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First record of living *Conomurex persicus* (Swainson, 1821) (Gastropoda Strombidae) for Italian waters

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ABSTRACT The first record of live collected *Conomurex persicus* (Swainson, 1821) (Gastropoda Cymbuliidae) for Italy is reported, on account of six live specimens found in November 2021 at Linosa Island, Pelagie Archipelago (Agrigento, Sicily, Italy).

KEY WORDS "Alien" Strombidae shell; *Conomurex persicus*; first record; Italian sea waters.

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INTRODUCTION

The only acclimatized Strombidae in the Mediterranean Sea is *Conomurex persicus* (Swainson, 1821) (Gastropoda Strombidae), which is both widespread and well established (there are a few records of other exotic Strombidae, but they all related to empty shells or single findings).

It is native to the southern coast of Arabia and part of the Persian Gulf, and presumably arrived in the Mediterranean through shipping (Oliverio, 1995, Zenotos et al., 2004a). After the first record in 1978 in southern Turkey (Raybaudi-Massilia, 1983), it was initially described as a subspecies: *Strombus decorus raybaudii* Nicolay et Romagna-Manoja (Nicolay & Romagna-Manoja, 1983). Crucitti & Rotella (1991) rightly questioned the validity of this subspecies, but it was only ten years after its description that its taxonomic position and correct identification was conclusively established by Moolembeek & Dekker (1993). Successively, it was recorded from Israel and Sinai (Mienis, 1984, 1999; Barash & Danin, 1992), Greece (Russo, 1999; Young, 2007, Zenotos et al., 2004a,b), Rhodes (Verhecken, 1984, Barash & Danin, 1988), Cyprus (Bazzocchi, 1985, Cecalupo & Quadri, 1994), Syria (Gosselck et al., 1986), Lebanon (Bogi & Khairallah, 1987; Zibrowius & Bitar, 2003) and Lybia (Souissi & Zaouali, 2007) (Fig. 1). In Italy, only a few empty shells were found off Muggia (Trieste, Italy) (Vio & De Min, 1996; De Min & Vio, 1998; Vio & De Min, 1999). It was reported among the alien species of the northern Adriatic shores by De Min & Vio (1998), listed by Orlando-Bonaca (2001) as "*occasional*" and by Zenetos et al. (2004a) as a "*local record*", while Oliverio et al. (2008) did not list this species for Italian seas. Although photos included in the above-mentioned papers confirm the correct identification, both Oliverio et al. (2008) and Crocetta (2011a, b) are of the opinion that the record should be rejected. All the shells that were found were empty and long dead, without any evidence of the animals having reached Italian waters alive. The same consideration could be applied to the single record for Albania, concerning a single empty shell found in Porto Palermo Bay (40.063056° N, 19.793333° E), where it was found near the pier under small fishing boats in August 2015 (Gerovasileiou et al., 2017).

Our observations carried out of marine fauna from Linosa Island in October and November 2021 near shore and in shallow waters (snorkeling) allowed us to find living specimens of *C. persicus* as shown below in this work.

MATERIAL AND METHODS

Study area

The Pelagie Archipelago is located in the southern Mediterranean Sea, in the middle of the Sicilian Channel, and comprises the islands of Lampedusa, Lampione and Linosa. The first two are limestone islands and are part of the African tectonic plate. Linosa (35°52'N, 12°52'E) is a small volcanic island of 5.4 km² (Fig. 1), with its highest elevation at 195 m a.s.l. It lies halfway between Sicily and Tunisia, about 160 km from each, and the nearest land is Lampedusa about 42 km to the southwest.

Samples

The observations on marine fauna in October and November 2021 were made near shore, in shallow waters and on warm days. Five live specimens of *C. persicus* were found on 1st November 2021 by Andrea Corso at Pozzolana di Ponente (35°51'48.56"N 12°51'13.22"E). A few days later, on 11th November, after more extensive searches, one additional specimen was found, near the first site and in the very same condition.

One of the specimens found was first photographed underwater with a digital camera by Ottavio Janni. Further pictures of the live collected specimens were made by Michele Viganò. All the specimens now stored are held in Andrea Corso collection (Siracusa, Italy).

RESULTS

The first five specimens were found at 3 m depth, close together around a small lava stone, on a sandy bottom (SFBC biocoenosis), between a *Posidonia oceanica* meadow (HP biocoenosis) and a *Caulerpa prolifera* field (CP fringe of AP) (Pérès & Picard, 1964). Of these, only two specimens could be considered fully grown (the other still having a rather fragile external lip), and therefore mature. Their measurement were 43.1–47.00 mm (43.7).

The sixth specimen was found on small rock over the sandy bottom; again, it shows a fragile and not well developed external lip. Despite three more snorkeling sessions in the following days at different localities (Cala Mannarazza, Cala Beppe Tuccio and Baia del Conte), no other specimens were found.

