

# Crenilaceanus andinus new genus and species of Chaetarthriinae (Coleoptera: Hydrophilidae) from the Venezuelan Andes

## Abstract

Crenilaceanus andinus new genus and species of Chaetarthriinae (Coleoptera: Hydrophilidae) from the Venezuelan Andes. Crenilaceanus andinus gen is described. et sp. nov. (Hydrophilidae: Chaetarthriinae) placed in the Anacaenini tribe, based on the following characters: Antenna with nine antenomers, prostrate with a transverse groove, mesosternal disc with a protruding elevation, second posterior tarsomer longer than the fifth. The habitus, genital organ and other cephalic and thoracic sclerites are illustrated. Key is included to separate it from the other genera of the Anacaenini tribe.

**Keywords:** selective transfer, superficial layer, structural analysis, intensity x-rays, width of diffraction lines, crystalline network constant

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## Introduction

It describes the Andean West of Venezuela, a new taxa of aquatic coleoptera of the family Hydrophilidae, which has been placed in the Anacaenini tribe, for presenting a series of characters that identify the species of the tribe. The antenna is formed by nine antenomers, with a transverse prosternal groove, in the mesosterno there is a vertical protuberance with the shape of an inverted y and the 2nd tarsomer is longer than the 5th. The new species is closely related to the species of Anacaena,<sup>1</sup> Crenitulus (Winter 1926), but does not represent any of the three genera. The tribe was erected by Hansen (1991), and is composed of three genera, Anacaena (nearctica and Neotropical), Crenitulus (Neotropical) and Crenitis (Bedel, 1881) (nearctica).<sup>2</sup> The objective of the investigation is the description of a new genus and a new species of the family Hydrophilidae of the Venezuelan Andes.

## Materials and methods

Material examined: 18 specimens were examined, collected in two different locations in the city of Merida, in the state of Merida: "Los Chorros de Milla" recreational zoo on the Milla River and in a rural area outside of the city, "The Sorceress" in the Albarregas River, on a micro-habitat of the ramentum type of a liminal / lentic hydro ecological system.<sup>3</sup> In both places, the specimens were collected using a net or mesh for aquatic captures, in the wells formed on the banks of both rivers. Once collected from the network, by using manual aspirators, they were placed in microvials with 70% alcohol solution. Habitu and other characters of interest are presented and a key to separate the gender in the tribe. Identification: For the taxonomic identification, a Leica M10 micro-stereoscope was used, with a flat lens and a resolution of 80x, with 10x eyepieces. Extraction treatment of the genital organ: It was extracted from a male specimen, which was subjected between 3 to 4 min in hot water for the softening of the genital sclerite. In the extraction, wooden applicators with metal minutes attached to the terminal end were used to extract it from the interior of the last abdominal sternites. Subsequently the genital sclerite or eadeagus, is placed in 10% KOH solution, to remove the remains of connective tissues adhered to the sclerite. Finally, the

sclerite is washed in distilled water and preserved in a microvial with alcoholic solution and glycerin, for its conservation.

**Illustrations:** The holotype specimen, cephalic, thoracic and genital sclerites are drawn, using a lucid camera, Leica brand. The structures are improved using a vector drawing program Inkscape, version for Windows.

## Results

### Systematic treatment

Family Hydrophilidae Latreille, 1881

Subfamily Chaetarthriinae Bedel, 1881

Tribe Anacaenini Thomson, 1859

Genus Crenilaceanus García, gen. nov.

