

## Five Species of the Subfamily Acrocercopinae (Lepidoptera: Gracillariidae) New to Korea

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### ABSTRACT

The subfamily Acrocercopinae, is a relatively large group with over 500 described species under 28 genera. In this study, five species of the subfamily Acrocercopinae, *Acrocercops distylii* Kumata and Kuroko, 1988, *Borboryctis euryae* Kumata and Kuroko, 1988, *Deoptilia heptadeta* (Meyrick, 1936), *Gibbovalva magnoliae* Kumata and Kuroko, 1988, and *Psydrocercops wisteriae* (Kuroko, 1982), are reported for the first time from Korea. Moreover, four genera, *Borboryctis* Kumata and Kuroko, *Deoptilia* Kumata and Kuroko, *Gibbovalva* Kumata and Kuroko, and *Psydrocercops* Kumata are reported as new to Korea. Adults and genitalia of all species are described and illustrated.

**Keywords:** Acrocercopinae, new record, leafminer, taxonomy, Korea

### INTRODUCTION

The subfamily Acrocercopinae, is a relatively large group with over 500 described species under 28 genera worldwide (De Prins and De Prins, 2006–2022). Recently, Kawahara and Ohshima (2017) established this group from *Acrocercops* sensu Kumata (1982) as a subfamily based on the phylogenetic study. Members of this group are well characterized by elongated intersegmental membrane, between the 8th abdominal segment and the male genitalia. Additionally, other essential characters that distinguish them from other genera include hind tibia with bristly scales, curved anal vein of the forewing, male genitalia with long and slender androconial scales on the valva, and completely red body color of the final instar larva. As a cosmopolitan group, most members are distributed in the Oriental regions with 201 recognized species, and 72 species from the Afrotropical region, 93 from the Australasian, 15 from the Nearctic, 90 from the Neotropical, and 72 from the Palearctic regions, respectively (De Prins and De Prins, 2006–2022).

To date, only four genera, *Acrocercops* Wallengren, *Eteoryctis* Kumata and Kuroko, *Leucospilapteryx* Spuler, 1910 and *Spulerina* Vári have been reported with 12 species in Korea (Park, 1983; Byun et al., 2009; Kawahara et al., 2010; Kim and Byun, 2019, 2022; Lee and Jeun, 2022).

This study is aimed to report five species of the subfamily Acrocercopinae, *Acrocercops distylii* Kumata and Kuroko, 1988, *Borboryctis euryae* Kumata and Kuroko, 1988, *Deoptilia heptadeta* (Meyrick, 1936), *Gibbovalva magnoliae* Kumata and Kuroko, 1988, and *Psydrocercops wisteriae* (Kuroko, 1982), for the first time from Korea. Also, four genera, *Borboryctis* Kumata and Kuroko, *Deoptilia* Kumata and Kuroko, *Gibbovalva* Kumata and Kuroko, and *Psydrocercops* Kumata were reported as new to Korea in this study. Adults and all available genitalia of the species were redescribed and illustrated.

### MATERIALS AND METHODS

Material examined in this study were deposited in the Systematic Entomology Laboratory, Hannam University, Daejeon, Korea (HNSUEL). Genitalic structures of both sexes were dissected and mounted with Euparal mountant (Holloway et al., 1987). Photos of adult were taken using a digital camera (Canon EOS 600D; Canon Inc., Ota, Tokyo, Japan). Also, genitalic structure were captured using a digital camera attached on microscope (LEICA M205C; Leica Microsystems, Wetzlar, Germany) and refined in Photoshop CS5 software.

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In this study, abbreviations for localities in Korea are as follows: GG, Gyeonggi-do; DJ, Daejeon; US, Ulsan; GB, Gyeongsangbuk-do; GN, Gyeongsangnam-do; GW, Gangwon-do; JB, Jeollabuk-do; JJ, Jeju-island; TL, type locality; TD, type depository.

In addition, specimen depositories in this study were examined from the following collections: BMNH, The Natural History Museum, London, U.K.; EIHU, Entomological Institute, Hokkaido University, Japan; HNUSEL, Systematic Entomology Laboratory, Ha Hannam University, Korea; KNAE, Entomological collection, Korea National Arboretum, Korea; NAS, National Institute of Agricultural Sciences, Korea.

## SYSTEMATIC ACCOUNTS

Order Lepidoptera Linnaeus, 1758  
Family Gracillariidae Stainton, 1854  
Subfamily Acrocercopinae Kawahara and Ohshima, 2016

Genus *Acrocercops* Wallengren, 1881  
*Acrocercops* Wallengren, 1881: 95.  
Type species: *Tinea brongiardella* Fabricius, 1798.

<sup>1</sup>\**Acrocercops distylii* Kumata and Kuroko, 1988  
(Figs. 1A, 2A)

*Acrocercops distylii* Kumata and Kuroko, 1988: 45–50. TL: Honsyū, Japan. TD: EIHU (Holotype).

