

Reef sites

First record of a christmas tree worm in a mushroom coral (Loyalty Islands, Southwest Pacific)

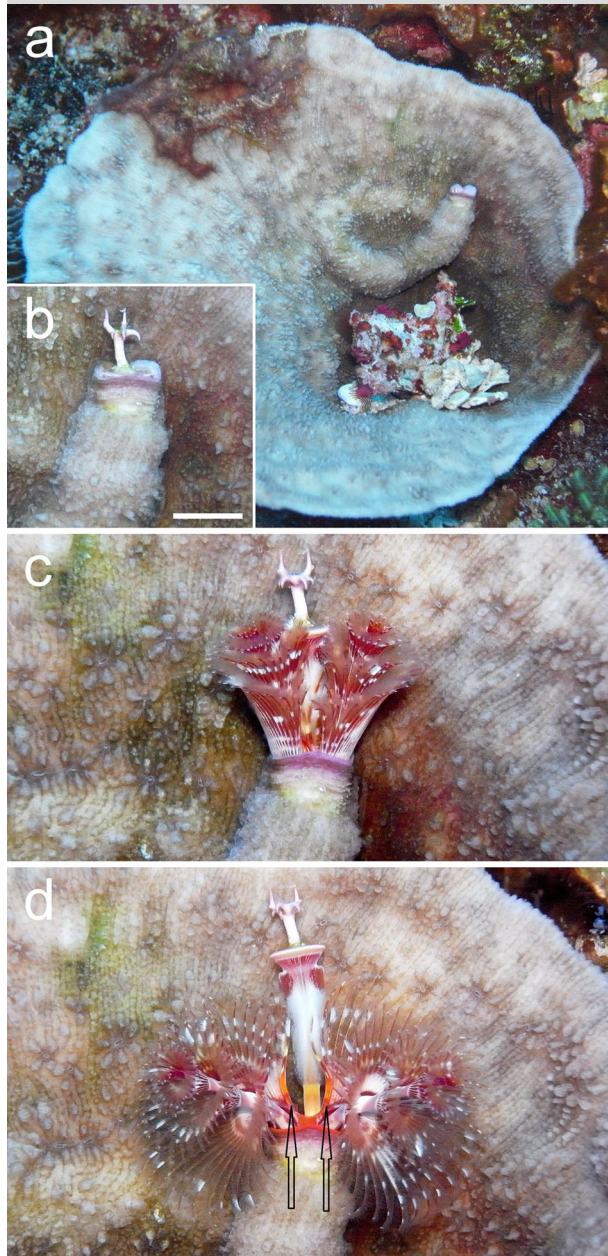


Fig. 1 *Spirobranchus richardsmithi* embedded in a *Podabacia motuporensis* coral. **a** Position of the tube; worm retracted. **b** Antler-shaped opercular spines protruding above the tube (scale bar 0.5 cm). **c** Twin spirals unfolding. **d** Worm completely expanded, peduncle with operculum sticking upward, and orange

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Owing to their striking shape, colours, and retraction behaviour, christmas tree worms of the genus *Spirobranchus* (Polychaeta: Serpulidae) are well-known associates of reef corals, especially in shallow water. Host taxa are seldom mentioned in taxonomic studies on serpulids, with the exception of *Porites* (Stella et al. 2011). Although mushroom corals (Fungiidae) have been the subject of a review study on coral-associated fauna, they are unknown as a hosts for serpulids (Hoeksema et al. 2012).

During a biodiversity survey at Lifou Island in the Loyalty Islands (20°51.328'S, 166°23.791'E) on 18 February 2014, an attached mushroom coral, *Podabacia motuporensis* Veron, 1990, with a serpulid tube was found on the reef slope at 25 m depth (Fig. 1a). A series of photographs was made to document the process of the worm's protrusion from its tube starting by the operculum (Fig. 1b) and succeeded by the unfolding twin spiral branchiae at both sides of the peduncle (Figs. 1c, d). Based on the arrangement of the antler-like spines of the operculum and the mauve tube colouration, the worm was identified as *Spirobranchus richardsmithi* Pillai, 1990. The animal has been deposited in the collection of Naturalis Biodiversity Center (catalogue number RMNH.VER. 19906).

Since taxonomists specialized in Serpulidae tend to study museum specimens isolated from their hosts (e.g. Pillai 2009), pictures of the living animal and information on its possible hosts were unknown so far, which also applies to many of its congeners. Obviously, more field studies are needed to clarify whether these spectacular worms show host specificity.

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