

ZOOLOGISCHE MEDEDELINGEN

UITGEGEVEN DOOR HET

RIJKSMUSEUM VAN NATUURLIJKE HISTORIE TE LEIDEN
(MINISTERIE VAN WELZIJN, VOLKSGEZONDHEID EN CULTUUR)

Deel 59 no. 7

10 april 1985

ISSN 0024-0672

A NEW *DEROCERAS* SPECIES FROM NORTH-WESTERN SPAIN (GASTROPODA: PULMONATA: AGRIOLIMACIDAE)

by

A. J. DE WINTER

Winter, A. J. de: A new *Deroceras* species from north-western Spain (Gastropoda: Pulmonata: Agriolimacidae).

Zool. Med. Leiden 59 (7), 10-iv-1985: 69-77, figs. 1-10, table 1. — ISSN 0024-0672.

Key words: *Deroceras*, Spain, subgenera.

Deroceras ercinae spec. nov. is described from the Cantabrian Mountains, Spain. The characters used to define the subgenera of *Deroceras* are discussed. It is demonstrated that the present subdivision of this genus into subgenera is not based on synapomorphic characters.

A. J. de Winter, Dorpsstraat 139, 6871 AG Renkum, The Netherlands.

In April 1984 some slugs belonging to the genus *Deroceras* Rafinesque, 1820 were collected around the Lago de la Ercina in the Picos de Europa, province of Oviedo, Spain. They could not be identified with any known species. Therefore, these slugs are here described as belonging to a new species.

All measurements have been taken from specimens preserved in 70% ethanol, after drowning in water.

Abbreviations used: A, atrium; AM, atrial muscles; DH, hermaphrodite duct; GA, albumen gland; OD, free oviduct; OT, ovotestis; P, prostate; PR, penial retractor muscle; RMNH, Rijksmuseum van Natuurlijke Historie, Leiden; S, spermatheca; SD, spermathecal duct; SOD, spermoviduct; VD, vas deferens.

***Deroceras ercinae* spec. nov.**

(figs. 1-10)

Diagnostic features. — A cream coloured, relatively large *Deroceras* without, or with hardly visible external pigmentation. Penis tripartite; the lower

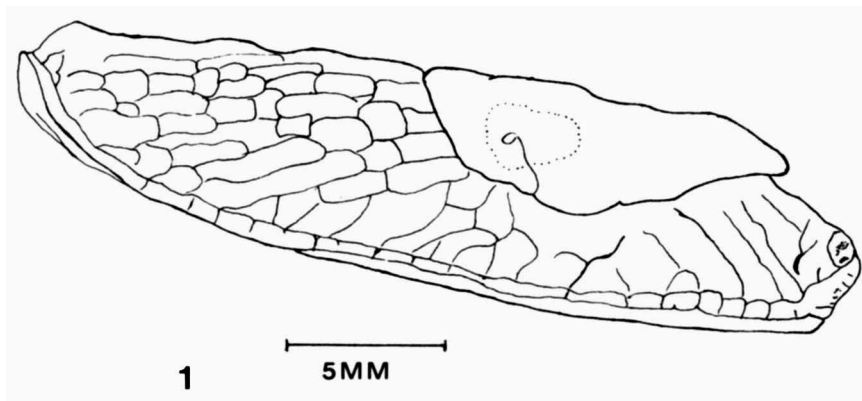


Fig. 1. *Deroceras ercinae* nov. spec., paratype, external appearance.

