

## Genus *Hyloconis* new to China, with descriptions of two new species (Lepidoptera: Gracillariidae, Lithocolletinae)

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The genus *Hyloconis* Kumata is for the first time recorded in China. *Hyloconis bicruris* sp. n. and *H. luminata* sp. n. are described. Generic characters are amended based on the Chinese material. Photographs of adults, illustration of genital structures and wing venation are provided, along with a key to all the known species.

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### 1. Introduction

The genus *Hyloconis* included four species when it was erected by Kumata in 1963 based on Japanese specimens. Noreika (1994) subsequently transferred *Lithocolletis improvisella* Ermolaev, 1986 to *Hyloconis*. Since then no further study has been carried out on this genus in the world. In the present paper, we record this genus in China for the first time and describe two new species, with amendment of generic characters based on the study of the Chinese material. Type specimens are deposited in the Insect Collection, College of Life Sciences, Nankai University (NKUM), Tianjin, and the Zoological Museum, Department of Bioscience and Biotechnology, Changzhi College (ZMCZC), Changzhi, Shanxi, China.

### 2. Genus *Hyloconis*

*Hyloconis* Kumata, 1963: 28.

*Generic characters.* Vertex tufted; antenna as

long as forewing, with pecten on scape; labial palpus drooping, third segment about two times length of second. Forewing with veins CuA, M<sub>2</sub>, M<sub>3</sub> and R<sub>1</sub> absent, R<sub>2</sub>~R<sub>5</sub> remote at base, R<sub>5</sub> from apex of cell to costa, M<sub>1</sub> from apex of cell to termen, CuP from lower angle of cell, 1A rudimentary, 2A simple. Hindwing with cell open; M<sub>3</sub> and CuA absent, M<sub>1</sub> stalked with M<sub>2</sub>, CuP simple, A rudimentary.

Male genitalia with tegumen bearing more than four apical setae; costa with an ovate knob at base; transtilla incomplete; saccus with a process from middle of anterior margin; anellus often sclerotized, smooth, without setose lobes; eighth sternite produced caudally in flap shape. Female genitalia with sclerotized genital plate; ductus bursae sclerotized at least at base and signum present or absent.

*Biology.* Known larvae mine leaves of Leguminosae (De Prins & De Prins 2010).

*Diagnosis.* *Hyloconis* is similar to *Cremastobombycia* Braun, 1908 in the presence of vein R<sub>2</sub> in the forewing and the tegumen with more than four apical setae in the male genitalia, but can be

easily distinguished by the transtilla separated medially, which is joined in the latter genus.

*Remarks.* According to Kumata (1963), the ninth sternite produced into a fairly wide flap, but it should be the eighth sternite based on our study and Kumata (1993); the number of apical setae on tegumen is an important character to distinguish genera in Lithocolletinae, which was not stated by Kumata. We also illustrated the venation of *Hyloconis* for the first time.

### 3. Descriptions of new species

#### 3.1. *Hyloconis bicruris* sp. n. Figs. 1a, 2a

*Type material.* Holotype. ♂, China, Kangding County (30°04'N, 101°57'E), Sichuan Province, 2,400 m, 8.VII.2001, leg. Houhun Li & Xinpu Wang, genitalia slide No. BHY08130 (NKUM).

*Description.* Adult. Male (Fig. 1a). Forewing length 4.0 mm. Head and tuft shining silvery brown. Labial palpus off-white on inner surface, brown on outer surface. Antenna fuscous except flagellum white on distal ten segments. Thorax and tegula bright silvery brown. Forewing golden brown; costa with a fuscous speck at base, with a bar-shaped silvery white speck near apex; silvery white specks at costal and dorsal 1/4, 1/2 and 3/4 respectively, edged with fuscous; cilia dark brown. Hindwing and cilia dark brown. Legs dominantly shining fuscous; fore tibia with two off-white specks dorsally, fore tarsi with three off-white specks, last segment off-white; tibia and tarsi of mid leg with two off-white specks respectively; hind femur on outer surface of distal part and hind tibia on basal 1/3 off-white. Abdomen fuscous.

