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Amphicoma aureoviridis, a new species from Sichuan, China (Coleoptera: Scarabaeoidea: Glaphyridae)

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Abstract. *Amphicoma aureoviridis* sp. nov. from Sichuan, China is described, illustrated, and compared with the most morphologically similar species, *A. amaliae* Nikodým, 2005 from Anhui, China. The newly described species belongs to the *A. dubia* species group, based on the presence of a slender apical spur on the mesotibia and long outcurved antennal club in males. Currently, the *A. dubia* species group contains 13 species. An updated identification key of this species group is provided.

Key words. Taxonomy, new species, key, Coleoptera, Scarabaeoidea, Glaphyridae, *Amphicoma*, China, Palaearctic region

INTRODUCTION

The genus *Amphicoma* Latreille, 1807, belongs to the family Glaphyridae and currently comprises 49 valid species and two subspecies. The correct application of the name *Amphicoma* Latreille, 1807, for the genus concept long referred to as *Anthypna* Eschscholtz, 1818 was clarified by Bezděk et al. (2005).

The geographical distribution of *Amphicoma* is disjunct. A few species are known from the Mediterranean region (including Albania, the Iberian Peninsula, Greece, Italy, Slovenia and Switzerland), while many more occur across a broad area spanning the eastern Palaearctic and the northern parts of the Oriental region (notably Pakistan, China, Japan, and northern parts of Laos, Myanmar, Thailand and Vietnam; Nikodým 2005, Nikodým & Bezděk 2016, Uliana 2021).

In the Palaearctic region, 40 species of *Amphicoma* have been recorded, 38 species were listed by Nikodým & Bezděk (2016), and two species were described later, *A. gandhara* Nikodým et Sabatinelli, 2019 from Pakistan, and *A. caterinae* Uliana, 2021 from China (Chongqing, Guizhou).

There is also a rather problematic taxon, *Amphicoma hirani* Mawlood, Ahmed et Kadir, 2016 originally described from Erbil (Hiran), Kurdistan region of Iraq. The authors had a very limited knowledge of Glaphyridae, as they only compared their new species with the Japanese taxon *A. aurata* (Yawata, 1942). In fact, they omitted numerous species of different other genera of Glaphyridae from Iraq and neighboring countries. According to the primary description, their species belongs to *Eulasia* Truqui, 1848 or *Pygopleurus* Motschulsky, 1860 rather than to *Amphicoma*. Unfortunately, due to the weak description, it is not possible to clarify the status of *A. hirani* without examination of type material, but it should undoubtedly be removed from *Amphicoma.*

The genus *Amphicoma* was first revised by Endrődi (1952) [as *Anthypna*], who also described five new species and proposed a key for identification. Later, Medvedev (1960) reviewed the

species from China. The most recent revision was published by Nikodým (2005), who described 12 new species and updated the identification keys. He also divided all *Amphicoma* species into four formal species groups based on external morphological characters, namely: *A. abdominalis* species group, *A. corinthia* species group, *A. dubia* species group, and *A. florentini* species group. This infrageneric classification was somewhat criticized by Li et al. (2011), as it was not based on a phylogenetic analysis of the genus. More recently, several papers have described one or two new taxa at a time (Keith 2007, 2008, Nikodým 2007, 2009a, b, Li et al. 2011, Nikodým & Sabatinelli 2019, Uliana 2021). A revision of the A. *corinthia* species group was presented by Nikodým (2009a), and an updated key for the A. *abdominalis* species group was provided by Nikodým (2009b). Finally, Fujioka & Kobayashi et al. (2023) partially reinstated the subgenus *Toxocerus* Fairmaire, 1891, which had previously been synonymized by Endrődi (1952). However, their study was focused only on the type species of *Toxocerus* (*T. rothschildii* Fairmaire, 1891) and a few Japanese taxa, while other continental species originally described under *Toxocerus* were omitted. There is a clear overlap between *Toxocerus* sensu Fujioka & Kobayashi (2023) and the *A. dubia* species group proposed by Nikodým (2005). Nevertheless, a final decision on the validity of the subgenus *Toxocerus* must await comprehensive phylogenetic study of the genus *Amphicoma*.

