

ASSESSMENT OF HEAVY METALS IN SOILS AROUND THE METALLURGICAL COMBINE OF ELBASAN

Alda Biçoku¹, Beqir Kila², Seit Shallari³

E-mail: alda_bicoku@yahoo.com

Abstract

This study aims to provide and evaluate the content of heavy metals in the soil around the industrial area in Elbasan. In this region there are 281.180 ha land from which about 27 % is used for agriculture. For several decades the main source of environmental pollution in the Elbasan area has been the activity of Metallurgical Combine. There are 8 defined points for the assessment of soil pollution in the north, eastern and the south-western direction from the industrial facility. Samples were taken at different distance from the main source of pollution from 100 to 2500 m distance. Samples were taken in 0-30 cm depth. The lands that were sampled are cultivated with alfalfa, wheat, corn and fruit trees. The sample points are positioned as follows: for the first sample (S₁) 0416879E-4548837N; for the second sample (S₂) 0416787E-4548564N, for the third sample (S₃) 0416152E-4548120N, for the fourth sample (S₄) 0418035E-4550240N, for the fifth sample (S₅) 0419188E-4549669N, for the sixth sample (S₆) 0416952E-4548082N, for the seventh sample (S₇) 0415844E-4547402N and for the eighth sample (S₈) 0415094E-4546910N. The average altitude ranges from 86 to 109 m above the sea level. The following parameters were evaluated in the laboratory: particle size, humus content, pH, cadmium (Cd), chromium (Cr), copper (Cu), nickel (Ni), lead (Pb) and zinc (Zn). The soil pH was measured electrometrically with a glass electrode pH meter; the concentrations of the metals were determined by using atomic absorption spectrophotometer (AAS). The values of soil pH ranged between 7.9 to 8.3. The total content heavy metals in the average value are: Cd 2.2; Cr 573.0; Cu 452.1; Ni 478.5; Pb 380.3 and Zn 121.7mg/kg dry soil. The content of metals is significantly higher near the source pollution and decrease with increasing distance. Results indicate that the content of heavy metals in soil is high and represents a potential risk for contamination of water and food chain.

Keywords: *Soil, Pollution, Heavy metals, Metallurgical Combine, Elbasan*