**Material examined.** 1 male, Korea: JJ: Donnaeko, 33°18' 24.74"N, 126°34'42.02"E, 17 Sep 2009 (leg. NH Ahn), gen. slide no. HNUSEL-5500-coll. HNUSEL.

**Redescription.** Adult (Fig. 1A). Wingspan 7.3 mm. Head silvery gray with tangled scale; frons white; antenna gray ochreous; scape silvery gray with a dark gray ring on distal end; maxillary palpus upcurved, white, lateral part fuscous and scales rough; labial palpus upcurved and spread to both sides, white, fuscous on ventral margin of first segment, apex acute and covered with shiny silver scales. Thorax silvery white with ochreous and fuscous scales; legs white; fore coxa white with fuscous band on basal part and subdistal part; fore femur and tibia fuscous; fore tarsus white with four fuscous band, including on tarsal claw, and all bands more pale at dorsal margin; middle femur white with fuscous band at sub-basal part, and a silvery gray spot on apex; middle tibia white with two ventral fuscous spots, first spot near basal part and only on the ventral margin, second spot more blackish on apex extended from ventral to dorsal margin, and a tiny blackish-brown spot on apex of apical spurs; middle tarsus

with four fuscous bands on ventral margin including claw and bands gradually broaden to apex; hind coxa silvery white with a grayish brown stria on apex; hind tarsus with brown scales on lateral end, darkened to median part and claw black. Forewing ground color light ochreous, some oblique white fascia with blackish-brown blotch, and ground color more darkened near the blotch and white stria; a half of basal blackish-brown blotch near post basal above wing-fold with a silvery white spot on 2/5 of blotch from base; below wing-fold light ochreous with a fine black stria on 1/6 of base obliquely; a white fascia with black outer edges close to the basal blotch obliquely outwards and connected at costal margin with second white fascia; second fascia obliquely inwards and extend to hind margin; smaller black blotch on costal margin near apical part; third white fascia next to the blotch obliquely inward and connected with hind marginal fascia; a small black spot on apical part and cilia long. Hindwing lanceolate, grayish brown and deeper to apex.

**Male genitalia** (Fig. 2A). Tegumen elongated as long as or slightly shorter than valva, and apex rounded and slightly broaden with some slender setae. Valva narrow and long, slightly curved to inside at apex and broaden to basal; long comb of 57–59 teeth arranged on dorsal margin from apical to half of costal area, teeth more longer on costal area than apical one and hind margin with slender setae. Vinculum elongated and rapidly narrowed making somewhat triangular shape; saccus slender and elongated as long as comb of valva. Aedeagus 2 times longer than valva, sclerotized from median to apical part, narrow and concave at apex and apex rounded.

**Female genitalia.** Unknown.

**Distribution.** Korea (new record), China, Japan, India, Indonesia, Nepal.

**Host plants.** Hamamelidaceae - *Distylium racemosum* Siebold and Zucc., in Japan (Kumata et al., 1988a; De Prins and De Prins, 2006–2022).