**Type species:** Crenilaceanus andinus, male species.

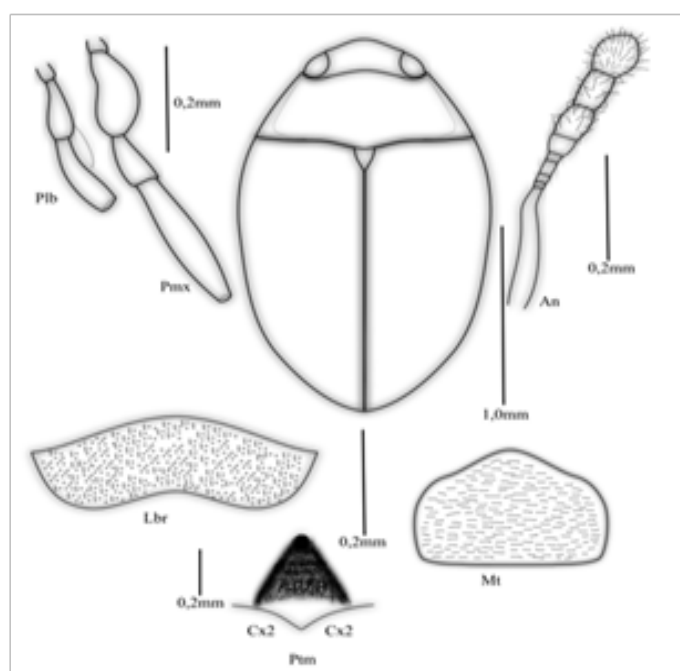
**Diagnosis:** Dorsally very similar to the Anacaena and Crenitulus species with nine antenomers. Elitral commission starting very close to the scutellum with thick points and deepening in the apical two thirds 2nd tarsomer longer than the 5th Structure.

**Description:** Large head with large eyes, almost longer than pronotum. Preclipe absent Anterior margin very arched medially. Labro short and narrow, with anterior and posterior margin very medially curved Antenna with nine antenomers with the 1st tarsomere long widened to the distal margin and slightly sinuous. Maxillary palps with the 1st tarsomere slightly widened and curved basally. Pseudo square chin with sinuous margins Gula with two short incisions. Pronoto of smaller length than the head. Margins anteroangular rounded and poster angular margin slightly rounded, with fine marginal edge. Elitros with wide and long scutellum Elitral commission starting on the previous margin near the scutellum with broad scores, in a thin line in the basal third and deepening in the apical two thirds Roughly dense and densely micropuncture elliptical disc apex Prosthetic short, with slightly marginal anterior margin without medially angular protrusion, with narrow marginal ends. Long-surface smooth prosternal surface

not fairing. Mesosterno with the protruding central disc in an elevation with the anterior and posterior margins flattened, with an inverted y shape and the apex slightly enlarged, rounded and shiny. Metasterno narrow. Abdomen with the five sternites visible. Coxas anterior oblique and elongated anterior femur short and wide, thin anterior and spiny tibia. Tarsus slender and short anterior last tarsomere with two nails. Horizontal half coxa Femur medium long and wide medium long, thin and spiny Elongated and thin middle tarsi with two terminal nails Coxa oblique and long posterior. Posterior femur long and wide Long and spiny posterior tibia Elongated posterior tarsi, with two terminal nails.

**Etymology:** The epithet that gives name to the new genus is formed by the prefix Creni, which comes from Crenitulus and the acaenus suffix that comes from Anacaena, joined by the letter l as a connector. It is a combination of two names.

*Crenilaceanus andinus* García, sp. nov. (Figure 1)



**Figure 1** *Crenilaceanus andinus* gen. et sp. nov. habitus y escleritos cefalicos y torácicos: Pmx= palpo maxilar, Plb= palpo labial, Mt= menton, An= antenna, Pm= protuberancia mesosternal, Cx2= coxas media.

**Diagnosis:** Species of small size and large head, dark coloration with testy patches on the lateral margins of the pronotum.

**Type locality** Venezuela, Mérida, Libertador, Los Chorros de Milla Park, Río Milla.

**Material type** Holotype ♂, Venezuela, Mérida, Libertador, Los Chorros de Milla Park, Río Milla, M. García col., 7.viii.1999, coordinates, 1900m, (MALUZ 05876). Paratipo with the same holotype data, (MALUZ 05875). 16 Paratipos, Mérida, Libertador, La Hechicera, Santa Rosa, Albarregas River, M. García col. 07.viii.1999 (8° 38,006' N and 71° 09,762' W) 2000 m.

