
A new species of the genus *Acrotoma* O. Boettger, 1881 (Pulmonata, Clausiliidae)

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ABSTRACT. A new species *Acrotoma (Acrotomina) mallabica* sp. nov. from the Western Caucasus is described. The morpho-anatomical relations of the new taxon with closely related species are discussed.

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Новый вид рода *Acrotoma* O. Boettger, 1881
(Pulmonata, Clausiliidae)

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РЕЗЮМЕ. Приводится описание нового вида *Acrotoma (Acrotomina) mallabica* sp. nov. из Западного Кавказа. Обсуждаются морфо-анатомические отношения нового таксона с близкородственными видами.

Introduction

The genus *Acrotoma* O. Boettger, 1881 over the past 20 years is intensively replenished with new species [Suvorov, 2002; Likharev, Shileyko, 2007; Solodovnikov, Szekeres, 2017, Hausdorf *et al.*, 2018]. Based on conchological and anatomical features, various authors have identified five subgenera (*Acrotoma* s. str., *Azybia* Nordsieck, 1977, *Castelliana* Suvorov, 2002, *Acrotomina* Nordsieck, 1977, *Iliamneme* Likharev et Schileyko, 2007). Studies of the sequences of mitochondrial and nuclear DNA of *Acrotoma* revealed phylogenetic relationships of species, based on which a new system of subgenera was proposed (*Acrotoma* s. str., *Acrotomina* Nordsieck, 1977, *Iliamneme* Likharev et Schileyko, 2007) [Hausdorf *et al.*, 2018].

This article describes a new species of the genus *Acrotoma*. This work was carried out as part of the study of land snails of the family Clausiliidae of the Western Caucasus.

Materials and methods

The studied material was collected in the upper reaches of the Malaya Laba River (Shaposhnikov

Caucasian State Natural Biosphere Reserve. East Division) in summer of 2018. Images of the shell and genitalia were obtained with Sony Alpha SLT-A57 camera and Carl Zeiss Stemi 2000 binocular microscope. Morphometric data: shell height (Hs), shell width (Ws), aperture height (Ha) and aperture width (Wa), were obtained from photographic images in the program ImageJ ver. 1.50e. The holotype of the new taxon is deposited in the collection of the Tembotov institute of ecology of mountain territories RAS (IEMT RAS)

Results

Family Clausiliidae Gray, 1855

Subfamily Clausiliinae

Genus *Acrotoma* O. Boettger, 1881

Type species: *Clausilia komarowi* O. Boettger, 1881, OD

Subgenus *Acrotoma (Acrotomina)*

Nordsieck, 1977

Type species: *Acrotoma (Acrotomina) semicincta* Boettger, 1881, OD

Acrotoma (Acrotomina) mallabica sp. nov.

(Figs 1, 2)

Zoobank registration: urn:lsid:zoobank.org:act:1980BA12-8E65-4A8E-AD03-225BEF699D3B

Type material. Holotype: IEMT RAS 92a/2018, Russian Federation, Krasnodar region, Mosty district, upper river Malaya Laba (43°48'55.98"N, 40°39'7.88"E, 1045 m), leg. M.H. Tanov 21.07.18. Paratypes: Russian Federation, Krasnodar region, Mosty district, upper river Malaya Laba (24 spms) leg. M.H. Tanov 21.07.18. 3 paratypes dissected.

