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New Record of *Mictocommosis nigromaculata* (Issiki, 1930) in Taiwan with the First Host Plant Association for the Genus (Lepidoptera: Tortricidae, Archipini)

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Abstract.

The type species of *Mictocommosis* Diakonoff, 1977, *M. nigromaculata* (Issiki, 1930), is recorded in Taiwan for the first time, with previously unknown generic host information uncovered as *Nekemias cantoniensis* (Vitaceae). The moth-plant distribution is largely matches based on the reference data, indicating the potential for similar host resources in other recorded countries.

Keywords: Oriental region, insect-plant interactions, Vitaceae

Introduction

The genus *Mictocommosis* was established by Diakonoff (1977) under the tribe Hilarographini (Chlidanotinae) based on the Japanese type species, *Simaethis nigromaculata* Issiki, 1930. The current higher classification of this genus is placed in Archipini, based on the typically archipine-formed signum in the female genitalia (Heppner & Bae, 2015). The systematic position of this genus and related genera, i.e., the *Mictopsichia* group, has long been questionable, and the monophyly of *Mictocommosis* remains uncertain (Austin & Dombroskie, 2020). This genus tentatively includes six species, distributed across the Palearctic, Oriental, Afrotropical and Neotropical regions (e.g., Austin & Dombroskie, 2020).

In Taiwan, Heppner (2012) recorded the genus in the faunistic checklist for the first time and indicated that the Taiwanese population represents a new species, though no voucher specimen was provided. In 2019, the first author reared the agaristine species *Mimeusemia vilemani* Hampson, 1911, using its local host plant *Nekemias cantoniensis* (Vitaceae) collected in Academia Sinica, Taipei City, Taiwan, with a few parts of leaves rolled. Subsequently, a tortricid moth emerged in the rearing environment. This individual became the voucher specimen in the present study to elucidate the species-level identity of the Taiwanese *Mictocommosis.*

Abbreviation

National Taiwan Museum, Taipei, Taiwan (NTM)
National Museum of Natural History, Washington, USA (USNM)
Laboratory of Systematic Entomology, Hokkaido University, Sapporo, Japan (SEHU)

Material and methods

Rearing – A pinnately compound leaf of *Nekemias cantoniensis* (Vitaceae) was placed in a sealed bag (420*280 mm) to originally provide food for a noctuid larva, *Mimeusemia vilemani* Hampson, 1911. A few leaves formed tubular structures, curling downwards from both sides; at least one of these was later confirmed to be a shelter constructed by a *Mictocommosis* larva during its immature stage before adult emergence.

Genitalia preparations for morphological studies – Genitalia were prepared following the general method described by Betts (1987) with slight modifications. After maceration of the abdomen in 10% KOH and subsequent cleaning, the female genitalia were carefully removed from the abdomen, and abdominal segments 1–6 were opened along the caudocephalic axis from the right side.

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Results

***Mictocommosis nigromaculata* (Issiki, 1930) 漣波鑽捲蛾（首次建議中文名）**
(Fig. 1)

Simaethis nigromaculata Issiki, 1930: 423. (Type information: Holotype: ♀, Japan, "Honshu, Osaka Prefecture, Mt. Iwawakisan". (USNM))
Simaethis takaonis Matsumura, 1931: 1081. (Type information: Holotype: ♀, Japan. "Honshu, Tokyo Prefecture, Mt. Takao". (SEHU)
Anthophila nigromaculata: Issiki, 1957: 33, fig. 131.
Mictocommosis nigromaculata: Diakonoff, 1977: 9, figs. 2, 5-7; Kuznetzov, 2000: 341; Nasu, 2013: 197, fig. 4-23-6.

Specimens examined. 1♀, TAIWAN, Taipei City, Nanggang, Academia Sinica, 23. VI. 2019, reared from *Nekemias cantoniensis*, emgd. 7. V. 2019, SWUBR2019-100, leg. S. Wu (NTM).

