

Influence of geographical distribution and depth on the genetic structure of *Cymodocea nodosa* meadows in the Canary Islands.

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Meadows formed by the seagrass *Cymodocea nodosa* (Ucria) Ascherson are the dominant vegetated communities in shallow soft bottoms throughout the Canary Islands (Central East Atlantic Ocean). The Canarian Archipelago represents the western, and almost the southern distributional limit of the species. Due to the hydrodynamic conditions, *C. nodosa* is only present on the protected southern coasts of the islands. Meadows are usually distributed over a wide depth range where they show clear variations of structural and morphometric attributes (bottom coverage, shoot density and mean length of leaves).

The aim of this project was to assess the genetic structure of *C. nodosa* in the Canarian Archipelago at different hierarchical spatial scales. In particular we aimed to investigate the existence of genetic patterns at four different levels: between stands collected at different depths in the same locality, between different localities sampled in the same island, among stands collected at the same depths in different islands, and between meadows in the Archipelago and in the Mediterranean Sea.

To achieve this goal, we performed a hierarchical random sampling design, collecting samples in seven islands, in two locations within each island, in two sites within each location and in two depths within each site. A total of 1260 samples were sampled and genotyped for seven microsatellite loci already used to analyse Mediterranean populations.

The data analysis have shown no strong genetic differentiation between stands growing at different depths. This could be due to the fact that in the Atlantic Ocean the thermocline appears not before than 50 m.

Overall genetic diversity across the Archipelago is not too high in comparison with Mediterranean populations.

Main genetic flow follows a east-west direction showing that Fuerteventura, the closest Island to the African coasts and the one with the higher allelic richness, represents a bridge between the Mediterranean and the Canarian population