

Six New Faunistic Data of the Tribe Eucosmini from Northeast China (Lepidoptera, Tortricidae)

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ABSTRACT : We report a species of the tribe Eucosmini belonging to the family Tortricidae for the first time from China: *Semnostola magnifisa* (Kuznetsov) and add four species for the Northeast Chinese fauna: *Ancylis badiana* (Denis et Schiffermüller), *Blastethia turionella* (Linnaeus), *Eucosma aemulana* (Schläger), and *Sillybiphora devia* Kuznetsov. Also *Rhopalovalva grapholitana* (Caradja) is recorded for the first time from the Province Heilongjiang. Adults and genital characteristics for species are redescribed and illustrated. All available information for their host plants and distributional ranges are given.

KEY WORDS : Fauna, Eucosmini, New record, Systematics, China

초 록 : 중국 동북지역에서 채집된 잎말이나방과의 꽃애기잎말이나방종을 대상으로 분류동정 한 결과, *Semnostola magnifisa* (Kuznetsov)가 중국에서는 처음으로 보고 된다. 이 외에 중국 동북지역에서 처음으로 분포가 확인되는 4종(*Ancylis badiana* (Denis et Schiffermüller), *Blastethia turionella* (Linnaeus), *Eucosma aemulana* (Schläger), *Sillybiphora devia* Kuznetsov) 및 흑룡강성미기록종인 *Rhopalovalva grapholitana* (Caradja)에 대하여 간략한 외부형태적 특징과 분포, 기주식물정보를 정리하였으며, 성충 및 암수생식기의 특징을 도해하였다.

검색어 : 분포, 꽃애기잎말이나방종, 미기록종, 분류, 중국

Introduction

In "Tortricidae of China", Liu and Li (2002) reviewed 91 species of the tribe Eucosmini from China. Recently, Zhang and Li (2005) published a catalogue of Chinese Eucosmini comprising 231 species of 34 genera.

However, the tortricid fauna of the Northeast China, especially in the provinces Heilongjiang, Jilin, and Liaoning, has been poorly reviewed until the recent study by the first author (Byun, 2003). He listed 63 species of Eucosmini, including 6 species of the genus *Ancylis*, as distributed in the Northeast China, based on the

literatures (Liu, 1873; Liu & Li, 2002) and materials deposited in the collection of the Northeast Forestry University. In Zhang and Li (2005), 70 species of the tribe Eucosmini were listed from the Northeast China, excluding the genus *Ancylis*. Therefore, totally 76 species were recorded from the Northeast China to date. Recently Byun and Yan (2005) described a new species and five unrecorded species of the genus *Ancylis* from Northeast China. Consequently a total of 82 species of the tribe Eucosmini were known from the Northeast China to date.

In the present study, we found a species of the tribe

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Eucosmini for the first time from China. Also we report four new records for the Northeast China plus one species previously unrecorded from the province Heilongjiang. For this study, we examined all available specimens of Eucosmini deposited in Northeast Forestry University (NEFU), Harbin 150040, China. Taxonomic characters for species are provided along with all available information on the biology including seasonal occurrence and distributional ranges. Male and female genitalia were dissected and illustrated.

Systematic Accounts

Ancylis badiana (Denis et Schiffermüller, 1775) (Figs. 1, 7)

Tortrix badiana Denis et Schiffermüller, 1775, Ank. Verz. Schmett. Wienergegend.: 126. TL: Europe.

Pyralis lundana Fabricius, 1777, Genera Insectorum: 294. TL: Germany.

Tortrix corylana Hübner, 1793, Samml. Auser. Vögel Schmett.: 12. TL: Europe.

Ancylis lundana rhusiana Fuchs, 1903, Stettin. Entomol. Ztg. 64: 8. TL: Turkey (Konia).

Ancylis lundana lannemezanelle Dufrane, 1955, Bull. Inst. Roy. Sci. Nat. Belg. 31: 3. TL: France (Pyrenees).

Ancylis sepusiensis Reiprich, 1988, Stapfia 16: 291. TL: Slovakia.