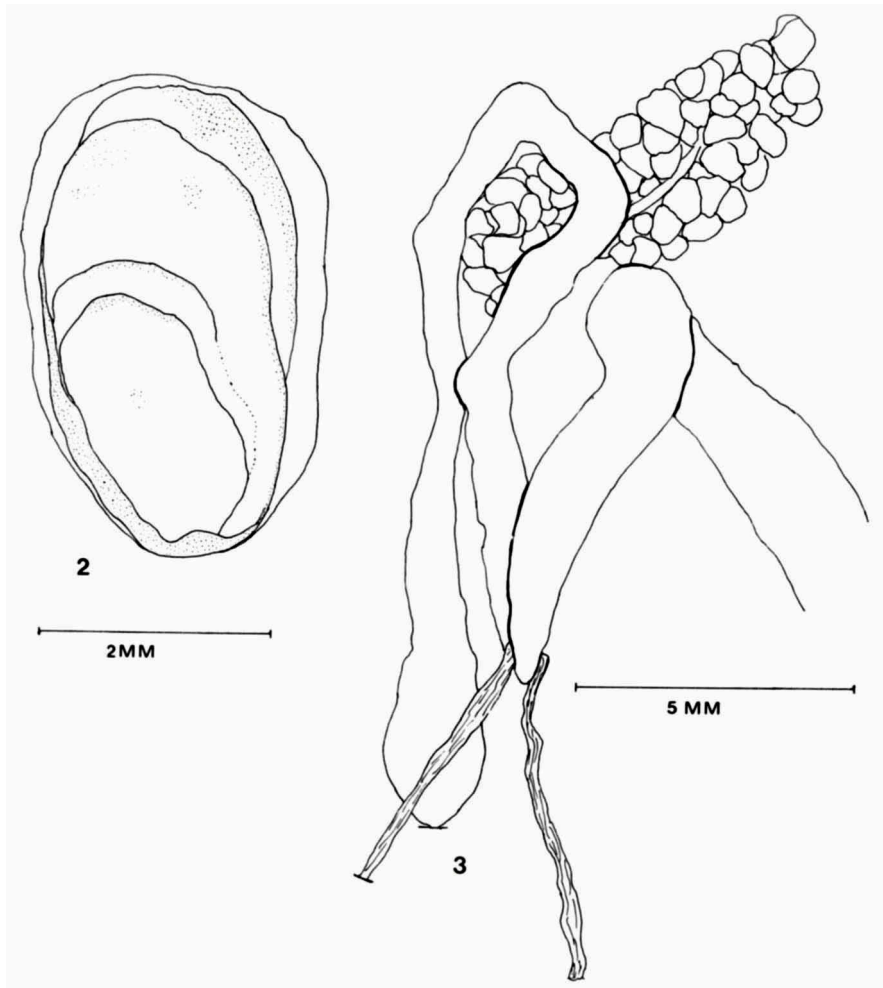
part contains a broad, pointed sarcobelum; the upper part bears an unbranched appendix, of which both sides are incised. A rectal caecum is completely absent.

External characters (fig. 1) — All specimens, except one, are adults and measure between 27 and 30 mm. One specimen is nearly mature and measures 23 mm. The holotype is 30 mm long and about 6.5 mm wide. Its mantle length is 12.5 mm. The body is unicolourous cream; some specimens have a few, hardly discernible dark spots on the mantle. There is a conspicuous keel on the posterior quarter of the dorsum. Sole tripartite. The genital orifice is situated between and slightly behind the right upper and lower tentacles. Skin moderately thick, not transparent. Mucus colourless; irritated individuals excrete a milky white substance.

Shell (fig. 2) — The shell from a paratype measured 4.2×2.7 mm. It is brittle, partly transparent, with a thin, hyaline border.

Intestine (fig. 3) — In all examined specimens (five) a rectal caecum is completely absent.

