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PNEUMOSTOME STRUCTURE IN *HELIX POMATIA* LINNAEUS, 1758 AND *H. LUTESCENS* ROSSMÄSSLER, 1837 (GASTROPODA: PULMONATA: HELICIDAE) – ANOTHER DIAGNOSTIC CHARACTER

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ABSTRACT: The pneumostomes in *Helix pomatia* Linnaeus, 1758 and *H. lutescens* Rossmässler, 1837 are built in a similar way, but differ in the shape of the disc between the two pneumostome lobes, thus providing another diagnostically useful character.

KEY WORDS: pneumostome, respiratory organs, *Helix pomatia*, *Helix lutescens*, Helicidae

INTRODUCTION

Helix pomatia Linnaeus, 1758 belongs to the gastropod species that have been described most broadly in malacological literature. Especially important in this respect are monographs by MEISENHEIMER (1912) and KILIAS (1960). However, even in these papers, the structure of pneumostome has been presented in general outline. The drawing of the Roman snail's pneumostome in EHRMANN'S paper (1937) is also much simplified and does not provide information on the details of its structure. There is no reference to the structure of this organ in *H. lutescens* Rossmässler, 1837.

A detailed study has been carried out on the pneumostome structure in 11 European lymnaeid species (JACKIEWICZ & DUDZIEŃ 1998). The interesting results of this study inspired us to investigate the pneumostome structure in *H. pomatia* and *H. lutescens*. These two species, and especially their juvenile individuals, are often confused when identified based on external characters alone.

MATERIALS AND METHODS

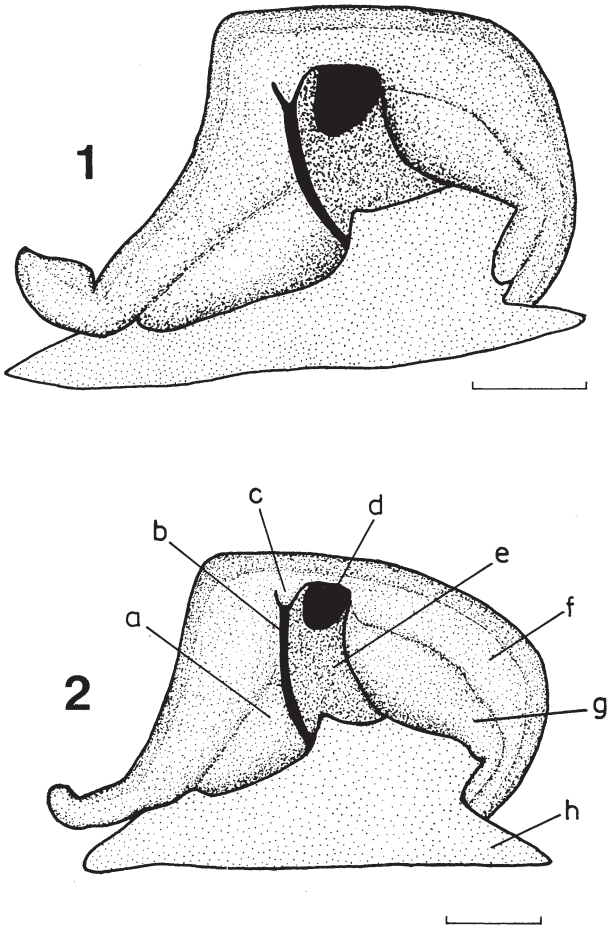
The pneumostome structure was examined in ten specimens of each species. *H. lutescens* was collected by KORALEWSKA-BATURA in June 1998, in a neglected garden in Kielce (Southern Central Poland). *H. pomatia* was obtained by DEGÓRSKI from a garden in Gniezno (Western Poland) in September 1998.

The pneumostome structure of both species is presented on photographs and drawings.