Adult (Fig. 1). Wingspan 13-16 mm. In forewing, costa gently arched; basal patch dark reddish brown, developed on middle to dorsum of forewing reaching to near middle; medial fascia light reddish brown, originated from 2/3 of costa, narrowly oblique towards termen with a shortly protruded point at middle; apex somewhat narrowed, with a small reddish brown spot, emarginated just below apex; cilia light brownish gray, somewhat rounded along termen. Hindwing light yellowish gray, cilia light yellow.

Male genitalia (Fig. 7). Uncus atrophied. Socii broad, rounded, covered with numerous long hairs. Valva expanded terminally, slightly broadened medio-ventrally, then somewhat narrowed dorsally, with numerous hairs ventrally and dorsally, rounded apically: sacculus short

pushpin-shaped, sharpened apically, strongly sclerotized marginally, deeply concaved just after sacculus. Aedeagus short, slightly narrowed towards apex, with a bundle of cornuti in vesica.

Material examined. [Heilongjiang] 4♂♂, Liangshui, Early August 1995 (SC Yan)-genitalia slide number 222-coll. NEFU.

Known locality. Beijing (Badaling, Mt. Wuling), Jiangxi (Mt. Lushan) (Liu 1983, Liu & Li 2002).

Distribution. China, Korea, Japan, Europe.

Host plant. Unknown in Korea. *Trifolium* sp. (Leguminosae) in Japan (Kawabe, 1982). *Lathyrus* L., *Trifolium* L., and *Vicia* L. (Leguminosae) in Europe (Hannemann, 1961).

Remarks. It has been known from Beijing and Jiangxi, middle and southern area in China. In this study, the species is reported for the first time from Northeast.

Blastethia turionella (Linnaeus, 1758) (Figs. 2, 8)

Phalaena Tortrix turionella Linnaeus, 1758, Systema Naturae (10th ed.) 1: 539. TL: Europe.

Tortrix turionana Hübner, (1811-1813), Samml. Eur. Schmett., Tort.: pl. 35.

Blastotesthia turionella: Liu & Li, 2002, Fauna Sinica, Insecta 27: 359.

Adult (Fig. 2). Wingspan 19 mm. In forewing, ground color brownish gray; basal patch blackish brown, rather darker along outer margin, covering basal 1/4; median fascia dark brown near costa, mixed with yellowish brown near middle towards dorsum; subapical spot yellowish brown near 2/3 followed by four short blackish dashes below; apex rounded with several costal dots along the costa; cilia short, rather darker dorsally. Hindwing light brownish gray, rather darker beyond half, somewhat brownish yellow along the termen and dorsum; cilia short, brownish gray.

Male genitalia (Fig. 8). Uncus atrophied, shortly protruded medially. Socii narrow, long with rounded apex. Valva expanded, deeply concaved medio-ventrally, rather broadened at dorsal half with several short spines ventrally, numerous long dense hairs developed along the ventral

and terminal margin; sacculus strongly sclerotized, slightly drooped basally. Aedeagus small, short, with several cornuti in vesica.

Material examined. [Heilongjiang] 1♂, Honghua'erji, 16 July 1987-coll. NEFU.

Known locality. Neimeunggu (Liu & Li 2002; Zhang & Li, 2005).

Distribution. China, Russia, Europe.

Host plant. *Pinus silvestris* var. *mongolica* L., *Pinus silvestris* L., *Pinus nigra* Arnold., and *Abies alba* Mill. (Pinaceae) (Liu & Li, 2002).

Remarks. In Neimeunggu, the adults appear in May to June. Usually they rest on the leaves of tree, and drop on to the ground giving some stimuli. At evening they move around their hostplants and attracted to the light. Larvae feed on the new branches and overwinter with the mature larval stage (Liu & Li, 2002). The species is reported for the first time from Northeast China in this study.