**Description:** Wide oval shape, length 2.0mm and width 0.8mm. Dorsal coloration with black head, pronotum dark reddish chestnut with basal lateral margins patched in testáceos, reddish brown elytra with elitral commissure delineated in reddish black and marginal margin in reddish chestnut. Dark reddish chestnut outlined in

yellowish chestnut. Ventrally chestnut. Head broad and long with large eyes separated by three times its diameter orbicular margin with a longitudinal row of micropoints. Dense cephalad surface, deep and thickly punctuated, scores on the vertex, anterior and lateral margin of the clipeo, separated two to three times its diameter and fronto-clipeal cephalic disk, with more spaced scores, separated by four to five times its diameter. Bright and polished space between scores. Antenna with the first antenomer long, wide and narrow distally, with sinuous margins, 2nd and 3rd antenomers very short and cylindrical of equal length, 4th antenomer slightly long and cylindrical, of similar length to the 2nd and 3rd combined, 5th short and cylindrical antenomer, half of the length of the 4th, 6th long, broad and dome antenomer, 7th pubescent antenomer, long and wide, twice the length of the 6th, 8th pubescent antenomer, long and wide, slightly narrower and wider than the 7th and 9th pubescent antenomer, very broad, globular, 1/3 longer than the 8th. Antenomers 7, 8 and 9 form the antennal bundle. Maxillary palp with the 1st palpomere very short and cylindrical, 2nd palpomere long, widened from the base to the apex, with sinuous margins, 3rd palpomere thin and long, half the length of the 2nd, narrow at the base and widened distally, 4th palpomere long, medially widened and narrow proximally and distally, with the truncated apex, of similar length to the 2nd and 3rd combined. Lip palp with the 1st palpomere very short and slightly widened, 2nd palpomere long with narrow basal margin and widened distally, with a long golden hair on the dorsal preapical margin, 3rd palpomere long, narrow at the base, distally widened, curved dorsally and flat and flattened apex horizontally, of length 1/3 greater than the 2nd. Gula with smooth and shiny surface. Pronotum with shiny and densely scored disc surface, scores separated by one to two times its diameter. Elytra with glossy and densely punched surface. Thick scores in the 1st third elitral separated one to two times its diameter. In the apical 2/3 thirds, very dense and very little spaced scores. Lateral margins with a dense, roughly spaced score. Thick marginal edge wide, triangular smooth and polished. Prosterno with smooth surface. Mesosterno with glabrous surface. Metasterno with the pubescent surface with an elongated longitudinal ellipse, glabrous and bright abdomen with the surface of micropubescent sternites. 5th abdominal sternite with lateral margins bordered with row of small hairs. Anterior femur with pubescent surface up to the femoral neck, glabrous distal margin, and polished. Anterior tibia with the spinous surface. Middle femur with pubescent surface 3/4, and 1/4 glabrous and polished. Warm medium with spiny surface. Posterior femur with the pubescent surface only in the basal margin and the anterior margin. Posterior tibia with the spinous surface. Genital organ or thin aedeagus, with the middle lobe elongated, basal and distally slightly narrow, with thin parameres, slightly longer than the middle lobe, thinned in the distal margin. Falobase cuts, almost half of the middle lobe, wider in the basal half, with sinuous margins and narrower apical half, rounded apical margin. Aedeagus seen laterally with sinuous margins, enlarged parameres and broad phallus base and thin distally, very narrow apical margin (Figure 2).

**Female:** Similar to the male, of greater length: length 2.1mm and width 1.0mm of darker coloration.

**Etymology:** The species is named taking into account the locality in which it was found, andinus means that it belongs to the Andes of Venezuela.

