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Five new records and morphological data of polyclad species (Platyhelminthes: Turbellaria) from Rio Grande do Norte, Northeastern Brazil

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Abstract

In Brazil, 66 flatworm species of the order Polycladida are known, most of which collected from the southeastern Brazilian coast. The present study includes morphological descriptions of five species from Rio Grande do Norte State, Brazilian Northeastern coast: *Enchiridium evelinae*, *Phrikoceros mopsus*, *Pseudobiceros evelinae*, *Thysanozoon brocchii* and *Hoploplana divae*. These findings represent the first record of Polycladida for this region of Brazil. Also, for the first time *Enchiridium evelinae*, *Pseudobiceros evelinae* and *Hoploplana divae* are illustrated with color photographs of live specimens and histological details. Association with compound ascidians and encrusting bryozoan were observed and commented. Our data suggest that knowledge about Brazilian polyclads is underestimated and emphasizes the necessity of further studies to better understand the Polycladida biodiversity in Brazil.

Key words: biodiversity, Marine flatworms, Western Atlantic, Cotylea, Acotylea, morphology

Introduction

Marine flatworms of the order Polycladida are free-living platyhelminthes that inhabit several marine environments, from coral reefs and rocky shores (Newman & Cannon 2003) to the deep-sea (Quiroga *et al.* 2006, 2008). These animals present a simple flattened body, with an extremely ramified intestine. In general, polyclads are cryptic, living under rocks associated with other invertebrates upon which they feed (Marcus & Marcus 1951; Newman *et al*. 2000). They are important predators on hard substrate environments (Rawlinson 2007) and can be active predators on commercial aquaculture species (Pearse & Wharton 1938). Polyclads are of interest in studies of regeneration (Egger *et al.* 2007), toxicology (Ritson-Williams *et al.* 2006), pharmacologically useful compounds (Shupp *et al.* 2001), mimicry (Newman *et al.* 1994) and aposematism (Ang & Newman 1998).

Few morphological characters are utilized in polyclad taxonomy, most of them related to reproductive anatomy, arrangement of eyes, tentacles and pharynx (Hyman, 1953; Prudhoe, 1985). Body coloration pattern can also be used in species distinction (Litvaitis & Newman 2001) and may increase cladogram resolution within genera (Rawlinson & Litvaitis 2008). The two major revisions of the order Polycladida (Faubel 1983, 1984; Prudhoe 1985) recognized two suborders based on the presence/absence of a ventral sucker: Cotylea and Acotylea, respectively. The comparatively low number of studies and specialists in this group can be attributed to difficulties in collection, handling, fixation and identification (Newman & Schupp 2002; Rawlinson 2007). Descriptions based on immature specimens, without color documentation, and absence of deposited type material also make polyclad taxonomy difficult around the world (Newman & Cannon 1998).

About 1,000 polyclad species are known around the world (Rawlinson 2007), of which 158 are reported from the Tropical Western Atlantic (Quiroga *et al*. 2004a; Bolaños *et al.* 2006, 2007). In Brazil, 66 species are reported, most of them collected at the Northern coast of São Paulo State, Southeastern Brazil (Marcus 1949, 1950, 1952;

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