<sup>2</sup>\*Genus *Borboryctis* Kumata and Kuroko, 1988

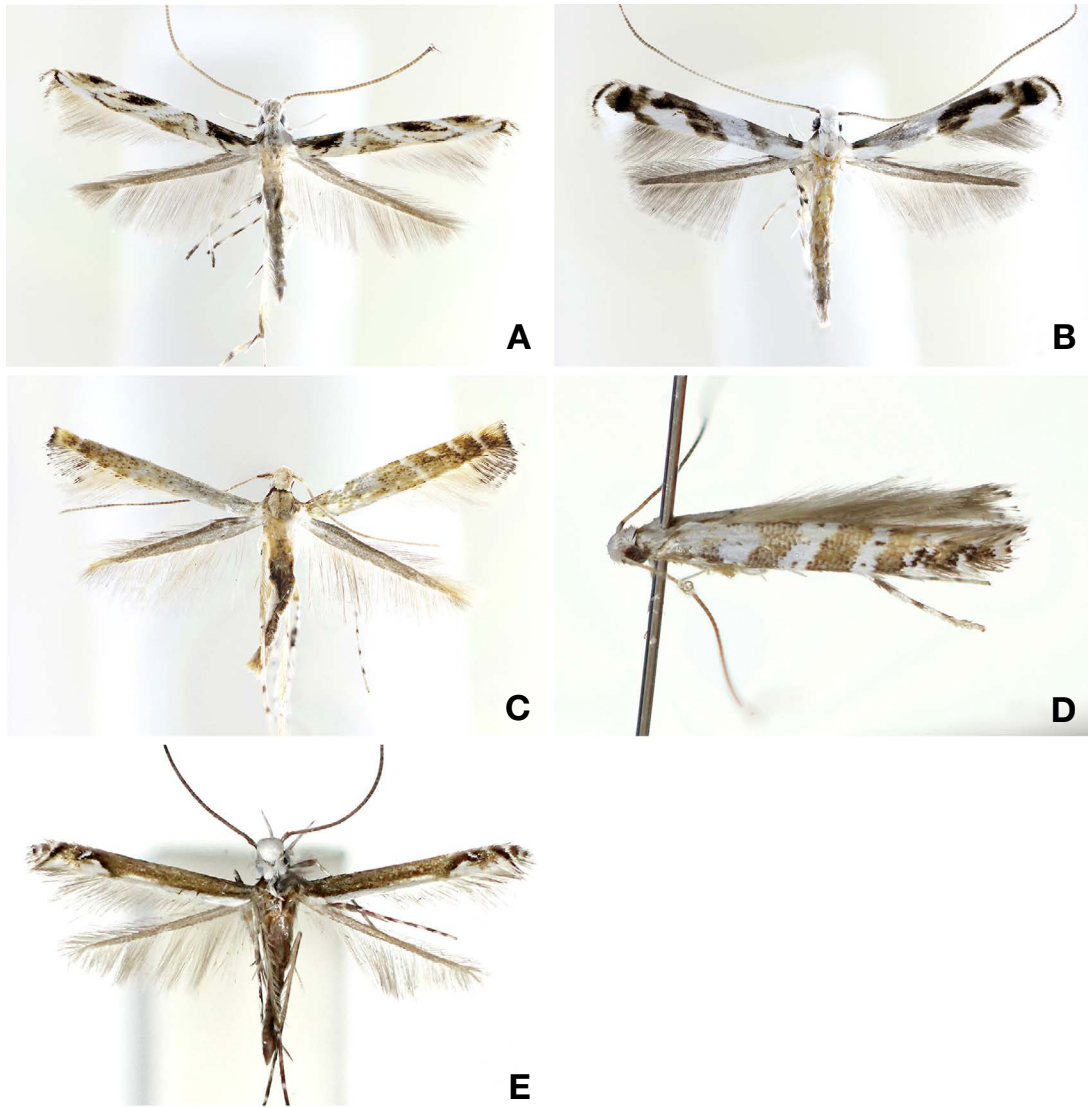
*Borboryctis* Kumata and Kuroko, 1988: 37–39.  
Type species: *Borboryctis euryae* Kumata and Kuroko, 1988.

<sup>3</sup>\**Borboryctis euryae* Kumata and Kuroko, 1988  
(Figs. 1B, 2B, 3A)

*Borboryctis euryae* Kumata and Kuroko, 1988: 40–42. TL: Honshū, Japan. TD: EIHU (Holotype).

**Material examined.** 2 males, Korea: JB: Sinsido, 20 Aug 1980 (leg. KT Park)-coll. HNUSEL; 1 male, Korea: GB: Cheongsong, 8 Sep 1980 (leg. JC Paik)-coll. HNUSEL; 4 males, 4 females, Korea: GN: Geoje-do, Jisepo, 34°57'21.80"

Korean name: <sup>1</sup>\*조록가는나방 (신칭), <sup>2</sup>\*사스레피나무가는나방속 (신칭), <sup>3</sup>\*사스레피가는나방 (신칭)

