

Two New Species of the Genus *Phaedis* (Coleoptera, Tenebrionidae) from Taiwan and China

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Abstract Two new species, *Phaedis* (*Phaedis*) *quadricollis* sp. nov. from Taiwan and *P. (P.) sinensis* sp. nov. from China, are described.

In the collection of the Osaka Museum of Natural History, we found a new species belonging to the genus *Phaedis* from Pingtung, Taiwan which is closely related to Vietnamese *Phaedis elongatus* (PIC, 1926). The other new species found in the collection of the Staatliches Museum für Naturkunde is from Guangdong, China. It is very close to Taiwanese *Phaedis mushanus* MASUMOTO, 1981, but distinctly distinguishable by the condition of punctures or some other features. This is the first record of *Phaedis* from China except for a record of “*Phaedis* sp.” in the doctoral thesis of Ji-Shan XU, 2013.

Abbreviation applied in the descriptions: EL = length of elytra along midline; EW = maximum width of elytra; IE = distance between eyes; PL = length of pronotum along midline; PW = maximum width of pronotum; TD = transverse diameter of an eye in dorsal view.

Phaedis (*Phaedis*) *quadricollis* ANDO et SCHAWALLER, sp. nov.

(Figs. 1–7)

Holotype: ♂, Shouchia, Pintung, Taiwan, 1.VII.2002, M. YAGI leg. (Deposited in the Osaka museum of Natural History, Japan.)

Etymology. The specific epithet refers to the shape of pronotum.

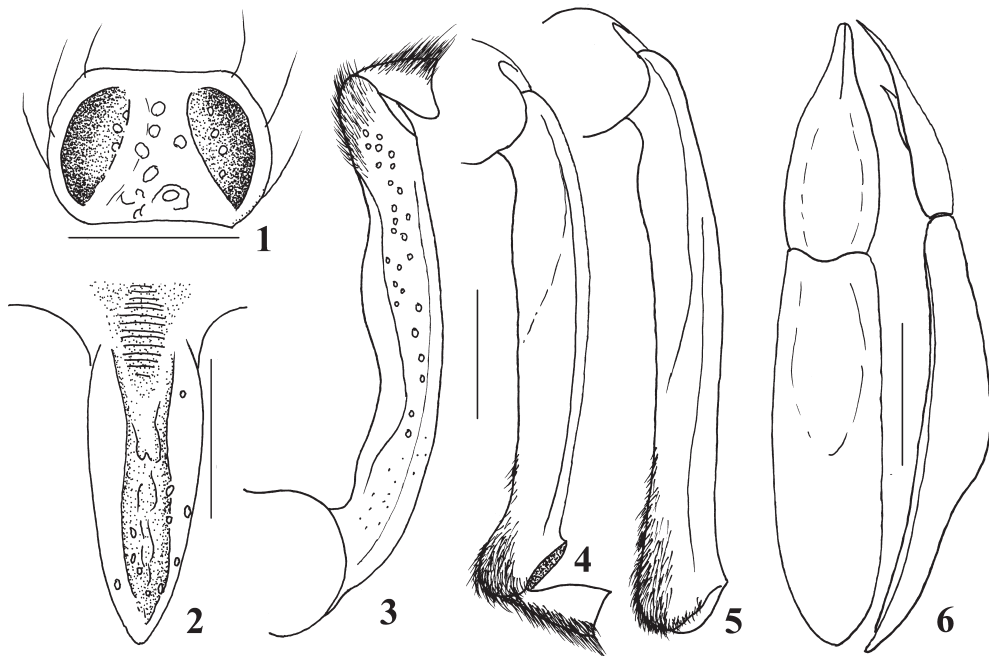
Measurements. Body length: 9.9 mm. ♂ (n=1): IE/TD = 3.16, PW/PL = 1.49, EL/EW = 1.86.

M a l e. Oblong, slightly divergent posteriad, shiny. Body dark reddish brown; mouthparts and venter reddish brown; antennae more or less infusate; head and pronotum brassy purple; elytra faint brassy, with violet-purple strial punctures.

Head transversely elliptical, weakly convex, coarsely and densely punctate; the punctures each with minute seta, those on frons somewhat oblong and larger than on clypeus; clypeus weakly convex towards middle, somewhat rugulose posteriorly, almost truncate at apex; fronto-clypeal suture distinctly depressed, bearing dense and minute punctures along the depression laterally; genae almost flat, evenly arcuate at sides; postgenae steeply constricted, sparsely punctate; frons broad, slightly sloping forwards; eyes strongly convex above and weakly produced laterad, coarsely faceted; inner ocular sulci deep and wide, reaching anterior margins of eyes. Antennae reaching before middle of pronotum; five distal antennomeres distinctly dilated, forming a gentle club. Ultimate maxillary palpomere strongly securiform, ecto-lateral margin rounded. Mentum (Fig. 1) trapezoidal, excavate in C-shape at sides.

