



## *Asiacyon* Mai, Jia, Ryndevich & Fikáček, 2024 (Coleoptera: Hydrophilidae: Sphaeridiinae: Megasternini) from southern Xizang, China

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### Abstract

The genus *Asiacyon* Mai, Jia, Ryndevich & Fikáček, 2024 from southern Xizang, China is studied. Four species are added to it, three of which are described as new: *Asiacyon sherpaicus* sp. nov., *A. trilobatus* sp. nov. and *A. zhangmuensis* sp. nov. *Cercyon spatifer* Hebauer, 2002 is transferred to *Asiacyon*. All species are diagnosed and illustrated in detail.

**Key words:** *Asiacyon*, new species, new combination, Hydrophilidae, Xizang, China

### Introduction

Megasternini is one of the youngest lineages within the family Hydrophilidae and the most species-rich tribe, comprising more than 1,000 species, of which only about 550 have been formally described (e.g., Short & Fikáček 2013; Jia *et al.* 2020; Arriaga-Varela *et al.* 2021). The tribe exhibits a remarkable degree of morphological diversity. However, this diversity is concentrated in only a few genera: approximately half of the described species are morphologically similar and currently placed in the single genus *Cercyon* Leach, 1817. Phylogenetic studies based on DNA (Short & Fikáček 2013; Arriaga-Varela *et al.* 2021; Mai *et al.* 2024) have revealed that *Cercyon*-like morphology is a plesiomorphic character retained across multiple lineages, indicating a need to reclassify them into multiple monophyletic genera.

*Asiacyon* Mai, Jia, Ryndevich & Fikáček, 2024 is a recently established monophyletic genus separated from *Cercyon* based on both morphological and molecular evidence. It is the sister group to another Oriental-endemic genus, *Pseudocercyon* d'Orchymont, 1926, and currently including 21 species (Mai *et al.* 2024). Some species of *Asiacyon* were previously classified under the subgenus *Clinocercyon* d'Orchymont, 1942 of *Cercyon*, primarily due to their obliquely inclined elytral epipleura. Additional morphological characters for distinguishing *Asiacyon* are relatively detailed and include the punctuation of head and pronotum, the pubescence of prosternum, the relationship between mesoventral plate and metaventrite, the size of metaventral table, and the width of epipleuron (Mai *et al.* 2024). Based on ongoing and unpublished data, *Asiacyon* appears to exhibit much higher species diversity than previously recognized. The number of known species is expected to increase significantly as the taxonomic status of additional *Cercyon* species is clarified and as the fauna of other regions in Asia is more thoroughly explored.

A total of 14 Chinese species of *Asiacyon* were studied in detail (Mai *et al.* 2024). The genus is distributed throughout tropical and subtropical forests in China, with the notable exception of southern Xizang, a region known for its extremely high biodiversity but where no species of *Asiacyon* have been reported. Based on the specimens we have examined, some undescribed and misclassified species belonging to *Asiacyon* are present in this region. In the present study, we report four species that have been confirmed as members of *Asiacyon* based on our ongoing phylogenetic studies. A complete phylogenetic revision of the genus is currently in preparation.

## Material and methods

Representative specimens were dissected. After 10 min in 10% KOH at 80°C, dissected male genitalia were transferred to a drop of distilled water, and the cleaned genitalia were subsequently mounted in a drop of soluble resin (fish glue after transparent treatment) on a piece of paper card attached below the respective specimen. For taking photographs, the cleaned and relaxed male genitalia were placed in a drop of glycerine. Photographs of genitalia were taken using a Zeiss AxioCam HRc camera mounted on a Zeiss AX10 microscope with the Axio Vision SE64 software. These images were then stacked in Helicon focus (v7.0.2). Habitus photographs were taken using a Nikon DS-Ri2 mounted on a Nikon SMZ25; layers were captured and stacked in the NIS-Elements software. SEM photographs were taken with Apreo 2 scanning electron microscope using uncoated specimens and the low-vacuum mode. Habitat images were taken using a Canon 7D digital camera. Morphological terminology used in the description follows Mai *et al.* (2024). Specimens are deposited in the following collections:

NMP	National Museum, Prague, Czech Republic (M. Fikáček, J. Hájek, L. Sekerka);
SYSU	Sun Yat-sen University, Guangzhou, China (F.-L. Jia, W.-C. Xie).

## Taxonomy

### *Asiacyon sherpaicus* sp. nov.

(Figs 1A–G, 2A, B, 9A–C)

**Type material. HOLOTYPE: CHINA:** ♂ (SYSU), Xizang Autonomous Region, Xigazê, Zhêntang Town forest, 2337 m, 27.8487°N, 87.4331°E, 11.VII.2023, Zu-Qi Mai, Cheng Liang & Yue-Zheng Tu leg.; In rotten mushroom under forest. **PARATYPES:** 2 ♂♂, 4 ♀♀ (SYSU, NMP), same data as the holotype.

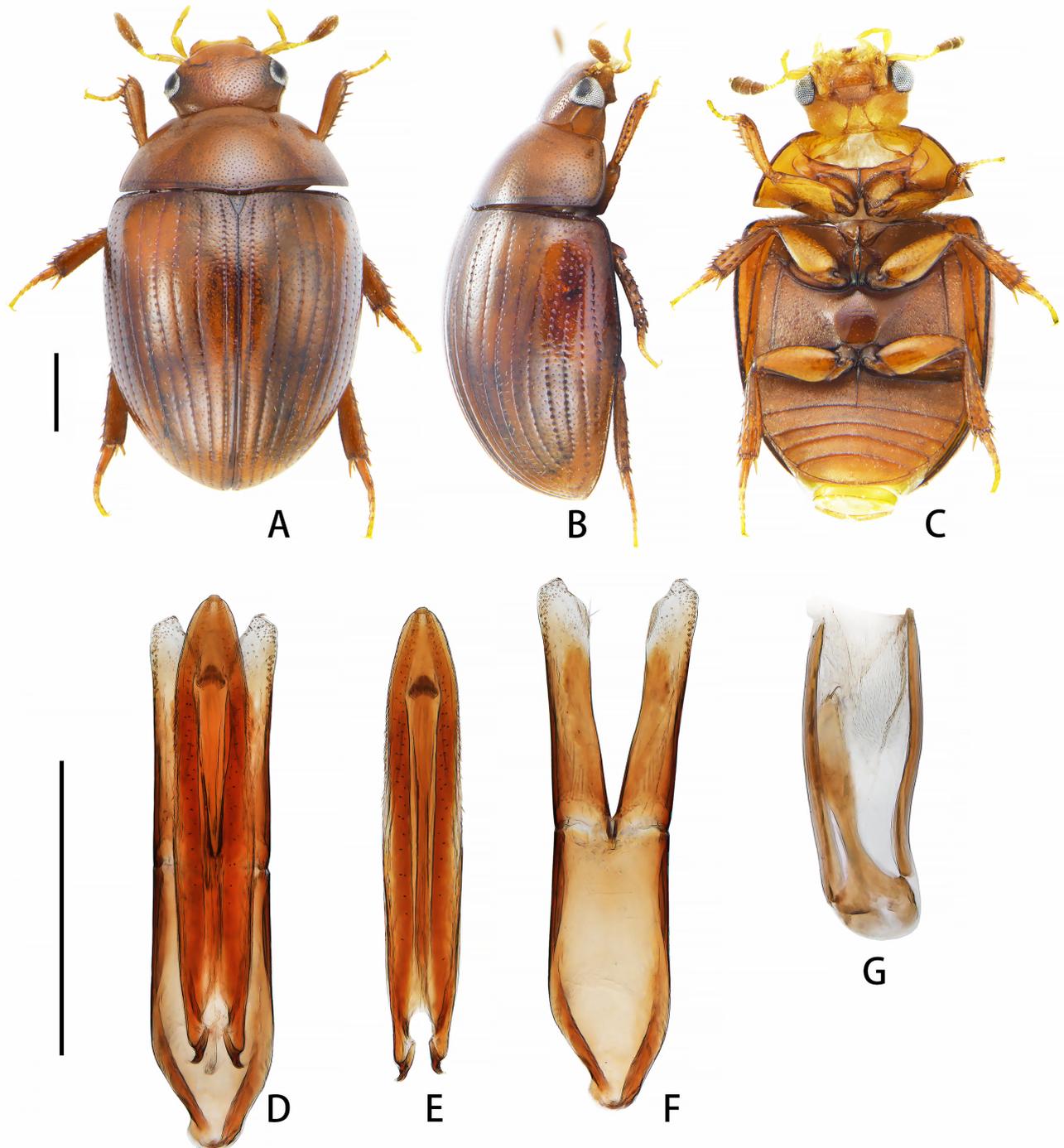
**Diagnosis.** Length 2.4–2.8 mm. Body broadly oval, broadest behind elytral base. Dorsum uniformly yellowish to reddish brown, antennal club dark yellowish brown throughout (Fig. 1A). Head and pronotum with uniform crescent-shaped and coarse punctures. Mentum with sparse and moderate size punctures, without microsculpture (Fig. 2A). Antennal groove with lateral margin strongly convex (Fig. 2A). Prosternum with a sharp median carina; prosternal process pointed apically (Fig. 2A). Elytral striae moderately impressed, intervals of elytral striae flat throughout. Mesoventral plate spindle-shaped and narrow, widest slightly above middle, ca 4–5× as long as wide; posterior apex of mesoventral plate obtusely pointed (Fig. 2B). Metaventral table finely protruding towards mesoventral plate anteriorly and form a fine gap (Fig. 2B). Pubescent lateral portion of metaventricle scattered with some coarse punctures. Male genitalia (Fig. 1D–G): Phallobase as longer as parameres; manubrium of phallobase short and rounded. Paramere almost same width from base to subapex, obliquely truncate apically, inner face with a fringe of setae subapically (Fig. 1D, F). Median lobe almost same width from base to apical fifth, apex obtusely pointed; gonopore triangular, situated at apical fifth of median lobe (Fig. 1E).

