



First record of *Fusinus dimassai* Buzzurro & Russo, 2007 (Gastropoda, Fasciolariidae) outside of the type locality: a further confirm of strict affinities between Messina strait and Tyrrhenian seamounts

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Cite this article as:

Giacobbe, S., Renda, W. (2020). First record of *Fusinus dimassai* Buzzurro & Russo, 2007 (Gastropoda, Fasciolariidae) outside of the type locality: a further confirm of strict affinities between Messina strait and Tyrrhenian seamounts. *Aquatic Research*, 3(1), 36-39. <https://doi.org/10.3153/AR20004>

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Submitted: 29.10.2019

Revision requested: 22.11.2019

Last revision received: 01.12.2019

Accepted: 01.12.2019

Published online: 18.12.2019

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ABSTRACT

A revision of mollusc samples deposited in the Benthic Ecology Laboratory collections of Messina University, provided specimens of *Fusinus dimassai* Buzzurro & Russo, 2007, from the “Apollo Bank”, south-western Tyrrhenian Sea. The record of such species, known so far from the Strait of Messina only, replicates the recent case of *Jujubinus errinae* Smriglio, Mariottini & Giacobbe, 2016, underlining the strict ecological affinities linking such peculiar area to the Tyrrhenian seamounts.

Keywords: Mollusc, Mediterranean, Laminariales, Biogenic seafloor, Biogeography

Introduction

The Strait of Messina, recognized as a peculiar “micro-sector”, biogeographically distinct from all other Mediterranean area (Bianchi et al., 2012), is known as locus typicus of several mollusc species, as the spindle shell *Fusinus dimassai* Buzzurro & Russo, 2007. Such species, known so far only from the type locality, has been probably attributed in the past to the close *F. parvulus*, (Monterosato, 1884), together with other recently described congeners (Russo, 2019). This uncertainty about the determinations preceding the description of the new species suggested a careful revision of material deposited at the Benthic Ecology Laboratory collections, Messina University. The revision led to the recognition of several specimens of *F. dimassai*, mostly from sampling carried out in the Strait of Messina, but also from the Isle of Ustica, south-western Tyrrhenian Sea.

Aim of this paper is to report the first finding outside of the type locality of this poorly known species, as a further evidence of the strict ecological affinities linking the Strait of Messina with the Tyrrhenian seamounts.

Material and Methods

The whole death assemblage described in Di Geronimo et al. (1988) has been revised, with particular focus on the genus *Fusinus*. The assemblage was associated to coarse sediments sampled from the “Apollo Bank” kelp beds, 3 km south-west of the Ustica volcanic system. The bank, ranging in depth from -40 m to -150 m (Figure 1), is characterized by rocky floors, irregularly covered by biogenic deposits, hosting dense populations of the Mediterranean gorgonian *Paramuricea clavata* (Risso, 1826) and, deeper, kelp beds of *Laminaria rodriguezii* Bornet 1888. The hydrology of the whole volcanic system, directly exposed to a branch of the Surface Atlantic Waters, is characterized by strong currents and upwelling.

The examined assemblage, dredged from 70 m to 50 m depth, has been originally sorted by a 7 dm³ sediment sample, sieved onboard on a 1 mm mesh sieve. Each *F. dimassai* specimen, once separated from the original sample, has been photographed, examined, measured, and deposited apart (repository code: BEL138BA1988Fd1-6).

