MEASUREMENT OF SOIL TOTAL ORGANIC CARBON CONTENT WITH OXIDATION METHOD AND BY REGESTERING THE AMMOUNT OF CARBON DIOXIDE RELEASED

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The soil total organic carbon content was measured by using the wet oxidation method (Tjurin's method) and by registering the amount of carbon dioxide released. Several agricultural soils as well as native soils were studied. The soil samples were collected in Belogorka (Leningrad region) and Borki (Novgorod region). Twenty six soil pits with soils under different land use were described: arable soils, and soils from allotments, greenhouses, leas, grasslands and forests. Based on the results of the measurements the level of inter-molecule oxidation of the soil organic matter was calculated. It was shown that the results received for the same soil by the two methods could differ quite a lot. The difference was explained by the level of inter-molecule oxidation of the soil organic matter in the studied soils. The results demonstrated that down the soil profile together with increasing level of inter-molecule oxidation of the soil organic matter the amount of soil total organic carbon was decreasing. The level of inter-molecule oxidation of the soil organic matter was affected by such parameters as soil texture, soil mineralogical composition, plant residue composition and climate parameters.

Keywords: Spodosols, soil total organic matter, oxidation method, carbon dioxide release, level of soil organic matter inter-molecule oxidation.