**Description. Form and Colour** (Fig. 1A–C). Total length 2.4–2.8 mm; maximum width 1.5–1.7 mm. Body broadly oval, rather convex. Dorsum yellowish to reddish brown, shiny. Antennal club dark yellowish brown, maxillary palpi and labial palpi yellowish brown. Ventral surface yellowish to reddish brown.

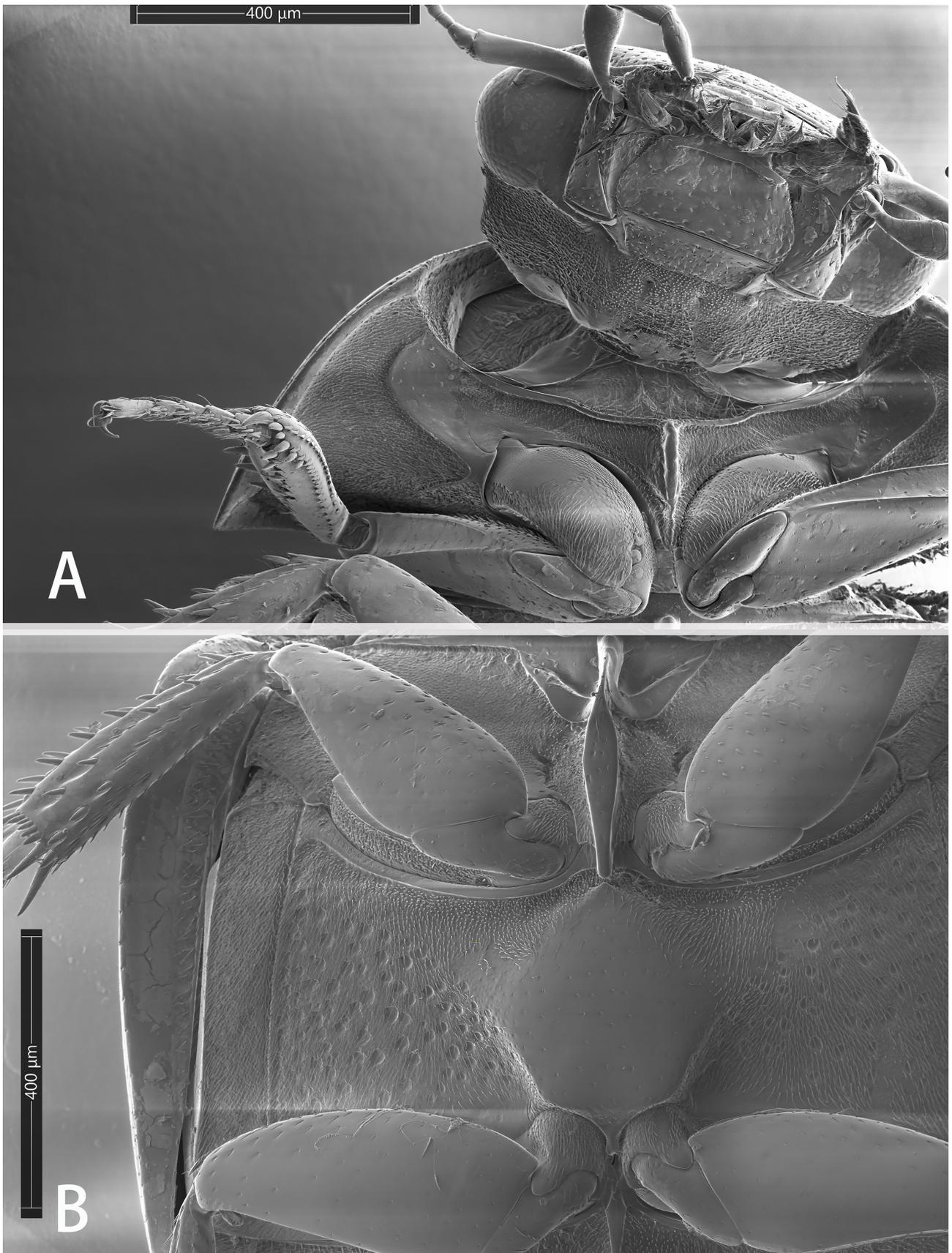
**Head.** Dorsal surface with uniform dense and coarse punctures; each puncture crescent-shaped; interstices between punctures smooth. Anterior margin of clypeus with a marginal bead. Eyes of moderate size, separated by ca 5.5× width of one eye. Labrum concealed by clypeus or partly exposed. Mentum subtrapezoidal, moderately depressed anteriorly; anterior margin of mentum slightly concave; surface smooth, with fine punctures (Fig. 2A). Antennae with 9 antennomeres; antennal club (antennomeres 7–9) compact and densely pubescent. Maxillary palpomere 2 strongly swollen in apical half, longer than palpomere 3; palpomere 4 almost symmetrical, slightly longer than palpomere 3. Each maxilla with a sucking-disc shaped appendage in male.

**Thorax.** Pronotum widest posteriorly, gradually narrowed anteriorly, with crescent-shaped punctures as on head. Lateral margins of pronotum narrowly rimmed, rim overlapping anterior and posterior corners, anterior and almost all of posterior margin without rim. Prosternum strongly tectiform medially, with sharp median carina; prosternal process pointed apically; prosternum with sparse and fine pubescence from both sides of median carina to depressed lateral portions (Fig. 2A). Antennal groove largely extending across hypomeron, with lateral margin strongly convex (Fig. 2A). Mesoventral plate spindle-shaped and narrow, widest slightly above middle, ca 4–5× as long as wide; posterior apex of mesoventral plate obtusely pointed, overlapping anterior ridge of metaventricle (Fig. 2B).

Scutellum in shape of equilateral triangle, longer than wide, with punctures finer than those on pronotum. Elytra widest at anterior fourth; each elytron with 10 rows of punctate striae, striae moderately impressed; striae 6, 8 and 9 not reaching anterior margin of elytron; stria 10 short, only ending at posterior third of elytron; intervals of striae flat, with ground punctures as on pronotum. Epipleuron wedge-shaped and strongly oblique, distinctly wider than metepisternum at level of anterolateral corner of metaventrite. Central area of metaventrite uniformly punctuated and glabrous, raised and forming a flat pentagonal portion of regular size (metaventral table), with half width not wider than pubescent lateral portion at widest point. Lateral parts of metaventrite densely pubescent, scattered with some coarse punctures (Fig. 2B). Anterior ridge of metaventrite slightly bent posteriad at anterolateral corner (Fig. 2B).



