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Comparison of bioaccumulation potential of eleven pine species in low polluted ecosystem

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Forests play a pivotal role in sustaining ecosystem services. Continuous human modification of the biogeochemical cycling of potentially toxic metals, together with constant growing release, often lead to mutagenic or directly lethal health effects. Bioindicating organisms are commonly used to assess metal contamination in soil. However, there is a big gap in knowledge regarding reference stands (low polluted ecosystems), which is crucial to determine relationships between mineralogy and spatial distribution of potentially toxic metals in soil and forest stands. We evaluated bioaccumulation intensity of Cr, Cu, Mn, Ni and Zn in the 1 and 2-year old needles of eleven pine species growing in the Arboretum Mlyňany, located in an uncontaminated area of south-western Slovakia. The results were evaluated using Ward method, Euclidean distance and Kruskal-Wallis test. The results presented in our study point to a specific bioaccumulation behavior of 11 pine species under low soil pollution levels.