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## Original Article

A new record of *Pachynoa* Lederer, 1863 (Lepidoptera: Crambidae: Spilomelinae) from LaosJae-Ho Ko<sup>a</sup>, Tak-Gi Lee<sup>a</sup>, Sol-Moon Na<sup>b</sup>, Yang-Seop Bae<sup>a,b,\*</sup><sup>a</sup> Division of Life Science, Incheon National University, Incheon, 22012, South Korea<sup>b</sup> Bio-Resource and Environmental Center, College of Life Sciences and Bioengineering, Incheon National University, Incheon, 22012, South Korea

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## ABSTRACT

The genus *Pachynoa* is recorded for the first time in Laos with two species, *Pachynoa xanthochyta* (Turner, 1933) and *Pachynoa thoosalis* (Walker, 1859). These species are redescribed with illustrations of the adults and the genitalia, and their distribution is updated.

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## Introduction

The Spilomelinae is one of large subfamilies in the family Crambidae, with nearly 3,800 described species worldwide (Nuss et al 2013–2017). This subfamily is characterized by the several morphological characters: chaetosemata absent; subcostal retinaculum in male; bilobed praecinctorium, fornix tympani projecting; spinula pointed; gnathos absent; corpus bursae without signum (Minet 1982; Solis and Maes, 2003).

The genus *Pachynoa* was established by Lederer, 1863, with the type species, *Botys thoosalis* Walker, 1859. Species of the genus *Pachynoa* have been treated within the genera *Pitacanda* Moore, 1886 by Hampson, 1896 and *Hypermece* Turner, 1933 by Shaffer et al 1996. To date, this genus comprises 13 described species, which are mostly distributed from India and Taiwan to Solomon Is. (Robinson et al 1994; Nuss et al 2013–2017): *Pachynoa circualis* Sauber; *Pachynoa fruhstorferi* Hering; *Pachynoa fuscilalis*, *Pachynoa hypsalis* Hampson; *Pachynoa grossalis* Guenée; *Pachynoa interrupta* Whalley; *Pachynoa limitata* Warren; *Pachynoa mineusalis*, *Pachynoa*

*purpuralis*, *Pachynoa thoosalis* Walker; *Pachynoa spilosomoides* Moore; *Pachynoa umbriger* Meyrick; *Pachynoa xanthochyta* Turner.

The pyralid moths of Southeast Asia are diverse, but in Laos they have been rarely studied. Spilomelinae of Laos included only seven species by Shubhalaxmi (2011), Mally (2015), and Park et al (2016). In the present study, genus *Pachynoa* Lederer, 1863 is newly recorded in Laos, with two species: *P. xanthochyta* and *P. thoosalis*.

## Material and methods

Specimens examined are from the collection of Incheon National University, Incheon, Korea, collected at various localities of two provinces (Xieng Khouang and Bolikhamxai Prov.) in the central part of Laos, from April to November in 2015–2017 (Table 1). All materials are deposited in the Bio-Resource and Environmental Center, Incheon National University (INU), Incheon, Korea.

## Systematic accounts

Order Lepidoptera Linnaeus, 1758

Family Crambidae Latreille, 1810

Subfamily Spilomelinae Guenée, 1854

Genus *Pachynoa* Lederer, 1863*Pachynoa* Lederer, 1863: 391–392Type species: *Botys thoosalis* Walker, 1859

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**Table 1.** Collecting sites.

No.	Site	Date	Location	Altitude
1	Ban Tha II	13.11.2015	19°43'01.29"N 103°35'23.53"E	1186m
2	Ban Tha	05.04.2016	19°45'07.35"N 103°33'25.34"E	1298m
3	Ban Tha	07.08.2016	19°45'07.35"N 103°33'25.34"E	1298m
4	Phou Khao Khouay National Park	01.04.2016	18°28'25.28"N 103°05'06.11"E	322m

**Remarks.** In the adjacent areas of Laos, genus *Pachynoa* has been studied by Robinson et al (1994) and Nuss et al (2013–2017): five species (*P. fuscilalis*, *P. grossalis*, *P. hypsalis*, *P. mineusalis*, *P. thoosalis*) recorded from India, three species (*P. circularis*, *P. purpuralis*, *P. thoosalis*) from Philippines, three species (*P. grossalis*, *P. purpuralis*, *P. thoosalis*) from peninsular Malaysia, three species (*P. fruhstorferi*, *P. limitata*, *P. purpuralis*) from Borneo, *P. thoosalis* from Taiwan, *P. spilomoides* from Sri Lanka, *P. grossalis* and *P. purpuralis* from Thailand, *P. thoosalis* from Papua New Guinea, and *P. thoosalis* from Brunei. *P. xanthochyta* and *P. thoosalis* are reported from Laos for the first time.