**FIGURE 1.** *Asiacyon sherpaicus* sp. nov. A–C. Habitus. D–G. Male genitalia. A. Dorsal view. B. Lateral view. C. Ventral view. D. Aedeagus. E. Median lobe. F. Tegmen, G. Sternite 9. Scale bars 0.5 mm.



**FIGURE 2.** SEM photos of *Asiacyon sherpaicus* sp. nov. **A.** Ventral view of head, and prothorax. **B.** Ventral view of meso- and metathorax.

**Legs.** Profemora unpubescent ventrally, with very fine punctures and weak microsculpture; meso- and metafemora with coarser setiferous punctures, interstices with weak microsculpture. Tibiae with small lateral spines. Tarsi with sparse gold ventral setae, metatarsomere 1 about as long as metatarsomeres 2–3 combined.

**Abdomen.** Abdominal ventrites densely pubescent. First ventrite with median longitudinal carina. Fifth ventrite with a broad glabrous portion apically, not emarginate.

**Male genitalia** (Fig. 1D–G). Aedeagus ca 1 mm long. Paramere almost same width from base to subapex; obliquely truncate apically, inner face with a fringe of setae subapically (Fig. 1D, F). Phallobase almost as long as parameres, nearly parallel sided, manubrium asymmetrical and short (Fig. 1D, F). Median lobe almost same width from base to apical fifth, then abruptly narrowed subapically, apex obtusely pointed; gonopore triangular, situated at apical fifth of median lobe (Fig. 1E). Median projection of sternite 9 gradually narrowed anteriorly and rounded basally; lateral struts slightly longer than median portion (Fig. 1G).

**Remarks.** This species is very similar to *Asiacyon indicus* (d’Orchymont, 1926) on external morphology, and closely related to it based on unpublished DNA data. It can be distinguished from the latter by metaventral table finely protruding towards mesoventral plate anteriorly and form a small gap (Fig. 2B) (metaventral table not protruding towards mesoventral plate anteriorly in *A. indicus* (Mai *et al.* 2024: fig. 16c)); phallobase as longer as parameres of aedeagus (Fig. 1F) (phallobase ca 2× longer than parameres in *A. indicus* (Mai *et al.* 2024: fig. 15f)); median lobe almost same width from base to apical fifth (Fig. 1E) (Median lobe widest in apical third in *A. indicus* (Mai *et al.* 2024: fig. 15e)).

**Biology** (Fig. 9A–C). Adults were found inside a rotten mushroom under forest.

**Etymology.** The species is named after the Sherpa, the ethnic group of the local residents in Zhêntang Town, the type locality of the species.

**Distribution.** China (Xizang).

### *Asiacyon spatifer* (Hebauer, 2002), **comb. nov.**

(Figs 3A–G, 4A, B)

*Cercyon spatifer* Hebauer, 2002: 49. Type locality: Nepal, Ramechhap Distr., Mohabir Khola E Shivalaya.

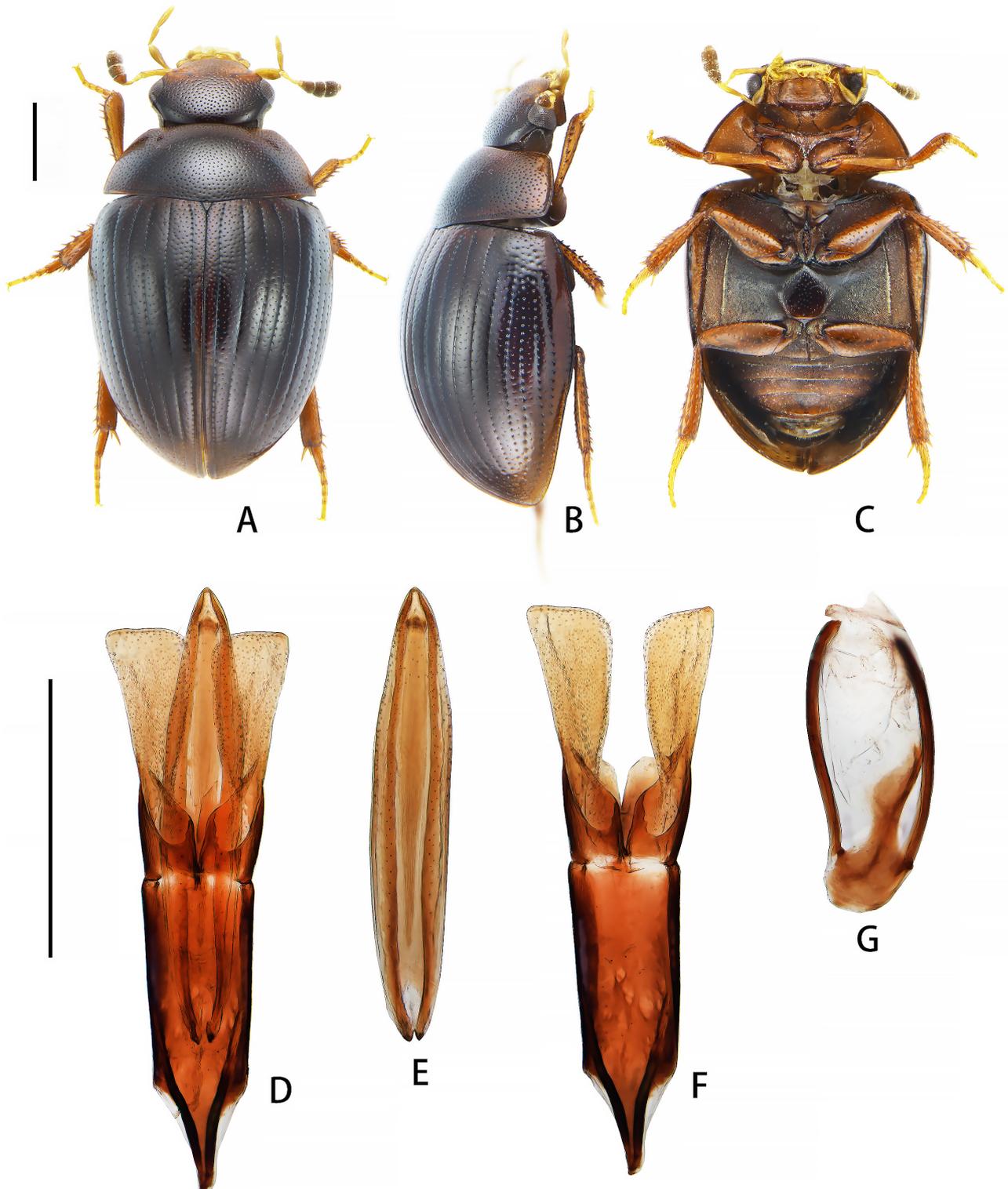
**Material examined.** 3 ♂♂, 2 ♀♀ (SYSU, NMP), China, Xizang Autonomous Region, Xigazê, Nyalam County, Zhangmu Town, Lixin Village, 2626 m, 27.9643°N, 85.9739°E, 30.VI.–2.VII.2023, Zu-Qi Mai, Cheng Liang & Yue-Zheng Tu leg.; Broad-leaved evergreen forests with dwarf bamboo, flight intercept trap with rotten jackfruits, bananas, bamboo shoots and mushroom around.

**Diagnosis.** Length 2.5–2.8 mm. Body broadly oval, broadest in middle. Dorsum (Fig. 3A) uniformly dark reddish black, antennal club dark brown throughout. Head with uniform crescent-shaped and coarse punctures. Pronotum with punctures slightly finer than those on head. Mentum with very sparse and fine punctures, without microsculpture (Fig. 4A). Antennal groove with lateral margin moderately convex (Fig. 4A). Prosternum with a sharp median carina; prosternal process slightly notched apically (Fig. 4A). Elytral striae moderately impressed, intervals of elytral striae flat throughout. Mesoventral plate elongate, widest in middle, ca 4–4.5× as long as wide; posterior apex obtusely pointed (Fig. 4B). Metaventral table protruding towards mesoventral plate anteriorly and form a fine gap (Fig. 4B). Pubescent lateral portion of metaventrite without coarse punctures (Fig. 4B). **Male genitalia** (Fig. 3D–G): Phallobase almost as long as parameres; manubrium of phallobase slender and straight. Paramere of aedeagus spatula-shaped, apex broadly and obliquely truncate; inner face with a large nearly rectangular membranous portion on ventral side basally (Fig. 3D, F). Median lobe widest in middle, apex obtusely pointed; gonopore triangular, situated subapically (Fig. 3E).

