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Characterization of Histosol - Proposal to the Brazilian Soil Classification System.

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Among the soil classes in Brazilian territory Organosols (Histosols) occur in a small territorial extension, although they have a high agricultural usage, mainly for horticulture, and great environmental importance as well. This study was based on data from soil profiles sampled and described in soil surveys, scientific and technical papers, mainly from Embrapa and researches in Brazilian Universities, including various regions of the country. In addition, 19 soil profiles were sampled and collected for this project. The general objective of this study is to better characterize Histosols in Brazil, and to indicate taxonomic criteria. The following morphological, physical and chemical properties were evaluated: Munsell soil color, consistency, structure, density, rubbed fibers, organic matter decomposition degree, amount of organic C, organic matter, N, P, sum of bases, CEC, base saturation, acidity, humic fractions, among others. The Embrapa methods were used to analyze soil samples, and the profiles were collected and described according to SBCS. Within the attributes applied to characterize organic soils, the minimum residue was shown efficient to evaluate the soil subsidence potential. Correlation among the different properties, mainly with the content of C, was established. It was noteworthy the correlation of organic C with soil bulk density, N content, and acidity. Also, lack of correlation with clay content and assimilable P. Different methods of C content determination were tested, for comparison to each other and with organic matter determined by combustion in the oven. The fractionating of humic substances in fulvic acid fraction (FAF), humic acid (HAF), and humin (HUM), and the ratios HAF/FAF and alkaline extract/HUM, indicated differences among soil profiles. The contents of C in the different fractions were correlated with soil properties. Unlike HAF and HUM, there was a low correlation of FAF with C content. HAF presented high correlation with soil CEC, and FAF was best correlated with soil fertility properties, such as sum of bases and N content; however, there was no correlation with pH in water value. Since the HUM fraction is composed of true humin and light organic matter, both insolubles in alkaline solution, it was observed correlation of HUM with rubbed fiber content. Content of humic fraction was shown to be efficient, with other soil properties, in grouping of profiles when applied principal component analysis, as well as for classification of Histosol in inferior categorical levels. The profiles sampled for this project were characterized and discussed individually or together, by presenting their main attributes, classifying according to Brazilian System of Soil Classification, Soil Taxonomy, and FAO. Suggestions for soil classification in different categorical levels are also presented.

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