

**Palaospeum n. gen. (Gastropoda Prosobranchia: Moitessieriidae).
Unknown West European Prosobranchia, 10¹**

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Palaospeum n. gen. is described from the French department Pyrénées-Atlantiques as the fifth genus of the Moitessieriidae, with '*Paladilhia*' *bessoni* as its type species. A third, slightly differentiated population of *Palaospeum bessoni* is reported.

Key words: Gastropoda, Prosobranchia, Moitessieriidae, *Palaospeum* n. gen., France.

INTRODUCTION

Recently, *Paladilhia bessoni* was described by Bernasconi (1999) as a new species, after two populations from the French Pyrenees. In its distribution and in morphological characters, this species differs from those hitherto classified with *Paladilhia* Bourguignat, 1865. Therefore, a new genus of the Moitessieriidae is introduced here.

A third population of *Palaospeum* was discovered. Although these specimens differ somewhat from those described by Bernasconi (1999), they are considered conspecific, taken into account the variability known for certain species of micro-prosobranchs.

SYSTEMATIC PART

***Palaospeum* n. gen.**

Type species. — *Palaospeum bessoni* Bernasconi, 1999. No other named species are attributed to this genus.

Habitat and distribution. — Subterranean waters in the French department of Pyrénées-Atlantiques [*Palaospeum bessoni*] and in the Spanish province of Huesca [*P. spec.*].

Differentiating characters. — *Palaospeum* n. gen. is the fifth genus of the family Moitessieriidae Bourguignat, 1863, into which it is classified with *Moitessieria* Bourguignat, 1863, *Paladilhia* Bourguignat, 1865, *Spiralix* Boeters, 1972, and *Clameia* Boeters & Gittenberger, 1990. The shells of all species of these genera are more or less elongated conical in shape. On the basis of conchological and anatomical characters, *Palaospeum* n. gen. can be differentiated as follows.

Moitessieria is known from Spain, France and Italy. In this genus the shell is smaller. Shells of *M. juvenisanguis* Boeters & Gittenberger, 1980, supposed to be the largest representative, measure 1.7-2.3 mm in height, instead of at least 3.0 mm for *Palaospeum* n. gen. In *Moitessieria* the shell has a characteristic grid sculpture, which is missing in *Palaospeum* n. gen. In *Moitessieria* the snails do not have any gill leaflets, which are present in *Palaospeum*.

¹ No. 9, see Basteria 63: 77-81, 1999.

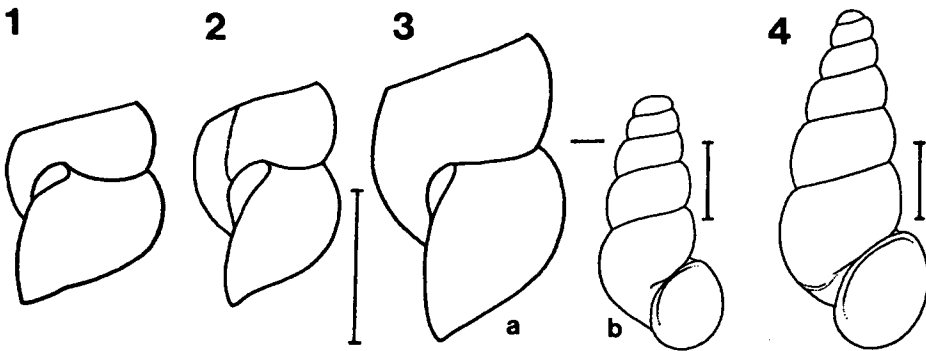
Paladilhia is known from the French departments of Hérault, Gard and Bouches-du-Rhône, i.e. from the southern drainage area of the Rhône. The whorls of the shell are slightly more convex and the sinulus of the aperture (lateral view) is more clearly developed in *Paladilhia* (figs. 1, 2) versus *Palaospeum* n. gen. (figs. 3-5). In *Paladilhia* the animals have a pallial tentacle, which is missing in *Palaospeum* n. gen.