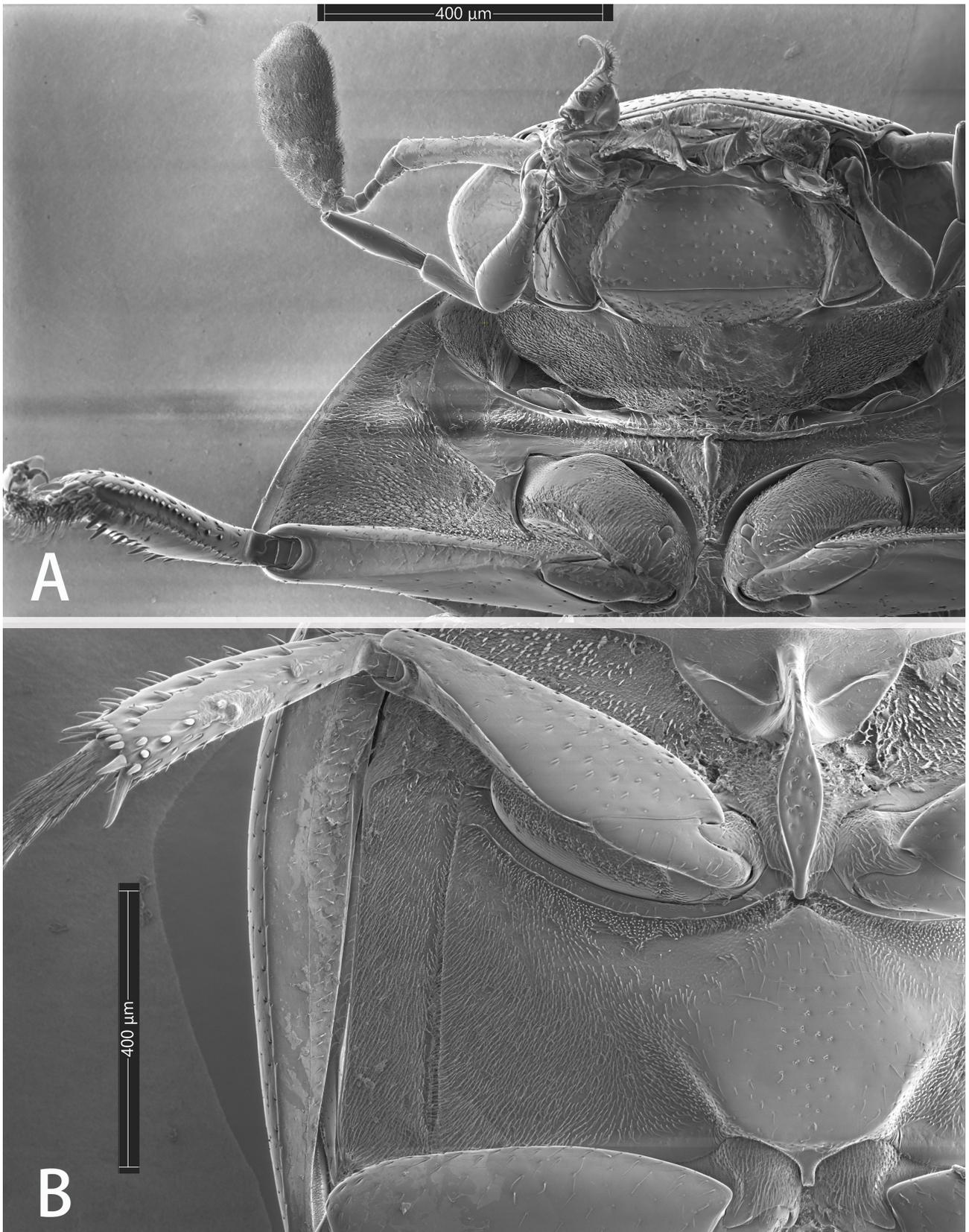
**Redescription (based on Chinese specimens).** **Form and Colour** (Fig. 3A–C). Total length 2.5–2.8 mm; maximum width 1.4–1.5 mm. Body broadly oval, rather convex. Dorsum dark reddish black and shiny. Antennal club dark brown, maxillary palpi and labial palpi yellowish brown. Ventral surface reddish brown in most part, mesoventral plate and middle portion of metaventrite dark reddish black. Legs yellowish brown.

**Head.** Dorsal surface with uniform dense and coarse punctures; each puncture crescent-shaped; interstices between punctures smooth. Anterior margin of clypeus with a marginal bead. Eyes of moderate size, separated by ca 5.5× width of one eye. Labrum concealed by clypeus or partly exposed. Mentum subtrapezoidal, moderately depressed anteriorly; anterior margin of mentum slightly concave; surface smooth, with fine punctures (Fig. 4A).

Antennae with 9 antennomeres; antennal club (antennomeres 7–9) compact and densely pubescent. Maxillary palpomere 2 strongly swollen in apical half, longer than palpomere 3; palpomere 4 almost symmetrical slightly longer than palpomere 3. Each maxilla with a sucking-disc shaped appendage in male.



**FIGURE 3.** *Asiacyon spatifer* (Hebauer, 2002), **comb. nov.** A–C. Habitus. D–G. Male genitalia. A. Dorsal view. B. Lateral view. C. Ventral view. D. Aedeagus. E. Median lobe. F. Tegmen, G. Sternite 9. Scale bars 0.5 mm.



**FIGURE 4.** SEM photos of *Asiacyon spatifer*: **A.** Ventral view of head, and prothorax. **B.** Ventral view of meso- and metathorax.

**Thorax.** Pronotum widest posteriorly, gradually narrowed anteriorly, with crescent-shaped punctures slightly finer than those on head. Lateral margins of pronotum narrowly rimmed, rim overlapping anterior and posterior corners, anterior and almost all of posterior margin without rim. Prosternum strongly tectiform medially, with sharp median carina; prosternal process slightly notched apically; prosternum with sparse and fine pubescence from both sides of the median carina to depressed lateral portions (Fig. 4A). Antennal groove moderately extending across hypomerion, with lateral margin moderately convex (Fig. 4A). Mesoventral plate elongate, widest in middle, ca 4–4.5× as long as wide; posterior apex of mesoventral plate obtusely pointed, overlapping anterior ridge of metaventricle (Fig. 4B). Scutellum in shape of equilateral triangle, longer than wide, with punctures finer than those on pronotum. Elytra widest at anterior fourth; each elytron with 10 rows of punctate striae, striae moderately impressed; striae 6, 8 and 9 not reaching anterior margin of elytron; stria 10 short, only ending at posterior third of elytron; intervals of striae flat, with ground punctures as on pronotum. Epipleuron wedge-shaped and strongly oblique, distinctly wider than metepisternum at level of anterolateral corner of metaventricle. Central area of metaventricle uniformly punctuated and glabrous, raised and forming a flat pentagonal portion of regular size (metaventral table), with half width not wider than pubescent lateral portion at widest point (Fig. 4B). Lateral parts of metaventricle densely pubescent, without coarse punctures (Fig. 4B). Anterior ridge of metaventricle slightly bent posteriorly at anterolateral corner (Fig. 4B).

**Legs.** Profemora unpubescent ventrally, with very fine punctures and weak microsculpture; meso- and metafemora with coarser setiferous punctures, interstices with weak microsculpture. Tibiae with small lateral spines. Tarsi with dense gold ventral setae, metatarsomere 1 about as long as metatarsomeres 2–3 combined.

**Abdomen.** Abdominal ventrites densely pubescent. First ventrite with median longitudinal carina. Fifth ventrite with a broad glabrous portion apically, not emarginate.

