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Taxonomy of Cotylea (Platyhelminthes: Polycladida) from Cabo Frio, southeastern Brazil, with the description of a new species

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Abstract

Polyclads are free-living Platyhelminthes with a simple, dorsoventrally flattened body and a much ramified intestine. In Brazil, 66 species are reported; only three from Rio de Janeiro State (RJ). The main objective of this study is to describe and illustrate coloration pattern, external morphology, reproductive system morphology and, when possible, biological and ecological aspects of species of the suborder Cotylea found in Cabo Frio, RJ. Of the 13 cotylean polyclad species found, *Pseudobiceros pardalis*, *Cycloporus variegatus* and *Eurylepta aurantiaca* are new records from the Brazilian coast and one species is new to science, *Pseudoceros juani* **sp. nov.** Feeding observations were made of four species. It is the first time that *Lurymare utarum*, *Cycloporus gabriellae*, *C. variegatus* and *E. aurantiaca* are illustrated with digital photographs of live specimens and histological preparations. This study increases to 70 the number of Brazilian Polycladida and to 14 the number of species known from Rio de Janeiro State. However, the knowledge about Polycladida in Brazil still has gaps, with great parts of the coast remaining unsampled.

Key words: Platyhelminthes, polyclads, Rio de Janeiro, marine biodiversity

Introduction

Free-living platyhelminths of the order Polycladida inhabit several marine environments, ranging from coral reefs and rocky shores to soft bottoms in all oceans (Newman & Cannon 2003; Quiroga *et al.* 2004a). There are also reported deep-water species (Quiroga *et al.* 2006, 2008). The main characteristic of this group of Platyhelminthes is the simple and dorsoventrally flattened body, with a much ramified intestine. Despite the relative morphological simplicity, these organisms present a rather complex, hermaphroditic reproductive system (Hyman 1951; Prudhoe 1985). Faubel (1983, 1984) and Prudhoe (1985) recognize two suborders based on the presence/absence of a ventral sucker: Cotylea and Acotylea, respectively.

Characters used in Polycladida taxonomy are related to reproductive anatomy and external morphology, as eyespots arrangements, tentacles, and pharynx (Hyman 1951; Faubel 1984; Prudhoe 1985). Coloration pattern is also used in distinguishing species (Newman & Cannon 1995; Litvaitis & Newman 2001), especially within the same genus (Newman & Cannon 1996), and can increase phylogenies resolution (Rawlinson & Litvaitis 2008). However, descriptions based on immature specimens without color documentation and absence of type material collections make Polycladida global taxonomy difficult (Newman & Cannon 1998).

It is known that, in general, polyclads have cryptic behavior, living under rocks and often associated with invertebrates on which they feed (Marcus & Marcus 1951; Newman *et al*. 2000; Newman & Cannon 2003). They are also important predators in hard bottom environments (Rawlinson 2008; Rawlinson *et al*. 2011) and are used in studies involving regeneration (Egger *et al.* 2007), toxicology and predation (Ritson-Williams *et al.* 2006),

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literature (Pearse & Wharton 1938; O´Connor & Newman 2001; Pérez-Portela & Turon 2007) and confirm the predominance of carnivory in the group (Hurley 1975; Galleni *et al*. 1980; Perrone 1987), despite the existence of symbiont species (Smith 1960; Doignon *et al*. 2003; Faubel *et al*. 2007). Ascidians are frequent Cotylean preys, despite their known defence compounds (Pisut & Pawlik 2002). The Pseudocerotidae, for example, are known to feed upon these organisms (Newman & Schupp 2002; Pérez-Portela & Turon 2007). *Pseudobiceros evelinae* and *Thysanozoon brocchi* feed on compound ascidians (Marcus 1949, 1950; Marcus & Marcus 1951; present study), organisms generally abundant under rocks in benthic environments (Rocha 1995; Vera *et al*. 2008), as is the case at Praia das Conchas. Biological and ecological observations are important complementary information to morphological descriptions, and should be used in comparative taxonomic studies between species.

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