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## ASSESSMENT OF METAL CONTAMINATION AND ECOLOGICAL RISK IN URBAN SOILS SITUATED NEAR A METALLURGICAL COMPLEX

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### Abstract

Anthropogenic activities negatively affect the ecosystems by introducing high amounts of metals in the environment. The study assessed the contamination and ecological risk caused by As, Cd, Cr, Cu, Pb and Zn in urban soils situated near a metallurgical complex, based on geochemical load ( $I_{geo}$ ), contamination factor ( $C_f$ ), degree of contamination ( $C_d$ ), potential ecological risk factor ( $Er^d$ ) and potential ecological risk index ( $Ri$ ). The results showed concentrations above the geochemical background in more than 80 % of samples for As, Cd, Cu, Pb, Zn and 25% for Cr, respectively. The alert level for sensitive soil use was exceeded in 80 % and 5% of samples for Pb and Cd, respectively, while in 15% of samples the Pb concentrations exceeded the intervention level. The  $C_f$  indicated considerable contamination with Pb, moderate contamination with Cd, Cu, Zn, As and low contamination with Cr. The  $I_{geo}$  indicated moderate to strong pollution with Pb, moderate pollution with Cd, Cu, Zn, As and no pollution with Cr in the majority of the soils. The  $C_d$  showed low and moderate degree of contamination of soils with the studied metals. The  $Er^d$  revealed moderate potential ecological risk for Cd and low potential risk for Pb, Cr, Cu, Zn and As, while the  $Ri$  indicated a low risk for all studied soil samples.

*Key words:* contamination indices, ecological risk, geochemical load, metals

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