
Marine phanerogams as a tool in the evaluation of marine trace-metal contamination: an example from the Mediterranean

C. Pergent-Martini and G. Pergent

Eq.E.L., Faculty of Sciences, University of Corsica, BP 52, 20250
Corse, France

Abstract: New ways of evaluating the quality of the coastal marine environment in a practical, dependable and cost-efficient manner are continually sought. It would thus appear of some value to make use of bioindicator species that reflect both the average levels and the temporal variations of contaminants at a given site. Owing to their extensive distribution in the littoral zone and the ecological importance of such populations, it is of interest to examine the potential of marine phanerogams as indicator species of metal contamination in the marine environment. Based on results obtained in the Mediterranean, it would appear that the accumulation by marine phanerogams of metallic elements present in the environment is both extensive and specific. The levels accumulated vary according to the metal, the species and the tissue type examined. In addition, the plant's physiology, which will vary with the season and/or the age of the tissues, has a significant effect on the stocking process. Nevertheless, a number of laboratory and in situ experiments seem to indicate that the levels of contaminants that are accumulated are a good reflection of environmental contamination. Recent studies offer new research outlooks with the possibility of (i) using biochemical parameter measurements as a means of early detection and estimation of metal contaminant levels, and (ii) evaluating the current and past contamination levels for a given site by making use of the dating and memorization capacities that are characteristic of certain phanerogam species.

Keywords: coastal ecosystems, phanerogams, trace metals.

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