

A new species in the genus *Indoquedius* Blackwelder (Coleoptera: Staphylinidae) from Yunnan, China

Guofeng LI¹Ⓐ, Xuhai MEI², Chunmei WANG³, Xingxing WU¹, Fan YANG¹

1. Yunnan Forestry Technological College, Kunming, Yunnan 650224, China

2. Luquan County Forestry and Grassland Bureau, Kunming, Yunnan 651500, China

3. Yinglin Branch of Yunnan Institute of Forest Inventory and Planning, Kunming, Yunnan 650000, China

Abstract: *Indoquedius lii* sp. nov. is described from Yunnan, China. The number of *Indoquedius* species has thus increased to 39. Color images of the habitus, sternites, tergite and aedeagus of this new species are included. A key to species in the genus *Indoquedius* of Yunnan is provided.

Key words: Staphylininae; taxonomy; key

中国印度肩隐翅虫属一新种记述（鞘翅目：隐翅虫科）

李国锋¹Ⓐ, 梅徐海², 王春梅³, 吴兴兴¹, 杨帆¹

1. 云南林业职业技术学院, 云南 昆明 650224; 2. 禄劝县林业和草原局, 云南 昆明 651500; 3. 云南省林业调查规划院营林分院, 云南 昆明 650000

摘要: 记述中国云南隐翅虫科 1 新种: 李氏印度肩隐翅虫 *Indoquedius lii* sp. nov.。印度肩隐翅虫属全球已知 39 种。文中提供了新种的体型、腹板节、背板及阳茎的特征彩图, 以及云南省印度肩隐翅虫属的分种检索表。

关键词: 隐翅虫亚科; 分类; 检索表

Introduction

The genus *Indoquedius* Blackwelder was established by Blackwelder in 1952 with *Quedius oculatus* Fauvel as the type species. Before this study, 38 species of this genus were known worldwide with most species occurring in Himalaya and in Southern and Southeastern Asia. One species, *Indoquedius grandiceps* (Kraatz, 1879), occurs in the Russian Far East. Another one, *Indoquedius junco* (Sharp, 1874), is endemic to Japan, and *Indoquedius praeditus* (Sharp, 1889) occurs in Japan and Korea (Zhao & Zhao 2010). In the genus *Indoquedius*, 20 species were previously known to occur in China (Cameron 1949; Smetana 1988, 1995, 2001, 2014, 2015; Zheng & Wang 2007; Zhao & Zhou 2010; Liu *et al.* 2010; Yan *et al.* 2017) with 15 recorded from mainland China and 5 from Taiwan. However, only 12 species have been reported from Yunnan, China. During this study on the *Indoquedius* of Yunnan, we found the specimens that represent a new species. Herein, we describe *Indoquedius lii* sp. nov. and provide color images of the habitus and aedeagus. The total

Accepted 20 June 2022. Published online 26 August 2022. Published 25 September 2022.

Ⓐ Corresponding author, E-mail: lgfwh@163.com

number of *Indoquedius* species has thus increased to 39, with 13 distributed in Yunnan, China.

Material and methods

In winter of 2020, the first author made a collecting trip to Kunming City located in the central region Yunnan, where one new species of the genus *Indoquedius* was captured from rotting wood in the forest. To examine the male genitalia, the last three abdominal segments were detached from the body after softening the beetles in hot water. Sternites, tergite and aedeagus were mounted in glycerine on plastic slides. Photos of habitus, sternites, tergite and aedeagus were taken using a NIKON AZ100M microscope. The examined specimens were collected in the suburbs of Kunming City and are deposited in the Yunnan Forestry Technological College (YFTC) in Yunnan, including the holotype of this new species.

The following abbreviations of body measurements, recorded in millimeters, were used: BL — body length (from apex of clypeus to apex of abdominal tergite VIII); BW — body width (maximal body width, usually equal to EW); HL — head length (from base of clypeus to neck constriction); HW — head width (maximal head width, including eyes); PL — pronotal length (along midline of pronotum); PW — pronotal width (maximal pronotal width); EL — elytral length (maximal elytral length); EW — elytral width (maximal elytral width); ESL — elytral suture length (from apex of scutellum to apex of elytral suture); HEL — (head) eye length; HTL — (head) temporal length.

