



## Two new species of *Strongylium* Kirby (Coleoptera: Tenebrionidae) from Xizang, China

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### Abstract

Two new species of the genus *Strongylium* Kirby, 1819 from Xizang, China were discovered and are described under the names of *S. (s. str.) beibengense* **sp. nov.** (Mêdog) and *S. (s. str.) medogense* **sp. nov.** (Mêdog and Bomi). Illustrations of the habitus and diagnostic features are presented.

**Key words:** Darkling beetles, Stenochiini, taxonomy, new species, Xizang

### Introduction

The genus *Strongylium* Kirby, 1819 is a very large group of darkling beetles, comprising more than 1400 known species/subspecies that are divided into two subgenera and mainly distributed in the tropical and subtropical regions (Gebien 1943; Masumoto 1996; Bouchard *et al.* 2021; Telnov & Masumoto 2024). The adults of *Strongylium* are more easily found at night on the trunk of broadleaf trees, and external morphology is recognized by the elongate or subcylindrical body, exposed labral membrane, protruding eyes, usually long and slender antennae and legs, and nearly cylindrical tarsi; the antennae bearing stellate, compound sensoria on apical seven or eight antennomeres; the male genitalia with median lobe adnate to tegmen or only slightly extrusible; and the defensive reservoirs short saccate, without annular folds (Daggy 1946; Kaszab 1977; Doyen 1989).

This genus currently includes 101 species/subspecies, belonging to the subgenus *Strongylium* Kirby, 1819, from China, two of which are known from Xizang (Yuan & Ren 2017; Yuan *et al.* 2018; Iwan *et al.* 2020; Ke & Yuan 2021; Bouchard *et al.* 2021; Yuan *et al.* 2025). During our recent study, we assembled some materials of the genus. After thorough examination and comparison, we have identified two new species, *S. (s. str.) beibengense* **sp. nov.** (Mêdog) and *S. (s. str.) medogense* **sp. nov.** (Mêdog and Bomi), which are going to be described in the present study. Illustrations and diagnostic characters of the two new species are provided.

### Material and methods

The studied materials are deposited at the following institutes: Museum of Hebei University, Baoding, China (MHBV); National Animal Collection Resource Center, Institute of Zoology, Chinese Academy of Sciences, Beijing, China (NACRC).

The male genitalia were dissected and cleared in warm 10% NaOH solution. After examination, it was transferred to a 0.1 mL centrifuge tube with fresh glycerol and placed below the pinned specimen. Morphological terminology used in this study mainly follows Masumoto (1999). Specimens were examined under a Nikon (SMZ 1270) dissecting microscope. Images and illustrations of the adult were taken using a Canon EOS R5 camera, equipped with Laowa® 25 mm F/2.8 2.0× or 2.5–5.0× Ultra Macro lens. Helicon Focus v. 8.3.2 Pro was used for

image stacking. The final plates were edited in Adobe Photoshop CC. Measurements and male genitalia were taken using a Leica M205A dissecting microscope and are given in millimeters.

## Taxonomy

### *Strongylium* (*s. str.*) *beibengense* sp. nov.

(Figs 1A, 2)

**Type material. HOLOTYPE: CHINA:** ♂, Xizang, Mêdog County, Beibeng Township (西藏墨脱县背崩乡), 29°14.533'N, 95°09.928'E, elev. 750 m, 02.viii.2017, Xing-Long Bai, Zhong-Hua Wei & Xian-Lei Shao leg. (MHBUS); **PARATYPES: CHINA:** 1 ♀, same data as the holotype (MHBUS); 1 ♀, Xizang, Mêdog County, Beibeng Township, Jiagagou, Banana plantation (西藏墨脱县背崩乡甲嘎沟香蕉园), 29.25129°N, 95.19427°E, elev. 763 m, 02.viii.2019, Run Zhou leg., IOZ(E)1429598 (NACRC).

