



<http://dx.doi.org/10.11646/zootaxa.3911.1.5>

<http://zoobank.org/urn:lsid:zoobank.org:pub:9B2EF89A-8915-4F9D-BBC3-EBE56E8011CE>

## A new species of *Sphaerodoridium* Lützen, 1961 from Iceland (Polychaeta: Sphaerodoridae)

JUAN MOREIRA<sup>1,3</sup> & JULIO PARAPAR<sup>2</sup>

<sup>1</sup>Departamento de Biología (Zoología), Facultad de Ciencias, Universidad Autónoma de Madrid, Cantoblanco, E-28049 Madrid, Spain. E-mail: [juan.moreira@uam.es](mailto:juan.moreira@uam.es)

<sup>2</sup>Departamento de Biología Animal, Biología Vegetal e Ecología, Facultad de Ciencias, Universidade da Coruña, Alejandro de la Sota 1, E-15008 A Coruña, Spain. E-mail: [jparapar@udc.es](mailto:jparapar@udc.es)

<sup>3</sup>Corresponding author

### Abstract

A new species of *Sphaerodoridium* Lützen, 1961 (Polychaeta: Sphaerodoridae) collected off Iceland during the BIOICE programme is described. *Sphaerodoridium guerritai* sp. nov. is mostly present in waters around the northern half of Iceland, and seems to be common in soft bottoms at depths of 49–1253 m. It is mainly characterized by having macrotubercles which are provided with a long stalk which bears 1–3 small papillae; this seems an unique feature in *Sphaerodoridium* and the closely related genus *Clavodorum* Hartman and Fauchald, 1971. Furthermore, the new species is also characterized by having one transversal row of 11–12 dorsal macrotubercles per chaetiger in midbody; 10–16 spherical papillae in front of each row of macrotubercles, somewhat arranged in a dorsal zig-zag; 10–18 ventral papillae per chaetiger arranged following a non-random pattern: two transversal rows on parapodial areas and one on interparapodial area, of usually 4, 6 and 5 papillae respectively. Short paired tubular structures with distal opening were found on the ventrum of most chaetigers and are interpreted as nephridial papillae and nephridiopores, respectively. Females show special ventral structures between chaetigers 9–10 which may represent genital openings as suggested for other sphaerodorids; males do not show any apparent copulatory structures. A comprehensive table comparing some diagnostic features regarding macrotubercles and body papillae of all known species of *Sphaerodoridium* and *Clavodorum* is provided.

**Key words:** *Sphaerodoridium guerritai* sp. nov., *Clavodorum*, BIOICE, morphology, distribution

### Introduction

Information about diversity and distribution of sphaerodorids (Polychaeta: Sphaerodoridae) has substantially improved in the last decades. Thus, several new species have been described from worldwide areas from the shallow subtidal (Bakken 2002; Moreira *et al.* 2004; Magalhães *et al.* 2011) and continental shelf and slope (Rizzo 2009; Reuscher & Fiege 2011) to abyssal depths (Böttgermann 2009) and hydrothermal vents (Aguado & Rouse 2006). Sphaerodorids are conspicuously characterised by having the body surface covered with tubercles and/or papillae (Pleijel 2001). Systematics at the generic level are mostly based in the shape and arrangement of dorsal macrotubercles and chaetae. Sphaerodorids with one transversal row of stalked macrotubercles per segment include the genera *Sphaerodoridium* Lützen, 1961 and *Clavodorum* Hartman and Fauchald, 1971. Both genera are distinguished by the length of the median antenna, which is shorter than the lateral antennae in *Sphaerodoridium* and at least as long as the lateral ones in *Clavodorum* (Fauchald 1974). The usefulness of this character for assignation of species to either genus is, however, doubtful because the length of the prostomial appendages may vary according to the degree of contraction of the specimens. Furthermore, there seem to be other relevant characters that are shared by some species of *Sphaerodoridium* and *Clavodorum* (Borowski 1994; Bakken 2002), related to the shape and arrangement of body tubercles and papillae. This warrants a deep revision of both genera in order to assess their true status and placement of species in any given genus (Bakken 2002).

The knowledge on the marine benthic fauna in Iceland has greatly increased after the BIOICE (Benthic

Goodrich 1945; Kuper & Purschke 2001) and deserve further detailed ultrastructural studies (Kuper & Purschke 2001). For instance, in *Sphaerodorium gracilis* (Rathke, 1843) (=flavum; Kuper & Purschke 2001) the nephridiopore opens beneath the cuticle with no external nephridial papilla, while in others there are conspicuous papillae with nephridiopore at the distal end. Furthermore, in males of *Sphaerodoropsis arctowskyensis* Hartmann-Schröder and Rosenfeldt, 1988 there is only one pair of nephridia which open in the inflated ventral parapodia cirri of chaetiger 6 (Reuscher & Fiege 2011). Anyway, extensive information about these features may well help to clarify the internal systematics of the group and as well as their affinities with other Phyllodocida, which are still under debate (e.g. Fauchald & Rouse 1997; Aguado *et al.* 2007; Filippova *et al.* 2010).

Midbody ventral structures that may have a reproductive function (e.g. tubercle-like openings in females, “copulatory” cirri in males) have been reported for *Sphaerodoridium*, namely in specimens supposed to be males of *S. campanulata* (Böggemann 2009) and females of *S. fauchaldi* (authors’ personal observation) and *S. guerritai* **sp. nov.**; similar or equivalent structures have not been yet mentioned for *Clavodorium*. The presence, shape and location (chaetiger) of the external genital structures might have additional systematic value (Moreira & Parapar 2012) but those have scarcely been reported in sphaerodorids (but see Reimers 1933; Moreira *et al.* 2004; Böggemann 2009; Reuscher & Fiege 2011; Moreira & Parapar 2012). Anyway, the presence of genital structures, nephridial papillae and “spurs” on the cephalic appendages may have eventually been overlooked in the past, and therefore these might be more extended across species of both genera than suspected. Furthermore, descriptions of some species do not provide detailed information about the aforementioned and other valuable characters, and several species have not been found or reported after original description. Therefore, re-examination of species of either genus would be desirable (Bakken 2002). This seems the first step to a deep revision of both genera, in order to assess: 1) whether both genera are valid or not, and 2) if the first is true, what species do actually belong to *Sphaerodoridium* or *Clavodorium*.

## Acknowledgements

The authors are grateful to Solrun Bragadóttir and all the women of the former SMC involved in sorting of specimens from the BIOICE samples. We are also grateful to Gudmundur V. Helgason and Halldór P. Halldórsson (University of Iceland) for their assistance during our stays at the SMC, Gudmundur Gudmundsson (IINH) for providing the specimens and the deposit of type series, Javier Sánchez-Almazán (MNCN) for his help with the deposit of some paratypes, Ada Castro and Catalina Sueiro (SAIN, Universidade da Coruña) for assisting in the preparation of specimens and use of the SEM. María Capa and Torkild Bakken (Norwegian University of Science and Technology) and one anonymous reviewer provided constructive comments which helped to improve the final version of the manuscript. This work was partially supported by several grants from the European Union’s TMR program and the UDC and Xunta de Galicia to JP to visit the SMC.

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