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Revision of the Antarctic species of *Halecium* Oken, 1815 (Cnidaria, Hydrozoa, Haleciidae)

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Abstract

A revision of the known Antarctic species of the genus *Halecium* has been carried out, based on the study of both type and non-type material. For each species a list of synonyms, a diagnosis, a broad description (with the exception of the recently described *H. frigidum* and *H. exaggeratum*), a discussion of its relationship with other members of the genus, and an account of its autecological data are given. Thirteen Antarctic species of the genus, including *H. pseudodelicatulum* **sp. nov.** and *H. pseudoincertus* **sp. nov.**, are considered valid. *Halecium tubatum* is considered as *species inquirenda*. *Halecium ovatum* and *H. macrocaulus* are considered to be junior synonyms of *H. interpolatum* and *H. incertus*, respectively. The presence of *H. delicatulum* and *H. tenellum* in Antarctic waters is questioned. All Antarctic records found in the literature have been checked. The cnidome proved to be a useful tool for species identification in some cases. Finally, a general survey of the geographical and bathymetric distribution of the species is presented.

Key words: Hydroids, systematics, Antarctic Ocean, new species, autecology, geographic distribution

Introduction

Members of the genus *Halecium* Oken, 1815 can be found as part of benthic communities in all oceans. Whereas some species form quite large, noticeable colonies, others are represented by tiny, inconspicuous colonies. The genus is well characterized and relatively easy to recognize. However, identification of its species has been widely acknowledged as a really difficult, if not impossible, task (e.g. Stepanjants 1979; Schuchert 2005), because of the presence of many morphologically similar species and a complicated history of synonyms (Stepanjants 1979). The genus includes about 120 currently accepted nominal species, but many of them are very difficult to distinguish and many are poorly characterized, rendering their current status uncertain (cf. Schuchert, 2005). Many authors (e.g. Stepanjants 1979) have stressed the necessity of a revision of the genus, but a comprehensive revision of all known species, especially one that integrates genetic data, seems a titanic goal.

In the Antarctic Ocean, *Halecium* is one of the best-represented genera of benthic hydrozoans. Peña Cantero (2004) included seven species within the Antarctic Region (two other were overlooked). Subsequently, Watson (2008) in a taxonomic account of the haleciids from BANZARE expeditions described five species new to science, and Peña Cantero (2010) and Peña Cantero *et al.* (2013) added one new species each. Consequently, 16 nominal species of *Halecium* had been recorded from Antarctic waters, ranking the genus four in number of species, behind *Oswaldella* Stechow, 1919 (26 species), *Staurotheca* Allman, 1888 (24 species) and *Symplectoscyphus* Marktanner-Turneretscher, 1890 (22 species).

Species identification is mainly based on morphological characters such as the size and shape of hydrothecae and gonothecae, particularly the female one, the presence/absence of free hydrophore or the colony habit. Frequently, the presence of many morphologically similar species makes it really difficult, if not impossible, to identify haleciid material, particularly in the absence of female gonothecae. Furthermore, original descriptions and figures are sometimes poor, so that the species are not characterized well enough to positively identify them. The situation is even worse for many records from the literature in which neither descriptions nor figures are provided. Given this situation, establishing geographical and bathymetric distributions of the species is enormously difficult.

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