

A new apterous and microphthalmic species of *Anemadus* (Coleoptera: Leiodidae: Cholevinae) from China

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A new apterous and microphthalmic species of *Anemadus* (Coleoptera: Leiodidae: Cholevinae) from China. - *Anemadus smetanai* sp. n. is described from China, Yunnan province. Its diagnostic characters including male and female genitalia are illustrated. The species differs from all other species of *Anemadus* Reitter, 1885 by microphthalmy, absence of metathoracic wings, elytra coalescent and coined with scutellum, ventrites with a pair of antero-lateral processes and female sternum VIII with concave spiculum ventrale.

Key-words: Taxonomy - Coleoptera - Leiodidae - Cholevinae - *Anemadus* - China - Yunnan province.

INTRODUCTION

The genus *Anemadus* Reitter, 1885 is the largest genus of the tribe *Anemadini* Hatch, 1928 (sensu NEWTON & THAYER 1992). The genus was reviewed by GIACHINO & VILATI (1993) with 28 valid species recognized, distributed from central and southern Europe, Turkey, Middle East, Iran to Pakistan and northern India. Later, a further species was described from China, Sichuan province (PERREAU 1996a), and two species were described from Taiwan and Japan (PERREAU 1996b).

In this paper, a new species of this genus (collected recently by Aleš Smetana in China) is described. It has several remarkable characters absent from other *Anemadini*, but known from endogenous and cavernicolous taxa.

The following abbreviations are used throughout the text: JRUC - collection of Jan Ružička, Praha; MHNG - Muséum d'histoire naturelle, Genève. Exact label data are cited for type material, separate lines are indicated by “/”, separate labels by “//”. The code in brackets, attached to locality data, refers to the habitat notes in the field book of the collector.

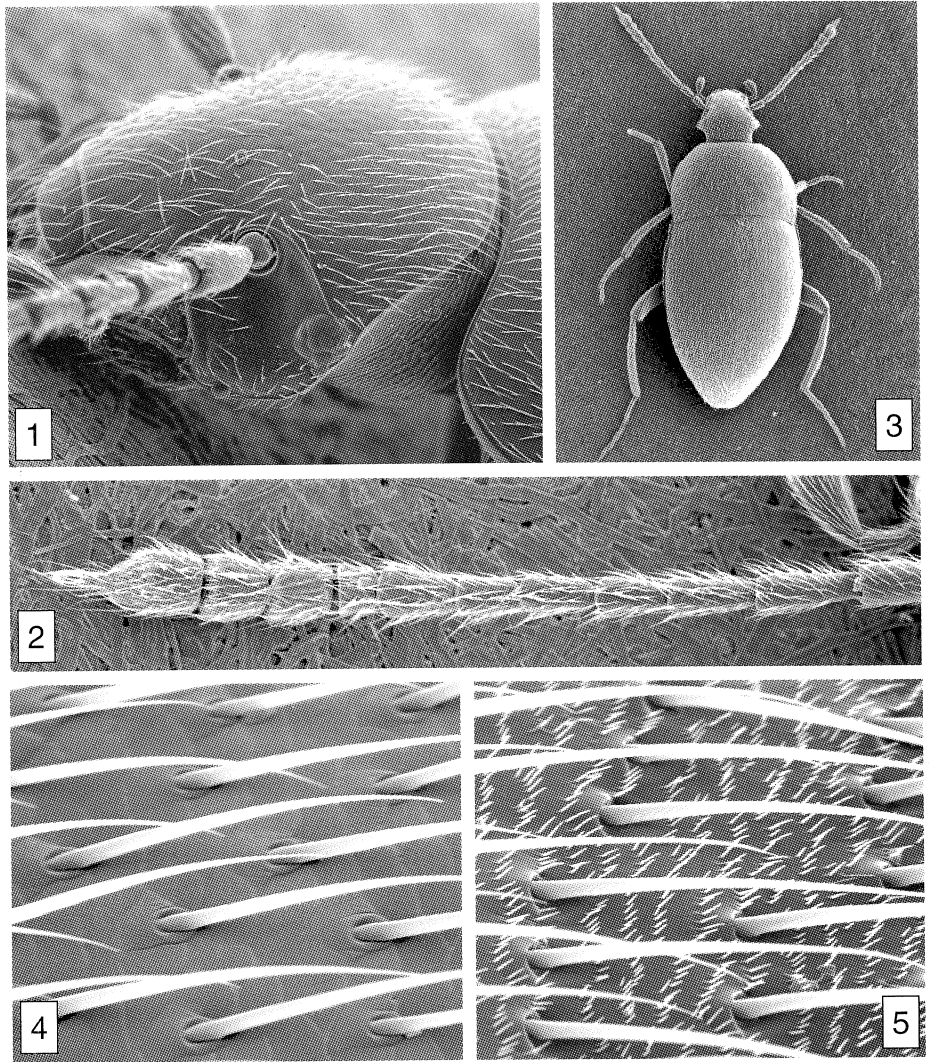
Anemadus smetanai sp. n.