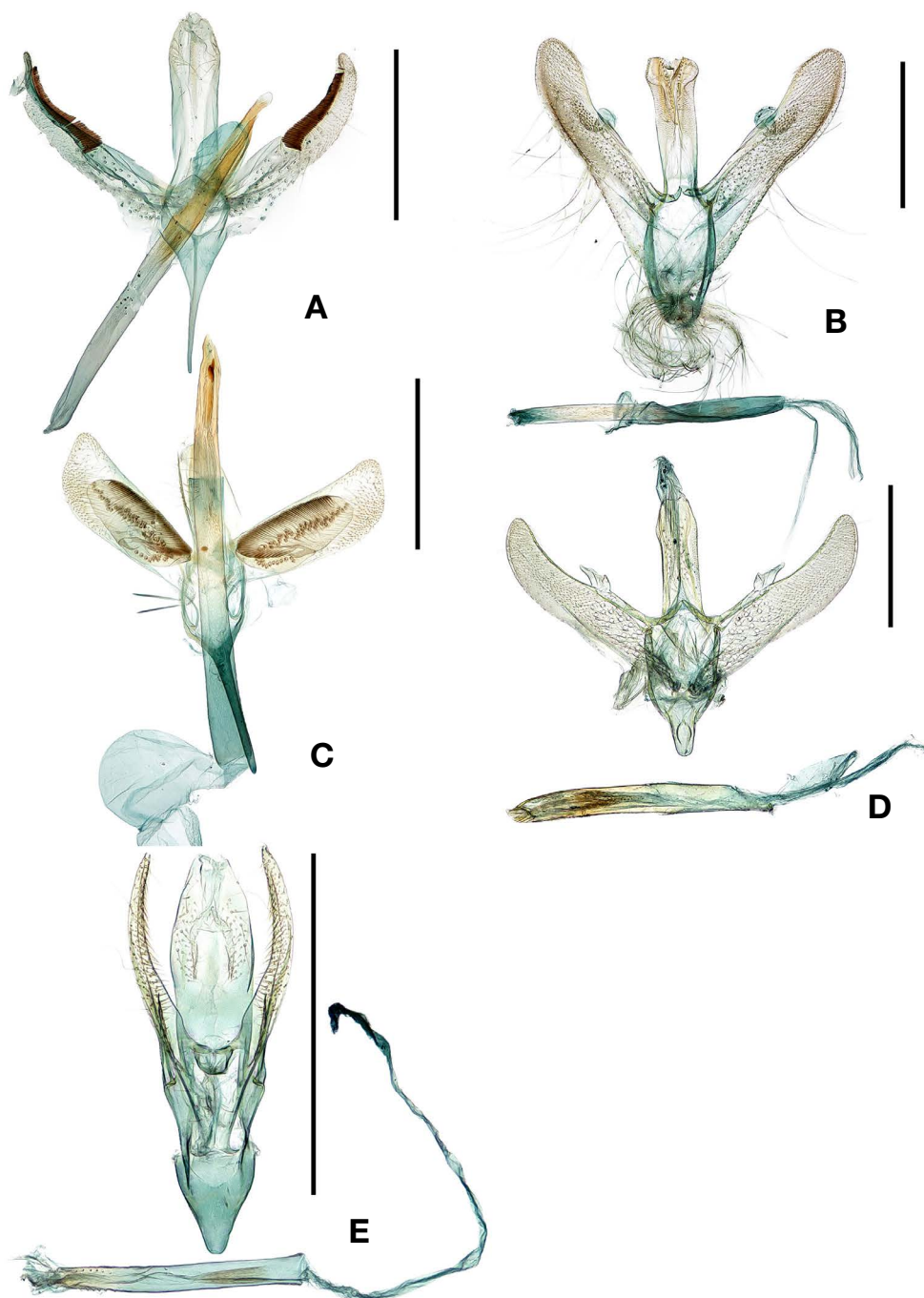


**Fig. 1.** Acrocercopinae adults. A, *Acrocercops distylii*; B, *Borboryctis euryae*; C, *Deoptilia heptadeta*; D, *Gibbovalva magnoliae*; E, *Psydrocercops wisteriae*.

N, 128°42'17.69"E, 34°49'28.94"N, 128°41'46.54"E, 9 Feb 2012 (leg. NH Ahn), gen. slide no. HNUSEL-5501, 5502-coll. HNUSEL; 3 males, 1 female, Korea: JJ: Udo, Jeonjinri, Bug-jeju, 19 Jun 2000 (leg. GM Kwon), gen. slide no. HNUSEL-5335, 5336-coll. NAS; 1 male, 3 females, Chuja-do, 29 May 2018 (leg. DS Kim), gen. slide no. HNUSEL-5334-coll. HNU.

**Redescription.** Adult (Fig. 1B). Wingspan 6.5–9.0 mm. Head shiny white and smooth with a bit of erected scales; frons white; maxillary palpus white, partially gray on lateral end and slightly rough; labial palpus 4.5 times longer than maxillary palpus, white and lateral margin fuscous; antenna gray-ochreous with dark gray ventrally from base to the 8th seg-

