

Two Species of Pyralinae (Lepidoptera, Pyraloidea, Pyralidae) New to China

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중국 동북지역 명나방과의 미기록 2종에 관한 보고

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ABSTRACT: Two species of Pyralinae, *Hypsopygia iwamotoi* Kirpichnikova & Yamanaka, 1995, and *Synaphe amuralis* (Hampson, 1900), are reported for the first time from China. The adults and genitalia of the species are redescribed and illustrated.

Key words: Pyralidae, Pyralinae, *Hypsopygia*, *Synaphe*, New record, Northeast China

초 록: 명나방과의 2종, *Hypsopygia iwamotoi* Kirpichnikova & Yamanaka, 1995와 *Synaphe amuralis* (Hampson, 1900)이 중국에서는 처음으로 보고된다. 본 연구에서는 이들 2종에 대하여 재기재하고 성충 및 생식기의 도해도를 제시하였다.

검색어: 명나방과, 명나방아과, *Hypsopygia*, *Synaphe*, 미기록종, 중국 동북지역

Introduction

The subfamily Pyralinae comprises more than 900 species in the world and is mainly distributed in tropical regions and Indo-Australian. The larvae of Pyralinae have been known as notorious pests, feeding on stored products, plants, and even dead vegetation (Munroe and Solis, 1999).

The subfamily Pyralinae can be identified by the following characteristics: head rounded, ocelli absent or present; chaetosema present; proboscis developed, labial palpus porrect or ascending, maxillary palpus usually small; forewing usually colorful, with R₅ stalked with R₄ and R₃, hindwing Sc+R₁ approximate with R₅; male genitalia with uncus wide and strong; gnathos well developed, usually slim, sharpened or hooked at tip, valva simple,

hairy, tegumen sclerotized, vinculum well-developed, aedeagus cylindrical, cornuti present or absent, female genitalia with slim apophyses anteriores and apophyses posteriores, corpus bursae oval, signa present or absent.

In China, about 32 genera and 150 species have been reported to date (Li et al., 2009). For the genus *Synaphe*, which is mainly distributed in Europe, 21 species have been reported from Europe (Leraut, 2005; Slamka, 2006, 2010) and in immediate neighboring areas of China, 5 species are reported from Russian Far East (Martin, 1986; Kirpichnikova, 1999, 2009), but only 2 species of the genus *Synaphe* have been reported from the rest of China, for the genus *Hypsopygia*, 28 species have been reported from China, 5 from Russian Far East, 13 from Japan, and 8 from South Korea (Wang, 1980; Inoue, 1982; Xu, 1997; Hua, 2005; Bae et al., 2008; Li et al., 2009; Kirpichnikova, 2009).

In the present study, two species of Pyralinae, *Hypsopygia iwamotoi* Kirpichnikova & Yamanaka, 1995, and *Synaphe amuralis* (Hampson, 1900), are recorded from China for the first

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time. The morphology of adults and genitalia are redescribed and illustrated, the specimens examined are deposited in Northeast Forestry University (NEFU), Harbin, Heilongjiang, China.

Abbreviations used in this study are as follows: TS- type species, TL- type locality.

Taxonomic accounts

Genus *Hypsopygia* Hübner, 1825

Hypsopygia Hübner, 1825: 348. TS: *Phalaena costalis* Fabricius, 1775.

Herculia Walker, 1859, 17: 546. TS: *Herculia bractealis* Walker, 1859.

Cisse Walker, 1863, 27: 125. TS: *Cisse nigrivitta* Walker, 1863.

Buzala Walker, 1863, 27: 129. TS: *Buzala fuscicosta* Walker, 1863.

Bejuda Walker, 1865, 34: 1273. TS: *Bejuda costigeralis* Walker, 1866.

Ocrasa Walker, 1866, 34: 1212. TS: *Ocrasa albidalis* Walker, 1866.

Pseudasopia Grote, 1873, 1: 172. TS: *Pseudasopia squamealis* Grote, 1873.

Bleone Ragonot, 1890, 10: 93. TS: *Asopia fulvociliaris* Duponchel, 1832.

