



## *Ukamenia* Oku, 1981 (Lepidoptera: Tortricidae: Olethreutinae), new record for Thailand with descriptions of a new species

SOPITA MUADSUB<sup>1,3</sup> & NANTASAK PINKAEW<sup>1,2\*</sup><sup>1</sup>Department of Entomology, Faculty of Agriculture at Kamphaeng Saen, Kasetsart University, Kamphaeng Saen Campus, Nakhon Pathom, 73140, Thailand.<sup>2</sup>Center for Advanced Studies in Tropical Natural Resources, NRU-KU, Kasetsart University, Chatuchak, Bangkok, 10900, Thailand<sup>3</sup>[✉ muadsub\\_s@hotmail.com](mailto:muadsub_s@hotmail.com); [ORCID: https://orcid.org/0000-0002-9672-1878](https://orcid.org/0000-0002-9672-1878)\*Corresponding author. [✉ agrnsnp@ku.ac.th](mailto:agrnsnp@ku.ac.th); [ORCID: https://orcid.org/0000-0002-4307-4427](https://orcid.org/0000-0002-4307-4427)

### Abstract

The genus *Ukamenia* Oku, 1981 is recorded the first time for Thailand and a new species, *Ukamenia thailandica* n. sp., is described. Photograph of living specimens of *U. thailandica* n. sp. in natural resting posture is present. The one new taxon increases the number of described *Ukamenia* species to 4.

**Key words:** new species, Olethreutini, Thailand

### Introduction

The genus *Ukamenia* was established by Oku (1981) with *Simaethis sapporensis* Matsumura (1931) from Japan as the type species. Matsumura (1931) had been originally placed *Simaethis sapporensis* in the family Glyphipterygidae, then Oku (1981) transferred it to the family Tortricidae. Oku (1981) also mentioned that the genus *Ukamenia* was similar to the genus *Gatesclarkeana* Diakonoff, 1966 by the characters of a pair of pocket-like structures on the abdomen ventrally in male. Horak (2006) noted *Ukamenia* is closely related to *Gatesclarkeana*, *Hiroshiinoueana*, and *Asymmetrarcha*. Genus *Ukamenia* currently includes 3 described species: *U. sapporensis* from Japan (Matsumura 1931, Oku 1981), Russia Far East (Kuznetsov 1981), Korea (Park 1983, Byun *et al.* 1998, Bae 2011) and China (Bae *et al.* 2000), *U. dimorpha* from Japan (Nasu 2012), and *U. babeana* from Vietnam (Heppner & Bae 2020). Field work of the Olethreutinae in Thailand has revealed the presence of the fourth species that is described herein.

