

Formation of new radicals in humic acids upon interaction Pb(II) ions.

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The influence of lead ions on the free radical concentration and the structure of humic acids isolated from soil, peat and compost was investigated by electron paramagnetic resonance (EPR), ^{13}C cross-polarization magic angle spinning nuclear magnetic resonance (^{13}C CP MAS NMR), Fourier transform infrared spectroscopy (FTIR) and chemical methods. A new type radical is formed in humic acids upon uptake of Pb(II) ions, which has no influence on the common semiquinone free radicals observed in humic acids. The new formed radicals exhibit EPR parameters much different from those of semiquinone free radicals. The concentration of the new radicals in humic acids-Pb(II) complexes depends on the humic acid origin. Besides unidentate HA-Pb(II) complexes the investigated humic acids can bind Pb(II) by bridged structures.

Słowa kluczowe

Humic acids, Pb(II), EPR, Semiquinone free radicals, ^{13}C CP MAS NMR, FTIR

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