



The genus *Onoba* (Mollusca, Caenogastropoda, Rissoidae) from NW Spain, with the description of two new species

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Abstract

Some species of the genus *Onoba* were described from the Ria de Vigo. The revision shows that their identification had not been correct and they are now described as new species, and are compared to similar ones. All species are illustrated by SEM, including radular preparations.

Key words: Rissoidae, *Onoba*, *Onoba aculeus*, new species.

Introduction

The genus *Onoba* H. & A. Adams, 1852 was revised by Ponder (1985), considering it a Recent genus, extending to western Europe and the Mediterranean. The genus is also present in North America (Warén 1974) and in the Antarctic and subantarctic waters (Ponder 1983) and in southwestern South America (Ponder & Worsfold 1994).

Some species have been described from Macaronesian Islands (Watson 1873; Moolenbeek & Hoenselaar 1987; Rolán & Hernández 2004). Templado & Rolán (1986) revised the European species. Hoenselaar & Moolenbeek (1987) and Moolenbeek & Hoenselaar (1987) described new species from the Iberian Peninsula and the Azores.

Rolán (1983) illustrated four species in the genera *Onoba* and *Ceratia* H. & A. Adams, 1852: *Onoba striata* (Montagu, 1803), *Onoba aculeus* (Gould, 1841), *Onoba vigoensis* Rolán, 1983 and *Ceratia proxima* (Forbes & Hanley, 1850). All these names must be changed for various reasons: The first species is a junior synonym of *O. semicostata* (Montagu, 1803); *O. vigoensis* should be reassigned to the genus *Manzonina* Brusina, 1870, with some comments in Rolán & Hernández (2004). The other two species are considered new to science and are described here.

Abbreviations

AMNH	American Museum of Natural History, New York, USA.
BMNH	The Natural History Museum, London, Great Britain.
CRBA	Centre de Recursos de Biodiversitat Animal, Barcelona, Spain.
MNHN	Muséum National d'Histoire Naturelle, Paris, France.

MNCN	Museo Nacional de Ciencias Naturales, Madrid, Spain.
MHNS	Museo de Historia Natural de Santiago de Compostela (coll. Emilio Rolán), Spain.
USNM	United States Natural History, Smithsonian Institution, Washington (DC), USA.
CAP	Collection of Anselmo Peñas, Vilanova i la Geltrú, Spain.
CMS	Collection of Manuel Suárez, Ferrol, Spain.
sp	specimen with soft parts.
s	empty shell.

Systematics

Rissoidae Gray, 1847

Onoba H. & A. Adams, 1852

Type species. *Turbo striatus* J. Adams, 1797 (not Da Costa, 1778) = *Turbo semicostatus* Montagu, 1803, northwestern Europa. By monotypy.

Onoba semicostata (Montagu, 1803): Figures 1–12

Turbo striatus (J. Adams, 1797) (*non* Da Costa, 1778).

Turbo semicostatus Montagu, 1803.

Onoba candida (Brown, 1844).

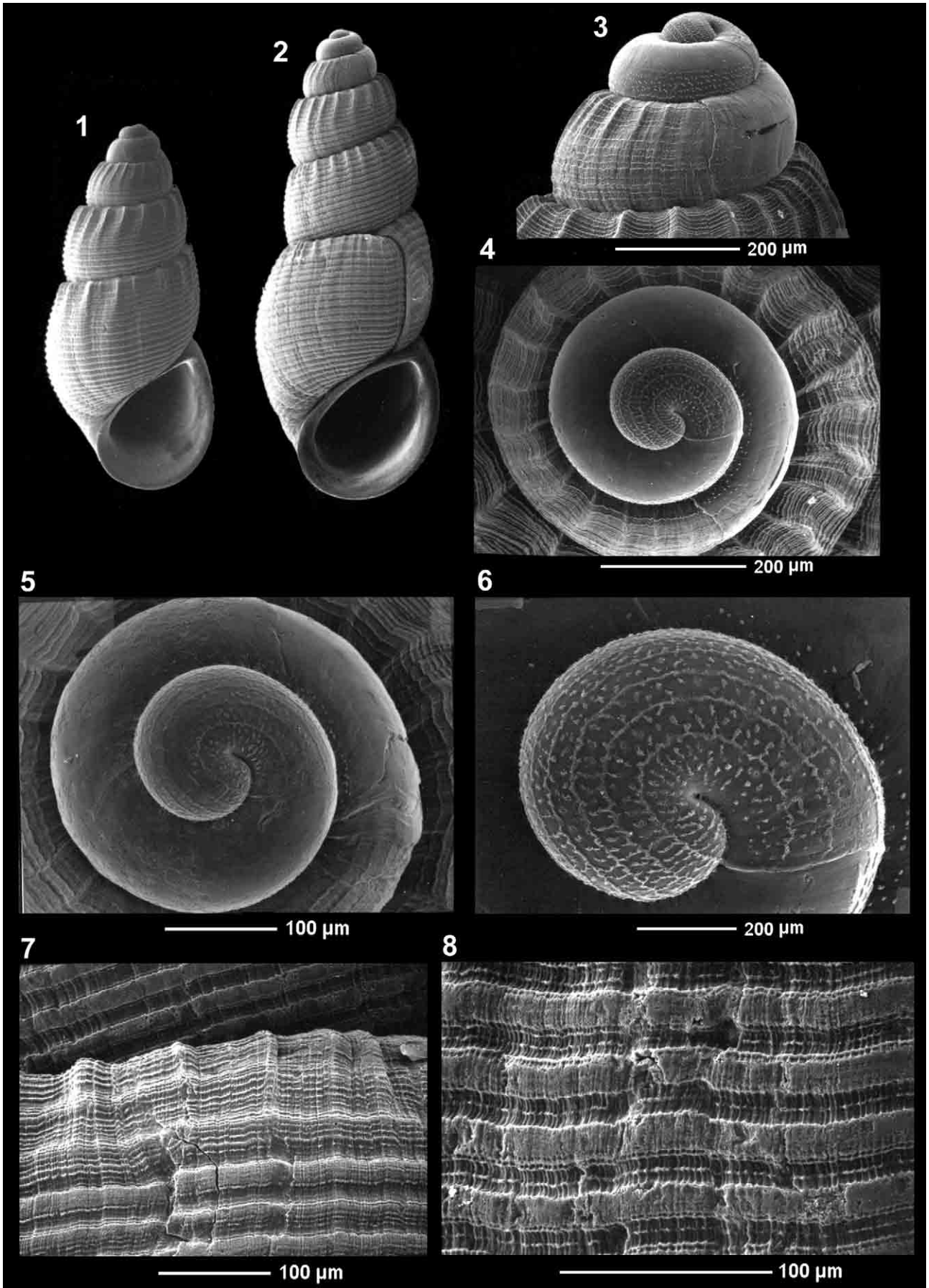
Examined Material. Spain, Galicia: 336 sp and s, Ria de Vigo (42°17'N, 8°37'W and 42°21'N, 8°45'W), intertidal to 20 m; 20 sp, A Guarda (41°50'N, 8°50'W); 26 s, Patos Beach, Panxón; 10 s, Baiona; 5 sp, 20 s, Cies Islands; 17 sp., intertidal, under rocks, Cabo Vilano (43°08'N, 9°11'W), A Coruña (all MHNS); 10 sp. 5s, Ria de Vigo (CRBA); 1 sp, 15 s, Monteferro, near Patos (CRBA). Sweden: Saltö Island; 5 s, intertidal (MHNS).

