



A Comparative Study of Copper Levels in the Soil from Plantation of Medicinal Plants

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The pollution of agricultural soil by heavy metals is defined by metals amounts that could have negative impacts on living organisms. Being a part of food chain the soil is one of the most important compartments and results of analysis have to contribute in further evaluation of potential danger on medicinal plants growing.

In this work, copper levels in agricultural soil, where medicinal plants are being cultivated, were analyzed. Bioavailability of heavy metals depends on adsorption potential of the soil, its structure, pH and rH values. In order to investigate the influence of acidity and redox potential on solubility and mobility of copper an incubation experiment was performed. Soil samples were spiked with standard solutions of copper, on four concentration levels (40, 80, 100 and 200ppm). Within each concentration levels, four samples, with different pH values (5.88 as real, 5.00 and 7.0) were analyzed. Additionally, redox condition were established to be aerobic, with 80% retention water potential and anaerobic. After incubation period of 30 days experiment was continued. By applying sequential extraction in four stages, with different chemical treatment and measurements of copper concentrations by FAAS afterwards, it is possible to determine different copper species and predict potential behavior in terms of adsorption, distribution and mobility.

Final goal of conducted investigation should be the discussion of potential bioavailability keeping in mind very narrow ranges of essentiality and toxicity of analyzed metal.