Figs 1-13

MATERIAL EXAMINED. Holotype (♂), allotype (♀) and 3 paratypes (1 ♂, 2 ♀♀), labelled: “CHINA N Yunnan [prov.], Xue / Shan [mts] nr. Zhongdian / 3900m 25.VI.1996 / 27°49N 99°34E C41 // collected by / A. Smetana, J. Farkač / and P. Kabátek”; 1 paratype (♀): ditto, but “4050m, 24.VI.1996, C39”. Holotype is deposited in MHNG, allotype and paratypes in JRUC.

ETYMOLOGY. The new species is named after its collector, Aleš Smetana from Ottawa.

DESCRIPTION. *Male*. Body elongate, rust-brown, body length 2.45 mm and 2.70 mm (holotype), maximum body width 1.20 mm and 1.25 mm (holotype). Dorsum continually covered with short, recumbent, yellow setation.



FIGS 1-5

Anemadus smetanai sp. n., female paratype. 1: head laterally; 2: left antenna dorsally; 3: habitus dorsally; 4: setation of pronotum dorso-laterally; 5: setation and microsculpture of elytra dorso-laterally.

Head 1.05 and 1.07 times as long as wide. Surface smooth, without distinct microsculpture (under 50x magnification), covered by fine, regularly distributed punctures, separated by 2-4 times of their diameter. Eye reduced to cluster of about 10 facets (Fig. 1). Clypeo-frontal suture distinctly developed. Clypeus transverse, trapezoidal.

Antenna (Fig. 2) elongated, 1.17 times as long as maximum pronotal width. Proportions of antennomeres in holotype (I to XI, length x maximum width): 24 x 9, 22 x 8, 20 x 7, 14 x 7, 16 x 7, 13 x 8, 14 x 10, 8 x 9, 13 x 11, 12 x 12 and 23 x 13.

Pronotum 1.60 times as wide as long, widest behind the mid-length, 1.95 times as wide as head. Lateral margin regularly rounded, posterior angles acute, produced posteriorly. Posterior margin regularly concave. Pronotal surface regularly convex, with a pair of weak, postero-lateral impressions (Fig. 3). Pronotal surface covered by distinct transverse microsculpture; intermixed granulate punctures arranged as dense as on head, but more superficially (Fig. 4).

Elytra oval, with slender, elongate apex. Elytra 1.45 and 1.49 times as long as maximum width, 2.50 and 2.52 times as long as pronotum and 1.07 times as wide as pronotum. Elytra coalescent, coined also with scutellum (Fig. 13). Each elytron apically rounded. Elytral surface with distinct transverse microsculpture. Punctures granulate, arranged into transverse, irregular rows (elytral type "a" in GIACHINO & VAILATI 1993; Fig. 5). Sutural stria absent. Large intermixed punctures, arranged into 8 irregular, longitudinal rows visible in elytron immersed to glycerine (not perceptible in dry mounted specimens). Metathoracic wings absent.

Protibia slender, gradually expanded toward apex. Protarsus slightly expanded, basiprotarsomere as wide as maximum protibial width. Mesotibia slightly curved, two basal mesotarsomeres expanded. Metatibia almost straight, 1.35 times as long as metatarsus, metatibia 0.77 and 0.78 times as long as maximum combined elytral width.

Mesosternal carina low, mesopraesternum posteriorly with sharp angle in lateral view. Metatergal apparatus reduced (Fig. 13). Metendosternite reduced, anterior part widely emarginate, posterior part shortened (Fig. 10). Ventrites IV to VII with sub-lateral part isolated by distinctly developed apodeme, antero-laterally present prominent process, tucked under posterior part of previous ventrite (as on Fig. 12).