### Materials and methods

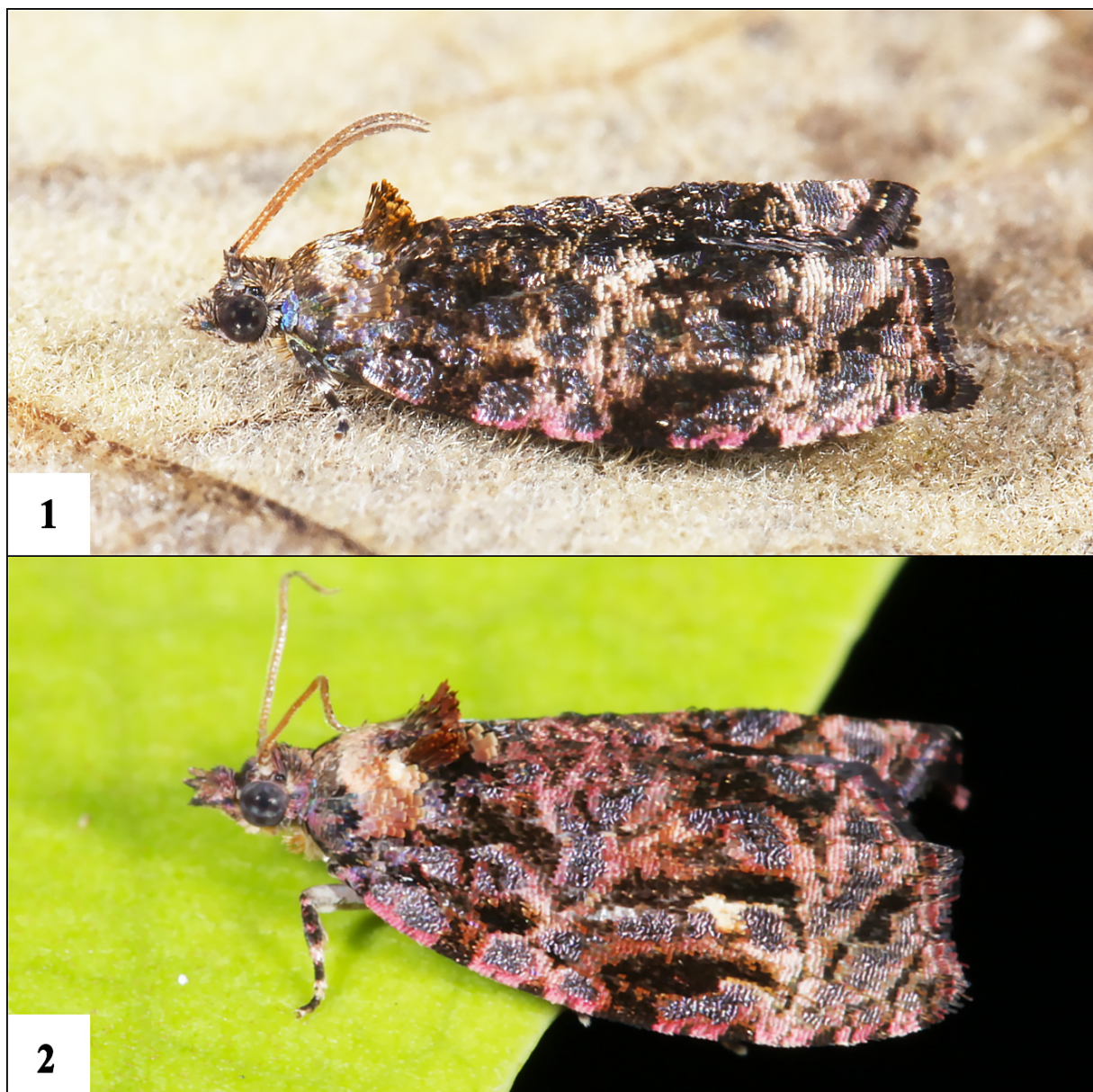
Specimens of the new species were collected in Phu Khieo Wildlife Sanctuary, Thailand that were deposited in Kasetsart Kamphaeng Saen Insect Collection (KKIC), Nakhon Pathom, Thailand. Latitude, longitude and elevation were recorded with a GARMIN GPSMAP 76CS. Methods of genitalia preparation were adapted from Common (1990). Adults were photographed with a Canon DSLR 5D Mark II camera and a 100 mm macro lens. Labial palpi were photographed with a Leica S8 APO stereomicroscope equipped with a Leica MC170 HD camera module. Leica DM750 connected with an ICC50 HD camera module was used for photographs of genitalia and examinations of genitalia. An Olympus SZ51 stereomicroscope was used for examinations and measurements of specimens. Forewing length was measured from the outer edge of the tegula at the wing base to the outermost edge of the fringe scales at the apex. The images were edited with Adobe Photoshop CC. The terminology for forewing pattern and genital structure follows Horak (1991, 2006).

***Ukamenia thailandica* n. sp.**

urn:lsid:zoobank.org:pub:E7296FA6-BF7A-4BC8-BDE3-F600A38F4135

(Figs. 1, 3, 5–18)

**Type.** Holotype ♂. THAILAND: Chaiyaphum Prov.: Phu Khieo W.S., 16°23'13"N 101°35'10"E, ca 880 m, 11 Dec 2018, N. Pinkaew; specimen no. np12599 (genitalia slide NP3904), deposited in KKIC. Paratype 1♂. THAILAND: Chaiyaphum Prov.: Phu Khieo W.S., 16°23'13"N 101°35'10"E, ca 880 m, 11 Dec 2018, N. Pinkaew; specimen no. np12600 (genitalia slide NP3905), deposited in KKIC.