Male genitalia (Fig. 2a). Tegumen with distal half sclerotized in bar shape. Valva broad at base, narrowed to 2/3, then broadened gradually to apex, densely covered with long setae on inner surface; distal 1/4 bifurcate, forming two branches: dorsal branch rounded at apex, slightly shorter on left valva than on right; ventral branch longer than dorsal one, narrowed to apex (broken terminally); costa slightly arched near base; sacculus nearly triangular, wide and broad, occupying basal 1/5 length of valva, pointed at apex. Anellus membranous. Saccus subrectangular,

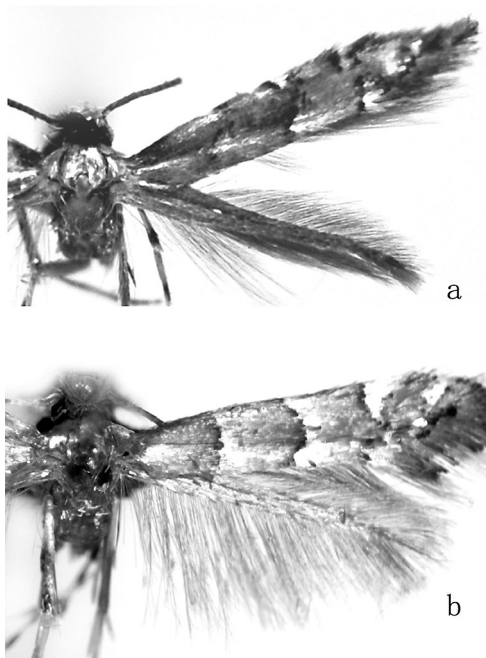


Fig. 1. Adults. – a. *Hyloconis bicruris* sp. n. – b. *H. luminata* sp. n.

with semicircular excavation on anterior margin; median process about 1/3 length of valva, bar-shaped, dilated distally. Phallus about 3/5 length of valva, bifurcate distally; cornutus absent. Eighth sternite broad triangular, narrowed gradually to pointed apex.

Female. Unknown.

*Hostplant.* Unknown.

*Distribution.* China (Sichuan).

*Etymology.* The species name is derived from the Latin word *bicruris*, meaning bifurcate, referring to the forked valva in the male genitalia.

*Remarks.* It is easy to distinguish *H. bicruris* sp. n. from other members of the genus by both valva and phallus bifurcate distally in the male genitalia.

#### 3.2. *Hyloconis luminata* sp. n. (Figs. 1b, 2b, 3)

*Type material.* Holotype. ♂, China, Mt. Xiantai, Jingxing County (38°01'N, 114°01'E), Hebei Province, 1,200 m, 24.VII.2000, leg. Haili Yu, genitalia slide No. BHY08129 (NKUM). Paratypes. 2 ♂♂, China, Peiking Agricultural University, 9.V.1956, leg. Jikun Yang, genitalia slide No.

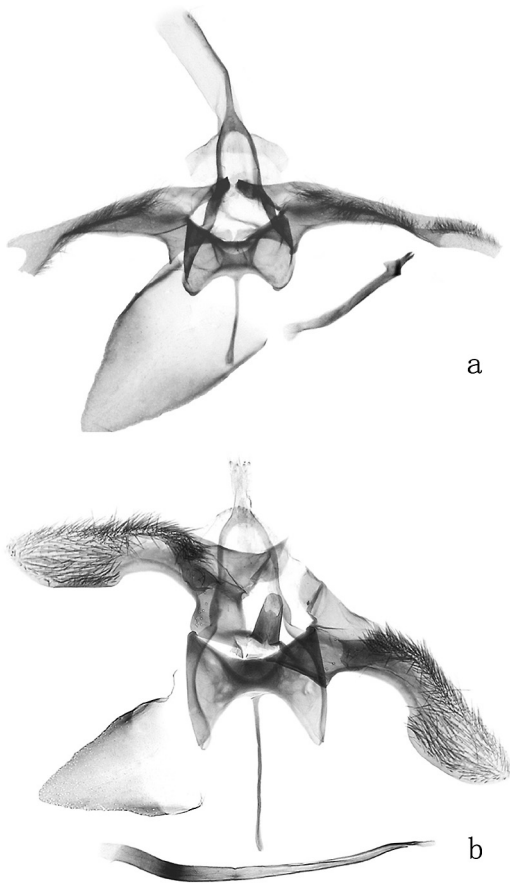


Fig. 2. Male genitalia. – a. *Hyloconis bicurris* sp. n. – b. *H. luminata* sp. n.

BHY09043, BHY09044 (NKUM); 1 ♂, China, Xizhashui Lingchuan County (35°46' N, 113°18' E), Shanxi Province, 15.VII.2010, leg. Haiyan Bai & Linlin Yang; 1 ♂, China, Manghe (35°29' N, 112°25' E), Shanxi Province, 604 m, 5.VIII.2011, leg. Haiyan Bai & Jun Tie, genitalia slide No. B10024, B10065 (ZMCZC).

