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Original article

Spatial distribution of subtidal Nematoda communities along the salinity gradient in southern European estuaries

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ABSTRACT

This study investigated the spatial distribution of subtidal nematode communities along the salinity gradients of two Portuguese estuaries exposed to different degrees of anthropogenic stress: the Mira and the Mondego.

The nematode communities were mainly composed of *Sabatieria*, *Metachromadora*, *Daptonema*, *Anoplostoma*, *Sphaerolaimus* and *Terschellingia* species, closely resembling the communities of Northern European estuaries. In both estuaries, nematode density and community composition followed the salinity gradient, naturally establishing three distinct estuarine sections: (i) freshwater and oligohaline – characterised by the presence of freshwater nematodes, low nematode density and diversity; (ii) mesohaline – dominated by *Terschellingia*, *Sabatieria* and *Daptonema*, with low total density and diversity; and (iii) polyhaline and euhaline – where nematodes reached the highest density and diversity, and *Paracomesoma*, *Synonchiella*, and *Odontophora* were dominant.

Despite the similarities in community composition and total nematode density, the proportion of different nematode feeding types were remarkably different in the two estuaries. In Mira, selective deposit feeders were dominant in the oligohaline section, while non-selective deposit feeders were dominant in the other sections. On the contrary, in the Mondego estuary, epigrowth-feeders and omnivores/predators were dominant in the freshwater sections and in the euhaline sector of the southern arm.

Differences observed along each estuarine gradient were much stronger than overall differences between the two estuaries. In the Mondego estuary, the influence of anthropogenic stressors seemed not to be relevant in determining the nematodes' spatial distribution patterns, therefore suggesting that mesoscale variability responded essentially to natural stressors, characteristic of estuarine gradients. Nevertheless, the proportion of the different feeding types was different between the two estuaries, indicating that the response of nematode feeding guilds is able to reflect anthropogenic-induced stress and can be useful in assessing biological quality in transitional waters ecosystems.

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