitus between intercubitus and 2nd recurrent vein 0.8–1.0 times as long as intercubitus (Fig. 9). Mesopleurum and mesosternum black in female, yellowish brown in male.

..... 2. *spulerinae*, sp. nov.

1. ***Xanthocampoplex caloptiliae***, sp. nov. (Figs. 1, 2, 7, 8, 11 & 13)

Female. Face and clypeus weakly and evenly convex, strongly mat, with rather dense, silverly white hairs; face not separated from clypeus, about 1.2 times as wide as high; apex of clypeus weakly convex, apical margin of clypeus thin and narrowly reflexed; inner margin of eyes parallel-sided, not indented opposite antennal socket (Fig. 1); malar space moderately mat, about 2/3 as long as

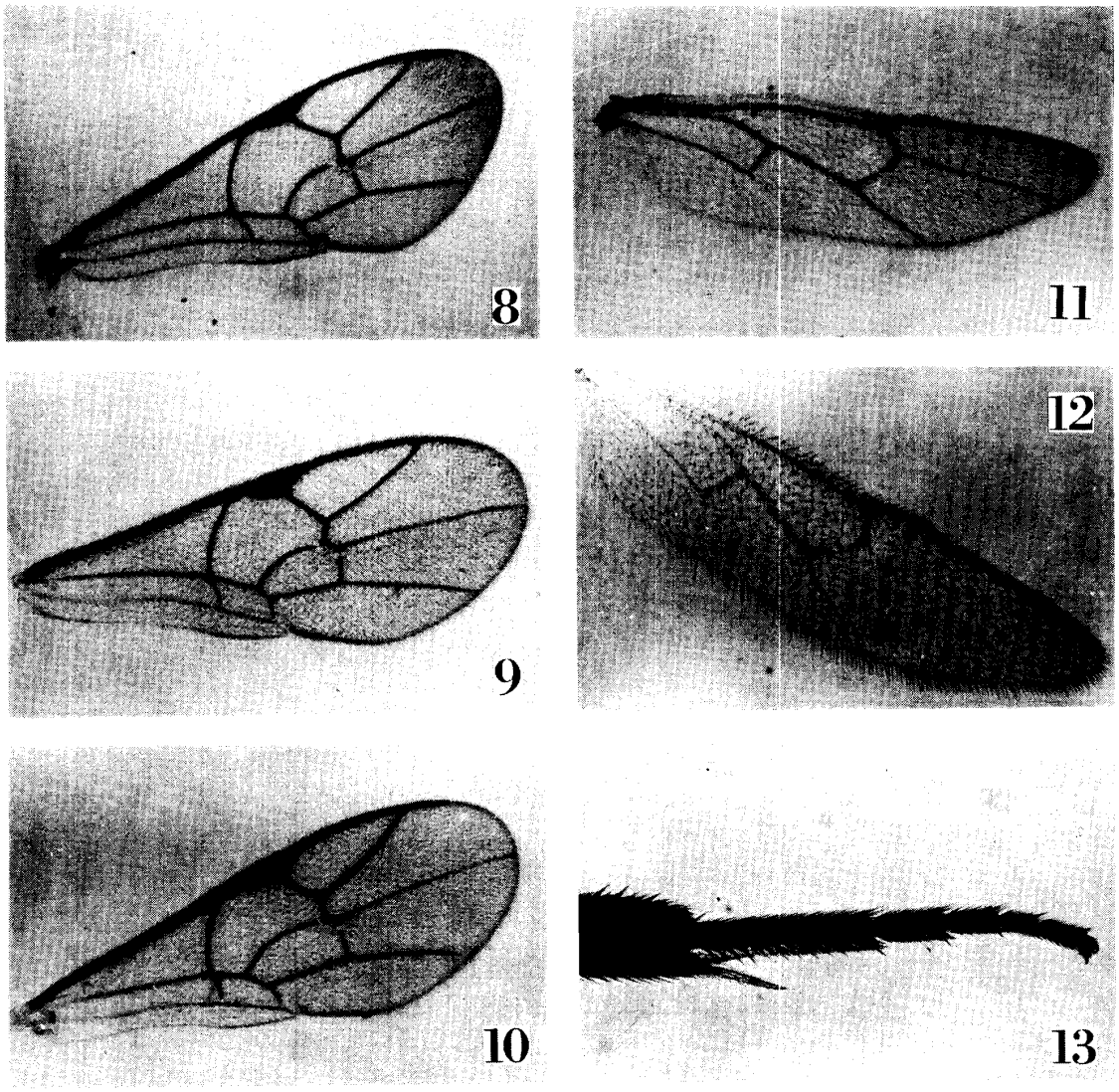


Figs. 1–3. Heads in frontal view: 1. *Xanthocampoplex caloptiliae*, sp. nov., female; 2. *X. caloptiliae*, sp. nov., male; 3. *X. spulerinae*, sp. nov., female.