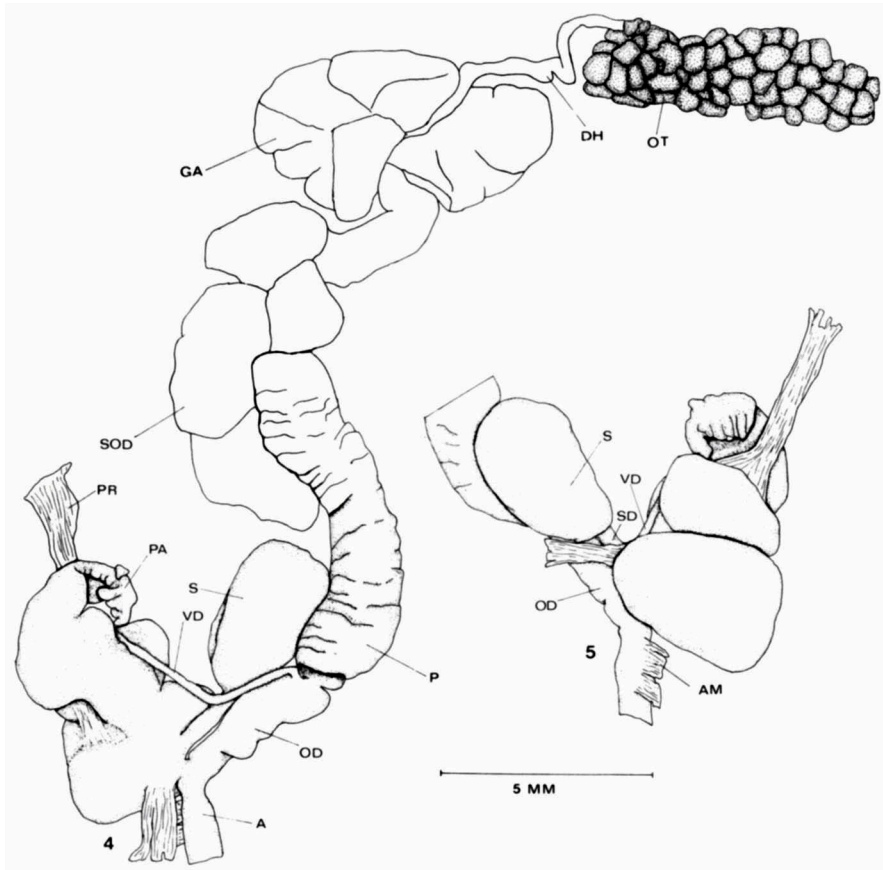
Genital system (figs. 4-10) — Except for the ovotestis, all parts of the genital system are unpigmented. The ovotestis, consisting of large, golden brown acini, is situated at the rear of the body, partly under and for the larger part behind the last loop of the intestine (fig. 3); its anterior part is embedded in liver tissue. The hermaphrodite duct is short and slightly sinuous. The spermatheca is pear-shaped; the spermathecal duct is slender. The penis is divided into three parts: (1) a lower, large bulbous sack, which contains the sarcobelum; (2) an upper part with a conspicuous, unbranched appendix; (3) a more or less oblong diverticulum, attached to the upper part of the penis and resting on the lower part. In most specimens, but not in the holotype, the di-



Figs. 2, 3. *D. ercinae* nov. spec., paratypes; 2, shell; 3, posterior part of intestine, also showing position of ovotestis.

verticulum resembles two blunt processes, divided by a superficial furrow. The penial retractor muscle is attached to the upper part of the diverticulum where this is inserted on the apical part of the penis. The appendix is more or less symmetrical, with both sides incised. Each lobule may be divided again, which gives the appendix a fern-like appearance. The sarcobelum is large, broad and rapidly narrowing, with a flat, acute top (fig. 10). The vas deferens enters the penis apically. At its entry a small swelling is present. The atrium is attached to the body wall by numerous small muscles.