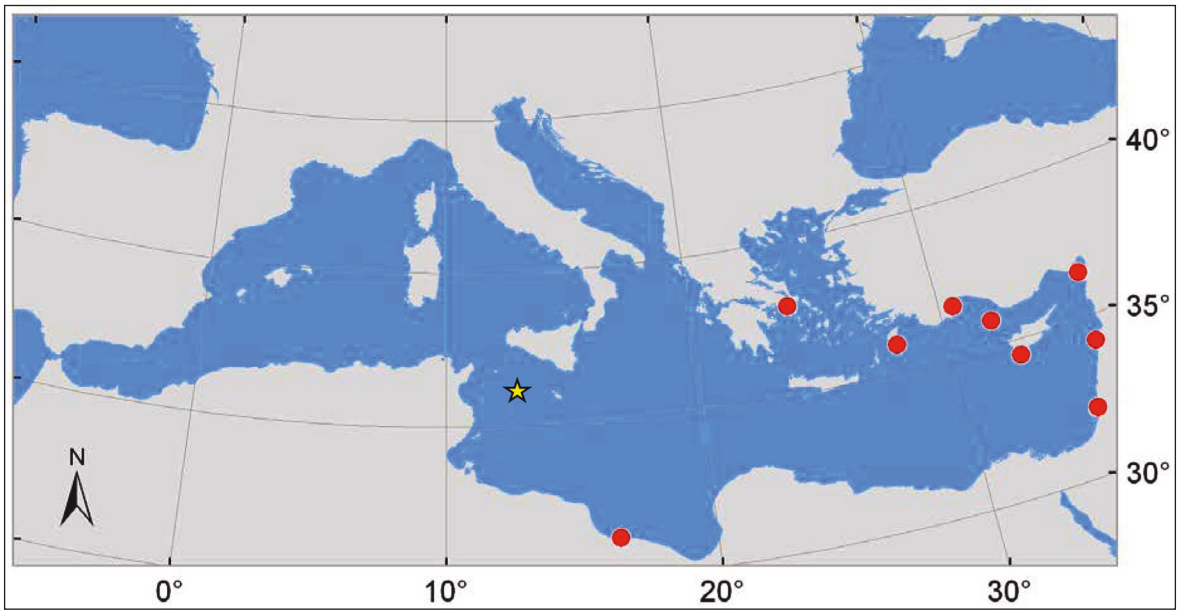

Figure 1. Distribution of *Conomurex persicus* (Swainson, 1821) in the Mediterranean Sea. Red dots indicate long-established populations of this species, while the yellow star indicates Linosa, where the first living specimens for Italy of this species were found in 2021.

Figure 2. Some of the six living specimens of *Conomuerex persicus* (Swainson, 1821) collected in November 2021 at Pozzolana di Ponente harbor, Linosa Island, Pelagie Archipelago (Agrigento, Sicily) (photo by Michele Viganò).

DISCUSSION AND CONCLUSIONS

As reported by Russo (1999), Young (2007) and Zenotos et al. (2004a, b), the species is clearly spreading its range to the Northern and Western part of the Mediterranean Sea from its first oriental "impact site of colonization". However, until now, the records from the Adriatic Sea refer to a not established population. No further records were known from Italian waters.

The recent enlargement to Linosa Island of the spreading of *C. persicus* is to be considered a very recent event; indeed, not all specimens collected were fully mature, and the island is visited by us and several other malacologists every year. It is therefore clear that the island was only recently reached. Given the locality of the finding, the main harbor of Linosa, it is quite likely that the species reached the area as larvae introduced by ship assistance, as Oliverio (1995) proposed for the spreading models of many non-native species which reached the Mediterranean Sea.

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REFERENCES

Barash A. & Danin Z., 1988. Marine Molluscs of Rhodes. Israel Journal of Zoology, 35: 1–74. https://doi.org/10.1080/00212210.1988.10688604

Barash A. & Danin Z., 1992. Annoted list of Mediterranean Molluscs of Israel and Sinai. Fauna Palestina-Mollusca I. Jerusalem, Israel Academy of Sciences and Humanities, 405 pp.

Bazocchi P., 1985. Prima segnalazione di *Strombus* (*Conomurex*) *decorus raybaudii* Nicolay & Romagna-Manoja, 1983 per l'Isola di Cipro. Bollettino Malacologico, 21: 64.

Bogi C. & Khairallah N.H., 1987. Nota su alcuni molluschi di provenienza Indo-Pacifica raccolti nella baia di Jounieh (Libano). Contributo I. Notiziario CISMA, 10: 54–60.

Cecalupo A. & Quadri P., 1994. Contributo alla conoscenza malacologia per il nord dell'isola di Cipro (Parte I). Bollettino Malacologico, 30: 5–16.

Crocetta F., 2011. Marine alien Mollusca in the Gulf of Trieste and neighbouring areas: a critical review and state of knowledge (updated in 2011). Acta Adriatica 52: 247–260.

