

ORIGINAL ARTICLE

Three new species and a new combination of *Stericta* Lederer from China (Lepidoptera: Pyralidae: Epipaschiinae)

Mingqiang Wang^{1, 2}, Fuqiang Chen¹, Chunsheng Wu^{1 *}

¹Key Laboratory of Zoological Systematics and Evolution, Institute of Zoology, Chinese Academy of Sciences, Beijing 100101, China

²University of Chinese Academy of Sciences, Beijing 100049, China

*Corresponding author, E-mail: wucs@ioz.ac.cn

Abstract Three species of the genus *Stericta* are described as new to science, *S. melasiversusa* **sp. nov.**, *S. penicilasa* **sp. nov.** and *S. hampsoni* **sp. nov.** And a new combination, *Stericta melanobasis* (Hampson, 1906) **comb. nov.**, was transferred from the genus *Lepidogma*. All adults and their genital structures are illustrated. The differences between the genus *Stericta* and it allied genera are discussed.

Key words Pyraloidea, *Lepidogma*, *Jocara*, *Titanoceros*, China.

1 Introduction

The genus *Stericta* was erected by Lederer (1863), with *S. divitalis* Guenée, 1854 (from Sundaland, UK) as type species. It comprises about fifty species, distributes in Palaearctic, Oriental, Australian and Nearctic Regions (Solis, 1992; Nuss *et al.*, 2003–2018; Rong & Li, 2017). The genus was just revised by Rong & Li (2017), including eight species from China. However, more species, allied to the type species, were found during our work. Thus, a supplemental description of the genus was provided, including three species described as new to science, *S. melasiversusa* **sp. nov.**, *S. penicilasa* **sp. nov.** and *S. hampsoni* **sp. nov.** and a new combination, *S. melanobasis* (Hampson, 1906) **comb. nov.**

2 Materials and methods

The examinations of the specimens were collected by light traps. The images of adults and genitalia were taken with a NIKON D7000 digital camera connected to a NIKON SMZ 1500 stereomicroscope. Methods of dissection, morphometrics, and terminology follow Wang *et al.* (2003) and Slamka (2006).

All Materials examined, including type specimens are deposited in the Institute of Zoology, Chinese Academy of Sciences (IZCAS), Beijing, China.

3 Taxonomy

Stericta melasiversusa **sp. nov.** (Figs 1, 5, 9)

Diagnosis. The species is similar to *S. hoenei* Caradja, 1935 (Caradja & Meyrick, 1935) by the wing pattern. However,

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the new species has the basal area broader and the outer area little narrower than the latter. In male genitalia, the species is characteristic by its specific juxta and the spine-like clasper at the base of valva.

Description. Adult. Forewing length 10.0 mm ($n=5$). Head fuscous, mixed with yellow scales; labial palpus upturned, fuscous and mixed with greyish-green scales; base of first segment with yellow scales; third segment pointed, with yellow scales; antenna brown. Scape extension slender, as long as to distance of thorax, base of scape extension yellow mixed with black scales, and with black scales on terminal. Thorax with yellow scales. Forewing covered with greyish-green mixed with few fuscous and yellow scales at basal and outer areas; medial area with pale yellow scales, antemedial line black and straight, postmedial line black, waved; cilia brown. Hindwing with fuscous scales, and a blurred postmedial line.

Male genitalia. Uncus elongated, densely covered with setae laterally, apex truncated. Gnathos with slender arms at lateral, joined from middle, with median process distally hooked. Valva near same width from base to apex, apex rounded; a spine-like clasper present at the base of valva; sacculus strong at base. Juxta narrow and long, length about two times of width, bifurcated deeply to slightly more than half-length. Phallus slender, without obvious cornuti.

Female genitalia. Ovipositor thin, densely suffused with setae. Apophysis anterioris about 2/3 length of apophysis posterioris. Ostium broad, partly sclerotized. Ductus seminalis arising from just below the ostium. Ductus bursae long, about 2.5 times diameter of corpus bursae. Corpus bursae round, with two two spinous plate-like signa.

Holotype. ♂, Fujian, Wuyishan, Huanggangshan, 2150 m, 26.VII.2000, Wang Jiashe (gen. slide no. Ep100).