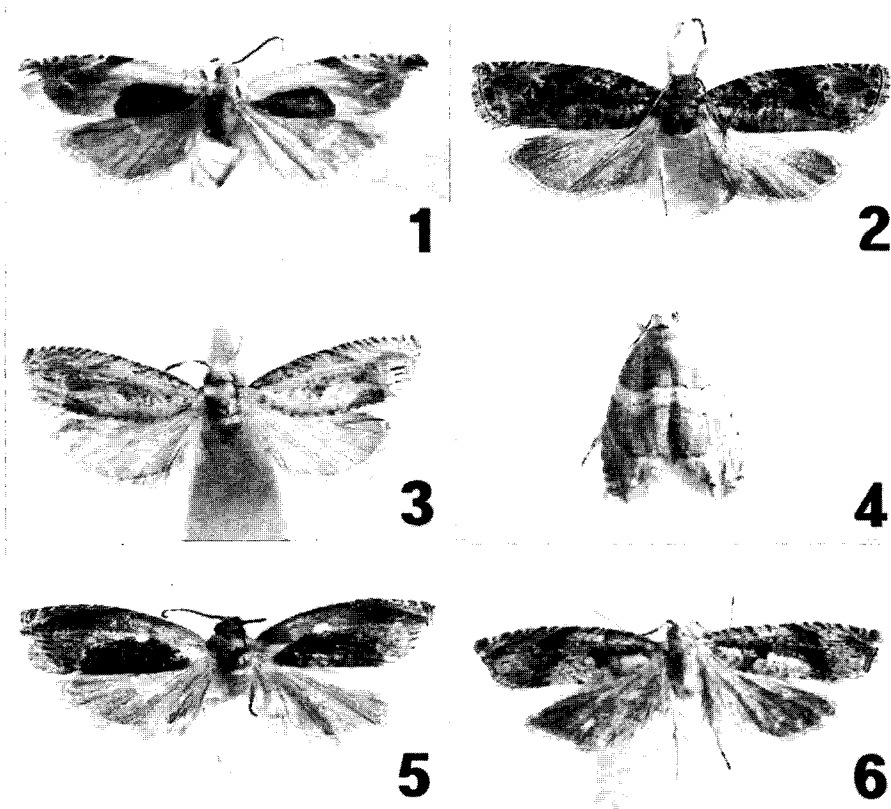
***Eucosma aemulana* (Schläger, 1849) (Figs 3, 9)**

Grapholitha aemulana Schläger, 1849, Berl. Lepid. Tauschver. Jena: 38. TL: Germany.

Semasia aemulata latiorana Herrich-Schäffer, 1851, Syst. Bearb. Schmett. Eur. 5: 248. TL: Germany.

Adult (Fig. 3). Wingspan 14 mm. In forewing, ground color pale yellow; basal patch small, light brown rather darker along outer margin; medial fascia from beyond middle of costa, narrower near costa then gradually broadened towards dorsum; apex not acute, apical margin spot rounded with three short blackish dashes; cilia short, milky yellow. Hindwing light gray, somewhat darker at dorsal half; cilia whitish gray.

Male genitalia (Fig. 9). Uncus atrophied, shortly convex medially. Socii short, narrow, rounded terminally with numerous long hairs. Valva broad basally, narrowed medially, then broadened terminally; cucullus large, golf-club shaped, with a dozen of short spines ventrally; basal



Figs. 1-6. Adults: 1, *Ancylis badiana* (Denis et Schiffermüller); 2, *Blastethia turionella* (Linnaeus); 3, *Eucosma aemulana* (Schläger); 4, *Rhopalovalva grapholitana* (Caradja); 5, *Semnostola magnifisa* (Kuznetsov); 6, *Silybiphora devia* Kuznetsov.

opening wide, subrectangular; sacculus narrow, strongly sclerotized along the ventral margin to middle of valva. Aedeagus broad basally, then narrowed apically, subtriangular in outline.

Material examined. [Heilongjiang] 1♂, Laoyeling, Early August 1995 (SC Yan)-genitalia slide number 95075; 1♂, Laoshan, Mt. Maoershan, 20 July 2002 (Byun BK & CD Li)-genitalia slide number 669; 2♂♂, ditto, 23 July 2002 (Byun BK & CD Li)-genitalia slide number 670; 1♂, Zalong, Qiqihaer, 8 August 2002 (Byun BK & CD Li)-coll. NEFU.

Known locality. Tianjin, Shanxi, Zhejiang, Anhui, Fujian, Henann Sichuan, Guizhou, Shaanxi, Gansu (Zhang & Li, 2005)

Distribution. China, Korea, Japan, Europe.

