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Emarginula bonfittoi spec. nov. (Gastropoda, Prosobranchia, Fissurellidae), a new bathyal species from the Mediterranean Sea

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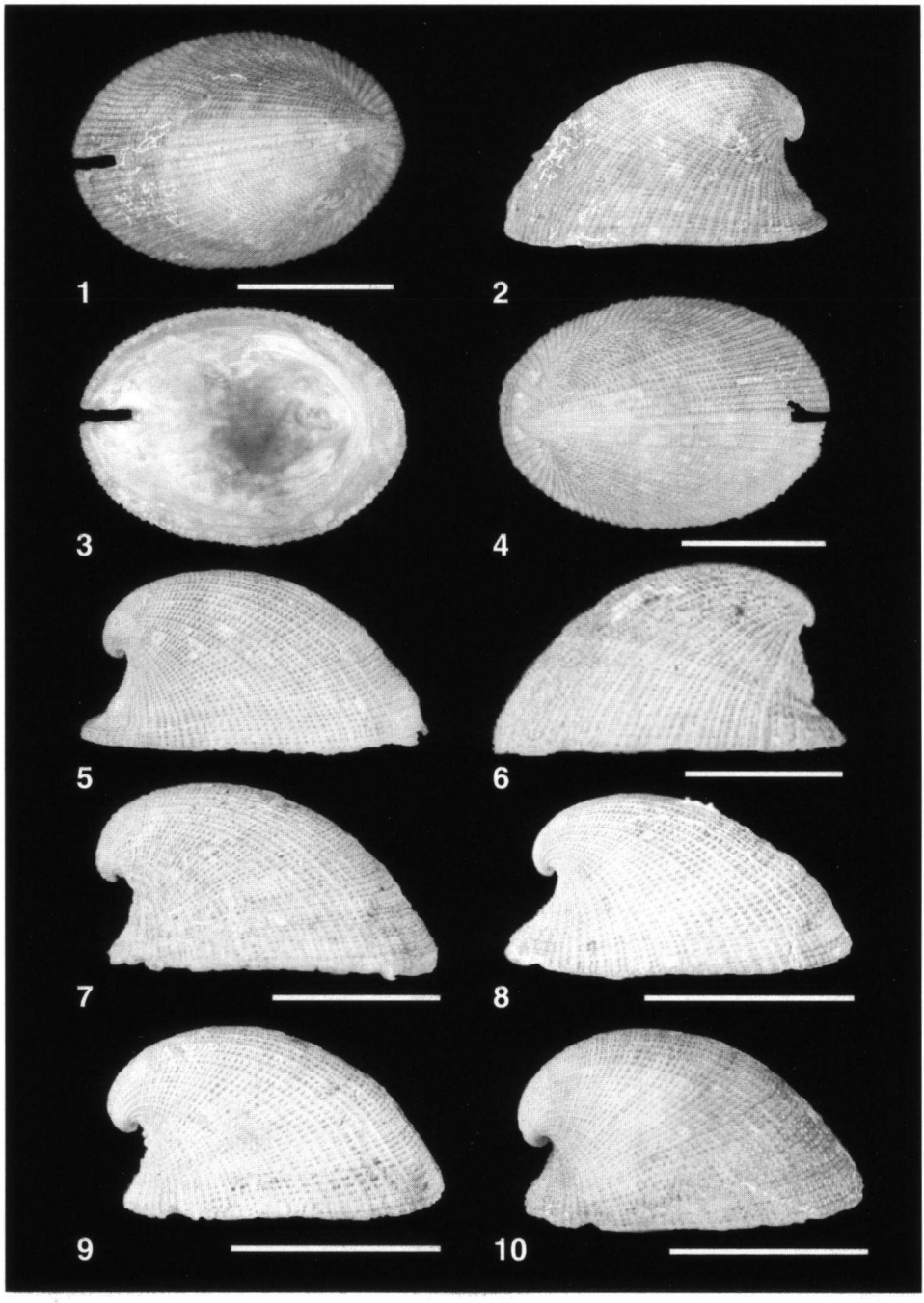
Based on shell characters, *Emarginula bonfittoi* spec. nov. is described from the Mediterranean Sea. The new species was discovered in material collected on a the deep-sea coral bank located off-shore Latium (Central Tyrrhenian Sea). In the Mediterranean Sea, *Emarginula multistriata* Jeffreys, 1882, is the most similar congeneric bathyal species. The new species can be recognized by its shell outline and sculpture.