***Pachynoa xanthochyta* (Turner, 1933)**

(Figures 1A, 1B, 2A, 3A)

*Hypermece xanthochyta* Turner, 1933: 170

Type locality: Australia, North Queensland

**Adult** (Figures 1A, 1B). Wingspan 45–50 mm. Head covered with yellow scales; labial palpus upturned; proboscis well developed. Patagium yellow scales, with four black orbicular spots; tegula yellow scales, with two black orbicular spots. Ground color of forewing light yellow; basal area black reniform spots; series of antemedial black patches; accessory cell a rectangular black patch; series of postmedial black patches; subterminal six black rectangular patches; terminal area yellow scale. Ground color of hindwing yellow; series of subterminal black patches; adterminal line black, slender; terminal area yellow. Abdomen yellow, with regularly black patches in each segments of dorsal side.

**Male genitalia** (Figure 2A). Uncus rostral, covered with densely hairs at apex; valva triangular; costal margin, sclerotized, with membranous swollen spur; sacculus, sclerotized; vinculum U-shaped; saccus triangular; coremata with densely setae; aedeagus about two times as long as valva, with a spine-shaped cornutus; coecum of aedeagus balloon-shaped.

**Female genitalia** (Figure 3A). Papillae analis thick, covered with regularly spinous; posterior apophyses 1.5 times as long as anterior apophyses; antrum narrow, sclerotized; ductus seminalis near the caudal area of the ductus bursae; ductus bursae membranous, about 2.5 times as long as corpus bursae; corpus bursae membranous, droplet-shaped, without signum.

**Material examined.** 1♂, Laos, Province Xiengkhouang, Ban Tha, 07 viii 2016, (Bae Y. S., Park B.S., Na S.M., Lee D.J., Ko J.H.), (19°45'07.35"N 103°33'25.34"E Alt: 1298m), genitalia slide no. INU–6514; 1♀, Laos, Province Xiengkhouang, Ban Tha II, 13 xi 2015, (Bae Y.S., Park B.S., Na S.M., Kim J.W., Lee D.J.), (19°43'01.29"N 103°35'23.53"E Alt: 1186m), genitalia slide no. INU–3673.

**Host plant.** Unknown.

**Distribution.** Laos, Bhutan (Irungbam et al, 2016), Australia (Queensland).

**Remarks.** This species recorded from Laos for the first time.

***Pachynoa thoosalis* (Walker, 1859)**

(Figures 1C, 1D, 2B, 3B)

*Botys thoosalis* Walker, 1859: 737–738

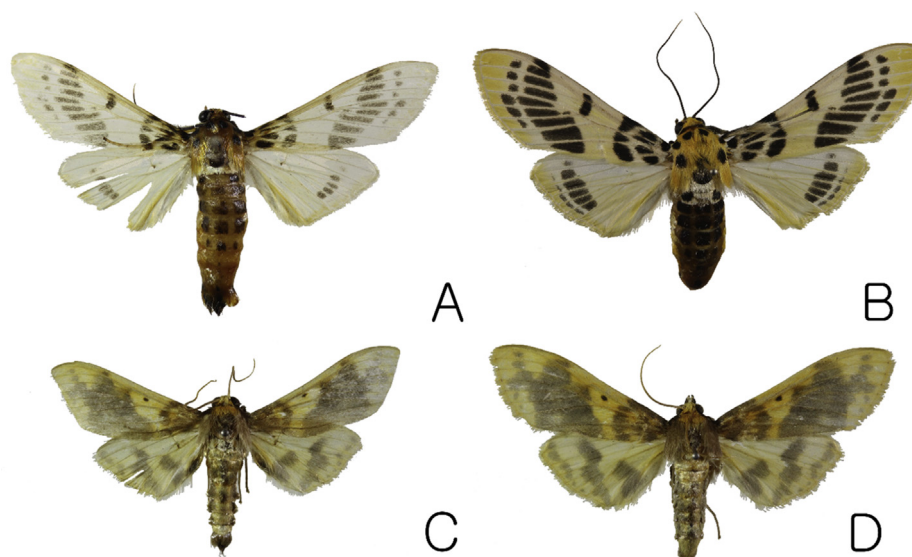
Type locality: Unknown.

*Pachynoa walkeri* Lederer, 1863

*Pachynoa walkeri* Lederer, 1863: 391, pl. 13, Figure 2

Type locality: Indonesia, Moluccas, Ambon Island [Amboina]

**Adult** (Figures 1C, 1D). Wingspan 40–45 mm. Head covered with yellow scales; labial palpus upturned; proboscis well developed, mixed with yellowish white scales. Patagium and tegula covered with yellow scales. Ground color of forewing light yellow; basal area gray; antemedial band gray; discal cell with a black spot; median to postmedian area gray, with irregular pattern; subterminal to terminal area yellow. Ground color of hindwing yellow; short median band gray; postmedian zigzag band gray; subterminal line gray. Abdomen yellow.



**Figure 1.** Adults of *Pachynoa* spp. from Laos: A, *Pachynoa xanthochyta*, ♂; B, ditto, ♀; C, *Pachynoa thoosalis*, ♂; D, ditto, ♀.

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