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A new *Dicheirotrichus* DUV. and a new *Harpalus* LATR. (Coleoptera, Carabidae) from Sichuan, China

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Abstract: Two new species of the tribe Harpalini, *Dicheirotrichus* (*Trichocellus*) *sichuanensis* spec. nov., closely related to *D. tenuimanus* BATES, and *Harpalus giacomazzo* spec. nov., belonging to the *H. anxius* group (both from Sichuan, China), are described.

Key words: Coleoptera, Carabidae, *Dicheirotrichus*, *Trichocellus*, *Harpalus*, *H. anxius* group, new species, China, Sichuan.

Material, Acknowledgment and Methods

ZISP Zoological Institut, Russian Academy of Science, Saint Petersburg, Russia (Dr. B.M. Kataev)

cSCI Coll. R. Sciaky, Milano, Italia

cWR Coll. D.W. Wrase, Berlin, Germany

We are pleased to express appreciation to Dr. E. Giacomazzo, who has collected part of the interesting material mentioned in this article, to Dr. R. Sciaky, who kindly made it possible to study these specimens. We are indebted to Dr. P. Cate (Vienna) for his valuable comments on the manuscript.

The measurements are the same as described previously (KATAEV & WRASE 1995).

Results

Dicheirotrichus (*Trichocellus*) *sichuanensis* spec. nov.

(Figs. 1-4)

Type material:

Holotype ♂: China, Sichuan, 30 km E Yajang, road to Batang, 3100-3500 m, 20.IV.1992, E. Giacomazzo leg. (cWR). **Paratypes:** 1♂, same data as the holotype (cSCI); 1♂: Eriang Shan, East of pass, 1500 m, 25.VII.1992, E. Giacomazzo leg. (ZISP); 1♀: 10 km S Litang, 4000 m, 9.VII.1992, E. Giacomazzo leg. (cSCI); 1♂: Abaco-Barkam, 4000 m, VII 1994, Häckel leg. (cSCI); 1♀: road Litang-Yajiang, pass 20 km W Yajiang, 3200-3500 m, alp. reg./Picea for., 24.VII.1994, Báláb leg. (cSCI); 2♀, env. Da-tzan-lu [=Kanding], 16.IV.1893, G. Potanin leg. (ZISP, cWR); 1♀, valley of the Tun River, 14.IV.1893, G. Potanin leg. (ZISP).

Description :

Body length 4.4-5.0 mm, width 3.8-4.4 mm (in holotype 4.5 and 3.9 mm, respectively).

Body dark brown to black, shiny, with slight green tinge; mandibles, head behind the eyes, outer margins of pronotum and elytra, humeri, elytral epipleura apically and elytral suture paler (as usual in black species). All appendages yellow, but in most specimens antennae from 2nd segment and palpi slightly infuscated.

Habitus fig. 1.

Dorsal surface with coarse punctation and short brown hairs throughout.

Head comparatively large, 0.79-0.86 times as wide as pronotum, with moderately convex eyes. Antennae extending to one fifth of elytra, their middle segments approximately 1.5-1.7 times longer than wide. Punctation on the middle part of clypeus and in the vertex much sparser than that on other parts of head.

Pronotum comparatively small, moderately convex, 1.30-1.40 (mean 1.36) times as wide as long, widest in the anterior third, narrowed to the base; its sides rounded anteriorly, straight or weakly sinuate before the obtuse hind angles, which are sharp at tip. Anterior angles not protruding, obtuse; anterior margin slightly concave; base rounded medially, notably oblique laterally. Lateral flattened areas distinct, widened to the base and fused there with the rather deep basal foveae. Punctation on disc irregular, sparser and faintly finer in central part than along the margins; coarsest punctures in basal foveae.

Elytra moderately convex, 1.51-1.55 (mean 1.53) times as long as wide and 2.95-3.25 (mean 3.10) times as long as pronotum, slightly widened posteriorly; their maximum width behind the middle. Sides with weak sinuation in anterior half, evenly rounded in posterior half; preapical sinuation distinct but not deep; sutural angles rounded at tip. Striae not deep, impunctate; intervals flat, with rather coarse punctures arranged mainly in 2 irregular rows (in some areas only in 1 row); all punctures bearing short inclined brown hairs. 3rd interval in apical third with one discal pore, situated near 2nd stria; the posterior group of marginal row consisting of 8 (rarely 7) setigerous pores.

Dorsal surface almost completely without microsculpture, distinct isodiametric meshes developed only on labrum; sometimes indistinct isodiametric meshes also present on the extreme margins of elytra near apex.