Key words: Gastropoda, Emarginulidae, *Emarginula*, taxonomy, Tyrrhenian Sea, deep-sea coral biocoenosis.

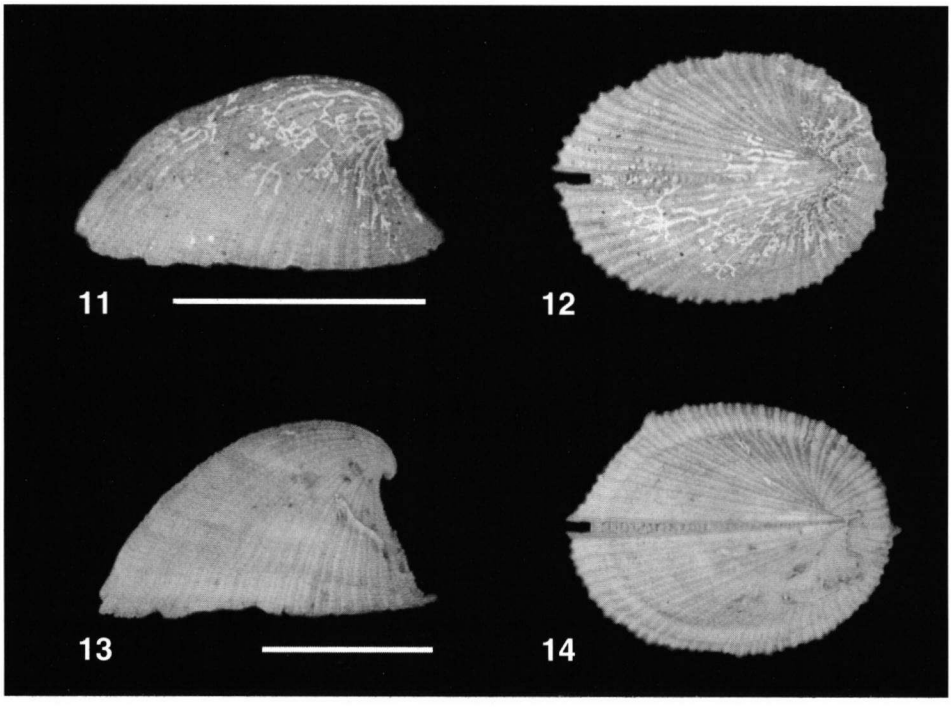
INTRODUCTION

In the Mediterranean Sea the genus *Emarginula* Lamarck, 1801, is represented by thirteen taxa (Piani, 1984; Sabelli et al., 1990; Van Aartsen & Carozza, 1996). Three of these can be considered deep-sea species: *Emarginula christiaensi* Piani, 1984, *E. multistriata* Jeffreys, 1882, and *E. tuberculosa* Libassi, 1859. *Emarginula tenera* Locard, 1892, which generally does not occur at bathyal depths, being mainly a deep-shelf species, has been recorded once from the Tuscan Archipelago (off Gorgona Island, Northern Tyrrhenian Sea) at a depth of 400-600 m by Bogi & Giusti (1994). During our study on bathyal molluscan species collected along the Central Tyrrhenian Sea, off the Latium coast (Smriglio et al., 1987; Smriglio & Mariottini, 2000), we came across a group of shells of the Emarginulinae J.E. Gray, 1834, which we could not identify with any other Mediterranean member of this subfamily. After a comparison with the deep-sea *Emarginula* species mentioned above, we concluded that these shells represent a species new to science, which seems to belong to the deep-sea coral biocoenosis. That species is described below as *Emarginula bonfittoi* spec. nov. Furthermore, we confirmed the presence of *Emarginula tenera* in the bathyal faunal assemblages of the Tyrrhenian Sea.

