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A new lappet moth species from southern Laos and Vietnam (Lepidoptera: Lasiocampidae)

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Abstract

In this article, we describe *Radhica ustjuzhanini* sp. nov., a new cryptic species from southern Laos and Vietnam. The new species is a sister species to *Radhica elisabethae* de Lajonquière, 1977 which was described from Sumatra. The sequences of this species are rather distant from topotypes of *R. elisabethae* from Sumatra (uncorrected *COI* p-distance > 8%). The new species is dedicated to Petr Y. Ustjuzhanin, a specialist in Pterophoridae and Alucitidae.

Key words: new species, taxonomy, biodiversity, DNA barcoding, cryptic species, Annamese Mountains.

Introduction

The genus *Radhica* Moore, 1879 contains six species distributed from China and India to Java and the Philippines (Zolotuhin & Pinratana 2005). *Radhica elisabethae* de Lajonquière, 1977 described from Sumatra has the range extend from the Sundaland and the Philippines to southern China and India (de Lajonquière 1977; Zolotuhin & Pinratana 2005). However, molecular analysis reveals that *Radhica elisabethae* is a species complex consisting at a minimum of six cryptic species with uncorrected *COI* p-distances from 2.6% to 8.26%. In this article, we describe *Radhica ustjuzhanini* sp. nov., a new cryptic species from southern Laos and Vietnam. The *COI* sequence of *Radhica ustjuzhanini* sp. nov. reveals that the new species is rather distant from other taxa of this genus. Uncorrected *COI* p-distances range from 2.6% (between *Radhica ustjuzhanini* sp. nov. and *Radhica* sp. from southern China and northern Laos (the closest undescribed clade)) to 8.26% (between *Radhica ustjuzhanini* sp. nov. and *R. elisabethae* from Sumatra).

Materials and methods

The type specimen is deposited in the Russian Museum of Biodiversity Hotspots (RMBH), N. Laverov Federal Center for Integrated Arctic Research of the Ural Branch of the Russian Academy of Sciences, Arkhangelsk, Russia. The genitalia were dissected, mounted on temporary glass slides with 70% ethanol. The genitalia are kept in a micro-tube with glycerin pinned to the specimen. The specimen images were taken with a Canon EOS 7D camera (Canon Inc., Tokyo, Japan). The DNA extraction and *cytochrome c oxidase subunit I (COI)* gene sequencing were performed as described in Bolotov *et al.* (2018). Reconstruction of the phylogenetic tree *Radhica* species was performed in the online service BOLD TaxonID Tree (<https://www.boldsystems.org/index.php/databases>).

Taxonomy

Radhica ustjuzhanini Spitsyn, Kondakov, Soboleva & Spitsyna **sp. nov.**

<https://zoobank.org/urn:lsid:zoobank.org:act:2C1ADC28-5F24-4206-BC10-DD39FB949FE9>

Figs. 1-3

Type material. Holotype male RMBH Sph1029: LAOS, Bolaven Plateau, Sekong province, Thateng town, mountain tropical forest, 15°24'16"N, 106°22'58"E, 22-25.12.2022, E. Spitsyna & V. Spitsyn leg.

Diagnosis. The new species can reliably be identified by means of DNA sequences and local range (central part of the Annamese Mountains). The range of *Radhica elisabethae* de Lajonquière, 1977 is probably limited to Sumatra (see Fig. 1).

