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Trace metals assessment in water, sediment, mussel and seagrass species – Validation of the use of *Posidonia oceanica* as a metal biomonitor

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Abstract

The accumulation of trace metals (Cd, Co, Cr, Hg, Ni and Pb) was measured in water, sediment, the mussel *Mytilus galloprovincialis* and the seagrass *Posidonia oceanica*. Samples were collected in three locations of the north-western Mediterranean (Canari, Livorno and Porto-Torres) which present different levels and sources of human impact. Analyses in the different compartments (water, sediment, *M. galloprovincialis* and *P. oceanica*) have allowed to identify Canari as the most Cd, Co, Cr and Ni contaminated site; Livorno as the most Hg contaminated and Porto-Torres as the most Pb contaminated. Furthermore, for the first time, metal concentrations found in *P. oceanica* have been compared with those found in the water column, in the sediment and in the recognized metal bio-indicator species *M. galloprovincialis* and the results obtained have led to the same conclusions. Thus, this study allows to validate the use of *P. oceanica* as metal biomonitor of coastal waters.

Keywords: Metal contamination; Biomonitoring; Seawater; Sediment; Marine organisms; Mediterranean sea

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