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Brachyrhynchus n. gen. n. sp., a new genus of Polycystididae Graff, 1905 (Rhabdocoela: Kalyptorhynchia), with the description of three new species from the Mediterranean and the Indian Ocean

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Abstract

Three new species of Polycystididae are described: *Brachyrhynchus triplostylis* **n. gen. n. sp.**, *B. acutus* **n. sp.** and *B. oosterlyncki* **n. sp.** They are the first species of Polycystididae to be described with a second, single-walled accessory stylet connected to a small glandular vesicle in the male system. The three species can be distinguished from each other by the detailed morphology and the relative lengths of the three stylets in the male system. The relationships of these species with other representatives of Polycystididae are discussed.

Key words: Platyhelminthes, flatworms, microturbellaria, biodiversity, taxonomy

Introduction

Polycystididae Graff, 1905 is one of the most species-rich taxa of rhabdocoel flatworms. Worldwide, 202 species have been described, 165 of which occur exclusively in marine and brackish water environments (own unpublished data). From a morphological point of view, the diversity within Polycystididae is astonishing, especially as to the construction of the genital system (for an overview see Artois & Schockaert 2003, 2005). However, we are far from completing the worldwide inventory of polycystidid diversity, as is actually the case for all microturbellarians (Appeltans et al. 2012). During several sampling campaigns in the Mediterranean and the Indian Ocean we have found specimens of Polycystididae with a hitherto unknown construction of the genital system. These specimens are the object of this contribution.

Material and methods

The material was collected by several members of the Research Group Zoology of Hasselt University on Sardinia (August 1994 and March 2010), in iSimangaliso Wetland Park (formerly the Greater Santa Lucia Wetland Park) in KwaZulu-Natal, South Africa (November-December 2009) and in Goa, India (November-December 2008).

Sediment samples and algae were mostly collected by hand. In the littoral zone or upper sublittoral, the upper 5–10 cm of sediment were scraped off and animals were extracted following the $MgCl_2$ decantation method (Schockaert 1996). Living animals were gently squeezed under a cover glass, studied with a compound microscope, drawn and photographed, and then mounted in lactophenol. If additional specimens were available, they were fixed in hot (50°C) Bouin's fixative, embedded in paraffin and serially sectioned (4 µm). After sectioning, they were stained with Heidenhain's haematoxylin, using erythrosin as a counterstain.

Drawings of the hard parts were made with a camera lucida on a Reichert Polyvar microscope, using Nomarski interference contrast. Drawings in the figures without a scale are freehand. Measurements were taken along the central axis of a measured object, unless indicated otherwise in the text. Positions of organs and gonopore are given

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