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Coralliidae (Anthozoa: Octocorallia) from the INDEMARES 2010 expedition to north and northwest Spain (northeast Atlantic), with delimitation of a new species using both morphological and molecular approaches

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Abstract

Three species of deep-water bathyal Coralliidae were collected during the INDEMARES 2010 expedition of the Spanish Institute of Oceanography to the Avilés Canyon System and the Galicia Bank (Spain, northeast Atlantic): *Corallium occultum* **n. sp.**, *Corallium* cf. *bayeri* Simpson & Watling, 2011, and *Corallium niobe* Bayer, 1964. The new species is supported by both morphological and molecular evidence, and its phylogenetic relationship within the Coralliidae is inferred. *Corallium* cf. *bayeri* is first recorded from European waters. *Corallium johnsoni* Gray, 1860 from off Portugal and Madeira, and *Corallium tricolor* (Johnson, 1898) from Madeira are redescribed from museum material, and their sclerites first depicted by scanning electron microscopy. The sclerome of *C. johnsoni* is more complex than previously thought, with occurrence of double clubs, and 6-, 7- and 8-radiates. A key is proposed for the identification of all the Atlantic species of the genus *Corallium*.

Key words: deep-water corals, *Corallium occultum* **n. sp.**, *Corallium* cf. *bayeri*, *Corallium johnsoni*, *Corallium niobe*, *Corallium tricolor*, Galicia Bank, Avilés Canyon, Bay of Biscay

Resumen

Durante la campaña INDEMARES 2010 del Instituto Español de Oceanografía en el sistema del Cañón de Avilés y el Banco de Galicia (España, Atlántico noreste), se obtuvieron tres especies de corales de aguas profundas de la familia Coralliidae: *Corallium occultum* **n. sp.**, *Corallium* cf. *bayeri* Simpson & Watling, 2011 y *Corallium niobe* Bayer, 1964. La nueva especie propuesta se ve avalada por evidencias morfológicas y moleculares. *Corallium* cf. *bayeri* se cita por vez primera en aguas europeas. Asimismo, se redescriben colonias de *Corallium johnsoni* Gray, 1860 y *Corallium tricolor* (Johnson, 1898) procedentes de Portugal y Madeira, y sus escleritos se ilustran por vez primera mediante microscopía electrónica de barrido. El escleroma de *C. johnsoni* es más complejo de lo que se estimaba con anterioridad, con presencia de mazas dobles, hexa-, hepta- y octoradiados. Se propone una clave de identificación para las especies atlánticas del género *Corallium*.

Introduction

According to Simpson & Watling (2011), the genus *Corallium* Cuvier, 1798 comprises 26 species with the majority endemic to the Pacific Ocean, where the family is much diversified. New species have been described recently by Simpson & Watling (2011) from the North Atlantic, by Tu *et al*. (2012) from the northwestern Pacific region, and by Nonaka *et al*. (2012) from Japanese waters. Coralliidae are less diversified in the Atlantic Ocean, with eight species of *Corallium* known to occur after updating Bayer & Cairns (2003): *C. bayeri* Simpson & Watling, 2011; *C. bathyrubrum* Simpson & Watling, 2011; *C. johnsoni* Gray, 1860; *C. maderense* (Johnson, 1899); *C. medea*

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