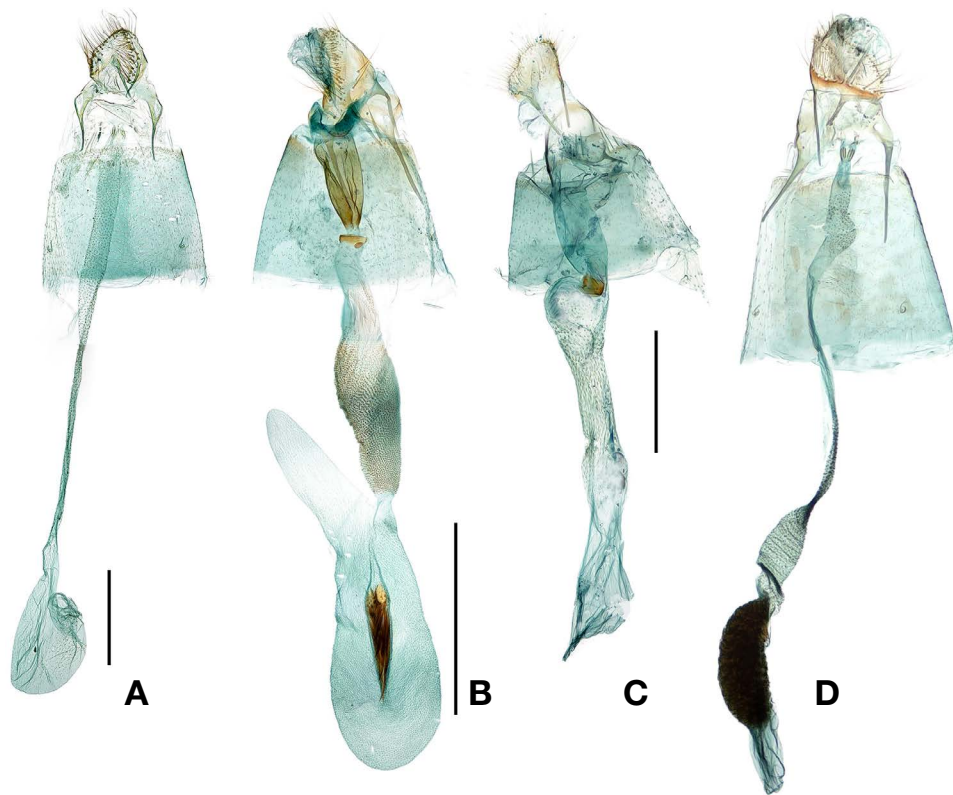
ment; scape grayish brown, a black spot near inner basal part, dark gray on a half of ventral margin and white on dorsally. Thorax white with grayish-brown tegular; legs white; fore coxa with a two fuscous spots on sub-basal and apical part laterally; fore femur ochreous on ventrally with a fuscous median spot and apical part fuscous; fore tibia fuscous; fore tarsus white on basal part, a black band on sub-basal part and three black rings alternated with white intervals; middle femur with a black spot on apical end; middle tibia with three black rings on basal, median, and apical parts; middle tarsus with three black rings and almost same intervals, first one more shorter than others and grayish-brown on apical part; hind coxa with a fuscous spot near apical part; hind femur absolu-



**Fig. 2.** Male genitalia of Acrocercopinae. A, *Acrocercops distyllii* (gen. slide no. HNUSEL-5500); B, *Borboryctis euryae* (gen. slide no. HNUSEL-5502); C, *Deoptilia heptadeta* (gen. slide no. HNUSEL-5499); D, *Gibbovalva magnoliae* (gen. slide no. HNUSEL-5440); E, *Psydrocercops wisteriae* (gen. slide no. HNUSEL-5420). Scale bars: A-E=0.5 mm.

tely white; hind tibia with a fuscous spot on basal end, two fuscous rings next to spur and on apical part; hind tarsus with three fuscous rings, rings and intervals more broaden to apex, and apical part also fuscous. Forewing ground color white with fuscous and black fasciae; a fuscous basal streak along

costal margin, darkened on base and extended to costal fascia stretched vertically; second fascia on median part, a part of costa branched to apex and white median to dorsal margin or ochreous on inner side; third fascia on apical part, reached to dorsal margin irregularly and median part furrowed; a large



**Fig. 3.** Female genitalia of Acrocercopinae. A, *Borboryctis euryae* (gen. slide no. HNUSEL-5335); B, *Deoptilia heptadeta* (gen. slide no. HNUSEL-5498); C, *Gibbovalva magnoliae* (gen. slide no. HNUSEL-5505); D, *Psydrocercops wisteriae* (gen. slide no. HNUSEL-5421). Scale bars: A–D=0.5 mm.

circular disc on apex with a black stria on median and the disc overlapped with third fascia; cilia long and white with black stria on inside at apical margin. Hindwing gray and cilia long.

**Male genitalia** (Fig. 2B). Tegumen narrow, apical part swollen and broaden, divided into two parts at apex with lateral short setae along inner side and two long hairs near lateral setae. Valva elongated, 1.4 times longer than tegumen, apex rounded and a mushroom-shaped membranous projection on costal margin; short and slender setae from apical to costal part except for base, and long, linear, and fine hairs along outer margin. Vinculum elongated, straight with parallel side and each side slightly swollen outward at median part; saccus blunt and rectangular with bundle of androconial scales along outer margin. Aedeagus long, slender, tubular, and slightly narrowed at apex, apex curved to inside and rounded; ductus ejaculatorius membranous, slender and elongated.

**Female genitalia** (Fig. 3A). Papillae anales short with long and slender setae on apex; apophyses posteriores short as long as a half of apophyses anteriores. Ostium bursae opened as a half of papillae anales at width; antrum slightly sclero-

tized, short, and divided into both side. Ductus bursae tubular, slender, 3.5 times the length of corpus bursae. Corpus bursae extended along ductus bursae inversely at 1/3 part and rounded with small spines on median part.

