

## Genus *Metacosma* Kuznetsov (Lepidoptera: Tortricidae) in China, with description of a new species

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*Metacosma bifurcata* **sp. n.** is described from China. Photographs of the adult and the genital structures are provided. The female of *Metacosma* is firstly found in China.

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### 1. Introduction

*Metacosma* is a small genus of Tortricidae, proposed by Kuznetsov (1985). It includes four species prior to this study. *Metacosma impolitana* Kuznetsov, 1985 is distributed in Russia, *M. miratorana* Kuznetsov, 1988 in North Vietnam, *M. triangulata* Zhang & Li, 2009 and *M. trapezia* Zhang & Li, 2009 in China.

In the present paper *Metacosma bifurcata* **sp. n.** is described as new to the science. The species is closely related with *M. triangulata* Zhang & Li.

### 2. Material and methods

The study is based on examination of specimens collected by light traps from forests and mountains in Mt. Fengyang, Zhejiang Province, China. Wing pattern morphological terminology follows Brown and Powell (1991) as refined by Baixeras (2002). Genitalia dissection method follows Li (2002). All the specimens examined are deposited in the Insect Collection, College of Life Sciences, Nankai University, Tianjin, China.

### 3. Description of *Metacosma bifurcata* Zhang sp. n. (Fig. 1)

*Type material.* Holotype ♂, China: Longquan County (28.04°N, 119.08°E), Mt. Fengyang, Lishui City, Zhejiang Province, alt. 1,470 m, 25.VII.2007, coll. Jin Qing, genitalia slide no. ZAH07007. Paratypes: 2 ♂♂, 1 ♀, same data as holotype.

*Diagnosis.* The species is similar to *M. triangulata* Zhang & Li, 2009, but can be distinguished by the short, slightly broad and posteriorly bifurcated uncus, the relatively zonary socius drooping and the cucullus with eight stout ventral spines. In the latter species, the uncus is relatively large, nearly triangular, the minute socius is mastoid and the cucullus has six stout ventral spines. The female genitalia resemble those of *M. impolitana* Kuznetsov, 1985 and can be separated by the shape of sterigma and 7<sup>th</sup> sternite. In *M. bifurcata* **sp. n.** sterigma is elongate semi-elliptic and 7<sup>th</sup> sternite is sclerotized into a broad semicircular plate. In *M. impolitana* sterigma is rectangular and 7<sup>th</sup> sternite is sclerotized into a subtriangular plate.

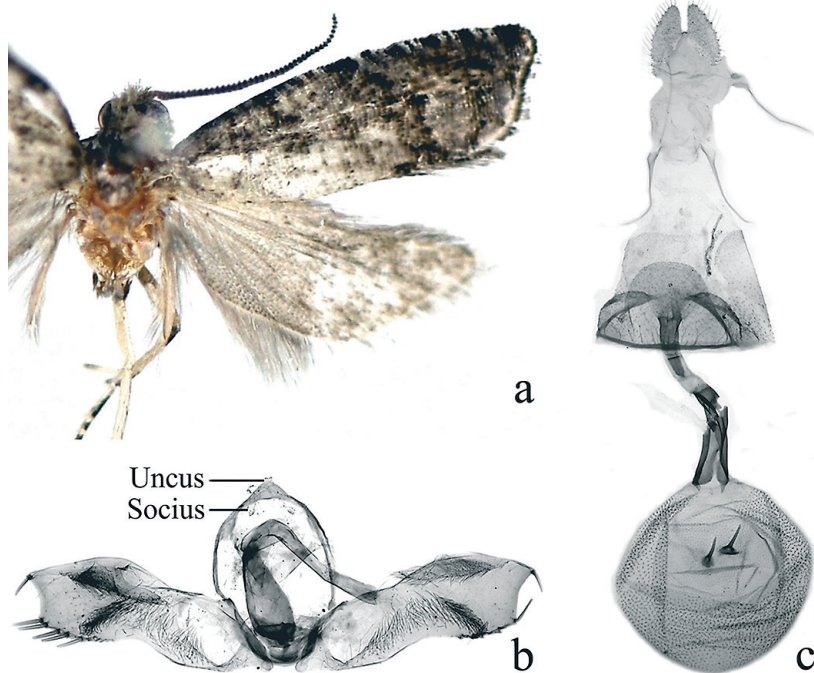


Fig. 1. *Metacosma bifurcata* Zhang *sp. n.* – a. Adult. – b. Male genitalia, slide no. ZAH07007. – c. Female genitalia, slide no. ZAH07009.

*Description.* Adult (Fig. 1a).

**Head.** Vertex with dark brown scales, frons white. Antenna dark brown. Labial palpus brown, third segment slightly drooping.

