



Remediation of Kola Subarctic heavy metal contaminated soils via carbon pool regulation: link between structural characteristics of organic treatments with potential influence on soil properties and living organisms

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In short-term incubation experiment (90 days with additional preincubation) in conditions, simulating summer season in Kola Peninsula, Russia, we implemented different organic amendments — humic substances, peat-gel, biochar — for remediation of highly contaminated soils of technogenic barrens, situated in 2 and 5 km from active nickel processing industry. Unamended soils used in experiment are characterised by ablation of upper fertile soil layer, high acidity, high content of Ni, Cu, Fe, Zn, depletion of nutrients and organic matter, and, as consequence, by the absence of natural vegetation. To predict potential influence of amendments on contaminated soils and their capacity to immobilise HM bioavailable forms and improve soil health we provide data of structural characteristics with and without additional preparations evaluated by Fourier-transformed infrared (FTIR) spectroscopy and Fourier transform ion cyclotron resonance mass spectrometry (FT-ICR-MS). Our data support the idea of high importance of organic amendment structural characteristics and link these characteristics with observed soil physical, chemical and ecotoxicological properties.

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