

# First record of asexual reproduction of *Holothuria* (*Mertensiothuria*) *hilla* (Lesson, 1830) in the tropical eastern Pacific Ocean

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Asexual reproduction in *Holothuria* (*Mertensiothuria*) *hilla* has been reported from Reunion Island in the western Indian Ocean (Hoareau et al. 2008), the Great Barrier Reef in Australia, and Hawaii (Lee et al. 2008). This is one of the nine species belonging to the family Holothuriidae reported by Dolmatov (2014) as being capable of asexual reproduction. Hoareau et al. (2008) considered *H. (M.) hilla* as a relatively rare species at Reunion Island, and reporting evidence of natural fissiparity (anterior and posterior part specimen regenerating) in one specimen in June 2001 and two specimens in January 2008. Lee et al. (2008) monitored asexual reproduction of a population of *H. hilla* at One Tree Island on the Great Barrier Reef, where the species has shown densities of 82–220 ind./ha on midshelf reefs, and lower numbers on outer shelf reefs (Hammond et al. 1985). The authors reported that fission occurs through the year, although it appears to be more prevalent in the cooler months (May–August). The presence of gonads was investigated by these authors in five specimens in November 2006, although the stage of maturation of the gametes could not be determined, so further studies would be required in order to understand the complete reproductive cycle of *H. hilla*. Lee et al. (2008) also reported asexual reproduction in *H. hilla* in aquaria where it is a popular species. During 2016, evidence of natural asexual reproduction was observed in several individuals collected from rocky reefs of northern Chocó, Colombia. This is the first record of fissiparity of *H. hilla* in the tropical eastern Pacific.

**Location:** Piedra de Rodrigo rocky reef, northern Chocó, Colombia, tropical eastern Pacific Ocean, at 6°47'2.076" N 77°41'36.887" W

**Depth:** 19 m

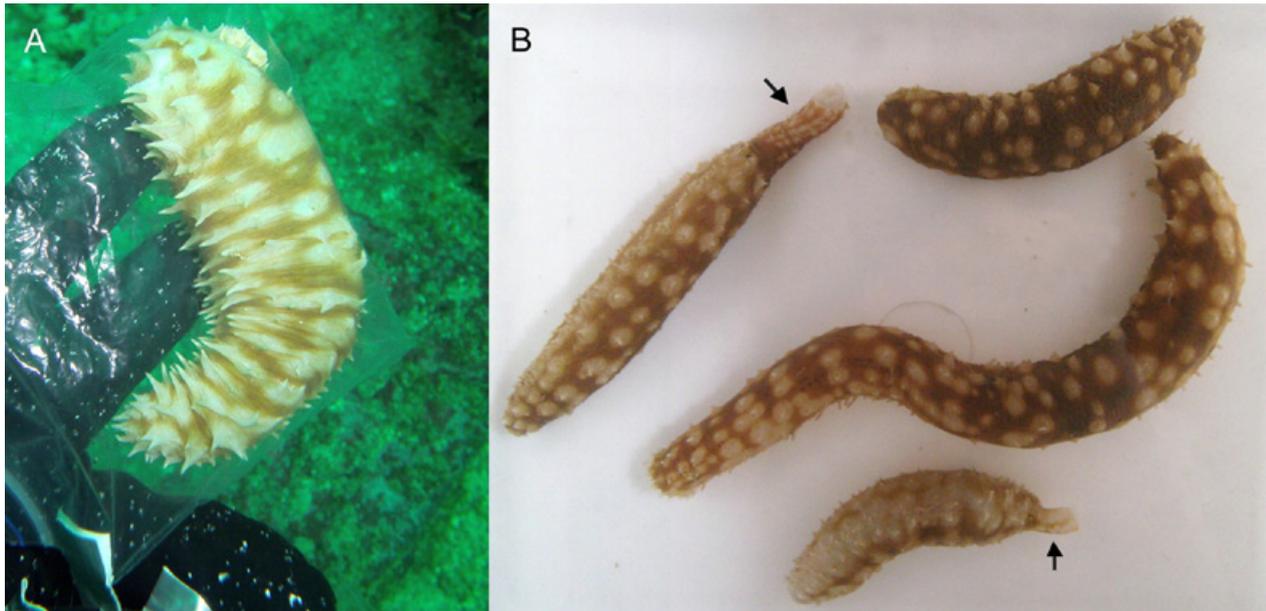
**Bottom:** Mixed bottom with middle-size rocks on sand

**Specimens collected and deposited at** Museo de Historia Natural Marina de Colombia. One specimen catalogued as INV EQU4245: total length 75 mm (Fig. 1A), collected by J. Vanegas on 25 April 2016; four specimens catalogued as INV EQU4310: one complete specimen (110 mm length); two posterior fission halves with obvious new anterior end, total length 69 mm (10 mm new anterior end) and 90 mm (20 mm new anterior end) (Fig. 1B), and one posterior fission half without a mouth and no visible sign of regeneration (75 mm total length) (Fig. 1B), collected by G. Borrero on 26 October 2016; one whole specimen catalogued as INV EQU4311: total length 65 mm, collected by G. Borrero on 26 October 2016.

**Notes:** The specimens were collected as part of a project seeking to characterise the biodiversity of the rocky reefs (locally called *riscales* and *morros*) at northern Chocó in the Colombian Pacific Ocean ("Riscales" project developed by INVEMAR, [www.invemar.org.co](http://www.invemar.org.co)). The specimens were collected only in one of the 22 localities during samplings made in April and October 2016. During both samplings, several specimens were observed under several rocks that were examined, however, only six specimens were collected (Fig. 1). As was mentioned by Lee et al. (2008), and as happens in other *Holothuria*, regeneration in specimens of *H. hilla* is easily distinguished because the new part of the body is lighter in colour and smaller in diameter than the original body (Fig. 1B). Although it was easy to observe that the anterior part was regenerating, it was not very clear for the posterior part. Nugroho et al. (2012) observed that the posterior part grew faster than other parts of *Holothuria impatiens*, which could be similar in *H. hilla*. This note reports evidence of natural asexual reproduction of *H. hilla*, completing this information for the entire distribution area of the species.

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**Figure 1.** Specimens of *Holothuria (Mertensiothuria) hilla* collected at the northern Chocó, Colombia, in the tropical eastern Pacific. A: Whole specimens (INV EQU4225) collected on 25 April 2016; B: Four specimens (INV EQU4310) collected on 26 October 2016 two posterior fission halves with obvious new anterior end (indicated with black arrows), and two anterior fission halves with the anus already developed.

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