

First Record of the Genus *Macrobathra* Meyrick (Lepidoptera: Cosmopterigidae) from Korea with a Newly Recorded Species, *M. quercea*

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한국미기록 *Macrobathra* 속(나비목: 창날개뿔나방과)의 보고

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ABSTRACT: In this study, we report a genus *Macrobathra* for the first time from Korea, including one newly reported species, *M. quercea* Moriuti, 1973. Adult including the genitalia of both sexes are described and photographs of adults and genitalia, distributional ranges and host plants are also provided.

Key words: *Macrobathra*, Cosmopterigidae, Lepidoptera, New record, Korea

초 록: 본 연구를 통해 *Macrobathra*속이 우리나라에서는 처음으로 기록되며, 본 속에 속하는 1종(*M. quercea* Moriuti, 1973)을 우리나라에서는 처음으로 보고한다. 본 종의 정확한 분류 동정을 위해 외부형태학적 특징을 검경 및 도해하고, 성충 및 생식기 사진, 분포정보 및 기주식물 등의 정보를 제시하였다.

검색어: *Macrobathra*, 창날개뿔나방과, 나비목, 미기록, 한국

The family Cosmopterigidae, belonging to the superfamily Gelechioidea, is one of the major groups, which is widely distributed with 1,792 species in 135 genera worldwide (Sinev, 2002). In neighboring countries, a total of 41 species has been reported from Japan (Kuroko, 2013), and 21 species from Taiwan respectively (Kuroko and Heppner, 1992). In Korea, totally 29 species have been recorded to date (Yoon and Byun, 2017; Sohn and Park, 2018).

Genus *Macrobathra* was established by Meyrick based on the type species, *M. chrysotoxa* in 1883, with the characteristics as very elongate and attenuated basal joint of antenna (Meyrick,

1883). About 120 species of the genus has been reported in the world to date. Among them, most species have been reported from the Australian region with 90 known species. Relatively, small number of the species have been reported from the other regions, 12 species from the Palaearctic region and Oriental region and 10 from the Ethiopian region respectively (Li and Wang, 2004).

The aim of the present study is to report the newly recorded species, *M. quercea* Moriuti, 1973 for the Korean fauna. Adults including male and female genitalia of species are described and photographs of adults and genitalic structures, distributional ranges and host plants are also provided.

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Materials and Methods

The specimens examined in this study, including the genitalia slide glass, are preserved in the Systematic Entomology Laboratory, Hannam University (SEL/HNU), Daejeon and Department of Life Sciences, Incheon National University, Incheon, Korea. Images of adult and genitalia are taken using a digital camera (Canon EOS 600D; Canon Inc., Ota, Tokyo, Japan), microscope LEICA M205C (© Leica Microsystems, Wetzlar, Hesse, Germany) and software, Image Lab version 2.2.4.0 MCMDesign (Hillerød, Denmark). The observation method of the genitalia and venation was followed after Holloway et al. (1987). The abbreviations used here as follows: JN-Jeollanam-do; gen. slide no.-Genitalia slide number; HNU-Hannam University; INU-Incheon National University; SNU-Seoul National University.

Taxonomic accounts

Order Lepidoptera Linnaeus, 1758.

Family Cosmopterigidae Heinemann & Wocke, 1876

Subfamily Cosmopteriginae Heinemann & Wocke, 1876

Genus *Macrobathra* Meyrick, 1883

Macrobathra Meyrick, 1883: 425.

Type Species: *Macrobathra chrysotoxa* Meyrick, 1886: 804, by subsequent designation by Meyrick, 1922: 17.

Macrobathra quercea Moriuti, 1973 황피창날개뽀나방(신칭)

Macrobathra quercea Moriuti, 1973: 35. Type locality: Kuragaritoge, Osaka Pref., Honshu, Japan.