**Distribution.** Korea (new record), Japan.

**Host plants.** Theaceae - *Eurya emarginata* Makino. and *E. japonica* Thunb., in Japan (Kumata et al., 1988b; De Prins and De Prins, 2006–2022). Theaceae - *E. japonica* Thunb., in Korea (in this study).

**Remarks.** This species was reared from *Eurya japonica* Thunb. of the family Theaceae in this study.

<sup>1</sup>\*Genus *Deoptilia* Kumata and Kuroko, 1988

*Deoptilia* Kumata and Kuroko, 1988: 87–89.

Type species: *Acrocercops heptadeta* Meyrick, 1936.

<sup>2</sup>\**Deoptilia heptadeta* (Meyrick, 1936)

(Figs. 1C, 2C, 3B)

*Acrocercops heptadeta* Meyrick, 1936: 34. TL: Formosa, Taiwan. TD: BMNH (syntypes).

Korean name: <sup>1</sup>\*인동덩굴가는나방속 (신칭), <sup>2</sup>\*남방가는나방 (신칭)

*Deoptilia heptadeta* Kumata and Kuroko, 1988: 89–92.

**Material examined.** 1 male, Korea: DJ: Dong-gu, Hasodong, Mt. Maninsan, 36°11'58.4"N, 127°26'58.1"E, 26 May 2018 (leg. BK Byun), gen. slide no. HNUSEL-5499-coll. HNUSEL; 1 female, Seo-gu, Jangan-dong, Mt. Jangtaesan, 36°12'59.4"N, 127°20'27.1"E, 18 Jun 2019 (leg. BK Byun), gen. slide no. HNUSEL-5497-coll. HNUSEL; 1 female, Korea: JJ: Chuja-myeon, Sangchujado, 33°57'29.92"N, 126°17'52.80"E, 4 Sep 2018 (leg. BS Park, W Ki), gen. slide no. HNUSEL-5330-coll. KNAE; 1 male, same locality, (leg. DS Kim), gen. slide no. HNUSEL-5331-coll. HNUSEL; 1 female, Seogwipo-si, Sanghyo-dong, 33°18'00.5"N, 126°34'50.8"E, 27 Apr 2019 (leg. BK Byun), gen. slide no. 5498-coll. HNUSEL.

**Redescription.** Adult (Fig. 1C). Wingspan 6.0–7.0 mm. Head slightly elongated and pale ochreous mixed with white; face white and frons ochreous with tiny black scales near eyes; maxillary palpus white and pale ochreous with fuscous spot on median and apex; labial palpus white and pale ochreous with fuscous spot at subapical part; antenna pale gray ochreous on dorsally and rather white on ventrally; scape white, a fine fuscous line on inner lateral part, apex with a black minute ring and a tuft of yellow-ochreous scales below scape. Thorax ochreous mixed with gray; legs white; fore coxa entirely white; fore femur mixed with pale ochreous, a fuscous spot on dorsally near apical part; fore tibia fuscous and tarsus with four fuscous rings almost at same intervals; middle femur with a fuscous band on apically; middle tibia with a small fuscous spot on base, a fuscous ring on median part and apical fuscous band; middle tarsus with four fuscous minute bands at same intervals; hind tibia with a small black spot at sub-basal and a broad pale ochreous band on apical part; hind tarsus with four narrow fuscous rings at same intervals. Forewing ground color yellow-ochreous, slightly darkened to apex with slender white fasciae and base-costal margin fuscous; first white fascia rather longitudinally reached to dorsal margin; second fascia more oblique inward to base; third fascia oblique to median and longitudinally stretched to dorsal margin; fourth and fifth fascia divided into two part at median area; apex more darkened with blackish scales and a black stria reached to dorsal margin longitudinally; cilia light ochreous and black at tornus. Hindwing gray and ochreous to apex.

**Male genitalia** (Fig. 2C). Tegumen as long as 2/3 of valva, parallel side to apex and slightly rectangular with a little of long and slender setae on laterally. Valva more broaden to apex, rectangular and apex extended at inner side; short and slender setae on apical margin sparsely, long setae at dorsal

margin densely; a large disc on costal area to nearly apex, a pair of linear comb with 47–50 teeth arranged along costal margin of disc and a linear of 51–55 tiny disc on median to base. Vinculum elongated and rapidly narrowed to saccus; saccus well developed and 2 times longer than vinculum. Aedeagus (2.3 times longer than valva) tubular, slender, and narrowed to apex; a slender, apically acute cornutus of the vesica and many minute spinules on median part of aedeagus. Seventh abdominal segment with a band of small ovate.