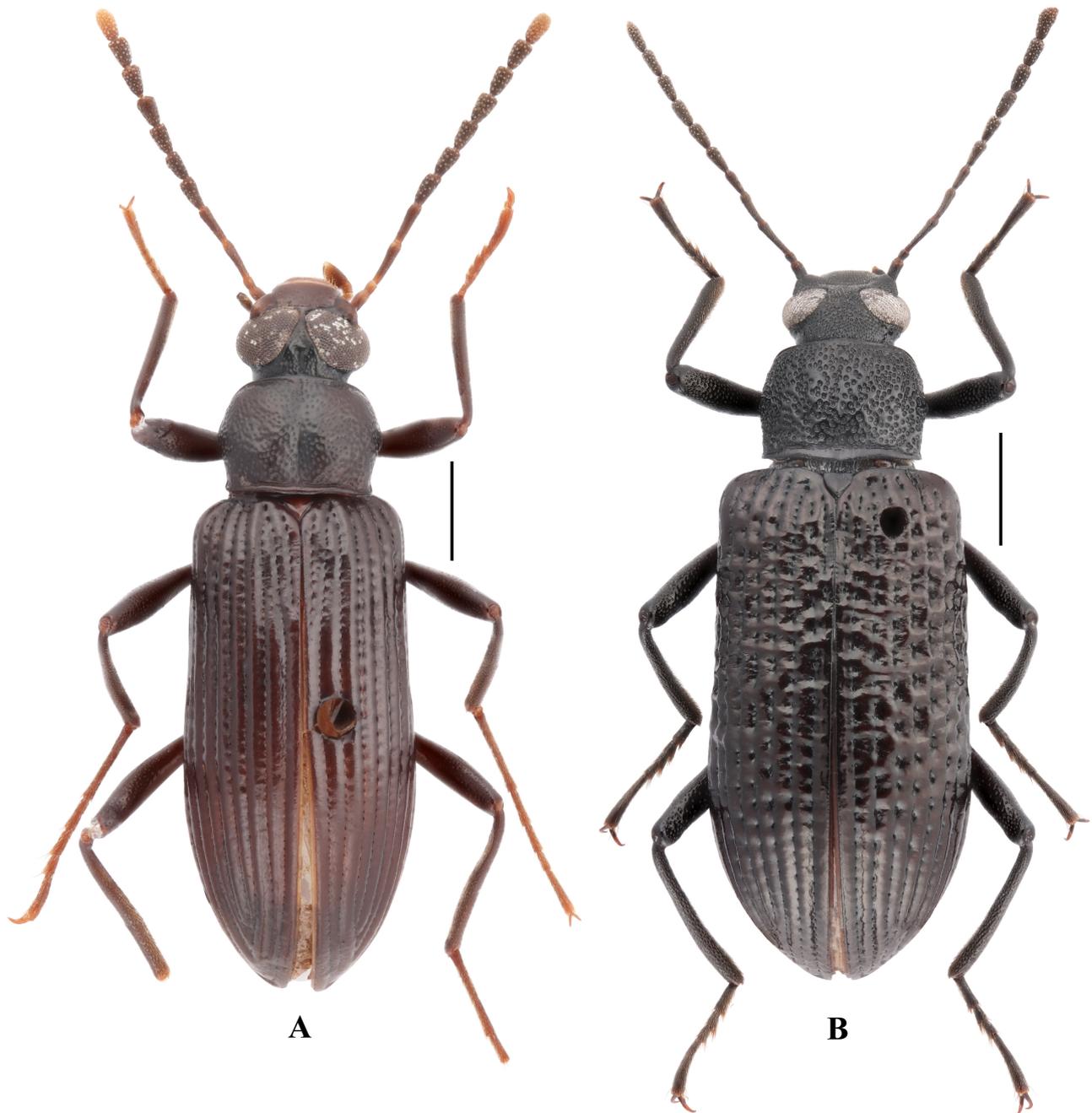


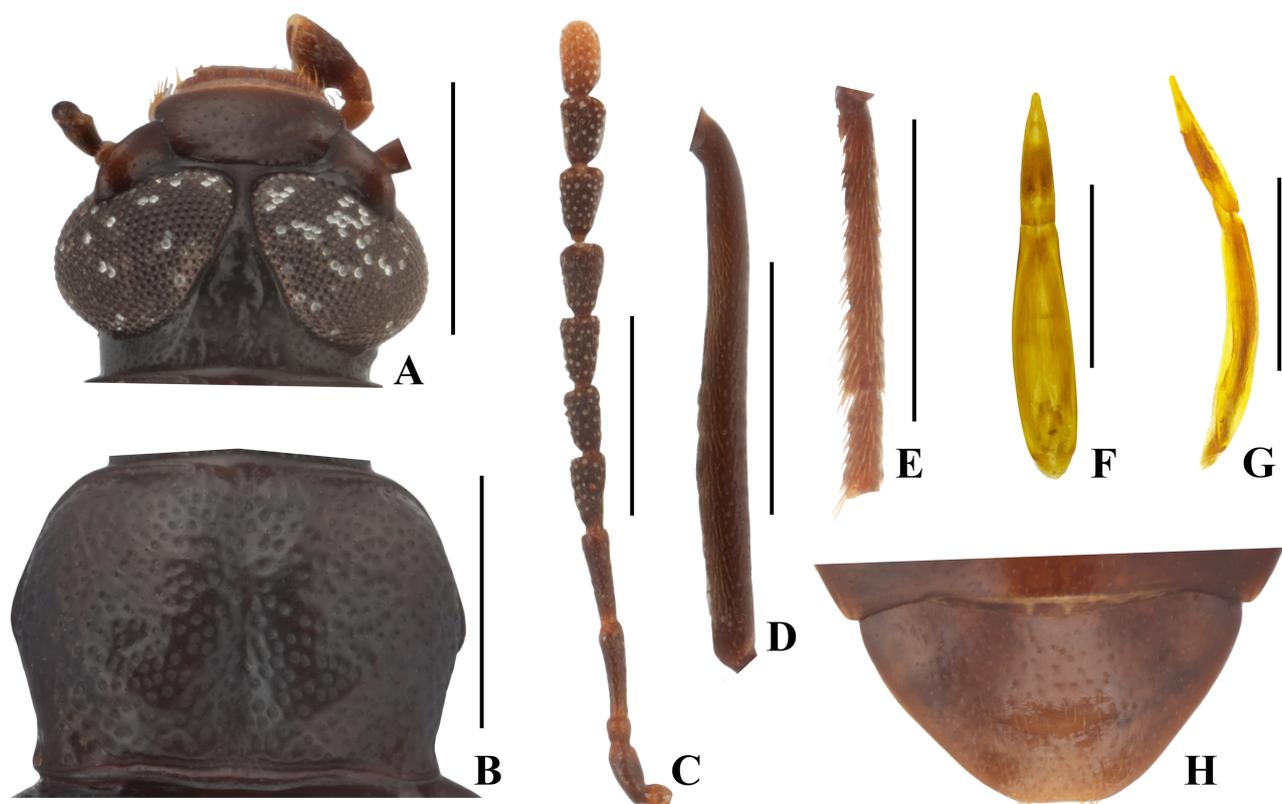
FIGURE 1. Habitus of *Strongylium* species, holotype. **A.** *S. beibengense* sp. nov. **B.** *S. medogense* sp. nov. Scale bars: 2 mm.

**Differential diagnosis.** This species is similar to *Strongylium nigricolor* Pic, 1940 from northern Vietnam, but can be easily distinguished from the latter by the following characters: body obviously smaller; frons very narrowly ridged, T-shaped; antennomeres III and IV subequal in length; lateral margins of pronotum with pair of tubercles at middle and projecting laterally.

**Description.** Body length 7.50–8.90 mm (both sexes). Elongate, subparallel-sided; color dark brown, clypeus, genae, antennomeres I–II brown, and tarsi reddish brown; maxillary palpi, basal 1/4 of antennomere XI, and scutellum yellowish brown; antennomere XI brownish yellow in apical 3/4; head, elytra moderately shining, antennomeres I–IV and pronotum with weak shine; antennomeres V–XI matte. Body almost glabrous, micro-shagreened.

**Male.** Head hexagonal, with sparse and irregular punctures; clypeus transverse, very sparsely punctate, punctures with microscopic hairs shorter than diameter of puncture; frontoclypeal suture distinctly and deeply grooved, almost straight; genae convex postero-laterad with rounded outer margins, scattered with very sparse and fine punctures; frons very narrowly ridged, T-shaped, steeply declined forwards, impunctate on anterior portion, sparsely and finely punctate on postero-medial portion, with longitudinal, triangular, rather deep impression; distance between eyes 0.12 times as wide as transverse diameter of eye in dorsal view; eyes very large, strongly convex laterally; antennae subfiliform, extending posteriorly to basal 1/3 of elytra, antennomeres III and IV subequal in length, VI–XI weakly expanded.

