

Potential drivers of species coexistence of marine nematodes

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Species with similar ecological functions strongly compete in nature. Their local co-occurrence can be established when confunctional species have specialised ecological niche. Mechanisms to differentiate the niche include resource partitioning, microhabitat partitioning and different preferences to environmental conditions. We examined these three potential drivers of niche differentiation on marine nematodes, which co-occur in their natural habitat at the Westernschelde Estuary. Resource partitioning was examined by investigating resource utilization of confamiliar or congeneric bacterivorous species from the field, using Next Generation Sequencing for characterizing their microbiome. Microhabitat differentiation was assessed by differences in occurrence of three cryptic species of the *Litoditis marina* complex on different algal species from the field, using qPCR identification. Differential preferences in abiotic conditions were tested in lab-controlled experiments with congeneric species isolated from the same habitats. Our results showed differential responses to daily temperature variations of congeners under thermal stress. Microhabitat partitioning was apparent for cryptic *L. marina* species which showed different preference to algal species or to parts of the same algal individual. Differentiation in resource utilization was less clear, as close related species had a significant overlap of their microbiomes. However, temporal resource and microhabitat differentiation can increase niche partitioning and allow species coexistence.

Keywords: Niche differentiation; Microhabitat; Resource utilization; Temperature