MACEDONICA DOBROSTANICA N. SP. FROM BULGARIA (GASTROPODA: PULMONATA: CLAUSILIIDAE)

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Abstract *In the present article a new species* Macedonica dobrostanica *n. sp. is described. It was found in the Western Rhodope Mountains, Bulgaria. The close relationship of this species with the* Macedonica marginata*-group and the richness of species of* Macedonica *O. Boettger 1877 in this mountain region are discussed. Some ecological data for the habitat are also presented.*

Key words *Terrestrial Snail, Rhodope Mountains, new species,* Macedonica

INTRODUCTION

The genus *Macedonica*, family Clausiliidae, is confined mainly to the Balkan Peninsula and then principally in its central and eastern parts. Currently thirty-three species and subspecies are considered valid (excluding synonymous taxa). The majority of taxa are in Bulgaria (20 species and subspecies), then Greece and Serbia (8 species and subspecies) finally Romania, Croatia and Macedonia (2 species and subspecies). In Bulgaria, most taxa are recorded in the Western Rhodopes. Overall, there are three centres of distribution within the Balkans – northeast Serbia with *frauenfeldi* species group, southern Bulgaria with the *marginata* species group and northeastern Greece with the *macedonica* species group.

Only a few species such as *M. marginata* (Rossmässler 1835) are widespread in the Balkans. The latter was described from Banat in the Transylvanian Carpathians, but occurs also in Bulgaria in the Rhodope Mountains. Most species have a local distribution which is often of the "island" type i.e. isolated in very small areas. In recent years new species continue to be found and described. These are mostly isolated in specific limestone habitats, for example *Macedonica pindica* Gittenberger 2002, *Macedonica pindica bellula* Gittenberger 2002, *Macedonica hartmuti* Irikov 2003, *Macedonica teodorae* Irikov 2006 and now *Macedonica dobrostanica* n. sp. This trend will probably continue as there are many still unexplored local limestone habitats in the Balkans.

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SYSTEMATIC SECTION

Alopiinae, Cochlodinini

Macedonica dobrostanica n. sp.
Fig. 1

This species previously was reported as *Macedonica* sp. (Irikov, 2002).

Differential diagnosis This is the smallest species of genus *Macedonica* known until now. The species differs from the similar *M. marginata* by its slender shell (more tower-shaped than spindle-shaped), the smaller size, smoother shell and lack of a white surface coating, even in old shells. It differs from *M. ypsilon* Nordsieck 1977 by its smaller size, thicker-walled shell, lack of clearly pronounced lunella rudiments on palatal folds, no suturalis, or only exceptionally, less developed lower palatal plica which is lower and situated at greater distance from the principalis plica and upper palatal plica. In the structure of the genital system it is similar to *M. hartmuti*, and may live with this species, but differs significantly in form and sculpture of the shell. The newly discovered species differs substantially from *M. teodorae*, by the absence of a penis papilla internally and by its ribbed shell.

Description (Fig. 1) Shell slender, light brown to horn-brown, lacking a grey-white surface layer even in the old shells. Protoconch whorls 2–2.5 in number, smooth, yellow-brown to dark brown. Shell surface comparatively smooth, with densely spaced small and fine streaks. Last whorl with larger and more separated streaks. Whorls number 10–11, separated by slightly

Figure 1 *Macedonica dobrostanica* n. sp., holotype SMF 338461: South Bulgaria, Dobrostan Ridge, Western Rhodope Mountains. H = 13.9 mm. All photos by Mrs. Sigrid Hof, Senckenberg Research Institute Frankfurt a. M.

incised sutures, which are thread-like and whitish. Aperture pear-shaped, with widely open, small and thin, yellow-brown lip. Upper lamella slightly projecting, situated some distance from the spiralis. Spiralis situated deep inside and scarcely visible through the aperture. Inferior lamella large, strongly bent and going upright to the spiralis; ends almost hotizontally at the peristome. Small part of lower end of the subcolumellaris visible when viewed perpendicularly from aperture. Lunella rudiments missing. Principal plica long and clearly visible through aperture. Upper palatal plica downward-sloping and visible frontally in the aperture. External part of the clausilium plate saddle-shaped, curved. Also distinctly excised.

Genital anatomy (Fig. 2) Genital system as a whole relatively small, compared to animal size. Canalis serosus poorly developed. Diverticulum of bursa copulatrix as long as the bursa and its stalk. Swollen pedunculus and free oviduct shorter than the vagina. Vaginal retractor inserts in the pedunculus at some distance from the transition point between vagina and pedunculus. Penis short and without penial papilla. Epiphallus with short distal and long proximal part separated by insertion of the retractor penis; as a whole longer than the penis. Retractor penis with one branch, massive and longer than the penis. Distal vagina swollen and distended in transition to the atrium. Distal swelling of vagina contains longitudinal sectional fold, situated between vagina, atrium opening and penis. Fold elongated toward the penis and located between the atrium opening and distal vagina (Fig. 2). Fold found in the transition to atrium of the vagina first detected in species of *Macedonica*. Function of the fold probably associated with copulation.

Etymology This species is named after the nearest village to the Locus typicus, Dobrostan in the Western Rhodopes, Bulgaria.

Type material Holotype SMF 338461 Bulgaria, Western Rhodope Mountains, Dobrostan ridge, valley of Mostovska Suchitza River, S of Martziganitza hut, 1100–1300 m alt., 15.x.2006, on rocks, paratypes SMF 338462/14 (dry).

Additional paratypes Coll. Irikov 463/12 (dry), 15.10.2006, leg. T. Irikova and A. Irikov; 500/6 (preserved in alcohol), 15.10.2007 leg. A. Irikov; coll. Bulgarian Malacological Society 55/4 (preserved in alcohol), 15.10.2007 leg. A. Irikov, from the same locality.

