

## SHORT COMMUNICATION

### On the occurrence of *Diadema setosum* (Leske, 1778) in Antakya Bay, Eastern Mediterranean Sea

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#### Abstract

The long-spined sea urchin *Diadema setosum* (Leske 1778) is recorded for the first time from coast of Yayladagi, Antakya Bay, Eastern Mediterranean Sea, Turkey. Three specimens of *D. setosum* have been recorded along the coast of Antakya Bay on 25 July 2010. The occurrence of this species in the Mediterranean is the result of sea currents from the Red Sea via Suez Canal.

**Key words:** *Diadema setosum*, sea urchin, Antakya Bay, Eastern Mediterranean Sea, Turkey

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#### Introduction

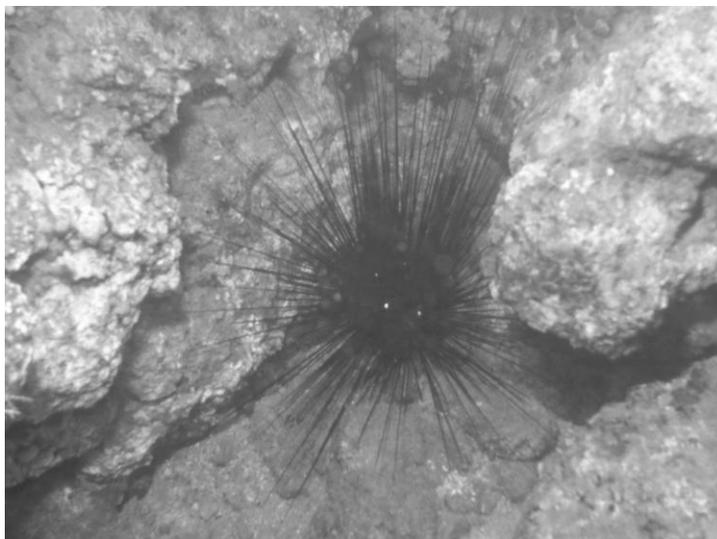
The colonization of the Mediterranean by Indo-Pacific and Red Sea species, known as Lessepsian migration, is an ongoing process that began in 1869, following the opening of the Suez Canal since then, several species have made their way into the Eastern Mediterranean through the Suez Canal (Por 1990; Golani 1998). *Diadema setosum* (Leske 1778) has a wide-distributed Indo-Pacific distribution from the Red Sea and extends east Africa to Japan and eastward to the Australia (James and Pearse

1971; Lessios *et al.* 2001; Yokes and Galil 2006). According to Yokes and Galil (2006), *D. setosum* is very abundant in the northern part of the Gulf of Suez. Larvae of *D. setosum* may have passed through the Suez Canal into the Mediterranean from the Gulf of Suez.

*D. setosum* was first reported from the Mediterranean Sea (Kas Peninsula) coast of Turkey (Yokes and Galil 2006). Later they indicated expanded their easternmost distribution of the species in the Eastern Mediterranean Sea.

### **Materials and Methods**

During scuba diving surveys to detect possible Erythrean aliens in the Bay of Antakya, three specimens of *D. setosum* were found in a rocky habitat, at 9 m depth in Yayladagi coast, on 25 July 2010. The water temperature was 29°C. Yayladagi (35° 57. 331' N 35° 55 326'E) is located 50 km north of the Antakya Province, on the south-eastern coast of Turkey. The specimens were photographed under the sea (Figure 1).



**Figure 1.** General view of *Diadema setosum* on the coast of Yayladagi, 25 July 2010 [Photo by Cemal Turan].

## Results and Discussion

*D. setosum* is commonly associated with coral reefs, but is also found on sand flats and in seagrass beds (Coppard and Campbell 2006). *D. setosum* differs from other *Diadema* with five, characteristic white spots that can be found on its body. The naked median areas had white spots seen both day and night. These white spots were also visible on the naked eyes. A bold pattern of blue iridophores occurred in this species. These have been described as “spots” by many authors (Agassiz and Clark 1908; Clark 1921; Mortensen 1940). The pattern of iridophores occurred as a series of “spots” down the mid-lines of the interambulacra. The long-spined urchin has very long spines with a tiny body in the middle. This species is a herbivore and feeds on the rocky bottom (Coppard and Campbell 2006).

*D. setosum* is noticeably venomous and should be handled with great caution. When the spines penetrate a body, the venom is injected and causes pain. Despite the danger of its venom, the species is quite mild and will normally not attack other creatures except in defense (Williamson *et al.* 1996).

The long-spined urchin *D. setosum* is known to occur in temperate to subtropical estuaries along the northern Red Sea, where it is found in an extremely wide range of environmental conditions (temperatures higher than 25°C). In the Gulf of Suez spawning begins in June and September (Pearse 1970).

The Red Sea species from the Mediterranean areas increase continuously. Turkey is one of the most influenced countries due to its proximity to the Suez Canal and the dense maritime traffic occurring along its coastline (Çınar *et al.* 2005). The long-spined sea urchin *D. setosum* may have been transported to Antakya Bay in vessels arriving from the Suez Canal. On the other hand, it may have been carried by sea currents flowing from the northern part of the Gulf of Suez to Antakya Bay.

*D. setosum* is the first invasive Erythrean sea urchin in the Eastern Mediterranean coast of Turkey. Due to the hydrographic features of the Levantine Sea, the southeastern coast of Turkey is more accessible to alien species that entered the Mediterranean through the Suez Canal. The present paper is the first report on presence along the coast of Yayladağı, Antakya Bay, Eastern Mediterranean Sea, Turkey. The long-spined sea urchin *D. setosum* may have the potential to adapt successfully to the changing environmental conditions. The role of this newly settled species within the coastal ecosystem and its effect on local populations need to be the subject of future research.

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## **Dođu Akdeniz Antakya Koyu'nda *Diadema setosum* (Leske, 1778)'un Bulunması**

### **Özet**

Uzun dikenli deniz kestanesi *Diadema setosum* (Leske 1778), Türkiye'nin dođu Akdeniz kıyıları Antakya Koyu Yayladağı kıyılarından ilk kez kayıt edilmiştir. 25 Ekim 2010 tarihinde Antakya Koyu boyunca üç *D. setosum* bireyi kayıt edilmiştir. Bu türün Akdeniz'de bulunurluđu Kızıldeniz'den Suveyş kanalı yoluyla deniz akıntılarının sonucudur.

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