Material. — Holotype and four paratypes in RMNH (alc. 9122 and 9123



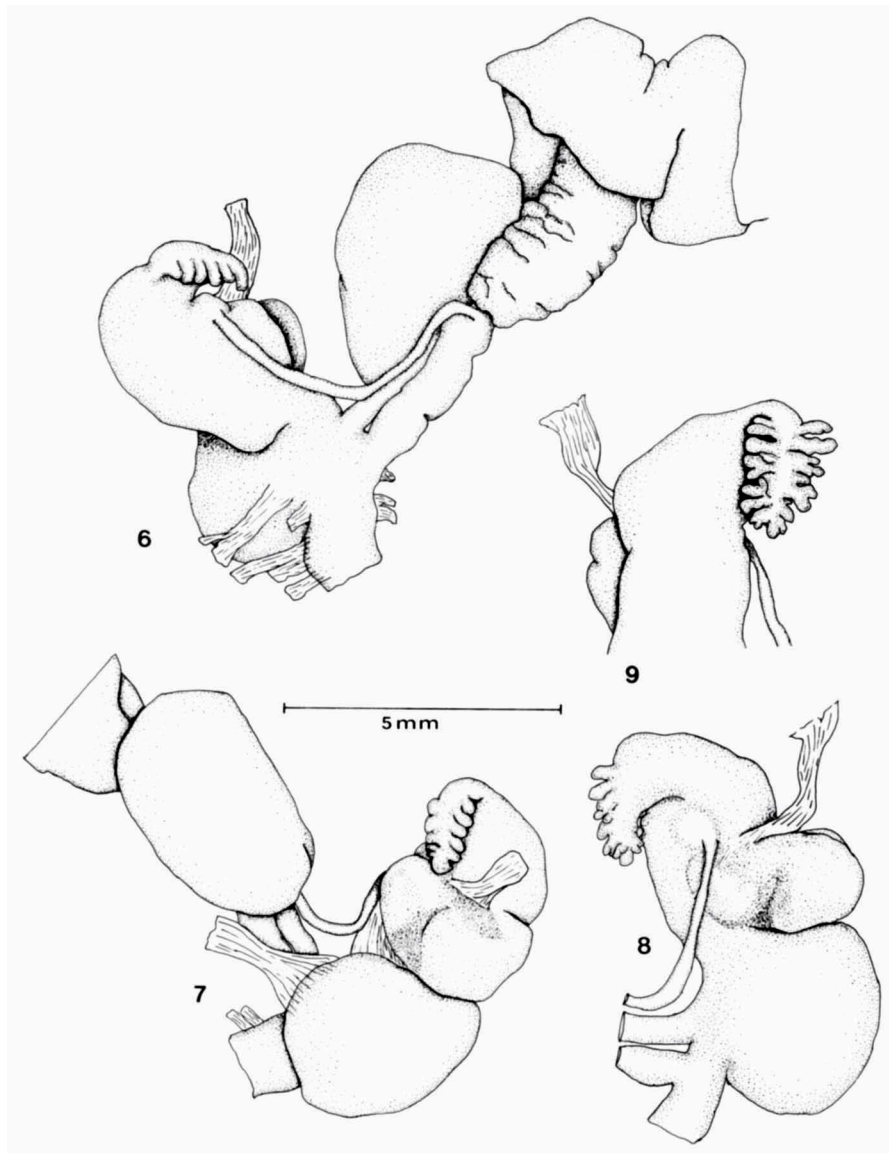
Figs. 4, 5. *D. ercinae* nov. spec., holotype; 4, genital system; 5, anterior genitalia, viewed from another side.

respectively); one paratype in the author's collection. Holotype and four paratypes dissected, one paratype is left undissected (RMNH alc. 9123).

Type locality. — Limestone mountains with a vegetation of short herbs only, around the Lago de la Ercina, Picos de Europa, 8 km SE of Covadonga, province of Oviedo, Spain; UTM UN39; 1100-1250 m altitude; A. J. de Winter leg., 18-iv-1984.

Derivatio nominis. — Named after the Lago de la Ercina, to indicate where the type specimens were found.

Discussion. — The slugs of the Iberian Peninsula are little known. Morelet (1845) described *Limax lombricoides* and *L. nitidus* from Portugal. Although his descriptions are too poor to be interpreted with certainty, these species seem to differ from *D. ercinae* in their colour, which is brownish ('carnicolor')



Figs. 6-9. *D. ercinae* nov. spec., paratypes; 6, 7, anterior genitalia viewed from different sides; 8, penis of another paratype; 9, apical part of penis of same paratype.

with small dark spots in *D. lombricoides* and black in *D. nitidus*. According to Simroth's (1891) interpretation of these taxa, there are clear differences in genital morphology as well. *D. ercinae* has some resemblance in genital mor-

