

A review of the Bulgarian species of *Aspasita* Westerlund, 1889 (Gastropoda; Pulmonata; Spelaeodiscidae), with description of *A. bulgarica* spec. nov.

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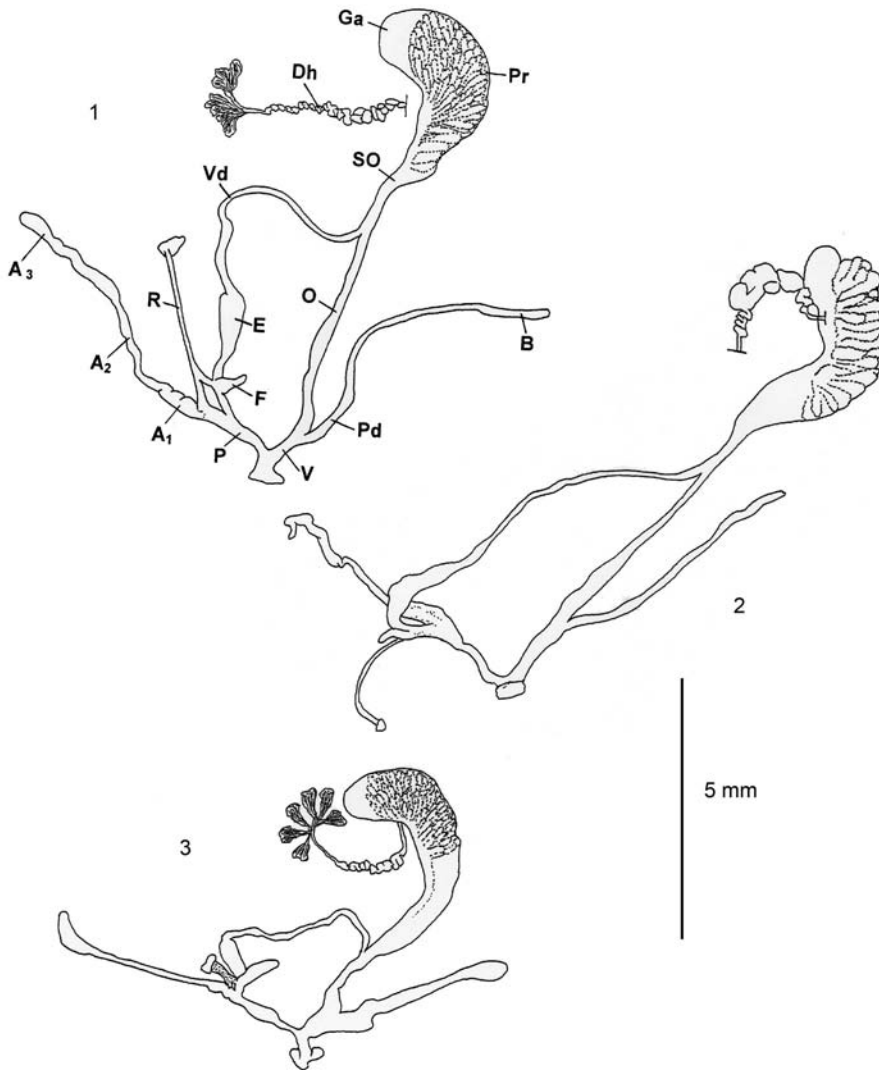
Aspasita bulgarica from the surrounding of Vraca is described as new to science. The species is differentiated from *Aspasita triaria triaria* (Rossmässler 1839), the second *Aspasita* species living in Bulgaria. Shells and genital anatomy of both species are illustrated, as well as the lectotype shell of *Aspasita triaria triaria* (Rossmässler 1839) from Rumania.

Key words: Gastropoda, Stylommatophora, Spelaeodiscidae, *Aspasita triaria*, taxonomy, new species, Bulgaria, Rumania.

