



Two new species in the phylloporid genus *Massinium* (Echinodermata: Holothuroidea) with redescription of *Massinium magnum*

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Abstract

The recently erected phylloporid genus *Massinium* Samyn & Thandar, 2003 hitherto held three species: the southern African endemics *Massinium arthroprocessum* (Thandar, 1989) and *M. maculosum* Samyn & Thandar, 2003 (type species), and the central Indo-Pacific *M. magnum* (Ludwig, 1882). Careful examination of the incomplete holotype of *M. magnum* and material assigned to this species from various museums allowed us to completely redescribe the type, supplement the description with information from entire voucher specimens, and recognise two species new to science, previously assigned to *M. magnum*. In addition, the diagnosis of *Massinium* is amended to also include *Neothyonidium dissimilis* Cherbonnier, 1988 from Madagascar. The six currently recognised congeners are keyed.

Key words: taxonomy, Indo-Pacific, sea cucumbers, Phylloporidae, *Massinium*, new species, new combination

Introduction

Samyn & Thandar (2003) recently erected the genus *Massinium* to accommodate those species of *Neothyonidium* Deichmann, 1938 which have the posterior processes of their tubular calcareous ring distally joined to form a ring-like structure around the oesophagus and body wall devoid of table ossicles. They included three species in the genus: the southern African endemics *Massinium arthroprocessum* (Thandar, 1989) and *M. maculosum* Samyn & Thandar, 2003 [type species by original designation], and the central Indo-Pacific *M. magnum* (Ludwig, 1882).

Massinium arthroprocessum and *M. maculosum* are well described (Thandar 1989; 1996; Samyn & Thandar 2003), but the original description of *M. magnum* is incomplete and lacks illustrations, since it was based solely on the tentacle crown, the introvert and the calcareous ring and its associated structures (Ludwig 1882; 1889-92; see also Lampert 1885 and Théel 1886), rendering its identity open to various interpretations. Sluiter (1901) and Domantay (1933) were the first to have access to complete specimens of *M. magnum* and thus were better able to describe the complete morphology of the species. Later, Cherbonnier (1980; see also Féral & Cherbonnier 1986), after study of the holotype and Sluiter's (1901) ossicle slides, referred his New Caledonian material to *M. magnum*, and Massin (1999; 2005) did the same with material from Sulawesi, Indonesia and Papua, New Guinea.

We re-examined the holotype of *M. magnum* and provide a complete re-description. We also studied Sluiter's, Cherbonnier's, Massin's and other voucher material from the Australian Museum, Sydney, and conclude that two species new to science be recognised in the genus: one endemic to New Caledonia and another endemic to Queensland. Furthermore, we re-examined *N. dissimilis* Cherbonnier, 1988 from Madagascar and find that the structure of its calcareous ring is characteristic of *Massinium* and hence transfer the species to this genus (see fig. 11).