Taxonomy

Indoquedius lii sp. nov. (Figs 1, 2)

Description. BL: 15.15 mm, BW: 3.30 mm, HL: 1.60 mm, HW: 2.21 mm, PL: 2.80 mm, PW: 2.91 mm, EL: 3.15 mm, EW: 3.30 mm, ESL: 1.75 mm, HEL: 0.88 mm, HTL: 0.53 mm. Body moderately stout, surface with bright metallic hue. Head black; pronotum black, with anterior and posterior margin of explanate margin black (except lateral margin pale brown); scutellum with color similar to pronotum; elytra black (except suture and humeral angle pale brown); abdomen almost black (except basal portion of tergites 3–5 dark brown and tergites 6–8 pale brown); antennae 1–7 black (except basal portion pale brown), with antennomere 8–11 paler; labrum and mandibles black, maxillary and labial palpi pale brown, legs black ventrally (except basal portion of femora and tibiae, tarsi pale brown).

Head (Fig. 1A) round, devoid of microsculpture, wider than long, HW/HL = 1.38; eye large, in dorsal view longer than tempora, HEL/HTL = 1.66; two setiferous punctures along medial margin of eye between anterior and posterior frontal setiferous punctures; posterior frontal setiferous puncture situated obviously behind level of posterior margin of eye and with socket not touching it, posterior margin of eye, separated from posteriomedial margin of eye by a distance about equal to the diameter of the puncture, but still much closer to posterior margin of eye than to nuchal constriction; basal setiferous puncture closer to nuchal constriction than to posterior frontal setiferous puncture; temporal setiferous puncture closer to posterior margin of eye than to nuchal constriction, separated by a distance equal to the diameter of the puncture; basal setiferous puncture closer to nuchal constriction than to

posterior frontal setiferous puncture; dorsal surface quite polished, very shallowly and sparsely punctured; labial palpomere 2 bearing numerous long setae on medial side forming a setal brush, last maxillary and labial palpomeres sparsely setose; antennomeres 1–3 only bearing sparse large setae, lacking dense pubescence, all antennomeres obviously longer than wide (Fig. 1B).

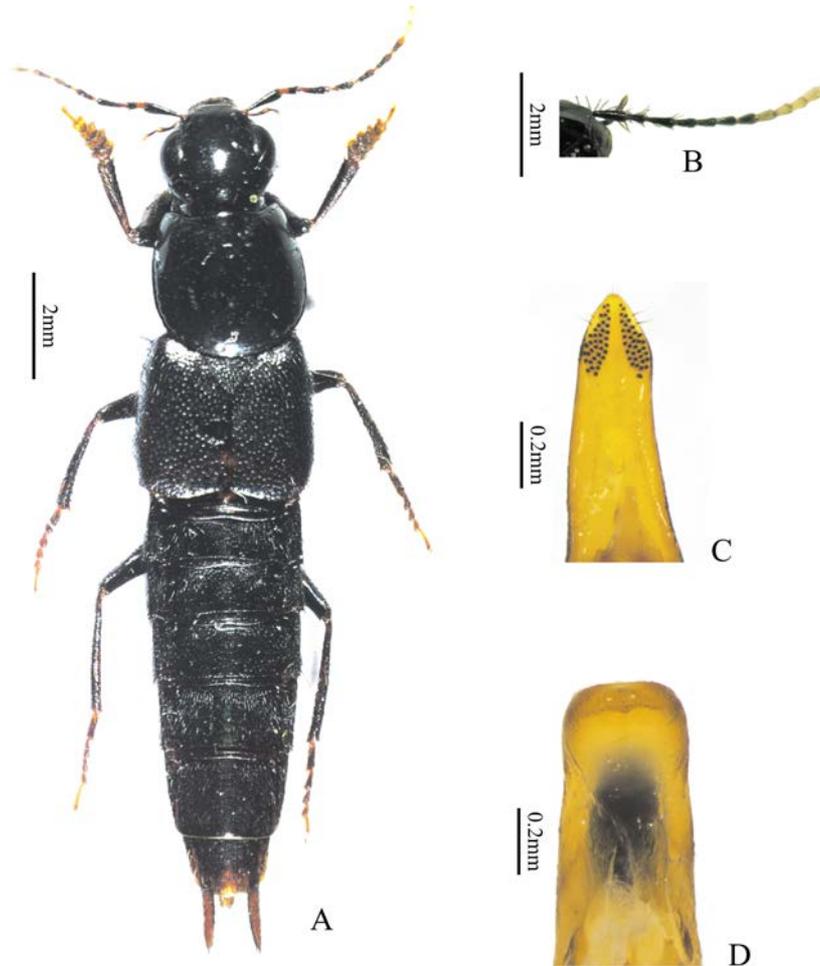


Figure 1. *Indoquedius lii* sp. nov. A. Male; B. Antennomeres; C. Underside of paramere; D. Apical portion of median lobe, parameral view.