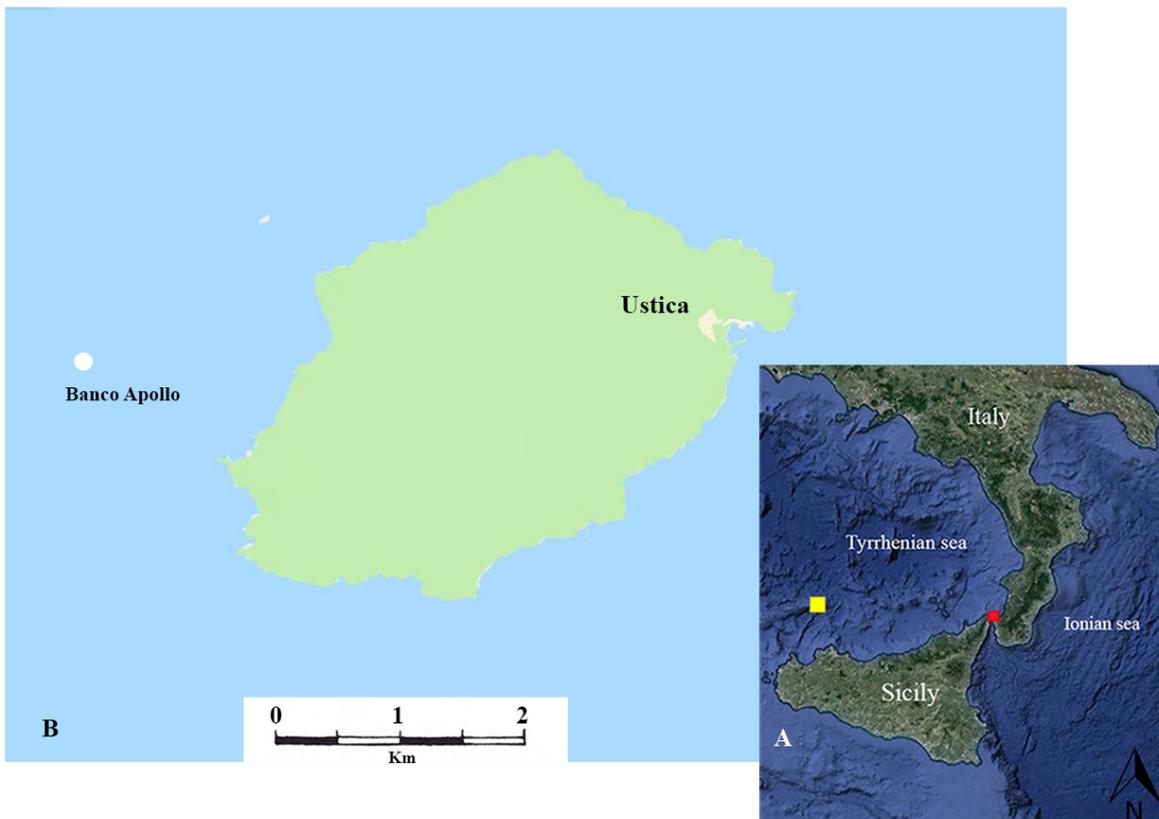


Figure 1. A) Sampling sites of *Fusinus dimassai*: the Strait of Messina (red circle) and the Isle of Ustica (yellow square) are indicated. B) Location of the Apollo Bank in the Ustica volcanic system.

Results and Discussion

The revision of the Apollo Bank death assemblage provided six specimens of *F. dimassai*, showing different states of preservation. The best preserved specimen was a subadult (subcode Fd3), measuring 5.1 mm in length, dorsally showing a light scar on the last whorl; the protoconch was intact (Figure 2). Two other specimens (Fd1 and Fd2), measuring respectively 10 mm and 8.5 mm, showed clear damages by predation in the upper part of the last whorl. The net hole recognizable in Fd2 was clearly due to gastropod predation; the same cannot be asserted for Fd1, which showed a wider, most irregular hole. The protoconch was intact in Fd3, but severely damaged in Fd1. The other three specimens consisted in large fragments, each of them including well preserved protoconch and almost three spiral whorls of teleoconch. The specimen Fd4 maintained a wide portion of columella. Such fragmented shells might indicate predation by durophagous fish.

Fusinus dimassai has been described on specimens from Scilla, at the northern entrance of the Messina Strait (Buzzurro & Russo, 2007). Some indications about records from other localities, as Lampedusa, have been never verified (Russo, 2019). The present record of *F. dimassai* from Ustica can be thus considered the first ascertained evidence of a wider distribution than type locality only.

The specimens from the type locality have been all collected in bioclastic sediments from coralligenous habitat, 40-45 m depth. Such original indication disagrees with the attribution, in the same paper, of *F. dimassai* to the Infralittoral zone. It

is coherent, by contrast, with the known occurrence of both *Paramuricea clavata* populations and kelp beds, whose association in the Scilla coralligenous habitat has been formerly described by Giacobbe & Spanò (2006).