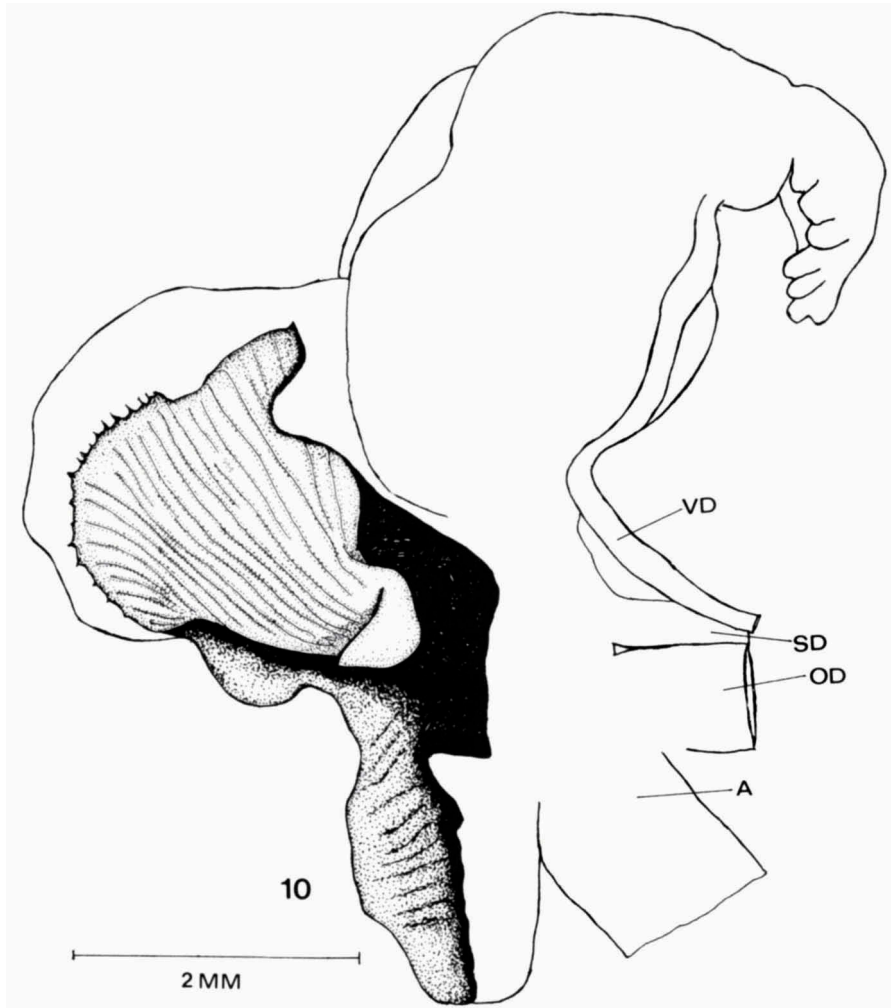


Fig. 10. *D. ercinae* nov. spec., paratype, penis opened to show sarcobelum.

phology to *D. maltzani* (Simroth, 1885) from the province of Algarve, Portugal, of which topotypes (in RMNH) could be studied. It differs, however, in external pigmentation, size, penial shape and in position of the ovotestis (cf. Rähle, 1983). Externally *D. ercinae* resembles *D. immaculatus* (Simroth, 1891), *D. agreste* (Linné, 1758) and *D. altimirai* Altana, 1969, but it differs considerably in anatomical features (cf. Simroth, 1891; Altana, 1969). The recently described *D. hispaniense* Castillejo & Wiktor, 1983 from Galicia differs in exter-

	<i>Deroceras</i>	<i>Agriolimax</i>	<i>Plathystimulus</i>	<i>Liolytopelte</i>
Mantle	large, nearly 1/2 of body length.	about 1/3 of body length.	about 1/3 of body length.	?
anterior edge accreted (?)	anterior edge accreted (?)	anterior edge accreted (?)	anterior edge accreted (?)	anterior edge free.
Skin	soft, partly transparent.	thick, not transparent.	thick, not transparent.	soft, partly transparent.
Colour	unicolourous or mottled, cream, brown or black.	spotted or (rarely) unicolourous.	unicolourous or spotted.	unicolourous or spotted, cream, brown, grey or violet.
Penial gland	small papillae or bifurcated appendices.	single or branched appendix.	big and branched, usually with appendix.	typical penial gland absent, with various swellings or appendices.
Sarcobelum (Stimulator)	semicircular papillae or obtuse cone.	conical, apically narrowing, less frequently laterally flattened.	completely flattened, flabelliform or spade-shaped.	of various shapes, with calcareous plate.
Intestinal caecum	absent or small pocket.	always present, usually larger than broad, rarely small pocket.	small, shallow pocket.	absent or slight broadening.
Mucus	colourless, very watery.	colourless, milky when irritated.	colourless, milky when irritated.	watery, hyaline.

