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BOOK OF ABSTRACTS

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Geochemical origin of Ni and Cr in ranker-type soils formed on serpentinites massifs in Serbia

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The paper presents the results of research on the content of accessible forms of Ni and Cr in the ranker-type soils that are formed on the serpentinites massifs in Serbia. Soil samples were taken from seven different locations across Serbia (Zlatibor mountain, Kopaonik mountain, Miroč, Maljen mountain, Bukovi, Suvobor and Bubanj Potok) at the altitude range between 100 and 1700 m. There were analyzed 46 soil samples in total. The concentration of accessible forms of Ni and Cr was determined by extraction in a solution of DTPA-TEA (pH 7.3, ratio soil and solution = 1:2) by optical emission spectroscopy with induced coupled plasma (ICP-OES).

The content of accessible Ni in the all examined soil samples of ranker-type soils varies from 68 - 920 mg/kg, while the most common results (about 70% of the total number of samples) vary from 200 - 600 mg/kg. The content of accessible Cr in all examined soils varies from 16 - 216 mg/kg. The content of both, Ni and Cr significantly exceeds the value limits in soils.
The results of the analysis of all soil samples of ranker-type soils refer to high concentration of accessible Ni and Cr and thus correspond to phytotoxic concentrations.
Given the fact that there are no anthropogenic sources of pollution nearby the investigation locations, it can be concluded that such a high concentration of accessible Ni and Cr in the ranker-type soils, that were formed on serpentinites massifs under the various pedogenetic conditions, is of geochemical origin. The geochemical distribution of Ni and Cr places this type of soil in the group of lithogenic soils.
Keywords: ranker-type soils, serpentinites massifs, accessible Ni and Cr, geochemical origin.