Host plant. *Solidago* sp. and *Aster tripolium*. (Compositae) (Kuznetsov, 2001)

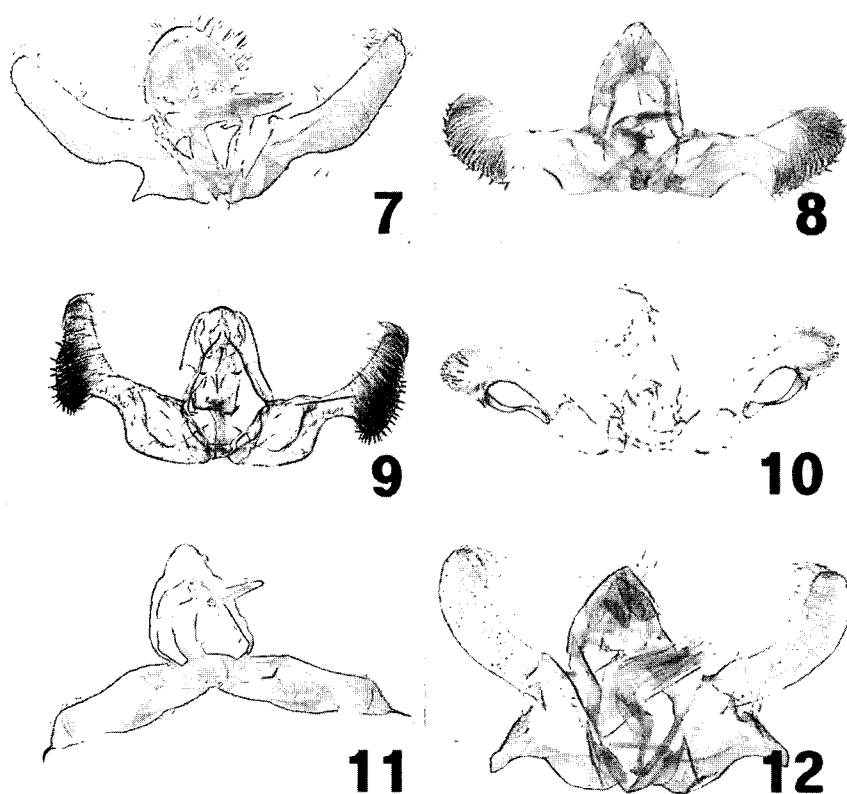
Remarks. The species is reported for the first time from Northeast China in this study.

***Rhopalovalva grapholitana* (Caradja, 1916) (Figs 4, 10, 13)**

Acroclita grapholitana Caradja, 1916, Deutsche Entomologische Zeitschrift. Iris 30: 66. TL: Russia (Amur).

Adult (Fig. 4). Wingspan 10-13 mm. In forewing, ground color light yellow; basal field dark orange, broad covering basal 1/3; median fascia dark orange, narrower costally, then broadened beyond middle; apex rounded, with irregular subapical streak; marginal line black, cilia short, corn silk color. Hindwing whitish gray.

Male genitalia (Fig. 10). Uncus moderate with narrowed apex. Valva fairly broad basally, cucullus spatulate with numerous short hairs around terminally, a long well sclerotized projection from ventral margin; basal opening wide, semicircular; sacculus narrow, a short projection with rounded apex at 1/3 of ventral margin of valva. Aedeagus somewhat long, narrowed beyond middle, no cornutus present.



Figs. 7-12. Male genitalia: 7, *Ancylis badiana* (Denis et Schiffermüller); 8, *Blastethia turionella* (Linnaeus); 9, *Eucosma aemulana* (Schläger); 10, *Rhopalovalva grapholitana* (Caradja); 11, *Semnostola magnifisa* (Kuznetsov); 12, *Sillybiphora devia* Kuznetsov.

Female genitalia (Fig. 13). Papillae anales slender. Apophyses posterioris a little bit longer than anterioris. Ostium bursae rounded. Antrum strongly sclerotized at opening. Ductus bursae as long as corpus bursae. very well sclerotized laterally from entrance to middle. Corpus bursae rounded with two push-pin shaped signa.

Material examined. [Heilongjiang] 2♂♂, Tongtian'er, 26 June 1974; 1♂, 1♀, Mt. Qingshan, 27 June 1974-genitalia slide number 175; 1♀, Mt. Maoershan, 5 July 1974-coll. NEFU.

