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Research article

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Five new species of the genus *Meleonoma* Meyrick, 1914 (Lepidoptera: Autostichidae) from China

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Abstract. Five new species belonging to the *Meleonoma segregnatha* group (Autostichidae, Periacminae) are described from China: *M. acuminata* sp. nov., *M. crassispina* sp. nov., *M. dentitaeniana* sp. nov., *M. oxygona* sp. nov. and *M. valviafflata* sp. nov.; *M. brevicula* Park, 2016 is newly recorded from China, and the female of *M. circinans* Wang & Zhu, 2020 is described for the first time. Images of both data sets adult and genitalia morphology are provided.

Keywords. Microlepidoptera, Gelechioidea, *Meleonoma segregnatha* group.

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Introduction

The genus *Meleonoma* Meyrick, 1914 consists of 185 described species (Zhu & Wang 2024), distributed in the Palearctic and Oriental regions. Most species of *Meleonoma* were assigned to nine species groups (Wang *et al.* 2020; Zhu & Wang 2022), of which the *Meleonoma segregnatha* group comprises 33 described species (Wang & Zhu 2020; Zhu *et al.* 2020).

Species of the *Meleonoma segregnatha* group are defined by the dark, broad lanceolate or narrowly elongated forewing with two yellow costal spots and one yellow dorsal spot, or by the yellow forewing with a dark costal spot and a dark apical patch. In the male genitalia, this group is defined by the laterally sclerotized gnathos which is fused with tegumen anteriorly. In some species of the *Meleonoma segregnatha* group, the circular gnathos is joined by a membrane or is weakly sclerotized anteriorly.

The aim of the present paper is to describe five new species of the *Meleonoma segregnatha* group, to newly record *M. brevicula* Park, 2016 for the Chinese fauna, and to describe the female of *M. circinans* Wang & Zhu, 2020 for the first time.

Material and methods

Specimens were collected at light from mountainous areas in China. All the studied specimens, including the types, are deposited in the Insect Collection of Nankai University, Tianjin, China (NKU). Dissection and slide mounting of genitalia followed the methods introduced by Li (2002). Images of adults and genitalia were taken with Leica M205A and Leica DM750 microscopes respectively, equipped with a Leica Application Suite ver. 4.2 software.

Results

Taxonomy

Class Insecta Linnaeus, 1758
Order Lepidoptera Linnaeus, 1758
Superfamily Gelechioidea Stainton, 1854
Family Autostichidae Le Marchand, 1947
Genus *Meleonoma* Meyrick, 1914

Meleonoma acuminata sp. nov.

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Figs 1A, 2A, 3A

Diagnosis

The new species can be distinguished from other known species of the group by the roundly arched outward lateral arms of the gnathos far exceeding the anterior margin of the tegumen, the ventral margin of the costal part of the valva which is produced triangularly dorsad before the apex, and the elongated saccus twice as long as the uncus. The new species is similar to *M. oxygona* sp. nov. in the male genitalia, and can be distinguished from it by the costal part of the valva lacking a cluster of tiny processes before the apex, and the sacculus lacking a long digitiform process dorso-apically. In *M. oxygona*, the costal part of the valva has a cluster of tiny processes before the apex, and the sacculus is produced to a long digitiform process dorso-apically.

Etymology

The specific epithet is derived from the Latin ‘*acuminatus*’, meaning ‘acute’ in English, which refers to the costal part of the valva pointed at the apex. The specific epithet is an adjective in the feminine gender.

Type material

Holotype

CHINA – Xizang Autonomous Region [Tibet] • ♂; Motuo Road, Motuo County; 29°40' N, 95°29' E; 2076 m a.s.l.; 28 Jul. 2018; M.J. Qi leg.; slide No. ZXJ19398; NKU.

Description

Male

ADULT (Fig. 1A). Forewing length 5.5 mm. Head greyish brown, pale yellow along dorsal margin of eyes and occiput. Labial palpus pale yellow; first palpomere dark brown on outer surface; second palpomere with scattered dark brown scales, dark brown at apex; third palpomere with scattered dark brown scales dorsally in basal half. Antenna with scape pale yellow mixed with dark brown scales; flagellum pale yellow, alternating with dark brown on dorsal surface. Mesonotum dark brown dorsally, yellow laterally; tegula predominantly dark brown, yellow distally. Forewing lanceolate, pointed at apex; ground colour dark brown, with yellow scales; costal margin with inner yellow spot sub-rectangular, outer yellow spot larger, with black dot anteriorly; fold yellow along basal $\frac{1}{3}$, with yellow spot at its end; termen yellow,

interrupted by dark brown; fringe greyish black, mixed with yellow. Hindwing and fringe greyish brown. Legs yellow, except on ventral surface: foreleg greyish brown except tibia yellow at middle and at apex respectively, tarsus yellow at base of basal tarsomere and at apices of all tarsomeres, femur of midleg greyish brown distally, tibia with scattered greyish brown scales distally, tarsus with basal three tarsomeres greyish brown except yellow at apices, femur and tibia of hindleg with sparse greyish brown scales, tarsus with scattered greyish brown scales on basal two tarsomeres.

