SPECTROSCOPY CHARACTERISTIC OF HUMIC FRACTIONS IN AMAZON SPODOSOL USING EEM-CP/PARAFAC

TADINI, Amanda Maria[1,2,3]; MOUNIER, Stéphane[3]; MILORI, Débora Marcondes Bastos Pereira Milori[1];

[1] Embrapa Instrumentation, São Carlos, SP, Brazil; [2]InstituteofChemistryof São Carlos, Universityof São Paulo, São Carlos, SP, Brazil; [3]Laboratoire PROTEE, Université de Toulon - CS 60584, 83041 Toulon, Cedex 9, France - *email: debora.milori@embrapa.br

The Amazon forest provides important services to humanity, such as high biodiversity, climate regulation, carbon sequestration and regulation of water cycles and nutrients. Soil organic matter (SOM) plays an essential role in environmental sustainability, particularly in the carbon cycle in the soil, which has attracted considerable interest due to the accumulation/carbon sequestration in soils. The main components of SOM are humic substances (HS), which does not have chemical characteristics entirely well known. Usually, the HS are fractionated in humic acid (HA), fulvic acids (FA) and humin (HU) according to their solubility. The amount of organic carbon stored in the surface layer (0 to 1.0 m) in hydromorphic podzols the upper Rio Negro is 86.8 ± 7.1 kg cm -2 for all soils and corresponds to 13.6 ± 1.1 Pg of the Carbon (Montes et al., 2011). SOM in these soils are not homogeneous, and studies to evaluate the dynamics of this matter are relevant, especially in this ecosystem that is considered one of the most important carbon sinks in the world (Cerri et al. 2000). The determination of the optical properties of organic matter is an essential method for understanding their chemical structure. This study aimed at the structural and molecular characterization of fractions of humic substances extracted from Amazonian soils, through the technique of fluorescence in the mode emission-excitation (EEM) with Parallel Factor Analysis (CP/PARAFAC). The study area is located in the Barcelos, in the Basin of Demeni River, a tributary of the middle Rio Negro and the soils classified by with Spodosols (0-390 cm). The results have shown, the humic fractions by four Spodosol Amazon, they have a contribution of two components (CI and CII), which present different degree of electron delocalization. The results had shown that fulvic acids present more abundancy of CI component and they were more selective regarding metal complexation, having high affinity specially the Al. As a function with their high soil mobility, the FA must have an important role in the process of podzolization. On the other hand, humic acids present more quantity of component CII and, they have an affinity with Fe and several elements. For this reason, probably they play an import role in soil fertility. (Tadini et al., 2018)

Acknowledgment: FAPESP (2013/13013-3)

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