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Deep-water octocorals (Cnidaria: Octocorallia) from Brazil: Family Chrysogorgiidae Verrill, 1883

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Abstract

Current knowledge about the Brazilian deep-water octocoral fauna remains scarce, fragmented, and mostly based on unpublished, regional scale surveys. The present work provides the first comprehensive study of the family Chrysogorgiidae Verrill, 1883 in Brazil, based on morphological analysis of specimens collected in the last decade and those currently placed in museums. Members of this family are common mainly at great depths and remarkable for the iridescent aspect of their colonies. In Brazil, to the present, only four species were reported: *Chrysogorgia elegans* (Verrill, 1883), *Chrysogorgia multiflora* Deichmann, 1936, *Stephanogorgia rattoi* Castro, Medeiros & Loiola, 2010 and *Trichogorgia brasiliensis* Castro, Medeiros & Loiola, 2010—the last two are shallow-water species. In this study, three new deep-water species are described, *Chrysogorgia tuberculata*, *Chrysogorgia upsilonia* and *Radicipes kopelatos*, and a new record to Brazil is reported, *Chrysogorgia fewkesii* Verrill, 1883, as well as latitudinal expansions in distributions of *Chrysogorgia elegans* and *Chrysogorgia multiflora* are presented.

Keywords: Octocoral, deep sea, new species, *Chrysogorgia*, *Radicipes*

Introduction

The history of studies that mention the deep-water octocorals (>50 m) in Brazil begins around the 18th century (Castro et al., 2006) and, over the years, around 70 species were recorded in Brazilian Economic Exclusive Zone (EEZ) (Pérez et al., 2011; Neves & Pérez, 2012). The first record of the family Chrysogorgiidae Verrill, 1883 within the Brazilian EEZ was made by Wright & Studer (1889), who reported *Chrysogorgia elegans* (Verrill, 1883) [as *Dasygorgia spiculosa* Wright & Studer, 1889] off the Pernambuco State coast, in the Northeastern region of Brazil.

Representatives of this family are common in benthic deep-water communities (between 10 to 4.492 m) almost all around the globe (Watling et al., 2011). The preference of chrysogorgiids for these habitats, the inherent difficulty of collecting in the deep sea, and the small number of taxonomists working with the group have delayed their most comprehensive study two centuries (Cairns, 2001) after the first record of the family in the Western Atlantic (Verrill, 1883). The study of Cairns (2001) is limited to species of the genus *Chrysogorgia* Duchassaing & Michelotti, 1864, and has most of its collection efforts concentrated in the North hemisphere of the Western Atlantic, registering for Brazil only *Chrysogorgia elegans* (Verrill, 1883), off the Recife coast (Pernambuco State), and *Chrysogorgia multiflora* Deichmann, 1936 off the Amazon River. A few years later, Watling (2007) published a review on the genus *Iridogorgia* Verrill, 1883 and described the genus *Rhodaniridogorgia* Watling, 2007, focusing on the Western and North Atlantic faunas. A third study, conducted by Pante & Watling (2011), dealt once more with *Chrysogorgia* spp. in the Northwestern Atlantic, discussing connectivity between Atlantic and Pacific faunas and also describing four new species. In this recent scenario, studies on Chrysogorgiids of the Pacific also have been greatly improved the understanding about their biogeographic patterns (Pante et al., 2015) and genetic species boundaries (Pante & France, 2010; Pante et al., 2014).