Adult (Fig. 1). Wingspan 16 mm. Head with pale yellowish brown, vertex covered with blackish brown rough scales, a narrowly line up of pale yellowish brown scales along the neck; labial palpus slender, upcurved, the terminal segment much longer than that of the median segment, then narrowed apically; antennae dark brown, moderate, reaching to 2/3 of the forewing, forming a pale yellowish band at each segment, slightly swollen at pedicel. Thorax with blackish brown rough scales, a bit shining pale yellowish brown scales along the outline. Forewing elongate, acute apically, costal margin gently

curved near base, then almost straight towards apex; ground color dark brown, a broad ochereous yellow fascia running from 2/7-3/7 of costa to 1/3 of tornus to the middle of dorsum with a acutely protruded near middle of outline towards termen, a tiny blackish dot on the costa of median fascia; apex pointed; cilia oblique, brown, rather pale terminally. Hindwing dark grayish brown, a bit shining, narrowed apically, cilia long enough with the width of hindwing, grayish brown. Legs bright whitish yellow, tarsi and spurs somewhat deep ochereous brown.

Male genitalia (Fig. 1). Overall asymmetrical. Uncus slender, narrowed toward terminal part, acute at apex. Tegumen narrow, moderate, with two club-shaped asymmetrical processes laterally: left lobe with a pair of club-shaped process, asymmetrical with each other, lower one of them curved medially with hairy ventral margin, showing a club-shaped with strong setae terminally, upper one of them thick club-shaped with rather slender medial part, numerous long hairs terminally; right lobe somewhat short, stretched toward terminal part with no hair. Valva asymmetrical: left valva very well sclerotized, shoes shaped, slightly broadened medially, somewhat widened terminally, with numerous setae throughout the outline; right valva slender, gently curved, with short and relatively few setae terminally. Vinculum short, banded terminally. Aedeagus big, stout, as long as the height of the genitalia, a series of cornuti located from 1/3 of vesica to apex, more than ten cornuti protruded terminally, a very well sclerotized process originated from 2/3 of aedeagus ventrally.

Female genitalia (Fig. 1). Papillae anales small, narrow, rounded, hairy. 8th abdominal long, developed, membranous, distal sclerotized and hairy. Apophyses posterior is twice as long as papillae anales. Apophyses anteriores as long as 1/2 of apophyses posteriores. Ductus bursae thick, rather narrower near the entrance of corpus bursae, as long as 1.5 times of corpus bursae, wide at entrance then gradually narrower beyond the middle, with a strigulated and strongly twisted part near ostium bursae. Corpus bursae ovate, membranous, with two signa within a circle disc of a regular pattern, 1/3 diameter of corpus bursae respectively.

Material examined. [KOREA] 1♂, Wando Arboretum, Daemun-ri, Gunoe-myeon, Wando-gun, JN, (N34°21'29.8" 126°40'18.6"E), 13. v. 2017 (U.H. Heo), gen. slide no. SNU-9459, 9460/S. Kim-coll. SEL/HNU; 1♂1♀, Is. Wan-do, Wando-eup, Hwaheung-ri, JN, (N34°20'17.55" E126°41'46.60"),