Pronotum transversely subquadrate, 1.40 times as wide as long, widest at middle, gradually narrowed forwards, rather strongly narrowed backwards, weakly constricted before hind corners; anterior margin straight, beaded, and bead wide at middle, tapering laterally; lateral margins entirely, finely beaded, with pair of tubercles at middle, which projected laterally, beads visible in apical 3/5 when seen from above while not obvious (see Fig. 2B); posterior margin weakly bisinuous, straight in median 1/3, distinctly beaded; front angles obtuse, hind angles rectangular, weakly projected postero-laterad; disc unevenly, weakly convex, with moderately deep longitudinal groove on midline, depressed before posterior margin, shallowly impressed at apical 2/5 on both sides, foveolate near hind angles; surface densely scattered with large, indistinct punctures, and with few microscopic punctures between large punctures. Scutellum triangular, impunctate, with weak depression at median.



**FIGURE 2.** Illustrations of *Strongylium beibengense* sp. nov., holotype. **A.** Head. **B.** Pronotum. **C.** Antennae. **D.** Metatibia. **E.** Metatarsus. **F–G.** Male genitalia: **F.** dorsal view, **G.** lateral view. **H.** Ventricle V. Scale bars: 1 mm.

Elytra 2.22 times as long as wide, 4.10 times length and 1.32 times width of pronotum, subparallel-sided in basal 1/3, then weakly divergent posteriorly, widest at apical 1/3; dorsum moderately convex, weakly depressed in area between scutellar striolae; striae regular, finely grooved in apical 1/3; punctures in striae deep and small, oblong-oval, becoming larger laterally, smaller behind apical 1/3; intervals moderately convex, with sparse and fine punctures; apices rounded, weakly produced posteriorly.

Prosternum moderately wide between procoxae, sparsely and indistinctly punctate, with longitudinal impression at median; prosternal process vertically inclined, apical part triangular, reflexed at apex; abdomen obscurely and sparsely punctate, ventrites I–II with longitudinal wrinkles on both sides, ventrite V transversely depressed near apex, and subparallel-sided in apical margin, with short decumbent hairs which become longer and denser apically.

Legs medium-sized; metatibiae flattened in basal 2/5; length ratio of metatarsomeres I and II as 1.00, 0.33 (metatarsomeres III–IV lost).

Male genitalia subfusiform, constricted at middle, arcuate in lateral view; basale 1.70 times as long as apicale; apicale subparallel-sided in basal 1/4, then gradually narrowed apicad, rather strongly narrowed at apical 1/6, weakly prolonged at apex.

**Female.** Antennae slightly shorter; distance between eyes weakly wider, 0.16 times as wide as transverse diameter of eye in dorsal view; metatibiae not flattened.

**Etymology.** The specific name is derived from the locality of the holotype.

**Distribution.** China (Xizang).

### ***Strongylium (s. str.) medogense* sp. nov.**

(Figs 1B, 3)

**Type material. HOLOTYPE:** CHINA: ♂, Xizang, North of Mêdog County (西藏墨脱县城北边), light trap, 29.3319°N, 95.3397°E, elev. 1005 m, 14.vii.2015, Hong-Bin Liang & Zheng-Zhong Huang leg., IOZ(E)1429621 (NACRC); **PARATYPES:** CHINA: 1 ♂, Xizang, Mêdog County, Beibeng Township, Jiagagou bridge (西藏墨脱县背崩乡甲嘎沟大桥), 29.2508°N, 95.1992°E, elev. 790 m, light trap, 18.vi.2016, Hong-Bin Liang leg., IOZ(E)2200607 (NACRC); 1 ♀, same data as the preceding, IOZ(E)2200608 (NACRC); 1 ♀, same data as the preceding, IOZ(E)2200609 (NACRC); 1 ♂, same data as the preceding, 29.25911°N, 95.19405°E, elev. 772 m, 10.ix.2020, Hong-Bin Liang & Yuan Xu leg., IOZ(E)1429617 (NACRC); 1 ♂, Xizang, Mêdog County, Beibeng Township, around Jiagagou (西藏墨脱县背崩乡甲嘎沟附近), 29.2509°N, 95.1897°E, elev. 842 m, 18.vi.2016, Hong-Bin Liang leg., IOZ(E)2200552 (NACRC); 1 ♂, Xizang, Mêdog County, Beibeng Township, Jiagagou (西藏墨脱县背崩乡甲嘎沟), 29.25295°N, 95.19820°E, elev. 703 m, 31.vii.2019, Jing-Wen Jiang & Run Zhou leg., IOZ(E)2446960 (NACRC); 2 ♂♂, same data as the preceding, Handpick on beach, 31.vii.2019, H.B. Liang & Y. Xu leg. (NACRC); 1 ♂, same data as the preceding, IOZ(E)2566671 (NACRC); 1 ♂, Xizang, Bomi County, Yigong Township, Tongmai bridge (西藏波密县易贡乡通麦大桥), 30.09668°N, 95.06846°E, elev. 2019 m, light trap, 23.vii.2022, Hong-Bin Liang leg., IOZ(E)2059776, XZL 20220723N1 (NACRC); 1 ♀, Xizang, Bomi County, Yigong Township, G318, Tongmai bridge (西藏波密县易贡乡G318通麦特大桥), 30.09641°N, 95.06591°E, elev. 2042 m, 01.ix.2020, Hong-Bin Liang & Yuan Xu leg., IOZ(E)1429616 (NACRC); 1 ♀, Xizang, Mêdog County, Beibeng Township, Jiangxin Village (西藏墨脱县背崩乡江新村), 29°13'51"N, 95°08'54"E, elev. 812 m, 18.viii.2018, Ling-Xiao Chang, Zhong-Hua Wei & Xian-Lei Shao leg. (MHBUS).

