

Five new Recorded Species of the Tribe Archipini (Lepidoptera: Tortricidae) from Vietnam

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베트남산 잎말이나방족나비목: 잎말이나방과의 미기록 5종에 관한 보고

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ABSTRACT: This study was carried out to inventory the species of the tribe Archipini from Vietnam. Five species are recorded for the first time: *Adoxophyes tetrapracta* Meyrick, *Meridemis bathymorpha* Diakonoff, *Pandemis corylana* Fabricius, *Terthreutis bulligera* Meyrick, and *Ulodemis hyalura* Diakonoff. All of species are provided with diagnosis and figures of the adult and genitalia.

Key words: Lepidoptera, Tortricidae, Tortricinae, Archipini, New record, Vietnam

초 록: 본 연구는 베트남산 잎말이나방족에 대한 연구를 수행하여 5종 (*Adoxophyes tetrapracta* Meyrick, *Meridemis bathymorpha* Diakonoff, *Pandemis corylana* Fabricius, *Terthreutis bulligera* Meyrick, *Ulodemis hyalura* Diakonoff)이 베트남에서는 처음으로 기록되었다. 모든 종에 대한 기재, 성충의 모습, 그리고 생식기의 도해를 실었다.

검색어: 나비목, 잎말이나방과, 잎말이나방아과, 잎말이나방족, 미기록종, 베트남

The tribe Archipini with more than 500 described species of 150 genera occurs mainly in the Holarctic, Afrotropical and Oriental Regions; scarcely represented in the Neotropical (Razowski, 2003). The tribe Archipini in Vietnam was studied by several authors. Kuznetsov (1992a and 1992b) described two new species, *Homona superbana* and *Neocalypsis sodaliana*, besides 28 known species were also recorded, and he (1997) also recorded four species, *Homona encausta* (Meyrick), *Neocalypsis tricensa* (Meyrick), *Meridemis furtiva* Diakonoff and *Lumaria probolias* (Meyrick). In a study on Tortricidae fauna from Vietnam (Kuznetsov, 2000), 43 of 208 Tortricidae species belong to the tribe Archipini were annotated. Based on

the collection of the Berlin Museum, Razowski (2008a) reported seven known species and described 13 new species belong to four genera, *Gnorismoneura* Issiki & Stringer, 1932, *Terthreutis* Meyrick, 1912, *Synochoneura* Obraztsov, 1955, and *Terricula* Falkovitsh, 1965, he also reported ten known species and described five new species belonging to three genera, *Choristoneura* Lederer, 1859, *Homona* Walker, 1863 and *Meridemis* Diakonoff, 1976 (Razowski, 2008b). In the year of 2009, he described one new genus, *Chirapsina* Razowski, 20 new species, besides 41 known species were recorded (Razowski, 2009a, 2009b). In the present study, five new recorded species, *Adoxophyes tetrapracta* Meyrick, *Meridemis bathymorpha* Diakonoff, *Pandemis corylana* Fabricius, *Terthreutis bulligera* Meyrick, and *Ulodemis hyalura* Diakonoff, are added into the checklist of Tortricidae in Vietnam.

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Materials and methods

Specimens examined in this study were collected in several National Parks in the northern part of Vietnam from 2004 to 2010.

Specimens were examined under an Olympus SZH 10 stereo-microscope. Methods of genitalia dissection followed Robinson (1976). The abdomen and genitalia were mounted on the slide glass with Canada balsam media for preparation. Photographs were taken with Canon EOS 50D for adults and Carl Zeiss SV-8 for genitalia. All specimens using in this study are deposited in the insect collection of the Division of Life Sciences, Incheon National University, Korea.

Taxonomic accounts

Adoxophyes tetrapracta Meyrick, 1938

Adoxophyes tetrapracta Meyrick, 1938: 505. TL: Pupua New Guinea (Mt. Tafa).

Adoxophyes acropeta Diakonoff, 1953: 159. TL: New Guinea (Nassau Range, Top Camp).