Paratypes. Shaanxi, Liuba, Miaotaizi, 1350 m, 1♀, 21.VII.1998, Yao Jian (gen. slide no. Ep598). Shaanxi, Ningshan, Huoditang, 1580 m, 1♀, 27.VII.1998, Yao Jian. Fujian, Wuyishan, Mali, 1260 m, 1♀, 30.VII.2000, Song Shimei. Hainan, Baisha, Yinggezui, 1♀, 7.V.2009, Chen Fuqiang.

Distribution. China (Shaanxi, Fujian, Hainan)

Etymology. The specific name is derived from Latin “*melas*” (=black) and “*versus*” (=line), in accordance with its distinct antemedial and postmedial lines.

***Stericta melanobasis* (Hampson, 1906) comb. nov. (Figs 2, 6, 10)**

Orthaga basis South, 1901: 417. Type locality: Japan.

Lepidogma melanobasis Hampson, 1906: 129; Lu & Guan, 1953: 107; Solis, 1992: 283. Type locality: Japan.

Stericta tripartita Wileman & South, 1917: 128; Shibuya, 1928: 19. Type locality: China, Taiwan.

Stericta japonica Marumo, 1920: 266. Type locality: Japan.

Jocara melanobasis (Hampson): Yamanaka & Yoshiyashu, 1992: 92.

Diagnosis. Forewing length 8.0–11.0 mm ($n=10$). The species is similar to *S. hoenei* Caradja, 1935 by wings pattern. Both of them have forewing covered with fuscous scales on basal and outer areas and hindwing all covered with fuscous scales. However, the medial area of forewing in *S. hoenei* covered with pale yellow scales rather than more or less covered with fuscous scales in *S. melanobasis*. In *S. hoenei*, the outer area of forewing is broader than that in *S. melanobasis*. In male genitalia, *S. hoenei* has its juxta bifurcated deeply to the end of juxta, while to half-length in *S. melanobasis*.

Material examined. Hubei, Xingshan, Longmenhe, 1350 m, 3♂, 22–24.VII.1993, Song Shimei (gen. slide no. Ep46). Fujian, Longxishan, 700 m, 3♀, 7–16.VIII.1991, Song Shimei (gen. slide no. Ep48). Fujian, Jiangle, 1♂, 1990.IX.11 (gen. slide no. Ep69). Fujian, Wuyishan, Pikeng, 520 m, 3♂1♀, 29.VII.2000, Song Shimei (gen. slide no. Ep477). Fujian, Wuyishan, Mali, 1260 m, 1♂, 30.VII.2000. Fujian, Chonganxingcun, 740 m, 1♂, 21.VIII.2000, Song Shimei. Sichuan, Emeishan, Qingyinge, 800–1000 m, 1♂, 30.V.1957, 1♂, 30.VI.1957, 3♂, 16.VII.1957, Zhu Fuxing (gen. slide no. Ep93). Shaanxi, Foping, 950 m, 3♂8♀, 23.VII.1998, Yao Jian (gen. slide no. Ep476). Zhejiang, Tianmushan, 1♀, 25.VIII.1973, Zhang Baolin (gen. slide no. Ep468). Zhejiang, Tianmushan, 1500 m, 1♂, 28–29.VII.2003, Xue Dayong. Zhejiang, Botanical garden of Zhejiang, 1♂, 17.VI.1976, Chen Tailu (gen. slide no. Ep70). Guizhou, Leigongshan, Lianhuaping, 1600–2200 m, 1♀, 2.VI.2005, Chen Fuqiang. Hainan, Jianfengling, 1♀, 30.VII.1981, Chen Zhiqing. Hainan, Jianfengling, Tianchi, 828 m, 1♀, 5.V.2007, Chen Fuqiang. Gansu, Wenxian, Bikou, 900–1450 m, 1♀, 25.VI.1998, Yao Jian. Gansu, Kangxian, 1200 m, 1♂, 11.VII.1998, Yao Jian. Gansu, Kangxian, Qinghe, 1♂, 8.VII.1999, Yao Jian. Guangxi, Miaoershan, 1♂, 6.VII.1985, Song Shimei. Jiangxi, Lushan, 1♂, 18.VI.1975, Liu Youqiao. Shanghai, 1♂, 20.VIII.1933 (gen. slide no. Ep76). Beijing, Miyun, Wulingshan, 565 m, 1♂, 7–8.VII.2015, Wang Mingqiang (gen. slide no. Ep615).

