



Soil organic matter and its quality some biochemical aspects on vaccinaceae growth areas on exhausted milled peat area

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After the intensive peat production in Estonia is 22,000 - 24,000 hectares of peat bogs which were involved in active peat procession. A number of experiments have been conducted to recultivate opencast peat pits with different plant species. However, neither agricultural activity nor forestation has gained major success owing to high water level, the poorly decomposed uppermost layer and the variable environment of the rhizosphere of peatlands. In the current economic situation, arable peatlands are not profitable to use either for agricultural activities or forestation. Despite the presence of a natural seed bank in the uppermost peat layer, germination and later growth of young seedlings are very low. One possibility to use such abandoned areas is to recultivate them with species with are stress tolerant and whose natural growth habitat is similar to peatland. Therefore, it is reasonable to investigate the possibility of recultivation of opencast peat pits with acidophilic ericaceous species. The peat soil quality as a key component of soil affects biochemical, a chemical, physical and biological process that occurs there. The quality of peat soil will influence its production capacity, which is one of the most important indicator and motive force for different processes in soil. It is known that biochemical compounds of soil, root exudates, the products of the decomposition of plants have important influence on organic matter decomposition and mineralization and may affect the availability of nutrients necessary for growth of plants. Moreover they are significant for soil properties development and crop yield and soil productivity. The paper focuses on exhausted milled peat areas grown plants of *Vaccinium* family. These specimens are believed to live in symbiosis and produce extracellular enzymes that decompose organic matter. The major contribution of the fungi is in nutrient uptake and translocation of chemical compounds. However it is

apparent now that proper carbon compounds as the main substrates for growth are not plentiful in soil, and that locations such as the root surface, where exudations and sloughing of tissue provide continuous supplies of readily available carbon substrates, are inevitably occupied by active populations. Regulators of plant growth called phytohormones such as amino acids and vitamins have been previously believed to be very important for the crop yield and soil productivity. Indole-3-acetic acid seems to play a key function in nature as it influences regulation of plant growth and its development. Moreover this compound affects root morphology and metabolic changes in the host plant. The physiological impact of this substance is also involved in many intrinsic stages of plant development. The main goals of the paper are: (1) to present the experimental results of peat biochemical aspects in *Vaccinium* species habitat on exhausted milled peat area. (2) to discuss how plant roots exudates and plants growth hormone indole-3-acetic acid influences peat soil quality under the cultivation conditions of *Vaccinium* species on exhausted milled peat area. (3) to give the description of the relationships between plantcover and soil properties in *Vaccinium* species habitat under the cultivation conditions.