Pronotum (Fig. 1A) wider than long, HW/PW = 0.76, PW/PL = 1.04, slightly narrowed anteriorly, lateral and posterior margins broadly rounded; posterolateral and posterior margins moderately explanate; two setiferous punctures in each dorsal row, one situated close to anterior margin and one right behind the former; one setiferous punctures in each sublateral row, large lateral setiferous puncture close to but obviously with socket not touching lateral marginal groove, and before level of last puncture in dorsal row; posterior ventral plate bearing middle longitudinal carina and not divided into two parts; surface strongly polished, without microsculpture, only two setiferous punctations near anterior angle.

Scutellum covered with dense and coarse setiferous punctures.

Elytra (Fig. 1A) wider than long, $EW/EL = 1.05$, $ESL/EL = 0.56$; slightly broadened posteriorly; each elytron with two large antero-lateral setae, small anterior area impunctate, other areas evenly covered with dense and coarse setiferous punctures; surface between punctures without microsculpture. Hind wings fully developed.

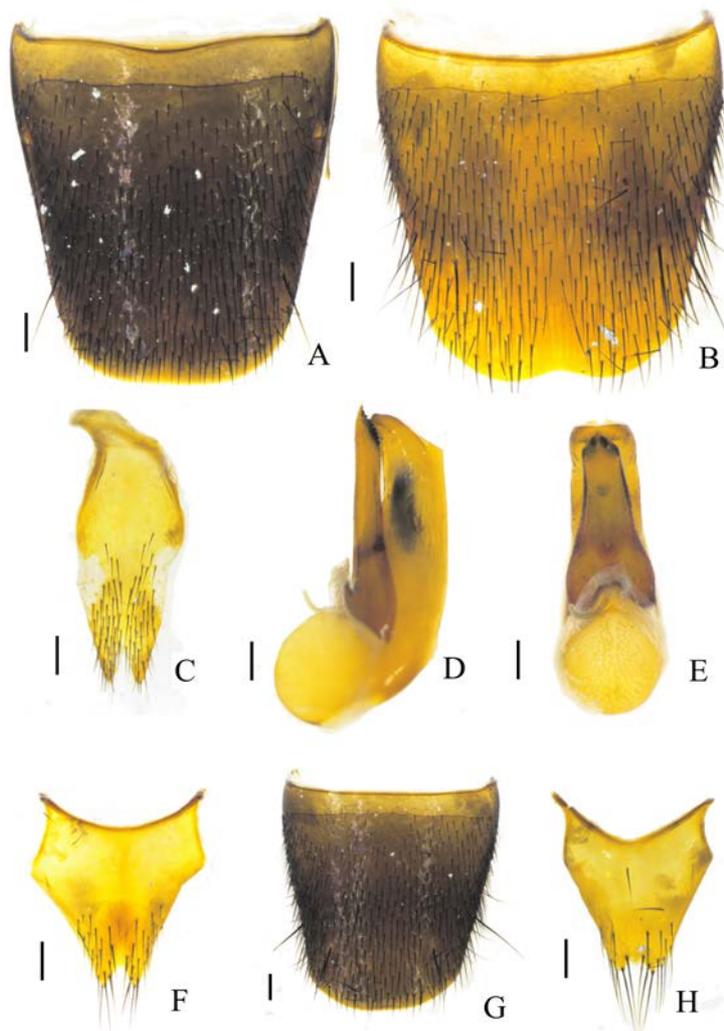


Figure 2. *Indoquedius lii* sp. nov. A. Male tergite 8; B. Male sternite 8; C. Male sternite 9; D. Aedeagus, lateral view; E. Aedeagus, parameral view; F. Female tergite 10; G. Female tergite 8; H. Male tergite 10. Scale bars = 0.20 mm.

Each abdominal tergite evenly covered with dense setiferous punctures, transverse microsculpture on each tergite very vague, but more obvious and more irregular around setiferous punctures, spiracles and also just behind basal ridge; sternite 3 with middle portion of basal ridge sharply pointed backward and forming longitudinal keel.

