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Short communication

New Record of a Limacodid Moth, *Hampsonella takemurai* (Lepidoptera: Limacodidae) from Korea

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ABSTRACT

We report a limacodid moth, *Hampsonella takemurai* (Inoue) for the first time in Korea based on four males from the southwestern islands of Shinan-gun, Jeollanam-do. The genus *Hampsonella* Dyar was designated with the type species *Parasa dentata* Hampson and comprises six species, *H. acatharta* (Hampson, 1897), *H. albidula* Wu and Fang, 2009, *H arizana* (Wileman, 1916), *H. dentata* (Hampson, 1893), *H. membra* Solovyev and Witt, 2009, and *H. takemurai* (Inoue, 1986). *Hampsonella takemurai* can be diagnosed by the bipectinate male antennae, the blackish forewing with a large, dark blackish postmedial marking, and the blackish hindwing. The male genitalia can be diagnosed by the short triangular uncus, the long digitate gnathos, and the simple membranous valva. We provided the diagnosis and photographs of adult and male genitalia and COI gene sequence.

Keywords: Limacodidae, Korea, *Hampsonella takemurai*, new record

INTRODUCTION

The moths of the Limacodidae are characterized by the silky shining on the forewing, the reduced to small proboscis with slightly spiral galeae, the lack of chaetosemata and ocelli, the presence of R3+R4 of the forewing, the presence of dense mat of ventral sensillae trichoideae on recessed pad without interspersed scales, and the disc-shaped ovipositor lobes in female genitalia (Epstein, 1996; Solovyev and Witt, 2009). This family occurs worldwide comprising more than 1,500 species, predominant in tropic and subtropic regions (Solovyev and Witt, 2009; Nieukerken et al., 2011). In Korea, 30 species in 22 genera are recorded (Sohn and Choi, 2017; Sohn et al., 2018; Sohn and Solovyev, 2022; National Institute of Biological Resources, 2023).

The genus *Hampsonella* Dyar, 1898 was designated with the type species, *Parasa dentata* Hampson, 1893. Adults of the genus can be diagnosed by the forewing with a dark medial zone which is bordered by concave dark fascia, a pale dentate area near M_3 and CuA1, and an arcuate and dentate dark fascia running from 2/3 costa to tornus (Solovyev and Witt, 2009). The long digitate gnathos, short spinular uncus, the simple slender valva without a saccular process, and the curved aedeagus without a spinular cornuti can diagnose the male genitalia of this genus.

The species of *Hampsonella* Dyar could resemble some members of the genera *Caissa* Hering, 1931, *Pseudocaissa* Solovyev and Witt, 2009, *Pseudohampsonella* Solovyev and Saldaitis, 2012 (Solovyev and Witt, 2009; Solovyev and Saldaitis, 2014). Moreover, some of these genera could be phylogenetically related as was shown in previous research (Liang et al., 2024). This genus comprises six species, *H. acatharta* (Hampson, 1897), *H. albidula* Wu and Fang, 2009, *H. arizana* (Wileman, 1916), *H. dentata* (Hampson, 1893), *H. membra* Solovyev and Witt, 2009, and *H. takemurai* (Inoue, 1986), and occurs widely from Nepal to southern China including Taiwan, northern Thailand, northern Vietnam, and Japan (Yoshimoto, 1993; Solovyev and Witt, 2009; Solovyev, 2017).

The purpose of the study is to report *Hampsonella take-*

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murai (Inoue, 1986) for the time in Korea. Adult moths were collected at night using a 22 W Circline ultraviolet light bucket trap (BioQuip, USA) or manually on the wall of the building. The collected adults were mounted for examination and were identified based on the external morphology including the male genitalia. For slide preparation of genitalia, each specimen was prepared by boiling the abdomen in 10% potassium hydroxide (KOH) for approximately 20 min. The scales and tissues were removed, stained with Chlorazol Black, and mounted on slides in an Euparal solution.

Genomic DNA was extracted from one leg of the adult specimen to identify the species using the DNeasy Blood and Tissue Extraction Kit (Qiagen, UK), following the manufacturer's instructions. The COI gene (cytochrome oxidase subunit I) was amplified using GainBlue PCR premix (GainBio, Korea) and primers (LCO1490 and HCO2198). The amplified products were purified with ExoSAP-IT PCR Product Cleanup Reagent (Applied Biosystems, USA) and then sent to Bioneer Inc. (Daejeon, Korea) for sequencing. Editing, alignment of sequence, and genetic distance analysis were performed using MEGA11 (Tamura et al., 2021). The sequence divergences for the barcode region were calculated using the Kimura 2 Parameter model, and intra-species and inter-species genetic distances were determined using the DNA sequences reported in GenBank (https://www.ncbi.nlm.nih.gov/genbank).

