Coarazuphium pains, a new species of troglobitic beetle from Brazil (Coleoptera: Carabidae: Zuphiini)

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Abstract

Coarazuphium pains sp. n., a troglobitic Carabidae, is described and illustrated from a male specimen collected in the Tabocas III cave, at Pains, Minas Gerais, Brazil. This species, like C. bezerra, differs from the remaining species of the genus Coarazuphium by having two pairs of setae close to the posterior margin of the head, and differs from all others by having two pairs of setae at the ventral surface of the protorax and by having the apex of the elytra not sinuous.

Keywords: Coleoptera, Carabidae, Zuphiini, Coarazuphium, Cave, Brazil.

Introduction

The carabid tribe Zuphiini is currently represented by six genera in the Neotropical region: Zuphium Latreille, 1806, Pseudaptinus Castelnau, 1835, Thalpium LeConte, Metaxidius Chaudoir, 1852, Mischocephalus Chaudoir, 1862, 1851, and Coarazuphium Gnaspini et al., 1998. The former five were known since the revision made by Reichardt (1977). The latter one was proposed by Gnaspini et al. (1998) to include the troglobiotic species C. cessaima Gnaspini et al., 1998, C. bezerra Gnaspini et al., 1998, and C. tessai (Godoy & Vanin, 1990). According to Gnaspini et al. (1998), the genus Coarazuphium shares some characters with Zuphium, world wide distributed, and with Parazuphium, with no species in the New World, but differs from them by the relative size of the first segment of the antenna (shorter than the segments 2-4 together), and because its species have the margins of the head rounded and a pair of setae laterally (and not anteriorly) to the eyes. Another important character in the genus Coarazuphium is the marked reduction of the eyes and pigmentation, and also the elongation of the legs and antenna (Gnaspini et al., 1998). These characters are typically presented by troglobitic carabids (Casale et al., 1998) and are considered to be evolutionary responses from these beetles to the cave environment.

So far specimens of Coarazuphium have been found only in some caves from the Bambuí speleological province: C. tessai, in the Gruta do Padre, at Santana municipality; C. cessaima, in the Lapa do Bode, at the Itaetê municipality, both in Bahia state, and C. bezerra, in the Lapa do Bezerra, at São Domingos municipality, Goiás state. Herein we describe Coarazuphium pains sp. n., found in a limestone cave in the region of Pains, Minas Gerais, also included in the Bambuí speleological province.

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Figs. 1-6 - Coaracophium païns sp. n., male holotype. 1, habitus; 2, head and pronotum, lateral view; 3, pronotum, ventral view; 4-6, aedeagus, left lateral view, dorsal view and right lateral view, respectively.
of metatibia. Protibia 1.37 times longer than tarsus. Meso- and metatibia almost equal to tarsus. First segment of anterior tarsus shorter than segments 2-4 together (0.68). First segment of medium and posterior tarsus almost equal to length of the segments 2-4. Protibia and tarsus, together, 1.86 times, mesotibia and tarsus, 1.99 times, and metatibia and tarsus, 2.79 times longer than pronotum. Elytra free (Fig. 1), 1.70 times longer than wide. Maximum width at about one third from apex, 2.67 times longer than pronotum. Apex of elytra straight, not sinuous. Seven large setae in each elytron: 3 close to the anterior angle, 2 marginal, in posterior half, and 2 in posterior margin. Shorter setae located along lateral margin of elytra. Posterior wings absent. Abdominal sternum 1-5 glabrous, sixth sternum with a pair of setae close to its posterior margin. Aedeagus (Figs. 4-6) curved and elongated. Left paramere about two times longer than wide. Right paramere curved and elongated. Female. Unknown.


Etymology. "pains" refers to the municipality of Pains, where the type specimen was collected.

Ecological considerations. The only individual collected was found on a dry stalagmitic floor full of concretionary mortar. In its median portion. Vessel matter penetrates through these communications in the rainy seasons. The cave presents two different climatic systems, its community depends mainly on the organic matter imported from the epigean habitat by getal matter penetrates through these communications in the most internal system.

Discussion

One of the characters pointed by Gnaspini et al. (1998) to differentiate the genus Coarazuphium from the genera Parazuphium and Zuphium is the aspect of the posterior margin of the elytra (sinuous in the former and truncated in the latter two), which must be reconsidered, since C. pains has such margin not sinuous. All the remaining characters are consistent with the description of the genus Coarazuphium.

Coarazuphium pains, as C. bezerra, differs from the remaining species of the genus by having two pairs of setae (and not a single one) close to the posterior margin of the head, and C. pains differs from C. bezerra by having the body more elongate and the head narrower than the pronotum, and differs from all other species by having two pairs of setae at ventral surface of the protorax and by having the apex of the elytra not sinuous.

The troglomorphism shown by the species of the genus Coarazuphium is considered one of the most evident among the cave beetles from Brazil (Gnaspini & Trajano, 1994). Gnaspini et al. (1998) suggest that C. cessaima is the species most derived in the genus regarding such troglomorphisms, because it has total absence of eyes and more elongated body and appendages. Coarazuphium pains, however, seems to present a condition of body and appendices elongation intermediate between C. cessaima and the remaining species of the genus. The eyes, however, are larger than those of all other species, which can be considered an eventual plesiomorphic trait in this species. However, only with the intensification of morphological, ecological, and molecular studies, will be possible to infer about the phylogenetic relationship among the species in this genus, as so their evolution in the subterraneous environment.

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References