Genital segment as on Fig. 8. Aedeagus regularly narrowed toward tip with elongate, subtruncate apex (Fig. 6). Internal sac with a pair of lateral rows, composed by sclerotized spines of different size and shape, medial part covered only by very minute toothlets, arranged in regular pattern (Fig. 6). Paramere constricted subapically, apex incurvate, bearing three large and one minute seta on inner margin (Fig. 7).

Female. Body length 2.75-3.05 mm (mean 2.92 mm in 4 specimens; for the same number of specimens given all means below), maximum body width 1.15-1.35 mm (mean 1.25 mm). Similar to the male, but body more robust, appendages less prolonged (Fig. 3).

Head 1.01-1.10 times as long as wide (mean 1.05). Antenna 1.06-1.12 times as long as maximum pronotal width. Proportions of antennomeres in one paratype (I to XI, length x maximum width): 26 x 9, 22 x 8, 18 x 4, 15 x 8, 16 x 7, 12 x 8, 16 x 11, 8 x 10, 13 x 12, 12 x 13 and 25 x 13.

Pronotum 1.61-1.73 times as wide as long (mean 1.65), 1.87-2.00 times as wide as head (mean 1.94).

Elytra 1.44-1.51 times as long as maximum width (mean 1.46), 2.60-2.70 times as long as pronotum (mean 2.65) and 1.08-1.12 times as wide as pronotum (mean 1.10).

Pro- and mesotarsomeres not expanded. Metatibia 1.25-1.29 times as long as metatarsus, 0.67-0.71 times as long as maximum combined elytral width (mean 0.69).

Ventrites IV to VII with similar sublateral apodeme and antero-lateral process as in males. Ventricle VIII with elongate spiculum ventrale with anterior margin only weakly sclerotized, distinctly concave (Fig. 9).

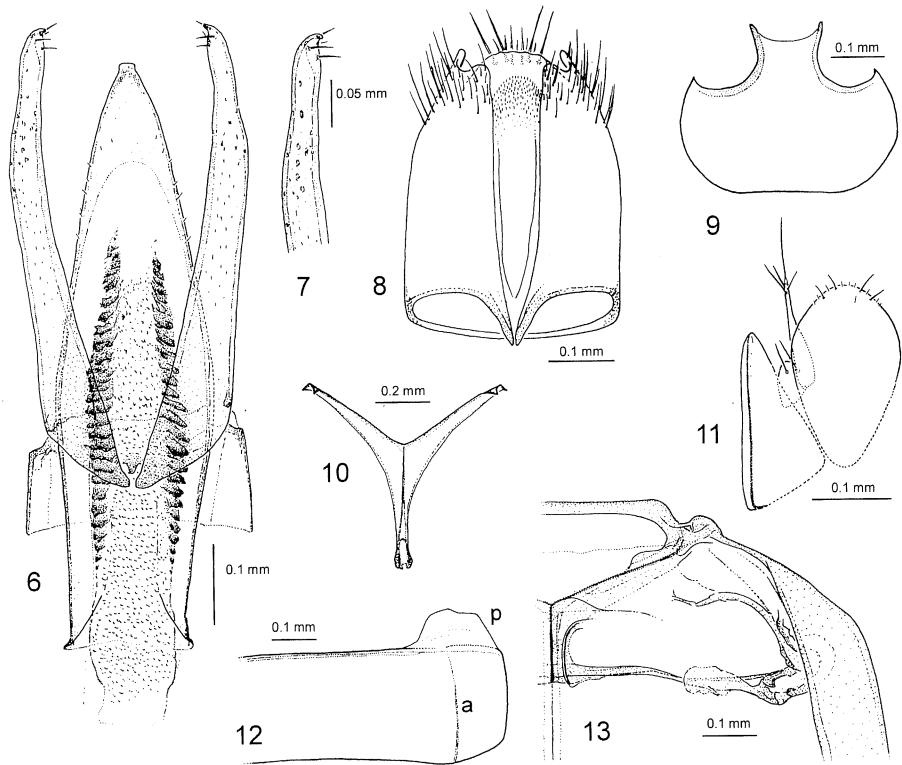
Tergum IX with lateral sclerotized line; apically with a single, minute seta; anterior and medial margin only weakly sclerotized. Tergum X ovoid, only weakly sclerotized anteriorly; posterior margin with two pairs of larger setae and several minute ones. Coxite small, subtriangular, bearing a single seta. Stylus elongate, with one basal, three subapical and one large, apical seta (Fig. 11).

