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Humic acids and transformation processes of structure, peat water properties, peat soils under their dehydration-rewetting

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At the basis of the processes of structure transformation , water properties of peat systems (PS) during their dehydration (drying) or, on the contrary, humidifying there are mainly surface-like phenomena , namely: capillary forces; processes of interphase interaction (wetting), moisture, ions transfer in thin films, etc. Peat, peat soils are composite systems , containing basically humified vegetative residues in which, as a rule, humic matters (substances) prevail (HS) representing unstructured organic formations of natural origin with a wide spectrum of ion-exchange centers, functional groups. Humic acids (HA) is a HS base component . It means, that having found specificity of the mechanism of HA action on PS physical and chemical properties it is obviously possible to operate properties of the last.

In the course of agricultural use associates of peat in tillage horizon of peat soils are periodically exposed to drying-humidifying, i.e. periodically form compact structures at drying (being on a soil surface), and then periodically are exposed to the destruction at humidifying (being in sub-tillage horizon).

Similar transformation of TS structure results in peat degradation and, as consequence, soil peat degradation, so, it activates their wind erosion, worsens agrophysical characteristics and, first of all, water properties. Rational use of peat soils obliges a science to working out actions to minimize organic substances of peat mineralization, i.e. minimizing CO_2 sink and other derivatives of carbon into the atmosphere, subsoil waters.

HA, TS transformation regularities at their dehydration -humidifying have been investigated by applying various methods of physical and chemical analysis.