Male with first four segments of foretarsus strongly dilated and ventral surface covered

with dense adhesive setae; segment 1 obviously wider than apex of tibia; sternite 7 with three long setae on each side, apical margin with a very wide and shallow middle emargination, a small area around the emargination impunctate; tergite 8 (Fig. 2A) with one long setae on each side, apical margin broadly rounded, basal ridge with middle portion slightly arcuate backward; sternite 8 (Fig. 2B) with basal ridge complete, with a small middle emargination on apical margin and a small area around the emargination impunctate; sternite 9 (Fig. 2C) with basal portion very short and small, apical margin with a deep emargination, without long setae on each side; tergite 10 (Fig. 2H) with basal side broadly concave, apical margin with a shallow emargination, with three long setae on each side. Aedeagus in lateral view (Fig. 2D) with apex of paramere protruding obviously beyond that of median lobe, paramere nearly straight throughout whole length with apical portion narrowed; median lobe distinctly curved toward paramere at apex; aedeagus in parameral view (Fig. 2E) with paramere gradually narrowed from base to apical portion, then abruptly constricted from about apical 1/3 forming a pointed triangular apex (Fig. 1C); median lobe from base to apex nearly parallel-sided, distinctly wider than paramere, apex subtruncate, with a papillate process in the middle of apical margin (Fig. 1D); apical portion of paramere with four small apical setae at middle and two long subapical setae on each side, underside bearing two groups of 72 sensory peg setae, left group including 37 peg setae, right group including 35 peg setae, covering most of apical portion except for medial area, apex and more than half of lateral sides, each forming basal extension directed obliquely posterolateral, and separated from each other at apex (Fig. 1C).

Female with first four segments of foretarsus not appreciably different from those of male; tergite 8 (Fig. 2G) with two long setae on each side, apical margin subarcuate, basal ridge with middle portion nearly straight; tergite 10 (Fig. 2F) with basal side deeply and broadly concave, apical margin with a deep emargination, with five long setae on each side.

Holotype. ♂, **China**, Yunnan, Kunming City, Yang Tian Village, alt. 1895 m, 25°02'N, 102°43'E, 19–23-XII-2020, Guofeng LI and Qiang LI leg. **Paratypes.** 4♂3♀, **China**, Yunnan, same data as the holotype (YFTC).

Etymology. This specific epithet is dedicated to Qiang LI, one of collectors of the type specimen to promote his enthusiasm for collecting rove beetles.

Habitat and distribution. This new species was found under the bark of a rotting plant in *Pinus yunnanensis* Franch. It is at present only known from the type locality in the central region of Yunnan: suburb of Kunming City. The specimens were collected in December.

Remarks. The aedeagus of this species is very similar to that of *Indoquedius frater* and *I. jendeki*, but can be recognized by apex of median lobe having a papillate process in the middle of apical margin, paramere abruptly constricted from about apical 1/3 forming a pointed triangular apex and protruding beyond that of median lobe, underside of paramere covered with 72 sensory peg setae forming one left group (including 37 peg setae) and one right group (including 35 peg setae); male abdominal sternite 8 without shallow, arcuate medioapical emargination and a small, flattened and smooth triangular area before emargination; pronotal anterior angle with two setiferous punctations and each sublateral row with one setiferous puncture.

Key to species of *Indoquedius* of Yunnan

1. Large lateral setiferous puncture of pronotum touching lateral pronotal groove..... 2

- Large lateral setiferous puncture of pronotum not touching lateral pronotal groove..... 4
- 2. Paramere without minute apical setae. Length 8.0 mm; known from Ruili *I. arcus* Smetana
- Paramere with four minute apical setae 3
- 3. Pronotum red. Length 6.0–8.8 mm; known from Tenchong *I. filicornis* Eppelsheim
- Pronotum piceous. Length 8.2 mm; known from Pingbian *I. klapperichi* Smetana
- 4. Paramere of aedeagus split into two branches apically 5
- Paramere of aedeagus entire 7
- 5. Elytra deep black 6
- Elytra bright metallic blue or greenish-blue. Length 7.2–9.0 mm; known from Gongshan
..... *I. sikkimensis* Cameron
- 6. Underside of left and right paramere branch respectively covered with 40 and 44 sensory peg setae.
Length 8.0–9.8 mm; known from Gongshan *I. baliyo* Smetana
- Underside of left and right paramere branch respectively covered with 27 and 29 sensory peg setae.
Length 9.5–10.5 mm; known from Gongshan *I. metallescens* Smetana
- 7. Apex of paramere protruding beyond that of median lobe 8
- Apex of paramere not protruding beyond that of median lobe 10
- 8. Underside of paramere covered with 15 sensory peg setae. Length 6.5–8.0 mm; known from Pu'er
..... *I. bicoloris* Smetana
- Underside of paramere covered with more than 15 sensory peg setae 9
- 9. Underside of paramere covered with 44 sensory peg setae forming a longitudinal group along midline
from apex to far below the insertions of subapical setae. Length 14.0 mm; known from Gongshan
..... *I. nonparallelus* Zhao & Zhou
- Underside of paramere covered with 72 sensory peg setae forming one left group (including 37 peg setae)
and one right group (including 35 peg setae). Length 15.2 mm; known from Kunming *I. lii* **sp. nov.**
- 10. Paramere without minute apical setae. Length 7.5–8.0 mm; known from Mengla
..... *I. yunthaiensis* Smetana
- Paramere with four minute apical setae 11
- 11. Underside of paramere covered with 10 sensory peg setae forming one apical group (including 3 peg setae)
and one subapical group (including 7 peg setae). Length 9.5 mm; known from Dal
..... *I. bicornutus* Zhao & Zhou
- Underside of paramere covered with more than 10 sensory peg setae forming one left group and one right
group 12
- 12. Underside of paramere covered with 60 sensory peg setae forming one left group (including 30 peg setae)
and one right group (including 30 peg setae); body entirely black; antennomere 8–11 milky white. Length
12.0–12.4 mm; known from Pingbian *I. frater* Smetana
- Underside of paramere covered with 63 sensory peg setae forming one left group (including 30 peg setae)
and one right group (including 33 peg setae); body not entirely black; antennomere 8–11 milky yellow.
Length 13.5 mm; known from Baoshan *I. jendeki* Smetana

