

First record of *Calliostoma lusitanicum* F. Nordsieck et García-Talavera, 1979 (Gastropoda Calliostomatiidae) in the Mediterranean Sea and remarks on *C. alexandrinum* Pallary, 1912

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ABSTRACT

In this work is reported for the first time the presence of *Calliostoma lusitanicum* F. Nordsieck et García-Talavera, 1979 (Gastropoda Calliostomatiidae) in the Mediterranean Sea. Present sightings widen the known distribution of this species, found in the Madeira Archipelago and Canary Islands. The relationship between *C. lusitanicum* and *C. alexandrinum* Pallary, 1912 is discussed.

KEY WORDS

Calliostoma lusitanicum; Calliostomatiidae; Mollusca; Mediterranean Sea.

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INTRODUCTION

According to WoRMS (accessed on 14.10.2020), 291 recent species are currently placed in the genus *Calliostoma* Swainson, 1840 (Gastropoda Calliostomatiidae) with a worldwide distribution. In the Mediterranean Sea, according to the systematic list of the SIM (Italian Society of Malacology) (accessed 14.10.2020), 11 species are present. In this work, an another new species, *Calliostoma lusitanicum* F. Nordsieck et García-Talavera, 1979, is reported.

MATERIAL AND METHODS

The studied material from Tunisia was found in detritus collected by small fishermen boats at a depth of 2 to 5 m. The WoRMS database and the systematic list of the SIM are used for nomenclatural updates. Sizes reported are in millimeters and given

as shell height. Photos are obtained with a Nikon D90 and processed with Adobe Photoshop CC®.

ABBREVIATIONS AND ACRONYMS. The following abbreviations and acronyms are used: AN: Andrea Nappo collection (Quartu Sant'Elena, Cagliari, Italy); AP: Attilio Pagli collection (Empoli, Firenze, Italy); DP: Daniel Pellegrini collection (Valmontone, Roma, Italy); MNHN: Muséum National d'Histoire Naturelle (Paris, France); SIM: Italian Society of Malacology; WoRMS: World Register of Marine Species.

RESULTS

Systematics

Phylum MOLLUSCA Cuvier, 1797

Classis GASTROPODA Cuvier, 1795

Subclassis VETIGASTROPODA Salvini-Plawen, 1980

Familia CALLIOSTOMATIDAE Thiele, 1924 (1847)

Genus *Calliostoma* Swainson, 1840

Calliostoma lusitanicum F. Nordsieck et García-Talavera, 1979

MATERIAL EXAMINED. *Calliostoma lusitanicum* F. Nordsieck et García-Talavera, 1979: one shell, Ilhéu de Cima, Porto Santo Isl. Madeira. 17 m; one shell, Lido, Funchal, Madeira. 10-20m; two shells, Puerto del Carmen, Lanzarote; five shells, Djerba, Tunisia. 2 m.

ORIGINAL DESCRIPTION. The fonts of scientific names are reproduced as in the original text: Nordsieck, F. & García-Talavera, F., 1979: “*lusitanicum* n. sp. 15/13 mm. Porto Santo, Salvajes, Lanzarote, Fuerteventura, Gran Canaria. Similar en forma a *semisulcatum* Coen 1937, pero mayor. Regularmente cónica. Apex oscurecido, granulado. Ocho-nueve espiras planas, con carina saliente y maculada, más tres bandas espirales con filamento delicado por encima. Base definitivamente angulada, plana, algo deprimida cerca del centro, con numerosas aristas espirales. Abertura romboide plana. Labro afilado. Palatal nacarado. Columela sin diente, sino con una arista como pseudo-ombigo y una media luna blanca alrededor de él. Esta es la forma Lusitana típica del grupo. Ha sido confundida con *dubium* Philippi, pero la última tiene de crecimiento rojizas. Apex a menudo verde metálico. (Figura en la lámina XLII)”.

English translation. “*lusitanicum* n. sp. 15/13 mm. Porto Santo, Salvagens, Lanzarote, Fuerteventura, Gran Canaria. Similar in shape to *semisulcatum* Coen 1937, but bigger. Regularly conical. Apex dark, granulated. Eight-Nine flat spiral whorls, with prominent and maculated basal keel, plus three spiral cords and a small cord on top. Definitely angled base, flat, somewhat depressed near the center with numerous spiral cords. Flat rhomboid aperture. Sharp lip. Nacreous palatal part of body whorl. Columella without tooth, but with an edge forming a pseudo-umbilicus and a white crescent moon around it. This is the typical form of the *lusitanicum* group. It has been confused with *dubium* Philippi, but the latter has reddish growth marks. Apex often metallic green (Figure on plate XLII).

