

A New Genus, *Valvaribifidum* (Lepidoptera, Bombycidae), with Description of a New Species from China

Authors: Wang, Xing, Huang, Guo-Hua, and Wang, Min

Source: Florida Entomologist, 94(3) : 567-570

Published By: Florida Entomological Society

URL: <https://doi.org/10.1653/024.094.0321>

BioOne Complete (complete.BioOne.org) is a full-text database of 200 subscribed and open-access titles in the biological, ecological, and environmental sciences published by nonprofit societies, associations, museums, institutions, and presses.

Your use of this PDF, the BioOne Complete website, and all posted and associated content indicates your acceptance of BioOne's Terms of Use, available at www.bioone.org/terms-of-use.

Usage of BioOne Complete content is strictly limited to personal, educational, and non - commercial use. Commercial inquiries or rights and permissions requests should be directed to the individual publisher as copyright holder.

BioOne sees sustainable scholarly publishing as an inherently collaborative enterprise connecting authors, nonprofit publishers, academic institutions, research libraries, and research funders in the common goal of maximizing access to critical research.

A NEW GENUS, *VALVARIBIFIDUM* (LEPIDOPTERA, BOMBYCIDAE),
WITH DESCRIPTION OF A NEW SPECIES FROM CHINAXING WANG^{1,2}, GUO-HUA HUANG¹ AND MIN WANG²¹Institute of Entomology, College of Bio-safety Science and Technology, Hunan Agricultural University,
Changsha 410128, Hunan, China²Department of Entomology, College of Natural Resources & Environment, South China Agricultural University,
Guangzhou 510640, Guangdong, China

ABSTRACT

A new bombycid genus *Valvaribifidum* is described based on *V. huananense* **sp. nov.** from South China. *Trilochea sinica* Dierl, 1979 is transferred to the new genus, i.e., *Valvaribifidum sinica* (Dierl 1979) **comb. nov.** The genus is separable from its closely related genus *Triuncina* Dierl, 1978 by male genitalia with valva bifid postmedially, costa long sickle-shaped, sacculus inflated, gnathos vestigial, saccus slender with apical oncoides, and aedeagus slender. A key to *Valvaribifidum* species is provided. Male adult and genitalia are described and illustrated. All type specimens are deposited in SCAU (South China Agricultural University, Guangzhou, China) and HUNAU (Hunan Agricultural University, Changsha, China).

Key Words: Taxonomy, Lepidoptera, Bombycidae, *Valvaribifidum*, *Valvaribifidum huananense*, China

RESUMEN

Se describe un nuevo género de bombicido, *Valvaribifidum*, basado sobre la especie *V. huananense* **sp. nov.** encontrado en el sur de China. Se transfiere la especie *Trilochea sinica* (Dierl, 1979) al nuevo género, *Valvaribifidum sinica* (Dierl, 1979) **comb. nov.** El nuevo género se puede separar del género *Triuncina* Dierl, 1978, que es un género estrechamente relacionado, por los genitales masculinos que tiene la valva bifurcada posteriormente en el medio, la costa larga en forma de hoz, el sáculo inflado, los gnatos vestigios, el saccus delgado con el apice hinchado y por el delgado aedeagus. Se provee una clave para las especies de *Valvaribifidum*. Se describen e ilustran los adultos machos y su genitalia. Todos los ejemplares tipo están depositados en SCAU (La Universidad Agrícola del Sur de China, Guangzhou, China) y HUNAU (Universidad Agrícola de Hunan, Changsha, China).

Dierl (1978, 1979) reviewed the oriental Bombycidae that included most species from China, and reported 42 species belonging to 8 genera, including 6 new genera, 8 new species and 2 new subspecies. Chu & Wang (1993) reported 9 genera and 28 species of Chinese bombycid moths, in which 10 new species were described. Subsequently, Chu & Wang (1996) presented the morphology, biology and distribution maps, etc. of those 28 species in detail. In this paper, the new genus *Valvaribifidum* belonging to the family Bombycidae (Lepidoptera) is described on the basis of a new species *V. huananense* and a new combination of *V. sinica* (Dierl, 1979) occurring in South China.

MATERIALS AND METHODS

Specimens of the new species were collected by light trap. The types of previously described species in the Natural History Museum, London, UK

(BMNH) were examined. All specimens examined in this study are deposited in the Insect Collection of SCAU (South China Agricultural University, Guangzhou, China) and HUNAU (Hunan Agricultural University, Changsha, China). Specimens were cleared in 10% potassium hydroxide (KOH), and mounted in Canada Balsam. Morphological terminology used in descriptions follows Lemaire & Minet (1999). Photographs of adult and genitalia were taken with a Canon 50D digital camera.