Acknowledgements

We are grateful to Dr. Volker ASSING, Hannover, Germany, and Dr. Jiayao HU, Shanghai, China, for their kind assistance with literature. We also express our hearty thanks to Zhiwei DONG and Zongxu LI of the State Key Laboratory of Genetic Resources and Evolution, Kunming Institute of Zoology, Chinese Academy of Sciences, Yunnan Province,

for their kind assistance during our taking photos, and to students Qiang LI, Junfa CHENG and Rangting WEN for collecting some specimens used in the present study. This study was supported by the Yunnan Forestry and Grassland Bureau (Yun [2020] TG12).

References

- Blackwelder RE. 1952. The generic names of the beetle family Staphylinidae, with an essay on genotypy. *United States National Museum Bulletin*, 200(1-4): 1–483.
- Cameron M. 1949. New species of Staphylinidae (Col.) from Formosa. *The Proceedings of the Royal Entomological Society of London (B)*, 18: 175–176.
- Fauvel A. 1895. Staphylinides nouveaux de l'Inde et de la Malaisie. *Revue d'Entomologie*, 14: 180–286.
- Kraatz G. 1879. Neue Käfer vom Amur. *Deutsche Entomologische Zeitschrift*, 23: 121–144.
- Liu TT, Hu JY, Tian MX & Li LZ. 2010. A new record species of the genus *Indoquedius* (Coleoptera: Staphylinidae) from China. *Journal of Shanghai Normal University (Natural Sciences)*, 39: 536–538.
- Sharp DS. 1889. The Staphylinidae of Japan. *The Annals and Magazine of Natural History*, 3(6): 28–44.
- Smetana A. 1988. Revision of the tribes Quediini and Atanygnathini. Part II. The Himalayan region (Coleoptera: Staphylinidae). *Quaestiones Entomologicae*, 24(2): 163–464.
- Smetana A. 1995. Revision of the tribes Quediini and Tanygnathinini. Part III. Taiwan. (Coleoptera: Staphylinidae). *National Museum of Natural Science*, 6(special publication number): 1–145.
- Smetana A. 2001. Revision of the subtribe Quediina and the tribe Tanygnathinini. Part III. Taiwan. (Coleoptera: Staphylinidae). Supplement II. *Special Publication of the Japan Coleopterological Society*, 1: 55–63.
- Smetana A. 2014. Contributions to the knowledge of the Quediina (Coleoptera: Staphylinidae: Staphylinini) of China. Part 47. Genus *Indoquedius* Blackwelder, 1952. Section 1. *Studies and Reports Taxonomical Series*, 10(1): 169–186.
- Smetana A. 2015. Contributions to the knowledge of the Quediina (Coleoptera: Staphylinidae: Staphylinini) of China. Part 53. Genus *Indoquedius* Blackwelder, 1952. Section 2. *Linzer boilogy Beitrage*, 47(1): 897–903.
- Yan XH, Li YJ & Zheng FK. 2017. A new species of the genus *Indoquedius* (Coleoptera: Staphylinidae: Staphylininae) from Sichuan, China. *Entomotaxonomia*, 39(2): 107–110.
- Zhao ZY & Zhou HZ. 2010. Taxonomy of the genus *Indoquedius* Blackwelder (Coleoptera: Staphylinidae: Staphylininae) of China with description of four new species. *Zootaxa*, 2619: 27–38.
- Zheng FK & Wang RR. 2007. Study on the genus *Indoquedius* Blackwelder (Coleoptera, Staphylinidae, Staphylininae) from China. *Acta Zootaxonomica Sinica*, 32(1): 76–79.