



A comparative study of populations of *Ectopleura crocea* and *Ectopleura ralphi* (Hydrozoa, Tubulariidae) from the Southwestern Atlantic Ocean

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Abstract

Ectopleura crocea (L. Agassiz, 1862) and *Ectopleura ralphi* (Bale, 1884) are two of the nominal tubulariid species recorded for the Southwestern Atlantic Ocean (SWAO), presumably with wide but disjunct geographical ranges and similar morphologies. Our goal is to bring together data from morphology, histology, morphometry, cnidome, and molecules (COI and ITS1+5.8S) to assess the taxonomic identity of two populations of these nominal species in the SWAO. We have observed no significant difference or distributional patterns between the so-called Brazilian *E. ralphi* and Argentine *E. crocea* for both morphological and molecular data. Therefore, SWAO populations of *Ectopleura* belong to the same species. In a broader view, it is difficult to find decisive character distinguishing *E. crocea* from *E. ralphi*, and both species have indeed recently been synonymized, with the binomen *E. crocea* having nomenclatural priority. Geographically broader genetic analysis should be carried out in order to test the validity of this synonymy because taxonomical procedures such as studying type specimens and documenting broad phenotypic variability have not yet been conducted.

Key words: Tubulariidae, taxonomy, morphometry, cnidae, nematocysts, DNA analyses, COI, ITS1+5.8S

Introduction

Members of the family Tubulariidae inhabit shallow waters of all oceans, and they are commonly used in ecological, experimental, and morphological studies (Petersen 1990). Four phylogenetic analyses including representatives for the family have been conducted (Petersen 1990, Marques & Migotto 2001, Schuchert 2010, Nawrocki & Cartwright 2012). However, it still has a complex taxonomy (Migotto & Silveira 1987), mainly because of historical mistakes, incomplete information, and incorrect or incomplete understanding of intraspecific variation of its characters, such as polyp size, number of tentacles, morphology of gonophores, and ectodermal structure of the hydrocaulus (Tardent 1980, Petersen 1990).

Two nominal species of tubulariids recorded for the Southwestern Atlantic Ocean (SWAO), but presumably with wide geographical ranges (Figure 1), *Ectopleura crocea* (L. Agassiz, 1862) and *Ectopleura ralphi* (Bale, 1884), have quite similar morphologies (Ewer 1953, Brinckmann-Voss 1970, Millard 1975, Petersen 1990). They have a complex taxonomic history, and have previously been assigned to *Tubularia* (e.g., Genzano, 1998, 2001, 2005), *Ectopleura* (e.g., Migotto & da Silveira 1987), and *Pinauay* (Marques & Migotto 2001), until the most recent phylogenetic data has revealed that they would belong to the genus *Ectopleura* (Nawrocki & Cartwright 2012). In the SWAO, populations of the nominal species *E. ralphi* occur in shallow waters of southern Brazil (from the State of Espírito Santo, 20°S, to Rio Grande do Sul, 29°S—Migotto *et al.* 2002, and references therein), living on rocks, epizootically (on tunicates, sponges and bivalves), and on artificial substrates (Migotto & da Silveira 1987, Migotto *et al.* 2001, pers. obs.). On the other hand, the nominal species *E. crocea* occurs in shallow waters all

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