**FIGURES 1–2.** Living specimens in natural resting posture. 1. *Ukamenia thailandica* n. sp. 2. *Gatesclarkeana idia*.

**Diagnosis.** This species is most similar to *Ukamenia sapporensis* (Matsumura, 1931) but male genitalia of *U. thailandica* n. sp. differs by a pair of subelliptical pouch on abdominal sternum III (subcircular in *U. sapporensis*), sacculus projecting lobe shorter than mid length of valva (longer than mid length of valva in *U. sapporensis*), and subcone-shaped phallus (subcylindrical in *U. sapporensis*).

**Description.** Head (Fig. 5): Lower frons light brown, upper frons light brown with dark brown laterally; vertex brown with brownish white tips; labial palpus correct, first segment yellowish white, second segment with basal half narrow, yellowish white with a dark brown spot medially, apical half enlarged, light brown with a dark brown patch medially, apical segment small, greyish brown with white apex. Antenna light brown.



3

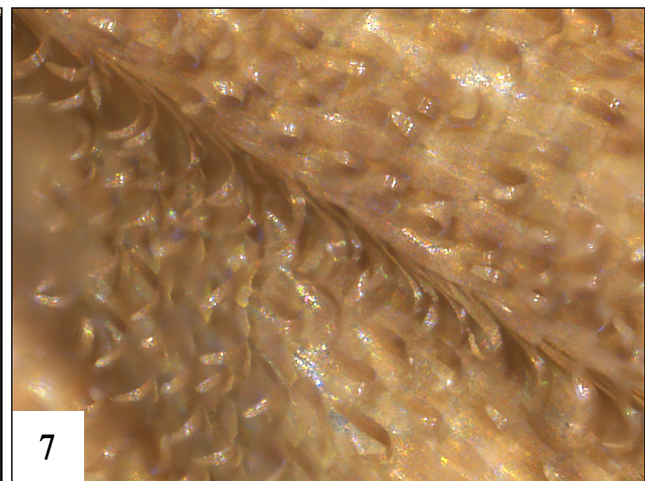


4

FIGURES 3–4. Adult specimens (scale bars = 2 mm). 3. *Ukamenia thailandica* n. sp. (holotype) 4. *Gatesclarkeana idia*.

Thorax: Pronotal collar brown; tegulae brown with basal 1/3 dark brown; mesonotum with anterior half brown, posterior half light brown, posterior crest brown with yellowish orange tips. Hind tibia enlarged with modified scales, outer surface covered with short appressed grey scales, inner surface shallow concavity covered with short, dark brown scales, basal half of concavity filled with tuft of very dense yellowish white hair pencils and top with elongate light brown scales (Figs. 8–10). Forewing broad subrectangular, length 5.9–6.1 mm in males (n = 2) (Fig. 3), costa evenly curve; termen and wing apex rather round; costal strigulae well developed, pinkish red separated by blackish streaks; ground color light greyish brown mixed with scattered silvery spots and patches, costa with distinct pinkish red scales, slightly paler to wing apex and diffuse along termen, basal 1/5 with indistinct patch, brown to dark brown, with a moderately large silvery patch dorsobasally and small silvery spots scattered to dorsum, beyond

with irregular transverse band, brown mixed with silvery patches, near margins with irregular, transverse narrow lines extending from costa to dorsum, dark brown, medially with large, irregular patch extending obliquely from middle of costa to near tornus, brown to dark brown mixed with silvery patches, outer margin edged with irregular transverse narrow line, dark brown, extending from base of  $R_5$  to tornus, apical 1/4 with a silvery oblique patch extending from near costa at  $R_2$  to between  $R_5$  and  $M_1$ , continued with an irregular patch, dark brown, extending obliquely to near termen at  $M_3$ , above with a small silvery patch near termen between  $R_5$  and  $M_2$ , tornal area with a large, transverse silvery patch extending obliquely from near base of  $M_1$  to termen between  $CuA_2$  and  $CuP$ , wing apex with moderately subcircular patch, dark brown mixed with silvery scales, anal margin slight curve upwardly; fringe scales brown mixed with dark brown; underside light greyish brown, with yellowish white marks along costa. Hindwing (Fig. 3) subtriangular, light brown, anal margin with fringe scales curve upwardly, underside light brown, slightly paler to apex, lower surface covered with diffuse curved up narrow scales between  $Sc+R_1$  to  $3A$  (Figs. 6–7).