INTRODUCTION

The herein described *Aspasita bulgarica* n. sp. has been first recorded by Urbanski (1964) in the vicinity of the Ledenika Cave in the Vracanska Mountain near Vraca. He believed to have found *Aspasita triaria triadis* (Kimakowicz, 1884) and suggested that the Bulgarian specimens of this species belong to a separate race. Later, Gittenberger (1969: 290) cited Urbanski (1964: 21) as the Bulgarian records of *A. triaria triaria* (Rossmässler, 1839), and it seems that the former author hadn't seen any material from Bulgaria. Urbanski (1969: 230) provided a further record of *Aspasita* from Razboiski Monastery in the Nišava Valley, and noticed some differences in the number of ribs on the shell in specimens from both Bulgarian localities, and suggested the occurrence of more than one subspecies of *A. triaria* in Bulgaria. He anatomically examined five specimens from the vicinity of the Ledenika Cave and compared these to the anatomical observations of Hudec (1961) on *A. tatica* (Hazay, 1883) from Slovakia, and reported differences in the structure of vagina, penis, epiphallus, and vas deferens. Damjanov & Likharev (1975: 137, Fig. 72) listed both known Bulgarian localities of *Aspasita* and gave a drawing of a shell presumably from Ledenika Cave. Their drawing of the genital structures, however, seems to have been taken from Hudec (1970: Fig. 1) and in fact depicts the genitalia of an *Aspasita* form from the Bükk mountains in Hungary. Schileyko (1984: 156) treated the material from the vicinity of Vraca as belonging to *A. triaria*, but both the depicted shell and genitalia belong to a different species, that will be formally described below.

This paper is largely based on the extensive *Aspasita* material collected in 2007 by us at both known Bulgarian localities.



Figs. 1-3. genital organs of *Aspasita* species. 1, *Aspasita triaria triaria* (Rossmässler, 1839); Rumania, Komitat Gorj, N of Cloşani, Motru river right bank. 2, *A. t. triaria* (Rossmässler, 1839); Bulgaria, Razboishki monastery in the Nişava-valley. 3, *A. bulgarica* nov. spec., paratype. Bulgaria, Ledenika (= W of Vraca).

Abbreviations: A1 = proximal appendix section; A2 = central appendix section; A3 = distal appendix section; B = bursa copulatrix; C = penial caecum; Dh = ductus hermaphroditicus; E = epiphallus; F = flagellum; Ga = glandula albuminifera; O = oviductus; P = penis; Pd = pedunculus of bursa copulatrix; Pr = prostate; R = penis retractor muscle; SO = spermoviductus; V = vagina; Vd = vas deferens.

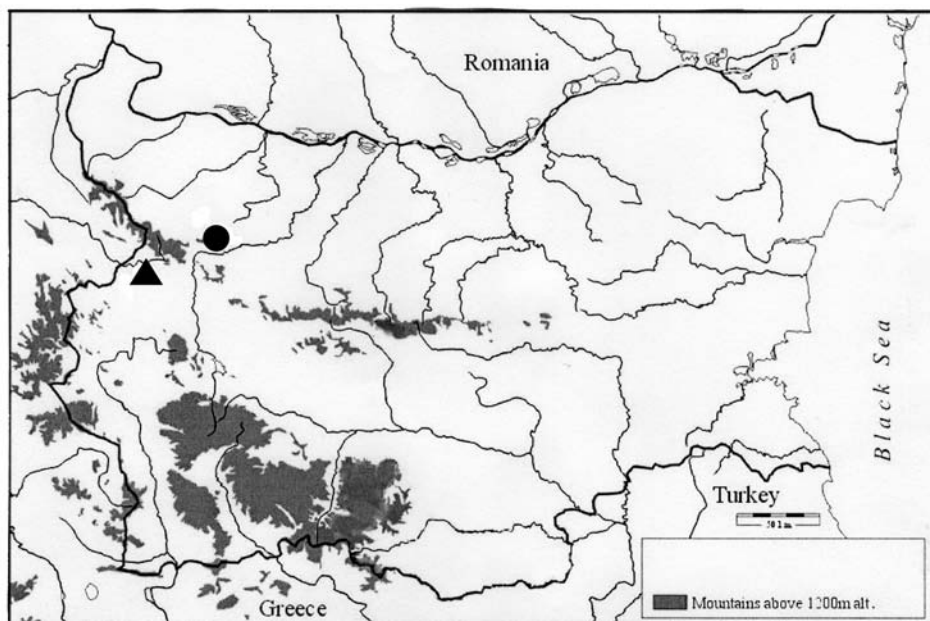


Fig. 4. Distribution of *Aspasita* species in Bulgaria. Triangle, *A. triaria triaria* (Rossmässler, 1839; dot, *A. bulgarica nov. spec.*