MALE GENITALIA (Figs 2A, 3A). Uncus cone-shaped, tapered from base to apex. Gnathos with lateral arm sclerotized and roundly arched outward, far exceeding anterior margin of tegumen, invisible anteriorly. Tegumen narrowly banded, roundly arched. Costal part of valva narrowly elongated, produced to a horn distally; ventral margin heavily sclerotized, banded, triangularly produced dorsad before distal horn and exceeding costa; costa with dense long setae from near base to before middle; transtilla weakly sclerotized, setose distally. Sacculus quadrangular, slightly narrowed to apex; dorsal margin sclerotized, forming a band sharply pointed apically. Saccus clavate, tapered to apex, approx. 2 × as long as uncus. Juxta slender. Aedeagus ca 1.7 × length of costal part of valva; basal half tubular, distal half with slender belt, pointed at apex; cornutus spine-shaped, placed in vesica.

Female

Unknown.

Distribution

China (Xizang).

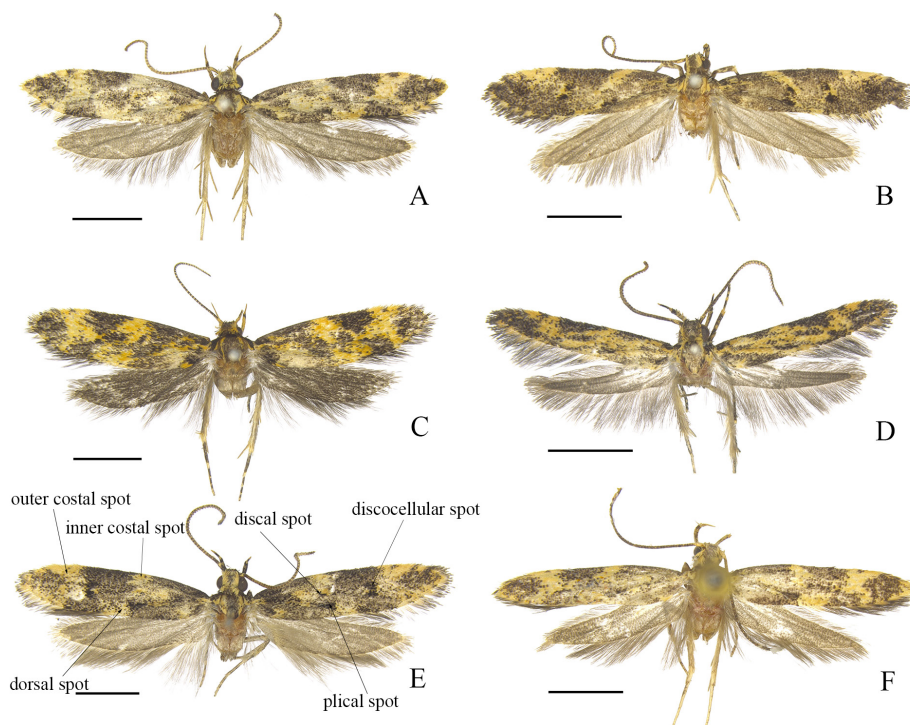


Fig. 1. Adults of *Meleonoma* spp. **A.** *M. acuminata* sp. nov., ♂, holotype (slide No. ZXJ19398). **B.** *M. brevicula*, ♂ (slide No. YAH15565). **C.** *M. crassispina* sp. nov., ♂, paratype (slide No. ZXJ19225). **D.** *M. dentitaeniana* sp. nov., ♂, holotype (slide No. ZXJ19406). **E.** *M. oxygona* sp. nov., ♂, holotype (slide No. ZXJ19489). **F.** *M. valviafflata* sp. nov., ♂, holotype (slide No. ZXJ19424). Scale bars = 2.0 mm.