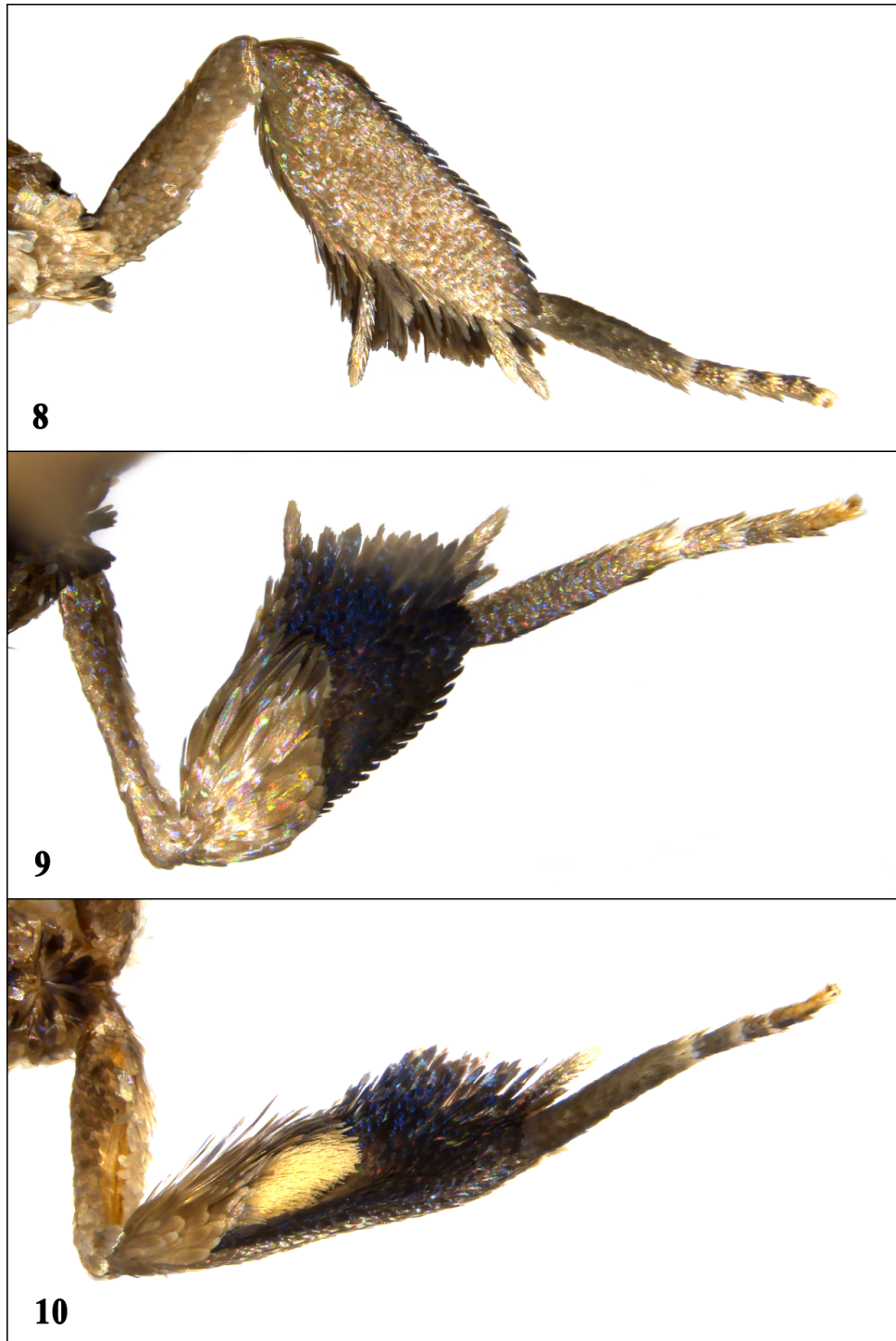


**FIGURES 5–7.** Head and hindwing of *Ukamenia thailandica* n. sp. (holotype). 5. Composition of head. 6. Underside of hindwing. 7. Curved up scales on the underside of hindwing.

