

ESTIMATION OF PEDOGENESIS AS A FACTOR FOR INCREASED CADMIUM IN DIFFERENT SOILS

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Cadmium is of very low crustal abundance ($0.098 \mu\text{g g}^{-1}$). It is naturally enriched in mafic volcanic rocks, while very low contents are found in limestones and dolomites. Cadmium is a relatively mobile element and during weathering goes readily into solution. Because of its chalcophilic tendency, it is associated with zinc and sulphides. An obvious approach to the chemistry of weathering is to look at the overall changes in composition from fresh rock through its stages of decay. In the Salek Valley, Slovenia, high contents of cadmium in topsoil were established. The objective was to estimate the role of soil formation process as a factor for increased cadmium levels in soils overlying different parent materials. Fifteen study localities were chosen at three most typical geological substrates in this area (andesitic tuff, clastic rocks and carbonate rocks). Cadmium and zinc contents in upper (0-5 cm) and lower (20-50 cm) soil horizon samples were analysed by ICP. The Biopurification Factor of cadmium was calculated in comparison with the nutrient element (zinc) as the ratio between rock and soil pairs. It is the highest in soils formed from andesitic tuff, somewhat lower in soils formed from clastic rocks, and the lowest in soils formed from carbonate rocks. Its evaluation indicated that pedogenesis in the Salek Valley resulted into enrichment of the soil with cadmium. In comparison with non-polluted areas the factor is around three times higher.