Known locality. Anhui (Mt. Huangshan Tanggao), Jiangxi, Hebei, Shanghai, Henan, Shaanxi, Gansu, Ningxia (Liu 1983; Liu & Li 2002; Zhang & Li, 2005).

Distribution. China, Korea, Russia (Amur).

Remarks. An eastern Palearctic species. The life cycle is poorly known. Adults are collected from the early of June to the early of August. This species has been known from Anhui and Jiangxi (Liu & Li, 2002). Recently Zhang & Li (2005) mentioned that this species is distributed in northeastern part without recorded material. In this study, it is reported for the first time from the province Heilongjiang, Northeast China.



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Figs. 13. Female genitalia of *Rhopalovalva grapholitana* (Caradja).

***Semnostola magnifisa* (Kuznetsov, 1964) (Figs 5, 11)**

Eucosmorpha magnifisa Kuznetsov, 1964, Ent. Obozr. 43: 882, figs. 15, 16 . TL: Russia (Vladivostok).

Adult (Fig. 5). Wingspan 17 mm. In forewing, costa gently arched towards apex, ground color light reddish brown; basal patch indistinct; a large reddish brown spot from middle to doarsal margin, deep reddish brown; sub-apical streak light reddish brown from 2/3 of costa to 1/3 of termen, slightly narrowed terminally; apex not acute, cilia short, grayish brown. Hindwing pale grayish brown; cilia short, grayish brown marginal line pale yellow.

Male genitalia (Fig. 11). Uncus absent. Tegumen narrow. Socii small, subtriangular. Valva expanded with same width towards dorsally, with a short projection apically; sacculus well sclerotized, slender reaching to 2/3 of the ventral margin of valva, somewhat broader basally with numerous hairs ventrally. Aedeagus bent at middle, narrowed beyond middle, with a bundle of cornuti in vesica.

Material examined. [Heilongjiang] 2♂♂, Laoyeling, Early July 1995 (SC Yan)-genitalia slide number 205, 206; 1♂, ditto, 4 July 1996 (SC Yan); 1♂, Liangshui, 14 July 1996 (SC Yan)-coll. NEFU.

Distribution. China (new record), Korea, Japan, Russia (Vladivostok).

Remarks. The species is easily distinguished from other relatives by the forewing with large oval dark reddish marking on the dorso-median part. The genus *Semnostola* is characterized by the shape of the valva, especially the cucullus represented rudimentary or not developed, delicately spined and haired posteriorly, provided with ventro-terminal pollex. The species is reported for the first time from China in this study. It was listed in Byun *et al.* (1998) as distributed in China, but no data has been found in the publications for Chinese fauna (Liu, 1983; Liu & Li, 2002; Zhang & Li, 2005). It may be erroneously included in Byun *et al.* (1998).

***Sillybiphora devia* Kuznetsov, 1964 (Figs 6, 12)**

Sillybiphora devia Kuznetsov, 1964, Ent. Obozr. 43: 884, figs. 22, 23. TL: Russia (Vladivostok).

Adult (Fig. 6). Wingspan 12 mm in male. In forewing, ground color gray; basal patch grayish brown, rather darker along outer margin, forming a angle at middle terminally; subapical streak weakly developed; apex slightly narrowed, marginal line blackish brown. Hindwing light grayish brown, rather darker beyond half.

Male genitalia (Fig. 12). Uncus atrophied. Socii broad, semicircular covered with numerous long hairs. Valva narrow, broad basally, slightly curved upwardly with rounded apex; sacculus strongly sclerotized along the ventral and terminal margin with a thick projection apically. Aedeagus thick, stout, a bundle of cornuti in vesica.

Material examined. [Heilongjinag] 3♂♂, Laoyeling, Early July 1995 (SC Yan)-genitalia slide number 159, 95016, 95018-coll. NEFU.

Known locality. Jiangxi (Mt. Lushan) (Liu & Li 2002).

Distribution. China, Korea, Russia (Vladivostok).

Remarks. This monotypic genus *Sillybiphora* is known from Korea, Russia Far East, and Prov. Jianxi, south-eastern area of China to date. Moths appear from early June to early September. In the present study, it is reported for the first time from the Northeast China.

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