Abbreviations:

D = private collection I. Dedov, Sofia

E = private collection Z. Eröss, Budapest

HNHM = Hungarian Natural History Museum, Budapest

Maa = private collection J.W.M. Maassen, Duivendrecht

NMW = Natural History Museum, Wien

RMNH = Nationaal Natuurhistorisch Museum, Leiden (formerly Rijksmuseum van Natuurlijke Historie)

S = private collection P. Subai, Aachen

Sch = private collection H. Schütt, Düsseldorf/Benrath

SMF = Naturmuseum Senckenberg, Frankfurt a. Main

AD = diameter of aperture

D = shell diameter

H = shell height

AH = aperture height

W = number of whorls

juv. = juvenile specimen

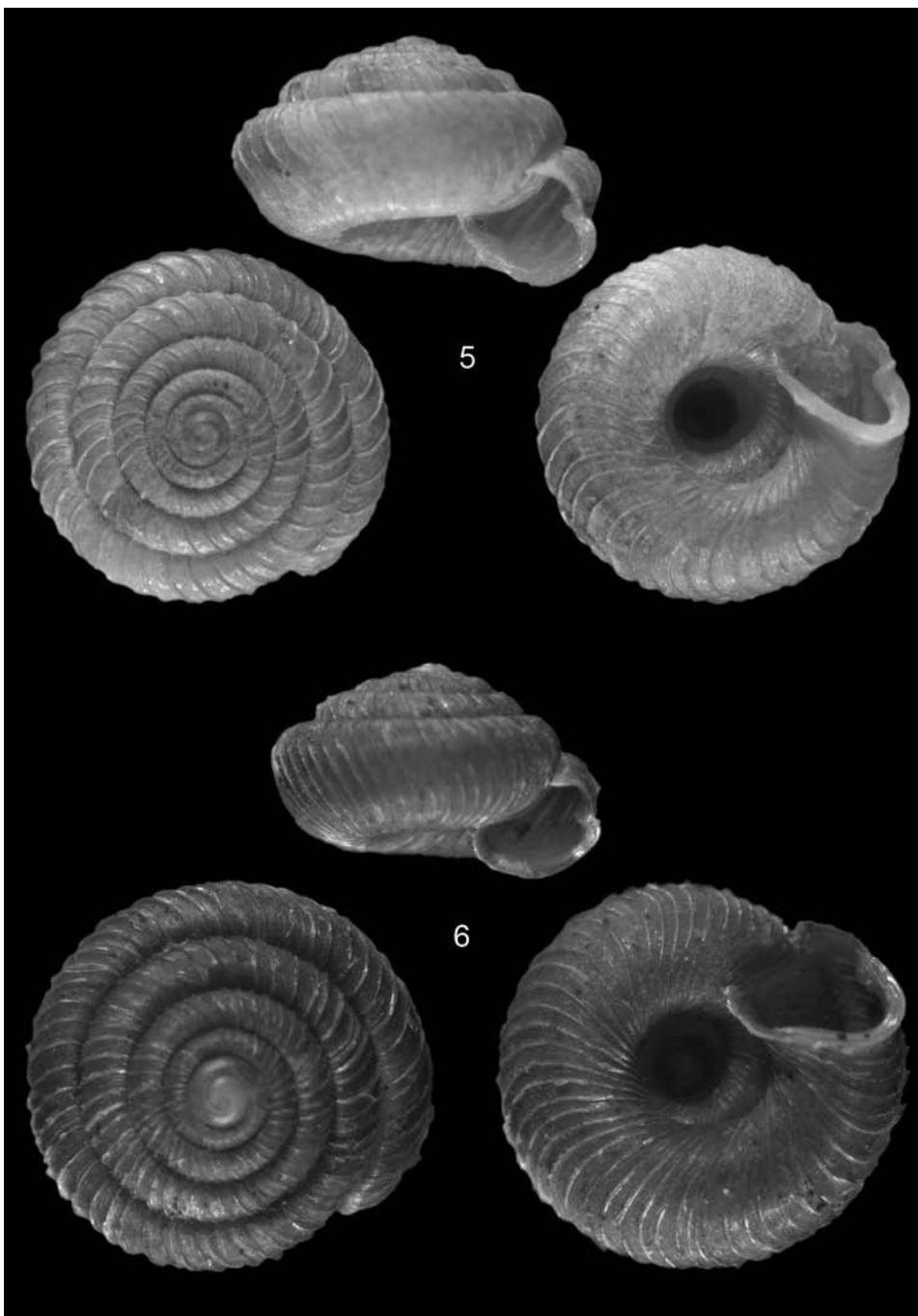


Fig. 5-6. Shells of *Aspasita* species. 5, lectotype of *A. triaria triaria* (Rossmässler, 1839) (SMF 5065, actual shell diameter 4.5 mm). 6, *A. t. triaria* (Rossmässler, 1839). Bulgaria, Razboishki monastery in the Nišava-valley (SMF 330179, actual shell diameter 4.4 mm).



Fig. 7, holotype of *Aspasita bulgarica* nov. spec. (SMF 330180, actual shell diameter 5 mm).

DESCRIPTIVE PART

Aspasita triaria triaria (Rossmässler, 1839) (figs 1-2, 4-6).

Helix triaria Rossmässler, 1839: 13, plate 47 fig. 611 [locus typicus: „im Banat“].

Spelaodiscus (Aspasita) triarius; Urbanski, 1969: 230, fig. 1 (distribution map) [partim, only from Razboishki (= Razbojski) monastery].

Material.— Rumania, Banat, Domogled mountain at Mehadia, UTM: FQ16, ex Stenz, ex coll. Rossmässler, lectotype (design. Zilch): SMF 5065, paralectotypes SMF 5066/5. Bulgaria, Razboishki monastery in the Nišava-valley, on limestone rocks, UTM: FN56, leg. Dedov & Subai 21.5.2007: D/246 + 202 (juv./damaged), HHNM 96915/5, Maa/5, NMW/5, RMNH/5, S 21086/1099 + 107 (juv./damaged) + 11 (in alc.), Sch/5, SMF 330179/1, 330182/10.

Diagnosis.— Shell reddish-brown, with high, distant ribs. Apertural lip reflected and wide, inside thickened, palatal wall with blunt tooth, with corresponding external depression. Palatal callus well developed, sometimes with a ridge. Penial caecum, very small, terminally tapering. Penis retractor long and narrow. Vagina narrow, not swollen. Pedunculus very long and narrow, bursa long and narrow.