Metepisterna (Fig. 2) strongly narrowed posteriorly, comparatively long, their length along the inner margin much greater than width along the anterior margin. Wings fully developed. Fore tarsi of male scarcely dilated: 2nd segment slightly longer than wide, 3rd approximately as long as wide; all dilated segments carry two rows of scale-like adhesive hairs underneath.

Median lobe (Figs. 3-4) arcuate, with a constriction laterally behind the middle; terminal lamella very short, acute at apex and slightly curved dorsally. Internal sac without sclerotized elements; basal folding structure covered with microscopic oval scales.

Variation:

Specimens collected by G. Potanin possess comparatively shorter elytra (length of elytra/length of pronotum = 2.95-3.03; in other specimens, this index = 3.03-3.25) and the colour of the body is paler.

Comparisons:

The presence of only one discal pore on 3rd elytral interval suggests that *D. sichuanensis* spec. nov. belongs to the subgenus *Trichocellus* GANGLBAUER. In habitus, this species is very similar to *D. tenuimanus* BATES. In addition, the males of both species have scarcely dilated fore tarsi and similar genitalia. However, the new species is easily distinguished from *D. tenuimanus* by much coarser and sparser dorsal punctation and comparatively narrower median lobe. In *D. tenuimanus* the punctation is finer and denser; in particular, the punctures on elytral intervals are arranged in 2-3 irregular rows.

Discussion:

D. sichuanensis spec. nov. is probably the geographical vicariant species of *D. tenuimanus*, which is known from the Russian Far East, Korea, East China and Japan. The latter species consists of two subspecies: *D. tenuimanus tenuimanus* BATES, living on the islands of E Asien (Japan, Sakhalin and S Kurils), and *D. tenuimanus amplipennis* BATES from the E Asian mainland, differing from one another mainly by the proportions and colour of the body. It is interesting to note that concerning these characters *D. sichuanensis* spec. nov. is more similar to the nominotypical subspecies than to the subspecies *amplipennis*. Further investigations with more material from other regions in China could show that *D. sichuanensis* spec. nov. forms only a subspecies of *D. tenuimanus*.

Distribution:

Known only from Sichuan, China.

Etymology:

Named in reference to the geographical distribution.

***Harpalus giacomazzo* spec. nov.**

(Figs. 5-11)

Type material:

Holotype ♂: China, Sichuan, road Litang-Batang, 50 km E Batang, 14.-16.VII.1992, E. Giacomazzo leg. (cWR). **Paratypes:** 1 ♂, same data as the holotype (cSCI); 1 ♂, 1 ♀: Batang, 2500 m, 15.VII.1992, E. Giacomazzo leg. (cSCI, ZISP).

Description:

In specimens from „road Litang-Batang“ body length 8.4 (HT) -8.8 mm, width 3.6 (HT) -3.7 mm, in specimens from Batang 10.2-10.6 and 4.4-4.6 mm, respectively.

Body black, without any metallic tinge, shining in the male, mat in the female; palpi and antennae brownish yellow; femora black, tibiae dark brown to black, tarsi usually paler.

Habitus fig. 5.

Head normal, 0.59-0.62 times as wide as pronotum, with moderately convex eyes. Mentum with distinct tooth.

Pronotum (Figs 5, 6) moderately convex, 1.48-1.54 times as wide as long, widest in or just behind the middle, slightly widened posteriorly (more clearly in specimens from Batang), more or less evenly rounded at sides. Anterior margin with distinct, but not deep emargination; anterior angles weakly protruding, rounded at tip. Hind margin bilaterally concave; hind angles obtuse, clearly rounded at tip, faintly protruding backward in form of broad lobes. Pronotal base approximately as wide as or slightly narrower than elytral base. Basal foveae of pronotum small, longitudinal; oblique lateral depressions weakly developed, strongly widened from the single lateral pore to base. Dorsum entirely impunctate; basal edge not ciliate.

Elytra oval, evenly rounded at sides, widest approximately in the middle, 1.36-1.40 times as long as wide, 2.33-2.46 (2.33-2.38 in the males, 2.46 in the females) times longer and 1.11-1.16 times wider than pronotum. Humeri angulate, with a small acute tooth; basal edge slightly sinuate, meeting the lateral margin in an obtuse angle, sharp at tip. Preapical sinuation weak in both sexes, without any denticle at its base; sutural angle blunt at tip in the male, extending slightly backward forming a small acute tooth in the female. Scutellar stria with basal pore; 3rd interval in apical fifth with 1 discal pore, situated near 2nd stria; 5th and 7th intervals without rows of pores before apex. Striae smooth, very faintly impressed before apex; intervals flat, impunctate and not pubescent. Brachypterous, wings reduced to scale extending only to 0.50-0.75 of elytra.