Abbreviations. – For collections: CS-MP, Carlo Smriglio and Paolo Mariottini colln, Roma, Italy; MZB, Laboratorio di Malacologia, Museo di Zoologia dell'Università di Bologna, Italy; USNM, United States National Museum of Natural History, Washington, USA. For shell characters: H, height; L, length; W, width.



Figs 1-10. *Emarginula bonfittoi* spec. nov.; central Tyrrhenian Sea, 41°51' N 11°28' E, at 400-650 m depth. 1-3, holotype (MZB15002); 1, apical view; 2, lateral view; 3, ventral view. 4-5, paratype A; 4, apical view; 5, lateral view. 6, paratype B; lateral view. 7, paratype C; lateral view. 8, paratype D; lateral view. 9, paratype E; lateral view. 10, paratype F; lateral view. Holotype and paratypes (CS-PM). Scale bar 1 mm.



Figs 11-14. *Emarginula multistriata* Jeffreys, 1882; central Tyrrhenian Sea, 41°51' N 11°28' E, at 460-600 m depth. 11, 13, lateral views; 12, 14, apical views. Scale bar 1 mm.

SYSTEMATICS

Family Fissurellidae Fleming, 1822
Subfamily Emarginulinae J.E. Gray, 1834
Genus *Emarginula* Lamarck, 1801

Emarginula bonfittoi spec. nov. (figs 1-10)

Material. – Holotype (MZB15002), 16 paratypes (CS-PM): Central Tyrrhenian Sea (41° 51' N 11° 28' E), at 400-650 m depth, dredged on sea bottoms hosting biocoenosis CB e VB (sensu Pérès & Picard, 1964).

Description. – Shell white-grey, of medium size for the family, relatively high, bilaterally symmetrical; basal plane flat and basal outline oval (the greatest width in the middle, and anterior and posterior sides equally rounded), margin crenulate. Apex strongly curved, positioned at the posterior end of the shell; anal slit short, measuring only 0.13-0.17 of the total length, lunulae on the slit-band directed dorsally. The sculpture consists of many regular, prominent, radial ribs; rarely, secondary, weaker ribs are visible between them, and concentric equally spaced ridges. The crossing of ribs and ridges creates a distinct regular and dense network.

Measurements. –

	L	W	H	(mm)
Holotype (MZB15002)	22.1	15.5	12.4	
16 paratypes (CS-PM):				
paratype A,	23.0	16.2	13.0	
paratype B,	24.0	17.5	14,5	
paratype C,	20.8	14.3	12.0	
paratype D,	16.0	11.2	8.1	
paratype E,	16.8	11.0	10.3	
paratype F,	17.8	12.5	10.9	

Animal. – Unknown.

Etymology. – This species is named in honour of Dr Antonio Bonfitto (Bologna, Italy), biologist, expert malacologist and good friend of the authors.

DISCUSSION

Emarginula bonfittoi spec. nov. is clearly distinguishable conchologically from all other Mediterranean species of Emarginulinae. It is most similar to *E. multistriata* Jeffreys, 1882 (figs 11-14), a deep-sea species which, however, has a different shell outline, basal plane and sculpture. In particular, the sculpture differs conspicuously between the two species. In *E. multistriata* there is a small number of primary radial ribs, with clearly secondary ribs between them, and prominent, spiny tubercles where they cross with the concentric ridges. There are fewer and much more prominent lunulae on the slit-band.. A syntype of *E. multistriata* (USNM 178894) was figured by Warén (1980: 14, pl. 2 figs 15-16), since Jeffreys' figure (1882b: pl. 50 fig. 12), published shortly after his original description (1882a: 30), is very poor. A specimen of *E. bonfittoi* spec. nov. has been reported already from the same area in the Mediterranean Sea by Ardovini & Cossignani (1999), but the shell was misidentified as *E. multistriata*.

Our material was collected from muddy-bathyal bottoms (biocoenosis VB, sensu Pérès & Picard, 1964) surrounding deep-sea coral banks (biocoenosis CB, sensu Pérès & Picard, 1964), since in the analysis of the dredged muddy organic sediment we found many fragments of azooxanthellate corals like *Desmophyllum cristagalli* Milne Edwards & Haime, 1848, and *Dendrophyllia cornigera* (Lamarck, 1816).