Material from the Mediterranean was examined and its presence confirmed in Catalunya, NE Spain (Fig. 11) and Malta (Fig. 10). Both from CAP.

Distribution. Its distributional range is wide (Pope & Goto 1991), from Norway (Warén 1996), British Islands (Fretter & Graham 1978), Iberian coasts (Hidalgo 1917: as *Rissoa*; Nobre 1940) to the Mediterranean (Giannuzzi-Savelli *et al.* 1996). In Galicia (NW Spain) it was recorded by Cadée (1968: as *Cingula*) and Rolán (1983: as *O. striata*). This taxon is valid in the European database of CLEMAM.

Remarks. This species does not offer any problems for its identification. There are excellent illustrations of shells and details, such as its protoconch, in Fretter & Graham (1978) and Warén (1996); the protoconch of the specimens reported here is identical with the material from Vigo. In order to

Figures 1–8 (next page). *Onoba semicostata*, Ría de Vigo. **1–2.** Shells, 1.8 and 2.5 mm, shells from Monteferro (CRBA). **3–5.** Protoconchs from Monteferro (CRBA). **6.** Detail of the protoconch I, same as Figure 4 (CRBA). **7–8.** Detail of the microsculpture (CRBA).



make comparisons with the species, material from Galicia is shown: shells (Figs 1–2), protoconchs (Figs 3–5), detail of the protoconch I (Fig. 6) and microsculpture (Figs 7–8).

The radula is shown (Fig. 9) from a specimen collected in Vigo. It is typical of the genus [described and figured in Ponder (1985)].

***Onoba galaica* new species: Figures 13–31, 52**

Ceratia proxima in Rolán, 1993 (*non* Forbes & Hanley, 1850).

Type material. Holotype (MNCN 15.05/47.059; Fig. 13). Paratypes (AMNH, 2 sp); (BMNH, 20080001, 2 sp); (CRBA, 4 s; Figs 14–17); (MNHN 20682, 2 sp); (USNM 1113095, 2 sp); (MHNS, 17 sp., 9 s; Figs 18–27), all them from type locality. Besides, the following paratypes in MHNS: 57 s (Cies Islands), 9 s (Baiona); 12 s (Patos Bay); 31 sp (Cabo Vilano, A Coruña). In CMS: 10 s (Playa de Santa Comba, Coves, Ferrol).

Type locality. Intertidal, Ria de Vigo, Galicia, Spain, between 42°17'–42°21'N, 8°37'–8°50'W.

Etymology. The name makes reference to its distribution area, Galicia, from which it is known (from Latin *galaicus*).

Description. Shell (Figs 13–17) small, oval conic to cylindrical, elongate, semitranslucent, white, solid with blunt apex. Protoconch (Figs 18–27) with about 1¼ whorls, smooth, without any clear sculpture; in perfect specimens (Figs 26–27) some very small and irregularly arranged spiral lines. Teleoconch with about 3–3½ whorls (few specimens reach 4), slightly convex, without axial sculpture except orthocone or scarcely prosocline growth lines; with numerous spirals threads, slightly marked on first 1–2 whorls, more evident subsequently, 14–16 on penultimate, about 26–30 on last whorl. Microsculpture (Figs 28, 52) formed by few threads between spiral cords, axially only formed by growth lines, sometimes more visible in subsutural area; subsutural area occasionally a little larger. Aperture semicircular, peristome narrow, continuous, no umbilicus. Periostracum yellowish.

