

## Four new hydrobiid species from Bosnia-Herzegovina (Mollusca: Gastropoda: Hydrobiidae).-

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### Abstract

Recent investigations of freshwater molluscs in the cave Mahmutovića Rijeka, at the spring near the cave in Srednja stijena and the spring near Karamehmedovića cemetery (all Bosnia-Herzegovina) revealed four new species, two of the genus *Belgrandiella* A. J. WAGNER, 1928 (*B. bajraktarevici* n. sp. and *B. kurtovici* n. sp.) and one of *Bythiospeum* BOURGUIGNAT, 1882 (*B. dervovici* n. sp.) and *Islamia* RADOMAN, 1973 (*I. buturovici* n. sp.) each. Unfortunately only empty shells could be found. In addition to the descriptions photos of the species are provided.

**Key words:** new species, Balkan, *Bythiospeum*, *Belgrandiella*, *Islamia*.

### Introduction

The Balkans is one of the hot spots of gastropod diversity in the world (STRONG & al. 2008) and recent investigations in the last decade revealed numerous new species. These are predominantly endemic to springs, to subterranean habitats or their watersheds (RADOMAN 1983, GLÖER & PEŠIĆ 2014, GREGO 2020). The intention of this paper is to describe four new species from Bosnia-Herzegovina.

### Material and Methods

The snails have been collected by the second author in the cave Mahmutovića Rijeka, at the spring near the cave in Srednja stijena with cavers from SNIK "Atom" from Zavidovići and from the spring near Karamehmedovića cemetery with students, participants of the CEPF workshop on collecting water snails. The specimens were taken by hand or with a sieve. Only empty shells could be found. In the cave Mahmutovića Rijeka sand was taken inside the cave about 100 m from the entrance, dried and the shells were extracted.

The measurements of the shells were carried out using a stereo microscope (ZEISS) with an eye-piece micrometer; the photographs were made with a digital camera system (Leica R8). The type material is stored in the Zoological Museum Hamburg (ZMH) and in the collection Glöer.



Fig. 1-4: The sampling sites of the new described species. 1: Map with samplings sites. 2: Spring near the cave in Srednja stijena, sampling site of *Belgrandiella bajraktarevici* n. sp.; 3: Cave Mahmutovića Rijeka, sampling site of *Bythiospeum dervovici* n. sp. and *Islamia buturovici* n. sp.; 4: Spring near Karamehmedovića cemetery, sampling site of *Belgrandiella kurtovici* n. sp.



Fig. 5-10: The new species: 5, 6: *Bythiospeum dervovici* n. sp.; 7: *Belgrandiella bajraktarevici* n. sp.; 8: *Belgrandiella kurtovici* n. sp.; 9, 10: *Islamia buturovici* n. sp.

## Results

### *Bythiospeum dervovici* n. sp. (figs 5, 6)

**Material examined:** Holotype: shell height 2.5 mm, width 1.15 mm, ZMH 140803  
Paratypes: 22 specimens ZMH 140804, 4 specimens coll. Glöer.

**Type locality:** Cave Mahmutovića Rijeka, gorge of Misoča river, Ilijaš, Federation of Bosnia-Herzegovina, 21.2.2020. 44°03'12.1" N, 18°21'50.6" E, 855 m a.s.l. The cave was formed in the limestones and limestone breccias of the Upper Cretaceous.

**Etymology:** Named after Ilhan Dervović (1958-2016), a member of the Center for Karst and Speleology and a persistent fighter for the protection of nature, especially karst poljes.

**Description:** The elongated conical shell has 5.5 tumid whorls, separated by a deep suture. The aperture is ovate with a sharp peristome. The umbilicus is closed. The shell is 2.2-2.5 mm high and 1.15 mm broad.

**Distribution:** Only known from the type locality.

**Differentiating characters:** From the region around the type locality no *Bythiospeum* species is known. The closest *Bythiospeum* species occur in Montenegro [*B. copiosus* (ANGELOV, 1972), *B. demattiai* GLÖER & PEŠIĆ, 2014] and in N-Albania (*Bythiospeum szarowskiae*, GLÖER, GREGO, ERŐSS & FEHÉR, 2015). From these three species it differs in the more tumid whorls.

