

Description of a new species of the genus *Cryptazeca* from the North of the Iberian Peninsula

(Gastropoda: Pulmonata: Cochlicopidae).

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With 3 figures.

Resumen: Se describe una nueva especie del género *Cryptazeca*: *C. spelaea* n. sp. (Gastropoda: Pulmonata: Orthurethra), procedente de dos cuevas situadas en la vertiente norte de los Montes Cantábricos, dentro de la provincia de Vizcaya. *C. spelaea* n. sp. es la única especie conocida del género que habita en el interior de cuevas, pudiendo ser considerada como un verdadero troglobionte.

Summary: *Cryptazeca spelaea* n. sp. (Gastropoda: Pulmonata: Orthurethra) is described from two caves placed at the north slope of the Cantabrian Mountains, in Biscay province. *C. spelaea* n. sp. is the only known species of the genus *Cryptazeca* living into caves, and it can be considered as a troglobiotic species.

Introduction.

According to GITTENBERGER (1983) there are four species classified in the genus *Cryptazeca*: *C. kobelti* GITTENBERGER 1983, *C. monodonta* (FOLIN & BÉRILLON 1877), *C. subcylindrica* FOLIN & BÉRILLON 1877 and *C. vasconica* (KOBELT 1894). The genus is endemic for the West Pyrénées and Cantabrian Mountains region, extending from the department of Hautes Pyrénées (CAZIOT 1916) to Asturias (BECH 1986).

Some specimens of this genus, collected in the Basque Country, clearly differ from the rest of species of *Cryptazeca* on the basis of conchological and anatomical characters. This new taxon is described herein.

Methods.

The alive specimens used for anatomical investigations were dissected after preservation in 70% alcohol. The genital apparatus was removed and dehydrated in 70%, 95% and absolute alcohol, and transferred through two changes of xylene. Finally they were embedded in Canada balsam to be observed at light microscopy.

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For scanning electron microscopy, the genital apparatus of a specimen stored in 70% alcohol has been used. It has been dehydrated with 70%, 95% and absolute acetone and were then immersed in Hexamethyldisilazane for 5 minutes and air dried at room temperature, according to the method described by NATION (1983) for preparation of soft insect tissues for scanning electron microscopy. The usefulness of 70% alcohol stored genital systems to be studied by scanning electron microscopy has been reported by BISHOP (1982). Dried genital system and shells were coated with gold and kept in a desiccator.

Cryptazeca spelaea n. sp.

Diagnostic features: *C. spelaea* is characterized by having a colourless and high-conical shaped shell, with 7-7½ slightly convex whorls. Penis enlarging gradually up to the proximal end and possessing small internal papillae, whose spinules are conical and not curved.

Shell: The shell is high-conical in shape, glossy, translucent and colourless. It has 7-7½ slightly convex whorls, separated by shallow sutures (Fig. 1: C-F). Protoconch provided with a microsculpture of very fine spiral grooves (Fig. 3A). The teleoconch possesses an obsolete transverse sculpture, which is more prominent in the contiguity of sutures, as well as a microsculpture of finely serrated spiral lines (Fig. 3B). The last whorl has more than one-half of the total height of the shell. Pear-shaped aperture, with a parietal callus extending from the parieto-palatal edge to the columellar bottom. Except for the upper part of the palatal wall, the outer lip is slightly curved inward and innerly thickened. At the columellar bottom there is a denticle which seems to be related with the columellar end. In side view the upper half of the palatal border is strongly convex and inclined backward; the lower half is concave and inclined backward towards the base. The umbilicus is closed. Height: 7.25 to 8.15 mm; width; 2.60 to 2.90 mm.

Internal features: Reproductive system. Penis enlarging gradually from the insertion in the atrium until the proximal end. The proximal portion is 2-3 times broader than the distal one. The penis is strongly thickened innerly, giving rise to a ring-shaped stimulatory organ (Fig. 2: C-E, 3D). This stimulator is prominent and thick in the proximal region and attenuates gradually in size until its end in the beginning of the third distal part of the penis; the stimulator contains some small papillae which are provided on their top with a conical and not curved spinule (Fig. 2D, 2E, 3C, 3E). The distal portion of the vas deferens is enlarged, giving rise to a little differentiated epiphallus. The penial retractor muscle is inserted in the proximal end of the penis. The vagina is yellowish pigmented. The pedunculus is long and thin, and the little bursa copulatrix is spherical. The spermoviduct is short, in opposition to the long free oviduct.

Radula: It has 45-49 teeth on each row, with tricuspid central tooth, bicuspid lateral teeth and multicuspid marginal teeth. In the marginal teeth the main cusp is not clearly discernible. The central tooth presents a well developed mesocone and two little ectocones; it is clearly smaller than the lateral teeth and its basal plate is narrower. The lateral teeth have a well developed mesocone and an ectocone.

