

available at www.sciencedirect.comwww.elsevier.com/locate/scitotenv

Short communication

Utilization of the seagrass *Posidonia oceanica* to evaluate the spatial dispersion of metal contamination

C. Lafabrie^{a,*}, G. Pergent^a, C. Pergent-Martini^{a,b}^aUniversity of Corsica, Faculty of Sciences, Equipe Ecosystèmes Littoraux, BP 52, 20250 Corte, France^bRAC/SPA, Boulevard Yasser Arafet, B.P. 337, 1080, Tunis Cedex, Tunisia

ARTICLE DATA

Article history:

Received 10 May 2008

Received in revised form

3 November 2008

Accepted 4 November 2008

Available online 10 December 2008

Keywords:

Trace elements

Gradient of contamination

Environmental pollution

Aquatic plant

Bio-indicator

Monitoring

ABSTRACT

Metal concentrations have been measured in blades of the endemic Mediterranean seagrass *Posidonia oceanica*, along transects from three different contaminant point sources (the former asbestos mine of Canari – Corsica, France; the chemical plant of Solvay/Rosignano – Livorno, Italy; and the industrial harbour of Porto-Torres – Sardinia, Italy). The aim of this study was to evaluate the spatial extent of the impact of these sources in terms of metal contamination. The results showed that metal contamination from the former mine of Canari (cobalt – Co, chromium – Cr and nickel – Ni) extends at least 5 km to the north and south. The impact of this mine, which closed in 1965, seems to be lingering still. Mercury (Hg) contamination in the Livorno location was difficult to evaluate due to the presence of others potential sources of mercury in the area (e.g. industrialized city of Livorno, natural cinnabar deposits, intense tectonic activity of the area). At any rate, mercury concentration decreased strongly with distance from the plant. Lead (Pb) contamination at the Porto-Torres harbour was very low and disappeared with distance from the harbour. However, as the Porto-Torres harbour does not appear as a substantial point source of Pb contamination and because of the ubiquitous characteristic of the Pb element, it is difficult to draw any general conclusions concerning this element. The results presented in this study demonstrated the usefulness of the seagrass *P. oceanica* as a tool for the evaluation of the spatial extent of metal contaminations from point sources and could, therefore, contribute to on-going efforts to manage coastal environments.

© 2008 Elsevier B.V. All rights reserved.

* Corresponding author. Dauphin Island Sea Lab, 101 Bienville Blvd., Dauphin Island, AL 36528, USA. Tel.: +1 251 861 7526; fax: +1 251 861 7540.

E-mail address: clafabrie@disl.org (C. Lafabrie).