Diagnosis. Lamella inferior ends with a large

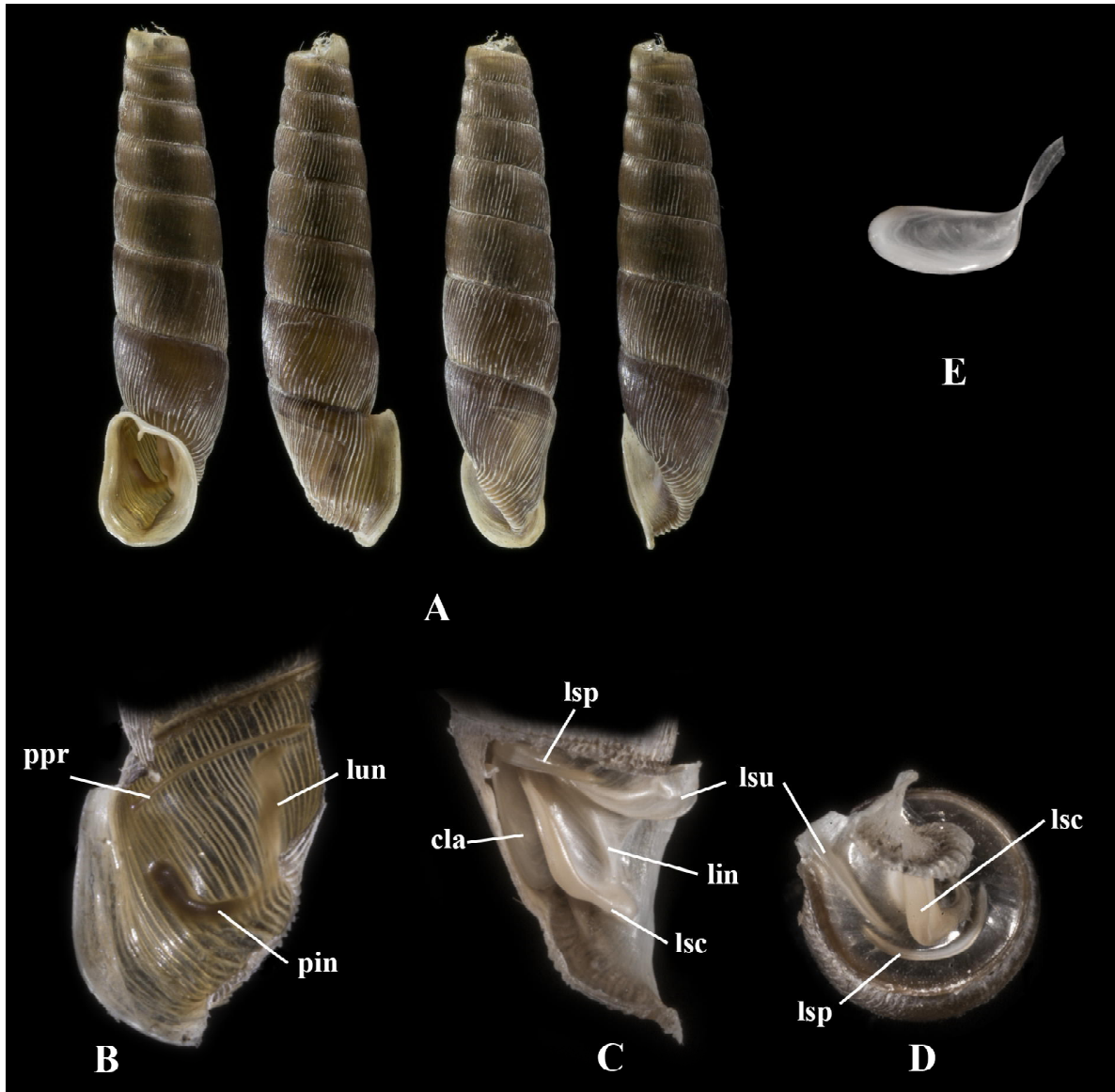


FIG. 1. *Acrotoma (Acrotomina) mallabica* sp. nov. **A.** Holotype (IEMT RAS 92a/2018, 22 mm). **B.** Palatal side. **C.** Columellar side. **D.** Parietal side. **E.** Clausilium. Abbreviations: cla – clausilium, lin – lamella inferior, lsc – lamella subcolumellaris, lsp – lamella spiralis, lsu – lamella superior, lun – lunella, pin – plica inferior, ppr – plica principalis. (**B-E** paratype).

