

FEEDING ECOLOGY OF HARPACTICOID COPEPOD SPECIES: INSIGHTS FROM STABLE ISOTOPE ANALYSIS AND FATTY ACID PROFILING

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Understanding how biodiversity influence ecosystem functioning is a major research question in current ecology research. Trophic diversity within communities strongly affects ecosystem functioning through trophic interactions between species. Various studies tackled ecosystem functioning via interactions between trophic guilds such as bottom-up and top-down control. However, few studies focussed on interspecific variability in the feeding ecology of organisms with overlapping trophic niche.

Here, we study in a North-Western Corsican *Posidonia oceanica* seagrass meadow and its variability over one year. The extensive *P. oceanica* meadows are occasionally interrupted by bare sand patches which serve as deposition and accumulation area for detritus, mainly derived from senescent macrophytes. These macrophytodetritris accumulation harbour a diverse community of Harpacticoida (Crustacea, Copepoda). The most abundant harpacticoids and their potential food sources (i.e. macrophytodetritris, epiphytic biofilm, macroalgae and particulate matter) were analysed for stable isotope ratios ($\delta^{13}\text{C}$, $\delta^{15}\text{N}$). Bayesian mixing model (SIAR) showed a minor contribution of macrophytodetritris while the epiphytic biofilm, present on the macrophytodetritris, appeared to be the major food source of harpacticoid copepods. In order to distinguish the several components of the epiphytic biofilm and their contribution, fatty acid profiling was used. The outcome revealed a general harpacticoid diet preference towards diatoms and bacteria, however specialisation for certain components seemed to reduce competition between harpacticoid species.

In conclusion, our results underline the importance of multiple biomarker species-specific analysis, especially in complex and dynamic environments where a wide variety of potential trophic niches are present.