RESULTS

Genus *Valvaribifidum* **gen. nov.**

Type species: *Valvaribifidum huananense* **sp. nov.**

The new genus *Valvaribifidum* (Bombycidae) occurring in China is differentiated from its al-

lied genera (e.g. *Triuncina*, *Trilocha* in appearance) by the following characters: uncus undivided, long and thin with pointed apex, valva bifid postmedially, costa long sickle-shaped, sacculus inflated; gnathos vestigial; saccus slender with apical oncoides; aedeagus slender, slightly arched.

Description. Medium-sized moths. Head. Comparatively small, antenna bipectinate to tip, compound eyes naked, proboscis absent, labial palpi moderately long.

Thorax. Stout with dense scales. Forewing with discal cell closed, all Rs branches stalked together, M2 slightly closer to M1 than to M3, 1+2A stalked completely, 3A rather short; hind wing with subcosta arising from basal 1/8 of dorsal margin of discal cell, discal cell closed, M2 closer to M1 than to M3, stem of M vestigial, 1A and 3A present, 2A absent, frenulum simple with one bristle in male.

Abdomen. Tergum VIII with height slightly larger than width, dorsal margin with lateral, drooping and folding sclerotized bars, U-shaped medially; sternum VIII helmet-shaped, ventral margin widely depressed with both sides descending to form two acute processes.

Male Genitalia. Uncus thin, finger-shaped, apex pointed, both sides folded inwardly; tegumen triangular; left and right valva entirely fused basally, basal part broader, bifid postmedially, costa long sickle-shaped, curved ventrally, apex pointed, sacculus inflated; gnathos indistinct; saccus slender, swollen distally; aedeagus slightly arched, curved cornuti at

apex, microtrichia on inside of slightly exposed membrane.

Distribution: South China.

Etymology

The name of the genus *Valvaribifidum* (*valva-rum* + *bifidum* = valva + bifid) is derived from the type species with valva bifid postmedially.

Remarks

According to the phylogenetic analysis based on mitochondrial and nuclear DNA sequences (*COI* + *18S* + *28S*), the new genus is similar to *Triuncina* Dierl, 1978 with bootstrap proportion 59% in NJ tree and Bayesian posterior probability 1.00 in Bayesian tree between *V. huananense* and *T. brunnea* (type species of the genus *Triuncina*) (Wang et al., unpublished), but can be distinguished from the latter by the following characters: forewing ground color brownish grey, costa dark brown with yellow-brown patterns, forewing with a median pale blue kidney-shaped translucent spot, dorsum brownish-grey with medial yellow-brown patterns; hind wing ground color brownish grey, dorsum with yellowish white stripes and spots; abdomen conical, brownish-grey, terminal fan-shaped scale-tufts; uncus not forked, thin and pointed apically, valvae fused basally, bifid postmedially, costa long sickle-shaped, bending inwardly to base of uncus.

KEY TO SPECIES OF THE GENUS VALVARIBIFIDUM

- 1. Forewing ground color brownish grey with a large median kidney-shaped translucent pale blue spot; uncus long and tegumen narrow *V. huananense* **sp. nov.**
- Forewing ground color brownish yellow without a large median blue spot, uncus short and tegumen broad *V. sinica* **com. nov.**

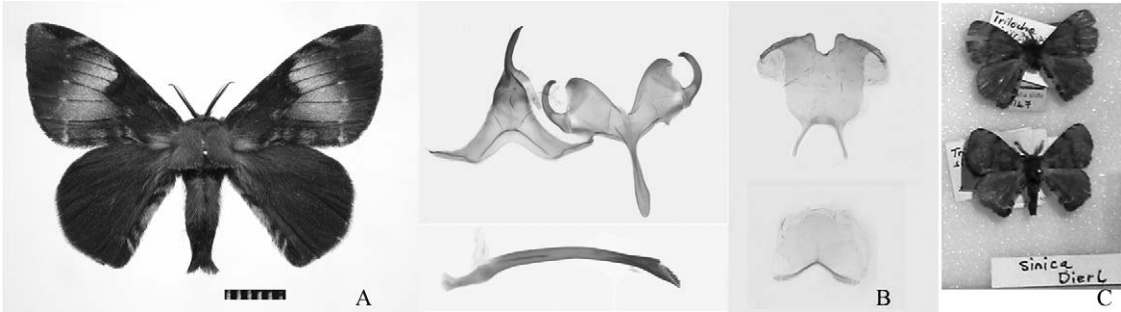


Fig. 1. Male adults and genitalia of *Valvaribifidum* spp. A-B. *V. huananense* **sp. nov.**, Holotype; C. Adults of *V. sinica* **com. nov.**, Holotype & Paratype.

Valvaribifidum huananense sp. nov. (Fig. 1A-B)

Material Studied. Holotype. Male, Nanling National Nature Reserve, Ruyuan County, Guangdong Province, China, 22-X-2007, leg. Lui-Sheng Chen. Paratypes. 1 male, same data as holotype; 2 males, Maoershan National Nature Reserve, Xingan County, Guangxi Province, China, 8-VIII-2005, leg. Min Wang and Lui-Sheng Chen.

