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NICKEL AND IRON CONCENTRATIONS IN PLANTS FROM MINING AREA POGRADEC, ALBANIA[†]

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Abstract

Metal concentrations in plants, soil and sediment were evaluated in the vicinity of a former iron/nickel enriching factory at Pogradec, near Ohrid Lake in Albania. Metal levels were significantly higher in soil samples than in the corresponding plants. Iron concentrations in both soil and plants were much higher than the nickel ones. Lower plants (lichens, mosses and fungi) had a higher uptake and accumulation of nickel, followed by water plants and non-cultivated (wild) plants. Iron levels were very high in mosses and lichens and relatively lower values in fungi. Water plants showed increased iron concentrations followed by trees and shrubs and non-cultivated plants. In the edible parts of the cultivated plants *Capsicum annuum*, *Lycopersicon esulentum* and *Zea mays*, nickel levels were generally lower ranging from 11 to 29 mg/kg, whereas the nickel concentration in the soil was 925 mg/kg. Iron concentrations in the edible parts of the above mentioned plants were also lower, ranging from 67 mg/kg (*Zea mays*) to 205 mg/kg (*Capsicum annuum*) in comparison to other plant organs. In the case of nickel, roots showed generally greater metal concentrations than leaves while stems showed the lowest concentrations. In cultivated plants fruits were less contaminated, but a little bit more than the stems. Seeds of *Alyssum murale* showed remarkably higher nickel concentrations than other plant organs. In the case of iron the root was more contaminated in tree, shrub and cultivated plant samples but in non-cultivated and aquatic plants the leaves showed the highest iron values.

Key words: Albania, *Alyssum murale*, heavy metals, iron, nickel, pollution

Received: November, 2011; Revised final: June, 2012; Accepted: July, 2012

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[†] Dedicated to the memory of our colleague and friend Dimitrios Babalonas, Professor of Systematic Botany, Aristotle University of Thessaloniki, who identified all the collected plants in this work.