MATERIAL AND METHODS

Material was examined with an Olympus SZ61 stereomicroscope and a Nikon SMZ 745 stereomicroscope, measurements were taken with an ocular grid. The habitus photographs were taken using a Canon EF-S 60mm f/2.8 Macro USM lens attached to a Canon EOS 70D camera. Partially focused images of each object were combined using Zerene Stacker (Zerene Systems LLC, Richland, USA). All pictures were digitally enhanced using Adobe Photoshop CC.

Specimens of the newly described species are provided with one red printed label "Amphicoma aureoviridis | HOLOTYPUS ♂, [or] PARATYPUS ♂, | Milan Nikodým det. 2025".Verbatim label data are cited for the type material, individual lines of every label are separated by a vertical bar ("|"). Information in quotation marks (" ") indicates the original spelling. Additional comment is found in brackets ("[]"), [p] – preceding data within quotation marks are printed.

The following code identifies the collection housing the material examined:
MNCP – Milan Nikodým collection, Roztoky u Prahy, Czech Republic;
NMPC – National Museum Prague, Czech Republic (Jiří Hájek).

TAXONOMY

Amphicoma aureoviridis sp. nov.
(Figs. 1–2, 4–5)

Type locality. China, Sichuan, Emei Shan, Mt. Emei, 1000–2600 m a. s. l.

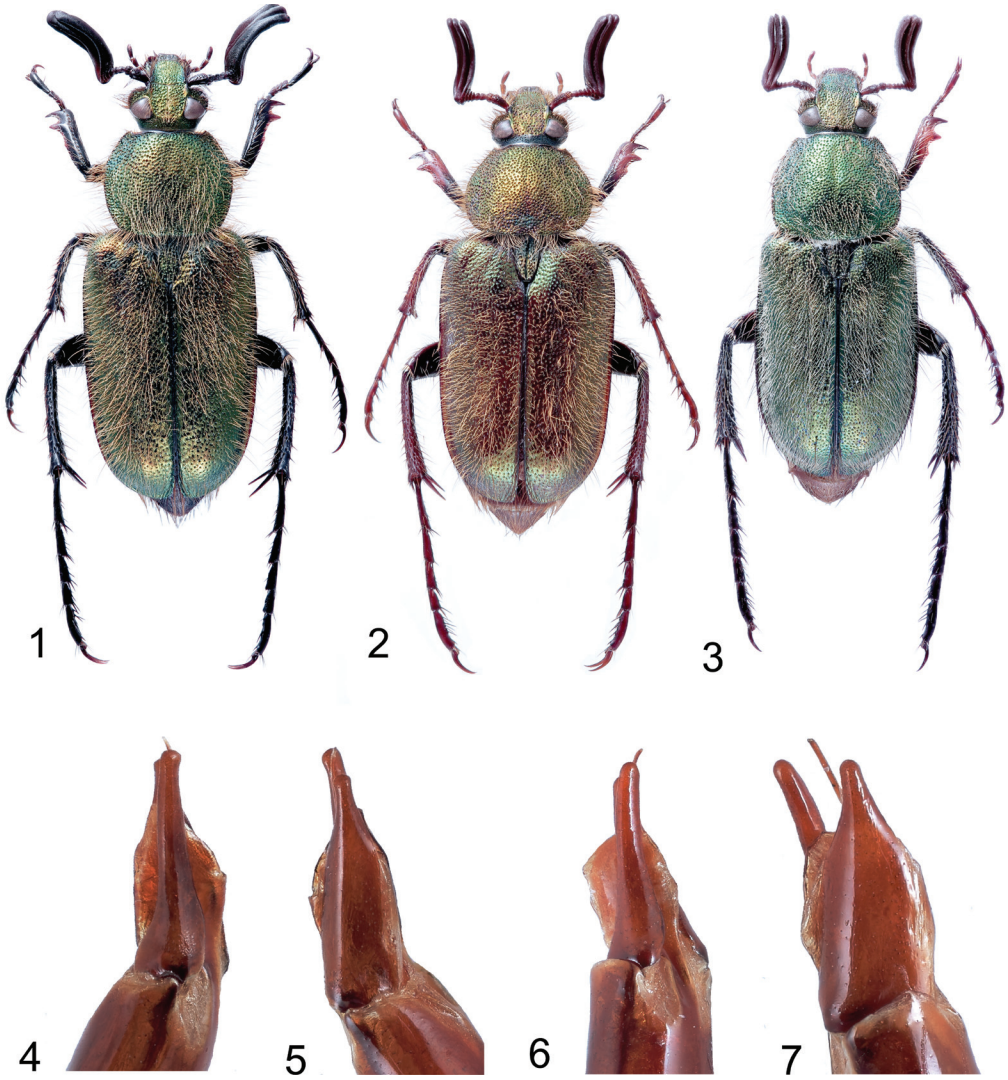
Type material (2 specimens). **China, Sichuan.** Holotype, ♂ (MNCP), "Sichuan. | 20. 7. 2006, China | Emei Shan, Mt. Emei | 130 km S of Chengdu | T. Tichý, 1000–2600 m [p]". Paratype, ♂ (NMPC), same data as holotype.