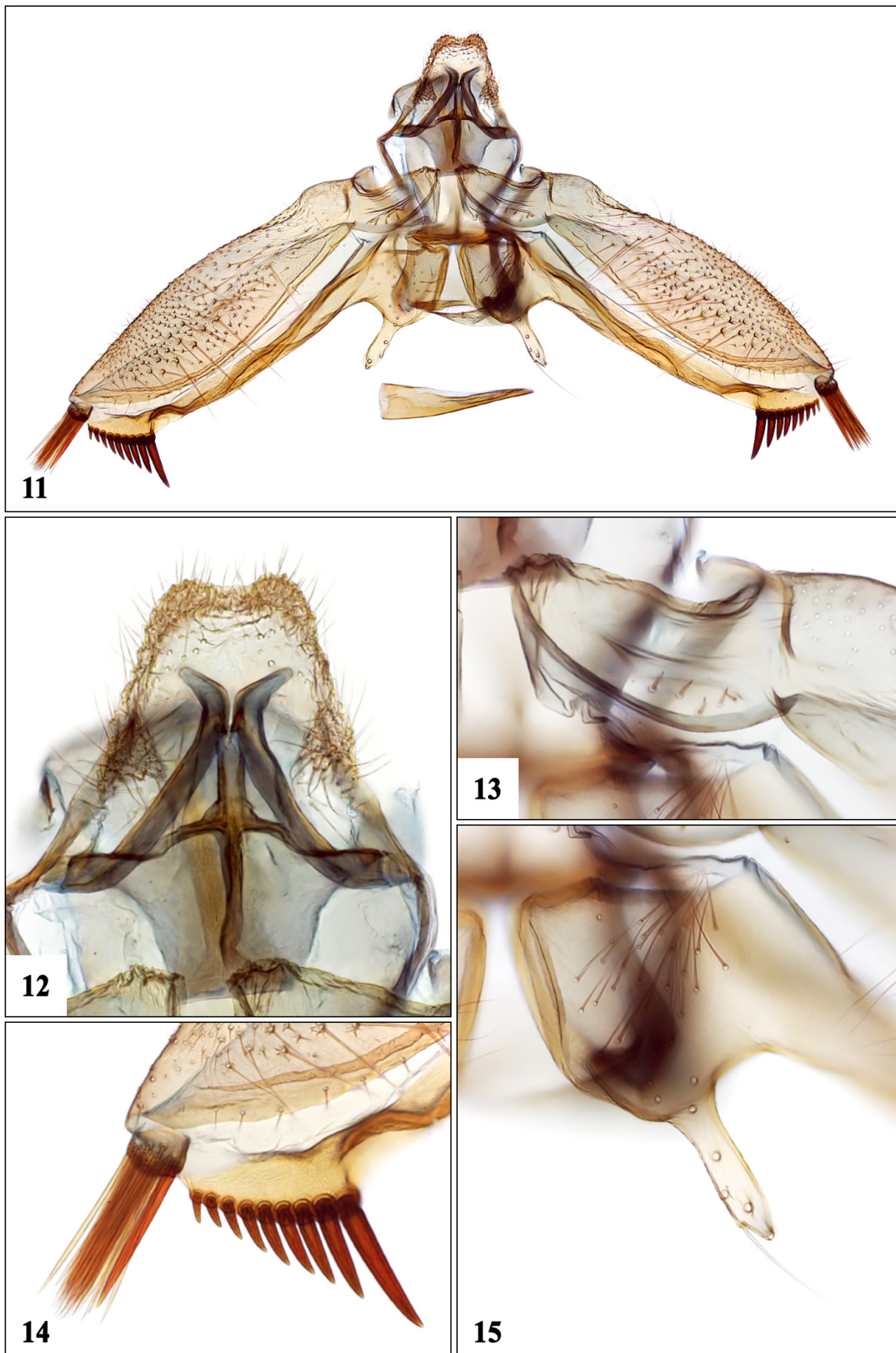
Abdomen. Tergum II with two small, crescentic pits on anterolateral corners (Fig. 17), sternum III anteromedially with a pair of large, subelliptic pouch contain dense scale sockets (Fig. 18), sternum VIII enlarged, forming a large subtriangular lobe, posterior margin with two small, pointed subtriangular lobes, tergum VIII enlarged, forming a large subtriangular lobe, dome-shaped (Fig. 16). Male genitalia (Figs. 11–15). Uncus absent; tegumen widened mid length, divided into two parts, upper half tapered to two rounded bilobed apex, lower half narrow to base, apical 1/4 of tegumen with roughly surface, with moderately dense setae; socii small, triangular, densely setose, arising at apical 1/4 of tegumen, pointing inwardly (Fig. 12); gnathos large, forming subpentagon, weakly sclerotized, arising from mid length of tegumen, lateroapical margins with two sclerotized arms, slant inwardly, becoming closer near blunted apices that bent outwardly, with sclerotized plus mark medially (Fig. 12); vinculum large, moderately sclerotized; juxta subtriangular; caulis moderately long; phallus moderately long, cone-shaped, slightly curve medi-