Fig. 4. Head in hind view, female: *X. kumatai*, sp. nov.

Figs. 5–7. Areolations of propodeum, females: 5. *X. kumatai*, sp. nov.; 6. *X. spulerinae*, sp. nov.; 7. *X. caloptiliae*, sp. nov.

basal width of mandible; mandible short, with rather long, moderately dense hairs, with a lamella on basal 1/2 of lower margin, with upper tooth a little longer and stouter than lower one; temple short, rather flat, weakly to strongly mat, with silverly white haris which are shorter dorsally; distance between lateral ocelli and eyes about 1.1 times as long as diameter of an ocellus; frons rather flat, strongly mat; occipital carina weak but distinct dorsally, the lower part being obsolete or absent, the lower end not joining oral carina. Antennae setaceous, with 23 or 24 segments; 2nd flagellar segment about 6/7 as long as 1st segment, and about as long as 3rd segment. Pronotum polished, weakly mat on posterodorsal portion, obliquely and transversely striate, the striae being weaker dorsally; mesoscutum moderately to strongly mat; postmedian 2/3 of mesoscutum rugulose; scutellum weakly convex, moderately mat, with sparse punctures, and with very weak lateral carinae which is reaching near apex and is sometimes obsolete or absent; mesopleurum weakly mat, transversely and weakly striate on dorsal portion; specullum polished and smooth; posterior mesosternal carina complete and strong; metapleurum weakly mat. Propodeum (Fig. 7) moderately mat,



Figs. 8–10. Right forewings, females: 8. *X. caloptiliae*, sp. nov.; 9. *X. spulerinae*, sp. nov.; 10. *X. kumatai*, sp. nov.

Figs. 11 and 12. Right hind wings, females: 11. *X. caloptiliae*, sp. nov.; 12. *X. spulerinae*, sp. nov.

Fig. 13. Hind tarsus, female: *X. caloptiliae*, sp. nov.

moderately and evenly convex, strongly areolated; median basal area small, triangular, 6/7 as long as wide at base; petiolar area confluent with areola, transversely striate on posterior 1/2, with a weak, wide median trough; propodeal spiracle small and circural. Wings (Figs. 8 & 11) with areolet absent; nervulus opposite basal vein; portion of cubitus between intercubitus and 2nd recurrent vein about 4/9 as long as intercubitus; stigma about 3.8 times as long as wide; radius emitted near middle; nervellus rather vertical; discoidella absent; brachiella obsolete. Leg with hind femur rather stout, about 3.8 times as long as wide in lateral view; 1st segment of hind tarsus 4.8–5.1 times as long as wide at apex and about 2.4 times as long as 2nd segment; longer spur of hind tibia 5/7 as long as hind basitarsus, and 1.5–1.7 times as long as the shorter spur; longer spur of middle tibia evenly and rather strongly curved, 2.2–2.4 times as long as shorter spur; 1st to 3rd segments of middle and hind tarsi with a midventral row of small closely spaced hairs, the row appearing like a sharp carina (Fig. 13); tarsal claws small and simple (Fig. 13). Abdomen with 1st tergite rather slender, about 2.3 times as long as wide at apex; petiole subterete, polished and smooth; dorsal carina of 1st tergite strong to spiracle, absent behind the spiracle; postpetiole weakly convex, mat, weakly and longitudinally striate on lateral portion; 2nd tergite polished, very fine, transverse and oblique striate basally and laterally, 6/7 as long as wide at apex and about 1.3 times as long as 3rd tergite, with a row of short hairs along lateral margin; 3rd and following tergites polished, and sparsely haired, the hairs being a little denser laterally; glymma absent; thyridium rather large, subcircular, separated from base of 2nd tergite by about 2/3 its own length. Ovipositor straight, weakly compressed; ovipositor sheath 5/7 as long as hind tibia.