Description.— Shell depressed, bowl-shaped, reddish-brown. Radial ribbing begins

after ca. 1.75 (very) finely granulated, almost smooth embryonic whorls. First ribs very fine, becoming higher towards the aperture. On the last whorl there are 38-55 ribs (3-5/mm). Between the ribs very fine, slightly elevated radial lines are visible at high magnification. Whorls 5.5-6.25, dorsally well rounded, laterally slightly oblique flattened, regularly increasing in size. Last whorl 1-1.2 times wider than the penultimate one. Suture well impressed. Umbilicus wide, perspective, regularly increasing from the beginning, somewhat eccentrically widened in the last whorl. Umbilical width 1.1-1.5 mm (30-32 % of shell diameter). Apertural lip wide and reflected from the columellar wall towards the more or less developed palatal tooth, from there towards the angular/parietal wall the lip is thin and unreflected. The inward leading insertions on the parietal-angular side of the aperture are 0.8-1.1 mm apart, connected by a well-developed callus. Sometimes the callus carries a somewhat elevated, slightly slanting ridge. Shell measurements (in mm, n = 235): H: 2.5-3.3; D: 3.75-4.68; AH: 1.25-1.75; AD: 1.37-1.87.

Genital anatomy (figs 1-2). — (5 animals examined: 3 from Rumania, N of Cloşani, and 2 from Bulgaria, Razboishki monastery). Penis thinner than epiphallus. Penial caecum very small, narrowing towards its end. The long, branched penial retractor inserts at the base of the caecum, resp. the proximal part of the appendix. The appendix consists of three equally long parts: a proximal, slightly swollen part, a narrow central segment, and a distal part which is as wide as the proximal part. Vagina narrow. Bursa copulatrix long, consisting of a narrow pedunculus and a barely differentiated bursa.

Distribution. — Romania (S and SW Carpathian Mountains), NE Serbia, W Bulgaria (Nişava valley).