Adult (Fig. 1). Wingspan 13-15 mm. Forewing broad, truncated, broadest at middle, and constricted at base; costa strongly curved with costal fold from beyond the base to 2/5; ground color of the forewing whitish yellow; median fascia extending from costal fold, becoming slender at median cell, abruptly dilated near the dorsum and extending towards tornal spot, subterminal fascia connected with costal blotch.

Male genitalia (Figs. 9, 9a). Uncus very long, broad, rounded terminally, weakly setae; socius broad, short with very short setae scattered, arm of gnathos weakly angulated, terminal plate of gnathos short; valva very simple, short; sacculus broad, short, and convex postbasally; cucullus short, rounded ventrally; aedeagus slender without cornutus, strongly curved basally, coecum penis also slender.

Specimens examined. 5♂, Cuc Phuong, 14. VI. 2006 (Y.S. Bae et al.); 7♂, Cuc Phuong, 24. IV. 2006 (Y.S. Bae et al.); 1♂, Ba Vi, 1. VIII. 2010 (Y.S. Bae & X.V. Le).

Distribution. Vietnam, New Guinea.

Host plants. *Theobroma cacao* L. (Sterculiaceae).

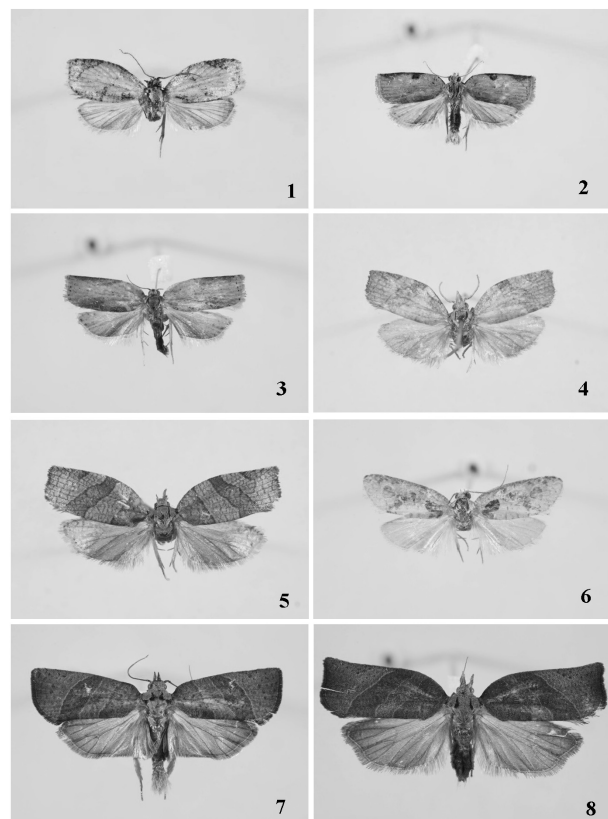
Remarks. The species is superficially similar to *A. perstricta* Meyrick, but it can be distinguished from latter by median

fascia connected with tornal spot where is also connected with subterminal fascial. The male genitalia characters are similar to those of *A. perstricta*, but it can be separated by uncus slender; smaller and curved aedeagus.

Meridemis bathymorpha Diakonoff, 1976

Meridemis bathymorpha Diakonoff, 1976: 104. TL: Nepal (Godavari).

Adult (Figs. 2, 3). Wingspan 13-15 mm. Forewing rather broad, truncated, costal fold very short and small, slightly dilated before 1/4 of costa; termen rather straight, gently slanting; ground color of forewing rather dull pale ochreous, lower half faintly clouded with tawny; costal spot (only in male) at 1/2 of costa, blackish with inner grayish blue; a narrow subapical fascia ochreous brown from 2/3 of costa to apex, with triangular angulated. Hindwing light gray, rather



Figs. 1-8. Adults of new recorded species of Archipini from Vietnam. 1. *Adoxophyes tetrapracta* Meyrick, 1938 (♂); 2. *Meridemis bathymorpha* Diakonoff, 1976 (♂); 3. ditto (♀); 4. *Pandemis corylana* Fabricius, 1794 (♂); 5. ditto (♀); 6. *Terthreutis bulligera* Meyrick, 1928 (♂); 7. *Ulodemis hyalura* Diakonoff, 1983 (♂); 8. ditto (♀).

glossy, become pale pinkish-ochreous towards apex.

