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Patterns of diversity and endemism of soft-bodied meiofauna in an oceanic island, Lanzarote, Canary Islands

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Abstract

Oceanic islands, characterized by high levels of endemism and distinct faunas when compared to neighbouring continents, represent natural evolutionary laboratories for biologists to understand ecological and evolutionary processes. However, most studies on oceanic islands have focused on terrestrial and marine macrofaunal organisms, and ignored microscopic animals. We present here an inventory of all soft-bodied meiofaunal organisms collected during a 2-week workshop on the oceanic island of Lanzarote, Canary Islands. Our checklist included 239 species, with 88 of them endemic to the archipelago. The number of endemic species was lower in groups with a higher proportion of parthenogenetic species, while it was not significantly affected by body size and percentage of species with dispersal stages. A higher percentage of endemic species was found in isolated habitats and environments, with only annelids showing significantly higher number of endemic species in anchialine caves. Our results might be biased by the high number of indeterminate species found in our samples and the lack of knowledge of the meiofauna of the African coast. Our findings, however, provide the first insight of patterns of diversity of soft-bodied meiofauna in Atlantic oceanic islands, suggesting that island endemic species might also exist amongst microscopic animals.

Keywords Anchialine · Annelida · Biogeography · Gastrotricha · Interstitial fauna · Caves · Proseriata · Rhabdocoela · Rotifera