Parasopia Möschler, 1890, 16: 275. TS: *Parasopia dissimilalis* Möschler, 1890.

Dolichomia Ragonot, 1891, 60: 32. TS: *Asopia binodulalis* Zeller, 1872.

Orhopygia Ragonot, 1891, 60: 29. TS: *Phalaena glaucinalis* Linnaeus, 1758.

Diagnosis. Small to medium sized moth. Frons rounded, without ocelli; labial palpus upturned, over vertex. Forewing R_4 stalked with R_5 , and then anastomosed with R_3 . Hindwing R_s anastomosed with M_1 near discal cell. Male genitalia with uncus various in shape; gnathos slim; valve short or slender; saccus developed, usually long or rounded or sharp in the tip; aedeagus cylindrical, long or slim, sometimes stout, with thorn-shaped cornutus, sometimes cornutus absent. Female genitalia with triangular or oval anal papilla, both of apophyses anteriores and apophyses posteriores slim and long; ductus bursae usually

short or slim; corpus bursae oval or irregular pyriform, signum present or absent.

Hypsopygia iwamotoi Kirpichnikova & Yamanaka, 1995 (Figs. 1, 3–6)

Hypsopygia iwamotoi Kirpichnikova & Yamanaka, 1995, 14(3): 200-203, fig. 1, 2, 4; Kirpichnikova, 1999: 434; Leraut, 2006: 16; Lee & Bae, 2007: 51. TL: Russia, Primorye Territory, Barabash-Levada.

Hypsopygia aurotaenialis Christoph, 1881: Kirpichnikova, 2009: 84.

Adult (Fig. 1). Wingspan 11-18mm. Frons yellowish brown, vertex with rough and pale brown hair; labial palpus reddish brown at base, 2nd and 3rd segments fuscous outside, yellow brown inside, top of labial palpus with yellowish scales; maxillary palpus rather small, yellowish brown; proboscis with yellow scales at base; antenna fuscous; patagia reddish purple; tegulae dark reddish purple at base, pale at top; abdomen fuscous dorsally, yellow ventrally. Ground color of forewing purplish red, mixed with fuscous scales irregularly, both antemedial and postmedial lines distinct and yellow, costa with several yellow spots between antemedial and postmedial line, antemedial line slightly oblique inwardly from costa to dorsum, postmedial line sinuate slightly, forming a triangle yellow spot at costa, cilia light yellow; hindwing with ground color same as forewing, antemedial line and postmedial line yellow, and convex outwardly, between the two lines, with yellow suffusion, forming a yellow band from costa to CuP; cilia light yellow as forewing.

Male genitalia (Figs. 3-5). Uncus short, thumb-shaped, rounded slightly on the top, with short hairs dorsally; gnathos long, slim, broad at base, and gradually narrowed to the tip, hooked slightly at apex; valve hairy, long and slim, with rounded and narrowed top; saccus rather slim and long, with slightly shape tip; juxta rounded and sclerotized slightly. Aedeagus evenly cylindrical, slim and long, with a thorn-shaped cornutus.

Female genitalia (Fig. 6). Both apophyses posteriores and apophysis anteriores slender and long, the former one about 1.6 times as long as the latter. Ductus bursae about 0.9 times as long as corpus bursae, with a sclerotized ring, ductus seminalis from

top of ductus bursae. Corpus bursae oval or pyriform, signum T-shaped, the vertically directed thorn strong and largest.

Material examined. 1♂, 1♀, China: Prov. Liaoning, Jianchang, Mt. Bailangshan, 12. VII. 2011 (Qi M. J.); 2♂♂, 1♀, Prov. Jilin, Mt. Changbai, 31. VII. 2000 (K. T. Park & J. S. Lee), Slide No. UIK-2682, UIK-2683, UIK-2684; 1♀, Prov. Liaoning, Mt. Qianshan, 9. VII. 2011 (Qi M. J.); 2♀♀, Prov. Heilongjiang, Dailing, Liangshui, 28. VII. 2011 (Qi M. J. & Jin X. X).