AFFINITIES. *Anemadus smetanai* sp. n. belongs to the genus *Anemadus* Reitter, 1885 (sensu GIACHINO & VAILATI 1993) having the internal sac of aedeagus with two longitudinal rows of spines and lacking the medial dent.

The new species clearly differs from all other species of this genus by the following set of characters: (a) microphthalmy (Fig. 1; eyes fully developed in other species of *Anemadus*); (b) absence of metathoracic wings, combined with elytra coalescent and coined also with scutellum (Fig. 13; metathoracic wings fully developed, elytra not coalescent in other species of *Anemadus*); (c) ventrites with a pair of antero-lateral processes (Fig. 12; such processes are lacking in other species of *Anemadus*); (d) ventrite VIII with spiculum ventrale concave in females (Fig. 9; ventrite VIII with spiculum ventrale convex in other species of *Anemadus*).

GIACHINO & VAILATI (1993) proposed several species groups in *Anemadus*, based mainly on the shape of the aedeagus, the spine pattern of the internal sac and the type of elytral microsculpture. Presently, it is impossible to place *A. smetanai* sp. n. to any of these species groups, because the characters of the aedeagus differ from those in other groups of *Anemadus*. The new species lacks basal enlarged spines and possesses two lateral, longitudinal rows of larger spines of the internal sac, a similar shape of the apex of the aedeagus and elytra with microsculpture of the type "a" (according to GIACHINO & VAILATI 1993) similarly as in members of the *A. strigosus* (Kraatz, 1852) species group (*A. strigosus*, *A. bianchii* Reitter, 1906 and *A. arcadius* Reitter, 1885, from Europe and Asia Minor). However, in *A. smetanai* sp. n., the spines of the internal sac are generally much more larger (minute and more homogenous in species of the *A. strigosus* group). Furthermore, *A. smetanai* sp. n. differs in the shape of apex of the parameres which are distinctly incurvate (always distinctly turned outwards in members of the *A. strigosus* species group).

Two of the three other recently described species of *Anemadus* from China, Taiwan and Japan were not placed in any species group (PERREAU 1996a, b). Furthermore, other species of this genus are currently described from China (M. Perreau, pers. comm.). Consequently, I presently refrain from defining a new species group for *A. smetanai* sp. n.



FIGS 6-13

Anemadus smetanai sp. n. 6: aedeagus dorsally; 7: apex of left paramera dorsally; 8: male genital segment ventrally; 9: female ventrite VIII ventrally; 10: female metendosternite postero-dorsally; 11: female genitalia dorsally; 12: lateral part of female ventrite V ventro-laterally, a - apodeme, p - antero-lateral process; 13: female metatergal apparatus, basal part of left elytron and scutellum ventrally.

The isolated position of *A. smetanai* sp. n. may be strongly influenced by the life of the species in the montane deep litter conditions. Similar changes in external morphology (reduction of eyes, coalescent elytra and/or reduction to loss of metathoracic wings) are known also in other edaphophile species of Cholevinae, e.g. *Choleva leucoptalma* Fiori, 1899 (SOKOLOWSKI 1941), several species of *Ptomaphagus* (*Adelops* Tellkampff, 1844) (PECK 1973, 1977, 1978a, PECK & GNASPINI 1997) and all species of *Ptomaphagus* (*Appadelopsis* Gnaspini, 1996) (PECK 1978b). However, *A. smetanai* sp. n. is the first such known case in *Anemadini* (sensu NEWTON & THAYER 1992).

BIONOMICS. Most of the specimens was sifted from deep layers of rotten leaves and detritus in montane primary forest (with dominant *Abies*, *Betula*, *Carpinus* and *Rhododendron* spp.), a single specimen was sifted from layers of moss, rotting bark and humus under it on a huge fallen fir (*Abies* sp.) in an primary high montane forest with dominant *Abies* and tree-like *Rhododendron* spp. (A. Smetana, pers. comm.).

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