**Differential diagnosis.** This new species is similar to *Strongylium mediofoveatum* Blair, 1931 from India in the general shape of head and pronotum, but can be distinguished from the latter by the following characters: punctures in elytral striae without granules on lateral edges; elytral intervals irregularly convex, obviously and transversely connected, and moderately ridged in basal 2/3 of elytra.

**Description.** Body length 7.90–10.50 mm (both sexes). Moderately elongate, subparallel-sided, rather convex above; head, antennae, pronotum, legs blackish brown to black, elytra dark reddish brown to black; ventral side dark brown to black; head and pronotum weakly shining, elytra and legs moderately strongly shining, ventral parts with weak shine; dorsum with microscopic hairs on head and pronotum, ventral parts with short, decumbent hairs.

**Male.** Head hexagonal, with punctures, irregular, dense on frons and vertex, dense and smaller on clypeus, sparsest and smallest on genae, each puncture with short decumbent hair longer than diameter of puncture anteriorly and shorter than that posteriorly; clypeus transverse, rather steeply inclined forwards; frontoclypeal suture very

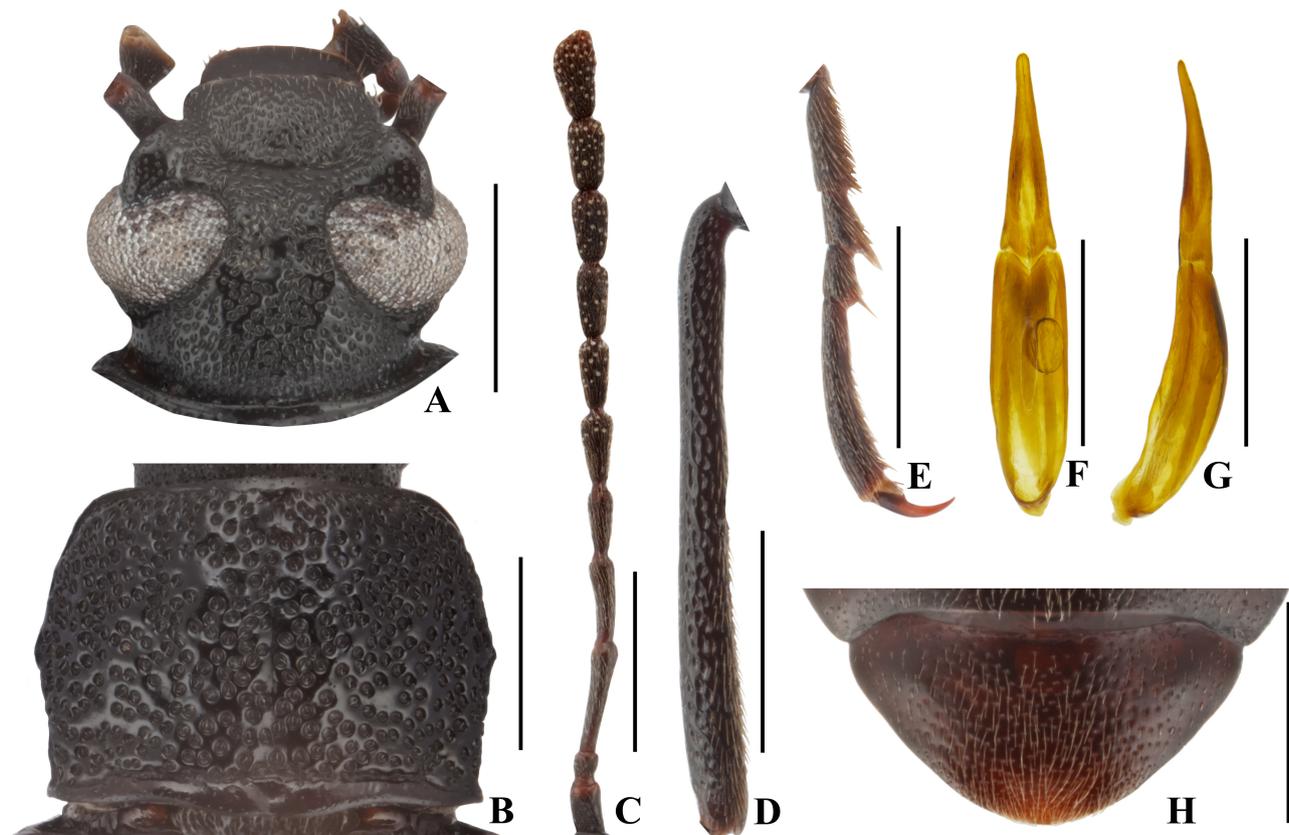
weakly arcuate, finely grooved; genae convex postero-laterad with obtuse outer margins; frons wide, moderately sloping forwards, moderately and deeply impressed on postero-medial portion, impunctate at middle of impression; distance between eyes 0.71 times as wide as transverse diameter of eye in dorsal view; eyes moderately large, weakly convex laterally; antennae filiform, extending posteriorly to basal 1/4 of elytra; antennomere III longer than IV, III–V conical, VI–VII weakly expanded, VIII–X cylindrical, XI subovate.

