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Telopathes magna gen. nov., spec. nov. (Cnidaria: Anthozoa: Antipatharia: Schizopathidae) from deep waters off Atlantic Canada and the first molecular phylogeny of the deep-sea family Schizopathidae

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Abstract

A new genus and species of deep-sea antipatharian, *Telopathes magna* gen. nov., spec. nov., is described from the western North Atlantic off the coast of Canada. Five additional paratypes, consisting of juvenile to adult forms, are reported from the New England and Corner Rise Seamounts (NW Atlantic). Preliminary sequencing of a subsection of the nuclear ribosomal cistron confirmed the phylogenetic affinity of *T. magna* to the order Antipatharia, and in particular the family Schizopathidae. Subsequent sequencing of three mitochondrial DNA segments from nine of the 11 currently-recognized genera within the Schizopathidae revealed a well-supported phylogenetic relationship between *T. magna* and *Stauropathes*. This is the first study to use molecular techniques to elucidate the evolutionary relationships of the Schizopathidae, a family of black corals almost exclusively found in the deep sea (depths >200 m). *Telopathes* is distinguished from other genera within the family Schizopathidae by its largely pinnulated stalk, sparse branching pattern to the second degree that is not restricted to a single plane, two anterolateral rows of long, simple primary pinnules, arranged alternately to subopposite, and colony with an adhesive base. This record of *T. magna* brings the total number of nominal species of Antipatharia reported to occur off eastern Canada to 12 and represents the third new genus added to the Schizopathidae since a critical review of the family by Dennis Opresko in 2002.

Key words: 18S, black coral, Corner Rise Seamounts, Hexacorallia, ITS, New England Seamounts, Nova Scotia, mitochondrial DNA, new species, rDNA, taxonomy

Introduction

Worldwide, the number of recently described species and genera of Antipatharia has been characterized as both large and surprising (Opresko 2005). Not directed specifically at antipatharians, this has in part been the result of increased research into the deep sea, arguably initiated by the swell of interest in deep-sea corals at the turn of the century, but maintained by the growing widespread interest in what comprises the largest ecosystem(s) on the planet. Historically, information on the Antipatharia has been generally poor, but due to major taxonomic reviews (e.g. Opresko 1972, 1974, 1998, 2001, 2002, 2003, 2004, 2006; Opresko & Baron-Szabo 2001) and other recent work (e.g. Brugler 2011; Brugler & France 2007; Miller *et al.* 2010; Molodtsova 2006 & 2011; Thoma *et al.* 2009; Wagner *et al.* 2012), our knowledge of deep-sea Antipatharia has been greatly advancing.

Though clearly the most studied ocean basin in the world, it is also true that significant aspects and areas of the North Atlantic have been largely ignored by modern science. Since a large body of work by Verrill (e.g., 1864, 1878) and his contemporaries, and activity including the Challenger expedition (Brook 1889), the deep-sea fauna off eastern Canada has received little attention. A few decades ago, this fauna (Newfoundland and Labrador in particular) was described as one of the least known on the planet (Haedrich 1984).

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