Male genitalia (Fig. 10). Tegumen very high, and narrow; uncus rather slender at base and apex strongly clavated; socius moderate broad; terminal plate of gnathos long; valva semioval; sacculus slender, gradually attenuated; aedeagus slender, gradually curved.

Female genitalia (Fig. 14). Sterigma broad, rounded proximally; ostium formed by a distinct, dark semicircular rim; colliculum short, sclerotized; ductus bursae very long; cestum broad, very short; single signum, moderate in sharp thorn-shaped, strongly curved.

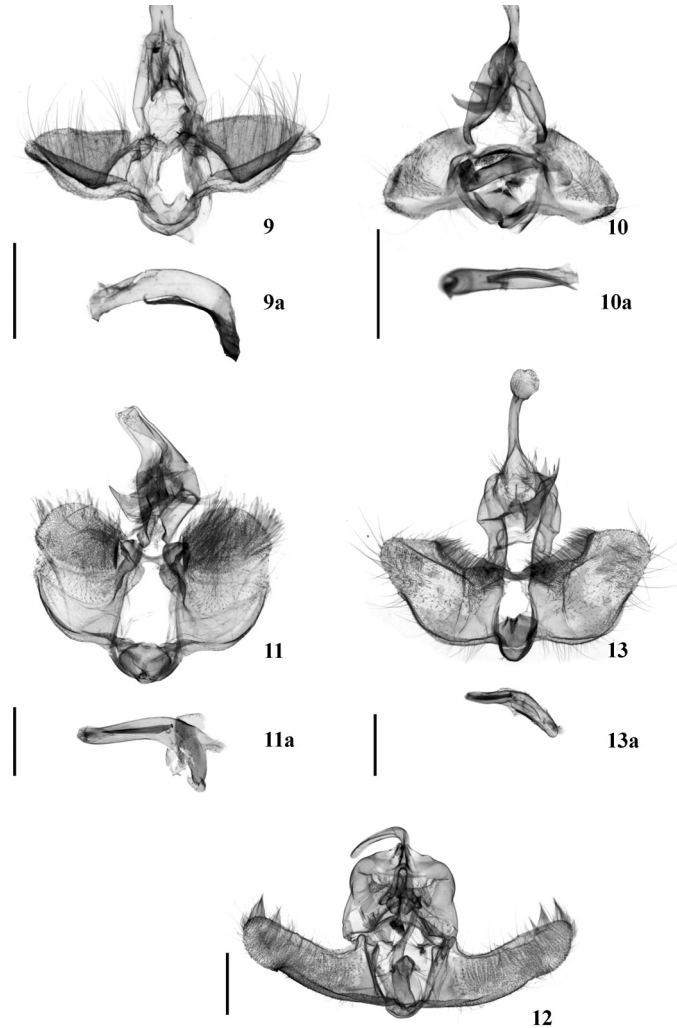
Specimens examined. 1♂, 2♀, Tam Dao, 5. V. 2005 (Y.S. Bae et al.); 1♀, Tam Dao, 14-15. VIII. 2005 (Y.S. Bae et al.); 1♀,

Cuc Phuong, 12. VI. 2004 (Y.S. Bae et al.); 2♀, Cuc Phuong, 30. IV - 2. V. 2005 (Y.S. Bae et al.); 2♂, Ba Vi, 2. VIII. 2010 (Y.S. Bae & X.V. Le).

Distribution. Vietnam, Thailand, Indonesia (Sumatra, Java, Bali, Sulawesi), W. Malaysia, Taiwan, Nepal.

