



Additional Report on the Sea Cucumber *Holothuria sanctori* Delle Chiaje, 1823 from Mersin

Mert Acar*^{ID}, Nuray Çiftçi^{ID}, Deniz Ayas^{ID}

Mersin University, Fisheries Faculty, Mersin, Turkey Türkiye.

Short Communication

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Abstract

The aim of this study is to provide an additional report of *Holothuria sanctori* Delle Chiaje, 1823, a sea cucumber species from the Akkum rocky bottom habitat located off the coast of Mersin. The individual of *H. sanctori* was collected from a rocky crevice at 8 meters depth. The distinctive morphological characteristics of *H. sanctori* were noted. *H. sanctori* was observed to have ossicular structures forming buttons with different sizes and numbers of holes. The body color of the *H. sanctori* specimen is dark brown and has yellowish ossicles on the body surface.

Keywords: *Holothuria sanctori*, sea cucumber, Mersin Coast, Mediterranean Sea

Introduction

Climate change has negative effect on our planet, with direct impacts on marine environments such as rising sea levels, higher sea temperatures, acidification (Turan et al., 2016; 2022). Also, climate change is now widely recognised as a significant cause of biodiversity change and loss due to the pressures and responses of ecosystems (Darnaude et al., 2022; Turan and Dođdu, 2023; Langeneck et al., 2023).

The genus *Holothuria* currently comprises some 150 valid species, nine of which occur in the Mediterranean Sea (Cherbonnier, 1956; Mezali & Thandar, 2014), being: *Holothuria* (Roweothuria) *arguinensis* (Koehler & Vaney, 1906), *Holothuria* (Panningothuria) *forskali* Delle Chiaje, 1823; *Holothuria* (Holothuria) *helleri* von Marenzeller, 1877, *Holothuria* (Thymiosycia) *impatiens*

Forsskål, 1775, *Holothuria* (*Holothuria*) *mammata* Grube, 1840, *Holothuria* (*Roweiothuria*) *poli* Delle Chiaje, 1824 *Holothuria* (*Platyperona*) *sanctori* Delle Chiaje, 1824 *Holothuria* (*Holothuria*) *stellati* Delle Chiaje, 1824 and *Holothuria* (*Holothuria*) *tubulosa* Gmelin, 1791. Recent molecular studies have shown that, with the exception of *H. arguinensis* and *H. forskali*, all *Holothuria* species found in the Mediterranean can be considered native to the region (Borrero-Pérez et al., 2010; Michonneau, 2015). This means that they were present in the Mediterranean long before the Messinian salinity crisis, which occurred about 5.5-5.3 million years ago (Hernández-Molina et al., 2014; Aydın et al., 2019).

Sea cucumber *Holothuria sanctori* belongs to the class Holoturidia of the phylum Echinodermata. Its body consists of the coelom, which contains the internal organs, and the body wall, which is formed by a thick tubular connective tissue that surrounds the coelom. The body wall with variable connective tissue provides a rapid softening and hardening ability. Holoturians, which feed on dead organisms in the benthic zone, are ecologically important organisms that provide inorganic nitrogen and phosphorus to the environment through bioturbation. Due to its rich vitamin and mineral content, it is widely used in the food and health sectors. Its extracts are used in many scientific studies due to their anticancer, antimicrobial and antioxidant properties. Therefore, they are economically important in addition to their ecological benefits (Moussa and Wirawati, 2018).

H. sanctori, one of the sea cucumbers of which 1400 species are known in the world, has a distribution in the Atlantic from the Bay of Biscay and Portugal to the Azores, and the Canary Islands and the Mediterranean Sea associated with the rocky substrates. Other species found in the Mediterranean include *Holothuria mammata*, *Holothuria tubulosa*, *Holothuria forskali*, and *Holothuria polii*. *H. Sanctori* is distributed in the Aegean, Mediterranean, and Marmara Seas coasts of Türkiye (Aydın, 2013; Öztoprak et al., 2014).

The aim of the present study was to present an additional report of a sea cucumber species *H. sanctori* from the Mersin-Akkum rocky bottom habitat.

Material and Methods

One *H. sanctori* specimen (weight = 40 g) was collected by scuba diving in Mersin Bay (36°27'29.4"N 34°08'09.1"E) on January 15, 2022. The specimen was fixed in ethyl alcohol after measuring its total length and weight. Species identification was performed according to Aydın (2015). The identification of the specimens was based on morphometric characteristics, ossicular composition and structure (Figure 1). The sampling location of *H. sanctori* is shown on the map (Figure 2).



