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Contribution of Humic Substances from Different Composts on the Content of Humin in a Tropical Soil

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The mineralogical nature of the soil, as well as the quantitative and qualitative characteristics of humic and fulvic acids present in the composts may affect both the reactivity and the stability of humic substances (HS). Due to their recalcitrant structures and their interaction with the soil mineral matrix or occluded intra-aggregates, the hydrophobic HS become more resistant to microbial degradation, they persist longer time in the soil. The alkyl groups of hydrophobic character in this humic acid fraction of composts can role the incorporation of this humic fraction to the humin fraction of the soil. To evaluate this proposition it was added increasing doses (0, 13, 26, 52 e 104 Mg ha^{-1}) of five different composts in an Oxissol soil. The following wastes were used to obtain five composts: sweet cane bagasse (SCB), ashes of sweet cane bagasse (ASCB), poultry manure (PM), filter cake (FC) and castor oil plant residue (MR). The mixtures were as follows: a) SC: SCB+ASCB+PM (3:3:2); b) AS: SCB+ASCB+PM+ mineral fertilizers NPK (3:3:2); c) SM: SCB+ASCB+PM + serpentinite and micaxist powdered rocks (3:3:2 + 62.5 kg t^{-1}); d) FC: SCB+FC (2:1); and e) MR: SCB+MR (2:1). These composts were characterized chemically by ^{13}C NMR, and estimated the quantity of functional alkyl groups of humic acids applied to the soil as composts. Thirty days after application of the treatments, soil samples were collected, and the organic matter fractionation in humic acids (HA), fulvic acids (FA) and humin (HU) were analyzed, and it was calculated the HA/FA and (HA + FA)/HU ratios. There was predominance of FA in relation to the HA after application of increasing doses of different composts to the soil, although they had higher levels of HA than FA; the application of the compost M-G contributed to obtain higher levels of HU in the soil; the incorporation of organic components to the fraction HU was governed by the content of alkyl groups of HA fraction of the composts.

***Keywords*:** Humic substances; compost; tropical soil.