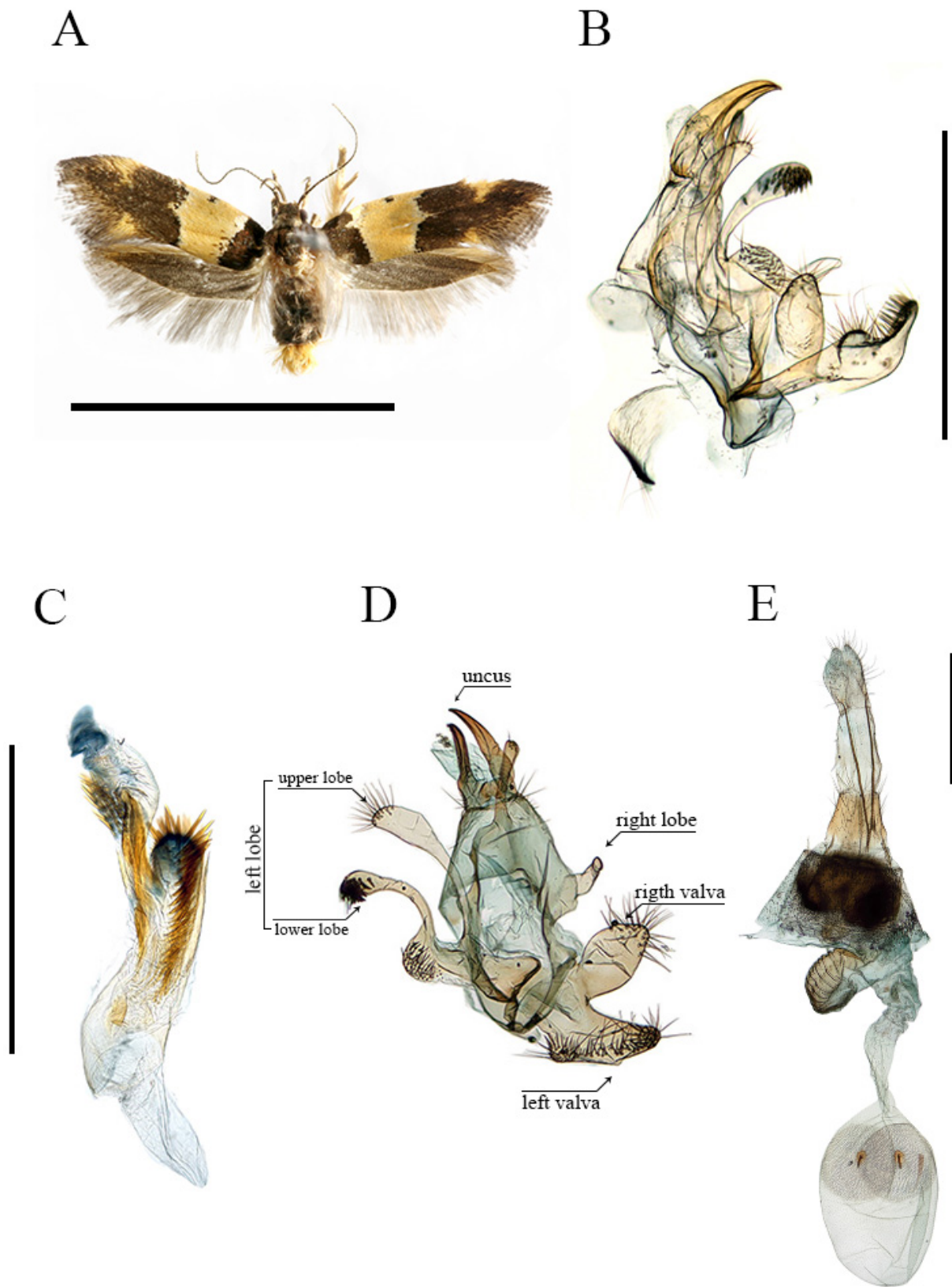


Fig. 1. Adult and genitalia of *Macrobathra quercea*: A, adult; B, male genitalia, lateral view; C, ditto, aedeagus; D, ditto, frontal view; E, female genitalia <scale bars: 1 cm (A), 0.1 mm (B-E)>.

21. vii. 2014 (Ju Y.D., Qi mujie, Aya B.U.), gen. slide no. ♂ 5480, ♀ 5481-coll. INU.

Host plants. *Quercus glauca* Thunb., and *Q. serrata* Thunb. from Japan (Moriuti, 1973). In this study, *Q. glauca* Thunb was recorded as host plant for the first time of Korea. Also, the third author observed the larva feeding on *Q. acuta* Thunb. in 2019.

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

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모든 저자는 원고를 읽고 투고에 동의하였음.

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