Diagnosis

The Taiwanese female individual (Fig. 1b, d) shows no remarkable difference in appearance compared to the specimen from the type locality in Japan (Fig. 1a, c). The female genitalia of the Japanese and Taiwanese specimens are quite similar, except that the signum in our examined Taiwanese specimen is somewhat damaged and the basal sclerotized plate is more slender. Unfortunately, no scale bar is available for the former, preventing morphometric comparison between the two specimens. In Taiwan, this species can be easily identified by the ocelloid patches present on the forewing. In addition, the hindwing of this species is dark greyish brown basally with orange blotches medially and peripherally, which distinguishes it from other congeners.

Description

Female (Fig. 1b). Antenna length 1.96 mm (n = 1), forewing length 6.17 mm (n = 1). Head: antenna orange brown, gradually darker toward apex; vertex with rough scales, creamy. Thorax: surface orange, with a metallic indigo stripe medially, tegula orange, with a metallic indigo stripe at inner side. Forewing: ground color orange, brighter near base, slightly darker near termen; costa roughly curved; costal fold absent; basal patch with one incontinuous metallic indigo stripe near costa, extended toward basal 1/4 costa, sharply curved toward dorsum, end at middle half, two short metallic indigo stripes presented, one parallel to costa, one vertical to dorsum; a wide metallic indigo stripe started at middle costa, extended toward dorsal 1/3 of termen, but not reached; a metallic indigo stripe started at 1/5 costa near apex, extended toward half of termen; a small metallic indigo spots near apex; an ocelloid patch presented near tornus, ground color black, scattered with some orange spots at basal 3/4, two metallic indigo blotches at distal 1/4, two beige spots presented medially, one near costa, one near dorsum; dorsal 2/3 of forewing scattered with some metallic silver scales; fringes greyish white, dark greyish mesally, inner cilia dark orange. Hindwing: ground color dark greyish brown; some orange blotches presented on middle of hindwing and along termen and dorsum; an unobvious ocelloid patch presented at tornus, with a metallic indigo stripe.
Female genitalia (Fig. 1d). Anal papillae oblong, anterior apophyses slender; lengths of anterior and posterior apophyses similar; ductus bursae long, curved near anterior half; corpus bursae nearly cylindrical and membranous, sigum a tortricoidal horn, somewhat broken in our examined specimen, a basal sclerotized plate slender.

Host plant

To date, no references have identified the host plant of *Mictocommosis.* For example, Nasu (2013) noted the host of this species as “unknown”. The present study confirms *Nekemias cantoniensis* (Vitaceae) as the host plant of this species.

Distribution

Japan, Korea (Byun, 2020), Vietnam (Kuznetzov, 2000), China (Wang et al., 2017) and Taiwan (the present study).

Chinese vernacular name

The suggested Chinese vernacular names for the genus and the type species are proposed here as 漣波鑽捲蛾屬 for the genus and 漣波鑽捲蛾 for the type species, respectively.