Crucitti P. & Rotella G., 1991. Una popolazione di *Strombus* (*Conomurex*) *decorus* del Golfo di Iksenderun (Turchia sud-orientale): Biometria e osservazioni ecologiche. Bollettino Malacologico, 26: 211–218.

De Min R. & Vio E., 1997. Molluschi conchiferi del litorale sloveno. Annals for Istrian and Mediterranean Studies, 11: 241–258.

De Min R. & Vio E., 1998. Molluschi esotici nell'Alto Adriatico. Annals for Istrian and Mediterranean Studies, 13: 43–54.

Gerovasileiou V., Akel E., Akyol O., Alongi G., Azevedo F., Babali N., Bakiu R., Bariche M., Bennoui A., Castriota L., Chintiroglou C., Crocetta F., Deidun A., Galinou-Mitsoudi S., Giovos I., Gökoğlu M., Golemaj A., Hadjioannou L., Hartingerova J., Insacco G., Katsanevakis S., Kleitou P., Korun J., Lipej L., Mi-

chailidis N., Mouzai Tifoura A., Ovalis P., Petović S., Piraino S., Rizkalla S., Rousou M., Savva I., Şen H., Spinelli A., Vougioukalou K., Xharahi E., Zava B. & Zenetos A., 2017. New Mediterranean Biodiversity Records (July, 2017). Mediterranean Marine Science, 18: 355–384. https://doi.org/10.12681/mms.13771

Gosselck F., Spittler P. & Kassab N.Y., 1986. Some gastropods and bivalves of the Syrian Mediterranean coast. Wissenschaftlich Zeitschrift der Wilhelm-Pieck-Universitat Rostock, 35: 96–99.

Mienis H.K., 1984. *Strombus decorus persicus* found in Israel. Hawaiian Shell News, 32: 4.

Mienis H.K., 1999. *Strombus persicus* on the fishmarket of Yafo, Israel. De Kreukel, 35: 112.

Moolenbeek R.G. & Dekker H., 1993. On the identity of *Strombus decorus* and *Strombus persicus*, with the description of *Strombus decorus masirensis* n. ssp. and a note on *Strombus fasciatus*. Vita Marina, 42: 3–10.

Nicolay K., 1986. Sempre più diffuso lo strombo del Mediterraneo. La Conchiglia, 202–203: 29.

Nicolay & Romagna-Manoja, 1983. *Strombus* (*Conomurex*) *decorus raybaudii* n. ssp. La Conchiglia, 174–175: 20–21.

Oliverio M., 1995. The status of the living Mediterranean *Strombus*, or: what is a lessepsian migrant? Notiziario CISMA, 16: 35–40.

Oliverio M., Giannuzzi-Savelli R., Giovine F., Manganelli G., Pusateri F., Sabelli B. & Spada G., 2008. Checklist della flora e della fauna dei mari italiani (Parte I). Gastropoda Prosobranchia. Relini Ed. Biologia Marina Mediterranea, 15 (suppl.): 235–278.

Orlando-Bonaca M., 2001. A survey of the introduced non-indigenous species in the northern Adriatic Sea. Annals for Istrian and Mediterranean Studies, 11: 149–158.

Pérès J.M. & J. Picard, 1964. Nouveau manuel de bionomie benthique. Recueil des Travaux de la Station marine d'Endoume, 31 (47): 5–137.

Russo P., 1999. Nuovi dati sulla distribuzione geografica di *Strombus (Conomurex) persicus* Swainson, 1821. Bollettino Malacologico, 34 (1998): 103–104.

Souissi J.B. & Zaouali J., 2007. Sur la presence de nouvelles especes exotiques dans la grande et petite Syrte. Rapports et procés-verbaux des réunions Commission internationale pour l'exploration scientifique de la Mer Méditerranée, 38: 435

Young L.A., 2007. Expansion of the distribution of *Strombus persicus*: first documentation from Saronikos Gulf (E. Mediterranean). Xenophora, 116: 24–25.

Verhecken A., 1984. *Strombus decorus raybaudii* in de Middellandse Zee. Gloria Maris, 23: 79–88.

Vio E. & De Min R., 1996. Contributo alla conoscenza dei Molluschi marini del Golfo di Trieste. Atti del Museo Civico di Storia Naturale di Trieste, 47: 173–233.

Vio E. & De Min R., 1999. Ritrovamenti malacologici nel Golfo di Trieste. Hydrores Information, 16: 29–34.

Zenetos A., Gofas S., Russo G. & Templado J., 2004a. CIESM Atlas of exotic species in the Mediterranean. In: Briand F. (Ed.), Molluscs, Monaco, CIESM Publishers, vol. 3, 380 pp.

Zenetos A., Koutsoumbas D. & Vardala-Theodorou E., 2004b. Origin and vectors of introduction of exotic molluscs in Greek Waters. Belgian Journal of Zoology, 134: 161–168.

Zibrowius H. & Bitar G., 2003. Invertébrés marins exotiques sur la cote du Liban. Lebanese Science Journal., 4: 67–74.