Notes. — The shells of Bulgarian *A. t. triaria* are very similar to those from Serbia and the Cerna Valley in Romania. In the SW Carpathian Mountains this species shows northward transitions towards *A. triaria trinodis* (Kimakowicz, 1884) as well as towards *A. triaria triadis* (Kimakowicz, 1884). The relationships of these taxa will be clarified in the near future.

Aspasita bulgarica nov. spec. (figs 3, 4, 7)

Spelaeodiscus (Aspasita) triarius; Urbanski, 1964: 21 (non *Helix triaria* Rossmässler, 1839).

Spelaeodiscus (Aspasita) triarius; Urbanski, 1969: 230, fig. 1 (distributions map, in part, only Ledenika cave).

Spelaeodiscus triaria triaria; Damjanov & Likharev, 1975: 137 (in part), fig. 72 (shell), not fig. 73 (genital organs of *Aspasita* spec. from Hungary).

Spelaeodiscus triarius; Schileyko, 1984: 156, fig. 84-85.

Aspasita triaria f. *triadis* Kimakowicz, 1884; Schileyko, 1998: 90, fig. 101 (non *Anchistoma (Gonostoma) triadis* Kimakowicz, 1884).

Type material. — Locus typicus: Bulgaria, Ledenika (= W of Vraca), on limestone rocks next to the cave, UTM: GN08., leg: Dedov & Subai, 22.5.2007: holotype SMF 330180, paratypes: D/2, HNHM 96916/3, NMW/3, RMNH.MOL 110812/3, S 21092/263 + 60 (juv./damaged) + 2 (juv., in alc.), Sch/3, SMF 330181/10; leg: Németh 21.7.1986, S 11413/4; leg: Eróss 8.1976, E 2083/7 + 7 (juv./damaged) + 1 (in alc.); leg: Dedov 20-21.6.2005, D/24 + 1 (in alc.) + 1 (juv., in alc.), S 20216/6; Vratcata gorge W of Vraca, on limestone rocks, UTM: GN08, leg: Dedov & Subai 23.5.2007, S 21137/7 + 6 (juv.).

Diagnosis. — Shell yellowish-brown, ribbing more dense and ribs lower than in *A. triaria*. Aperture barely thickened, without palatal tooth and corresponding external depression. Parietal callus missing. Flagellum well developed. Penis retractor short and wide.

Vagina wide and swollen. Pedunculus relatively short, widened proximally. Bursa elongate-oval, slightly wider than the tapering pedunculus.

Description.— Shell depressed-conical, yellowish-brown. After about 1.75 very fine and evenly granulated embryonic whorls, a sculpture of radial ribs begins. The ribs are fine in the early whorls, but increase in height in later whorls. Number of ribs on the last whorl 55-74 (5-7/mm). At high magnification very fine, slightly elevated radial lines are discernable between the ribs. Shell with 5.5-6.5, well rounded, regularly increasing whorls, last whorl 1.1–1.3 times wider than the penultimate one. Suture well imprinted. Umbilicus wide, perspective, regularly increasing but somewhat eccentrically widened in the last whorl. Umbilical width 1.18-1.62 mm (26-30 % of shell diameter). Aperture oblique, reflected, lower two-third somewhat widened. Without palatal tooth and corresponding external depression. Rim of Aperture sharp, well rounded and expanding. Shell measurements (in mm, n= 337): H: 2.94-3.75; D: 4.5-5.3; AH: 1.8-2.12; AD: 1.68-2.18. Holotype: H: 3.25; D: 5; AH: 2; AD: 2.18; W: nearly 6.

Genital anatomy (fig. 3).— (based on a single animal from locus typicus; Urbanski, 1969: 230, fig. 2; Schileyko, 1984: 157, fig. 85; Schileyko, 1998: 92, fig. 101) Penis equally wide or slightly narrower than epiphallus. Flagellum narrowed at the transition into the vas deferens. Penial caecum almost as long as the epiphallus. Penis retractor short and wide, inserting with short lateral projections at the base of the caecum and on the proximal part of the appendix. Central part of appendix narrower than both surrounding portions that are equally wide. Vagina wide, almost as wide as the proximal part of the pedunculus. Bursa copulatrix relatively short, tapering towards the elongate-oval bursa.

Distribution.— Currently only known from two locations in the Stara Planina mountains, W of Vraca, Bulgaria.

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