



## **The properties of native SOM in undisturbed soil aggregates as revealed by coupled LTA-PAS-FTIR approach**

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Low-Temperature Ashing (LTA) by oxygen plasma has been used for removing soil organic matter (SOM) from the mineral matrix of soil aggregates with minimal disturbance and damage to the inorganic constituents. This technique allows a controlled oxidation at low temperature of organic substances of undisturbed soil aggregates. LTA removes SOM, layer by layer, without altering or damaging the residual layers, like a peeling of onion skins as a function of the time and the applied power discharge. When PAS (Photoacoustic) - FTIR spectroscopy is coupled with LTA, it is possible, at each step, to obtain spectroscopic evidences of the residual OM layers and, by difference, the spectra of the removed SOM. PAS-FTIR spectroscopy allows to obtain IR spectra from the surface of irregular tri-dimensional specimens. Therefore, the coupled LTA-PAS-FTIR approach can be useful in understanding the nature of SOM as well as the surface interaction of native OM in undisturbed aggregates with xenobiotics and macromolecules of biological interest.

Two case studies are reported: dispersing or stability properties of OM in undisturbed aggregates from a tropical crusting soil and the role of native SOM of soil aggregates on adsorption of Recombinant Prion Protein (RecPrp).