



Heavy Metal Speciation in Some Albanian Coastal Sediments

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Received February 15, 2010; Accepted April 23, 2010

Abstract: The evaluation of concentration levels and distribution of heavy metals in different fractions of coastal sediments in order to assess possible anthropogenic inputs in this area is presented. The speciation of heavy metals (Fe, Mn, Cr, Ni, Cu, Pb, Cd, Zn) as well as their total concentration has been determined in six coastal sediment samples collected in Albania. A good correlation has been found for Cr, Fe, Zn, Cu, Mn and Pb in the entire area, indicating the same origin for these metals in the analyzed sediments. The extraction procedure of heavy metals was conducted via three step extraction procedure. During the step A considerable levels of total Mn (about 30 -40%) were found in exchangeable form and adsorbed to carbonates. Metals bounded to such fractions are presumed to be more bio available presenting a potential risk for biota and aquatic system. During the step B considerable part of other metals were extracted which reveal the domination of reductive nature of the sediment studied. So, about 10% of Ni, 19% of Mn, 30% of Fe and about 25% of Pb were extracted during the second step of extraction. About 22% of Fe, 22% of Cu, 8% of Cr, 10% of Ni were found to be bound to organic matter and present as sulphides, extracted mainly during the third step of extraction (step C). The most part of all heavy metals resulted to be associated to the most refractory fraction of the sediment, which constitute up to 50% of the total concentration. Distribution of heavy metals in different fractions of sediments showed that there were differences between the mineralogical structure of the Adriatic and Ionian Sea sediments. Levels of total heavy metals present in the sediments of the coastal area showed the same variations as has been reported by other studies of the area confirming the natural origin of the heavy metals.

Keywords: *metal speciation, BCR method, sequential extraction, marine sediments;*

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