

Mobility of potentially toxic elements (PTEs) in Makirina bay sediments and their accumulation in *Codium bursa* (N Dalmatia, Republic of Croatia)

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Contamination of coastal marine sediments with PTEs like As, Cd, Cu, Mo, Ni, Pb and Zn is widespread and induces a long-term risk to marine ecosystem health. Makirina Bay represents a restricted shallow-marine ecosystem located in the Central Adriatic area. Makirina Bay sediments are also treated as an important source of healing mud (peloid) used for different therapeutic purposes. Therefore, the distribution characteristics of several PTEs in Makirina bay surficial sediments and *Codium bursa*, very common seaweed in Makirina bay, were evaluated.

To estimate the mobility of PTEs in Makirina bay sediments, the 5-step sequential extraction procedure was performed. PTEs concentrations in *Codium bursa* were determined using HR ICP-MS. Accumulation of PTEs from sediment to *Codium bursa* was assessed by the calculation of transfer factor (TF) [1].

Results of sequential leaching procedure revealed that the most mobile PTEs are Mo and Cd with the major proportion in watersoluble and exchangeable fraction. Concentration of PTEs in *Codium bursa* and calculated TF values are shown in Table 1. According to results, *Codium bursa* do not effectively transfer selected PTEs from sediment.

More or less, the TF results confirmed the sequential extraction procedure results, the only exceptions are Cd and Mo. The latter is probably a consequence of generally low total Cd concentrations in Makirina bay surficial sediments (mean value = 0.27 ppm) and high anoxic condition on sediment-water interface (Eh = -430 mV). Mo is predicted to be in the IV oxidation state under anoxic conditions, where as only the soluble Mo (VI) forms are available for plants [2].

	As	Cd	Cu	Mo	Ni	Pb	Zn
c [sur. sed.]	14.47	0.27	27.64	13.82	26.51	23.74	47.67
c [C. bursa]	8.77	0.163	5.55	0.66	7.7	3.63	16.3
TF	0.6	0.6	0.2	0.05	0.29	0.15	0.34

Table 1: PTE concentrations in surface sediment and *Codium bursa*, with calculated TF values (all results are expressed in ppm).

[1] Kalfakakou *et al* (2000) HTLM publication **1**, 768-786 [2] Zimmer *et al* (1998) Plant biol. **1**, 160-168