REMARKS. Eleven species belonging to the genus *Calliostoma* Swainson, 1840 have been recorded in the Mediterranean Sea. *Calliostoma lusitanicum* is an Atlantic species distributed in the Madeira Archipelago and Canary Islands. Five very fresh shells of this distinctive medium-sized species are found in samples collected in 2 meters of depths in Djerba, Gulf of Gabès, Tunisia.

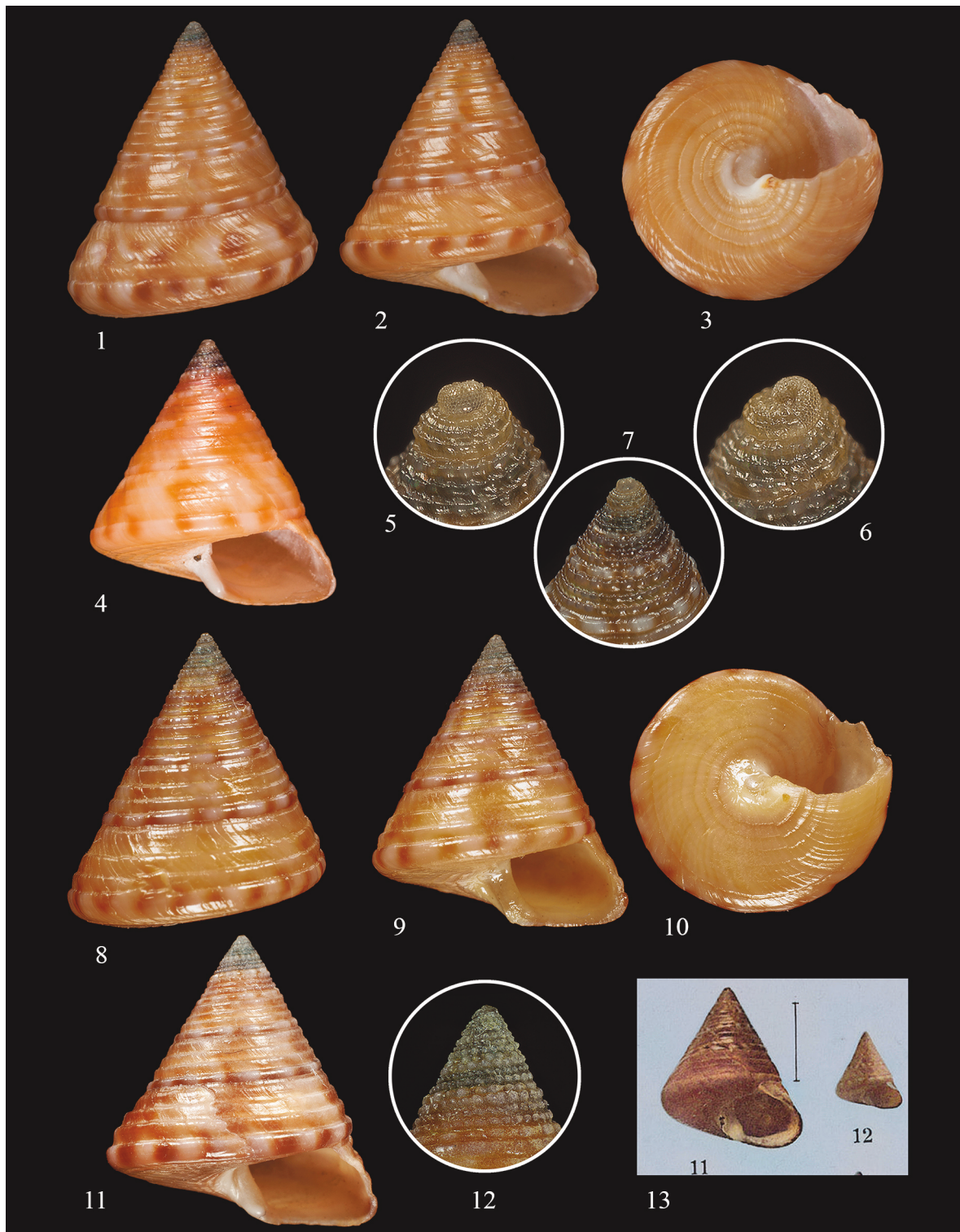
Morphological shell features matched those of *Calliostoma lusitanicum*, thus offering us the possibility to enlarge its known distribution. This medium-sized species is characterized by these features: teleoconch has a reddish-brown background with white flames. The pattern in the basal keel is composed by alternated red and white spots. The shell has a smooth shiny surface with strong spiral cords, variable in number. Totally smooth specimens are known from the Atlantic populations. The columella has a distinct teeth close to the base. The base is composed by very strong cords. In the material examined from Tunisia the size range is approximatively from 10.2 mm to 13 mm.