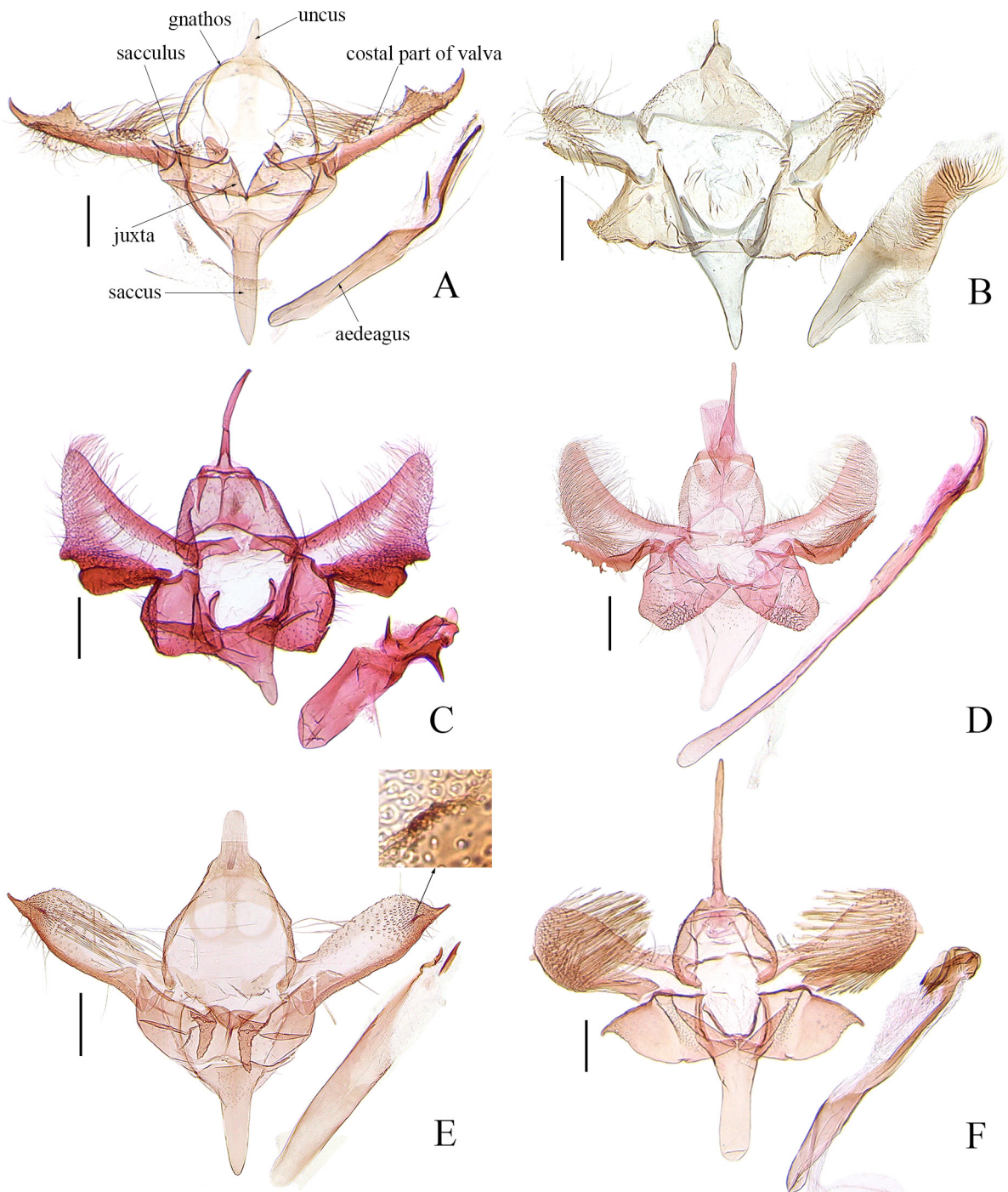


Fig. 2. Male genitalia of *Meleonoma* spp. **A.** *M. acuminata* sp. nov., holotype (slide No. ZXJ19398). **B.** *M. brevicula*, slide No. YAH15565. **C.** *M. crassispina* sp. nov., ♂, holotype (slide No. ZXJ19226). **D.** *M. dentitaeniana* sp. nov., ♂, holotype (slide No. ZXJ19406). **E.** *M. oxygona* sp. nov., ♂, holotype (slide No. ZXJ19489). **F.** *M. valviafflata* sp. nov., ♂, holotype (slide No. ZXJ19424). Scale bars = 0.2 mm.

Meleonoma brevicula Park, 2016

Figs 1B, 2B, 3B

Meleonoma brevicula Park, 2016, in Park & Park, 2016: 487.

Diagnosis

Meleonoma brevicula is diagnostic by the forewing with two black discocellular spots (Fig. 1B), in the male genitalia, this species can be separated from the congeneric species by the sub-triangular saccus with a small apical spine directed dorsad, and the rumple aedeagus in distal $\frac{3}{5}$ (Fig. 2B).

Material examined

CHINA • 1 ♂; Fujian Province, Huangkeng Town, Jianyang; 5 May 2014; X.F. Yang leg.; slide No. YAH15565; NKU.

Distribution

Korea (Park & Park 2016); China (Fujian): new record.

Remark

The species is newly recorded from China.