**Male genitalia** (Fig. 3D–G). Aedeagus ca 1.3 mm long. Paramere spatula-shaped and straight, slightly narrowed on basal third, then gradually widened apically, apex broadly and obliquely truncate, inner angle rounded, outer angle rectangular; inner face of paramere with a large nearly rectangular membranous portion on ventral side basally (Fig. 3D, F). Phallobase almost as long as parameres, nearly parallel sided, manubrium slender and straight, abruptly narrowed and pointed apically (Fig. 3D, F). Median lobe widest in middle, gradually narrowing towards base and apex, apex obtusely pointed; gonopore triangular, situated subapically (Fig. 3E). Sternite 9 with lateral struts attached to basal half of median portion; median portion asymmetrical; lateral struts slightly longer than median portion (Fig. 3G).

**Remarks.** We did not examine the type material of *Cercyon spatifer* Hebauer, 2002, but the species can be reliably identified based on the original description and the illustration of the male genitalia (Hebauer 2002: fig. 20a). The examined Chinese specimens match the external morphology for *Asiacyon*, and we therefore transfer *Cercyon spatifer* to *Asiacyon*.

**Biology.** Adults were attracted by decaying organic matter.

**Distribution.** China (Xizang), Nepal (Hebauer 2002).

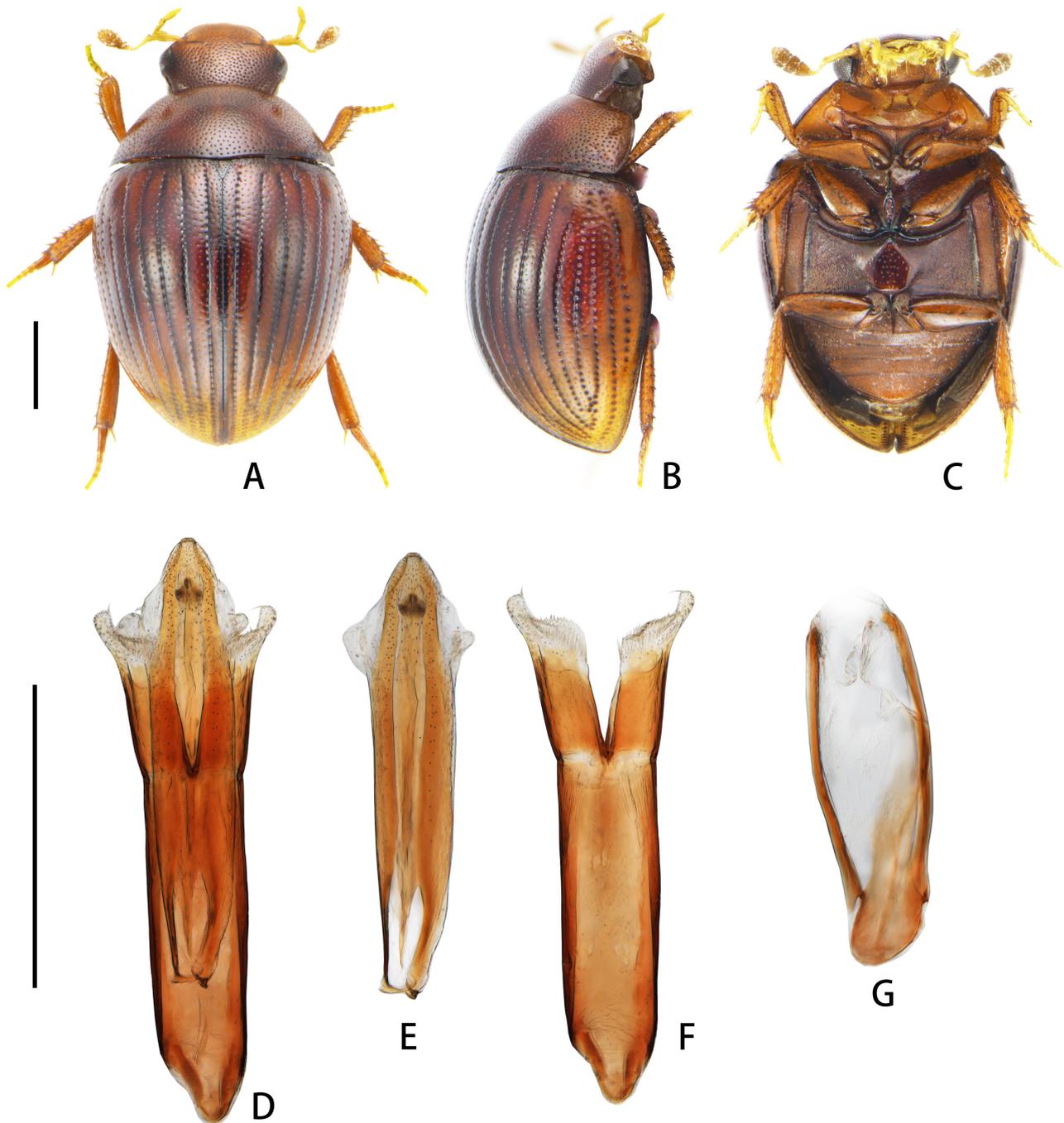
### *Asiacyon trilobatus* sp. nov.

(Figs 5A–G, 6A, B)

**Type material.** **HOLOTYPE:** CHINA: ♂ (SYSU), Xizang, Nyingchi City (= Linzhi), Mêdog County, Forest behind the Renqingbeng Temple (仁青崩寺后山), 2104 m, 29.3086°N, 95.3471°E, 18.VI.2023, Zu-Qi Mai & Wen-Kai Kou leg. Primary forest, flight intercept trap with rotten jackfruits, bamboo shoots and human dung around. **PARATYPES:** CHINA: 10 exx. (SYSU, NMP), same data as the holotype. 1 ♂ (SYSU), Xizang Autonomous Region, Xigazê, Zhêntang Town forest, 2337 m, 27.8487°N, 87.4331°E, 9–12.VII.2023, Zu-Qi Mai, Cheng Liang & Yue-Zheng Tu leg.; Primary rainforest, flight intercept trap with rotten jackfruits, bananas, bamboo shoots, mushroom and human shit around.

**Diagnosis.** Length 2.1–2.4 mm. Body broadly oval, broadest slightly behind elytral base, posteriorly conical. Dorsum yellowish to reddish brown with posterior half of elytra paler, antennal club dark yellowish brown throughout (Fig. 5A). Head with uniform crescent-shaped and coarse punctures. Pronotum with punctures slightly finer than those on head. Mentum with very sparse and fine punctures, without microsculpture (Fig. 6A). Antennal groove with lateral margin strongly convex (Fig. 6A). Prosternum with a sharp median carina; prosternal process

notched or truncate apically (Fig. 6A). Elytral striae moderately impressed, intervals of elytral striae flat throughout. Mesoventral plate (Fig. 6B) elongate, widest in middle, ca 3.5–4× as long as wide; posterior apex obtusely pointed. Metaventral table protruding towards mesoventral plate anteriorly and form a fine gap. Pubescent lateral portion of metaventricle scattered with some coarse punctures. *Male genitalia* (Fig. 5D–G): Phallobase much longer than parameres; manubrium of phallobase short and rounded (Fig. 5D, F). Paramere of aedeagus almost same width from base to apical fourth, with a straight projection on outer face apically, with a long apical seta on inner angle of projection; dorsal side of paramere with a large membranous portion with dense pubescence apically, inner apical angle of membranous portion rounded (Fig. 5D, F). Apical fourth of median lobe with two transparent triangular membranous projections on lateral margin, median lobe obtusely pointed apically; gonopore triangular, situated subapically (Fig. 5E).



**FIGURE 5.** *Asiacyon trilobatus* sp. nov. A–C. Habitus. D–G. Male genitalia. A. Dorsal view. B. Lateral view. C. Ventral view. D. Aedeagus. E. Median lobe. F. Tegmen, G. Sternite 9. Scale bars 0.5 mm.

**Description. Form and Colour** (Fig. 5A–C). Total length 2.1–2.4 mm; maximum width 1.4–1.55 mm. Body broadly oval and posteriorly conical, rather convex. Dorsum yellowish to reddish brown with posterior half of elytra paler, shiny. Antennal club dark yellowish brown, maxillary palpi and labial palpi light yellowish brown. Ventral surface yellowish to reddish brown.