Upper surface of head, pronotum and elytra with distinct microsculpture consisting of isodiametric meshes, almost granulate on elytra of the female.

Metepisterna (Figs 7, 8) notably narrowed posteriorly, short, their length along inner margin approximately equal to width along anterior margin. 2 penultimate sternites smooth and bare, only with the 2 obligatory setae. Apex of anal sternite without pronounced sexual dimorphism. Outer distal margin of fore tibia with 3 spines (4 spines on right tibia of one female) isolated from spines on lower surface; ventroapical tubercle of fore tibia with 1 spine at apex. Hind femur with 4-6 setigerous pores along hind margin and with 3-4 pores near anterior margin. Hind coxae with one or a few small additional pores medially. Hind tarsi comparatively long and narrow, first segment of hind tarsi approximately 3.5 times as long as wide at its apical part; tarsi dorsally impunctate and not pubescent.

Median lobe of male genital (Figs. 9-11) moderately arcuate, with ostium shifted leftwards; terminal lamella clearly widened apically, with an oblique horseshoe-like apical capitulum. Armature of internal sac consisting of a large longitudinal spiny patch at the left side in the apical half and a small spiny patch at the right side in the middle; internal sac of the medianlobe in the male from Batang also possessing 2 small individual teeth at the right side in the apical half (Fig. 11).

Comparisons:

H. giacomazzo spec. nov. should be included within the *H. anxius* group (KATAEV 1989: 248). This opinion is based on external characters of this species (impunctate base of pronotum with basal edge not ciliate, bare abdominal sternites, ventroapical tubercle of the fore tibia with 1 spine at apex, outer distal margin of fore tibia with 3-4 spines, apex of analsternite without pronounced sexual dimorphism), and particularly on structure of the internal sac of its median lobe with a large longitudinal spiny patch on the left side. Within the group, specimens of the new species are easily recognized by the combination of the following characters: large body size, pronotum rounded at sides, with maximum width approximately on the middle and with hind angles rounded at tip, short metepisterna and the internal sac of the median lobe with a peculiar pattern of armature. The lack of individual teeth in the internal sac in some males of this species can be considered an unique feature among members of the *H. anxius* group.

Superficially, primarily in shape of pronotum and short metepisterna, *H. giacomazzo* spec. nov. is most similar to *H. taciturnus* DEJ. from SE Europe and to some populations of *H. amarellus* BATES (= *H. confinalis* ANDR.) from Pakistan, E Afghanistan and N India, but different from them, in addition to the characters of the male genitalia, by the hind coxae with additional pores and a larger body size.

Note: The specimens from Batang and those from „Road Litang-Batang“ seem to belong to two morphologically recognizable populations as they differ from each other by body size, shape of pronotum and armature of internal sac of the median lobe. Further material will prove if these differences are constant.

Distribution:

Known only from Sichuan, China. The geographical range of this species seems to be allopatric with the ranges of the other species of the *H. anxius* group.

Etymology:

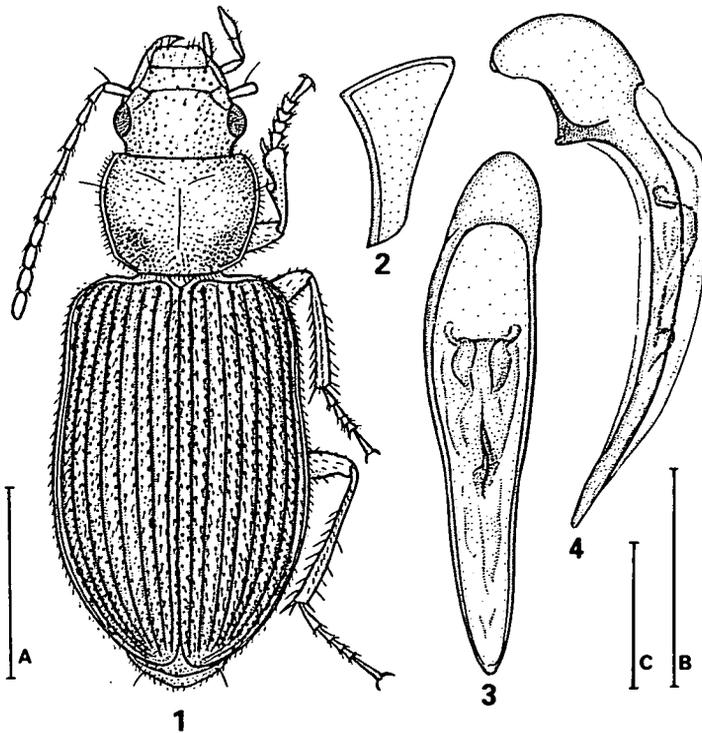
Named after our colleague, the Italian entomologist E. Giacomazzo, who collected the type series of this species (together with some specimens of *Dicheirotrichus sichuanensis* spec. nov.).

