



The effect of peatland on limiting nitrogen expand in agricultural landscape

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The function of peatland as biogeochemical barrier was evaluated. Organic soils and ground water from wells located on the transect 4.5 km long of the peatland of Agroecological Landscape Park host D. Chlapowski were investigated. There are these investigated points along to Wyskoc ditch. Two forms of organic carbon (total and dissolved; TOC and DOC), N-total, pH were analyzed in both water and soil samples. Additionally, humic (HA) and fulvic (FA) acids were isolated in soils and E_4/E_6 estimated. In ground water $N-NO_3^-$ and $N-NH_4^+$ were determined. In soils the concentrations of TOC ranged from 14.7% to 36.4%, DOC from 0.22% to 0.56%, N-total from 1.54% to 2.82%. The increase of TOC/N-total ratios were connected with degree of the secondary transformations of soils. The values of E_4/E_6 of HA indicated good agreement with the degree of secondary transformation of peat. The highest secondary transformed peat characterized the lowest developed structure and the highest content of labile fractions. Contrary was revealed for the lowest secondary transformed peats.

In ground water the concentrations of N-total ranged from 8.59 mg/l to 11.39 mg/l, $N-NO_3^-$ from 0.32 mg/l to 0.52 mg/l, and $N-NH_4^+$ from 2.74 mg/l to 6.23 mg/l.

Peatland decreases the concentration of the following compounds: nitrates 38.5%, N-organic 10%, N-total 24.5%, ammonium 38.7%, dissolved total carbon 33.1%, dissolved total inorganic carbon 10%, dissolved organic carbon 57.5%.

This investigations suggest the function peatland as biogeochemical barrier on the increase of the quality of ground water.