Pronotum quadrate, widest before middle, distinctly convex, steeply sloping and finely microsculptured laterally, not sulcate but depressed along lateral margins, moderately and rather densely punctate.

*Contribution to Tenebrionidae no. 130. For no. 129 see: *Annales Zoologici*, Warszawa, vol. 65, 2015.



Figs. 1–6. *Phaedis (Phaedis) quadricollis* sp. nov. — 1, Mentum; 2, prosternal process; 3, protibia; 4, mesotibia; 5, metatibia; 6, male genitalia (dorsal in left and lateral in right). Scales: 0.25 mm for 1, 0.5 mm for 2–6 (3–6 of legs are showing by single scale bar).

tate, punctures nearly as large as on frons but not oblong; anterior margin almost straight, faintly bordered laterally near anterior corners; lateral margins vertical, weakly arcuate, scarcely sinuate before base, thinly bordered; basal margin weakly bisinuate, distinctly bordered, a little wider than anterior margin (60 : 53); anterior angles obtusely angulate, not produced, posterior angles rectangular. Scutellum depressed, impunctate and microsculptured.

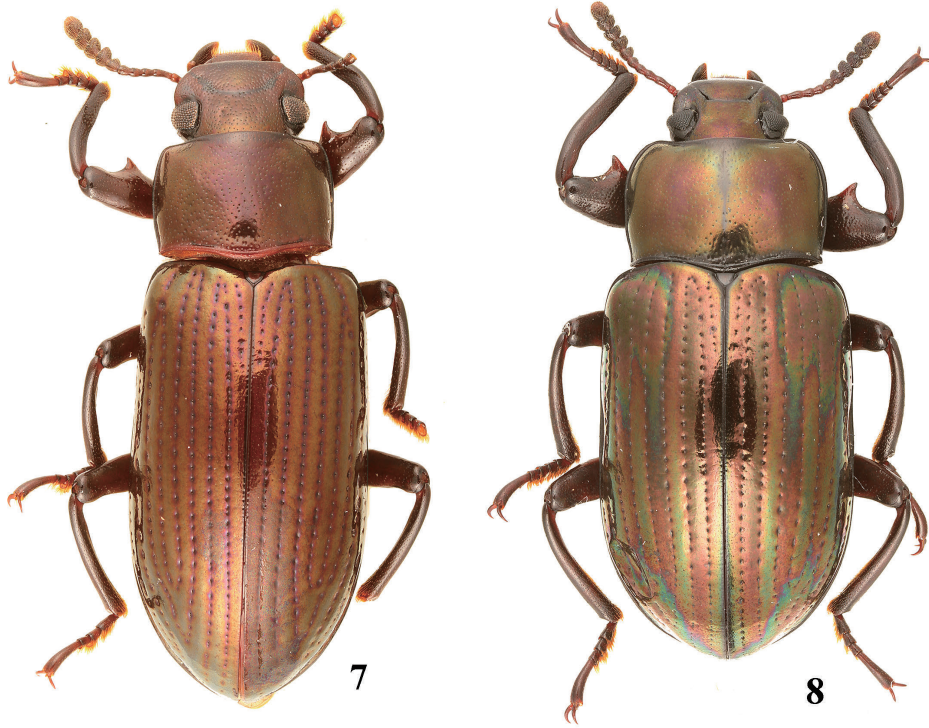
Elytra oblong, subparallel at sides and widest at apical third, weakly convex; striae fine and tenuous; stria punctures large, sparse and coarse, not even in size and in distance with each other, distinct even on apical declivity; intervals slightly convex in inner three intervals and weakly so in the rest, with minutely setigerous sparse punctures; epipleuron very weakly humped.

Hypomeron impunctate, densely covered with fine isodiametric microsculpture. Prosternum short, truncate at apex; prosternal process fusiform (Fig. 2), longitudinally sulcate in middle, curved downwards at apex. Mesoventrite with ridges entirely horizontal, anterior angles almost rectangular in lateral view. Metaventrite densely microsculptured, with sparse hair-bearing microscopic punctures.

Abdominal ventrites densely microsculptured as on metaventrite, with dense hair-bearing microscopic punctures and rugulosities in three basal ventrites; two apical ventrites finely and densely punctate.

Male genitalia elongate (Fig. 6), weakly incurved, subparallel-sided in basal piece; parameres somewhat depressed in middle, strongly constricted in apical fifth.

