

Localities of valvatiform hydrobiids (Gastropoda: Hydrobiidae) in Bulgaria

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Abstract. In this paper three new localities of unidentified valvatiform hydrobiids are reported in Bulgaria: Glava Panega Spring (Zlatna Panega Town), Rushovata Cave (near Glogovo Village), and Mandrata Cave (near Chavdartsı Village).

Key words: stygobiont, aquatic, snails.

Introduction

The European valvatiform hydrobiids are diverse group of the minute Risoid freshwater snails related to about 26 different genera but all with more or less similar shell shape. Most species were described from 3 genera: *Hauffenia* Pollonera, 1898, *Horatia* Bourguignat, 1887, and *Islamia* Radoman, 1973 (Bodon *et al.* 2001). Some of the valvatiform hydrobiids live in underground waters and having not very numerous populations and very small sizes, so it makes their study very hard and sometimes even impossible. Sampling of only single live specimens or even shells is very often (Eross & Petró 2008). Also for new species descriptions good series and anatomical investigations are needed for identification (Haase 1992, Bodon *et al.* 2001).

From Bulgaria only the species *Hauffenia lucidula* (Angelov, 1967) was described from a deep well in North-east Bulgaria at the Black Sea Coast (Angelov 1967).

In this paper three new localities of unidentified valvatiform hydrobiids are reported according the needs of further, detailed research on the Bulgarian rich freshwater snail fauna.

Material and Methods

Shells were collected by sieving subterranean river deposits by 1x1 and 2x2 mm mesh width sieves. The material from the smaller meshed sieve was then brought to the laboratory and dried. After it was again put into water and the floating shells were collected by a strainer or sieve 1x1 mm and a small brush. One live specimen was collected by hand and preserved in 75% ethanol.

The measurements of the shell were carried out by means of CETI stereo microscope and an eye-piece micrometer; the photographs were made with camera system with a digital adapter. The material is stored in the collection of the author.

Abbreviations: H – shell height, AH – aperture height, D – shell diameter, U – umbilicus width.

Results

Locality 1

Material examined: 3 highly eroded shells without operculums, 03.12.2010, Glava Panega Spring, Zlatna Panega Town, Pre-Balkan, North Bulgaria, N43 05 17.3 E24 09 23.0, 233 m a.s.l.

Description: Shell: valvatiform, aperture oval, whorls convex, with well visible growth lines. Measurements one of most preserved shell: H = 1.50 mm, AH = 0.86 mm, D = 1.91 mm, U = 0.40 mm.

Locality 2

Material examined: 2 shells with operculums, 19.01.2011, Rushovata (Gradeshniskata) Cave, near Glogovo Village, Teteven Town area, Stara planina Mts., N42 59 00.30 E 24 15 71.30; Dilian Georgiev leg., coll.

Description: Shell: valvatiform, thin, translucent, yellowish, with well visible growth lines, aperture round, operculum without peg-like structure. Measurements: specimen 1: H = 0.76 mm, AH = 0.53 mm, D = 1.22 mm, U = 0.23 mm; specimen 2: H = 1.65 mm, AH = 0.97 mm, D = 2.26 mm, U = 0.53 mm.

Remark: Both shells are different in size and morphology (Fig. 1) so it can be supposed that they belong to different species or sexes, or one is adult, and the other - juvenile.

Locality 3

Material examined: 1 live specimen, 05.06.2011, Mandrata Cave, near Chavdarts Village, Lovech Town area, N43 14 32.2 E24 58 08.8, 100-200 m a.s.l., Slaveya Stoycheva, Stanimira Deleva leg.

Description: Shell: very small, valvatiform, thin, translucent, spire slightly raised, aperture oval, whorls convex, smooth and finely striated. Measurements: D = 0.43 mm, U = 0.08 mm. Soft body: unpigmented, tentacles almost as long as the snout, without eye spots (Fig. 2, 3).