Figure 1. General views of sea cucumber (*H. sanctori*) (A: Dorsal, B: Ventral C: Lateral).

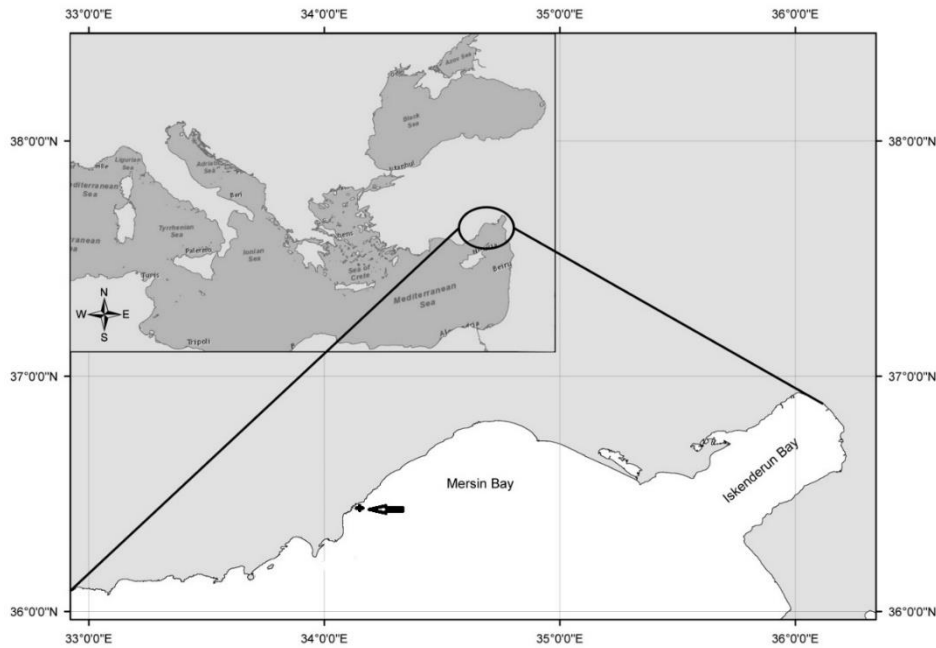


Figure 2. Sampling Location of sea cucumber (*H. sanctori*).

Results and Discussion

The individual of *H. sanctori* was collected at 8 meters depth on rocky crevices. The body was cylindrical with the ventral sole almost flat and the anterior end narrower than the posterior end. Body color is dark brown or nearly black with white/yellowish ossicles. Skin is thick and rough with no spines. Dorsal and lateral papillae are large and scattered across the surface. Podia are arranged ventrally in 2-3 rows with suction points on the ventral surface only. Ossicles are in the form of buttons and plates. Dorsal buttons are smooth with small knobs in the center and 6-9 pairs of holes. Punctate plates are oval and present on the dorsal and ventral surfaces. Tentacle rods are spiny and straight or curved (Moussa and Wirawati, 2018).

It was determined that 8 holothurian species from the Aegean Sea by Aydın (2013). In another study, Moussa and Wirawati (2018) reported the distribution of *H. sanctori* in Egyptian waters. *H. sanctori* is distributed along the Aegean, Mediterranean, and Marmara coasts of Türkiye (Aydın, 2013; Öztoprak et al., 2014). In our study, we identified one individual of *H. sanctori* from Mersin-Akkum rocky bottom habitat. There are not enough data on the population status of *H. sanctori*, which has a large population in the Aegean Sea and is of economic importance, on the Mediterranean coast of Türkiye. Future studies should determine the distribution and abundance of the species on the southeastern Mediterranean coast of Türkiye.

Conflict of Interest

The authors declare that they have no competing interests.

Author Contributions

M.A. performed all the experiments and drafted the main manuscript text. N.Ç., and D.A. contributed morphological analysis and drafting of the manuscript. All authors reviewed and approved the final version of the manuscript.

Ethical Approval Statements

Local Ethics Committee Approval was not obtained because experimental animals were not used in this study.

Data Availability Statement

The data used in the present study are available upon request from the corresponding author.

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