**Female genitalia** (Fig. 3C). Papillae anales loosely elongated with long and short setae on apex; apophyses posteriores moderate and shorter than apophyses anteriores. Ostium bursae same width with that of papillae anales in opening size, well sclerotized and slightly concave; antrum sclerotized and as long as papillae anales or longer with a sclerotized ring just above ductus bursae. Ductus bursae as long as corpus bursae, covered with minute spines at more than half to corpus bursae and slightly swollen at median part. Corpus bursae ovate with upturned part near ductus bursae; a pair of signa on median part with long and acute sclerites.

**Distribution.** Korea (new record), Japan, Taiwan.

**Host plants.** Euphorbiaceae - *Mallotus japonicus* Muell., in Japan (Kumata et al., 1988a; De Prins and De Prins, 2006–2022). Euphorbiaceae - *M. japonicus* Muell., in Taiwan (Meyrick, 1936; De Prins and De Prins, 2006–2022). Euphorbiaceae - *M. japonicus* Muell.; Caprifoliaceae - *Lonicera japonica* Thunb., in Korea (in this study).

**Remarks.** This species was reared from *Mallotus japonicus* Muell. and *Lonicera japonica* Thunb. of the families Euphorbiaceae and Caprifoliaceae, respectively, in this study.

<sup>1</sup>\*Genus *Gibbovalva* Kumata and Kuroko, 1988

*Gibbovalva* Kumata and Kuroko, 1988: 3–5.

Type species: *Gracillaria quadrifasciata* Stainton, 1862.

<sup>2</sup>\**Gibbovalva magnoliae* Kumata and Kuroko, 1988  
(Figs. 1D, 2D, 3C)

*Gibbovalva magnoliae* Kumata and Kuroko, 1988: 19–21.  
TL: Honshū, Japan. TD: EIHU (holotype).

**Material examined.** 1 male, Korea: GW: Chuncheon, 9 May 1989 (leg. KT Park)-coll. HNUSEL; 1 male, Jeongseon-gun, Bukpyeong-myeon, Mt. Baekseokbongsan, 37°28'58.65"N, 128°39'59.50"E, 19 May 2009 (leg. SY Park, JS Lim, KM Kim), gen. slide no. HNUSEL-5440-coll. KNAE; 1 female, Pyeongchang-gun, Mt. Cheongtaesan, 37°31'40.89"N, 128°17'44.19"E, 5 Oct 2013 (leg. NH Ahn), gen. slide no. HNUSEL-5505-coll. HNUSEL.

**Redescription.** Adult (Fig. 1D). Wingspan 8.8–9.5 mm. Head

white and vertex ochreous; maxillary palpus dark brown at base with apex pale white and acute; labial palpus white mixed with tiny spots on lateral part; antenna ochreous and lighter-colored at base; scape white with blackish stria on apex and a tuft of white and ochreous scales below. Thorax white and smooth and tegular white with ochreous anterior; legs white; fore coxa with two lateral pale fuscous spots on median and apical parts; fore femur and tibia fuscous; fore tarsus with three rings that are more narrower at apex; middle coxa with a pale fuscous band at apical part; middle femur lateral fuscous, a fuscous spot on median part and a fuscous broad band at subapical part; middle tarsus with three fuscous rings at same intervals; hind coxa with a narrow fuscous band on subapical area; hind femur with a fuscous spot on base and a fuscous band at median part; hind tarsus with three fuscous rings and first ring broadest among them. Forewing ground color ochreous with white fascia and tiny black spots scattered on white fascia; first fascia with black edges reaching median part and scattered at near hind margin; second fascia broadened at outer margin with tiny black spot; third fascia rather parallel-side and slightly broaden at outer margin; fifth fascia with black edges and a black stria on median part; a white stria on apex with black edges and narrowed to outer margin; a white small spot on median of apex. Hindwing light gray and cilia long.

**Male genitalia** (Fig. 2D). Tegumen 4/5 longer than valva, slender, broadened apically and slightly narrowed at apex; many minute and short setae on laterally and larger setae on median surface. Valva narrow, elongated, and slightly bent to inner side; a membranous projection on costal margin just before median part; slender and minute setae on inner surface except for costal area and more sparsely on outer margin. Vinculum elongated and parallel side to saccus; saccus long and slightly rectangular with a pair of lateral concave pouches. Aedeagus almost similar in length to that of tegumen to saccus, tubular, sclerotized on median to apex; vesica with minute spinules that have blunt apex.

**Female genitalia** (Fig. 3C). Papillae anales moderate with long setae on apex; apophyses posteriores approximately 2 times longer than apophyses anteriores. Ostium bursae large in opening size, antrum well sclerotized and between ostium bursae and antrum elongated as long as 7th abdominal segment. Ductus bursae tubular, swollen just below antrum with many minute spinules except for swollen part. Corpus bursae weak, membranous, and slightly reduced.