Excretory system: The kidney is long, possessing a nephridial sac and an orthureter. The nephridial pore is located at the apex of the orthureter. The primary ureter is closed and it is as long as the orthureter.

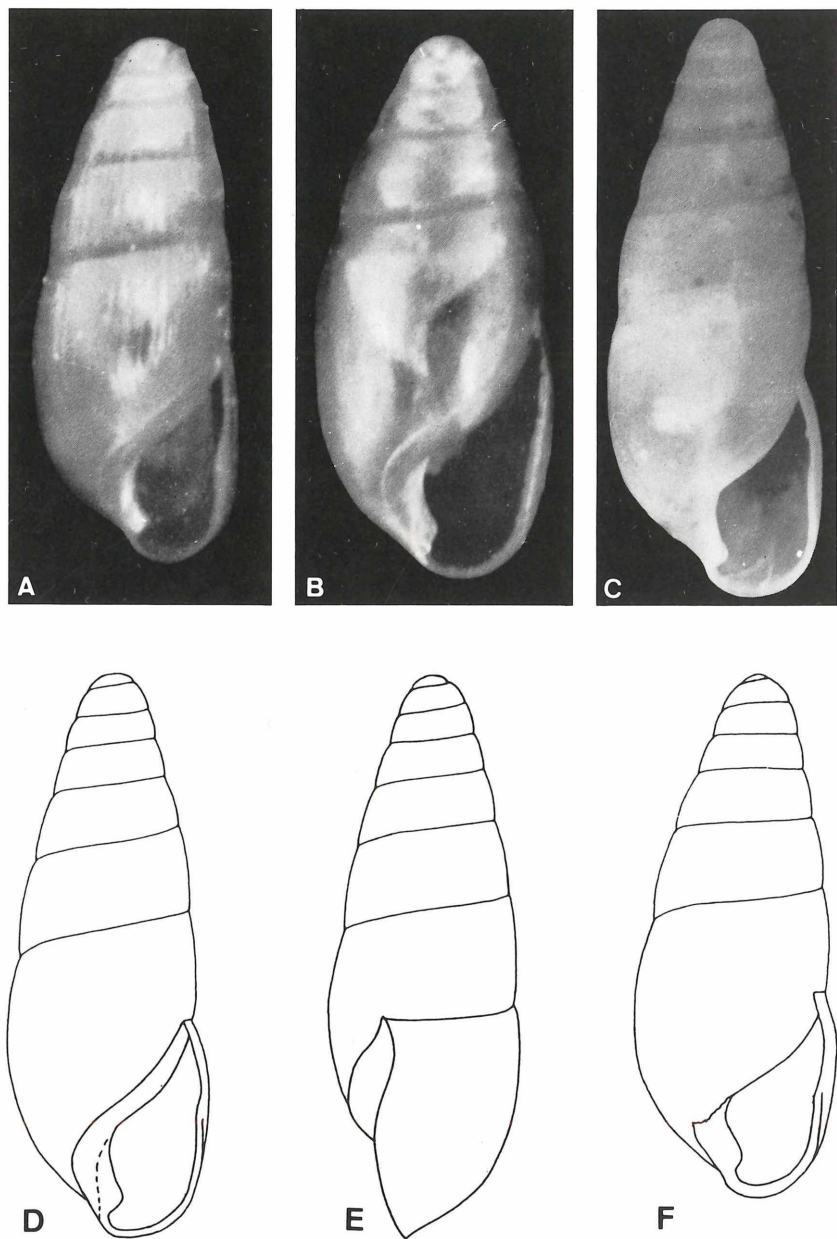


Fig. 1. Shell of three species of the genus *Cryptazeca*. A) *C. vasconica*. h: 3.20 mm. B) *C. monodonta*. h: 3.80 mm. C-F) *C. spelaea* n. sp. C) Paratype from Marcos cave. h: 7.80 mm. D, E) Holotype. h: 8.14 mm. F) Paratype from Usumaltxe II cave, h: 7.47 mm.