Legs short and robust; profemoral teeth moderate in size, curved outwards; protibiae (Fig. 3) with inner margin bisinuate, and shallowly excavate; mesotibiae (Fig. 4) depressed in basal half,



Figs. 7–8. Habitus of *Phaedis* spp. — 7, *P. (Phaedis) quadricollis* sp. nov.; 8, *P. (P.) sinensis* sp. nov.

slightly emarginate and sparsely with long pubescence in apical half, and with inner margin humped at apex; metatibiae (Fig. 5) with inner margin depressed in basal half.

F e m a l e. Unknown.

Diagnosis. The new species is similar to *Phaedis elongatus* (Pic, 1926), but readily different from the latter in the following characteristics: head more coarsely and densely punctate, with inner ocular sulci distinct, frons between eyes narrower; pronotum distinctly narrower than elytral base, widest before middle instead of apical third in the latter, more weakly rounded at sides; elytral intervals flat or slightly convex in part even in apical declivity, not rugulose, striae weakly engraved, stria punctures distinctly wider than the corresponding stria; parameres of male genitalia suddenly narrowed before apices.

***Phaedis (Phaedis) sinensis* ANDO et SCHAWALLER, sp. nov.**

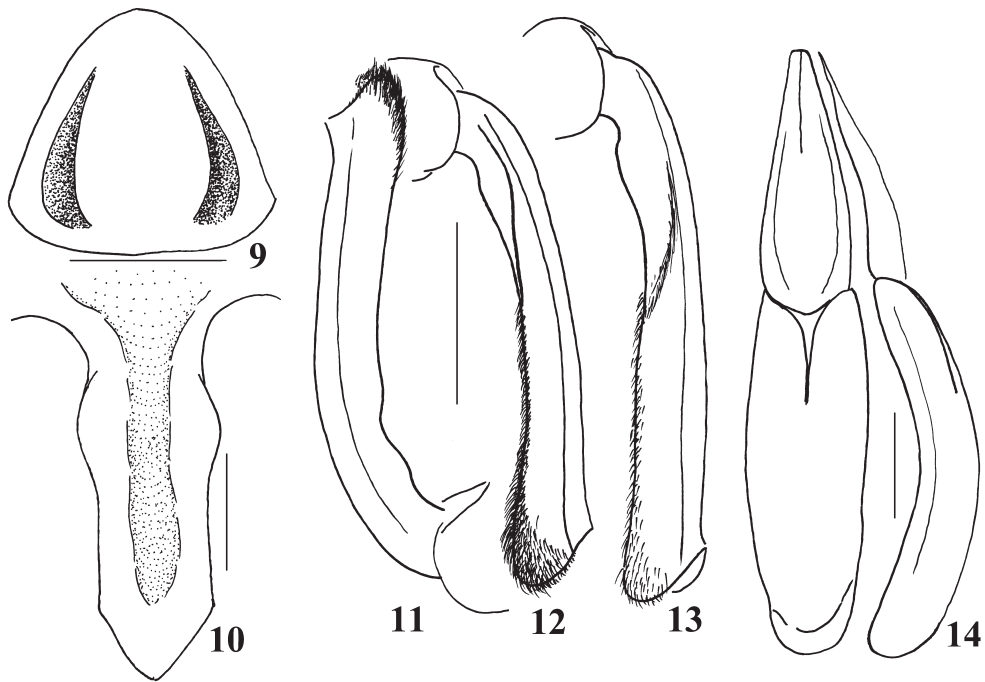
(Figs. 8–14)

Holotype: ♂, China, Guangdong prov., W of Qixing, 1–3.V.2011, Heishiding (stream; pools), (forested stream valley; at light), 23°27.9'N, 111°54.3'E, 190 m, M. FIKÁČEK & J. HÁJEK leg. (Deposited in National Museum (Natural History), Prague, Czech Republic).

Etymology. The name of new species derives from the country of type species.

Measurements. Body length: 11.8 mm. ♂ (n=1): IE/TD = 2.73, PW/PL = 1.51, EL/EW = 1.60.

M a l e. Oblong, moderately convex above, iridescent. Body dark reddish brown; head and pro-



Figs. 9–14. *Phaedis (Phaedis) sinensis* sp. nov. — 9, Mentum; 10, prosternal process; 11, protibia; 12, mesotibia; 13, metatibia; 14, male genitalia (dorsal in left and lateral in right). Scales: 0.25 mm for 9, 0.5 mm for 10 & 14, 1.0 mm for 11–13 (legs are showing by single scale bar).

notum brassy, with broad purplish hue; six basal and apical half of antennomeres lighter; legs blackish brown; elytra iridescent, reddish purple in even intervals, brassy in odd intervals, somewhat mingled with both colours in 1st interval, each elytron with a pair of basal and apical fasciae, the basal fascia occupying between 4th and 7th intervals, just contact with humeral corner, strongly dentate posteriorly at 4th, 6th and 8th intervals, the apical fascia small and oblong, contact with lateral margin and suture, dentate anteriorly at 6th and 8th intervals.