The strict affinities linking the Scilla seafloors with the "Apollo" bank well explain the similarity in the associated fauna, whose composition is however insufficiently known. The present report of *F. dimassai* from Ustica, following the similar case of *Jujubinus errinae* Smriglio, Mariottini & Giacobbe, 2016 (Giacobbe & Renda, 2019), suggests that the scattered distribution of the Mediterranean kelp beds throughout south Tyrrhenian Isles and banks, might support a peculiar associated fauna with a strongly Atlantic imprint. A different aspect of this linkage has been recently described by Smriglio et al. (2018), according which the distribution of the "smooth" *Jujubinus* complex might related to a speciation process driven by the fragmented distribution of kelp beds along the Surface Atlantic Water inflow.

Conclusion

The present record suggest that *Fusinus dimassai* belongs to a group of species generally unknown outside the locus typicus, the Strait of Messina, but probably having a scattered distribution across the western Mediterranean, since tied to "residual" Atlantic associations. The occurrence of strict affinities between the Strait of Messina hard bottoms and Tyrrhenian semounts as the "Apollo Bank" are thus further supported.

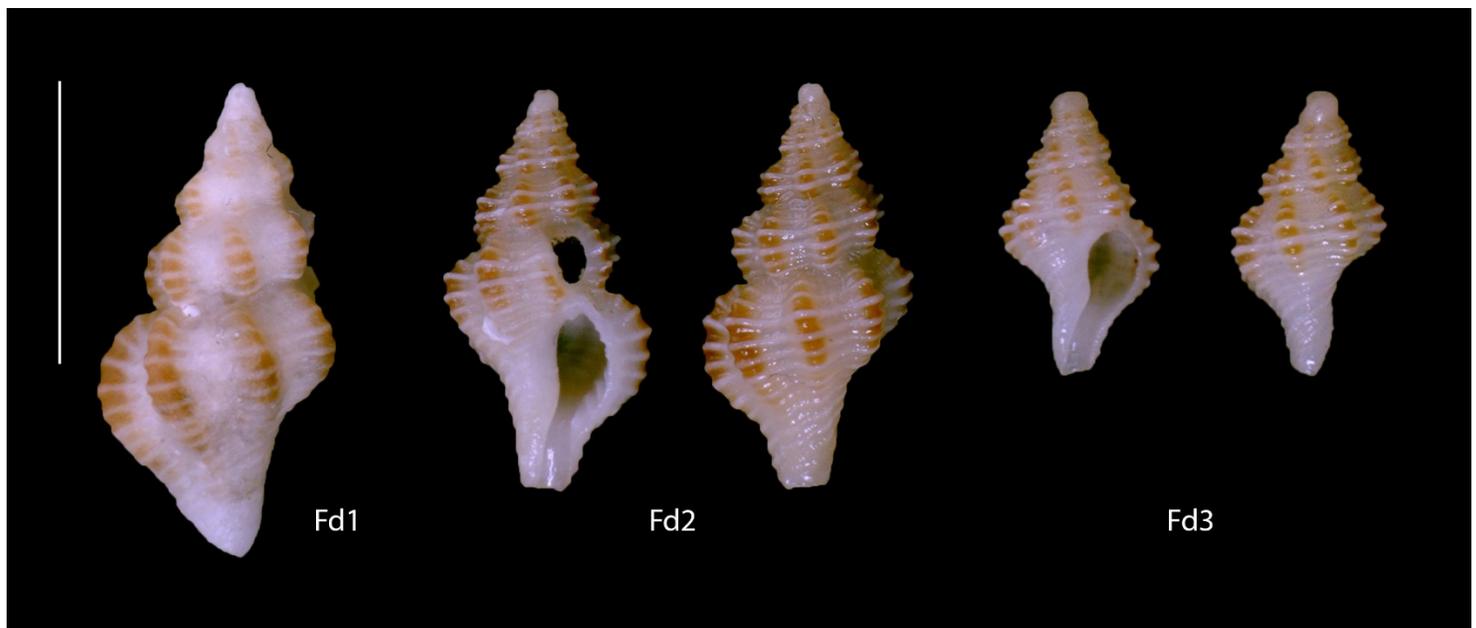


Figure 2. Specimens of *Fusinus dimassai* from Banco Apollo, Ustica (scale bar 5 mm).

Compliance with Ethical Standard

Conflict of interests: The authors declare that for this article they have no actual, potential or perceived conflict of interests.

Ethics committee approval: There is no need ethics committee approval.

Acknowledgments: We warmly thank Paolo Russo who confirmed the determination of the specimens.

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