The material has been deposited in the National Institute of Biological Resources, Incheon (NIBR) and the Insect Collection, Department of Environmental Education, Mokpo National University, South Korea. Abbreviations are follows: TL, type locality; TS, type species; and JN, Jeollanam-do.

SYSTEMATIC ACCOUNTS

Order Lepidoptera Linnaeus, 1758
Family Limacodidae Duponchel, 1845
Genus *Hampsonella* Dyar, 1898: 274.
Type species: *Parasa dentata* Hampson, 1892. TL: Sikkim, Nagas (India)

[1]***Hampsonella takemurai* (Inoue, 1986) (Figs. 1, 2)**

Natada takemurai Inoue, 1986: 73. TL: Usukicho, Kagoshima City, Kagoshima Pref. [Japan].
Hampsonella takemurai: Solovyev and Witt, 2009: 88.

Material examined. Korea: 3 males, JN: Shinan, Heuksanmyeon, Heuksan-do, 34°41′03.2″N, 125°26′34.6″E, 15 Oct 2022, Sei-Woong Choi leg.; 1 male, Shinan, Heuksan-myeon, Hongdo, 34°40′46″N, 125°11′09″E, 13 Oct 2022, Sei-Woong Choi leg.

Fig. 1. Adult of *Hampsonella takemurai* (Inoue) from Korea. Wingspan 28 mm.

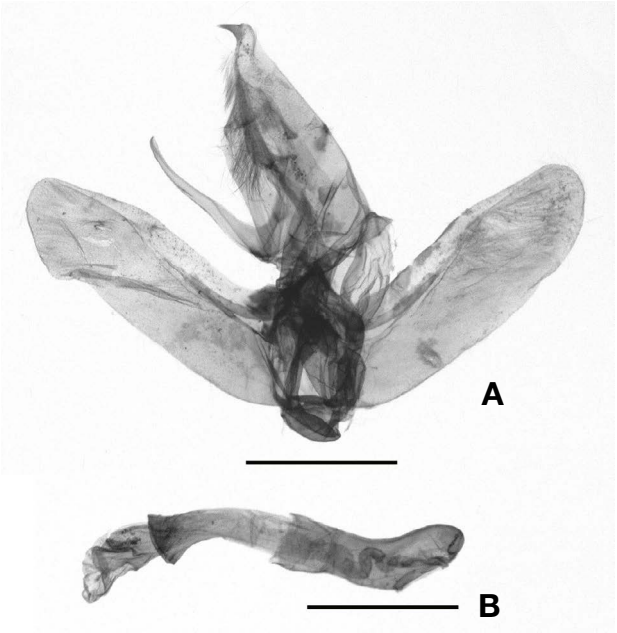

Fig. 2. Male genitalia of *Hampsonella takemurai* (Inoue) from Korea. A, Genital capsule; B, Aedeagus. Scale bars: A, B=1.0 mm.

Diagnosis. *Hampsonella takemurai* can be diagnosed by the serrate male antennae, the blackish forewing with a large, dark blackish postmedial marking, and the blackish hindwing. The male genitalia can be diagnosed by the short triangular uncus, the long digitate gnathos, the simple membranous valva, and the curved aedeagus widened apically, without a cornutus.

Description. Wingspan 26–28 mm. Male antennae serrate

Korean name: [1]*먹점쐐기나방 (신칭)

with short pectens. Frons covered with long brown hairs; labial palpi well projected beyond frons, straight, brownish. Body covered with light brown hairs; legs with yellowish tibial joints. Forewing ground color brownish, central fascia dark brownish with slanted antemedial and largely undulating postmedial line. Hindwing dark brown or blackish. Male genitalia. Uncus short, spike-shaped; gnathos long digitate process, basally strongly bent; tegumen long hood-shaped, longer than that of vinculum and saccus; saccus short. Valva long, slender; costa membranous, basally tapered; sacculus simple without a process. Aedeagus medially bent and widened apically; vesica long tubular; cornutus absent.

Distribution. Korea (new record) and Japan.

DNA barcoding. We sequenced two specimens of *Hampsonella takemurai* from Is. Hongdo, Korea, resulting in 100% similarity within the Korean specimens (GenBank accession numbers: PP442154, PP442155). A member of the genus *Hampsonella*, *H. arizana* (Wileman, 1916) (Genbank accession number: MK128254) shares similarities in the male genitalia and exhibits a genetic difference of 4.05% from *Hampsonella takemurai*.

Remarks. This species could be a migrant in Korea.

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CONFLICTS OF INTEREST

No potential conflict of interest relevant to this article was reported.

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