**Head.** Dorsal surface with uniform dense and coarse punctures; each puncture crescent-shaped; interstices between punctures smooth. Anterior margin of clypeus with a marginal bead. Eyes small, separated by ca 6.5× width of one eye. Labrum concealed by clypeus or partly exposed. Mentum subtrapezoidal, slightly depressed anteriorly; anterior margin of mentum slightly concave; surface smooth, with few fine punctures (Fig. 6A). Antennae with 9 antennomeres; antennal club (antennomeres 7–9) compact and densely pubescent. Maxillary palpomere 2 strongly swollen, longer than palpomere 3; palpomere 4 almost symmetrical, equal to palpomere 3 in length. Each maxilla with a sucking-disc shaped appendage in male.

**Thorax.** Pronotum widest posteriorly, gradually narrowed anteriorly, with crescent-shaped punctures slightly finer than those on head. Lateral margins of pronotum narrowly rimmed, rim overlapping anterior and posterior corners, anterior and almost all of posterior margin without rim. Prosternum strongly tectiform medially, with sharp median carina; prosternal process notched or truncate apically; prosternum with sparse and fine pubescence from both sides of median carina to depressed lateral portions (Fig. 6A). Antennal groove largely extending across hypomerion, with lateral margin strongly convex (Fig. 6A). Mesoventral plate elongate, widest in middle, ca 3.5–4× as long as wide; posterior apex of mesoventral plate obtusely pointed, overlapping anterior ridge of metaventricle (Fig. 6B). Scutellum in shape of equilateral triangle, slightly longer than wide, with punctures finer than those on pronotum. Elytra widest at anterior fifth; each elytron with 10 rows of punctate striae, striae moderately impressed; striae 6, 8 and 9 not reaching anterior margin of elytron; stria 10 short, only ending at posterior third of elytron; intervals of striae flat; ground punctures fine, with few setiferous punctures. Epipleuron wedge-shaped and strongly oblique, distinctly wider than metepisternum at level of anterolateral corner of metaventricle. Central area of metaventricle uniformly punctuated and glabrous, raised and forming a flat pentagonal portion of regular size (metaventral table), with half width not wider than pubescent lateral portion at widest point, protruding towards mesoventral plate medially. Lateral parts of metaventricle densely pubescent, scattered with some coarse punctures (Fig. 6B). Anterior ridge of metaventricle slightly bent posteriorly at anterolateral corner (Fig. 6B).

**Legs.** Profemora unpubescent ventrally, with very fine punctures and microsculpture; mesofemora with coarser setiferous punctures, interstices with fine microsculpture; metafemora with finer punctures. Tibiae with small lateral spines. Tarsi with sparse gold ventral setae, metatarsomere 1 about as long as metatarsomeres 2–3 combined.

**Abdomen.** Abdominal ventrites densely pubescent. First ventrite with median longitudinal carina. Fifth ventrite with a broad glabrous portion apically, not emarginate.

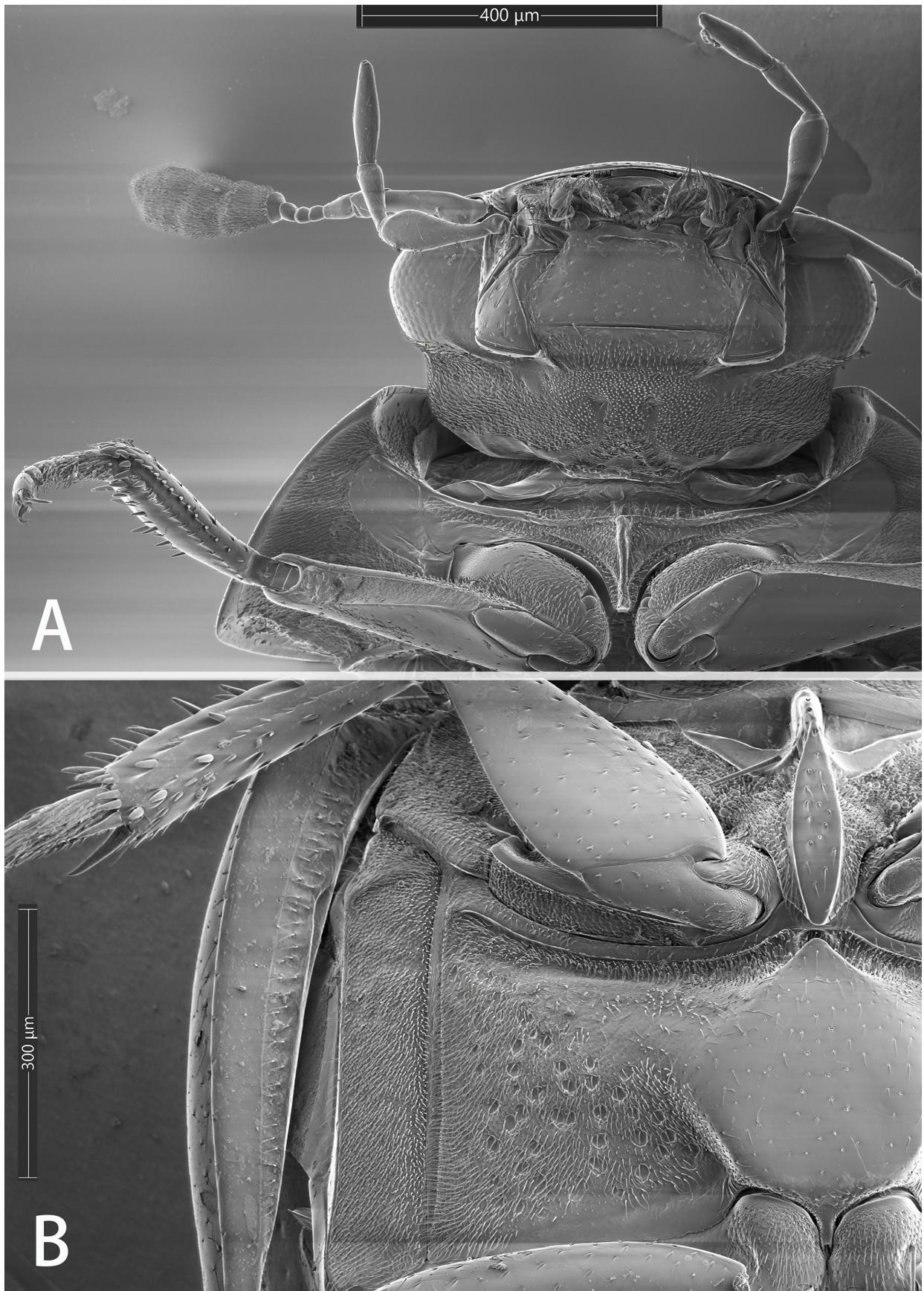
**Male genitalia** (Fig. 5D–G). Aedeagus ca 1.2 mm long. Paramere almost same width from base to apical fourth, with a straight projection on outer face apically, apex rounded, with a long apical seta on inner angle of the projection; dorsal side of paramere with a large membranous portion with dense pubescence apically, inner apical angle of membranous portion rounded (Fig. 5D, F). Phallobase ca 2.2× as long as parameres, nearly parallel sided, with an asymmetrical base; manubrium short and rounded (Fig. 5D, F). Apical fourth of median lobe with two transparent triangular membranous projections on lateral margin, median lobe obtusely pointed apically; gonopore triangular, situated subapically (Fig. 5E). Sternite 9 with lateral struts attached basal third of median portion; median portion stout, gradually tapering to top; lateral struts longer than median portion (Fig. 5G).

**Remarks.** This species is characterised by the unique morphology of the aedeagus: median lobe with two transparent triangular membranous projections on lateral margin (Fig. 5E). It is closely related to *Asiacyon cornipenis* Ryndevich, Mai, Jia & Fikáček, 2024, and can be distinguished from the latter by paramere of aedeagus with a straight projection on outer face apically (Fig. 5F) (projection on outer face of paramere horn-shaped and curved inwards in *A. cornipenis* (Mai *et al.* 2024: fig. 36f)), manubrium of phallobase short and rounded (Fig. 5F) (manubrium slender and hooked in *A. cornipenis* (Mai *et al.* 2024: fig. 36f)).

**Biology.** Some living individuals were found in rotting bamboo shoots.

**Etymology.** The species name is derived from Latin *tri-* (three) and *lobatus* (lobed), refers to the trilobed shape of the median lobe of aedeagus.