РИС. 1. *Acrotoma (Acrotomina) mallabica* sp. nov. **A.** Голотип (IEMT RAS 92a/2018, 22 мм). **B.** Палатальная сторона. **C.** Колумеллярная сторона. **D.** Parietal side. **E.** Клаузилий. Сокращения: cla – клаузилий, lin – нижняя пластинка, lsc – субколумеллярная пластинка, lsi – верхняя пластинка, lsp – спиральная пластинка, lun – полулунная складка, pin – нижняя палатальная складка, ppr – главная складка. (**B-E** паратип).

palatal callus. Penis retractor splitted into three branches

Description. Shell decollated, fusiform-cylindrical, solid, moderately shiny, consisting of 6-7 preserved after decollation whorls. Colour olive-brown. Suture white, thin. Last whorl with well-developed basal keel. Aperture pear-shaped, protruded. Aperture margins widely reflexed, thickened. Sinulus straight. Superior lamella is low, does not protrude beyond aperture margin. The front end of the spiral lamella extends beyond the

posterior end of the superior lamella. The massive lamella subcolumellaris is thickened toward the outer edge. The notch at its lower end is saddle-shaped, its upper end goes deeply into the shell and ends just below the clausilium root. Lunella lies on the dorsal side, its ends are curved back. The main plica begins slightly higher than the lunella, extending about a third in the shell. Lamella inferior ends with a large palatal callus. Lobe of clausilium is rounded.

Measurements. Holotype: Hs 22 mm (decollated), Ws 5.2 mm, Ha 6 mm, Wa 4.2 mm. Paratypes