Black. Head entirely black; mandible light yellowish brown, the apical teeth being light reddish brown; palpi pale yellow; scape pale yellow ventrally, dark brown dorsally; pedicel dark brown; flagellum infuscate, a little paler basally. Tegula and subtegular ridge yellowish brown to dark brown. Front and middle legs pale yellow to light yellowish brown. Hind leg with coxa and trochanter light yellowish brown; femur yellowish to dark brown, a little darker apically; tibia light yellowish brown on basal 1/2, blackish brown on apical 1/2; tarsus infuscate. Abdomen with 1st and 2nd tergites black; 3rd to 7th tergites blackish dorsally, yellowish brown laterally; 8th tergite almost entirely fulvous. Ovipositor sheath blackish. Wings hyaline.

Length: Body 4.5–4.6 mm., forewing ca. 3.4 mm.

Male. Agrees with the female except for the following aspects:—

Face about 1.3 times as wide as high; malar space 5/6 as long as basal width of mandible; antennae with 23–25 segments; stigma about 4.0 times as long as wide; portion of cubitus between intercubitus and 2nd recurrent vein about 1/2 as long as intercubitus. First tergite about 2.6 times as long as wide at apex. Hind femur about 3.9–4.2 times as long as wide in lateral view. Face, clypeus and malar space pale yellow (Fig. 2); hind leg sometimes a little darker than in female.

Length: Body 4.2–4.4 mm., forewing 3.1–3.3 mm.

Holotype (female): Kozagawa, Wakayama-ken, 11-vi-1970, bred from *Caloptilia kadsurae* Kumata by T. Kumata. *Paratypes:* 1 female, with the same data as in holotype except date emerged, 11-vi-1964; 1 male and 1 female, with the same data as in holotype except date emerged, 13- & 15-vi-1970; 1 male, with the same data as in holotype except date emerged, 25-x-1974; 1 male, Kosugidani, Yaku-shima, Kagoshima-ken, 5-vii-1965, bred from *C. solaris* Kumata by T. Kumata.

Hosts: Caloptilia kadsurae Kumata and C. *solaris* Kumata (Gracillariidae, Lep.).

Distribution: Japan (Honshu and Kyushu).

This species may be easily distinguished from any other congeneric species by the forewing without the areolet, by the inner margin of eyes, which is parallel-sided and not indented opposite the

antennal socket, by the incomplete occipital carina, by the small and circular propodeal spiracle and by the simple tarsal claws.

2. ***Xanthocampoplex spulerinae***, sp. nov. (Figs. 3, 6, 9 & 12)

In general structures and colouration this species resembles most closely *X. caloptiliae*, from which it differs clearly in having the complete occipital carina, the mesopleurum mat entirely and the antennae with 19–22 segments, etc. as follows:—

Female. Head more weakly mat than in *X. caloptiliae*; inner margin of eyes weakly convergent ventrally and not indented opposite antennal socket (Fig. 3); malar space 2/3–4/5 as long as basal width of mandible; distance between lateral ocelli and eyes 1.2–1.4 times as long as diameter of an ocellus; occipital carina complete, the lower end joining mandibular base. Antennae with 19–22 segments. Pronotum subpolished, weakly striate ventrally, weakly mat dorsally; scutellum weakly convex, weakly mat, without lateral carinae; mesopleurum entirely mat. Propodeum (Fig. 6) with apical area more weakly striate than in *caloptiliae*; basal area small, triangular, about as long as wide at base; propodeal spiracle very small, and circular. Wings (Figs. 9 & 12) with nervulus opposite basal vein to distad by about 1/4 of its own length; portion of cubitus between intercubitus and 2nd recurrent vein 0.8–1.0 times as long as intercubitus; stigma about 3.5 times as long as wide; nervellus weakly reclivous. Leg with hind femur 4.1–4.6 times as long as wide in lateral view; 1st segment of hind tarsus 4.1–4.3 times as long as wide at apex; longer spur of hind tibia 1.5–1.7 times as long as shorter spur, and about 4/5 as long as hind basitarsus; longer spur of middle tibia 2.0–2.3 times as long as shorter spur; 1st to 3rd segments of middle and hind tarsi with a midventral row of small closely spaced hairs, the row appearing like a sharp carina; tarsal claws very small and not pectinate. Abdomen with 1st tergite 2.1 times as long as wide at apex; postpetiole finely and longitudinally striate; 2nd tergite polished, with a few short hairs, 5/7–4/5 as long as wide at apex and 1.4–1.7 times as long as 3rd tergite; 3rd and following tergites polished, sparsely haired laterally and still more sparsely on dorsum; thyridium small, subcircular, separated from base of 2nd tergite by about 1/2 of its own length. Ovipositor sheath 5/7–4/5 as long as hind tibia.