Table 1. Summary of characteristics of the subgenera of *Deroceras*, according to Wiktor (1983).

nal pigmentation, penial shape, its thin, folded sarcobelum, and the presence of a small rectal caecum (cf. Castillejo & Wiktor, 1983: figs. 26-32)

Systematic position. — It has proved difficult to assign *D. ercinae* to any of the subgenera of *Deroceras* recognized nowadays. Wiktor (1973, 1983), who recently proposed such a subdivision, recognized *Deroceras* s.s., *Agriolimax* Mörch, 1865, *Liolytopelte* Simroth, 1901, and *Plathystimulus* Wiktor, 1973. *Malino* Gray, 1855, also used in several recent publications (e.g. Reischütz, 1978, Kerney et al., 1983), but never clearly defined, is considered synonymous with *Deroceras* s.s. (Wiktor, 1983: 163). Table 1 summarizes the characters and their states as used by Wiktor (1983). From this table it is obvious that few, if any, of these characters can be considered unique. The only exception may be the sarcobelum, which, at least in theory, is different in all subgenera. However, if we look at some recently described species and their subgeneric assignment, we can question the value of this feature as well. *D. malkini* Wiktor, 1984, for instance, was placed in the nominate subgenus, although it does possess a 'wide, flattened stimulator', which is not characteristic of this subgenus. Wiktor (1984: 152) used the following arguments for including *D. malkini* in *Deroceras* s.s.: "very small intestinal caecum, weakly developed penial gland and penis appendix", all characters which occur in other subgenera as well and therefore must be considered plesiomorphic at the present state of knowledge. It must be stressed, however, that the multitude of penial shapes and appendages in *Deroceras*, of which the homologies are not yet established, makes it very difficult to distinguish between original and derived character states. Another example is *D. parnasium* Wiktor, 1984, which was included in *Agriolimax*, apparently because of its well developed rectal caecum, although it does possess a stimulator "in form of blunt, short cone" (Wiktor, 1984: 159).

At this moment the use of subgenera does not seem to be warranted, with the exception perhaps of *Liolytopelte*, which appears to have some peculiarities not met with in other subgenera, e.g. the sarcobelum, to which a calcareous plate is attached. Therefore I prefer to avoid the use of subgenera.

REFERENCES

- Altena, C. O. van Regteren, 1969. Notes sur les limaces 14. Sur trois espèces de *Deroceras* de la Catalogne dont deux nouvelles. — Journ. Conchyl. 107: 101-108.
- Castillejo, J. & A. Wiktor, 1983. Furcopenis gen. n. with its two new species and a new *Deroceras* species from Spain. — Malak. Abh. Dresden 9: 1-15.
- Kerney, M. P., R. A. D. Cameron & J. H. Jungbluth, Die Landschnecken Nord- und Mitteleuropas: 1-384, pls. 1-24, 368 maps. Hamburg; Berlin.
- Morelet, A., 1845. Description des mollusques terrestres et fluviatiles du Portugal: 1-114, 14 pls. Paris.

- Rähle, W., 1983. Zur Kenntnis der südportugiesischen Nacktschnecke *Deroceras maltzani* (Simroth, 1885) (Gastropoda, Pulmonata, Agriolimacidae). — Mitt. Zool. Ges. Braunau 4: 191-194.
- Reischütz, P. L., 1978. Bemerkungen zu *Deroceras klemmi* Grossu, 1972 (Moll., Gastropoda, Limacidae). — Mitt. Abt. Zool. Landesmus. Joanneum 7: 39-44.
- Simroth, H., 1891. Die Nacktschnecken der portugiesisch-azorischen Fauna in ihren Verhältnis zu denen der paläarktischen Region überhaupt. — Nova Acta Leop.-Carol. Dtsch. Akad. Naturforsch. 56: 201-424, pls. IX-XVIII.
- Wiktor, A., 1973. Die Nacktschnecken Polens, Arionidae, Milacidae, Limacidae (Gastropoda, Stylommatophora). — Monogr. Fauny Polski 1: 1-182.
- Wiktor, A., 1983. The slugs of Bulgaria (Arionidae, Milacidae, Limacidae, Agriolimacidae — Gastropoda, Stylommatophora). — Ann. Zool. Warszawa 37: 71-206.
- Wiktor, A., 1984. Six *Deroceras* species from Greece, new for science (Gastropoda, Pulmonata, Agriolimacidae). — Malak. Abh. Dresden 9: 151-164.