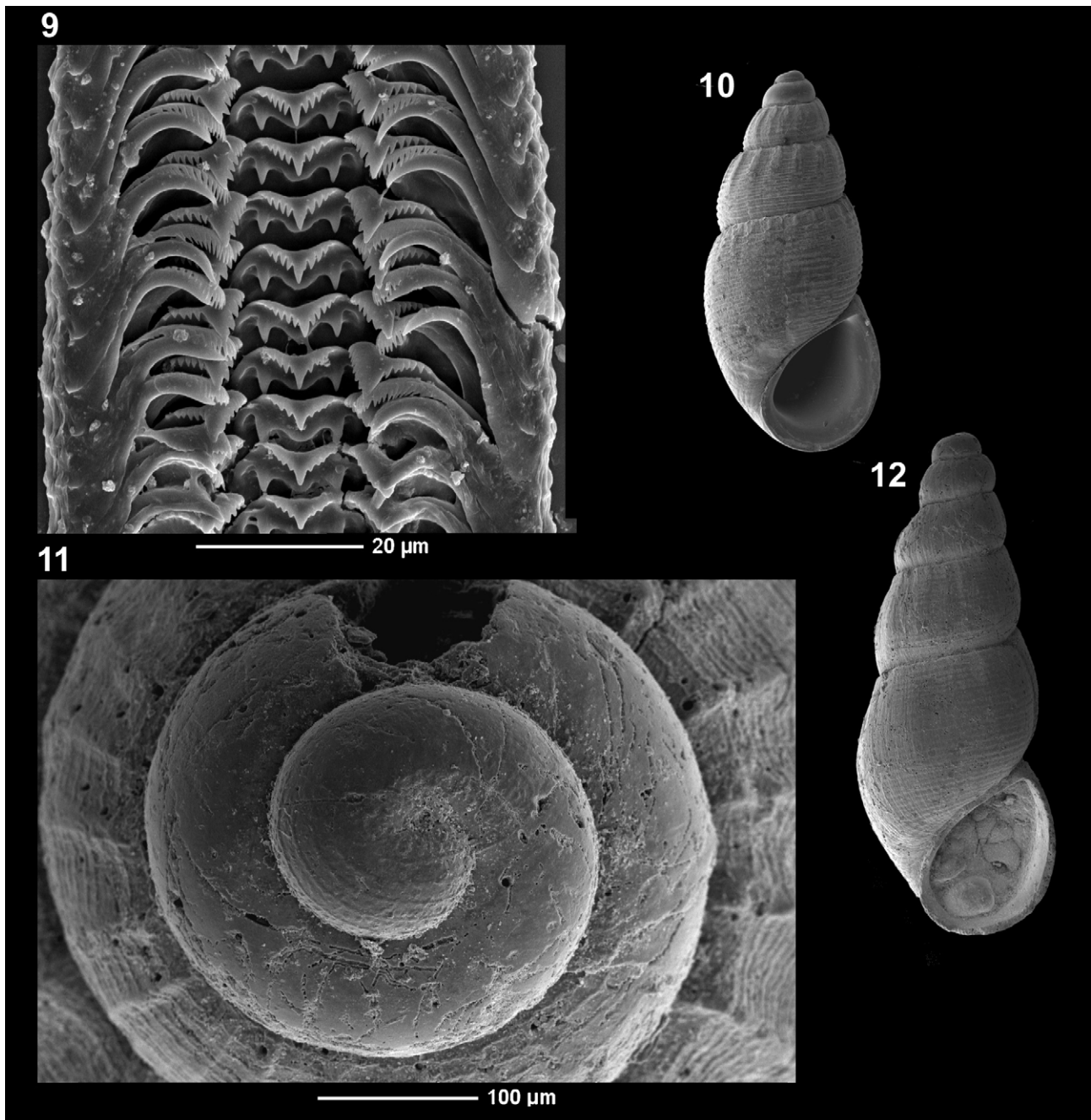
Dimensions. holotype 2.6 mm high; largest specimens to 3.0 mm.

Soft parts. animal white with black eyes. Radula (Figs 29–31) similar to that of *O. semicostata* (Fig. 9), rachidian tooth with more depressed central part and larger central cusp.