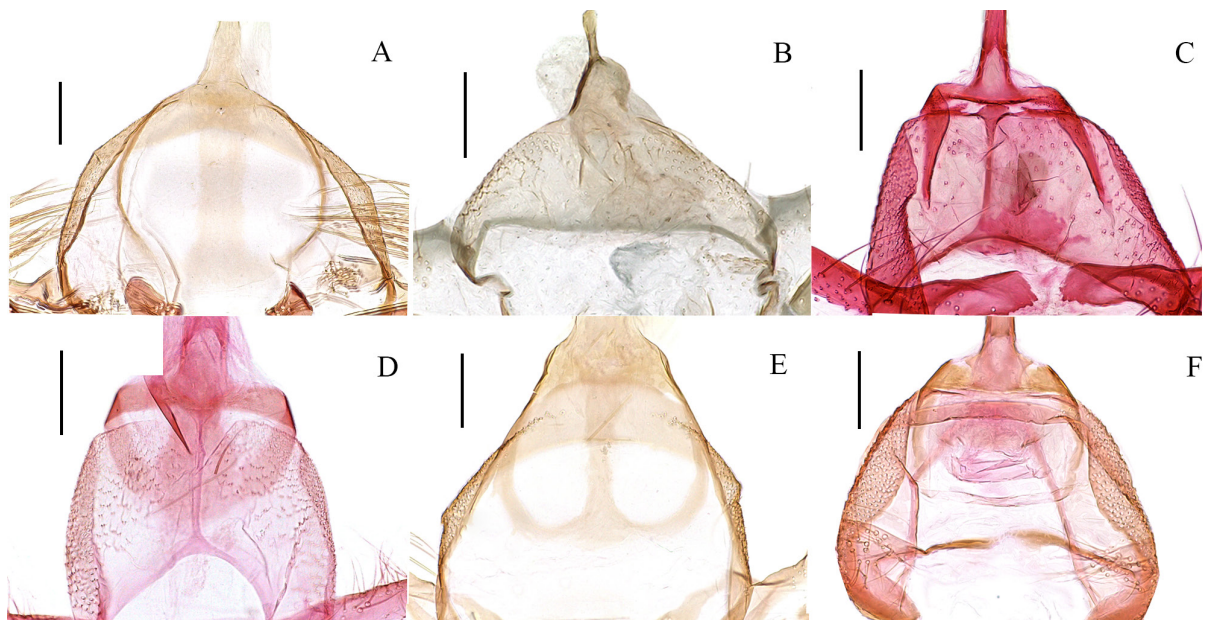


Fig. 3. Enlarged gnathos of *Meleonoma* spp. **A.** *M. acuminata* sp. nov., ♂, holotype (slide No. ZXJ19398). **B.** *M. brevicula*, ♂ (slide No. YAH15565). **C.** *M. crassispina* sp. nov., ♂, holotype (slide No. ZXJ19226). **D.** *M. dentitaeniana* sp. nov., ♂, holotype (slide No. ZXJ19406). **E.** *M. oxygona* sp. nov., ♂, holotype (slide No. ZXJ19489). **F.** *M. valviafflata* sp. nov., ♂, holotype (slide No. ZXJ19424). Scale bars = 0.1 mm.

Meleonoma crassispina sp. nov.

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Figs 1C, 2C, 3C, 4A

Diagnosis

The new species can be distinguished from its congeners by the costal part of the valva with a sclerotized, gradually widening band on the ventral margin. *Meleonoma crassispina* sp. nov. is similar to *M. dentitaeniana* sp. nov. in the male genitalia, and can be distinguished by the sub-quadrangular sacculus which is not as long as wide, the saccus shorter than the uncus and the aedeagus as long as the costal part of the valva. In *M. dentitaeniana*, the trapezoidal sacculus is longer than the wide, the saccus is slightly longer than the uncus, and the aedeagus is ca 3.0 × as long as the costal part of the valva.

Etymology

The specific epithet is derived from the Latin ‘*crassispinus*’, meaning ‘stout spines’ in English, which refers to the two spines of the cornuti. The species epithet is an adjective in the feminine gender.

Type material

Holotype

CHINA – Shaanxi Province • ♂; Huaishuzhuang, Fuyang, Hangzhou City; 35°51′ N, 108°43′ E; 1150 m a.s.l.; 21 Jun. 2019; S. Yu leg.; slide No. ZXJ19226; NKU.

Paratypes

CHINA – Shaanxi Province • 1 ♂, 1 ♀; same data as for holotype; NKU • 1 ♀, same data as for holotype; slide No. ZXJ19227; NKU • 2 ♂♂; same data as for holotype; 22 Jun. 2019; NKU • 2 ♂♂; Nanniwan, Yan’an; 1157 m a.s.l.; 17 June 2019; S. Yu leg.; slide No. ZXJ19225; NKU • 1 ♀; Yulin, Zhiluo Town, Fu County; 1244 m a.s.l.; 25 Jun. 2019; S. Yu leg.; NKU.

Description

ADULT (Fig. 1C). Forewing length 5.5–6.0 mm. Head dark brown, frons mixed with yellow scales, occiput yellow laterally. Labial palpus yellow; first palpomere with dense dark brown scales on outer surface; second palpomere with sparse dark brown scales, forming dark brown ring at apex; third palpomere with dark brown scales from near base to before apex on outer and ventral surfaces. Antenna with scape yellow ventrally, dark brown on dorsal surface; flagellum dark brown annulated with yellow. Mesonotum dark brown dorsally, yellow laterally; tegula predominantly dark brown, yellow apically. Forewing narrowly elongated, apex pointed; ground colour dark brown, with orange-yellow scales near base below costal margin above fold; costal margin with inner yellow spot from basal $\frac{2}{5}$ running obliquely outward crossing anterior margin of cell, outer yellow spot at distal $\frac{1}{5}$, large, X-shaped, its inner arm of lower part crossing middle of outer margin of cell, outer arm of lower part reaching tornus; orange yellow stripe extending along fold, covered with dark brown scales, dark brown scales denser from middle to basal $\frac{3}{4}$ of fold; dorsum with small yellow spot near base, dorsal spot orange yellow, placed around end of fold; termen with yellow dots, interrupted by black scales; fringe greyish black. Hindwing and fringe greyish brown. Legs yellow, except on ventral surface: coxa of foreleg with sparse dark brown scales, tarsi of fore- and midlegs dark brown except yellow at base of basal tarsomere and at apices of basal two and apical one tarsomeres, tarsus of hindleg dark brown except yellow at apices, all tibiae dark brown except yellow at middle and at apex, all femora with sparse dark brown scales.