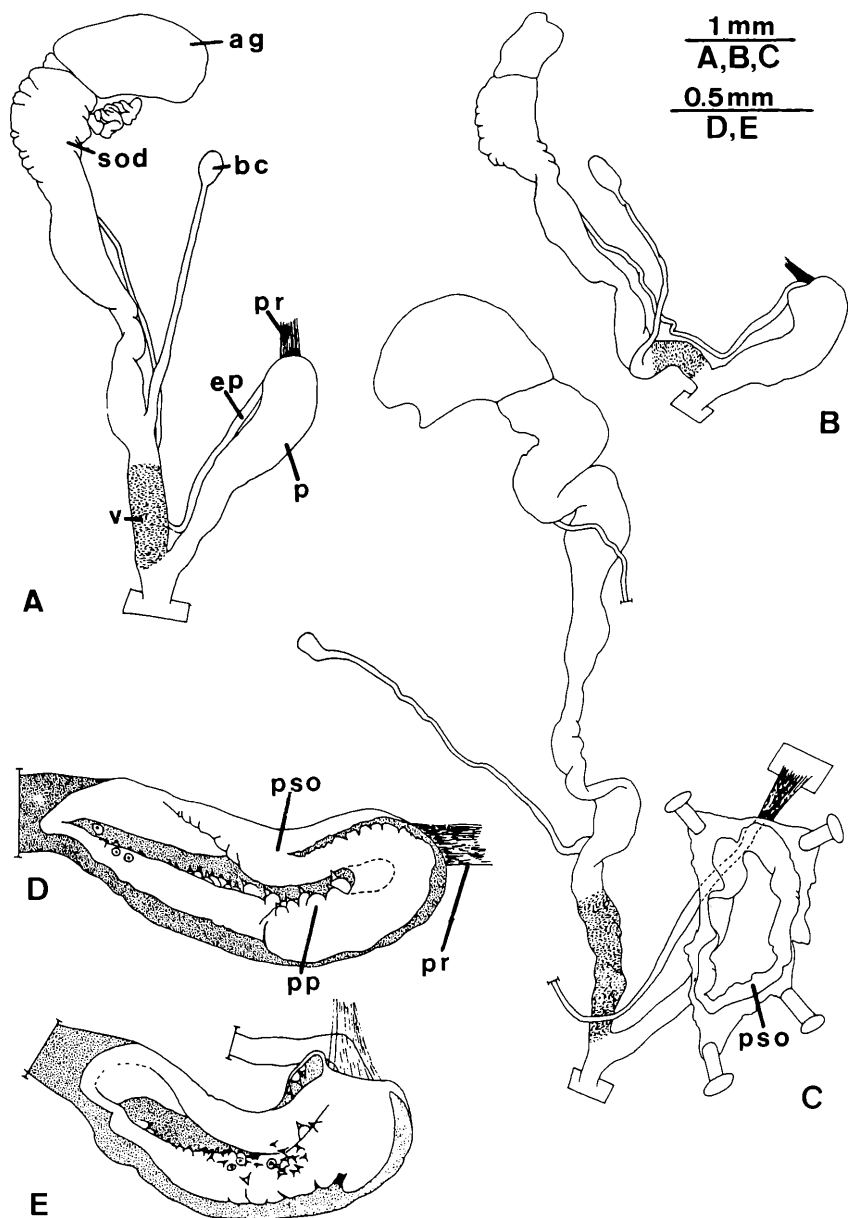


Fig. 2. Reproductive system of *C. spelaea* n. sp. A, B, D, E) Paratypes embedded in Canada balsam. C) Paratype stored in 70% alcohol with the penis opened. D, E) Detail of stimulatory organ. — ag albumen gland, bc bursa copulatrix, ep epiphallus, p penis, pp penial papillae, pr penial retractor muscle, pso penial stimulatory organ, sod spermoviduct, v vagina.