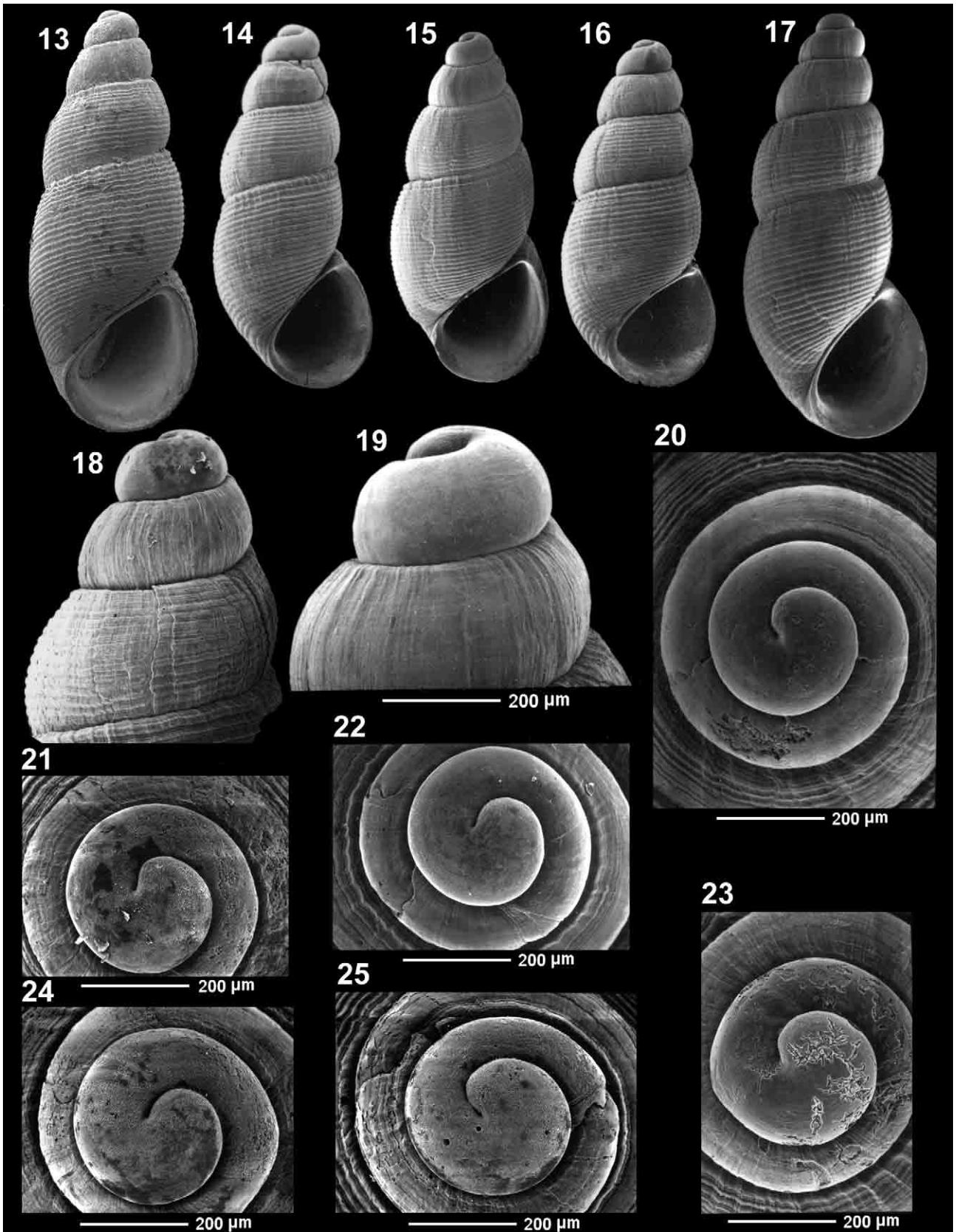
Habitat. Usually live specimens were found below stones in the intertidal area, living sympatrically with other species of *Onoba* (*O. semicostata* and *O. breogani* spec. nov.). Also found in sediments from 10–25 m.

Distribution. Collected along all the Galician coasts. I have not sampled areas outside of Galicia, hence, the true distribution could be wider (see in remarks of the next species). One shell from CAP (Fig. 12) could be of this species, but the bad conditions of the shell and the eroded protoconch do not allow a detailed comparison.

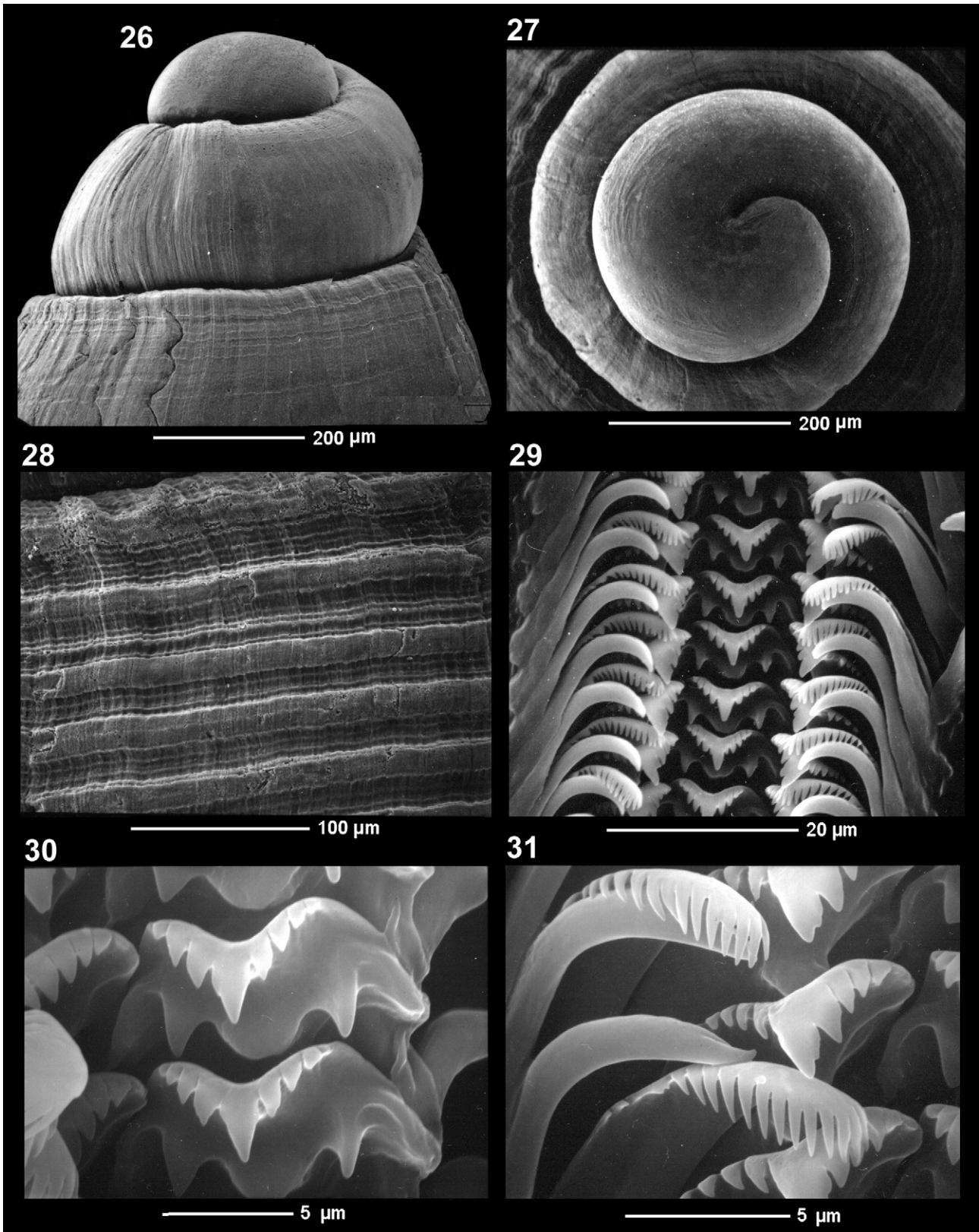
Remarks. *Onoba galaica* spec. nov. was illustrated by Rolán (1983) as *Ceratia proxima* (Forbes & Hanley, 1850). Because both species have a similar shell profile (Figs 32–34), material from the Mediterranean, Vilassar (CAP) and Barcelona (CRBA) has been studied for comparison. *Onoba galaica* differs in having a deeper suture, higher whorls, more spiral threads, which are less prominent (Figs 38–39) and a protoconch (Figs 35–37) with a smaller nucleus. *Ceratia proxima* has been placed by Ponder (1984) in Irvadiidae Thiele, 1928, a family typically found in brackish water often associated with mangroves, with anatomical differences and with a very depressed protoconch, but