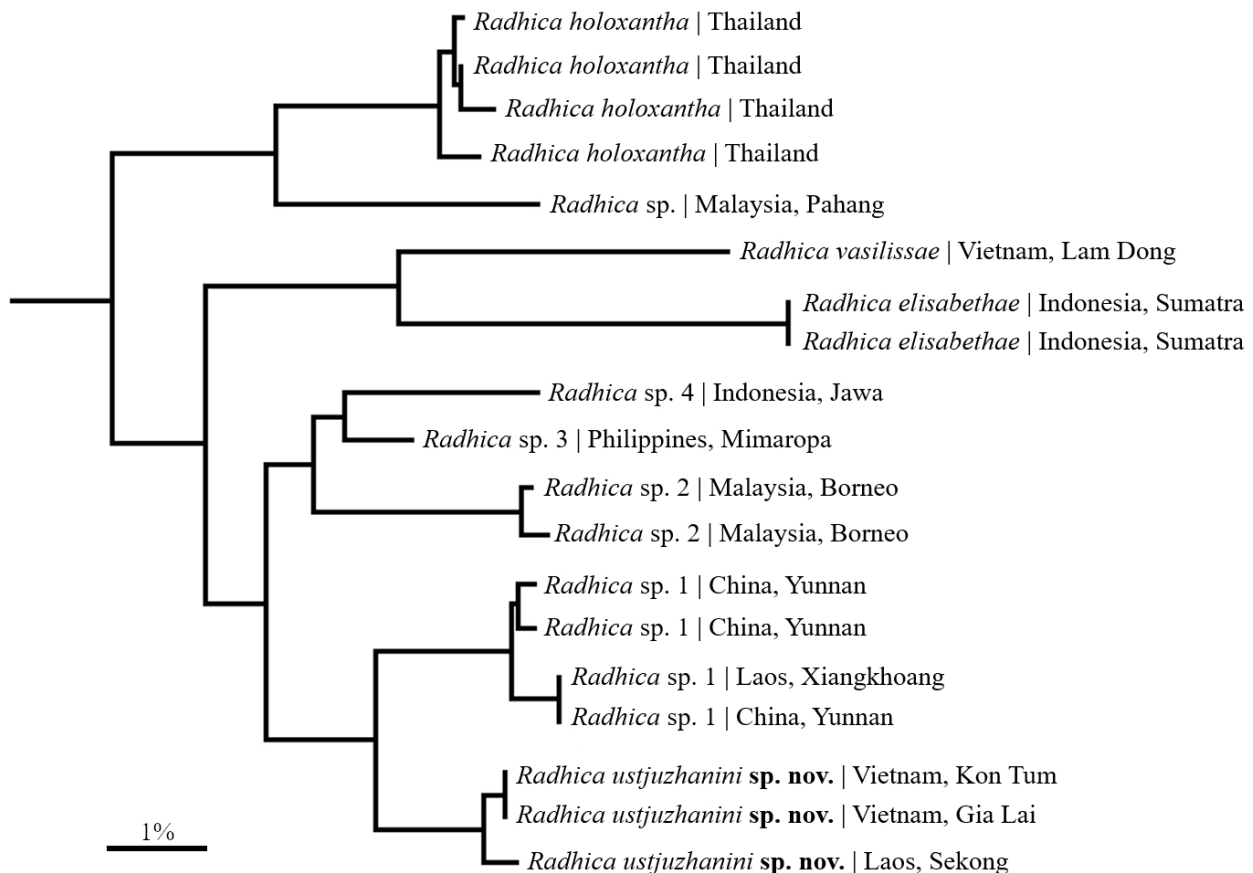


Figure 1. Fragment of the BOLD TaxonID Tree with a taxonomic reappraisal of available *COI* sequences of *Radhica* species (assessed on June 15, 2023).



Figure 2. Holotype male of *Radhica ustjuzhanini* sp. nov. from Laos: A) upperside; B) underside. Scale bar = 10 mm.

Description. *Male morphology:* Wingspan 46 mm, forewing length 23 mm. Eye olive. Antenna brown, bipectinate. Head green. Labial palpus long (its length equal to three eye's diameter), brown, with silver scales. Thorax green, with a brown-green band medially. Patagium and tegula green. Legs brown, with silver scales. Forewing upperside green; antemedial and postmedial lines clear, brown; subterminal stripe brown, dashed; discal spot black. Forewing underside yellow-orange, with six spots in the subterminal area (three spots in the apical area and three spots in the anal area), discal spot unclear, gray; postmedial line more curved. Hindwing upperside yellow-green, green along costal margin, brown in the basal and anal areas; with a wide black line in the costal area. Hindwing underside yellow-brown, with silver scales in the medial area and unclear pattern of wavy lines; white spot in the basal area. Abdomen gray dorsally, yellow apically, yellow-brown with silver scales ventrally. *Male genitalia:* The male genital capsule typical for the genus. Basal part of valva is wider than that of the paratype of *Radhica elisabethae* (the latter species was illustrated in de Lajonquière's (1977) work). Aedeagus short, wide, with a large spine-like process in the apical part.

Female: unknown.



Figure 3. Holotype male genitalia of *Radhica ustjuzhanini* **sp. nov.** from Laos.

DNA Barcoding. Uncorrected *COI* p-distances between *Radhica ustjuzhanini* **sp. nov.** and *R. elisabethae* from Sumatra is 8.26%, whereas between *Radhica ustjuzhanini* **sp. nov.** and *Radhica* sp. from southern China and northern Laos (the closest undescribed clade) it is 2.6%.

Reference COI barcode sequence. GenBank acc. no. OR147872.

Distribution. Laos: Sekong; Vietnam: Kon Tum and Gia Lai (BOLD 2023).

Etymology. This novel species is dedicated to Dr. Petr Y. Ustjuzhanin (Novosibirsk), a prominent Russian entomologist.

Acknowledgements

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References

- Bolotov, I. N., Kondakov, A. V. & Spitsyn, V. M. (2018) A review of tiger moths (Lepidoptera: Erebidae: Arctiinae: Arctiini) from Flores Island, Lesser Sunda Archipelago, with description of a new species and new subspecies. *Ecologica Montenegrina*, 16, 1–15. <https://doi.org/10.37828/em.2018.16.1>
- Lajonquière, Y. de. (1977) Les Genres *Arguda* Moore et *Radhica* Moore (24e contribution à l'étude des Lasiocampides) [Lep.]. *Bulletin de la Société entomologique de France*, 82(7-8), 174–191.
- The Barcode of Life Data System*. Available from: https://www.boldsystems.org/index.php/TaxBrowser_Taxonpage?taxid=284867 (Date of access 01.06.2023).
- Zolotuhin, V. V. & Pinratana, A. (2005) *The Moths of Thailand. Vol. 4 Lasiocampidae*. Brothers of Saint Gabriel in Thailand, Bangkok, 205 pp.