Black. Leg with hind femur yellowish brown, infuscate dorsally; hind tibia more extensively pale yellow, with an indistinct subbasal band. Abdomen with 2nd tergite black, the apical 1/3 being weakly stained with yellowish brown.

Length: Body 2.3–3.5 mm., forewing 2.1–2.8 mm.

Male. Head with malar space long, 7/9 as long as basal width of mandible; antennae 21-segmented. Abdomen with 1st tergite about as long as wide at apex; 2nd tergite about as long as wide at apex and 6/7 as long as 3rd tergite. Hind leg with basitarsus about 5.0 times as long as wide at apex and 2.2 times as long as 2nd segment of hind tarsus.

Black. Face, clypeus, malar space and lower part of temple pale yellow. Pronotum mostly light yellowish brown; collar blackish except for the lower part, which is yellowish brown; median dorsal part of pronotum blackish; mesopleurum entirely yellowish brown; 2nd and following tergites more extensively yellowish brown than in female.

Length: Body 3.3 mm., forewing 2.5 mm.

Holotype (female): Kozagawa, Wakayama-ken, 21–x–1974, bred from *Caloptilia* sp. on *Rhus* sp. by T. Kumata. *Paratypes:* 4 females, Nishinasuno, Tochigi-ken, 4–x–1976, bred from *Spulerina dissotoma* Meyrick by T. Kumata; 3 females, Kozagawa, Wakayama-ken, 18–x–1974, bred from *Caloptilia* sp. on *Rhus* sp. by T. Kumata; 1 male and 1 female, data same as the holotype; 5 females, Kozagawa, Wakayama-ken, 18–, 21–, 23– & 24–x–1974, bred from *S. dissotoma*

Meyrick by T. Kumata.

Hosts: *Spulerina dissotoma* Meyrick and *Caloptilia* sp. (Gracillariidae, Lep.).

Distribution: Japan (Honshu).

This species is very similar to the preceding species, *X. caloptiliae*, bu it differs from the latter by the less strongly mat face, by the complete occipital carina, by the convergent eye margin, by the yellowish brown mesopleurum and mesosternum in male, etc. as mentioned in the key.

3. ***Xanthocampoplex kumatai***, sp. nov. (Figs. 4, 5 & 10)

Female. Face and clypeus weakly and evenly convex, moderately mat, with rather dense, silverly white haris, the hairs of clypeus being longer than those of face; face not separated from clypeus, about 1.2 times as wide as high; apical margin of clypeus thin and narrowly reflexed; apex of clypeus truncate; inner margin of eyes weakly convergent ventrad, not indented opposite antennal socket; malar space mat, about as long as basal width of mandible; mandible short, weakly tapered toward apex, with rather long, moderately dense hairs, its lower margin with a lamella that is rather suddenly narrowed before apex of mandible, the upper tooth a little longer and stouter than the lower one; temple short, flat, weakly mat, and with short, moderately dense hairs; frons moderately mat, weakly convex; distance between lateral ocelli and eyes 1.2–1.4 times as long as diameter of an ocellus; occipital carina complete, the lower end joining mandibular base (Fig. 4). Antennae setaceous, with 20–22 segments; 2nd flagellar segment about 3/4 as long as 1st segment and about as long as 3rd segment. Pronotum polished, with short, transverse and fine striae on median concave area, finely mat dorsally; collar polished and smooth; mesoscutum moderately densely haired, weakly mat, the median portion being more strongly mat; mesopleurum weakly mat, with weak transverse striae in front of specullum; specullum polished and smooth; metapleurum more weakly mat than in mesopleurum; scutellum rather strongly convex, weakly mat, with short white hairs, and without lateral carinae. Propodeum (Fig. 5) weakly mat, moderately and evenly convex, strongly areolated; median basal area rectangular, parallel-sided, sometimes weakly convergent apically, 1.3–1.5 times as long as wide at base; petiolar area confluent with areola, with a weak and shallow median trough, and with a few transverse striae; propodeal spiracle small and circular. Wing (Fig. 10) with areolet absent; nervulus postfurcal by 1/5–1/3 of its own length; portion of cubitus between intercubitus and 2nd recurrent vein 4/9–4/7 as long as intercubitus; stigma 4.3–4.6 times as long as wide; radius emitted from basal 2/3; nervellus vertical; discoidella absent; brachiella obsolete. Leg with hind femur slender, 5.0–5.2 times as long as wide in lateral view; 1st segment of hind tarsus about 5.5 times as long as wide at apex, and 2.1–2.4 times as long as 2nd segment; longer spur of hind tibia 1.7–1.9 times as long as the shorter one and 5/7–4/5 as long as 1st segment of hind tarsus; longer spur of middle tibia 2.1–2.4 times as long as the shorter one; 1st to 3rd segments of middle and hind tarsi with a midventral row of small closely spaced hairs, the row appearing like a sharp carina; tarsal claws small and simple. Abdomen with 1st tergite rather slender, finely mat, about 2.3–2.6 times as long as wide at apex; petiole subterete; postpetiole weakly convex, weakly mat; 2nd tergite subpolished, finely mat basally, smooth apically, with a few short hairs, with a row of short hairs along lateral margin, 8/9 times as long as wide at apex and 1.3–1.5 times as long as 3rd tergite; 3rd and following tergites polished, smooth, with a few hairs medially, sparsely haired laterally; glymma absent; thyridium small, subcircular, separated from base of 2nd tergite by 2/5–1/2 of its own length. Ovipositor weakly compressed; ovipositor sheath approximately as long as hind tibia.

