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Image Article

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First Report of Synchronized Spawning in the Starfish *Fromia ghardaqana*

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Image Article

Figure 1: *Fromia ghardaqana* in Djibouti coral reefs; (a) In normal position; (b) Assuming the reproductive position; (c) Emitting female gametes; (d) Emitting male gametes.

Starfish play a keystone role in the trophic organization of benthic marine communities. They may be abundant and diverse in coral reefs, and knowledge about their main biological traits (e.g. reproduction) is mandatory for species conservation. Although several studies have been conducted in the laboratory on the reproduction of starfish, field observations are poorly reported in the literature. Synchronizing reproduction with environmental factors increases the success of fertilization and survival of offspring. When environmental conditions become optimal, chemical exchanges occur between individuals that commonly aggregate while they are spawning [1].

Here, is reported the spawning of the species *Fromia ghardaqana* (Figure 1a) observed in the field at Ras Eiro Bay, Gulf of Tadjoura, Djibouti (11˚36'00.0" N, 42˚51'00.0" E) on 29 November 2015 during a scuba survey (18:00 hours; 6 m depth; 28°C water temperature; 30 cm high tide). Firstly, a single individual was found in the typical reproductive position (Figure 1b) and starting eggs spawning (Figure 1c). Shortly after, at a distance of 5 m, another individual was observed emitting male gametes (Figure 1d).

Fromia ghardaqana is a protandric sequential hermaphrodite species, starting its sexual career as a male and changing to female in later life. Nevertheless, the possibility that this starfish is a functional hermaphrodite species is not excluded yet [2] and further studies are needed to understand its life cycle.

To date, this report is one of the few about the synchronized spawning of both female and male gametes observed in the field, providing an insight into the reproduction of a common [3] yet little studied Red Sea coral reef starfish.

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Top

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