



A new subspecies of *Phascolion* Théel, 1875 (Sipuncula: Golfingiidae) from Indian waters

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Abstract

A new subspecies of *Phascolion pacificum* Murina, 1957 is described from shallow waters (15–20 m deep) off Malvan and Ratnagiri in India. *Phascolion pacificum denticulatum* ssp. nov. is characterized by the presence of a prominent tooth-like projection in the median part of the free border of the holdfast papillae. This finding represents the first record of any *Phascolion* species for all the Indian coasts.

Key words: Sipuncula, *Phascolion pacificum denticulatum* ssp. nov., India, taxonomy

Introduction

The genus *Phascolion* Théel, 1875 is one of the better known genera of sipunculan worms by marine biologists, since many of their representatives have been collected in discarded shells of molluscs and tubes of polychaetes (Stephen & Edmonds, 1972; Hendrix, 1975; Gibbs, 1985; Cutler, 1994). Phascolionids show anatomical asymmetry in the nephridium, introvert retractor muscles and gonads placement (Stephen & Edmonds, 1972; Cutler, 1994), apparently for a better adaptation to the life in the interior of the helical shell of gastropods. Another unique character is the presence of holdfast or attachment papillae present in many species of this genus along the midtrunk area. Many taxonomists (Stephen & Edmonds, 1972; Cutler, 1994) envisaged the primary function of these papillae to be attachment—as the name indicates—anchoring the worm to the internal part of the shell, but Hylleberg (1975) observed that holdfast papillae keep the inside of the shelter clean in the better known species of the genus, *Phascolion strombus* (Montagu, 1804). Cutler & Gibbs (1985) erected a new family named Phascolionidae to accommodate the genera *Phascolion* Théel, 1875 and *Onchnesoma* Koren & Danielssen 1876. However, the family Phascolionidae Cutler & Gibbs, 1985, was recently synonymised with Golfingiidae Stephen & Edmonds, 1972, by Kawauchi *et al.* (2012) after applying detailed genetic techniques to the classification.

The genus *Phascolion* Théel, 1875 is one of the most species-rich genera in sipunculans (Murina, 1984; Gibbs & Cutler, 1987) and their representatives are well distributed throughout the world's oceans (Murina, 1975). Haldar (1975) and Hylleberg (1994) produced detailed lists of species occurrences, focusing on the Indian Ocean. Cutler (1994) noted that waters near the Indian subcontinent seemed to be unsuitable for *Phascolion*, and in fact Haldar (1991) was unable to include any species of *Phascolion* in his comprehensive monograph of sipunculans from the Indian coast. Here, we report for the first time the presence of the genus *Phascolion* in Indian waters, and propose the classification of a new subspecies of this genus.

The new subspecies is described below. Types are deposited in the CSIR-National Institute of Oceanography (CSIR-NIO, Regional Centre Mumbai, India)

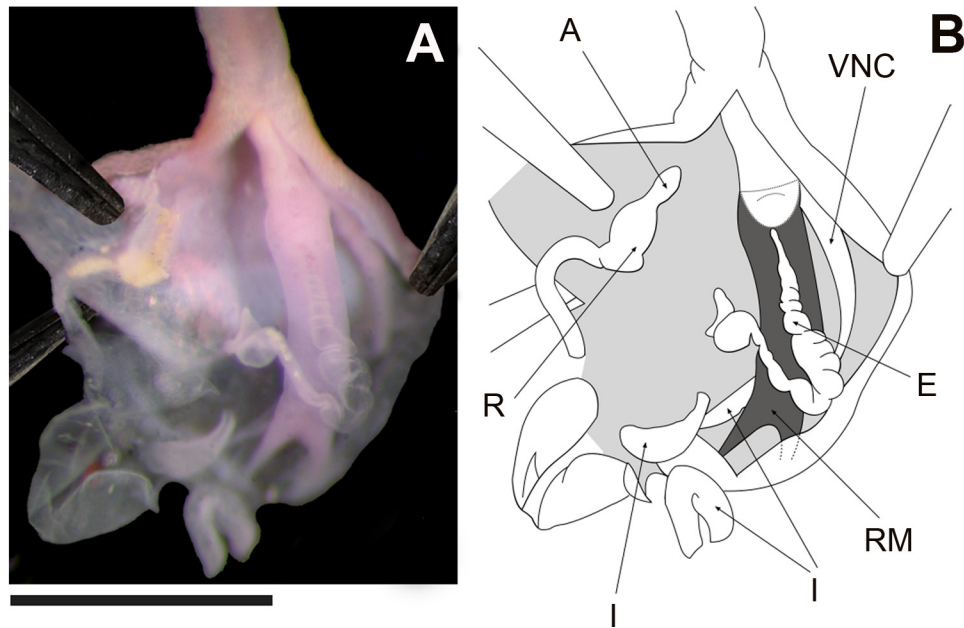


FIGURE 2. Internal anatomy of *Phascolion (Montuga) pacificum denticulatum* new subspecies: A, Dissection showing the retractor column; B, Details of the different organs. The intestinal loops and nephridium were damaged during dissection. Scale bar: 1 mm. Abbreviations: A, anus; E, esophagus; I, intestine; R, rectum; RM, retractor muscle; VNC, ventral nerve cord.

Finally, we would like to emphasize that we are reporting here for the first time the presence of one *Phascolion* species in all waters around the vast Indian coast. This paucity in recording species of the genus *Phascolion* in the central part of the Indian Ocean has been related with the lack of suitable habitats for these worms (Cutler, 1994). Empty mollusc shells and void calcareous tubes appear as convenient shelters for many phascolionids. Whether the Indian coasts exhibit a lesser availability of this kind of protective habitats in comparison with other areas worldwide, or this ecological niche is occupied more efficiently by other faunal competitors, such as the anomuran crustaceans, remains to be investigated.

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