Distribution. China (Beijing, Tianjin, Henan, Shaanxi, Gansu, Shanghai, Zhejiang, Hubei, Jiangxi, Hunan, Fujian, Taiwan, Hainan, Guangxi, Guizhou, Sichuan, Yunnan, Xizang), Japan.

***Stericta penicilasa* sp. nov. (Figs 3, 7)**

Diagnosis. The species is similar to *S. melanobasis* by the similar antemedial and postmedial lines. However, the new

species has its basal area of forewing paler than that in *S. melanobasis*. In male genitalia, the species is characteristic by its elongated saccus. Additionally, the species has the juxta bifurcated deeply to the 4/5 length.

Description. Adult. Forewing length 7.5–9.0 mm ($n=3$). Head fuscous, mixed with black scales; labial palpus upturned, fuscous and mixed with grey; base of third segment with white scales; third segment pointed; antenna brown, and base of antenna darker than terminal. Scape extension slender, exceeding thorax, base of scape extension fuscous mixed with black scales, and with more black scales on expanded terminal. Thorax fuscous with black scales. Forewing covered with fuscous scales at base area; medial area pale yellow mixed with fuscous scales; outer area with fuscous scales; a black discocellular patch present; postmedial line black, waved; cilia brown. Hindwing usually all fuscous, with a blurred postmedial line.

Male genitalia. Uncus elongated and sender, densely covered with setae laterally, apex turncated. Gnathos with slender arms at lateral, joined from middle, with median process distally hooked. Valva slightly constricted from middle to apex. Saccus elongated. Juxta bifurcated deeply to the 4/5 length. Phallus slender, with minute spine-like cornuti.

Female genitalia. Unknown.

Holotype. ♂, Shaanxi, Foping, 2150m, 15.VIII.2007, Li Wenzhu (gen. slide no. Ep484).

Paratypes. Guangdong, Ruyuan, Nanling, 865 m, 1♂, 12.VII.2005, Chen Fuqiang (gen. slide no. Ep486). Fujian, Wuyishan, Lijiatang, 1♂, 25.VII.2000, Song Shimei (gen. slide no. Ep104).

Distribution. China (Shaanxi, Fujian, Guangdong).

Etymology. The specific name is derived from Latin “*peniculus*” (=tail), in accordance with the saccus like a long tail in male genitalia.



Figures 1–4. *Stericta* spp., adult, male. 1. *S. melasiversusa* **sp. nov.**, holotype. 2. *S. melanobasis* (Hampson, 1906) **comb. nov.** 3. *S. penicilasa* **sp. nov.**, holotype. 4. *S. hampsoni* **sp. nov.**, paratype.

***Stericta hampsoni* sp. nov.** (Figs 4, 8, 11)

Diagnosis. This species is similar to *S. melanobasis* and *S. penicilasa* **sp. nov.** by the similar wing pattern but slightly paler than the latter two. In genitalia, the species is characteristic by its juxta bifurcated to about 1/4 length, lateral lobes expanded and rounded in male and two thorn-like singa in female.

Description. Adult. Forewing length 10.0–12.5 mm ($n=13$). Head fuscous, mixed with yellow scales; labial palpus upturned, fuscous and mixed with black; base of third segment with a few white scales; third segment pointed; antenna yellow, and base of antenna darker than terminal. Scape extension exceeding thorax, and with yellow scales, end of scape extension with more black scales than base, and with more black scales laterally. Thorax fuscous with black scales. Forewing covered with fuscous scales at base area; medial area pale yellow mixed with fuscous scales; outer area with fuscous scales; a black discocellular patch present; postmedial line fuscous, waved; cilia brown. Hindwing usually all fuscous, with a blurred postmedial line.

Male genitalia. Uncus elongated and sender, densely covered with setae laterally, apex turncated. Gnathos with slender arms at lateral, joined from middle, with median process distally hooked. Valva slightly constricted from middle to apex.

Juxta bifurcated to about 1/4 length, lateral lobes expanded and rounded. Phallus slender, a row of minute spine-like cornuti.

Female genitalia. Ovipositor broad and strongly sclerotized, densely suffused with setae. Apophysis anterioris about 2/3 length of apophysis posterioris. Ostium broad, partly sclerotized. Ductus seminalis arising from just below the ostium. Ductus bursae membranous, constricted at position of ductus seminalis. Corpus bursae round and about same length of ductus, with two thorn-like signa.