MALE GENITALIA (Figs 2C, 3C). Uncus slender, clavate, pointed at apex. Gnathos with lateral arm heavily sclerotized, narrowed anteriorly, not exceeding anterior margin of tegumen apically. Tegumen widened medially, with shallow anterior emargination; lateral arms narrowed anteriorly. Valva with costal part knife-shaped, widening from base to apex, rounded and produced dorso-apically, setose

ventrally; ventral margin heavily sclerotized, forming wide, gradually widened band, slightly concave before apex, forming small ventro-apical process; costal band reaching tip of costal margin; transtilla rectangular, blunt at apex. Sacculus quadrangular, shorter than wide; apex narrowly sclerotized, with dense long setae. Saccus wide at base, distinctly narrowed to middle, distal half uniformly narrow to rounded apex, shorter than uncus. Juxta broadly U-shaped. Aedeagus nearly as long as costal part of valva, tubular in basal $\frac{2}{3}$, distal $\frac{1}{3}$ produced to plate, with spine at its apex; cornuti comprising of two spines, different in size, placed in vesica.

FEMALE GENITALIA (Fig. 4A). Papilla analis narrowed posteriorly, with dense short setae on dorsal surface. Apophysis posterioris approx. twice as long as apophysis anterioris. Eighth tergite straight on posterior

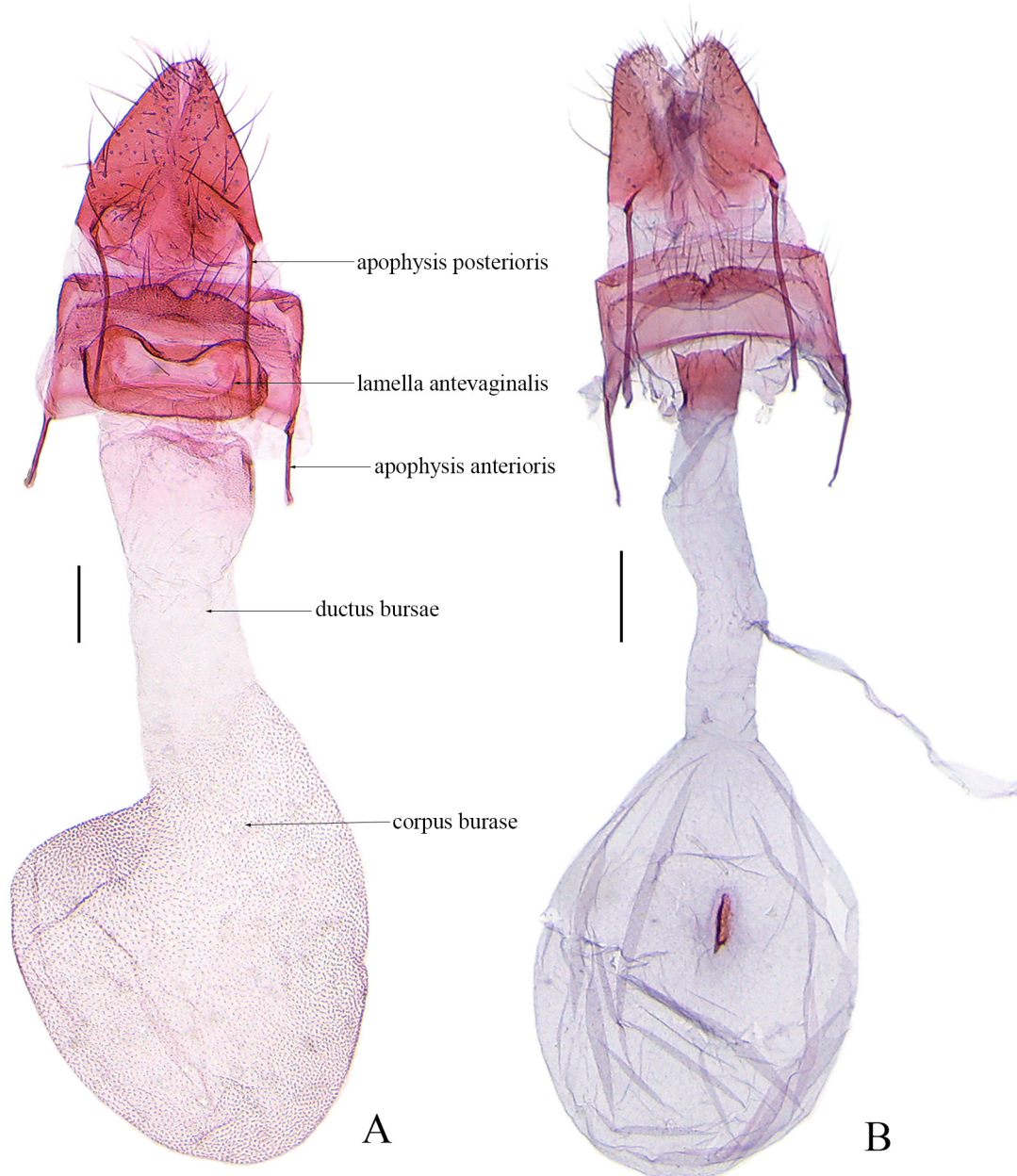


Fig. 4. Female genitalia of *Meleonoma* spp. **A.** *M. crassispina* sp. nov., ♂, paratype (slide No. ZXJ19227). **B.** *M. circinans* Wang & Zhu, 2020, ♂ (slide No. ZXJ19426). Scale bars = 0.2 mm.