Figures 9–12. *Onoba semicostata*. 9. Radula, specimen from Vigo. 10. Shell, 2.3 mm, from Malta. 11. Protoconch, from a specimen from Vilanova i la Geltrú (CAP). 12. *Onoba* cf. *galaica*, 3.0 mm, from Vilanova i la Geltrú (CAP).

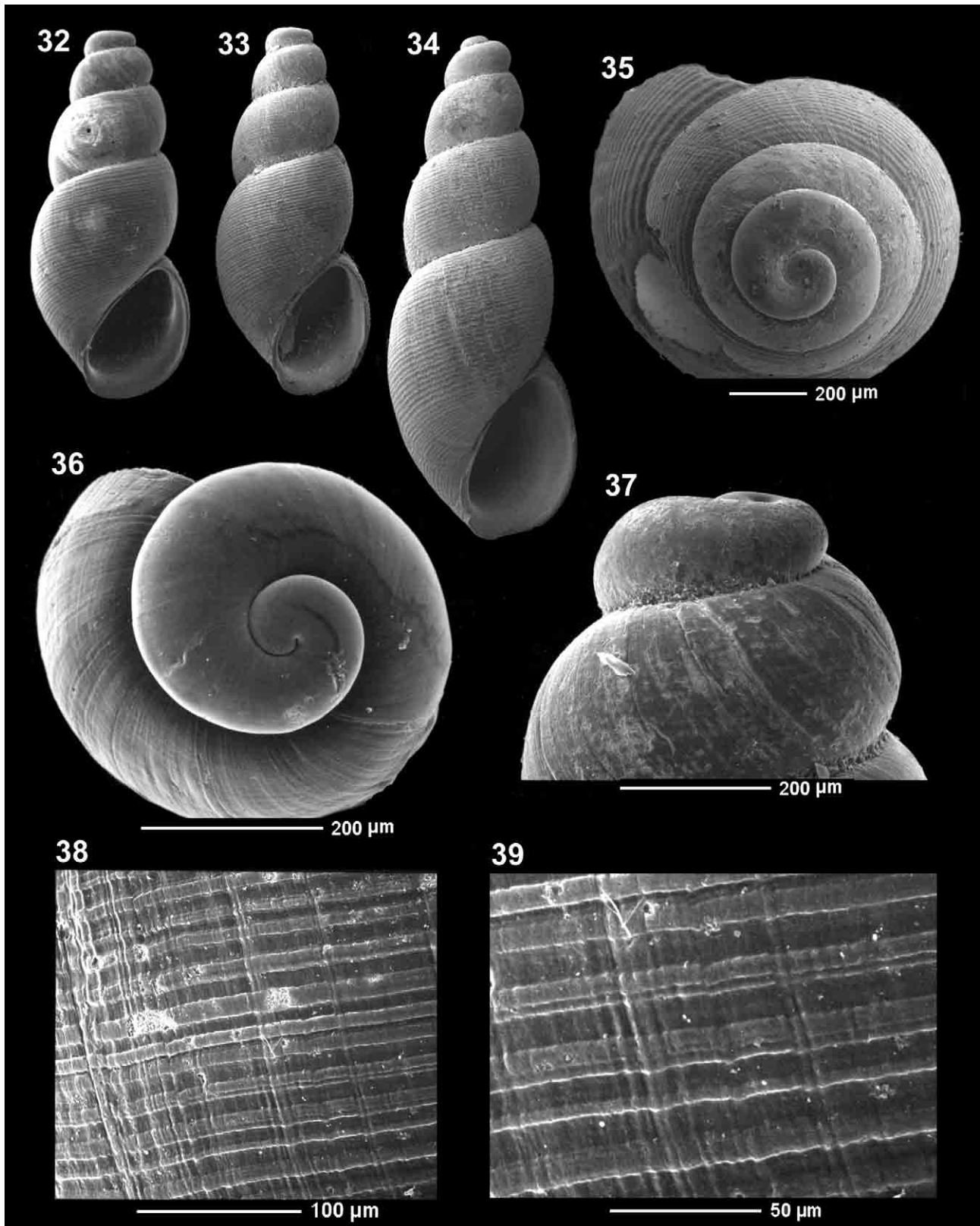


Figures 13–25. *Onoba galaica* spec. nov. **13.** Holotype, 2.6 mm (MNCN). **14–17.** Paratypes, 2.4, 2.4, 2.2 and 2.8 mm (CRBA). **18–25.** Protoconchs from paratypes (MHNS).



Figures 26–31. *Onoba galaica* spec. nov. **26–27.** Protoconchs from paratype from type locality (MHNS). **28.** Microsculpture; paratype from type locality (MHNS). **29–31.** Radula, sp from Ría de Vigo, and details.

sometimes with similar shell. *Ceratia proxima* has been illustrated by Fretter & Graham (1978, as *Onoba proxima*), Bouchet & Warén (1993) and by Warén (1996).



Figures 32–39. *Ceratia proxima*. 32–33. Shells, 2 and 2.3 mm, Barcelona (CAP). 34. Shell, 3.1 mm, 45 m, Vilassar del Mar (Barcelona). 35–37. Protoconch (CAP). 38–39. Microsculpture, Vilassar (CAP).

Differential diagnosis. The new species can be distinguished from other known species in the genus from European water: *Onoba semicostata* has a protoconch of the planktotrophic type, has axial sculpture of consistent strength on the teleoconch and frequently brown colour on the last whorl. It has frequently curved shells (Fig. 2), while *O. galaica* has a lecithotrophic protoconch, lacks axial sculpture, always has a uniform cream colour and the shells are never curved. *Onoba aculeus* (Gould, 1841) has a rather similar shell to *O. galaica*. This species lives in northern Europe, the mention of it from Vigo (Rolán 1983) is erroneous; its protoconch [illustrated by Fretter & Graham (1978) and Warén (1996)] has regular spiral threads, which are never present in *O. galaica*. The shell of *O. aculeus* can be larger (according to Warén 1996), the suture is deeper and the microsculpture of the shell is less pronounced. *Onoba josae* Moolenbeek & Hoenselaar, 1987, from Getares, southern Spain, has a protoconch with very strong spiral cords (Moolenbeek & Hoenselaar 1987: fig. 7). *Onoba moreleti* Dautzenberg, 1889, from the Azores, has a paucispiral protoconch with only 1 whorl, and strong spiral cords (Moolenbeek & Hoenselaar 1987: figs 2–3).

Some species from Northern Europe identified by Warén (1996) as *O. exarata* (Stimpson, 1851), *O. mighelsi* (Stimpson, 1851), *O. torelli* Warén, 1996, and *O. improcera* Warén, 1996, have protoconchs with different microsculpture such as spiral arranged granules or smooth surface with granules, while the protoconch of *O. galaica* lacks any sculpture. Additionally, these species are all from other very different climatic areas.

Manzonia fusulus Gofas, 2007, from Gorrinche Seamount, several hundred of kilometers off S. Vicente, southern Portugal, has a similar appearance but is a little larger, with almost one spiral whorl more, the spiral sculpture is less prominent, consisting of an alteration of sculpture at the very surface of the shell, rather than true, elevated threads, having pits and crossed microsculpture in the interspaces.

