



Physico-chemical properties of humic acids isolated from high peat

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Thorough analysis of particular groups of compounds making the peat mass is expected to permit determination of the physico-chemical properties of peat and its optimum use in medical therapy.

In this study such an analysis was made of humic acids. The humic acids isolated from high peat were subjected to electrophoretic separation in a tissue. The acids were found to be a mixture of particles differing in the size and mass. They were electrophoretically separated into three fractions differing in the rate of migration towards the positive pole. Further studies were made on the acids making the central fraction as it made about 85% of the whole mass of the acid sample studied. In order to confirm its identity the fraction was subjected to physical and chemical tests including: X-ray analysis, thermal analysis (DSC) and IR spectroscopy. At the next stage of the study, the surface area, porosity and pore volume of the acids were determined by the method based on the low-temperature nitrogen adsorption and desorption. The size of the acid molecules was determined by the granulometric method by measurements of the scattered laser radiation. Moreover, the ion-exchange properties of the acid fraction studied and their sorptive capacity were also estimated.

The results permitted drawing the following conclusions:

- The central fraction of humic acids isolated from high peat mass makes about 85% of the total mass of humic acids sample.

- The values of the parameters determining the texture of the humic acids from the central fraction of those isolated from high peat do not differ significantly from those determined for non-separated humic acids.

The central fraction of the humic acids isolated from high peat mass is responsible for the sorptive and ion-exchange properties of the humic acid sample not subjected to electrophoretic separation.