ally, basal half widened, abruptly narrow to mid length of phallus, then slightly tapered to pointed apex; valva large, costa process forming large, bean-shaped, protruding inwardly, with sparsely minute spines ventrally (Fig. 13); sacculus rather small, subquadrate, near apicoventral corner with moderately long, subcylindrical projecting lobe, pointed apex, pointing outwardly, sparsely setose (Fig. 15); cucullus large, elongate subelliptic, upper margin folded longitudinally, upper part with moderately dense, short mixed with long setae, ventral part sclerotized, smooth, apex of cucullus with a tuft of dense, long setae and one large strong spine, beneath with a row of strongly spines, varies in number (9 spines in holotype (Fig. 14) and 10 spines in paratype), length of these spines reduced orderly to apex.

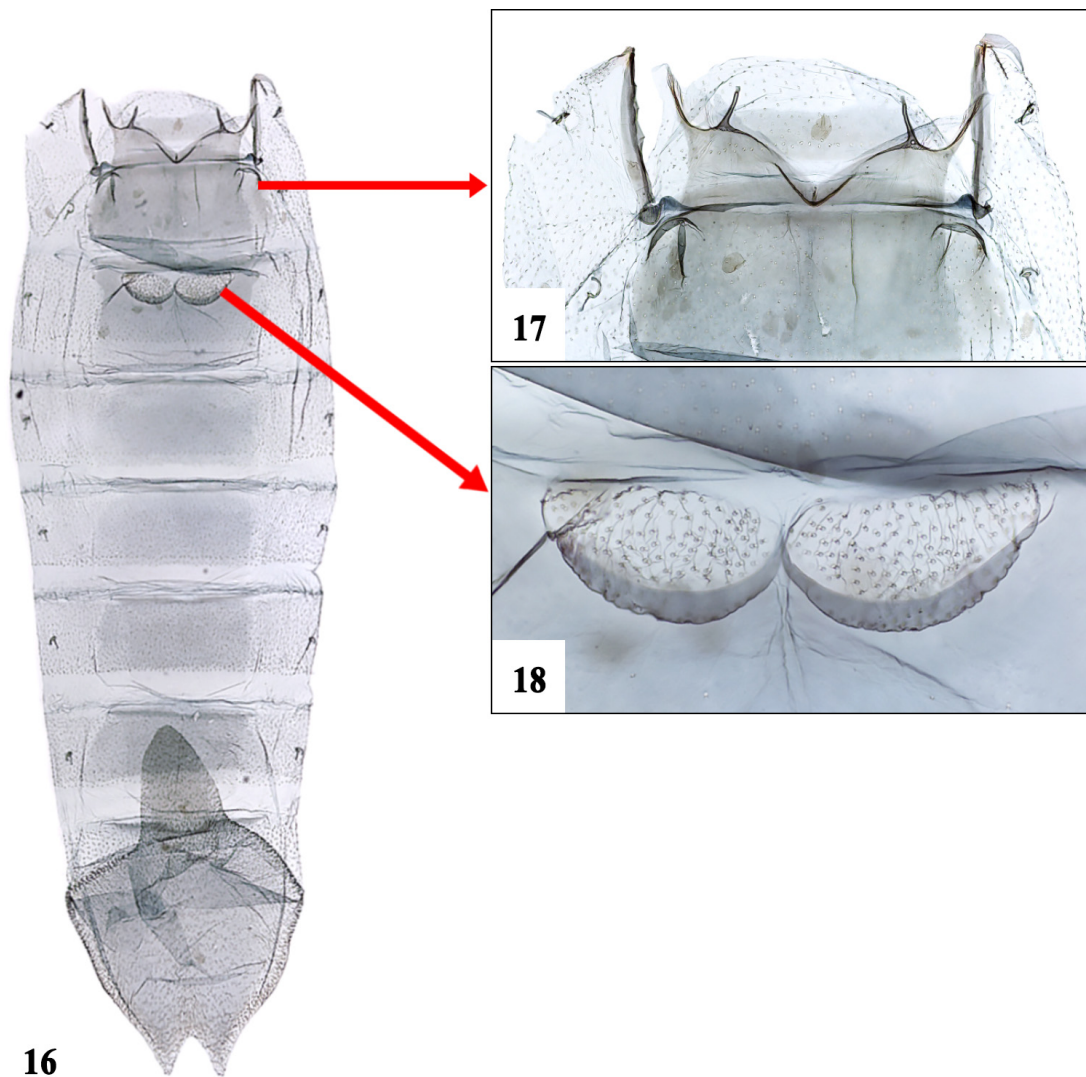
**Etymology.** This species is named to Thailand, type locality.



**FIGURES 8–10.** Hind tibia of *Ukamenia thailandica* n. sp. (holotype, left side). 8. Outer side. 9. Inner side. 10. Tuft of yellowish white hair pencils inside concavity.



**FIGURES 11–15.** Male genitalia of *Ukamenia thailandica* n. sp. (holotype). 11. Male genital capsule with ex-situ aedeagus. 12. Tegumen, socii, and gnathos. 13. Costal process (right side). 14. Tuft of strongly setose with one strongly spine and a row of strongly 9 spines on terminal of left cucullus. 15. Subcylindrical projecting lobe on right sacculus.



**FIGURES 16–18.** Distinct characters on the abdomen of *Ukamenia thailandica* **n. sp.