**Distribution.** China (Xizang).



**FIGURE 6.** SEM photos of *Asiacyon trilobatus* sp. nov. **A.** Ventral view of head, and prothorax. **B.** Ventral view of meso- and metathorax.

*Asiacyon zhangmuensis* sp. nov.

Chinese common name: 樟木亚洲梭牙甲

Figs 7A–G, 8A, B

**Type material. HOLOTYPE:** CHINA: ♂ (SYSU), Xizang Autonomous Region, Xigazê, Nyalam County, Zhangmu Town, Lixin Village, 2626 m, 27.9643°N, 85.9739°E, 30.VI.–2.VII.2023, Zu-Qi Mai, Cheng Liang & Yue-Zheng Tu leg.; Broad-leaved evergreen forests with dwarf bamboo, flight intercept trap with rotten jackfruits, bananas, bamboo shoots and mushroom around. **PARATYPES:** 4 ♂♂, 5 ♀♀ (SYSU, NMP), same data as the holotype.

**Diagnosis.** Length 2.5–2.8 mm. Body broadly oval, broadest in middle. Dorsum dark reddish black to black, slightly paler at posterior apex of elytra; antennal club dark brown (Fig. 7A). Head and pronotum with uniform crescent-shaped and coarse punctures. Mentum with fine punctures and sparse microsculpture consisting of transverse short lines (Fig. 8A). Antennal groove with lateral margin moderately convex. Prosternum with a sharp median carina; prosternal process pointed apically (Fig. 8A). Elytral striae moderately impressed, intervals of elytral striae flat throughout. Mesoventral plate elongate, widest in middle, ca 3.6–4× as long as wide; posterior apex of mesoventral plate pointed (Fig. 8B). Metaventral table not protruding towards mesoventral plate anteriorly (Fig. 8B). Pubescent lateral portion of metaventrite scattered with some coarse punctures. *Male genitalia* (Fig. 7D–G): Phallobase dark and opaque basally, ca 2× longer than parameres; manubrium of phallobase of moderate length and rounded apically (Fig. 7D, F). Paramere almost same width throughout, with a truncate apex; inner angle with a membranous and pubescent portion (Fig. 7D, F). Median lobe slender, widest in middle and parallel sided from basal third to apical third, apex obtusely pointed; gonopore semicircular, situated subapically (Fig. 7E).

**Description. Form and Colour** (Fig. 7A–C). Total length 2.5–2.8 mm; maximum width 1.5–1.6 mm. Body broadly oval, rather convex. Dorsum dark reddish black to black and shiny, slightly paler at posterior apex of elytra. Antennal club dark brown; maxillary palpi and labial palpi yellowish brown. Ventral surface yellowish to reddish brown.

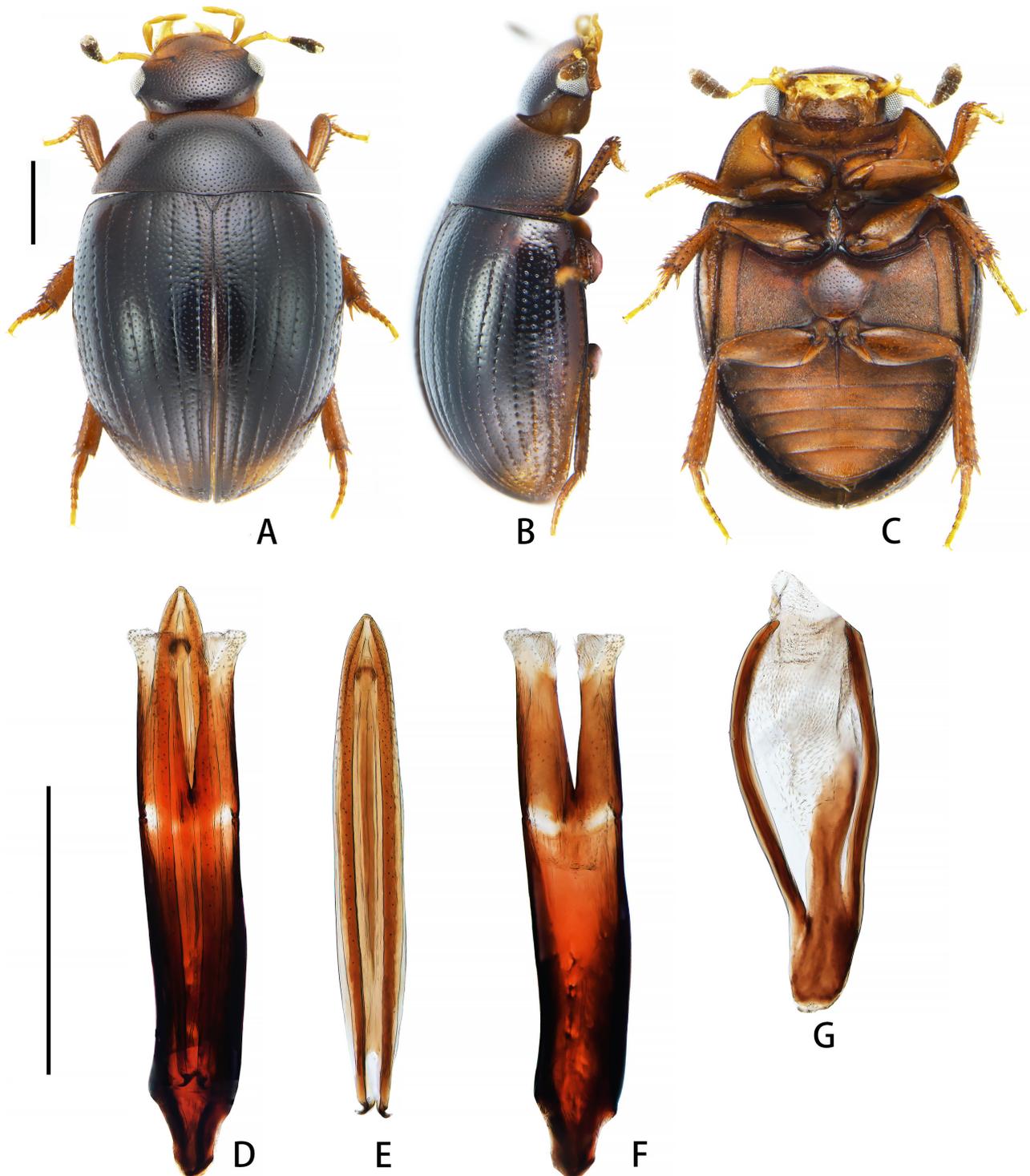
**Head.** Dorsal surface with uniform dense and coarse punctures; each puncture crescent-shaped; interstices between punctures smooth. Anterior margin of clypeus with a marginal bead. Eyes of moderate size, separated by ca 5.5× width of one eye. Labrum concealed by clypeus or partly exposed. Mentum subtrapezoidal, moderately depressed anteriorly; anterior margin of mentum slightly concave; surface with fine punctures and sparse microsculptures (Fig. 8A). Antennae with 9 antennomeres; antennal club (antennomeres 7–9) compact and densely pubescent. Maxillary palpomere 2 strongly swollen in apical half, longer than palpomere 3; palpomere 4 almost symmetrical, slightly longer than palpomere 3. Each maxilla with a sucking-disc shaped appendage in male.

**Thorax.** Pronotum widest posteriorly, gradually narrowed anteriorly, with crescent-shaped punctures as on head. Lateral margins of pronotum narrowly rimmed, rim overlapping anterior and posterior corners, anterior and almost all of posterior margin without rim. Prosternum strongly tectiform medially and with a sharp median carina; prosternal process pointed apically; prosternum with sparse pubescence from both sides of median carina to depressed lateral portions (Fig. 8A). Antennal groove moderately extending across hypomerion, with lateral margin moderately convex (Fig. 8A). Mesoventral plate spindle-shaped, widest in middle, ca 3.6–4× as long as wide; posterior apex of mesoventral plate pointed, overlapping anterior ridge of metaventrite (Fig. 8B). Scutellum in shape of equilateral triangle, longer than wide, with punctures finer than those on pronotum. Elytra widest at anterior third; each elytron with 10 rows of punctate striae, striae moderately impressed; striae 6, 8 and 9 not reaching anterior margin of elytron; stria 10 short, only ending at posterior third of elytron; intervals of striae flat, with ground punctures slightly finer than those on pronotum. Epipleuron wedge-shaped and strongly oblique, distinctly wider than metepisternum at level of anterolateral corner of metaventrite. Central area of metaventrite uniformly punctuated and glabrous, raised and forming a flat pentagonal portion of regular size (metaventral table), with half width not wider than pubescent lateral portion at widest point. Lateral parts of metaventrite densely pubescent, without coarse punctures (Fig. 8B). Anterior ridge of metaventrite slightly bent posteriorly at anterolateral corner (Fig. 8B).