Head transversely hexagonal, uneven, slightly sinuate between clypeus and genae, with fine and setigerous punctures, which are dense in clypeus and genae, sparse in frons; clypeus moderately convex medially, depressed along posterior margin, weakly sinuate in middle of apex; fronto-clypeal suture distinct, deeply excavate laterally; genae flattened, weakly raised at sides, subparallel-sided in basal half; postgenae gently rounded, coarsely with large punctures; frons broad, strongly depressed, with longitudinal ridge along inner ocular sulci; eyes rather small, strongly reniform, distinctly convex above and produced laterad, with inner ocular sulci eminently broad and deep. Antennae reaching behind middle of pronotum; five distal antennomeres forming rather slender club; 11th conical. Ultimate maxillary palpomere rather weakly transverse, securiform. Mentum linguiform (Fig. 8), a little wider than long, longitudinally and thickly elevated in middle, deeply excavate at sides. Gula rugulose.

Pronotum quadrate, weakly convex, widest at apical third, narrowly and weakly depressed along lateral margins, with fine isodiametric microsculpture; punctures sparse and irregular, quite larger than those on head, becoming minuter and more obscure towards marginal portions; anterior margin gently and arcuately emarginate, finely bordered in each lateral third; lateral margins weakly and roundly di-

vergent forwards, slightly sinuate before base, finely bordered as on anterior margin; basal margin gently bisinuate, thickly bordered; anterior angles obtusely rounded, posterior angles rectangular, hardly produced. Scutellum wider than long, rounded at sides, almost smooth.

Elytra oblong, robust, gently divergent posteriad and widest at apical third, finely bordered at sides; striae weakly impressed and hardly engraved; striae punctures rather sparse, large and strong, becoming minuter apically but visible even in the apicalmost portions, those on 7th and 8th reaching summit of weakly humped humeral calli; intervals weakly convex, slightly strongly so in apical portions, finely and scarcely punctate; epipleuron flat, not abbreviate, with very fine microsculpture.

Hypomeron impunctate, covered with dense microsculpture. Prosternum very short, obliquely depressed in middle, impunctate, with fine microsculpture; prosternal process subparallel-sided and not adunc, suddenly convergent before apex, moderately sulcate in middle (Fig. 10). Mesoventrite distinctly carinate in middle, very finely and sparsely punctate, with V-shaped ridge which is robust, horizontal and two anterior edges rectangular in lateral view. Metaventrite gently convex, roundly and unevenly depressed on anterior process, with punctures very fine and puberulous in median major area.

Abdominal ventrites weakly convex, coarsely and densely punctate in three basal ventrites, finely so in two apical ones.

Male genitalia robust and simple (Fig. 14); parameres long, depressed dorsally, not pointed at apices, 0.63 times as long as basal piece.

Legs robust; profemoral teeth distinct, curved outwards; protibiae (Fig. 11) incurved at basal third, distinctly emarginate before base, of which venter evenly emarginate in inner half of apical two-thirds; mesotibiae (Fig. 12) gently incurved, and inner margin depressed in basal third, with dense pubescence in apical half; metatibiae (Fig. 13) weakly incurved, and inner margin distinctly depressed in basal half, with a row of pubescence in apical two-thirds; tarsi slender and simple.

F e m a l e. Unknown.

Diagnosis. This new species is very similar to Taiwanese *Phaedis mushanus* MASUMOTO, 1981, but different from the latter in the following characteristics: head with punctures fine, neither coarse nor dense, pronotum moderately arcuate at apex, slightly sinuate before base, and hardly produced at posterior angles, sparsely and obscurely punctate, with fine isodiametric microsculpture; elytral intervals finely and scarcely punctate; inner margins of protibiae distinctly emarginate before base, and elytral iridescent fasciae different in shape.

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要 約

安藤清志・Wolfgang SCHAWALLER：台湾と中国産カタビロキマワリモドキ属(鞘翅目ゴミムシダマシ科)の2新種。——— 大阪市立自然史博物館および国立シュトゥットガルト自然史博物館に所蔵されていた標本中に本属の2新種を発見し、*Phaedis (Phaedis) quadricollis* sp. nov., および *P. (P.) sinensis* sp. nov. と命名記載

した。中国産の *P. (P.) sinensis* sp. nov. は MASUMOTO (1981) が記載した台湾産 *P. mushanus* にきわめて類似するが、幾つかの相違点を確認され、別種とした。

References

- MASUMOTO, K., 1981. Tenebrionidae of Formosa II. *Elytra, Tokyo*, **9**: 15–52.
XU J.-S., 2013. Fauna and distribution of the darkling beetles from Yunnan (Coleoptera: Tenebrionidea). A dissertation for the degree of D. Science, Hebei University. i–xiii + 1–273.

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