**Thorax.** Thorax and tegula brown. Legs light brown, tarsi with white rings. Forewing length 4.5–5.0 mm; upside ground color dark grey; basal fascia and subbasal fascia forming a basal patch, extending from costal 1/4 to 1/3 of dorsum, protrudent in middle on outer margin; median fascia extending from costal 1/2 to 2/3 of dorsum, protrudent in middle; postmedian fascia parallel to median fascia, extending from distal 1/3 of costa to tornus; ocellus nearly round, with silvery scales; termen dark grey; costa with nine pairs of white strigulae; strigulae 1–4 between base and the point where Sc meets costa; strigulae 5 and 6 between Sc and  $R_1$  points, each containing one short stria, just like one pair of strigulae; distal three pairs clearer than others, distributed between pairs of veins  $R_1$ – $R_2$ ,  $R_2$ – $R_3$ ,  $R_3$ – $R_4$  respectively; cilia dark grey. Upside hind wing and cilia grey.

**Abdomen.** Abdomen light brown concolor with thorax.

**Male genitalia** (Fig. 1b). Uncus short, slightly broad at base, haired and bifurcated, produced

into two minute processes posteriorly. Socius somewhat zonary, drooping, armed with long hairs. Valva without basal process; neck slightly narrower than base; sacculus hairy; with weak angle; cuculli symmetrical, with a stout dorso-apical spine and eight ventral ones (some lost but can be seen from inserted hole); a bristled band extending from beyond middle extending to costa. Aedeagus slightly longer than valva, broad at base, gradually narrowed to middle, then curved at about middle; cornuti deciduous.

**Female genitalia** (Fig. 1c). Papilla analis somewhat triangular, setose. Anterior apophysis slightly shorter than posterior apophysis. Ostium large, infundibular. Sterigma elongate semi-elliptic, situated bilaterally. 7<sup>th</sup> sternite sclerotized into a broad semicircular plate situated behind ostium. Ductus bursae slender, with a sclerotized band occupying anterior half, distally produced into two minute processes and extending into corpus bursae; colliculum located near base, narrowed distally, covered about 1/3 of ductus bursae; ductus seminalis originated from distal 1/3 of ductus bursae. Corpus bursae rounded, spinulose except posterior end and area around signa; signa two, large and spinelike, with rounded sclerotized basal plate.

*Etymology.* The specific name is derived from the Latin *bifurcatus*, referring to the shape of uncus.

#### 4. Discussion

*Metacosma* is firstly reported by Kuznetsov (1985) with a Russian Far East species. Then Kuznetsov (1988) and Zhang and Li (2009) reported another three species from Vietnam and China. In the present paper, one new species is added and the female of *Metacosma* is recorded for the first time in China.

*Metacosma* is a small genus of Tortricidae including only five species to date. Each species is represented by few specimens. Three species are known in China but male and female specimens of only one species have been found. Moreover, there are only eight specimens of *Metacosma* found in China. Early stages and hostplants are unknown.

The autapomorphy of *Metacosma* is a bristled band extending from beyond middle reaching costa in the male genitalia, a condition not found in other genera of Eucosmini of Olethreutinae. This genus was originally compared with *Spilonota* Stephens based on the similarity of the female genitalia, especially in the structure of the 7<sup>th</sup> sternite and its fusion with the ostium. The sterigma of *Spilonota* is fused with 7<sup>th</sup> sternite and producing into a pair of subterminal lobes posteriorly. The *Spilonota* species are similar in the male genitalia but the depth between subterminal lobes in the female genitalia is the main character in distinguishing species. In *Metacosma* Kuznetsov, the male genitalia characters can be used to separate species. On the one hand, there are relatively many clear differences in uncus, socius and valva (e.g. the shape of uncus and socius, number and inserted position of stout spines); on the other hand, the female specimens are very few to date though there may be some valuable characters such as the shape of sterigma and 7<sup>th</sup> sternite. Razowski (1989) mentioned the male genitalia remind those in *Rhopobota* Lederer, especially as concerned the shape of valva. Accordingly, he placed *Metacosma* near *Rhopobota* and *Spilonota*. But I consider there are no more characters

to support the relations between *Metacosma* and *Rhopobota*. Another special character is reflected in venation.  $M_3$  and  $Cu_1$  are well separated in hindwing of *Metacosma*, while in most genera of Eucosmini  $M_3$  and  $Cu_1$  in hindwing are stalked.

In conclusion, *Metacosma* is an interesting and unique genus of Eucosmini of Olethreutinae. The character and function of a bristled band in the male genitalia deserves more attention. The confirmation of the taxonomic status of *Metacosma* lies on future studies on more specimens and species including early stages and hostplants.

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