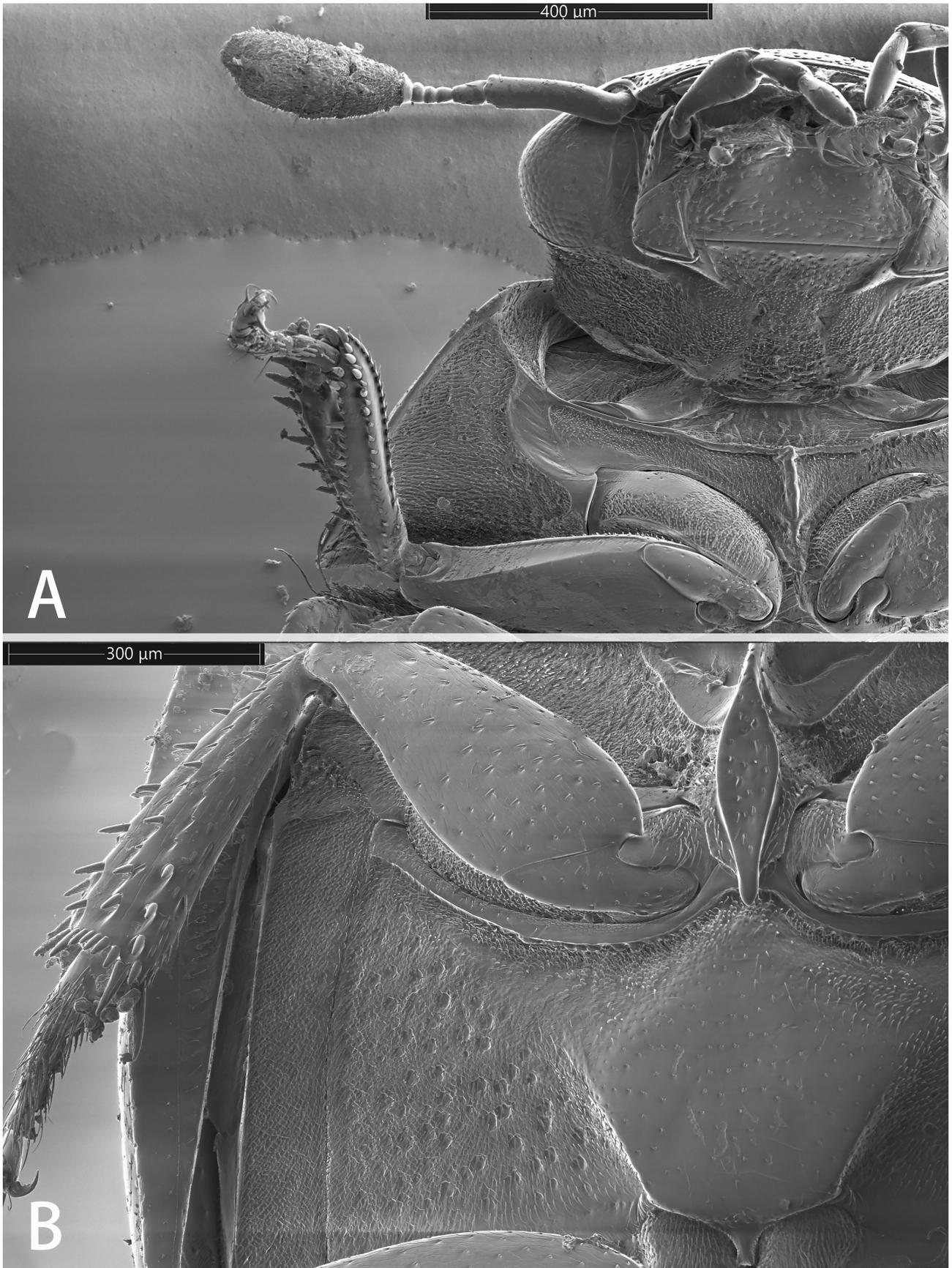
**Legs.** Profemora glabrous ventrally, with very fine punctures and weak microsculpture; meso- and metafemora with coarser setiferous punctures, interstices with microsculpture. Tibiae with small lateral spines. Tarsi with sparse gold ventral setae, metatarsomere 1 about as long as metatarsomeres 2–3 combined.

**Abdomen.** Abdominal ventrites densely pubescent. First ventrite with median longitudinal carina. Fifth ventrite with a broad glabrous portion apically, not emarginate.

**Male genitalia** (Fig. 7D–G). Aedeagus ca 1.3 mm long. Paramere straight and almost same width from base to apex; apex truncate, inner angle with a membranous and pubescent portion (Fig. 7D, F). Phallobase dark and opaque basally, ca 2× as long as parameres, nearly parallel sided, manubrium of phallobase of moderate length and rounded apically (Fig. 7D, F). Median lobe slender, slightly shorter than tegmen, widest in middle and parallel sided from basal third to apical third, apex obtusely pointed; gonopore semicircular, situated subapically (Fig. 7E). Median projection of sternite 9 narrowed medially, slightly widened anteriorly and rounded basally; lateral struts slightly longer than median portion (Fig. 7G).



**FIGURE 7.** *Asiacyon zhangmuensis* sp. nov. A–C. Habitus. D–G. Male genitalia. A. Dorsal view. B. Lateral view. C. Ventral view. D. Aedeagus. E. Median lobe. F. Tegmen, G. Sternite 9. Scale bars 0.5 mm.



**FIGURE 8.** SEM photos of *Asiacyon zhangmuensis* sp. nov. **A.** Ventral view of head, and prothorax. **B.** Ventral view of meso- and metathorax.

**Remarks.** This species is morphologically similar to *Asiacyon xiuzhenae* Mai, Jia, Ryndevich & Fikáček, 2024. It can be distinguished from the latter by antennal club uniformly dark brown (antennal club dark brown basally and light yellow apically in *A. xiuzhenae* (Mai *et al.* 2024: fig. 31h)); pubescent lateral portion of metaventrite scattered with some coarse punctures (Fig. 8B) (without coarse punctures in *A. xiuzhenae* (Mai *et al.* 2024: fig. 32f)); paramere of aedeagus straight, almost same width from base to apex; apex truncate (Fig. 7F) (paramere almost same width and straight from base to apical third; slightly bent outwards and narrowed, forming a rounded apex in *A. xiuzhenae* (Mai *et al.* 2024: fig. 31f)); median lobe slender (Fig. 7E) (median lobe broad and robust in *A. xiuzhenae* (Mai *et al.* 2024: fig. 36e)).

**Biology.** Some living individuals were found in rotting bamboo shoots.

**Etymology.** This species is named after the type locality, Zhangmu Town, Nyalam County in Xizang, China.

**Distribution.** China (Xizang).



**FIGURE 9.** Habitats of *Asiacyon sherpaicus* sp. nov. **A.** Rotten mushroom under forest in Zhêntang Town, Xizang, China. **B,** **C.** Alive adult.

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## 西藏南部亚洲梭牙甲属*Asiacyon*研究（鞘翅目：牙甲科：陆牙甲亚科：迈牙甲族）

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**摘要：**对藏南亚洲梭牙甲属*Asiacyon*物种进行了研究；共发现4种，包括3新种，即夏尔巴亚洲梭牙甲*A. sherpaicus* **sp. nov.**、三叶亚洲梭牙甲*A. trilobatus* **sp. nov.**和樟木亚洲梭牙甲*A. zhangmuensis* **sp. nov.**。佩刀梭腹牙甲*Cercyon spatifer*被移入亚洲梭牙甲属；提供了所有物种的详细鉴别特征和图片。

**关键词：**亚洲梭牙甲属，新种，新组合，牙甲科，西藏，中国