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***Rhynchonema dighaensis* sp. nov. (Monhysterida: Xyalidae): a marine nematode from the Indian coast with an illustrated guide and modified key for species of *Rhynchonema* Cobb, 1920**

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Abstract

A small bodied, free-living marine nematode, *Rhynchonema dighaensis* sp. nov., is described from the intertidal sand of the east coast of India. It is characterized by having a small buccal cavity, longer left spicule and symmetrical dorsal gubernaculum apophysis. Other species of the genus are discussed with their type locality. A modified key has been prepared for species of *Rhynchonema* with an illustrated guide. Species of *Rhynchonema* primarily differ from each other by the shape and size of the spicules, shape of the gubernaculum and dorsal apophysis, size of the buccal cavity and position of the amphid.

Key words: Free-living marine Nematode, India, dichotomous key, taxonomy, morphology

Introduction

Members of *Rhynchonema* have a distinctly tapered, beak-like anterior end. The genus was erected by Cobb in 1920. Nicholas & Trueman (2002) further confirmed *Rhynchonema* under the family Xyalidae. *Rhynchonema* differs from the morphologically similar *Prorhynchonema* Gourbault, 1982 in having a buccal cavity more than 15 µm long, in the position of the amphid with respect to the buccal cavity and the oesophagus. In *Prorhynchonema* the amphid is not situated at the level of the buccal cavity but at that of the oesophagus, 29 µm from the anterior end. *Rhynchonema* is also similar to *Enchonema* Bussau, 1993 and *Manganonema* Bussau, 1993. These differ from *Rhynchonema* by having shorter anterior ends. The description of one species *Enchonema umbrosum* Bussau, 1993 is available only in a Ph.D. thesis. Information on the distribution of *Enchonema* was also found in ecological studies of free-living marine nematodes (Lambshhead *et al.* 2003). A further five species of the genus *Manganonema* were described by Fonseca *et al.* (2006). The genus *Rhynchonema* has a cosmopolitan distribution and is found both in cold and warm ocean water. The ring-like thickened body annules of *Rhynchonema* are considered a primitive feature among Monhysterida (Lorenzen, 1975). Gourbault (1982) described a subspecies, *R. ornatum antillensis*, from the West Indies, which differed from *R. ornatum* Lorenzen, 1975 by having cuticular ornamentation and sexually dimorphic reversing orientation of the body annules.

Keys to the species of *Rhynchonema* were produced by Hopper (1961), Vitiello (1967) and Boucher (1974), based on size and shape of the amphid, amphid position with respect to the buccal tube, length of the buccal tube, cuticular ornamentation, size and shape of the spicules and the gubernaculum. Lorenzen (1975) preferred to use the tabular key introduced by Newell (1970) rather than the dichotomous keys for species identification. Calles (2006) broadly classified *Rhynchonema* spp. into five groups on the basis of spicule shape and gubernaculum. Bezerra *et al.* 2014 developed a polytomous key for identification of species of *Rhynchonema*. However, there was no dichotomous key for all species of *Rhynchonema*. The present paper gives a taxonomic description of *Rhynchonema dighaensis* sp. nov. from the northern part of the east coast of India together with an identification key and illustrated guide to the species of *Rhynchonema*. This study brings the number of valid species of

- Spicules having strong curvature 30
- 29 Spicules cephalated and turned upward; buccal cavity 44–57 µm long; tail 3.1–4.3 abd; $a=22-25$, $b=4.1-4.7$, $c=7.1-8.8$, spicules slightly unequal, ranges from 11–19 µm *R. tomakinense*
- Distal end of spicule is arrow shaped; buccal cavity 38–48.8 µm long; tail 4.0–4.7 abd; $a=27-31.7$, $b=4.0-4.4$, $c=6.7-7.3$...
..... *R. veronicae*
- 30 Left spicule longer than the right spicule; symmetrical dorsal apophysis; buccal cavity 37–43 µm; $a=33.6-40.6$, $b=5.1-6.1$, $c=6.8-8.5$, spicules= 18.7–29.2 (16.1–24.1) µm *R. dighaensis* **sp. nov.**
- Left spicule always shorter than the right; buccal cavity <50 µm long; asymmetric dorsal apophysis 31
- 31 Distal end of right spicule is broader; cross-section of Right spicule is U-shaped; buccal cavity 53–54 µm long; $a=24-25$, $b=3.3-3.4$, $c=6.8-7.2$, spicules= 21–22 (15.5–17) µm; Vulva is covered by a thin skin flap *R. fossum*
- Distal end of right spicule is slender; Right spicule is shaped differently than the left; Buccal cavity 62–69 µm; $a=24-27$, $b=3.0-3.1$, $c=7.5$, spicules=21–22 (17–18) µm; vulva not covered by a skin flap *R. impar*

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