Measurements Holotype: shell height 13.9 mm; shell width 3.6 mm; aperture height 3.8 mm; aperture width 2.8 mm. Paratypes: shell height 12.0–17.0 mm, average 14.4 mm; shell width 2.8–4.0 mm, average 3.5 mm; aperture width 2.9–4.5 mm, average 3.8 mm; aperture height 2.0–3.1 mm, average 2.8 mm.

Variation Variations are present in the shell size but are generally limited.

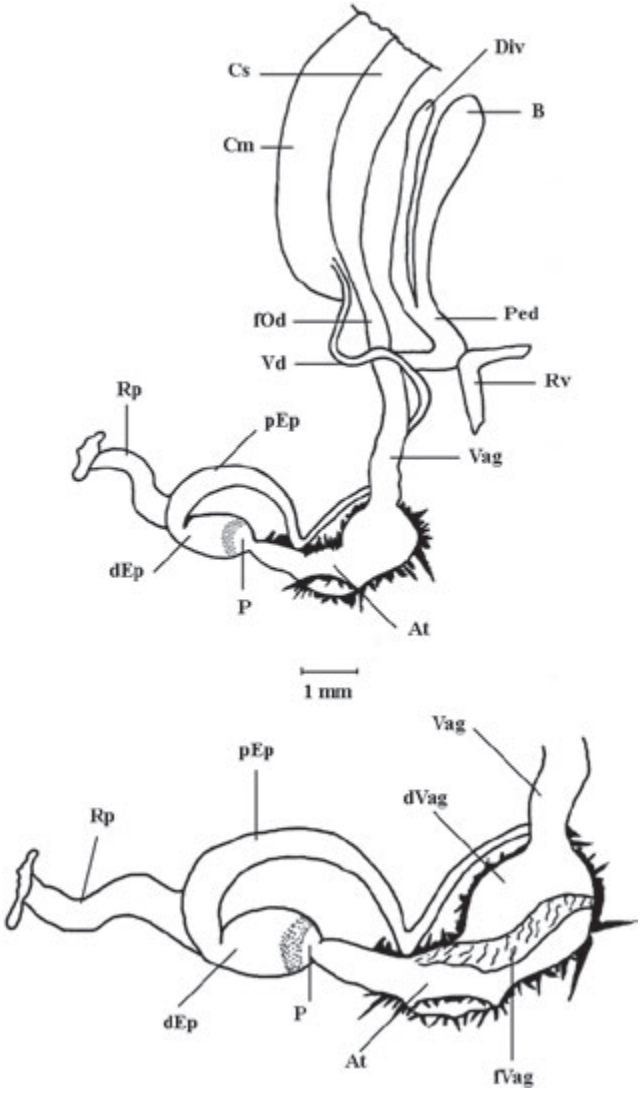

Figure 2 *Macedonica dobrostanica* n. sp., genital system: part of genital system with internal structure of the distal part of the vagina. Abbreviations (proximal-distal seen from the ovotestis): **At** atrium; **B** bursa copulatrix; **Cm** canalis mucosus; **Cs** canalis serosus; **dEp** distal part of epiphallus; **Div** diverticulum; **dVag** distal part of vagina; **fOd** free oviduct; **fVag** vaginal fold; **P** penis; **Ped** pedunculus; **pEp** proximal part of epiphallus; **Pl** penial ligament; **Rp** retractor penis; **Rv** retractor vaginae; **Vag** vagina; **Vd** vas deferens.

Relationships The position of the vaginal retractor insertion in the pedunculus, lack of a penial papilla and shape of the distal vagina is similar in *M. marginata*, *M. hartmuti* and other species of the *marginata*-group. The species undoubtedly belongs to the *marginata*-group (sensu Nordsieck, 1974).

Distribution/Ecology *Macedonica dobrostanica* n. sp. occurs in south Bulgaria, the Dobrostan Ridge in the Western Rhodope Mountains, in the valley of the Mostovska Sushitza River, near-by Martziganitza hut and the village of Dobrostan. The species has a limited range, only in the river valley between the villages Mostovo and Yugovo. The animals live in karst xerothermic rocky habitats from 800 to 1300 m. alt. They inhabit vegetated outcrops, mostly under common stonecrop (*Sedum* sp.) and cracks in the rocks. Animals are often active in winter because the habitat is exposed to the south, temperatures are high and snow is seldom persistent. The species lives together with *Macedonica marginata*, *M. hartmuti*, *Bulgarica bulgariensis bulgariensis* (L. Pfeiffer 1848) and *Laciniaria macilenta* (Rossmassler 1842). Although three *Macedonica* species (*marginata*, *hartmuti*, *dobrostanica*) occur together in the valley Mostovska Sushitsa they occupy different micro-ecological niches. *M. marginata* inhabits mainly the base (lower part) of rocks, especially among mosses. *M. hartmuti* occurs on high steep rocks, rock crevices, and among vegetation. *M. dobrostanica* n. sp. inhabits more horizontal outcrops on which there is abundant vegetation of mostly *Sedum* sp. All three species are found in combination with *B. bulgariensis* and *L. macilenta*.

Discussion *Macedonica dobrostanica* n. sp. is another species of the genus *Macedonica*, established in recent years in the Western Rhodopes, after *Macedonica hartmuti* and *Macedonica teodorae*. Like the last two species, *Macedonica dobrostanica* n. sp., it has a very local distribution in the mountains of the "island" type. The description of this new species supplements the already rich list of species of the genus *Macedonica* living in a relatively small region of the Western Rhodopes and thus the territory is characterized as a centre for speciation in *Macedonica*.

Zoogeography A Bulgarian endemic species.

References

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