margin, slightly concave on anterior margin. Eighth sternal plate spiculate; posterior margin lined with long setae, deeply concave medially. Lamella ante-vaginalis annular, broadly concave medially and gently produced laterally on posterior margin. Ductus bursae membranous, narrowest at middle, widened toward corpus bursae. Corpus bursae large, spiculate; signum absent.

Distribution

China (Shaanxi).

Meleonoma circinans Wang & Zhu, 2020

Fig. 4B

Meleonoma circinans Wang & Zhu, 2020: 262.

Material examined

CHINA • 1 ♂; Yunnan Province, Taiyang River, Pu'er, 7–9 Jun. 2015; Z.G. Zhang leg.; slide No. ZXJ19421 • 1 ♀; same data as for preceding; slide No. ZXJ19426; NKU • 1 ♂; same data as for preceding; NKU.

Description

Female genitalia (Fig. 4B). Papilla analis narrowed posteriorly, setose. Apophysis anterioris approx. half length of apophysis posterioris. Eighth tergite gently convex on posterior margin, and slightly concave on anterior margin. Eighth sternal plate fusiform, spiculate, slightly concave and lined with long setae on posterior margin. Antrum rectangular. Ductus bursae membranous, evenly wide; ductus seminalis arising from anterior $\frac{1}{3}$ of ductus bursae. Corpus bursae ovate, longer than ductus bursae; signum elongated, with apical spine.

Distribution

China (Guizhou, Yunnan) (Wang & Zhu 2020).

Remark

The female of this species is reported for the first time.

Meleonoma dentitaeniana sp. nov.

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Figs 1D, 2D, 3D

Diagnosis

The new species can be recognized in male genitalia by the ring-shaped gnathos, the ventral margin of the costal part of the valva with an arched band gradually narrowing towards the apex and serrated on its ventral margin distally. *Meleonoma dentitaeniana* sp. nov. is similar to *M. crassispina* sp. nov., and can be distinguished from it by the trapezoidal sacculus longer than wide, the saccus slightly longer than the uncus, and the aedeagus ca 3.0× as long as the costal part of the valva. In *M. crassispina*, the subquadrangular sacculus is shorter than wide, the saccus is shorter than the uncus and the aedeagus is as long as the costal part of the valva.

Etymology

The specific epithet is derived from the Latin 'dent'- and 'taenianus', meaning 'dentated band' in English, which refers to the ventral margin of the costal part of the valva dentate along the distal $\frac{2}{3}$. The specific epithet is an adjective of the feminine gender.

Type material

Holotype

CHINA – Guizhou Province • ♂; Banzhai Village, Maolan; 25°13' N, 108°1' E; 530 m a.s.l.; 11 Aug. 2018; M.L. Zheng *et al.* leg.; slide No. ZXJ19406; NKU.

Paratype

CHINA – Guizhou Province • 1 ♂; same data as for holotype; NKU.

Description

Male

ADULT (Fig. 1D). Forewing length 4.0–4.5 mm. Head dark grey, tipped with black, yellow along dorsal margin of eyes and occiput. Labial palpus yellow; first and second palpomeres with dense black scales, second palpomere forming black ring at apex; third palpomere black medially. Antenna with scape black mixed with yellow; flagellum black on dorsal surface, yellow on ventral surface. Mesonotum black dorsally, mixed with yellow; tegula predominantly black, yellow distally. Forewing elongated narrow, apex pointed; ground colour yellow; costal margin with black spot at base, at basal $\frac{1}{3}$ and at distal $\frac{1}{4}$; costal spot black, sub-triangular, extending to anterior angle of cell; apical patch black, large, $\frac{1}{4} \times$ as long as forewing; tornal spot black; plical spot black, beyond middle of fold; cell with black spot at base, at middle and before apex as well as at anterior and posterior angles respectively, spot at anterior angle fused with costal spot and spot at posterior angle fused with apical patch; fringe dark brown, with yellow basal line. Hindwing and fringe greyish brown. Legs yellow, except on ventral surface: coxa of foreleg black mixed with yellow scales, tibia black except yellow apically, tarsus black except yellow at base of basal tarsomere and at apices of basal two and apical one tarsomeres, tibia of midleg black, with scattered yellow scales in basal half and yellow apically, tarsus black except yellow at base of basal tarsomere and at apices of basal tarsomere and apical one tarsomere, tibia of hindleg with scattered black scales, tarsus with basal four tarsomeres black except yellow at apices, all femora black mixed with yellow scales.