Description. Male. Wing expanse 38-40 mm, forewing length 18-20 mm, antenna length 5-7 mm (Fig. 1A).

Head. Brownish grey, frons yellow- brownish. Antenna dark grey, 24 segments. Proboscis absent. Labial palpus moderately long.

Thorax. Brownish grey. Forewing ground color brownish grey with yellowish brown spots, costa dark brown with yellow-brown patterns; apical costa with a distinct triangular black spot; mesial forewing with a pale blue kidney-shaped translucent spot, dorsum with some irregular yellow-brown patterns; postmedian transverse line indistinct, nearly straight with distinct white dots at veins. Hind wing almost hemicycle, ground color brownish grey, dorsum nearly straight with yellowish white stripes and spots along anal margin.

Abdomen. Dorsum brownish-grey with long dense bristles, terminal fan-shaped scale-tufts.

Male Genitalia (Fig. 1B). (Also see the characters of the genus). Uncus slightly curved ventrally about $2/3 \times$ length of sacculus, tegumen narrow, nearly equal to uncus in length, valvae entirely fused basally, bifid postmedially, costa about $1.3 \times$ length of sacculus, saccus slightly longer than sacculus, aedeagus curved ventrally, about $3.3 \times$ length of sacculus.

Etymology.

The specific epithet is from the type locality Huanan District, China (South China).

Host(s): Unknown.

Distribution: China (Guangdong, Guangxi).

Remarks.

The new species is similar to *V. sinica* (Dierl 1979) **comb. nov.** in male genitalia, but can be distinguished from the latter by the following characters: central forewing with a pale blue kidney-shaped translucent spot; uncus long, tegumen narrow, aedeagus curved ventrally.

Valvaribifidum sinica (Dierl, 1979) **comb. nov.** (Fig. 1C)

Trilocho sinica Dierl, 1979, *Spixiana*, 2 (3): 255. Type locality: Guangxi, China.

Material Studied. Holotype in BMNH. Male, Guangxi Province, China, 9-VII-1925, leg. J. J.

Joicey. Paratype in BMNH. 1 male, same data as holotype except 24-VII-1924.

Diagnosis. This species was originally described as *Trilocho* species based on the appearance of similar characters in *Trilocho varians*, but based on the male genitalia, it does not belong to the genus *Trilocho* with uncus triangular; valva small, separated, curved, and tapering.

Male. Wing expanse about 28 mm, forewing length 13 mm, antenna length 3-4 mm (Fig. 1C). Head brownish yellow. Antenna and legs lightly yellowish brown. A collar and ring present between thorax and abdomen. Forewing ground color brownish yellow with dark brown markings. Hind wing almost brownish yellow. Abdomen. Dorsum brownish yellow.

Male Genitalia. (See Dierl 1979: Fig. 1; also see the characters of the genus.) Uncus slightly curved ventrally about $1/5 \times$ length of sacculus, tegumen broad, near $4.0 \times$ length of uncus, valva bifid postmedially with costa about $1.3 \times$ length of sacculus, saccus slightly longer than sacculus, aedeagus almost straight, about $2.0 \times$ length of sacculus.

Female. Unknown.

Host. Unknown.

Distribution. China (Guangxi).

Remarks.

The only known specimens are the holotype and paratype in the BMNH. *Trilocho sinica* is transferred to *Valvaribifidum* based on the following characters: uncus thin, finger-shaped; valvae fused basally, bifid postmedially, costa long sickle-shaped, and sacculus inflated; saccus slender swollen distally.

ACKNOWLEDGMENTS

We are grateful to Dr. Liu-Sheng Chen (Shihezi University, China) for collecting specimens in the field, and Dr. Mamoru Owada (National Museum of Nature and Science, Tokyo, Japan) for his kind suggestions and help with the manuscript. We thank Mr. K. Tuck (The Natural History Museum, UK) for providing access to the type specimens. This research was supported by the General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China (20091K277).

REFERENCES CITED

- DIERL, W. 1978. Revision der orientalischen Bombycidae (Lepidoptera) (I). *Spixiana* 1(3): 255-268.
- DIERL, W. 1979. Revision der orientalischen Bombycidae (Lepidoptera) (II). *Spixiana* 2(3): 253-258.
- LEMAIRE, C., AND MINET, J. 1999. The Bombycoidea and their relatives, pp. 321-354 *In* N. P. Kristensen [ed.],

- Lepidoptera, Moths and Butterflies. 1. Evolution, systematics and biogeography. Handbook Zool. 4(35): 1-491. Walter de Gruyter, Berlin & New York.
- CHU, H. F., AND WANG, L. Y. 1993. Saturniidae of China. Bull. Zool. Science Press, Beijing. 10: 211-238.
- Chu, H. F., and Wang, L. Y. 1996. Fauna Sinica Insecta V, Lepidoptera: Bombycidae. Science Press, Beijing, pp. 1-24.
- MOORE, F. 1860. A Catalogue of the Lepidopterous Insects in the Museum of the East-India Company 2: 382.