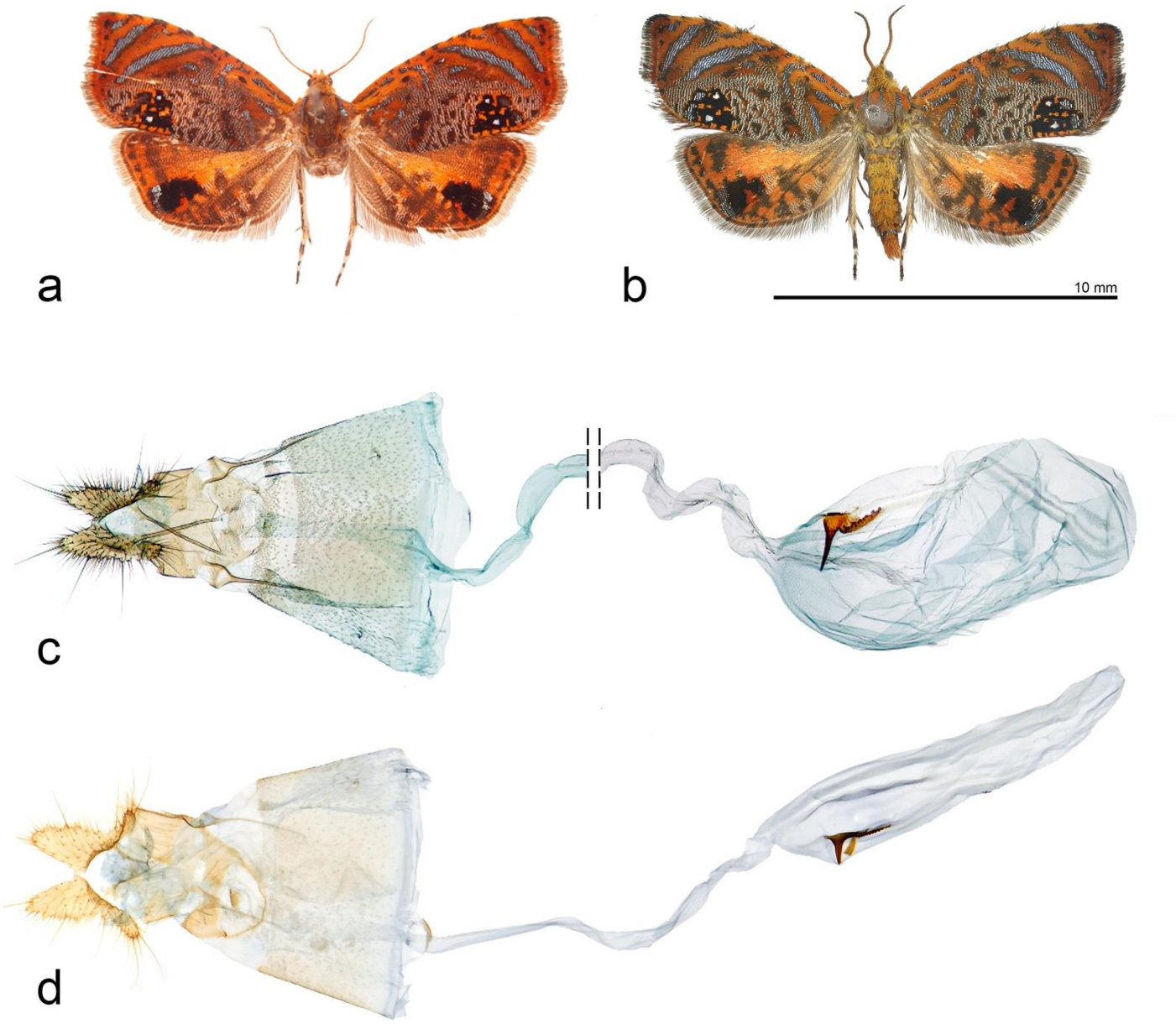


Figure 1. *Mictocommosis nigromaculata* (Issiki, 1930). a. female specimen, Japan; b. *Ditto*, Taiwan. (NTM); c. Female genitalia, Japan; d. *Ditto*, Taiwan (NTM). Courtesy of specimens: Collection of Yoshitsugu Nasu (a, c); NTM (b, d). Photos by Yoshitsugu Nasu (a, c); Shipher Wu (b, d). Scale bar = 10 mm (b).

Discussion

According to Plants of the World Online (2024), the host plant *Nekemias cantoniensis* has a distribution that largely overlaps with the known distribution of *Mictocommosis nigromaculata* in Japan, Taiwan, China and Vietnam, except for the Korean peninsula. The overlapping distribution between the moth and its host plant suggests the possibility that some of the other populations outside of Taiwan may select the same host plant. Further study is needed to confirm the immature biology.

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漣波鑽捲蛾於臺灣的首次記錄與確認其屬級寄主植物關聯（鱗翅目：捲蛾科：黃捲蛾族）

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摘要：本文章首次紀錄漣波鑽捲蛾屬(*Mictocommosis* Diakonoff, 1977)的模式種漣波鑽捲蛾 (*M. nigromaculata* (Issiki, 1930)) 於臺灣的分布，並確認此前未知的寄主植物為廣東山葡萄(*Nekemias cantoniensis*，葡萄科)。根據現有資料，此蛾種與寄主植物的分布大致相符，顯示蛾種在其他已記錄國家可能利用類似的寄主資源。

關鍵字： 東方區、交互作用、葡萄科