Description of holotype (♂). Body length from anterior margin of clypeus to elytral apex 14.2 mm.

Head, pronotum and scutellum shiny golden green, elytra more golden rather than green. Antennomeres dark brown, palpomeres brown and lighter. Legs black without metallic shine except for brown protibiae dents and all claws. Pygidium, propygidium and abdomen dark brown without golden green luster.

Dorsal surface with single-coloured light yellow-brown setation. Clypeus setation vertically raised, rest of head setation longer, thicker and inclined. Pronotum with setation longer and

more inclined than on head. Elytra setation consisting of erect setae as long, as those of the head between the eyes, on whole entire dorsal side and of twice longer and markedly stronger setae visible primarily on posterior half. Legs setation consisting of fine setae with light yellow-brown colour, stronger light brown setae presented mainly on tibiae, setae of tarsi dark brown. Pygidium



Figs. 1–7. Morphology of *Amphicoma* Latreille, 1807. 1–3 – habitus of male, dorsal view: 1 – *A. aureoviridis* sp. nov., holotype; 2 – *A. aureoviridis* sp. nov., paratype; 3 – *A. amaliae* Nikodým, 2005, holotype. 4–7 – paramere, lateral view: 4, 5 – *A. aureoviridis* sp. nov., holotype, left and right paramere; 6–7 – *A. amaliae* Nikodým, 2005, holotype, left and right paramere. Not to scale.

with recumbent brown setae. Ventral surface with light yellow-brown setation except for last two tergites with brown recumbent setation.

Anterior margin of labrum straight. Mandibles rounded on lateral sides, which have no teeth.

Clypeus 1.1× wider than its length, with straight anterior margin, anterior angles broadly rounded, lateral margins with raised carina except for anterior third; surface regularly punctured with strong scattered punctures. Frontoclypeal suture and longitudinal median line on head fine, but markedly visible. Punctation of frons strong and dense, punctures rarely touching.

Antenna with 10 antennomeres, antennomeres 1–4 short and stout, antennomeres 5–7 disc-shaped, trimerous club distinctly and regularly outcurved. Antennal club of male 2× longer than antennomeres 1–7.

Terminal maxillary palpomere slender and almost parallel sided.