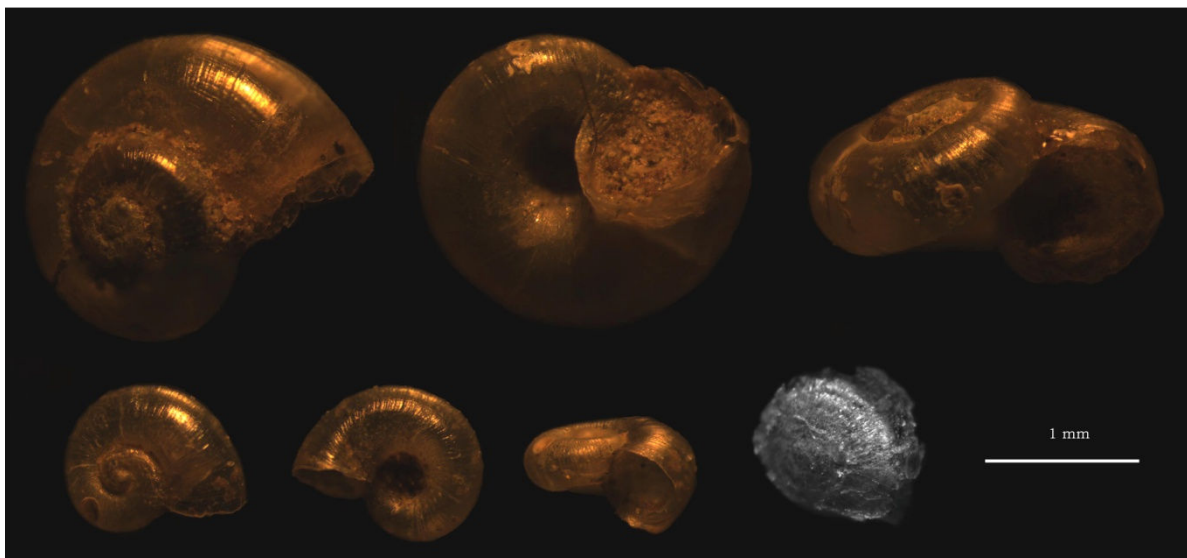


Fig. 1. The larger shell (up) and its inner side of the operculum (down right, black and white picture) and the smaller shell (down) found in Rushovata Cave near Gradeshnitsa Village.

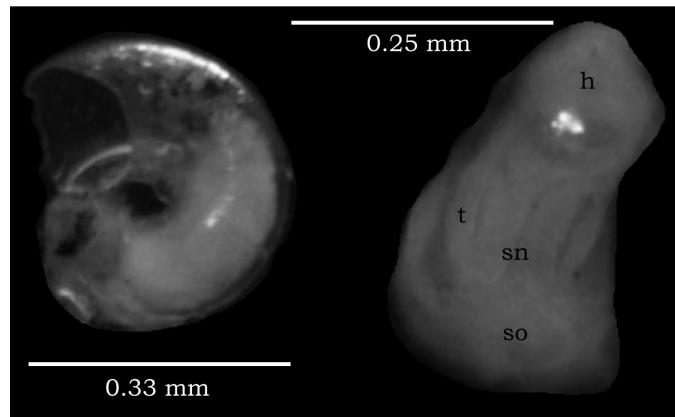


Fig. 2. Umbilical side view of the shell of the valvatiform hydrobiid found in Mandrata Cave near Chavdarts Village (left) and head of the specimen (right), h – head, t – tentacle, sn – snout, so – sole.

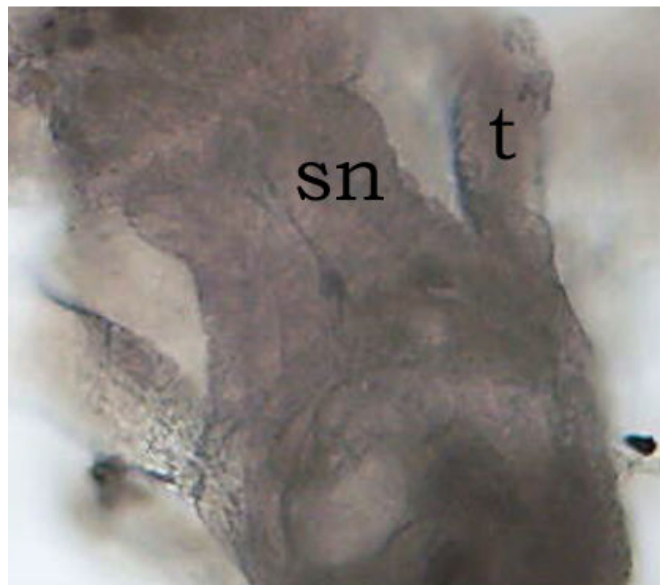


Fig. 3. Light microscope picture of the specimen from Mandrata Cave near Chavdarts Village, (40x), t – tentacle, sn – snout.

Discussion

According to Bodon *et al.* (2001) one of the diagnostic characters of the genus *Hauffenia* is the presence of peg-like structure on the inner side of the operculum, so it can be stated that the specimens from Rushovata Cave cannot be related to this genus.

According to their highly eroded surface the shells collected from the Glava Panega Spring can be supposed to be brought there by subterranean waters from a population situated underground somewhere in the mountain massif above. These shells resembling on some characters those from Rushovata Cave situated about 15 km up the mountain and possible connection of the waters of both localities can be proposed.

The live specimen from Mandrata Cave was accidentally collected while probably was attached on the shell surface of the other hydrobiid described from this cave – *Devetakia mandrica* Georgiev, 2012, found by S. Stoychena and S. Deleva. Its umbilicus is looking a little bit narrower than those of the specimens from the other two localities, and its shell

surface is smoother. Considering the lack of eyes and body pigmentation it can be stated that this species is stygobiont.

References

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