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The function of temperature on the release of dissolved organic matter from muck

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The evolution of hydrogenic peat soils is closely related to the genesis of peat and to changes in water relations. The chemical composition of peats depends on the geobotanical conditions of their formation and on the depth of sampling.Due to a number of factors including oscillation of ground water level, changes of aerobic conditions, different plant communities, root exudes and products of degradation of rest of plant remains, peat-muck soils may undergo a process of secondary transformation.

Six samples taken from 5-10 cm layers of peat-muck soils of different degree of secondary transformation were taken from Polesie Lubelskie and Biebrza River Valley (Noth-East of Poland) used as meadows, in various phases of the mucking process were studied.

The investigations were carried out at two temperatures 293K and 363K. Organic matter dissolution rate from six peat muck samples of different humification degree and water absorption index was studied. The process of humic materials release in aerobic alkaline solutions was interpreted according to the first-order reaction model. The first order reaction constants estimated at 293K ranged from 1,1547 to 2,1001 10^3 s^{-1}, but at 363K ranged from 0,3004 to 0,7044 10^3 s^{-1}. The results revealed that the release of organic matter from peat soils seems to depend on the degree of the secondary transformation.

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