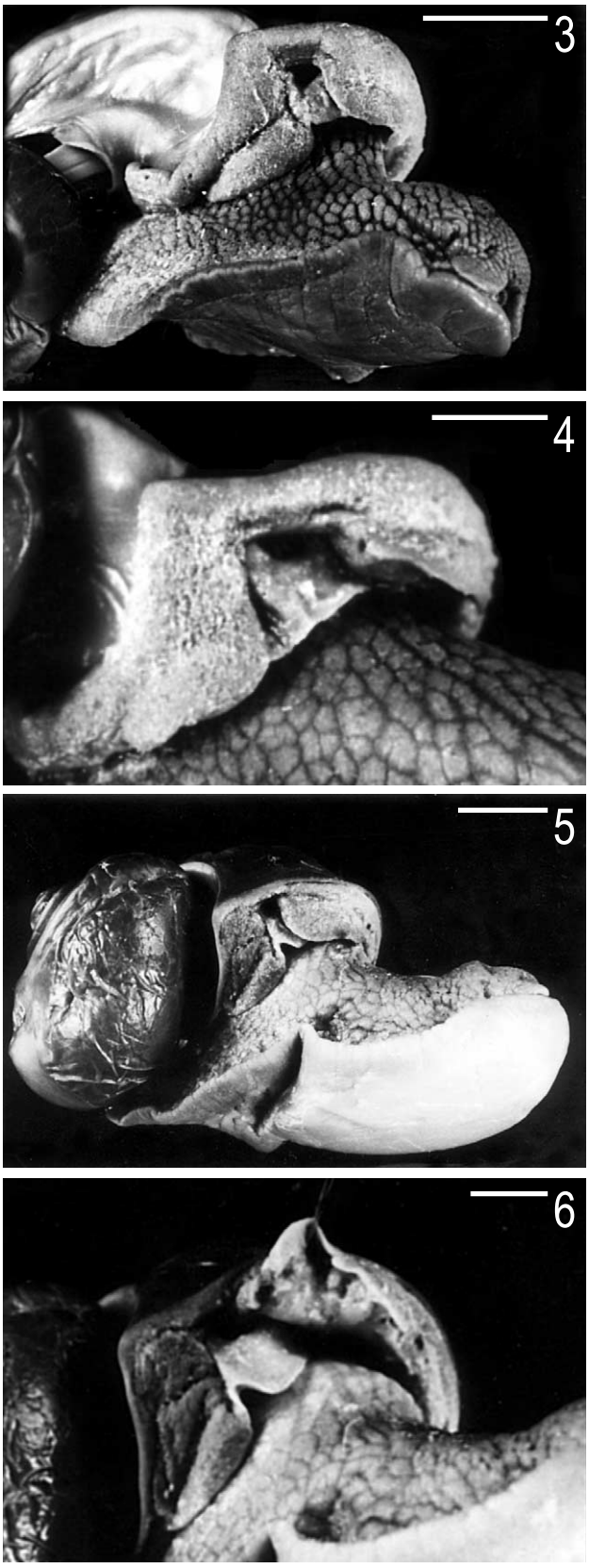
RESULTS AND DISCUSSION

Gastropod visceral mass is covered with a mantle. The free mantle part, that is not fused with the body, forms a large fold, called mantle collar. The other mantle part, covered with a dense network of blood vessels, builds the lung. Its lumen is called lung cavity. This cavity opens with the pneumostome on the right side of the snail body, just on the transition between the dorsal and ventral parts of the mantle collar.

The pneumostome structure is essentially the same in *H. pomatia* (Figs 1, 3, 4) and *H. lutescens* (Figs 2, 5, 6). The mantle collar is broad and very thick in both species. Its dorsal part is very fleshy and much broader than the ventral part. There are two large lobes on both sides of the pneumostome. They are firmly attached to the collar tissue, from which they are separated by a very shallow groove. Their free ex-



Figs. 1, 2. Pneumostome structure: 1 – *Helix pomatia*; 2 – *Helix lutescens*. a – right lobe, b – channel, c – papilla, d – respiratory opening, e – disc, f – mantle collar, g – left lobe, h – foot fragment. Scale bar – 0.5 cm (Original)



Figs. 3–6. Pneumostome: 3, 4 – *Helix pomatia*; 5, 6 – *Helix lutescens*. Scale bar: 1 cm (Figs 3, 5), 0,5 cm (Figs 4, 6)

ternal border overhangs the foot. Both lobes are triangular, with roundish angles. The shortest side of each lobe triangle faces the respiratory opening. The left lobe is usually larger than the right one and is always much displaced towards the respiratory opening. The right lobe adheres to the terminal part of the channel along which feces are expelled. The channel, starting just next to anus, is long and deep. There is a very small papilla, usually triangular in shape, over the anus. It covers the anal opening so it is not visible externally. Between the two pneumostome lobes, there is a broad disc which is firmly attached to the lobes. It is relatively flat and of lighter colour than the other pneumostome parts. The respiratory opening is of ligular shape. Below, it is surrounded by the disc, and above by the mantle collar border.

The pneumostomes of the two species differ only in the shape of the disc located between the pneumostome lobes. In *H. pomatia*, the outer, free border of the disc is almost straight cut. It is distinctly round in *H. lutescens*.

The disc shape may be an additional diagnostic feature to distinguish between *H. pomatia* and *H. lutescens*.

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