***Onoba breogani* new species: Figures 40–51, 53–55**

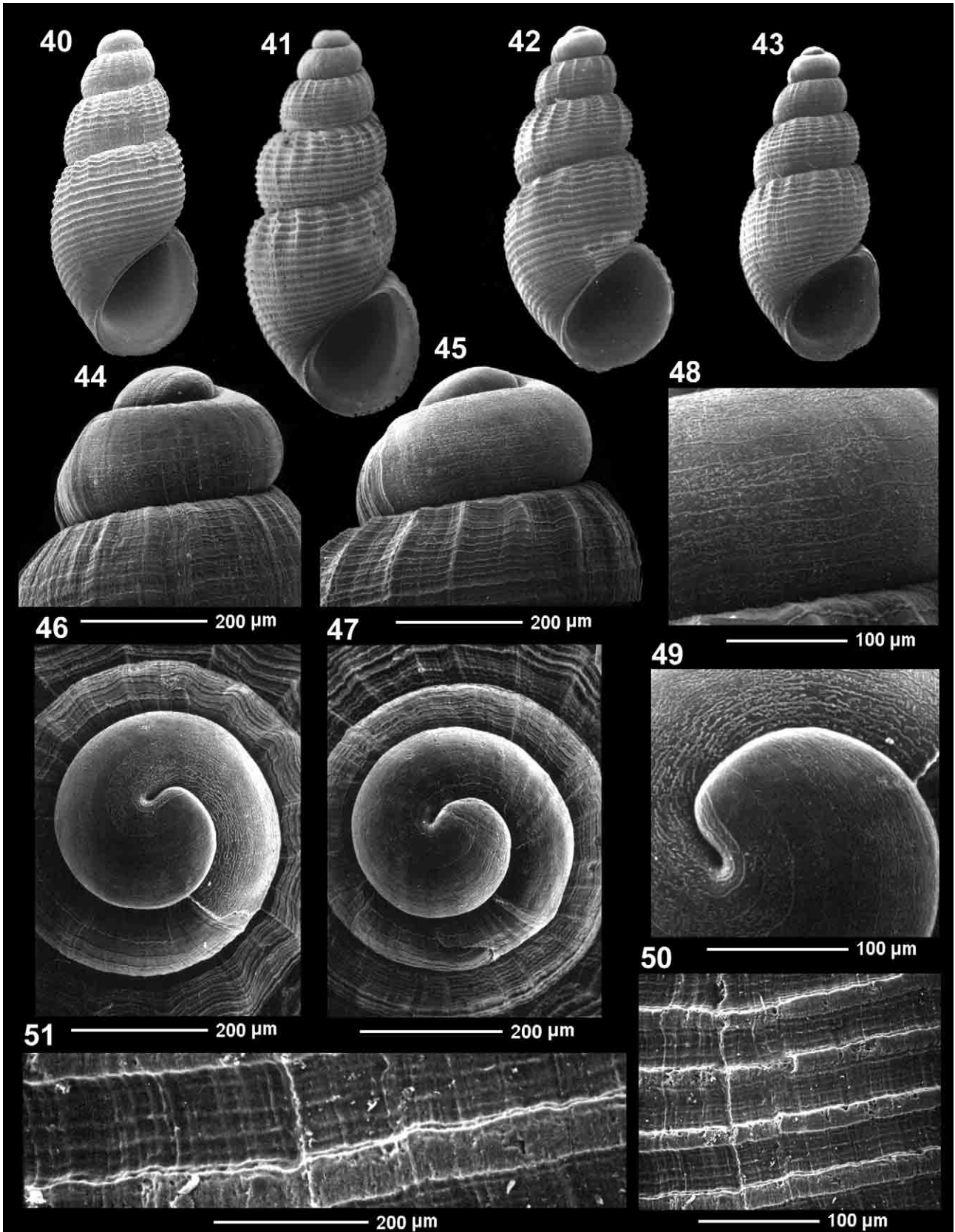
Onoba aculeus in Rolán, 1983 (non Gould, 1841).

Type material. Holotype (MNCN 15.05/47.060; Fig. 40). Paratypes (AMNH, 1 s); (BMNH, 20080002, 1 s); (CRBA, 3 s; Figs 41–43); (MNHN 20683, 1 s); (USNM 1113096, 1 s); (MHNS, 6 s), all them from type locality. Besides, the following paratypes in MHNS: 6 s, Cies Islands, 2 s, Baiona; 1 sp., A Guarda; 2 s, Patos Bay, Panxón; 4 s, Ría de Vigo.

Type locality. Cabo Vilano, A Coruña, under rocks at low tide, 43°08'N, 9°11'W.

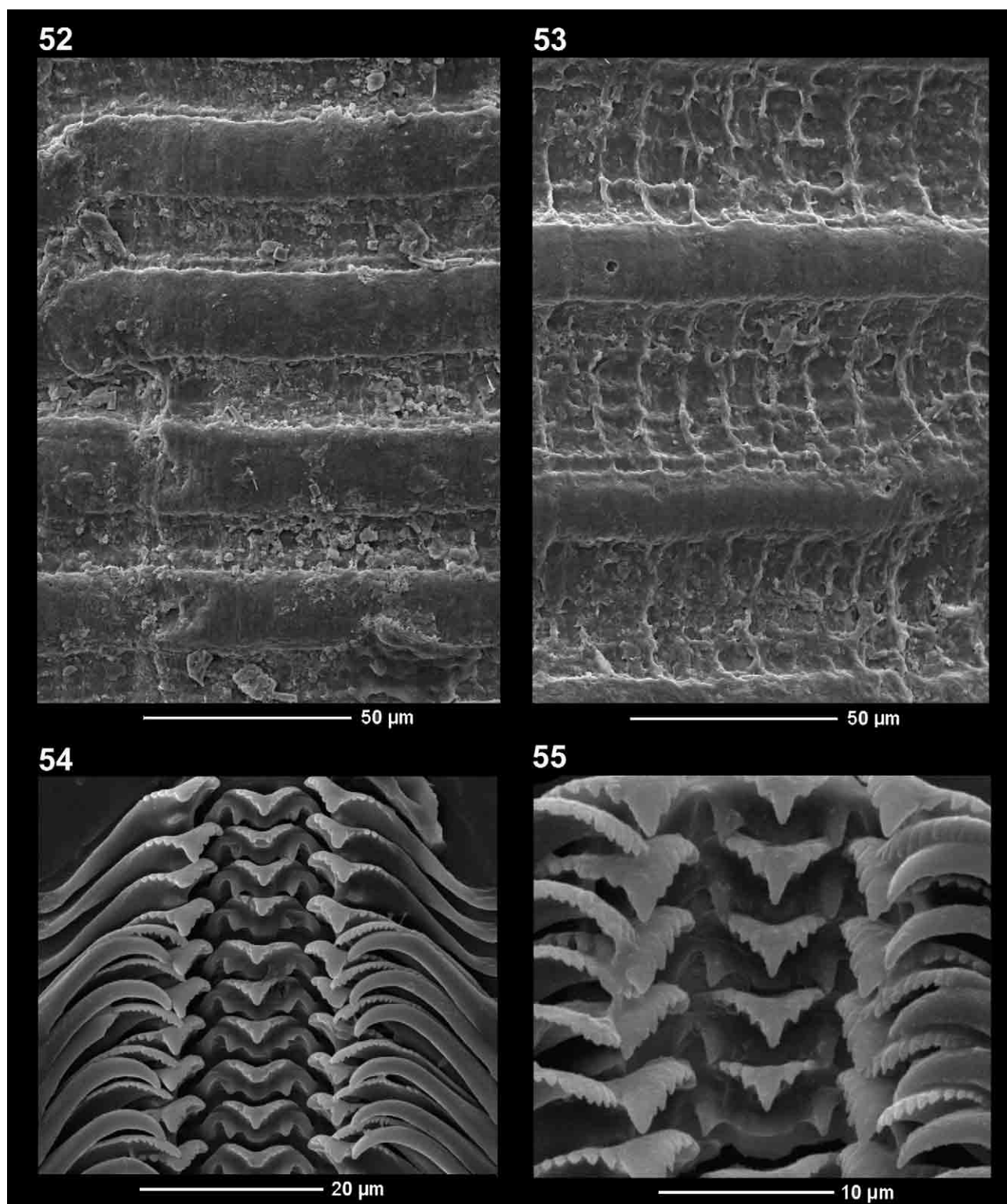
Etymology. Named after Breogan, a mixture of a legendary and historic person of Galicia.