** (holotype). 16. Overall image of abdomen. 17. Small pits on tergum II. 18. Subcylindrical pouches on sternum III.

## Discussion

Adult male of *Ukamenia thailandica* **n. sp.** looks like *Gatesclarkeana idia* Diakonoff, 1973 in position of resting posture (Figs. 1–2) and wing span setting (Figs. 3–4) but *U. thailandica* **n. sp.** can be distinguished by without a white spot on forewing medially (present in *G. idia*) and pinkish red distinctly present along costal area (present as ground color in *G. idia*). Adult male of *U. thailandica* **n. sp.** shows curved up scales on the underside of hindwing that also present in *U. sapporensis* and *U. dimorpha* (observed by Nasu). Male genitalia of *U. thailandica* **n. sp.** superficially resembles to *U. sapporensis* and *U. dimorpha*. It differs from the two latter by shape of a pair of large pouch on abdominal sternum III (subcircular in *U. sapporensis*/ subtriangular in *U. dimorpha*/ subelliptic in *U. thailandica* **n. sp.**), length of sacculus projecting lobe (reaching beyond mid length of valva in *U. sapporensis*/ reaching mid length of valva in *U. dimorpha*/ not reaching mid length of valva in *U. thailandica* **n. sp.**), and number of strong spines on apicoventrally of cucullus (7 spines in *U. dimorpha*/ 9 or 10 spines in *U. thailandica* **n. sp.**/ 10 spines in *U. sapporensis*), and shape of phallus (slightly curve subcylinder and slightly taper to apex in *U. sapporensis* and *U. dimorpha*/ slightly curve cone-shaped in *U. thailandica* **n. sp.**).