Distribution. China (Liaoning, Jilin, Heilongjiang); Far East of Russia (Primorye Territory); Korea; Japan.

Remarks. This species is similar to the species *H. regina*, but it can be distinguished from the latter by the following characteristics: the color of hindwing same as the forewing; hindwing with a distinct yellow band; the uncus thumb-shaped and stumpy, much wider than that of *H. regina* (Fig. 7); in the female genitalia, the ductus bursae shorter than that of *H. regina*.

Genus *Synaphe* Hübner, 1825

Synaphe Hübner, 1825: 347. TS: *Pyralis angustalis* [Denis & Schiffermüller], 1775.

Cledeobia Stephens, 1829: 159. TS: *Pyralis angustalis* [Denis & Schiffermüller], 1775.

Mitopoda Mann, 1854: 573. TS: *Phalaena punctalis* Fabricius, 1775.

Diagnosis. Frons oval, antenna bipectinate. Labial palpus protended flatly, scaled at the second segments, pointed at the end, drooping slightly; maxillary palpus with brush-shaped tip. Forewing with R₃, R₄ fused, and then stalked with R₅. R₃₊₄ and R₅ slightly fused with M₁ at the upper corner of cell; M₂, M₃ approaching at base. Hindwing Rs stalked with M₁; M₂, M₃ stalked with each other.

Until now only two species have been reported from China: *Synaphe bombycalis* Denis & Schiffermüller, 1775, distributed in Qinghai Province, and *Synaphe graeseri* (Sauber, 1899), which is reported from Shanxi Province.

Synaphe amuralis (Hampson, 1900) (Figs. 2, 8–10)

Cledeobia amuralis Hampson, 1900: 384, Pl. 3, fig. 32. TL: Upper Amur, Russia.

Synaphe amuralis (Hampson, 1900): Kirpichnikova, 1999: 437; Leraut, 2005: 42, fig. 75; Kirpichnikova, 2009: 96, Pl. 5, fig. 6.

Adult (Fig. 2). Wingspan 21mm. Frons dark brown. Vertex with yellowish brown scales. Proboscis yellowish brown, with scales at base, maxillary palpus small and brown. Labial palpus strong, brown, and protended flatly, 3 times as long as maxillary palpus, antennae brown, bipectinate, about 2/3 length of forewing, patagium yellowish brown, tegula yellowish brown mixed with black scales, dorsal thorax black. Legs with black and brown mixed in femur, the other segments yellowish brown, hindleg with tarsus yellow. Forewing reddish brown, postmedial line white, inwardly oblique from costa, and outwardly oblique to dorsum between CuA₂ and 1A, antemedial line white, all the basal area reddish brown, upper of medial area reddish brown, lower area with reddish scales between CuA₂ and 1A, outside of postmedial line all reddish brown. Cilia grey. Hindwing dark brown to black, postmedial line white, from costa to dorsum, at 2/3 of the line with a distinct outward sharp angle, the margin of postmedial line with few yellowish brown scales, inside area of postmedial line with reddish and black scales mixed. Cilia yellowish brown.

