

Observations of asexual reproduction of *Holothuria* (*Platyperona*) *parvula* (Selenka, 1867) in the Caribbean Sea

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Holothuria (*Platyperona*) *parvula* is one of the nine species of sea cucumbers belonging to the family Holothuriidae reported by Dolmatov (2014) as being capable of asexual reproduction. The fission process in this species was first recorded by Crozier (1917, as *H. captiva*) in Bermuda. Later, Kille (1942) studied the development of the reproductive system after fission using specimens from the Dry Tortugas and, for comparison, some from Bermuda, the only location for which this information was available for *H. (P.) parvula* (Dolmatov 2014). Emson and Mladenov (1987), also based on specimens from Bermuda, described the fission process and its frequency throughout the year (from August 1984 to September 1985). These authors concluded that during fission, *Holothuria parvula* split into roughly equal parts across the middle of the body, and that there was little difference in survival between the oral and anal ends. The authors found that regeneration of a new gut is a priority and that feeding was possible within two months of fission. They also found many individuals fully regenerated within a year, so fission is possibly an annual event. In 2017, individuals obviously regenerating new anterior and posterior ends were observed in two localities of Colombia, and this is the first record of asexual reproduction of *H. parvula* in the Caribbean Sea.

Location: Bahía Concha, Parque Nacional Natural Tayrona, Magdalena, Colombia (Caribbean Sea) at 11°18'6.64" N 74°8'50.94" W

Date: 29 July 2017

Depth: 3 m

Bottom: Mixed bottom with sand, rocks and algae

Four specimens collected and deposited at the Museo de Historia Natural Marina de Colombia and catalogued as INV EQU4566: One apparently whole specimen (37 mm long); one posterior fission halve showed no regeneration of the anterior end (26 mm long); one anterior fission halve (30 mm long) with no regeneration of the anus; only the scar of the fission is apparent (Fig. 1A, C); and one posterior fission halve (27 mm long) with some very small tentacles in the new anterior end (Fig. 1A, B). These last specimens were found under the same rock. Length shown is for preserved specimens.

Notes: Specimens were observed adhered to the underside of small- to medium-size rocks, no more than 50 cm diameter. They were in pairs, with two to six on the same rock, including posterior fission halves (which were obviously regenerating new anterior ends) and anterior fission halves. Some apparently whole specimens were also observed. Two specimens of *H. (P.) parvula* were collected previously from Bahía Chengue (11 October 2016), also located at the Parque Nacional Natural Tayrona, although no evidence of asexual reproduction in those specimens was observed.

Location: Isla cayo Serranilla, SeaFlower Biosphere Reserve, Colombia (Caribbean Sea) at 15° 47' 53.2638" N 79° 50' 56.076" W

Date: 24 September 2017

Depth: 3 m

Bottom: Mixed bottom with coral reefs, rocks and algae

Three specimens collected and catalogued as INV EQU4545: Two apparently whole specimens (20 and 27 mm long) and one posterior fission half, with an obviously regenerating new anterior end (23 mm long) (Fig. 1D). Length shown is for preserved specimens.

Notes: Specimens were observed adhered under small- to medium-size rocks, no more than 70 cm in diameter. No pairs were observed, but at least one specimen with a new portion of the body and tentacles was collected. Samples were collected as part of a project developed by INVEMAR (Instituto de Investigaciones Marinas y Costeras) during the SeaFlower Expedition in 2017 (Colombia BIO-Colciencias project).