Pronotum transversely subquadrate, 1.32 times as wide as long, widest at middle, arcuately narrowed forwards, gradually narrowed backwards, subparallel-sided in basal 1/5; anterior margin truncate, finely beaded laterally, with microscopic punctures on bead; sides lateral margins entirely beaded, with two pairs of tubercles at apical 1/3 and middle, latter larger than former, projecting laterally, beads visible in apical half when seen from above while not obvious as in Fig. 3B; posterior margin weakly bisinuate, distinctly beaded, sparsely punctate on bead; front angles obtuse, hind ones rectangular, weakly produced; disc moderately, transversely convex, with longitudinal groove in middle, depressed before posterior margin, weakly impressed near hind corners; surface unevenly, densely punctate, sometimes fused with each other, each puncture large, with decumbent hair shorter than diameter of puncture. Scutellum elongate triangular, but weakly arcuate at lateral margins, weakly convex, sparsely and finely punctate.

Elytra subparallel-sided in basal half, then weakly expanded, widest at apical 1/3, 1.98 times as long as wide, 4.04 times length and 1.54 times width of pronotum, moderately convex; striae irregularly grooved in basal 2/3 and regularly so in apical 1/3; punctures in striae complex, deep and elliptical at bottom, fovea-like at top and notching intervals; intervals unevenly convex, transversely connected and often moderately ridged in basal 2/3, scattered with very sparse, microscopic punctures; apices weakly dehiscent.

Prosternum narrow between procoxae, longitudinally impressed; prosternal process vertically inclined, apical part triangular, reflexed at apex. Abdomen densely, shallowly punctate, punctures denser in median and posterior parts, each puncture with hair, hairs longer on postero-medial portion, with few longitudinal wrinkles laterally; ventrite V impunctate at middle of basal 1/4, rounded at apex.

Legs medium-sized, with decumbent hairs; pro- and metatibiae straight, covered with dense and large longitudinal punctures, denser on metatibiae; metatibiae without modification; length ratio of metatarsomeres as 1.00, 0.49, 0.43, 1.76.



**FIGURE 3.** Illustrations of *Strongylium medogense* sp. nov., holotype. **A.** Head. **B.** Pronotum. **C.** Antennae. **D.** Metatibia. **E.** Metatarsus. **F–G.** Male genitalia: **F.** dorsal view, **G.** lateral view. **H.** Ventrite V. Scale bars: 1 mm.