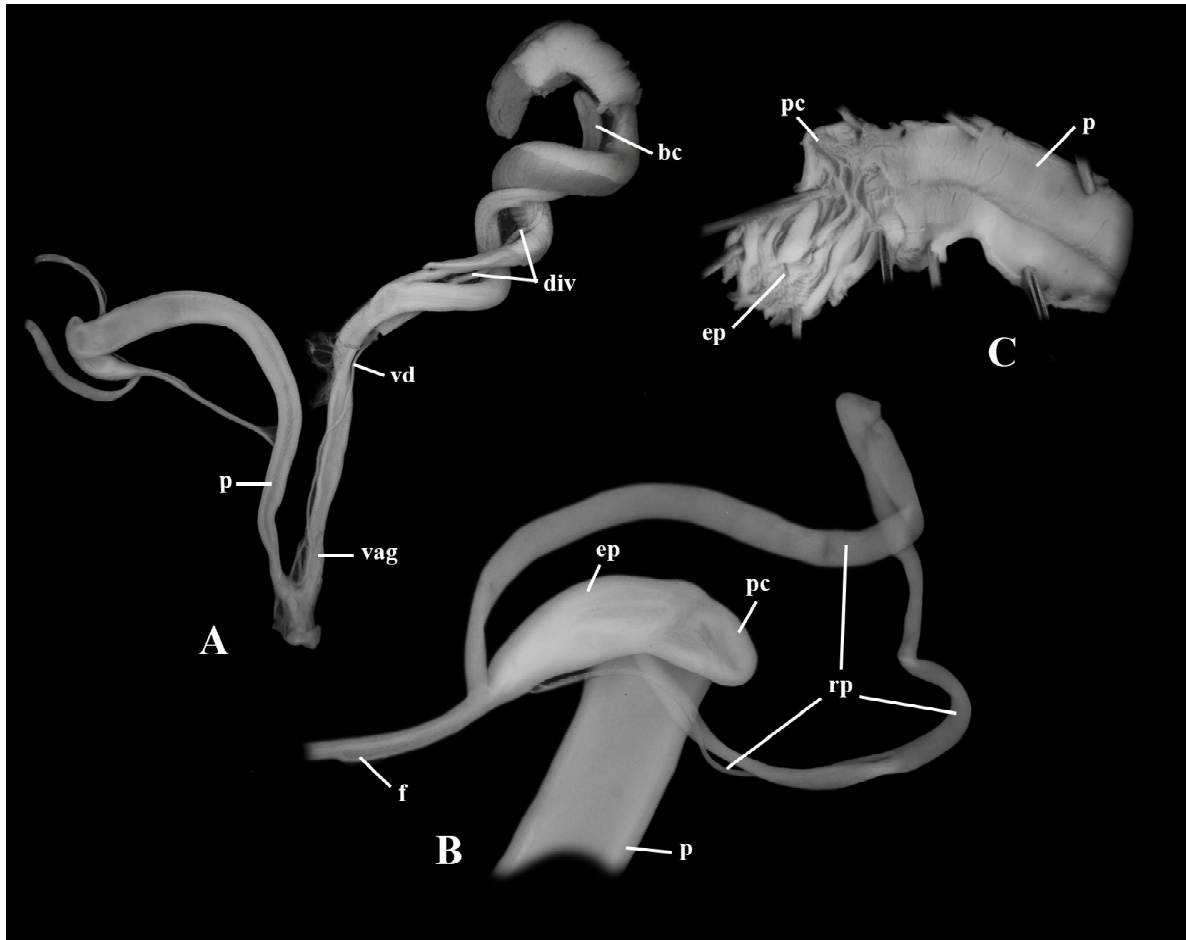


FIG. 2. *Acrotoma (Acrotomina) mallabica* sp. nov., paratype. **A.** Reproductive tract. **B.** Proximal end of penis. **C.** Interior of penis and epiphallus. Abbreviations: bc – bursa copulatrix, div – diverticulum of bursa copulatrix, ep – epiphallus, f – flagellum, p – penis, pc – penial caecum, rp – penial retractor muscles, vag – vagina. vd – vas deferens.

РИС. 2. *Acrotoma (Acrotomina) mallabica* sp. nov., паратип. **A.** Репродуктивный тракт. **B.** Проксимальный конец пениса. **C.** Внутренняя поверхность пениса и эпифаллуса. Сокращения: bc – семяприемник, div – отросток семяприемника, ep – эпифаллус, f – флагеллум, p – пенис, pc – придаток пениса, rp – ретрактор пениса, vag – влагалище. vd – семяпровод.

(type locality, n=21): Hs 19-22.8 mm (decollated), Ws 4.8-5.3 mm, Ha 5-5.8 mm, Wa 3.8-4.3 mm.

Genitalia (Paratype). Part of the *vas deferens* is pressed against the front half of the penis with a thin muscular band. Flagellum rudimentary. Penis is long, tubular, smooth inside, not divided into distinct sections, tapers at the bottom. Epiphallus is short, conical, with numerous folds inside. Penial caecum is short, with a smoothly rounded top. Penial retractor splitted into three branches.

Habitat. *Acrotoma (Acrotomina) mallabika* sp. nov., inhabits rock crevices and cliffs.

Remarks. *Acrotoma (Acrotomina) mallabica* sp. nov., has some similarities and differences with other species of the genus *Acrotoma*. This is especially pronounced in the structure of the male division of the reproductive system. The penis and epiphallus do not have a pronounced boundary as in

A. (Acrotoma) tunievi (Suvorov, 2002), and *A. (Acrotoma) juliae* (Suvorov, 2002). The penis is not divided into sections, without knee-shaped bends and does not have a spiral twist contrary to that of *A. (Acrotoma) claussi* (Nordsieck, 1977), *A. (Acrotoma) komarowi* (Boettger, 1881) and *A. (Acrotoma) gegica* (Suvorov, 2002). Two characters bring the new species closer to *A. (Acrotomina) narzanensis* (Rosen, 1901) and *A. (Acrotomina) semicincta* (Boettger, 1881) – this is a short penial caecum and the presence of a rudimentary flagellum. Inside the *Acrotoma* genus, the penial retractor consists of two branches. One branch is attached to the proximal end of the penis, and the other on the border of the epiphallus and the vas deferens. Two exceptions are *A. (Acrotoma) claussi* – the retractor of the proximal end of the penis is absent and *Acrotoma (Acrotomina) mallabica* sp. nov., the penis retrac-

tor consists of three branches, which is explained by the disintegration of the epiphallus retractor into two branches of different width.

Comparison of characters of the reproductive system of *Acrotoma (Acrotomina) mallabica* sp. nov. with other species of the genus, revealed similarity in two features (penis and penial caecum morphology) with species of the subgenus *Acrotoma (Acrotomina)* (Nordsieck, 1977). For the more correct subgeneric identification, it is necessary to conduct phylogenetic studies.

Etymology. The species is named after the Malaya Laba River.

References

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