Description. Shell (Figs 40–43) small, semitranslucent, white, oval conic to cylindrical, elongate, solid, with blunt apex. Protoconch (Figs 44–47) 350–370 µm, slightly more than 1 whorl, microsculpture (Figs 48–49) formed by very small threads at beginning with some tubercles and small lines in between, quickly becoming more dense across entire surface while retaining original threads only visible at some points. Teleoconch with about 3 whorls, rather convex, with distinct axial sculpture on upper part of whorls, fading on periphery. Suture deep. Spiral sculpture formed by narrow cords, slightly marked only at beginning, 11 on penultimate, about 16–20 on last whorl. Microsculpture



Figures 40–51. *Onoba breogani* spec. nov. **40.** Holotype, 2.2 mm (MNCN). **41–43.** 2.6, 2.4 and 2.1 mm, Paratypes (CRBA). **44–47.** Protoconch, paratypes (CRBA). **48–49.** Microsculpture of the protoconch, paratypes (CRBA). **50–51.** Microsculpture of the teleoconch, paratypes (CRBA).

(Figs 50–51, 53) formed by 3–6 spiral threads between cords and very numerous and irregular axial growth lines visible between cords. Aperture ovoid, almost semicircular, peristome narrow, continuous, no umbilicus.



Figures 52–53. Comparison of the microsculpture of both new species. **52.** *Onoba galaica*, holotype (MNCN). **53.** *Onoba breogani*, holotype. **54–55.** Radula of *Onoba breogani*, from type locality. Shell destroyed during radula extraction.

Dimensions. Holotype 2.2 mm; largest specimens to 2.4 mm.

Soft parts. Radula (Figs 54–55) similar to the previous species (Figs 9, 29–31) of the genus.

Habitat. Live specimens were collected under rocks in the intertidal, usually associated with *O. semicostata* and *O. galaica* but in smaller quantity.

Distribution. The species was collected in the Galician coasts from A Guarda (near Portugal) (41°50'N, 8°50'W) to Ferrol (north of Galicia) (43°27'N, 8°17'W).

Differential diagnosis. Within the European coasts, *Onoba breogani* can be differentiated by its lecithotrophic protoconch from *Onoba semicostata*, which has a planktotrophic type. *Onoba breogani* can be differentiated from species with similar lecithotrophic protoconch by the different microsculpture consisting of very small threads at the beginning with some tubercles and small lines in between: *O. josae* and *O. moreleti* have strong spiral cords; *O. mighelsi* has spirally arranged granules; *O. improcera* has fine and irregular sculpture; *O. galaica*, lacks sculpture except for very small irregular lines, has more spiral threads between the cords (Figs 26–27), the teleoconch lacks axial sculpture and the suture is shallower. Although *O. galaica* and *O. breogani* live sympatrically, no intergradations were found.

Although the protoconch *O. breogani* is similar to that of *Onoba aculeus*, the protoconch of *O. aculeus* is larger, with more spiral whorls, denser spiral cords, a tendency to curved shells, and no axial sculpture. These differences are summarized in Table 1.

Fretter & Graham (1978) considered *O. aculeus* having the southern end of its distribution in Scotland and in the Danish Sound. Biekart (1983) reported that numerous shells of *O. aculeus* (distinguished from *O. semicostata* by its large paucispiral protoconch) were found at several French localities as well as in northern Spain. Additionally, most of them were said to have axial ribs but, some others, did not. I suspect that this material was composed of the two species that are described here, which could not be separated without SEM. In this case, the distributional range of both species could extend along the northern coast of Spain and France.

Table 1. Discriminating characters of *O. aculeus*, *O. galaica* and *O. breogani*. (1) After Warén (1996); (2) after Fretter & Graham (1978).

Character	<i>O. aculeus</i>	<i>O. galaica</i>	<i>O. breogani</i>
Shell size	Up to 3.4 mm	Up to 3.0 mm	Up to 2.4 mm
Tendency to curved shells	Yes (1)	No	No
Suture	Deep	Shallow	Deep
Protoconch diameter	330–575 µm (2)	350–400 µm	350–370 µm
Teleoconch whorls	Up to 4.5	Up to 4	Up to 3 ¾
Spiral cords on the penultimate whorl	15–18	14–16	10–12
Spiral cords on the last whorl	20–28	25–32	14–20
Axial subsutural cords	No	No	Constant

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