Considering that this species has a very short pelagic larval phase, and the retrieval area is experiencing a remarkable traffic of boats, we are inclined to think this species could have arrived through them as suggested by Antit et al. (2009) and Nappo et al. (2019) with the case of *Mitrella psilla* (Duclos, 1846).

Another hypothesis includes the taxon *Calliostoma alexandrinum* Pallary, 1912 which was described in the basis of specimens found in Alessandria, Egypt and is currently placed in the synonymy of *Calliostoma zizyphinum* (Linnaeus, 1758) (WoRMS). The features of this species are: spiral sculpture formed by three cords; the base has circular cords; evident axial oblique growth striae; its color is light yellow or dark red; basal keel with alternated white and dark brown spots; medium large in size (height 11 mm, diameter 8 ½ mm).

These features match the ones of *C. lusitanicum* in full, but since the type specimens of *C. alexandrinum* are lost, and the unique picture in the original description is not helpful, a taxonomic review of these taxa is not possible. In this article we include the original picture digitally coloured to show how these specimens could probably appear.

Another possibility is that this species has a larger distribution, but since the coasts of Morocco



Figures 1-12. *Calliostoma lusitanicum* F. Nordsieck et García-Talavera, 1979. Fig. 1-3: Puerto del Carmen, Lanzarote. 8/1993. 11.1mm. (AN); Fig. 4: Syntype. Porto Santo, Madeira Islands, 8.8 mm. (Muséum national d'Histoire naturelle, Paris (France) Collection: Molluscs (IM) Specimen MNHN-IM-2000-31512); Figs. 4-6: Puerto del Carmen, Lanzarote, 8/2000, 9.5 mm (A); Figs. 7-9: Djerba, Gulf of Gabès, Tunisia, 2 m., 10.8 mm. (AN); Figs. 10-12: Djerba, Gulf of Gabès, Tunisia, 2 m., 10.4 mm. (DP). Figure 13. Original drawing of *Calliostoma alexandrinum* Pallary, 1912 (Pallary P., 1912) digitally coloured.

and Algeria are mostly unexplored in malacological terms, this species was never recorded before.

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REFERENCES

- Antit M., Gofas S. & Azzouna A., 2009. A gastropod from the tropical Atlantic becomes an established alien in the Mediterranean. *Biological Invasions*, 12: 991–994. <https://doi.org/10.1007/s10530-009-9532-2>
- Avila S.P., Borges J.P. & Frias Martins A.M. de, 2011. The littoral Trochoidea (Mollusca: Gastropoda) of the Azores. *Journal of Conchology*, 40: 408–427.
- Holyoak A.R. 1988. Spawning and larval development of the Trochid Gastropod *Calliostoma ligatum* (Gould, 1849). *The Veliger*, 30: 369–371.
- Nappo A., Strizzi M.N.T., Mancini E. & Marcelli M., 2019. First record of *Mitrella psilla* (Duclos, 1846) (Gastropoda: Columbellidae) in Italy. *Bollettino Malacologico*, 55: 62–64.
- Nordsieck F. & García-Talavera F., 1979. *Moluscos Marinos de Canarias y Madera* (Gastropoda). *Aula de Cultura, Tenerife*, 208 pp., 46 pls. Page(s): 47–48, pl. 7 fig. 2.
- Pallary P., 1912. Catalogue des mollusques du littoral méditerranéen de l’Egypte. *Mémoires de l’Institut d’Egypte*, 7: 69–207, pl. 15–18.
- Segers W., Swinnen F. & De Prins R., 2009. . *Marine Molluscs from the Portuguese Province of Madeira. Madeira and Selvagens Archipelago*. Segers, Willy, Frank Swinnen and Roland de Prins. Snoeck Publishers, 612 pp.