MALE GENITALIA (Figs 2D, 3D). Uncus slender, clavate, with two tiny apical teeth. Gnathos banded, ring-shaped, sclerotized laterally, weakly sclerotized anteriorly, not exceeding anterior margin of tegumen. Tegumen widened medially, with semicircular anterior emargination, laterally narrowed. Valva with costal part sickle-shaped, slightly narrowed to rounded apex, setose distally; ventral margin with arched, heavily sclerotized band, distally narrowed to apex, dentate along distal $\frac{2}{3}$ of its ventral margin; costal band slightly concave medially; transtilla sclerotized on dorsal margin, produced ventrally, rounded at apex. Saccus trapezoidal, longer than wide, reticulate in distal half, obtuse apically. Saccus wide at base, gradually narrowing to middle; distal half uniformly narrow except slightly narrower apex, slightly longer than uncus. Juxta slender. Aedeagus ca $3.0 \times$ length of costal part of valva, slender, curved distally, with spine at distal $\frac{1}{5}$.

Female

Unknown.

Distribution

China (Guizhou).

Meleonoma oxygona sp. nov.

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Figs 1E, 2E, 3E

Diagnosis

The new species is similar to *M. acuminata* sp. nov. in the male genitalia by the costal part of the valva ending with a spine. *Meleonoma oxygona* sp. nov. can be distinguished from *M. acuminata* by the presence of the following characteristics in the male genitalia: the costal part of the valva is with a cluster of tiny processes before the apex, and the sacculus produced to a long digitiform process dorso-apically. In *M. acuminata*, the costal part of the valva lacks a cluster of tiny processes before the apex, and the sacculus lacks a long digitiform process dorso-apically.

Etymology

The specific epithet is derived from the Latin ‘*oxygonus*’, meaning ‘acute’ in English, which refers to the costal part of the valva ending with a spine. The species epithet is an adjective of the feminine gender.

Type material

Holotype

CHINA – Xizang Autonomous Region [Tibet] • ♂; Zhala Village, Chayu County; 28°37' N, 97°25' E; 2266 m a.s.l.; 29 Jun. 2019; M.J. Qi and J.Q. Deng leg.; slide No. ZXJ19489; NKU.

Description

Male

ADULT (Fig. 1E). Forewing length 6.0 mm. Head pale yellow, mixed with dark brown scales on frons, tipped with dark brown medially on occiput. Labial palpus dark brown; first and second palpomeres mixed with yellow scales; second palpomere with black ring at apex; third palpomere yellow at base and at distal $\frac{1}{3}$. Antenna dark brown on dorsal surface, yellow on ventral surface, scape yellow distally on dorsal surface, with sparse dark brown scales on ventral surface; flagellum annulated with yellow on dorsal surface. Mesonotum dark brown dorsally, yellow laterally; tegula predominantly dark brown, yellow apically. Forewing narrowly elongated, rounded at apex; ground colour dark brown, with yellow and black markings: costal margin with inner yellow spot at basal $\frac{1}{3}$, rectangular, posteriorly crossing anterior margin of cell, outer yellow spot at distal $\frac{1}{3}$, large, with small dark brown spot anteriorly; fold with yellow stripe extending along fold, interspersed with black scales; plical spot black, placed near middle of fold; discal spot composed of few black scales, placed at middle of cell, touching inner yellow spot, discocellular spots larger, placed one above the other, at outer margin of cell; termen yellow, interrupted by dark brown scales; fringe greyish black, with yellowish white basal line. Hindwing and fringe greyish brown. Legs pale yellow, except on ventral surface: fore- and midlegs dark brown, tibiae of fore- and midlegs pale yellow at middle and at apex, tarsus of foreleg pale yellow at base of basal tarsomere and at apices of basal two and apical one tarsomeres, tarsus of midleg pale yellow at base of basal tarsomere and at apices of basal four tarsomeres, hindleg lost.

MALE GENITALIA (Figs 2E, 3E). Uncus wide and parallel in basal $\frac{2}{5}$, distinctly narrowed at basal $\frac{2}{5}$, subparallel to before obtuse apex. Gnathos weakly sclerotized, anteriorly joined and far exceeding anterior margin of tegumen, with straight band along midline. Tegumen narrowly banded, arched. Valva with costal part sub-rectangular, with cluster of tiny processes before apex above ventral margin, with fine setae distally; ventral margin heavily sclerotized, banded, with triangular sclerotized area near base, slightly convex beyond middle, ending with spine; costa almost straight, with sparse long setae at middle; transtilla weakly sclerotized, banded. Sacculus produced in triangle form basally, forming long digitus-shaped process dorso-apically. Saccus evenly tapered to narrowly rounded apex, approx. $1.5 \times$ as

long as uncus. Juxta slender. Aedeagus nearly $1.7\times$ as long as costal part of valva; basal $\frac{3}{5}$ tubular, distal $\frac{2}{5}$ partially membranous, with small spine at apex; cornutus spine-shaped, placed in vesica.

Female

Unknown.

Distribution

China (Xizang).

Meleonoma valviafflata sp. nov.