Spiralix is known from the drainage areas of the Seine and the Rhône, and from Corsica. In this genus the shells have a dense spiral sculpture (Bernasconi, 1984: 692, fig. 3), whereas in *Palaospeum* n. gen. only some weak spiral lines may occasionally be seen on the last whorl. In *Spiralix* the intestine shows two bends and is curved like a Z, instead of only a single bend as in *Palaospeum* n. gen.

Clameia is known from Greece. This genus can be distinguished conchologically by a dense spiral sculpture. Whereas in *Clameia* the pedunculus of the bursa and that of the receptaculum are about equal in length, the latter is clearly shorter in *Palaospeum* n. gen.

Boeters & Meier-Brook (1992) reported on size and number of gill leaflets in brackish water and freshwater hydrobiids. Among the genera of the Moitessieriidae, *Palaospeum* n. sp. has the highest number, as can be concluded from the following summary of the available data. To show the variation in this character, the primary data for the individual species are also given (n = number of specimens studied).

Palaospeum n. gen., 16-20 gill leaflets [$n = 2+?$]. *Palaospeum bessoni*: 16-20 [$n = ?$] (Bernasconi, 1999: 387); 16-17 [$n = 2$], France, Pyrénées-Atlantiques, spring below farms Hiqueres and Junqua 1350 m WSW. of the center of the village of Rébénacq; UTM YN18; H. D. Boeters leg.



Figs. 1-4. 1-2, *Paladilhia* spec., side views of last whorl; both from Source du Lez, Hérault, France (BOE 117). 1, *Paladilhia conica* Paladilhe, 1867; 2, *Paladilhia pleurotoma* Bourguignat, 1865. 3-4, *Palaospeum bessoni* (Bernasconi, 1999). 3, near Rébénacq, Pyrénées-Atlantiques, France (NNM 59396), side view of last whorl (a) and front view (b); 4, cave Bidalunia ko karbia, Alcaÿ, Pyrénées-Atlantiques, France (BOE 1468). Scale bars, 0.5 mm for lateral views and 1.0 mm for front views.

Paladilhia, 10-11 gill leaflets [n = 3]. *P. pleurotoma* Bourguignat, 1865: 10 [n = 1] (Boeters 1973: 65); 11 [n = 1] (Boeters, 1971: 169, 171); 11 [n = 1] (Bodon & Giusti, 1991: 18). Since Boeters (1973) and Bodon & Giusti (1991) described completely different positions of the bursa, and because the localities of the specimens described are situated over 100 km apart, different species might be involved.

Spiralix, 6-12 gill leaflets [n = 4+?]. *S. rayi* (Locard, 1883): 6—11 [n = ?] (Bernasconi, 1984: 692); 12 [n = 2] (Bodon & Giusti, 1991: 15). *S. cf. puteana* (Coutagne, 1883): 6-12 [n = ?] (Bernasconi, 1994: 10 '*lineolata*'). *S. vitrea* (Draparnaud, 1801): 6-7 [n = 2] (Boeters, 1998: 18). *S. corsica* (Bernasconi, 1994): 10-11 [n = ?] (Bernasconi, 1994: 13).

Moitessieria, gill leaflets missing [n = 15]. *M. spec.* [n = 3] (Boeters 1973: 64). *M. simoniana* (De Charpentier, 1848) [n = 2] (Bodon & Giusti 1991: 7). *M. massoti* Bourguignat, 1863 [n = 7] (Bodon & Giusti 1991: 15, 22). *M. juvenisanguis* [n = 1] (Bodon



Figs. 5-6. *Palaospeum bessoni* (Bernasconi, 1999) (NNM 59396), France, Pyrénées-Atlantiques, near Rébénacq front view (5) and lateral view (6). Scale bar 1 mm. Photographs: J. Goud (NNM, Leiden).