Host plants. Unknown.

Remarks. The species is superficially extremely similar to *M. furtiva*, but can be distinguished by apex of the forewing rounded, not prominent, termen rather straight, and slanting outwards, which is slightly prominent and obtusely pointed, termen gently sinuate in *M. furtiva*. Male genitalia also similar to *M. furtiva*, but differed by larger uncus without constricted at base, and valva longer. Female genitalia resembling those of



Figs. 9-13. Male genitalia of new recorded species of Archipini from Vietnam.

9. *Adoxophyes tetraphracta* Meyrick, 1938; 9a. Aedeagus; 10. *Meridemis bathymorpha* Diakonoff, 1976; 10a. Aedeagus; 11. *Pandemis corylana* Fabricius, 1794; 11a. Aedeagus; 12. *Terthreutis bulligera* Meyrick, 1928; 13. *Ulodemis hyalura* Diakonoff, 1983; 13a. Aedeagus. Scale bar = 0.5 mm.

M. invalidana, but well distinguished by broader and shorter of cestum, signum longer.

***Pandemis corylana* (Fabricius, 1794)**

Phalaena (*Tortrix*) *avellana* Poda, 1761: 93. TL: Greece.

Pyralis corylana Fabricius, 1794: 260. TL: Germany.

Tortrix textana Hübner, [1796-1799]: pl. 18, fig. 115. TL: Europe.

Tortrix eurythra Fuchs, 1902: 320. TL: Europe.

Pandemis corylana: Brown, 2005: 467.

Adult (Figs. 4, 5). Wingspan 20-22 mm. Forewing elongated, costa strongly curved at 1/3; ground color of the forewing yellowish brown, basal blotch dark brown, posterior edge rather straight; median fascia tolerable parallel with anterior edge rather straight extending from before 1/2 costa, slightly

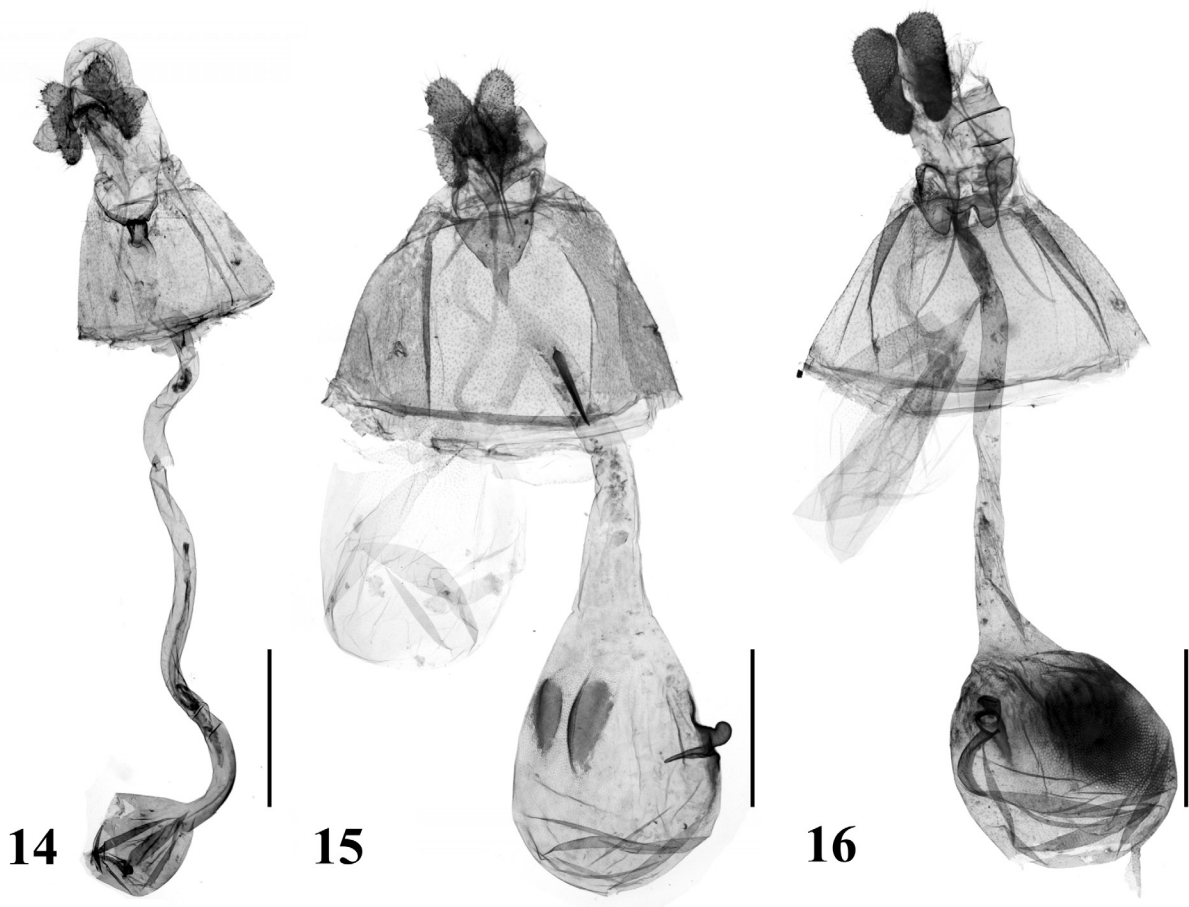
dilated towards the dorsum; subapical blotch rather small.