Pronotum 1.2× wider than long, widest before middle. Anterior angles distinct and nearly rectangular, posterior angles broadly rounded. Lateral margins regularly rounded, basal margin slightly emarginate at middle. Punctation strong and dense, punctures touching irregularly, intervals shiny with scattered and distinctly smaller punctures. Dorsal surface convex with weak median depression in anterior third and posterior quarter.

Scutellum narrow and elongate, triangular with broadly rounded apex flat, with dense and strong punctures which often touching each other. Size of punctures as on head, but smaller than on pronotum.

Elytra 1.5× longer than wide (measured at the widest part, near mid-length), punctation dense, size of punctures distinctly smaller than on pronotum. In addition to punctures, the whole surface is regularly wrinkled except for posterior quarter and area along sutural margin. Sutural margins gradually raised apically, distinctly in posterior two-thirds. Sutural and posterolateral angles broadly rounded.

Protibiae on external margin distinctly bidentate with weakly visible third basal tooth, surface with regular longitudinal row of strong punctures at middle. Mesotibia with inner apical spur one third shorter than basal mesotarsomere. Surface of metafemora punctured irregularly, punctures scattered. Basal metatarsomere 1.3× longer than tibial spur of metatibia and 1.6× longer than metatarsomere 2. Metatarses with smooth dorsal surface except for metatarsomere 1 with few punctures.

Pygidium finely and sparsely punctured on entire surface, 2.2× wider than its medial length.

Paramere as in Figs. 4–5.

Sexual dimorphism. Female unknown.

Variability. The only paratype is an immature specimen with distinctly softer cuticule. Head and pronotum more golden. Elytra under golden green is upper reddish brown, antennomeres, palps and legs are dark brown to light brown as in Fig. 2.

Differential diagnosis. *Amphicoma aureoviridis* sp. nov. belongs, based on external characters, to the *A. dubia* species group, characterized by mesotibia with slender apical spur, and antennal club of male more than 1.5× longer than stalk and markedly outcurved. *A. aureoviridis* sp. nov. differs from the similar and probably closely related species *A. amaliae* Nikodým, 2005 by the following characters: clypeus narrow 1.1× wider than its length, basic elytra setation fine erected and yellow-brown, elytra regularly wrinkled except for posterior quarter and area along sutural margin, pygidium finely and sparsely punctured, parameres as in Figs. 4–5. *Amphicoma amaliae* Nikodým, 2005 with clypeus broad 1.5× wider than its length, basic elytra setation recumbent and light gray, elytra almost without wrinkles, pygidium densely and quite strongly punctured. Holotype as in Fig. 3 habitus and Figs. 6–7 paramere.

Etymology. The new species is named for the golden green coloration of its dorsal surface.

Geographic distribution. China (Sichuan).

Key to species groups of the genus *Amphicoma* (males) according to Nikodým (2005), partially modified and updated:

1 Mesotibia without distinct elongated apical spurs, these replaced by blunt and reduced growth. ..... *A. corinthia* species group
– Mesotibia with distinct, slender and elongated apical spurs. 2
2 Antennal club shorter, at most as long as antennomeres 1–7. ..... *A. abdominalis* species group
– Antennal club longer than antennomeres. 1–7 3
3 Antennal club 1.2× longer than stalk, distinctly incurved. ..... *A. florentini* species group
– antennal club at least 1.5× or often more longer than stalk, slightly or strongly outcurved (except for *A. pectinata* (Lewis, 1895) from Japan, with straight club). ..... *A. dubia* species group

Updated and modified key of *Amphicoma dubia* species group from Nikodým (2005), males only

