



Thermal analysis techniques in the characterization of C stability in soil

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Determination of organic C stabilisation in soil is a current issue in soil science, since there is not a unique and direct analytical method due to complexity of the soil system. Mineral and organic components are strictly interconnected, and few techniques are able to discriminate them. Methods of thermal analysis can furnish suitable information, since organic and inorganic C compounds show different thermal stability and decompose at different temperatures. Differential Scanning calorimetry (DSC) reveals qualitative shifts in the thermostability of soil organic matter fractions, including clay-associated organic matter, whereas thermogravimetry (TG) allows to estimate the relative abundance of the thermally more active and more stable fractions. Suitable thermostability indices deduced from DSC/TG measurements can relate thermal behaviour of soil organic fractions to C turnover in soil according to specific land use. Some cases-studies will be presented along with methodological problems related to a wider application of these techniques and to evaluation of experimental results.