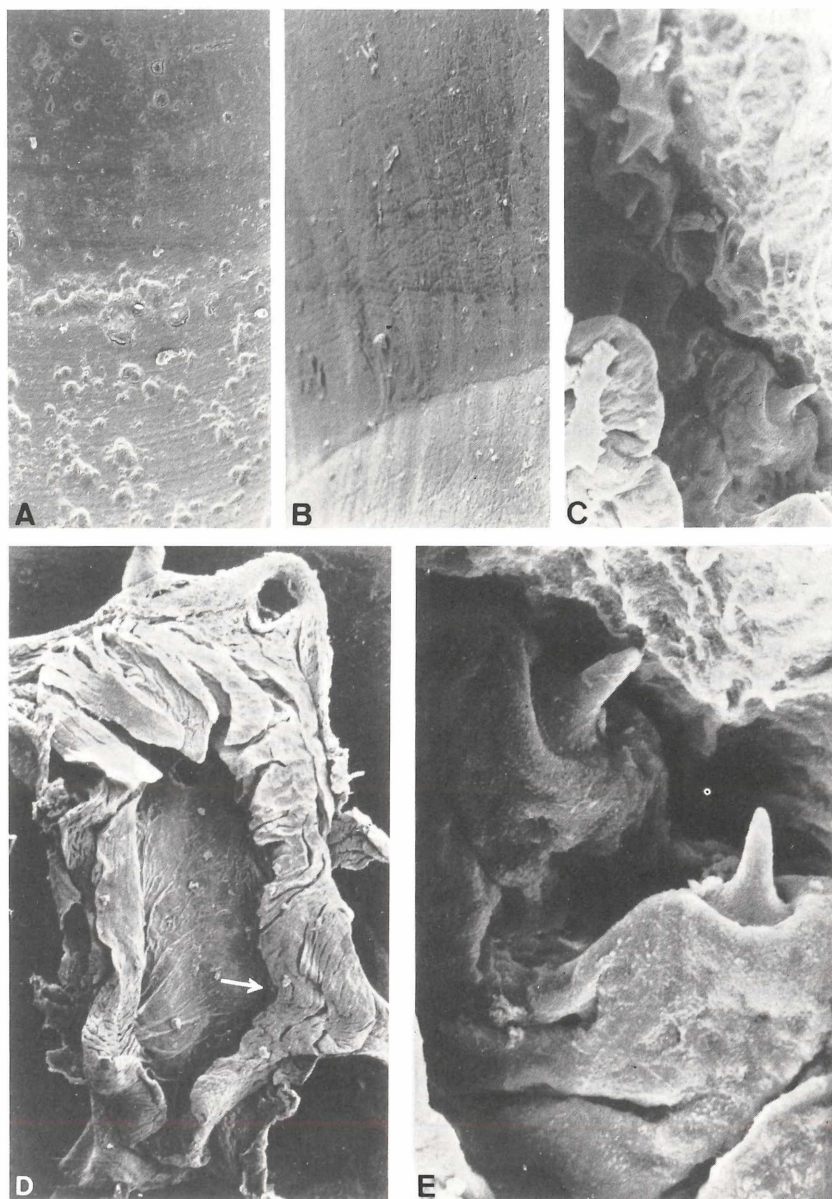


Fig. 3. Scanning electron micrographs of shell and penis of *C. spelaea* n. sp. A) Protoconch, $\times 280$. B) Teleoconch, $\times 450$. C) Penial papillae, $\times 670$. D) Penial stimulatory organ (the arrow indicates the position of some papillae on the lateral surface of stimulator), $\times 92$. E) Detail of two penial papillae, $\times 1500$.

Material: Holotype: Mañaria, Marcos cave, 3OTWN2774, C.E. PRIETO & B.J. GÓMEZ leg. 11.V.85, (Museo Nacional de Ciencias Naturales de Madrid). — Paratypes: Yurre, Usumaltxe II cave, 3OTWN1981, 9 spm. B.J. GÓMEZ leg. 20.IV.81, (in coll B.J. GÓMEZ, eigh of which not complete); Mañaria, Marcos cave, 17 spm. C.E. PRIETO leg. 6.VIII.83, (Senckenberg Museum SMF 307781/18, nine of which juvenile and two not complete); Mañaria, Marcos cave, 6 spm. C.E. PRIETO & B.J. GÓMEZ leg. 11.V.85 (Museo Nacional de Ciencias Naturales de Madrid, two of which juvenile and one not complete); Mañaria, Marcos cave, 17 spm. R. MARTÍN, C.E. PRIETO & B.J. GÓMEZ leg. 23.III.86, (in coll B.J. GÓMEZ, five of which are juvenile and seven not complete).

Additionally, the genital system of six paratypes from Marcos cave are stored in coll B.J. GÓMEZ, Laboratorio de Zoología, University of Basque Country.

Distribution: *C. spelaea* has been recorded from two caves of Durango mountains, in the province of Biscay. It appears to be a species endemic for the north slope of the eastern part of the Cantabrian Mountains.

Habitat: *C. spelaea* has been found in organic litter (mainly guano), as well as moving freely upon stalagmites, always inside caves and in places with total absence of light.

Discussion.

Conchologically, *C. spelaea* differs from other species of the genus *Cryptazeca* (GITTENBERGER 1983) by its big size, as well as by having up to seven whorls. The fine sculpture of the shell is very similar in this species and in *kobelti* and *monodonta* (Fig. 1B), while in *subcylindrica* and *vasconica* the transverse sculpture is more prominent (Fig. 1A). *C. spelaea* also differs by its high-conical shaped shell. Excepting *subcylindrica*, other species of *Cryptazeca* have a more or less broader ovoid-conical shell. *C. subcylindrica* has a high-conical shaped shell too, but it is clearly narrower than the new species. The parieto-palatal edge is slightly less closed in *spelaea* than in other species of the genus.

Anatomically it differs from *monodonta* and *vasconica* (GÓMEZ & ANGULO 1987) by the general shape of the penis, which is enlarging gradually up to the proximal end. The stimulator is narrower in *spelaea* than in these two species, and the spinules of the penial papillae are not curved. The genital apparatus of *kobelti* and *subcylindrica* remains unknown.

Commonly the species of this genus have a clear affinity towards shaded and permanently humid places, living upon limestone rocks which are covered by a thick mantle of moss. They appear frequently near caves or even in the openings of caves (HOLYOAK & SEDDON 1985, BECH 1986). So, it is not surprising that this genus has been able to colonize the caves environment as it is stated after the finding of this troglolithic species.

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