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New records of *Diopatra marocensis* (Annelida: Onuphidae) from northern Spain

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Several recent publications have demonstrated that *Diopatra neapolitana* Delle Chiaje, 1841 is not the only European representative of the onuphid polychaete genus *Diopatra* Audouin and Milne-Edwards, 1833 as had been previously accepted: *Diopatra marocensis* Paxton *et al.*, 1995, only known from its type locality, the Moroccan Atlantic coast, was reported by Rodrigues *et al.* (2009) as coexisting with *D. neapolitana* in a number of sites on the Portuguese coast; Berke *et al.* (2010) reported an undescribed species as *D.* sp. A from France; and Pires *et al.* (2010) described *D. micrura* Pires *et al.*, 2010, bringing the number of European *Diopatra* species to four.

Here we are presenting the first record of *D. marocensis* in Spanish waters – the Bay of Biscay – constituting the northernmost distribution for this species, where it occurs sympatrically with *D. neapolitana*. We are giving brief notes on the relative abundance of the two species at the new locality, compare the depths and substrate preferences of *D. marocensis* at its Moroccan, Portuguese and Spanish collecting sites, and report the presence of *Epistylis* sp., a peritricous protozoan on the gills of *D. marocensis*, presenting a newly recorded symbiotic association.

Preserved specimens in the collections of the Department of Biology of Organisms and Systems (Zoology), University of Oviedo, Spain, previously identified as *Diopatra neapolitana* from the estuary of Villaviciosa, Asturias, northern Spain, 43º18'–43º32'N, 5º29'–5º32'W, collected throughout the last decades, were re-examined. This revealed the presence of not only *D. neapolitana*, but also *D. marocensis* in the estuary, demonstrating that *D. marocensis* is not a species that has emerged in recent years, but had been present in the estuary already in May 1976.

In 2010 a series of surveys were carried out at the central and outer basins of the Villaviciosa estuary. *Diopatra marocensis* was only found in a very specific area of the central basin, whereas in previous years from 1976 to 2000 it had been more widely distributed in the central and outer basins of the estuary. In contrast, *D. neapolitana* has seen an increase in its population over the last five years. The changes in the density of *Diopatra* spp. in Villaviciosa estuary are probably direct and indirect consequences of anthropogenic disturbances experienced by the estuary mainly in its outer basin in recent years (Flor Blanco and Flor 2009).

Diopatra marocensis is here reported from an intertidal fine to medium sand *Tellina tenuis* community. Its type locality Sidi Boulbra (Morocco) is a subtidal fine sand *Abra alba* community (Paxton *et al.* 1995; Fadlaoui *et al.* 1995), while along the Portuguese coast it was collected intertidally to subtidally in a range of sediments (Rodrigues *et al.* 2009). In Villaviciosa *D. marocensis* has a much lower density (1.4 individuals/m²) than observed in Sidi Boulbra, where it was one of the dominant species of the community (Paxton *et al.* 1995).

Ectosymbiotic microorganisms were found on the surface of *D. marocensis*, especially on the gills and on the first parapodia (Fig. 1A). These microorganims are peritricous protozoans of the family Epistylidae. Specimens found on *D. marocensis* form colonies, indicating that they are members of the genus *Epistylis*. To date, this genus had not been described on *Diopatra* spp. or on other onuphids polychaetes, constituting a newly reported symbiotic association**.** Moreover, the *Epistylis* colonies on *D. marocensis* were observed to harbour an Oomycota fungus, as ectosymbiont on the epistylids, forming a multiple symbiotic relationship: *Diopatra* – Protozoa –Fungus (Fig. 1B).

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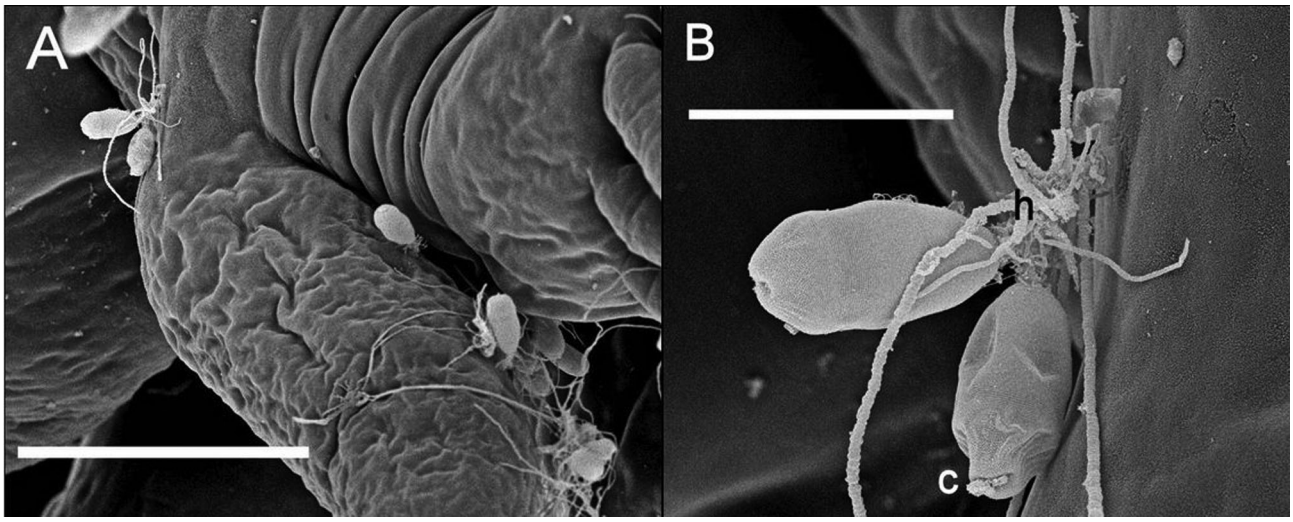

FIGURE 1. *Diopatra marocensis:* A, colonies of *Epistylis* sp. on the first parapodium. B, detailed view of *Epistylis* with Oomycota fungi; (c) corona of cilia, (h) hyphae. Scale bars: A = 200 µm; B = 40 µm.

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