

Observation of asexual reproduction by natural fission of *Stichopus horrens* Selenka in Okinawa Island, Japan

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Asexual reproduction, by fission, of *Stichopus horrens* Selenka in its natural habitat was observed in Okinawa, Japan during December 2004. Some of the tropical sea cucumber species that reproduce by fission are also known in Japan (Emson and Wilkie 1980; Smiley et al. 1991; Conand et al. 2002). However, detailed studies have not been made. Though this *S. horrens* is known to proliferate by asexual reproduction, the photograph below is the first photograph of fission of this species in Japan. Therefore, it is valuable and important for reproductive studies of sea cucumbers in Japan.

Species: *Stichopus horrens* Selenka, 1867

Location: Nakagusuku Bay, Awase of Okinawa Island (26°17'13.7"N and 127°52'42.4"E), Pacific Ocean

Date and time: 14 December 2004, 10:30 am.

Depth: 19 m

Bottom: Soft mud with fine sand and silty sediment

Notes: This species is known to immediately autotomize when gripped by hand. It can be seen on the photographs that the mouth of the anterior individual is large, and the mouth of the posterior one is small (Fig. 1). The mouth of the individual issued from the posterior part will be newly formed (Fig. 2).



Figure 1. *Stichopus horrens* in the process of fissioning into two individuals (dorsal view).

References

- Conand C, Uthicke S. and Hoareau T. 2002. Sexual and asexual reproduction of the holothurian *Stichopus chloronotus* (Echinodermata): A comparison between La Réunion (Indian Ocean) and east Australia (Pacific Ocean). *Invertebrate Reproduction and Development* 41(1–3):235–242.
- Emson R.H. and Wilkie I.C. 1980. Fission and autotomy in echinoderms. *Oceanography and Marine Biology: An Annual Review* 18:155–250.
- Smiley S., McEuen F.S., Chaffee C. and Krishnan S. 1991. Echinodermata: Holothuroidea. p. 6: 663–750. In: Giese A.C., Pearse J.S. and Pearse V.B. (eds). *Reproduction of Marine Invertebrates*. California: Boxwood Press.



Figure 2. Close up of the same individual's ventral side, showing the small newly formed mouth on the posterior part.

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