*Description.* Adult. Male (Figs. 1b, 3). Forewing length 3.0 mm. Head shining silvery grey, with brown tuft. Labial palpus pale ochreous yellow. Antenna ochreous yellow, scape and pecten brown; flagellum ringed with fuscous except distal nine segments white. Thorax and tegula golden brown. Forewing brownish yellow, with shining golden lustre; markings white edged with black along inner margin: silvery white fascia at basal 1/4 and middle respectively, the latter slightly arched outward; triangular silvery white

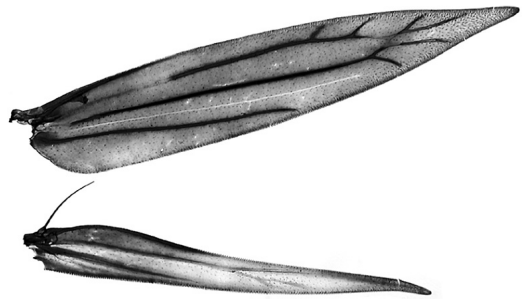


Fig. 3. Venation of *Hyloconis luminata* sp. n.

specks at costal and dorsal 3/4 respectively; costa with a bar-shaped silvery white apical speck obliquely inward and across 2/3 of wing; termen edged with black scales; cilia white mixed with pale khaki along apex and termen, brown on dorsum. Hindwing and cilia brown. Fore- and mid-legs pale ochreous yellow except tibiae brown with three pale ochreous yellow specks dorsally, tarsi fuscous with two white rings except last segment white; hind leg pale yellowish, femur with basal half pale brownish on outer surface, tibia with distal 2/3 brown, tarsi with three fuscous specks. Abdomen dark grey.

Male genitalia (Fig. 2b). Tegumen membranous in distal 1/4. Valva wide at base, narrowed medially, with ovate dilation in distal 1/3, ventral margin curved medially; inner surface with a sclerotized flap-shaped process on basal half, distal 2/3 with dense long setae; sacculus nearly broad triangular, occupying basal 1/3 length of valva, rounded at apex. Saccus subrectangular, with deep semicircular excavation on anterior margin; median process bar-shaped, about 3/5 length of valva. Anellus sclerotized, tubular, about 1/5 length of valva. Phallus about 1.2 times length of valva, tapering to apex; without cornutus. Eighth sternite produced triangularly to rounded apex.

Female. Unknown.

*Hostplant.* Unknown.

*Distribution.* China (Beijing, Hebei, Shanxi).

*Etymology.* The species name is derived from the Latin word *luminatus*, meaning shiny, in reference to the forewing with shining golden lustre.

*Remarks.* *Hyloconis luminata* sp. n. is similar to *H. desmodii* Kumata, 1963 in the subrectangular saccus with a bar-shaped process from middle of anterior margin, the sclerotized

tubular anellus and the valva curved ventromedially in the male genitalia. It is distinguishable from the latter by the valva having a sclerotized flap-shaped process on basal half, an ovate dilation on distal 1/3, and the phallus without any processes on outer wall. In *H. desmodii* Kumata, the valva has no process on inner surface, its distal 2/3 is comparatively uniform in width and the phallus has two minute processes near apex.

#### 4. Key to the species of *Hyloconis* Kumata

1. Forewing with whitish medio-basal streak; male genitalia asymmetrical (Kumata 1963: Fig. 16) *H. wisteriae* 2
  - Forewing without whitish medio-basal streak; male genitalia symmetrical or asymmetrical 2
2. Male genitalia with valvae asymmetrical (Fig. 2a) *H. bicruris* **sp. n.** 3
  - Male genitalia with valvae symmetrical 3
3. Costa of valva with a triangular process near base 4
  - Costa of valva without triangular process 5
4. Forewing with a black speck at base of costa, with a longitudinal whitish linear streak on distal 2/5 of discal area *H. puerariae*
  - Forewing lacking markings as above *H. improvisella*
5. Valva with ovate dilation in distal 1/3 (Fig. 2b) *H. luminata* **sp. n.** 6
  - Valva not dilated distally 6
6. Phallus with a pair of triangular lobes (Kumata 1963: Fig. 15) *H. lespedezae*
  - Phallus without triangular lobes (Kumata 1963: Fig. 14) *H. desmodii*

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