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# Re-description of *Craspodema reflectans* (Nematoda, Cyatholaimidae) using confocal laser scanning microscopy

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## Abstract

*Craspodema reflectans,* erected by Gerlach 1964, is here re-described from some specimens recently found in the Maldivian archipelago and the implication of the new findings for the taxonomy of the *Craspodema* genus is discussed. Accordingly, an emended diagnosis of *Craspodema* genus and *C. reflectans* species are proposed. New data are also provided with the aid of the confocal laser scanning microscopy, using the natural fluorescence of the nematodes. The approach described here lays new foundations for the study of Museum collection material and it may be decisive for capture of new morphological details.

**Key words:** Chromadorida, Pomponematinae, Maldives, taxonomy, marine nematodes, confocal laser scanning microscopy

## Introduction

The *Craspodema* genus, belonging to the Cyatholamidae family (sub-family Pomponematinae), was established by Gerlach (1954) to accommodate *Craspodema octogoniata* collected from French coasts. Since then, only two species, namely *Craspodema reflectans* and *C. octogoniata*, have been described (Tchesunov 2014). In particular, *C. reflectans* has been documented only from the Maldives (Gahafaro atoll) (Gerlach 1964). Thus, the finding of some specimens of *C. reflectans* in recently sampled sediments of the Maldivian archipelago (Semprucci & Balsamo 2014; Semprucci *et al.* 2014) gave us the opportunity to compare these specimens with the original description and also with the aid of more recent microscopic techniques. Confocal Laser Scanning Microscopy (CLMS) may be important in the taxonomic study of free-living nematodes due to their natural auto-fluorescence (Zullini & Villa 2006). This technique has potential to provide high-resolution images of thick specimens, allow optical sectioning, and the ability to create accurate, highly detailed three-dimensional visualizations. These 3D-reconstructions may be of great importance, especially for type species deposited in Museum collections, potentially allowing capture of more detailed morphological characters.

Here, *C. reflectans* is re-described from the new specimens found in the Maldives. The holotype and some paratypes of *C. octogoniata* have also been re-examined, and their systematic position is discussed.

## Material and methods

Samples of sediment were collected from the inner lagoon of Suvadiva atoll (March 2009) (Semprucci & Balsamo 2014; Semprucci *et al.* 2014). The samples were collected by a diver using a plexiglass corer tube (diameter 2 cm), that was pushed 5 cm into the sediment. The sediment was immediately treated with 7% $MgCl_2$ to relax the fauna, then fixed with a 4% formaldehyde solution (in buffered sea-water). Meiofaunal specimens were obtained by sieving the samples through a 42 μm mesh net, and animals were extracted using flotation and multiple decantation

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