Male genitalia (Figs. 11, 11a). Uncus very strong, broad, slightly constricted at base; terminal plate very strong; socius large; valva short but very broad, rounded dorsally, sacculus very simple, short; aedeagus pistol shape, with long and slender coecum penis, one broadening postbasally cornutus.

Female genitalia (Fig. 15). Sterigma cup shaped, very broad, connected with membranous colliculum; ductus bursae short, broadened posteriorly, ductus seminalis rather short with very broad bulla seminalis; corpus bursae semioval, single signum with distinct capitulum, two elevated areas of sclerotized granules.

Specimens examined. 1 ♀, Tam Dao, 15.VIII. 2005 (Y. S. Bae et al.); 3 ♂, 1 ♀, Cuc Phuong, 10. VIII. 2005 (Y.S. Bae et al.).

Distribution. Vietnam, China, Korea, Japan and Asia Minor, Europe to Far East Asia.



Figs. 14-16. Female genitalia of new recorded species of Archipini from Vietnam.

14. *Meridemis bathymorpha* Diakonoff, 1976; 15. *Pandemis corylana* Fabricius, 1794; 16. *Ulodemis hyalura* Diakonoff, 1983.

Scale bar = 1 mm.

Host plants. *Quercus petraea*, *Quercus robur* L. (Fagaceae); *Fraxinus excelsior* L. (Oleaceae); *Corylus* sp. (Betulaceae).

Remarks. The species is similar to *P. cinnamomeana* in wing pattern, but it can be distinguished by pale yellowish brown ground color of the forewing. Genitalia also similar to *P. cinnamomeana*, but can be separated by uncus of latter species is constricted at base and slightly concave apically.

***Terthreutis bulligera* Meyrick, 1928**

Terthreutis bulligera Meyrick, 1928: 459. TL: India (Bengal, Calcutta).

Adult (Fig. 6). Wingspan 18-20 mm. Forewing rather narrow, elongate, somewhat dilated, costa gently arched, apex rounded obtuse, termen obliquely rounded, strongly slanting; ground color whitish-ochreous, costa indistinctly strigulated brownish. Markings with well-defined ochreous-yellow round spots; dorsal basal spot extending from dorsal to the median cell, including an orange spot mark on dorsal edge, above this spot a dark gray spot; beyond this on dorsum, three gray spots connected by lighter gray suffusion, subterminal spot well-define ochreous-orange rounded.