1 Antennal club almost straight. Japan. ..... *A. pectinata* (Lewis, 1895)
– Antennal club outcurved. Species from China and Pakistan. 2
2 Body length 8–11 mm. Antennal club slightly outcurved. 3
– Body length 12–15 mm. Antennal club mostly very long and strongly outcurved. 4
3 Dorsal color mainly blue with grey setation. Antennal club yellow-red. Pronotum distinctly longer than wide, anterior angles blunt. Antennomeres 5–7 disc-shaped. Southeastern China. 8.5 mm. ..... *A. brittoni* (Endrődi, 1952)
– Dorsal color brown, green, blue or black. Antennal club dark brown. Pronotum as wide as long, anterior angles marked and rectangular. Antennomeres 6–7 disc-shaped. China (Yunnan). 9–11 mm. ..... *A. cervenkai* Nikodým, 2005
4 Antennomeres 4–7 disc-shaped. Antennal club more than 2.5× longer than stalk, strongly outcurved. China (Chongqing, Jiangxi). ..... *A. rothschildii* (Fairmaire, 1891)
– Antennomeres 5 or 6–7 disc-shaped. Antennal club 1.5–2.5× longer than stalk, weakly or strongly outcurved. 5
5 Head, pronotum and scutellum metallic green. Elytra brown with purple or metallic luster or with lateral and sutural margins also green. 6
– Dorsal surface uniformly metallic, elytra rarely lighter and uniformly metallic brown. 7
6 Head, pronotum and scutellum green. Elytra reddish brown with strong purple luster. China (Hubei). ..... *A. purpuripennis* (Petrovitz, 1972)
– Head, pronotum and scutellum metallic green. Elytra brown with green luster, lateral and sutural margins and small area around scutellum also green. China (Yunnan). ..... *A. yunnanica* (Petrovitz, 1972)
7 Terminal maxillary palpomere short and wide, 1.8× longer than wide. China (Gansu). ..... *A. fairmairei* (Semenov, 1891)
– Terminal maxillary palpomere long, 3–5× longer than wide. 8
8 Antennal club slightly outcurved, 1.5–2× longer than length of antennomeres 1–7. Dorsal surface golden green and shiny. 9
– Antennal club distinctly outcurved, more than 2× longer than length of antennomeres 1–7. Dorsal surface green, green-coppery, coppery, blue, blue-black. 10
9 Antennal club 1.5× longer than length of antennomeres 1–7. Clypeus 1.5× wider than longer. Basic elytra setation thick, recumbent and light gray, elytra almost without wrinkles. Pygidium densely and quite strongly punctured. China (Anhui). ..... *A. amaliae* Nikodým, 2005
– Antennal club 2× longer than length of antennomeres 1–7. Clypeus 1.1× wider than longer. Basic elytra setation fine, erected and yellow-brown, elytra except of posterior quarter and area along sutural margin distinctly wrinkled. Pygidium finely punctured China (Sichuan) ..... *A. aureoviridis* sp. nov.
10 Antennomeres 6–7 disc-shaped. Middle protibial teeth distinctly closer to basal teeth. China (Gansu). ..... *A. dubia* (Semenov, 1891)
– Antennomeres 5–7 disc-shaped. Protibiae with three equidistant teeth. 11
11 Labrum slightly rounded. Distance between eyes about equal to eye width. Posterior pronotal angles broadly rounded. China (Shaanxi). ..... *A. dundai* Nikodým, 2005
– Anterior margin of labrum straight. Distance between eyes 1.3× wider than eye width. Posterior pronotal angles obtuse but distinct. Species from China (Sichuan), Pakistan, Taiwan. 12
12 Labrum slightly emarginated medially. Pakistan ..... *A. gandhara* Nikodým et Sabatinelli, 2019
– Anterior margin of labrum straight. Species from China (Sichuan, Shaanxi) and Taiwan 13
13 Dorsal surface coppery green, coppery or blue. Legs reddish brown. Basal metatarsomere 1.8× longer than metatarsomere 2. China (Sichuan, Shanxi). ..... *A. schneideri* Nikodým, 2005

– Head, pronotum and basal half of elytra golden green. Legs black. Basal metatarsomere 1.4× longer than metatarsomere 2. China (Taiwan). ..... *A. lalashanensis* Li, Wang et Chen, 2011

A c k n o w l e d g e m e n t s

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