We cannot exclude the possibility however, that the shells of *Emarginula bonfittoi* spec. nov. are from Pleistocene, Würmian, deposits, as suggested by the molluscan assemblage in the sample, in particular by the presence of *Pseudamussium septemradiatum* (Müller, 1776) (Bonfitto et al., 1994). As a matter of fact, since the beginning of an in-depth systematic screening of the Mediterranean deep-sea fauna, there has been a steady increase of the number of molluscan species to be added to the Quaternary, i.e. late Pleistocene to Recent, fauna of this basin (Bonfitto et al., 1994). In line with this trend, the three bathyal species *Emarginula christiaensi, E. multistriata* and *E. tubercolosa,* previously considered fossils in the Mediterranean basin, have recently been recorded live from deep-sea coral biocoenosis (Bogi & Giusti, 1994; Biondi & Di Paco, 1996). Further research on the Mediterranean deep-sea molluscan assemblage is needed to see whether *E. bonfittoi* spec. nov. is one more Recent species to be added to the malacofauna of the Mediterranean Sea.

In the dredged material with *Emarginula bonfittoi* spec. nov. we also found several specimens, still with soft parts, of *E. tenera,* which is known from the coralligenous environment of the continental shelf. This species has been reported only once from the Northern Tyrrhenian Sea, off Gorgona Island, at 400-600 m depth (Bogi & Giusti, 1994).

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REFERENCES

AARTSEN, J.J. VAN, & F. CAROZZA, 1996. *Emarginula divae* nov. spec., a new species from the mediterranean coast of Israel. – Bollettino Malacologico 31 [1995]: 133-136.

ARDOVINI, R., & T. COSSIGNANI, 1999. Atlante delle conchiglie di profondità del Mediterraneo: 1-111. Ancona.

BIONDI, F., & G. DI PACO, 1996. Living specimens of *Emarginula christiaensi* Piani, 1985 found in the Mediterranean (Ligurian Sea) (Archaeogastropoda: Fissurellidae). – La Conchiglia 28 (278): 17-20.

BOGI, C., & F. GIUSTI, 1994. Upper Tyrrhenian Sea: *Emarginula tubercolosa & Emarginula multistriata:* finding of living specimens. – La Conchiglia 26 (273): 41-44.

BONFITTO, A., M. OLIVERIO, B. SABELLI & M. TAVIANI, 1994. A quaternary deep-sea marine molluscan assemblage from East Sardinia (Western Tyrrhenian Sea). – Bollettino Malacologico 30: 141-157.

JEFFREYS, J.G., 1882a. Notes on the Mollusca procured by the Italian exploration of the Mediterranean in 1881. – The Annals and Magazine of Natural History (5) 10: 27-35.

–, 1882b. On the Mollusca procured during the 'Lightning' and 'Porcupine' expeditions, 1868-70. (Part V.) . – Proceedings of the Scientific Meetings of the Zoological Society of London for the year 1882: 656-687.

PÉRÈS, J. M., & J. PICARD, 1964. Nouveau Manuel de Bionomie Benthique de la Mer Méditerranée. – Recueil des Travaux de la Station Marine d'Endoume 31 (47): 1-137.

PIANI, P., 1985. Revisione del genere *Emarginula* Lamarck, 1801 in Mediterraneo. – Lavori della Società Italiana di Malacologica [1984] 21: 193-238.

SABELLI, B., R. GIANNUZZI-SAVELLI & D. BEDULLI, 1990. Annotated check-list of Mediterranean marine mollusks I: 1-348. Bologna.

SMRIGLIO, C., P. MARIOTTINI & F. GRAVINA, 1987. Molluschi del Mar Tirreno Centrale: ritrovamento di *Typhlomangelia nivalis* (Lovèn, 1846). Contributo I. – Bollettino Malacologico 23: 47-52.

–, –, 2000. *Onoba oliverioi* n. sp. (Prosobranchia, Rissoidae), a new gastropod from the Mediterranean. – Iberus 18: 15-19.

WARÉN A., 1980. Marine Mollusca described by John Gwyn Jeffreys, with the location of the type material. – Conchological Society of Great Britain and Ireland. Special publication 1: 1-59. London.