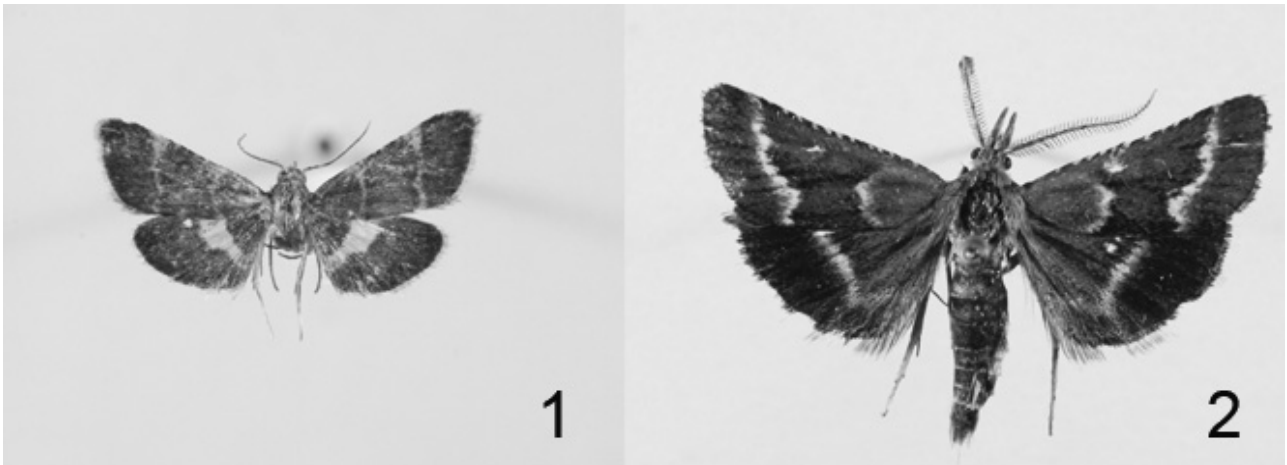
Male genitalia (Figs. 8-10). Uncus basal broad, form a sharp-shaped near tip, the end of uncus linguiform, both sides of uncus with hairs, gnathos hook-shaped, slightly longer than uncus, valva basal broad, costa straight, dorsum rounded, saccus small, rounded, aedeagus cylindrical, with one pin-shaped, sclerotized cornutus, about 1/3 length of aedeagus.

Female genitalia. Unknown.

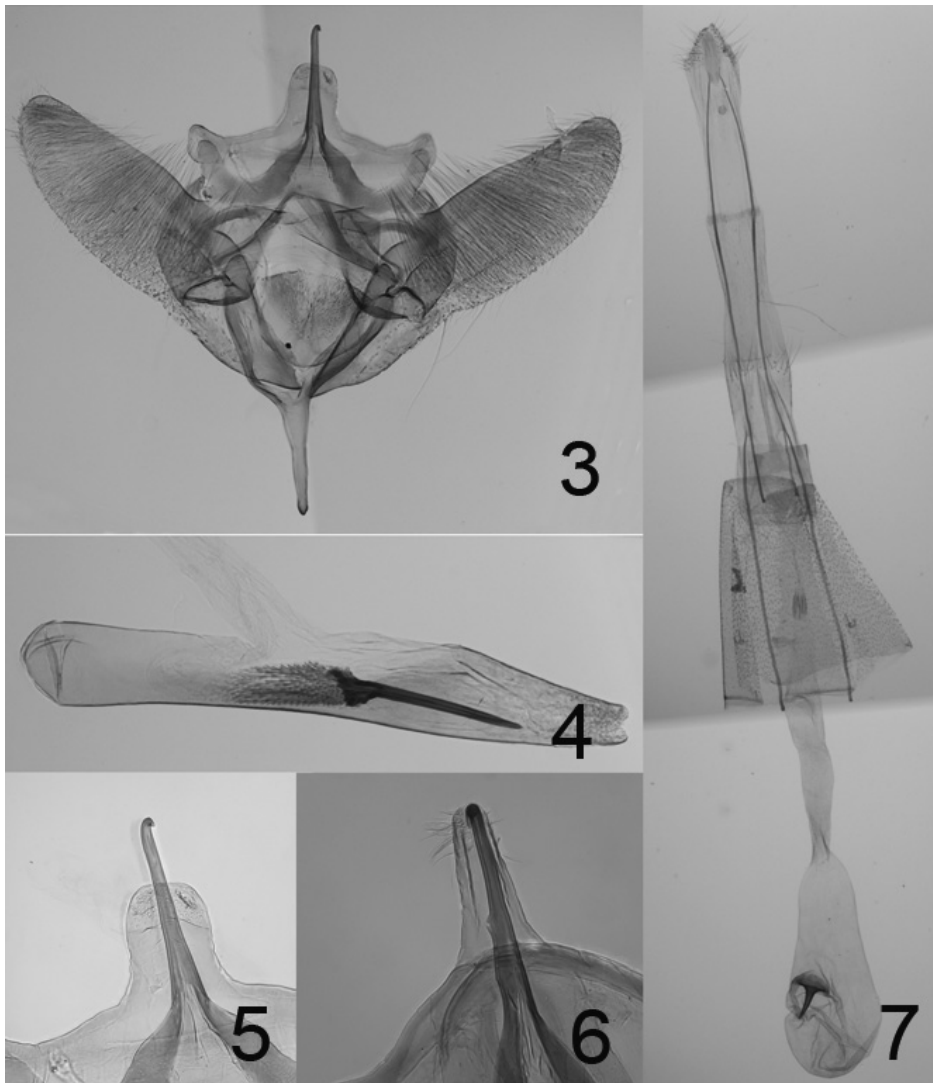
Material examined. 1♂, China: Province Liaoning, Jianchang county, Bailangshan Mt., 19-23. V. 2009 (Qi M. J. and Hu Y. Q.), Slide No. NEFU-010.

