



Serbian Chemical Society
Serbian Young Chemists' Club



9th Conference of the Young Chemists of Serbia

Book of Abstracts

Novi Sad
4th NOVEMBER 2023



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Assessment of microplastics content in (sub)urban soils of Serbia and its correlation with Cd, As, and Pb mobility to the *Capsella bursa-pastoris* (L.) Medic

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This study investigates the presence of microplastics (MP) in the soil of (sub)urban areas of Serbia and its correlation with the mobility of toxic metals (Cd, As, Pb) to the plant species *Capsella bursa-pastoris* (L.) Medic. The density separation method with two-phase digestion (H₂O₂ and NaClO) was employed to optimize MP detection in soil samples. Eight different types of polymers were identified through ATR-FTIR spectroscopy analysis, consequently polystyrene and phosphorylated cardanol prepolymers being the most prevalent.

The results of this study reveal significant positive correlations between the presence of MP and the availability of Cd, As, and Pb to plant, suggesting a potential role of MP in the mobility of these heavy metals in soil. Additionally, a connection was established between concentration of cadmium (Cd) in under and above-ground tissues of *C. bursa-pastoris* and the concurrent presence of microplastics (MP) within the soil. This correlation indicates an increased mobility of cadmium in the presence of microplastics. Conversely, the Pb content in plants showed a negative correlation with the presence of MP in the soil, indicating complex interactions between these factors.

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