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Effects of *Caulerpa cylindracea* on marine biodiversity

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The Mediterranean sea is an important hotspot for alien species. Following habitat loss, Invasive Alien Species (IAS) are considered to be amongst the most serious threats to biodiversity and natural ecosystem functioning. Among the IAS recorded in the Mediterranean sea, *Caulerpa cylindracea* Sonder, introduced from Australia and New Caledonia, has raised serious concern due to its negative impact on native communities.

We provide some observations on the effects of the presence of *C. cylindracea* on the communities living along the coasts of the Island of Favignana (Egadi Islands, Marine Protected Areas). Samples were collected at San Giuseppe in Summer 2017. Two areas characterised by different sedimentation and hydrodynamic conditions, were chosen. Within each area, two sites were selected, one characterised by the presence of *C. cylindracea* and one by the low coverage of this alga. At each site, three replicated 400 cm^2 quadrats were placed in order to estimate the abundance values of the recorded taxa. Initial results showed significant differences between the two areas. In the first area, characterised by a higher rate of sedimentation, *C. cylindracea* was more abundant and behaved as a pioneer species. It has been observed that *C. cylindracea* formed compact multi-layered mats by the process of stolonising. These mats trap sediment and host native macroalgae, growing strictly intermingled to *C. cylindracea* stolons. The further increase of sedimentation, due to the presence of *C. cylindracea*, has also favoured the development of several individuals of the tropical tube-building sabellid *Branchiomma bairdi* (McIntosh, 1885) among the patches of *C. cylindracea*. This biofouling worm clearly takes advantage of the additional debris among the stolons of *C. cylindracea*, on which it can easily settle. In contrast, it was observed that sponges, particularly *Chondrilla nucula* Schmidt, 1862, took advantage of the conditions in the second area, occupying all the available substrate. Sponges, which behave as pioneer species, maintain a slow rate of sedimentation and low biodiversity. They do not allow other species to settle well in the area, as clearly indicated by the low coverage values observed for *C. cylindracea* and the native macroalgae.

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