Distribution of the genus *Ukamenia* shows quite far distance from two regions, two species from Palaeartic region (*U. sapporensis* from China, Russian Far East, Korea and Japan and *U. dimorpha* from Japan) and the other two species from Southeast Asia (*U. babeana* from Vietnam and *U. thailandica* **n. sp.** from Thailand).

## Acknowledgements

This research project is supported by National Research Council of Thailand (NRCT): NRCT5-RGJ63, in part by the Kasetsart University Research and Development Institute. We are grateful to the Department of National Park, Wildlife and Plant Conservation for collecting permit in National Park and Wildlife Sanctuary. We also thank the Department of Entomology, Faculty of Agriculture at Kamphaeng Saen, Kasetsart University, Kamphaeng Saen Campus, for providing laboratory facilities. We also express our sincere thanks to anonymous reviewers for comments and suggestions.

## Literature cited

- Bae, Y.S. (2011) *Leafroller I*. In: *Insect Fauna of Korea*. Vol. 16. No. 1. *Arthropoda: Insecta: Lepidoptera: Tortricidae: Olethreutinae*. National Institute of Biological Resources, Incheon, 167 pp.
- Bae, Y.S., Park, K.T. & Kim, D.Y. (2000) Olethreutinae (Lepidoptera, Tortricidae) from Mt. Changbai-shan in China. Part I. *Insecta Koreana, Seoul*, 17, 287–302.
- Byun, B.K., Bae, Y.S. & Park, K.T. (1998) *Illustrated Catalogue of Tortricidae in Korea (Lepidoptera)*. In: *Insects of Korea*. Vol. 2. Korea Research Institute for Bioscience and Biotechnology, Center for Insect Systematics, Chuncheon, 311 pp.
- Common, I.F.B. (1990) *Moths of Australia*. Melbourne University Press, Melbourne, 535 pp.  
<https://doi.org/10.1071/9780643101227>
- Heppner, J.B. & Bae, Y.S. (2020) A new species of *Ukamenia* from Vietnam (Lepidoptera: Tortricidae: Olethreutinae: Gatesclarkeaniini). *Zootaxa*, 4743 (2), 280–284.  
<https://doi.org/10.11646/zootaxa.4743.2.11>
- Horak, M. (1991) Morphology. In: Van der Geest, L.P.S. & Evenhuis, H.H. (Eds.), *World Crop Pests. Tortricid Pests: Their Biology, Natural enemies and Control*. Elsevier, Amsterdam, pp. 1–22.
- Horak, M. (2006) *Olethreutine Moths of Australia (Lepidoptera: Tortricidae)*. *Monograph of Australian Lepidoptera Vol. 10*. CSIRO Publishing Collingwood, 522 pp.  
<https://doi.org/10.1071/9780643094086>
- Kuznetsov, V.I. (1981) Records of the subtribe Gatesclarkeanae and some other new Tortricidae (Lepidoptera) in Primorye Territory. *Proceeding of the Zoological Institute, Academy of Sciences of USSR, St. Petersburg*, 92, 74–86.
- Matsumura, S. (1931) *6000 Illustrated insects of Japan Empire*. Tôkô Shoin, Tokyo, 1496 pp., 10 pls. [in Japanese]
- Nasu, Y. (2012) New olethreutine moths from Japan (Lepidoptera, Tortricidae, Olethreutinae). *Tinea*, 22 (1), 12–24.
- Oku, T. (1981) Notes on “*Simaethis*” *sapporensis* Matsumura with description of a new genus of Olethreutinae, Tortricidae. *Tyo to Ga, Tokyo*, 31 (3 & 4), 126–132.
- Park, K.T. (1983) *Microlepidoptera of Korea*. In: *Insecta Koreana. Series 3*. Kangweon National University, Chuncheon, 195 pp.