



0.1 Effect of redox potential on iron and manganese release from peat soils

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The aim of this paper was to investigate release of Fe^{2+} and Mn^{2+} in to the soil solution from peat soil under flooded conditions in relation to redox conditions. Study were performed on three kinds of peatlands from Łęczyńsko-Włodawskie Lake District in the east part of Poland. Concentration of Fe^{2+} were determined by FAAS and Mn^{2+} with GFAAS technique (Z-8200 Hitachi Spectrophotometer).

It is known, that in saturated conditions iron and manganese can form no soluble complex with phosphate ions. When there is lack of oxygen that complex become decomposed and supply Fe and Mn ions into the soil water. Our investigation shown, that when Eh potential decreased below -200mV , that processes proceed the most efficiently. Further decrease of Eh lead to reduction of sulphate, which next can precipitate FeS .

The highest concentration of Fe^{2+} and Mn^{2+} ions in the soil solution was observed in samples taken from subsurface layers on the level 10 mg dm^{-1} in Moszne peatland, whilst the highest content of Mn^{2+} ions up to $90\text{ }\mu\text{g dm}^{-1}$ in Moszne and Orłowski peatlands what was observed after 20 days. Realized investigation indicated significant influence of redox potential on Fe^{2+} and Mn^{2+} release into the soil solution at -130 and -170 mV respectively.