



Kinorhyncha from the Iberian Peninsula: new data from the first intensive sampling campaigns

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Abstract

Data are presented from the first intensive sampling of Kinorhyncha around the Iberian Peninsula over a 21-year period from 1990 to 2011, from 81 sites mostly in less than 100 m water depth. Light-microscopic examination of approximately 2000 specimens yielded 11 genera and 29 species, only 11 of which were previously recorded from peninsular waters. The balance comprises ten new species records for the peninsula and eight new species that are yet to be described. The most speciose genus is *Echinoderes*, with ten species, two of them new, followed by *Pycnophyes* (nine species, three new). There are two species of *Antygomonas* (one new), and one each for the genera *Campyloderes*, *Centroderes*, *Condyloderes* (one new), *Dracoderes*, *Meristoderes*, *Semnoderes*, *Kinorhynchus* (one new), and *Paracentrophyes*. The most ubiquitous species in the samples, appearing at nearly all localities was *Pycnophyes dentatus*, newly recorded for the Iberian Peninsula and found at nearly all sampled localities and in high numbers. *Echinoderes cantabricus*, *E. hispanicus* and *E. dujardini* also have a wide distribution along both Atlantic and Mediterranean coasts. Known information on diversity, biogeography and ecology (depth, sediment and abundance) is discussed.

Key words: Kinorhyncha, meiofauna, biogeography, distribution, sampling, Iberian Peninsula

Introduction

Kinorhyncha is a phylum of ecdysozoan meiobenthic organisms less than 1 mm in length and found exclusively in marine or estuarine sediments, from coarse sand or shell gravel to very fine mud (Higgins 1988). Their general anatomy and taxonomic characters are well described by Higgins (1988), Kristensen & Higgins (1991) and Sørensen & Pardos (2008). The first known kinorhynch was described by Dujardin (1851) from Saint Malo, Atlantic coast of France. Subsequent comprehensive reviews of Kinorhyncha, including the fauna of the Mediterranean and Atlantic European coasts, were made by Zelinka (1928), Adrianov & Malakhov (1999) and Sørensen & Pardos (2008). The sampling effort reported in the present study has been paralleled only along the east coast of North America where 17 species from five genera have been found (Chitwood 1951; Higgins 1964a,b, 1965, 1977, 1982, 1990; Sørensen *et al.* 2005, 2007; Sørensen & Pardos 2008), but in recent years the waters around the Korean Peninsula have been fairly intensively surveyed, yielding ten species from six genera to date (Song & Chang 2001; Lundbye *et al.* 2010; Sørensen *et al.* 2010a-c; Sørensen *et al.* 2012a; Sørensen 2012b).

Studies of kinorhynchs from the Iberian Peninsula are scarce. As a group, they have been noted mainly in ecological studies, unaccompanied by descriptions or identifications to genus or species (e.g. Villora 1993). Subsequently, five species of cyclorhagid kinorhynchs belonging to the genus *Echinoderes* were described from the north coast of Spain, including the new taxa *E. hispanicus* Pardos *et al.*, 1998 and *E. cantabricus* Pardos *et al.*, 1998 from Santoña Bay (Cantabria). Ten years later, three additional species were described from several sampling localities ranging from Ribadeo (Asturias) to Bidasoa (Guipúzcoa), northern Spain: *Echinoderes isabelae* G^aOrdóñez *et al.*, 2008, *E. parrai* G^aOrdóñez *et al.*, 2008 and *E. neospinosus* G^aOrdóñez *et al.*, 2008.

Recently, Sørensen *et al.* (2010a) reported the homalorhagid *Paracentrophyes quadridentatus* (Zelinka, 1928) from the Cantabrian coast. Moreover, two new homalorhagids, *Pycnophyes dolichurus* Sánchez *et al.*, 2011 and *P.*