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Marta Sales, Enric Ballesteros, Marti J. Anderson, Ljiljana Iveša, Eva Cardona, (2012). [Biogeographical patterns of algal communities in the Mediterranean Sea: *Cystoseira crinita*-dominated assemblages as a case study.](#)

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Abstract:

- **Aim.** The aim of this study was to describe the composition, community structure and biogeographical variation of subtidal algal assemblages dominated by the brown alga *Cystoseira crinita* across the Mediterranean Sea.
- **Location.** The Mediterranean coast, from Spain (1°25' E) to Turkey (30°26' E).
- **Methods.** Data on the species composition and structure of assemblages dominated by the species *C. crinita* were collected from 101 sites in nine regions across the Mediterranean Sea. Multivariate and univariate statistical tools were used to investigate patterns of variation in the composition of the assemblages among sites and regions, and to compare these with previously defined biogeographical regions. Linear regressions of species richness versus longitude and versus latitude were also carried out to test previously formulated hypotheses of biodiversity gradients in the Mediterranean Sea.
- **Results.** The main features characterizing *C. crinita*-dominated assemblages across the Mediterranean included a similar total cover of species, a similar cover of *C. crinita*, and consistency in the presence of the epiphyte *Halimnion virgatum*. Biogeographical variation was detected as shifts in relative abundances of species among regions, partly coinciding with previously described biogeographical sectors. A significant positive correlation was found between species richness and latitude, while no significant correlation was detected between species richness and longitude.
- **Main conclusions.** The patterns of variation in community structure detected among the studied regions reflected their geographical positions quite well. However, latitude seemed to contribute more to the explanation of biological patterns of diversity than did geographical distances or boundaries, which classically have been used to delimit biogeographical sectors. Moreover, the positive correlation between species richness and latitude reinforced the idea that latitude, and possibly temperature as a related environmental factor, plays a primary role in structuring biogeographical patterns in the Mediterranean Sea. The lack of correlation between species richness and longitude contradicts the notion that there is a decrease in species richness from west to east in the Mediterranean, following the direction of species colonization from the Atlantic.

Keywords: Algal assemblages, biodiversity, biogeographical patterns, *Cystoseira crinita*, latitude, Mediterranean Sea, species richness, temperature