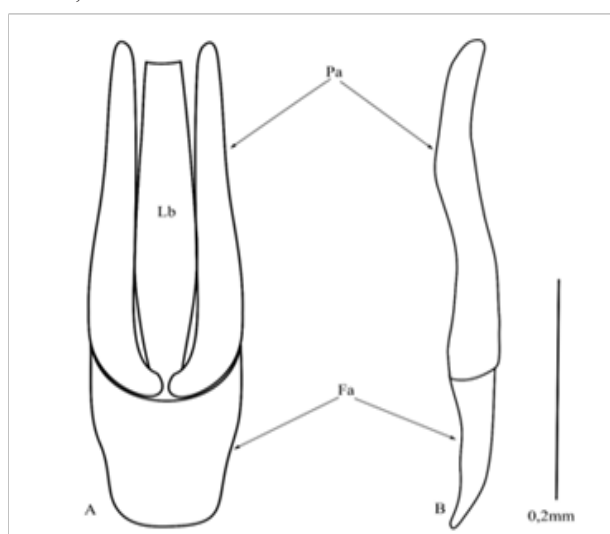
**Habitalogía:** The new species was found in a hydro ecological micro-habitat type ramentum of a Limnic/lotic-lentic system formed by wells in a sandy bank free of vegetation.

**Distribution:** This species is distributed restrictedly on the banks of

the Albarregas and Milla rivers of the Andean region of the state of Merida, in Venezuela, places of capture.

#### Key that separates the American genres from Anacaenini

1. Elitral commission starting in the 2nd third elitral, 2
- 1' Elitral commission starting in the 1st third elitral, *Crenilacaenus* gen. nov.
2. Basal margin of the anterior spinous coxae, *Crenitulus* Winter, 1926
- 2' Basal margin of the anterior coxa glabra, 3
3. Mesosterno with a conical elevation, *Anacaena* Thomson, 1859
- 3' Flat mesosterno or a weak transverse protuberance, *Crenitis* Bedel, 1881



**Figure 2** *Crenilacaenus andinus* gen. et sp. nov. Organo genital: A) Vista ventral y B) Vista lateral, Lb= lobulo medio, Fa= Falobase.

## Discussion

The Anacaenini species retain much similarity seen dorsally and, from the ventral point of view, a plane of difference is observed, however, it is not very prominent. The best plane to differentiate it is in the mesosterno. The *Anacaena* species present the mesosternal disc with a very little prominent elevation, with a small conical denticle, which protrudes above the mesosternal plane, between the middle coxae. The species of *Crenitulus* are more varied as far as the mesosternal disc is concerned. Some species may present the mesosternal disc with a very weak rounded or transverse protrusion, while others may have a protruding protuberance, such as a thick sheet with an inverted forma shape, or an irregular mound. In *Crenilacaenus andinus* gen. et sp. nov., the mesosternal structure is clearly defined in

a thick-walled protuberance, flattened anteroposteriorly in the shape of an inverted, protruding between the middle coxae, with a thick, rounded apex. Another character of interest that allows separating them is the elitral commissure that, in the *Anacaena* and *Crenitulus* species, this begins in the first third elitral, which goes deepening towards the apex, but it is clearly observed at the end of the 1st third, as a simple longitudinal line. In *Crenilacaenus andinus*, the commissure begins almost at the base of the 1st third elitral, very close to the scutellum apex. It is clearly seen as a very thin line that deepens in the 1st third elitral towards the elliptical apex. The *Beren* *Crenitis* species differ from *Crenilacaenus andinus* in the disc or mesosternal. The species of *Crenitis* present the flat disc, however in some species a very low transverse prominence can be observed.<sup>4</sup> But the main and clear separation of the species is observed in the genital organ of the male species of *Crenilacaenus andinus*. This consists of a long and thin structure of parallel lobes, of the same thickness and almost the same width, very defined, with a short and wide phallus, less than half the length of the lobes. This genital morphology is very specific, compared to the species of *Anacaena* and *Crenitulus*, both genders have very varied genital sclerites, with the phallus of equal length, in most cases of greater length, than the lobes, some species have manubrio.<sup>1</sup> It differs clearly from other genera such as *Paracymus* Thomson, 1867 and *Notionotus* Spangler, 1972, because it does not present prosternal careening.

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## Conflicts of interest

The author declares that there is no conflict of interest.

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