Holotype. ♂, Yunnan, Lijiang, Yulongshan, 2150 m, 3.VIII.1962, Song Shimei (gen. slide no. Ep489).

Paratypes. Shaanxi, Ningshan, Huoditang, 1♀, Han Yinheng. Yunnan, Lijiang, Yulongshan, 35♂23♀, 10.VII–26.VIII.1962, Song Shimei (gen. slide no. Ep60, Ep109 Ep167, Ep151, Ep503, Ep505, Ep506). Yunnan, Xishuangbanna, Menglun, 1♀, 11.IV.1982, Yang Longlong. Yunnan, Kunming, 1♂, 20.VII.1982, Song Shimei (gen. slide no. Ep150). Yunnan, Yulongshan, 2850 m, 1♀, 20.VII.1984, Liu Dajun.

Distribution. China (Shaanxi, Yunnan).



Figures 5–11. *Stericta* spp. 5–8. Male genitalia. 9–11. Female genitalia. 5. *S. melasiversusa* **sp. nov.**, holotype, gen. slide no. Ep100. 6. *S. melanobasis* (Hampson, 1906) **comb. nov.**, gen. slide no. Ep76. 7. *S. penicilasa* **sp. nov.**, holotype, gen. slide no. Ep484. 8. *S. hampsoni* **sp. nov.**, holotype, gen. slide no. Ep489. 9. *S. melasiversusa* **sp. nov.**, paratype, gen. slide no. Ep598. 10. *S. melanobasis* (Hampson, 1906) **comb. nov.**, gen. slide no. Ep476. 11. *S. hampsoni* **sp. nov.**, paratype, gen. slide no. Ep503.

Etymology. The specific name is derived from its similar species previously authorship Hampson.

4 Discussion

Species from three genera, *Lepidogma* Meyrick, 1890, *Stericta* Lederer, 1863 and *Jocara* Walker, 1863 are more or less confused in history, such as *S. kogii*, *S. melanobasis* (Solis, 1992; Inoue & Sasaki, 1995). Among them, *Jocara* was originally erected based on a Caribbean Sea species (Walker, 1863). Then, several species from old world were erected under the genus (Hampson, 1896; Lower, 1903; Turner, 1913; Marumo, 1920; Caradja, 1925, 1928; Meyrick, 1934; Inoue, 1988), which were mostly transferred to *Titanoceros* Meyrick, 1884 and *Stericta* Lederer, 1863 by Solis (1992). The current work suggests the genus *Jocara* is a new world genus.

In China, the taxonomy of *Lepidogma* and *Stericta* have been confused. Lu & Guan (1953) listed three species under the genus *Lepidogma*, *L. melanobasis* Hampson, 1906, *L. melanolopha* Hampson, 1912 and *L. tripartita* (Wileman & South, 1917), while *L. tripartitai* was synonymized as *L. melanobasis* by Shibuya (1928). Li *et al.* (2009) redescribed three species, *Lepidogma kiiensis* Marumo, 1920, *L. melanobasis* Hampson, 1906 and *L. tamaricalis* (Mann, 1873). Among them, *kiiensis* was transferred to under the species *Stericta rufescens* Hampson, 1896 by Solis (1992), but revalidated by Inoue (1988) and Solis (1994), so it should be cited as *Stericta kiiensis* (Marumo, 1920). And *L. tamaricalis* (Mann, 1873) was misidentified by an unnamed *Stericta* species.

According to their original description, *Lepidogma* was different from *Stericta* by the hindwing with Sc+R₁ and Rs anastomosing, while Sc+R₁ and Rs of the hindwing are adjacent in the latter. Inoue & Sasaki (1995) dissected the male genitalia of their type species, *Lepidogma tamaricalis* (Mann, 1873) and *Stericta divitalis* (Guenée, 1854). In male genitalia, *L. tamaricalis* has the valva with a sharp apical spine, while *S. divitalis* has the spine absent. According to the unique character, the authors place the new species and transfer the species *Lepidogma melanobasis* Hampson, 1906 to the genus *Stericta*. Another species reported in China, *Lepidogma melanolopha* Hampson, 1912, was kept in current status as its materials were not checked.

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