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Diopatra (Onuphidae: Polychaeta) from intertidal sediments in southwestern Europe

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Abstract

Intertidal populations of *Diopatra* from Spanish, Portuguese and French Atlantic beaches have traditionally been identified as *D. neapolitana*. This species is present, mainly in Spain and Portugal. However, at least some French beaches are occupied by a distinct species, *D. biscayensis*, here described as new. In addition, in Portugal and Spain, a third species, here described as new, *D. cryptornata*, will also key out as *D. neapolitana* using standard keys, but is morphologically distinct. The three species can be separated not only on traditional characters, but also on obvious differences in anterior morphology not usually considered in descriptions. The French habitats now occupied by *D. biscayensis*, previously had populations of *D. neapolitana* alone as documented by collections in the Paris Museum made by Quatrefages and Saint-Joseph in the mid-late 1800s. *Diopatra marocensis* has recently been reported from Atlantic waters, from both intertidal and subtidal areas. Since this species can be confused with the three species named above, a partial re-description based on paratype material is included here. Finally, a fifth species, *D. micrura*, has recently been described from the area and is here briefly characterized based on the original description. A key to all five species has been constructed.

Key words: Annelida; SW Europe; Atlantic Ocean; Intertidal

Tube-building polychaetes in the genus *Diopatra* are important ecosystem engineers of marine intertidal sediments worldwide. In Western Europe, the only *Diopatra* species consistently reported in over 150 years of intense sampling has been *D. neapolitana* delle Chiaje 1841 (and synonyms). Originally described from the Gulf of Naples, Mediterranean Sea, *D. neapolitana* has been widely reported from the Atlantic and Indian Oceans (*e.g.*, Fauvel 1953; Day 1967). However, recent collections indicate that three *Diopatra* species are also present on the Atlantic coast of Europe: *D. neapolitana* and two previously undescribed species. Here we present a detailed morphological study confirming the morphological distinctness of the three species, and describing the two new species: *D. cryptornata* and *D. biscayensis*. *D. biscayensis* was referred to as *Diopatra* species A in a recent genetic study confirming its genetic distinctness from *D. neapolitana* (Berke et al. 2010). All three species reported here agree with *D. neapolitana* as traditionally accepted with the exception of the number of teeth on the pectinate chaetae (*e.g.*, Fauvel 1923), but are morphologically distinct on the basis of obvious features not usually included in *Diopatra* descriptions.

In addition to the two new species described here, another new species of *Diopatra*, *D. micrura*, was described from the same area (Pires et al. 2010) and a species originally described from the Atlantic coast of Morocco, *D. marocensis* Paxton et al. 1995 has also been reported from the European coasts, in both subtidal and intertidal collections. We present an updated key based on morphological features not previously considered or not described for all *Diopatra* species reported from Western Europe to date.

Notes on some morphological features

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