### *Belgrandiella bajraktarevici* n. sp. (fig. 7)

**Material examined:** Holotype: Shell height 3.1 mm width 1.7 mm, ZMH 140801  
Paratypes: 1 specimen ZMH 140802.

**Type locality:** Spring near the Cave in Srednja stijena, Tajan mountain, Federation of Bosnia-Herzegovina, 12.7.2020. 44°18'45.14" N, 18°06'24.19" E, 875 m a.s.l.

The spring is located at the contact of limestone and marl. Old beech forests grow around the spring. The spring was captured and a small fountain was built, but water comes out next to the fountain. The snails were collected on leaves and rocks.

**Etymology:** Named after Admir Bajraktarević - Ado, a caver from Zavidovići who has been exploring the underground of the southwestern Balkans and especially the Tajan Mountains for years.

**Description:** The shell is elongated conical with 5.5 slightly convex whorls which are separated by a deep suture. The body whorl is prominent and takes about 2/3 of the shell height. The aperture is ovate, somewhat oblique. The peristome is thickened, the umbilicus is closed. The shell is 3.1 mm high and 1.7 mm wide.

**Differentiating characters:** *Belgrandiella bajraktarevici* n. sp. is the largest *Belgrandiella* species from the Federation of Bosnia and Herzegovina. It looks a somewhat similar to *Belgrandiella pageti* SCHÜTT, 1970 which occurs in Croatia near the border to Slovenia.

### *Belgrandiella kurtovici* n. sp. (fig. 8)

**Material examined:** Holotype: shell height 1.45 mm, width 0.95 mm, ZMH 140799  
Paratypes: 3 specimens ZMH 140800, 2 specimens in coll. Glöer.

**Type locality:** Spring near Karamehmedovića cemetery, Trebišnjica river, Trebinje, Republic of Srpska, 18.7.2020. 42°42'48.94" N, 18°22'5.38" E, 280 m a.s.l.

The spring is located at the contact of the Cretaceous limestones and the impermeable floor formed by the alluvium of the Trebišnjica river. The spring is in hydrological connection with the cave system "Vruljak".

**Etymology:** Named after Dubravko Kurtović, a caver from Trebinje and a long-term explorer of the underground of eastern Herzegovina.

**Description:** The small shell is oval with 4.5 slightly convex whorls with a clear suture. The small apex is broad and blunt. The aperture is ovate with a broad rounded angle at the top. The

umbilicus is closed. The peristome is thickened, especially at the columella. The umbilicus is closed. The shell is 1.45 mm high and 0.95 mm wide.

**Differentiating characters:** *Belgrandiella kurtovici* n. sp. is much smaller than all the other *Belgrandiella* species from the Federation of Bosnia and Herzegovina.

***Islamia buturovici* n. sp.** (figs 9, 10)

**Material examined:** Holotype: shell height 1.1 mm, width 1.5 mm, ZSM 140805, Paratypes: 10 specimens ZMH 140806, 5 specimens coll. Glöer.

**Type locality:** Cave Mahmutovića rijeka, gorge of Misoča river, Ilijaš, Federation of Bosnia-Herzegovina, 21.2.2020. 44°03'12.1" N, 18°21'50.6" E, 855 m a.s.l.

**Etymology:** Named after Adem Buturović (1912-1963), in appreciation of his studies of the underground fauna of the southwestern Balkans.

**Description:** The valvate shell has 3.5 convex whorls. The aperture is circular and the peristome is sharp and not thickened or reflexed. The umbilicus is wide and deep, and the width takes 10-20 % of the shell diameter. The shells are 1.1 mm high and 1.3-1.5 mm wide.

**Differentiating characters:** The species resembles *Islamia bosniaca* RADOMAN, 1973 with its type locality above the road from Doboj to Zenica, but *I. bosniaca* is somewhat larger and the aperture is narrowed at the top (not circular).

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