

ASSESSMENT OF SOME HEAVY METAL CONTENT IN THE SOILS OF VILLAGES TALAVERI, UDABNO AND THE TISSUES OF LICORICE USING MICROWAVE PLASMA ATOMIC EMISSION SPECTROMETER

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Soil contamination with heavy metals is one of the most adverse problems as long as their elevated concentration affects microbiome of the soil and normal development of plants. The mechanism of heavy metal accumulation is complex, but in some cases, plants are the best indicators of contamination.

In this study, we evaluated the concentrations of some heavy metals (Cu, Zn, Ni, Cd, Pb, Mn, Fe) in the soils of villages Talaveri, Udabno, as well as observed the distribution of metals in plant parts. Samples were air dried, ashed and wet digested with aqua regia. Subsequent analysis of heavy metals was performed with Microwave Plasma Atomic Emission Spectrometer. Part of the results is given in the table:

№	Sample	Content mg/kg						g/kg
		Cd	Pb	Zn	Cu	Ni	Mn	Fe
2	Bolnisi, Village Talaveri, 0-30cm, Exp.1	1.8	6.0	112.0	84.0	63.0	900.0	38.30
3	Bolnisi Village Talaveri, 30-60cm, Exp.1	0.98	4.0	72.0	41.0	54.0	770.0	34.90
4	Bolnisi, Village Talaveri, 0-30cm, Exp.2	0.6	3.0	86.0	59.0	61.0	900.0	37.00
5	Bolnisi, Village Talaveri, 30-60cm, Exp.2	0.4	2.0	72.0	48.0	52.0	790.0	34.40
MPL in Soils [1]		0.5	20-30	100	55	85	1500	

According to our results, content of iron, manganese and lead are within permissible range in all soil samples. Concentration of zinc in sample №2 and copper in samples №2 and №4 exceed the limit. Cadmium content in the samples № 2-4 is higher than the maximum allowed value.

Reference

[1]-MPLs Of Heavy Metals in The Soils Of Georgia, Legislative Herald of Georgia, 2003.