Male genitalia (Fig. 12). Tegumen rather broad, wholesome; uncus very long, slender; gnathos arm broad to middle, terminal plate of gnathos short and rather broad; socius rather short. Valva very slender, broadest at base; aedeagus slender, slightly curved, almost as long as costa of valve.

Specimens examined. 1♂, Tam Dao, 5. V. 2005 (Y.S. Bae et al.).

Distribution. Vietnam, Taiwan, India, Nepal.

Host plants. Unknown.

Remarks. Male genitalia closely resembling those of *T. spherocosma* but the species with valva less abruptly narrowed, beyond base, much more gradually. It is also similar to *T. xanthocycla*, but differed by longer aedeagus, more dilated anteriorly and truncate coeum penis, even slightly concave.

***Ulodemis hyalura* Diakonoff, 1983**

Ulodemis hyalura Diakonoff, 1983: 74. TL: Indonesia (Sumatra, Mt. Bandahara, Bivouac One).

Adult (Figs. 7, 8). Wingspan 22-24 mm. Forewing oblong-truncated, gradually dilated, broadest before termen. Costa rather straight, curved basally, apex rounded with termen gently convex, tornal rounded, little oblique in male; costa

sinuated, gently curved basally, apex slightly prominent with termen slightly concave, tornal rounded in female; basal blotch from 1/5 of costa to dorsum before middle, posterior margin slightly concave at below the fold; median fascia extending from before middle to before the tornal; well defined, anterior margin rather straight, posterior margin somewhat irregularly convex, broadest in middle of wing in male and broadest at dorsum in female; both submedian interfascia and transverse fascia scattered with small purple spots; posterior half of wing paler fulvous-ochreous, towards middle of termen and suffused with light ferruginous, scattered throughout with round deep purple small spots. Cilia dark brown, basal third blackish-purple, a narrow whitish basal line. Hindwing rather dark fulvous-fuscous, with bronze gloss.

Male genitalia (Figs. 13, 13a). Uncus very long, slightly curved, slender, except for broadened, rounded top; gnathos long, strongly sclerotized, terminal plate of gnathos with five long and strong obliquely projecting prongs. Valva short, broad, rounded; sacculus simple and short; aedeagus strongly curved with long coecum penis, one long and broad cornutus.

Female genitalia (Fig. 16) Sterigma with well develop antevaginal portion, with groups of scales on posterior part; ostium broad, sclerotized; colliculum with internal sclerite; ductus bursae rather long and broad without cestum; ductus seminalis short with very broad bulla seminalis; corpus bursae large, ovoid; one signum, sharp thorn, moderate in size, curved with broad capitulum, one large sclerotized granules area.

Specimens examined. 11♂, 4♀, Tam Dao, 6-9. VII. 2003 (Y.S. Bae et al.); 7♂, 1♀, Tam Dao, 4-5. V. 2005 (Y.S. Bae et al.); 3♂, Tam Dao, 14. VIII. 2005 (Y.S. Bae et al.); 1♂, Tam Dao, 1.VIII. 2006 (Y.S. Bae et al.); 1♂, Tam Dao, 25. V. 2007 (Y.S. Bae et al.); 1♂, Cuc Phuong, 30. IV - 2. V. 2005 (Y.S. Bae et al.); 1♂, Ba Vi, 19. VII-5. VIII. 2010 (Y.S. Bae & X. V. Le); 4♂, 1♀, Bach Ma, 18. VI. 2004 (Y.S. Bae et al.).

Distribution. Vietnam, Malaysia, Indonesia (Sumatra, Java).

Host plants. *Camellia sinensis* (L.) (Theaceae).

Remarks. The species is superficially quite similar to *U. trigrapha*, except the dorsal scale pencil in that species is light fulvous, concolorous of the hindwing. The male genitalia is similar to *U. trigrapha*, but differed by much longer uncus, less curved, narrowed (clavated in *U. strigrapha*), longer and strongly sclerotized of gnathos.

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