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Figs 1F, 2F, 3F

Diagnosis

The new species is similar to *M. taeniophylla* Wang & Zhu, 2020 in both the forewing pattern and male genitalia. The new species can be distinguished from *M. taeniophylla* in the male genitalia by the following characters: i) the costal part of the valva with a small denticle above the ventral angle, ii) the sacculus produced to a small digitiform process dorso-apically, and iii) the strong saccus shorter than the slender uncus. In *M. taeniophylla*, the costal part of the valva lacks a denticle above the ventral angle, the sacculus lacks a small dorso-apical process and the saccus is as long as the uncus (Wang & Zhu 2020: 277, fig. 42).

Etymology

The specific epithet is derived from the Latin ‘*valv-*’ and ‘*afflatus*’, meaning ‘dilated band’ in English, which refers to the costal part of the valva roundly dilated in the distal half. The specific epithet is an adjective in the feminine gender.

Type material

Holotype

CHINA – Yunnan Province • ♂; Laiyang River, Pu’er; 26 Aug. 2009; X.C. Du leg.; slide No. ZXJ19424; NKU.

Paratype

CHINA – Yunnan Province • 1 ♂; Taiyang River; 1450 m a.s.l.; 2 Sep. 2014; Z.G. Zhang leg.; slide No. YAH16002; NKU.

Description

Male

ADULT (Fig. 1F). Forewing length 5.0 mm. Head with frons and vertex dark grey mixed with yellowish-white scales, yellow along dorsal margin of eyes and occiput except occiput black medially. Labial palpus yellow, with dense black scales on first and second palpomeres; second palpomere forming black ring at apex; third palpomere $\frac{2}{3}\times$ as long as second palpomere, with dense dark brown scales medially. Antenna with scape yellow, with sparse black scales; flagellum black, annulated with yellow on ventral surface. Mesonotum brown dorsally, yellow laterally; tegula predominantly black, yellow apically. Forewing narrow lanceolate; costal margin slightly arched, apex pointed; ground colour black, with diffused small yellow spot at base below costal margin; costal margin with inner yellow spot placed before middle, crossing anterior margin of the cell, outer yellow spot larger, at distal $\frac{1}{3}$, with small black dot anteriorly; fold with diffused yellow scales along basal $\frac{3}{5}$, with yellow spot at end; tornal spot small, yellow, connected with outer yellow spot; termen yellow, interrupted by black scales; fringe dark

grey, with yellow basal line. Hindwing and fringe grey. Legs yellow, except on ventral surface: coxa of foreleg with sparse dark grey scales, femora of fore- and midlegs with dense dark grey scales, tibiae of fore- and midlegs black except yellow at middle and at apex respectively, tibia of hindleg with scattered dark grey scales, tarsus of foreleg black except yellow at base of basal tarsomere and at apices of basal two tarsomeres, tarsus of midleg with basal four tarsomeres black except yellow at apices and at base of basal tarsomere, tarsus of hindleg with basal two tarsomeres dark grey except yellow at apices.

MALE GENITALIA (Figs 2F, 3F). Uncus evenly long and slender, pointed at apex. Gnathos circular, triangularly produced postero-laterally, sclerotized laterally, anteriorly weakly sclerotized, exceeding anterior margin of tegumen. Tegumen wide medially, sclerotized and almost straight on anterior margin, with shallow anterior emargination, laterally narrowed to anterior tip. Valva with costal part evenly wide in basal half, roundly dilated in distal half, setose distally, with small denticle above ventral angle; ventral margin concave basally; costa shallowly concave medially; transtilla bilobed: dorsal lobe long, clavate, ventral lobe shorter. Sacculus wide at base, slightly narrowed to obtusely oblique apex, with short digitiform dorso-apical process. Saccus strong, narrowed from base to basal $\frac{2}{5}$, distal $\frac{3}{5}$ evenly wide except narrower rounded apex, shorter than uncus. Juxta broadly U-shaped. Aedeagus $2\times$ as long as costal part of valva, distal $\frac{2}{3}$ membranous, with slender band, its apex sheet-like, dilated, encircled by sclerotized band.

Female

Unknown.

Distribution

China (Yunnan).

Discussion

The genus *Meleonoma* can be divided into nine species groups based on morphological and genital characteristics. The presence or absence of the gnathos serves as an important feature for the species identification within the genus. The gnathos is absent in five species groups: the *M. malacobyrsa* group, the *M. fasciptera* group, the *M. jigongshanica* group, the *M. dentivalvata* group, and the *M. acutiuscula* group. In the *M. facialis* group and *M. puncticulata* group, the gnathos is absent or present: for example, in the *M. facialis* group, the gnathos is absent in most species, but present in *M. dorsibacilliformis* Wang & Zhu, 2020 and *M. tianmushana* Wang & Zhu, 2020 and in the *M. puncticulata* group, the gnathos is present only in *M. puncticulata* Wang, 2020. The gnathos is present in the *M. annulignatha* group and the *M. segregnatha* group. Notably, in the *M. segregnatha* group, three types of gnathos have been identified, 1) gnathos is laterally sclerotized, 2) fused with tegumen anteriorly or 3) forming a circular joint anteriorly, connected by a membrane or with weak sclerotization.

To date, the evolutionary significance of the gnathos within the genus *Meleonoma* has not been explored through a detailed molecular analysis combined with the morphological characteristics. This subject needs further investigation, and we hope to address it in our future studies.

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