& Giusti 1991: 18). *M. lescherae* Boeters, 1981 [n = 1] (Bodon & Giusti 1991: 18). *M. locardi* Coutagne, 1883 [n = 1] (Bernasconi 1994: 10).

Clameia, gill leaflets missing [n = 1]. *C. brooki* Boeters & Gittenberger, 1990: one female paratype from the type locality in Greece, Évvoia (= Euboea), upstream of Mantoudi(on) (= Mandoúdhion) (NNM A9277) was studied.

Note. — In two springs, situated about 43 km from the type locality of *Palaospeum bessoni*, specimens were found that are considered conspecific with that species, though slightly differing in some characters. Maybe *P. bessoni* is a polytypic species. The localities are: (1) France, Pyrénées-Atlantiques, spring below farms Hiqueres and Junqua 1.350 km WSW. of the center of the village of Rébénacq, UTM YN18, H. D. Boeters leg. 3-4.vi.1998 (NNM 59396/1, 59397/1; BOE 1446/2), and (2) spring in the embankment of the street and the Ruisseau-de-Nez, south of the bridge over the river at Lacourcur, WSW. of Rébénacq, UTM YN18, H. D. Boeters leg. 1.vi.1998 (BOE 1445/6). These specimens are described as follows.

Shell. — Shell elongated conical, with 5.0-5.5 whorls, separated by a clearly indented suture. Whorls moderately convex, narrowly shouldered, with at most a very weak spiral structure. Last whorl forming about half of the total height of the shell. Aperture slightly oblique, egg-shaped, with a sharp edge. The columellar border of the aperture is strongly broadened, touches the last whorl for only a short distance and forms a broad funnel with the shell wall of the umbilical region. In lateral view, the palatal border of the aperture is very slightly curved. Height, 3.0-4.5 mm; width, 1.5-2.15 mm (n = 10). Operculum very pale yellow, nucleus not set off.

The shells differ from those of the type series in general shape, in particular of the apical part, which is slightly more broadly coiled in the specimens from near Rébénacq, and dimensions. According to Bernasconi (1999) the shell height is 3.16-5.54 mm.

Anatomy. — Eyes and mantle tentacle not detected. Grains of black pigment found only at the base of the mantle cavity and in males in the area between the intestine and the prostata. Gill with 16-17 leaflets (n = 2). After leaving the stomach, the intestine surrounds the style sac at a clear distance and forms a Z-like loop, followed by a V-like bend. The penis is slim, without any appendices. In females a gonopericardial duct is missing. One of the two receptaculi found in females joins the oviduct near the genital opening, the other seems to have a comparatively long pedunculus since its sac can be seen through the shell just below the suture as flanked by the intestine and the most proximal gland of an agglomeration of three glands accompanying the oviduct.

Remarks. — For the structure of the female genitalia, see also Bernasconi (1999). Bernasconi (1999) attributed *P. bessoni* to *Paladilhia*, referring to Bodon & Giusti (1991). These authors have supplemented the anatomical description of *Paladilhia pleurotoma*, the type species of *Paladilhia*, as given by Boeters (1971, 1973). As regards the structure of the female sex tract of *P. pleurotoma*, Bodon & Giusti on the one hand and Boeters on the other hand have published data which are partially contradictory. According to Boeters (1973) the bursa is orientated towards the sexual opening whereas Bodon & Giusti describe an orientation in the opposite direction. This discrepancy has not yet been clarified. The structure of the female sex tract of representatives of *Palaospeum* n. gen. and of the type species of *Paladilhia* has still to be investigated once more. Consequently, the differentiation of *Palaospeum* as a new genus is based on structures other than those of the female sex tract.

Derivatio nominis. — The name is based on a combination of *Pala-dilhia* and *Bythiospeum*, because the shells remind of those of both *Paladilhia* and *Bythiospeum* Bourguignat, 1882. The latter genus belong to the Hydrobiidae.

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