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PRELIMINARY DATA CONCERNING THE SPATIAL VARIABILITY OF HEAVY METAL DISTRIBUTION IN THE TOPSOIL FROM IAŞI MUNICIPALITY, ROMANIA

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Abstract

Establishing the model of spatial variability is an essential condition for monitoring the heavy metal pollution of urban soils. We have collected 171 samples from the topsoil of Iaşi Municipality, thus determining the contents of Zn, Cu, Fe, Mn, Pb, Cd, Co, Ni and Cr. The abundance of heavy metals found in these soils has decreased as it follows: Fe>Mn>Zn>Pb>Cu>Cr>Ni>Co>Cd. The mean values of Zn, Cu, Pb, Ni and Cr were higher than the critical values of the Romanian soil quality standard. All these data have followed normal or lognormal distribution. Local background levels have exceeded in soils the normal values in the case Zn, Cu, Pb, Ni and Cr. The correlation distance of heavy metals from soil ranged from 300 m to 6732.198 m, nine heavy metals having a moderate to strong spatial dependence. The spherical model was fitted to the semivariograms of Zn, Cu, Fe, Mn, Pb, Ni, Cr, while Cd and Co were fitted to the exponential model.

Key words: soils, heavy metals, spatial variability, Iaşi, Romania

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