Black. Mandible pale yellow, the apical teeth being light ferruginous; palpi pale yellow; antennae with scape and pedicel light yellowish brown; flagellum infuscate, paler basally. Tegula

pale yellow. Front and middle legs pale yellow to light yellowish brown. Hind leg with coxa blackish brown, yellowish brown at apex; trochanter pale yellow; femur light yellowish brown, a little darker apically; tibia light yellowish brown, dark brown apically, with an indistinct dark brown subbasal band; tarsus light yellowish brown, the last segment a little darker. Apical margin of 2nd to 7th tergites faintly tinged with pale yellow. Ovipositor sheath blackish brown. Wings hyaline.

Length: Body 2.2–3.1 mm., forewing 1.8–2.6 mm.

Male. Agrees with the female except for the following aspects:—

Face a little wider than in female, about 1.4 times as wide as high; antennae with 22 or 23 segments, a little paler than in female. Propodeum with apical area sometimes loosely rugulose. Forewing with radius emitted from basal 5/9; portion of cubitus between intercubitus and 2nd recurrent vein 4/9–5/9 as long as intercubitus. Leg with hind femur about 4.8 times as long as wide in lateral view; hind basitarsus 5.6–6.0 times as long as wide at apex and 2.3–2.6 times as long as the 2nd one; longer spur of hind tibia 1.7–2.0 times as long as the shorter one; hind tibia a little darker than in female. Abdomen with 1st tergite slender, 2.7–3.0 times as long as wide at apex; 2nd tergite about 1.1 times as long as wide at apex and 1.5–1.6 times as long as 3rd tergite.

Length: Body 2.8–3.2 mm., forewing 2.3–2.5 mm.

Holotype (female): Moiwa, Sapporo, Hokkaido, 12–ix–1975, bred from *Acrocercops* sp. on *Magnolia Kobus* by T. Kumata. *Paratypes:* 4 females, 11– & 14–ix–1971, Nopporo, Hokkaido, bred from *Acrocercops* sp. on *M. Kobus* by T. Kumata; 2 males and 1 female, 10–, 12– & 16–ix–1975, Moiwa, Sapporo, Hokkaido, bred from *Acrocercops* sp. on *M. Kobus* by T. Kumata; 1 male and 1 female, 13–vii–1977, Moiwa, Sapporo, Hokkaido, bred from *Acrocercops* sp. on *M. Kobus* by T. Kumata; 2 females, 30–v– & 8–vi–1964, Kozakawa, Wakayama-ken, bred from *Acrocercops* sp. on *Castanopsis* sp. by T. Kumata; 1 male and 1 female, 10– & 17–vi–1970, Kozagawa, Wakayama-ken, bred from *Acrocercops* sp. on *C. cuspidata* by T. Kumata.

Hosts: Acrocercops spp. (Gracillariidae, Lep.).

Distribution: Japan (Hokkaido and Honshu).

This species is readily distinguished from the preceding two species, *X. caloptiliae* and *X. spulerinae*, by the slender hind femur, by the long ovipositor, by the areolation of propodeum and by the black face and hind coxa.

Summary

Three new species, *Xanthocampoplex caloptiliae*, *X. spulerinae* and *X. kumatai*, are described on the basis of material bred from the larvae of Microlepidoptera, represnting the first record of the genus from Japan. A key to the species is given.

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