Distribution. China (Liaoning Province); Russia (Amur); Europe.

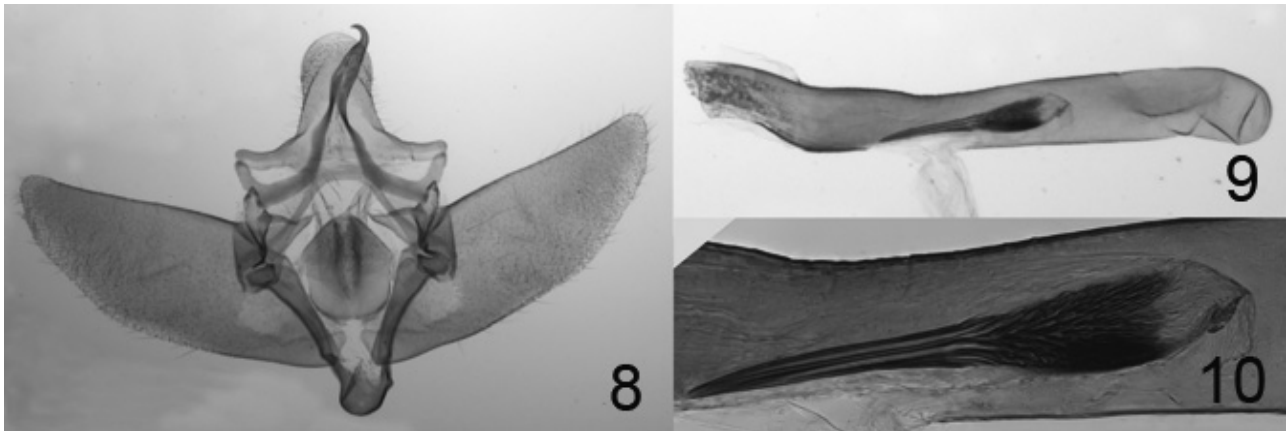
Remarks. This species was first described by Hampson (1900) as *Cledeobia amuralis* from the upper Amur, which belongs to Far East of Russia. It never has been collected from China, and this is the first time reporting this species from China. It is similar to *S. bombycalis*, but it can be distinguished by the following characters: the antemedial line of forewing without sharp convexed outwardly, and hindwing dark brown, only postmedial line white; in *S. bombycalis* the antemedial line



Figs. 1-2. Adult. 1. *Hypsopygia iwamotoi* Kirpichnikova & Yamanaka, 1995; 2. *Synaphe amuralis* (Hampson, 1900).



Figs. 3-7. Genitalia. 3. Male genitalia of *H. iwamotoi*; 4. Aedeagus of *H. iwamotoi*; 5. Uncus of *H. iwamotoi*; 6. Uncus of *H. regina*; 7. Female genitalia of *H. iwamotoi*.



Figs. 8-10. Genitalia; 8. Male genitalia of *Synaphe amuralis*; 9. Aedeagus of *S. amuralis*; 10. Cornutus enlarged of *S. amuralis*.

formed sharply convex under the discoidal cell, and the distal discoidal stigma concave inwardly, and with white spots on both sides, and hindwing yellow inside the postmedial line.

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