Male genitalia weakly curved in basale; basale 1.29 times as long as apicale; apicale gradually narrowed apically, weakly constricted at basal 1/5, weakly arcuate in apical 1/3, moderately prolonged at apex.

**Female.** Length of body 8.50–10.50 mm, weakly larger than in male (7.90–9.89 mm); antennae shorter and bolder; distance between eyes 0.89 times as wide as transverse diameter of eye in dorsal view, wider than in male.

**Etymology.** The specific name is derived from the location of the holotype.

**Distribution.** China (Xizang).

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## References

- Bouchard, P., Bousquet, Y., Aalbu, R.L., Alonso-Zarazaga, M.A., Merkl, O. & Davies, A.E. (2021) Review of genus-group names in the family Tenebrionidae (Insecta, Coleoptera). *ZooKeys*, 1050, 1–633.  
<https://doi.org/10.3897/zookeys.1050.64217>
- Daggy, T. (1946) Notes on the ecology and taxonomy of certain pupae of the family Tenebrionidae (Coleoptera). *Proceedings of the Indiana Academy of Science*, 56, 253–260.
- Doyen, J.T. (1989) Reconstitutions of Coelometopini, Tenebrionini and related tribes of America north of Colombia (Coleoptera: Tenebrionidae). *Journal of the New York Entomological Society*, 97 (3), 277–304.
- Gebien, H. (1943) Katalog der Tenebrioniden, Teil iii. *Mitteilungen der Münchener Entomologischen Gesellschaft*, 33, 895–926.
- Iwan, D., Löbl, I., Bouchard, P., Bousquet, Y., Kamiński, M., Merkl, O., Ando, K. & Schawaller, W. (2020) Family Tenebrionidae Latreille, 1802. In: Iwan, D. & Löbl, I. (Eds.), *Catalogue of Palaearctic Coleoptera, 5, Tenebrionidea Revised and Updated Second Edition*. Brill, Leiden, pp. 104–475.  
<https://doi.org/10.1163/9789004434998>
- Kaszab, Z. (1977) Die Tenebrioniden des Papuanischen Gebietes I. Strongyliini (Coleoptera: Tenebrionidae). *Pacific Insects Monograph*, 33, 1–219.  
<https://doi.org/10.1093/jmedent/15.1.42>
- Ke, Y.Y. & Yuan, C.X. (2021) Taxonomic notes of the genus *Strongylium* (Coleoptera: Tenebrionidae) from Yunnan, with description of a new species. *Entomotaxonomia*, 43 (4), 250–255.
- Masumoto, K. (1996) Study of Asian Strongyliini (Coleoptera, Tenebrionidae) I. Six new *Strongylium* species from Thailand, Laos and Taiwan, together with a new replacement name. *Elytra*, 24 (1), 131–140.
- Masumoto, K. (1999) Study of Asian Strongyliini (Coleoptera, Tenebrionidae) VII. Brachypterous Strongyliines. *Elytra*, 27(1), 113–125.
- Telnov, D. & Masumoto, K. (2024) New species of *Strongylium* Kirby, W. 1819 (Coleoptera: Tenebrionidae: Stenochiinae) from the Indo-Australian faunal transition zone. *Baltic Journal of Coleopterology*, 24 (1), 9–25.
- Yuan, C.X. & Ren, G.D. (2017) A preliminary faunal analysis of tribe Stenochiini in China (Coleoptera, Tenebrionidae). *Sichuan Journal of Zoology*, 36 (3), 346–350. [in Chinese with English abstract]
- Yuan, C.X., Huang, J.Y. & Wang, W.Q. (2025) A new species in the genus *Strongylium* (Coleoptera: Tenebrionidae) from Zhejiang, China. *Entomotaxonomia*, 47 (1), 22–25.
- Yuan, C.X., Li, P. & Wang, W.Q. (2018) One new recorded species of the genus *Strongylium* (Coleoptera: Tenebrionidae). *Far Eastern Entomologist*, 360, 15–20.  
<https://doi.org/10.25221/fee.360.2>

# 中国西藏树甲属*Strongylium*二新种（鞘翅目：拟步甲科）

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**摘要:** 记述西藏自治区树甲属*Strongylium*二新种, 即背崩树甲*S. beibengense* sp. nov. (墨脱县) 和墨脱树甲*S. medogense* sp. nov. (墨脱县、波密县) 并给出整体和鉴别特征图版。

**关键词:** 拟步甲; 树甲族; 分类; 新种; 西藏