



The role of *Spartina maritima* and *Sarcocornia fruticosa* on trace metals retention in Ria Formosa, Portugal

Manuela Moreira da Silva (1), Duarte Duarte (2), Jorge Isidoro (3), and Luís Chícharo (4)

(1) High Institute of Engineering, University of Algarve (ISE/UAlg); Centre for Marine and Environmental Research (CIMA) – Portugal; msanti@ualg.pt, (2) Faculty of Sciences and Technology, University of Algarve (FCT/UAlg); Centre for Marine and Environmental Research (CIMA) – Portugal; dduarte@ualg.pt, (3) High Institute of Engineering, University of Algarve (ISE/UAlg); Marine and Environmental Research Centre (IMAR-CMA) – Portugal; jisidoro@ualg.pt, (4) Faculty of Sciences and Technology, University of Algarve (FCT/UAlg); Centre for Marine and Environmental Research (CIMA) – Portugal; lchichar@ualg.pt

Over the last years, phytoremediation has become an increasingly recognized pathway for contaminant removal from water and shallow soils. Assessing the phytoremediation potential of wetlands is complex due to variable conditions of hydrology, soil/sediment types, plant species diversity, growing season and water chemistry. Physico-chemical properties of wetlands provide many positive attributes for remediating contaminants. Saltmarsh plants can sequester and inherently tolerate high metal concentrations found in saltmarsh sediments.

An increasing number of studies have been carried out to understand the role of halophyte vegetation on retention, bioavailability and remediation of the pollutants in coastal areas (estuaries and lagoons). It is already known that the accumulation capacity and the pattern of metal distribution in the plant tissues vary among plant species, namely monocotyledonous and dicotyledonous, and with sediment characteristics. During the last decades, there has been a large increase in urbanization and industrialization of the area surrounding Ria Formosa. Due to this reality, anthropogenic contaminants, including trace metals, are transported via untreated sewage and agricultural effluents to several parts of the lagoon. The dominant producers are *Spartina maritima* (Poales: Poaceae) and *Sarcocornia fruticosa* (Caryophyllales: Chenopodiaceae), appearing in pure stands respectively in the lower and in the upper saltmarshes.

The aim of this work was to survey, comparatively, the role of *S. maritima* and *S. fruticosa* on minor and trace element (Ag, Cd, Cu, Cr, Mo, Ni, Pb and Zn), contents and distribution amongst sediment and plant tissues. Both *S. maritima* and *S. fruticosa* could fix metals from the surrounding belowground environment and accumulate metals, mainly in roots (also in rhizomes in the case of the former). Metal translocation to aerial parts of the plants was, in general, residual.