



***Diopatra* (Annelida: Onuphidae) diversity in European waters with the description of *Diopatra micrura*, new species**

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Abstract

This study describes a new species of the genus *Diopatra* Audouin and Milne-Edwards, 1833. *Diopatra micrura* **sp. nov.**, was found on the western and the southern coast of Portugal and can be distinguished from other *Diopatra* species by a characteristic striped colour pattern of the antennae and palps. Other diagnostic morphological characteristics include ventral parapodial lobes, crescentic nuchal organs, ceratophores with 12–15 rings, and subacicular hooks from chaetigers 8–13. This species was found mainly in fine or very fine sand with variable fines content, from the intertidal region up to 50 meters depth.

Molecular studies of mitochondrial DNA genes 16S rDNA and COI confirmed the distinction of *D. micrura* **sp. nov.**, from other European *Diopatra* species. The percentage of nucleotides divergence between the new species and *D. neapolitana* and *D. marocensis* was respectively 16% and 17% for COI and 12% and 15% for 16S. The nucleotide sequence for the 16S gene was always the same in all specimens of *D. micrura* and two haplotypes were found for the COI gene. The discovery of *D. micrura* **sp. nov.**, brings the number of *Diopatra* species known from Portugal to three and from Europe to four; a key to the four species is provided.

Key words: Taxonomy, striped antennae, 16S rDNA, COI, distribution, Portugal

Introduction

The genus *Diopatra* Audouin and Milne-Edwards, 1833 includes about 50 species distributed around the world (Budaeva & Fauchald 2008). These onuphid polychaetes are common in intertidal and shallow subtidal areas of all major oceans although better represented in warmer waters (Paxton 1986). The genus is characterised by the presence of peristomial cirri and spiralled branchiae (Paxton 1986).

Diopatra neapolitana Delle Chiaje, 1841 was until very recently the only recognised species of *Diopatra* in European waters. Recent studies revealed the presence of *Diopatra marocensis* Paxton *et al.*, 1995 in Portugal (Rodrigues *et al.* 2009) and a species reported as *Diopatra* sp. A from Arcachon to Dunquerque, France, by Berke *et al.* (2010).

The present paper reports the discovery of another species, *Diopatra micrura*, **sp. nov.**, increasing to three the number of *Diopatra* species known from Portugal and to four the number of European species.

Besides the morphological description, this study also uses a molecular approach to confirm the distinction of *D. micrura* **sp. nov.** from *D. neapolitana*, *D. marocensis*, and *Diopatra* sp. from Arcachon Bay, by characterising two mitochondrial DNA genes, 16S rDNA (16S ribosomal RNA gene) and COI (cytochrome c oxidase subunit I) (Halanych & Janosik 2006). It also presents the distribution of *D. micrura* **sp. nov.**, along the Portuguese coast together with the sediment type and depth of occurrence.