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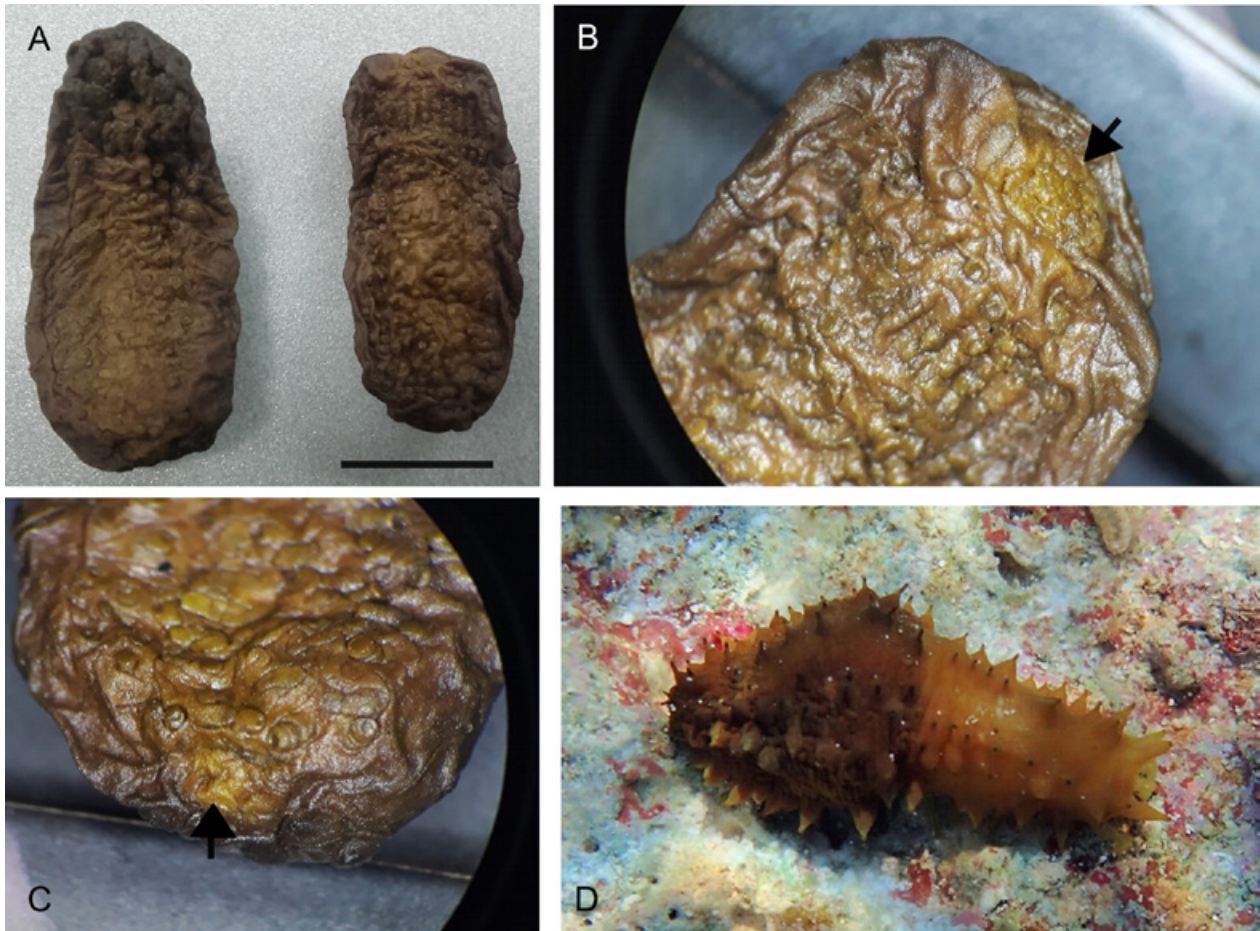


Figure 1. Specimens of *Holothuria parvula* collected in the Colombian Caribbean Sea. A–C: Specimens from Bahía Concha, Parque Nacional Natural Tayrona (catalogued as INV EQU4566) – A: Ventral side of anterior (left side) and posterior (right side) halves; B: Anterior part in regeneration, showing the small tentacles; C: Posterior part showing the scar of fission in the posterior part; D: Specimen from Isla Cayo Serranilla, SeaFlower Biosphere Reserve (INV EQU4545), general view of a live specimen.

References

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