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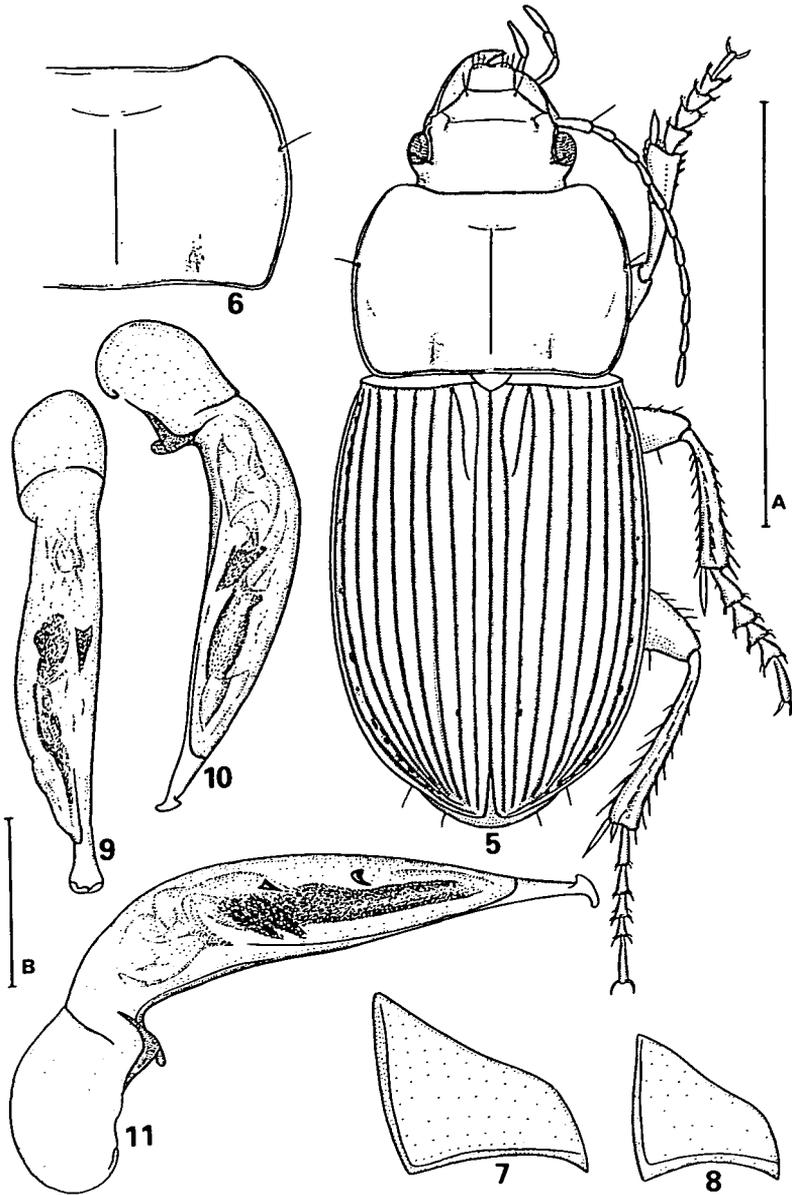
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Figs. 1-4: *Dicheirotichus sichuanensis* spec. nov. (HT). 1: Habitus. 2: Left metepisternum. 3, 4: Median lobe, dorsal and lateral aspects. Scale bar: A = 1 mm (Fig. 1), B = 0.5 mm (Figs. 3, 4), C = 0.5 mm (Fig. 2).



Figs. 5-11: *Harpalus giacomazzoi* spec. nov. 5: Habitus. 6: Right part of pronotum. 7-8: Left metepisternum. 9-11: Median lobe, dorsal and lateral aspects. 5,8-10: HT, 11: PT (Batang). 6, 7: PT (female, Batang). Scale bar: A = 0.5 mm (Figs. 5, 6), B = 1 mm (Figs. 7-11).

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