**Distribution.** Korea (new record), China, Japan.

**Host plants.** Magnoliaceae - *Magnolia obovata* Thunb., in Japan (Kumata et al., 1988b; De Prins and De Prins, 2006–2022).

<sup>1</sup>\*Genus *Psydrocercops* Kumata and Kuroko, 1988  
*Psydrocercops* Kumata and Kuroko, 1988: 30–32.  
Type species: *Acrocercops wisteriae* Kuroko, 1982.

<sup>2</sup>\**Psydrocercops wisteriae* (Kuroko, 1982)  
(Figs. 1E, 2E, 3D)

*Acrocercops wisteriae* Kuroko, 1982: 187(1). TL: Kyūshū.  
TD: ELKU (holotype); EIHU, BMNH (paratypes).  
*Psydrocercops wisteriae* Kumata et al., 1988a: 35.

**Material examined.** 2 males, 5 females, Korea: US: Ulju-gun, Cheonjeon-ri, Gakseok, 13 Sep 2018 (leg. DS Kim), gen. slide no. HNUSEL-5422, 5423-coll. HNUSEL; 2 males, 2 females: GB: Gyeongju, 27 Aug 1980 (leg. JC Paik), gen. slide no. HNUSEL-5420, 5421-coll. NAS.

**Redescription.** Adult (Fig. 1E). Wingspan 6.5–7.9 mm. Head white and smooth with a tuft of light gray scales below scape near eyes; maxillary palpus white and silvery grayish distally; labial palpus white with silvery gray scales distally at 2/3 of each segment, outside on first segment and inside on the remaining segments and the other on inside; antenna fuscous to goldish fuscous on dorsal position and silvery gray on ventral part that is darkened apically; scape same coloration with antenna and silvery gray on ventral part with a tuft of gray scales. Thorax white and tegular fuscous to goldish fuscous white similar with forewing ground color; legs white, pale ochreous to fuscous; fore coxa white with a pale fuscous ventral strip along outer lateral margin and a white distal spot on strip; fore femur and tibia fuscous with two small white spots on lateral side of tibia; fore tarsus fuscous with three white spots at same intervals; middle femur pale ochreous median to base, white ventral distally and dorsal part fuscous; middle tibia fuscous with a white ring distally; middle tarsus white with four oblique fuscous rings at same intervals; hind coxa with a fuscous spot on lateral part; hind femur white; hind tibia fuscous with white narrow rings on basal and distal parts; hind tarsus with four fuscous rings that gradually narrowed to half of previous one distally. Forewing ground color fuscous to goldish fuscous; a white streak running base to 1/3 from apex along dorsal margin and covering 1/3 of width of wing; a white spot just near white streak distally; a blackish stria above white spot and a small narrow white stria in the blackish stria distally; a small white spot on tornus; blackish stria obliquely on apex with whitish stria alternatively; cilia gray and white on tornus. Hindwing gray and cilia ochreous.

**Male genitalia** (Fig. 2E). Tegumen elongated as long as valva and narrowed to apex with short setae laterally on both sides of inner surface. Valva long, slender, gradually narrowed to apex, slightly bent inward, and apex curved outward; setae

Korean name: <sup>1</sup>\*등가는나방속 (신칭), <sup>2</sup>\*인등가는나방 (신칭)

densely on inner surface apex to costal area. Vinculum and saccus elongated; saccus triangular and apex acute or slightly blunt. Aedeagus tubular, apex acute, sclerotized on 4/1 to apex, 6–7 of stout spines on lateral part and vesica with a bundle of dense cornuti just below the median part.

**Female genitalia** (Fig. 3D). Papillae anales moderate with long setae on apex and base of setae slightly sclerotized; apophyses posteriores as long as apophyses anteriores or rather short. Ostium bursae small in opening size; antrum short and divided into two parts of both lateral sides with three transverse sclerotized stripes on each side. Ductus bursae moderate in length, dense and minute processes covering 1/3 from caudally to just above the corpus bursae, and more sparsely near antrum. Corpus bursae ovate with a signum of large plate; several minute processes highly dense within plate, consisting of an acute spinule with root-like basal sclerotized strip.

**Distribution.** Korea (new record), Japan, Russia, Hong Kong. **Host plants.** Fabaceae - *Wisteria floribunda* (Willd.) DC, 1825, in Japan (Kumata et al., 1988a; De Prins and De Prins, 2006–2022). Sapindaceae - *Koelreuteria paniculata* Laxm, 1772; Fabaceae - *W. floribunda* (Willd.) DC, 1825, in Korea (in this study).

**Remarks.** This species was reared from *Koelreuteria paniculata* Laxm, 1772 and *Wisteria floribunda* (Willd.) DC, 1825 of the families Sapindaceae and Fabaceae, respectively, in this study.

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## CONFLICTS OF INTEREST

No potential conflict of interest relevant to this article was reported.

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