

Complexation of Pb and Zn by humic substances in contaminated soils

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The complexation capability of HA extracted from long-term contaminated and non-contaminated sites close to a lead smelter operating for over 200 hundred years in Pribram (Czech Republic) was tested by coupled ICP-AES-SEC in order investigate the effect of HA on metal mobility and bioavailability. HA from fossile deposits (Leonardite) were also considered.

Molecular weights fractions important for metal-complexing were found in the range of 2500-5000 Da where HA of Leonardite exhibited the major binding capacity. Native HA from contaminated soils demonstrated different capacities of metal complexation. Whereas HA of grassland soil moderately complexed Zn in their structure, the HA of the arable contaminated soil showed only small ability to complex Zn and the major part of the Zn added remained as free ion in the solution.