

Impact of subsurface terric materials on the composition and behavior of histosols

ABSTRACT

Approximately 13% of the land area of Sarawak , Malaysia is covered by Histosols. Recent land and agricultural policies encourage utilization of Histosols for agricultural purposes to meet the national food requirements. Increasing stress on this ecosystem requires a better understanding of the resource and its behavior. Mineral terric substrata are common in many Histosols. A transect of 50 m at Kota Samarahan (Sarawak) was selected for this study to evaluate the impact of terric materials on the properties of the overlying organic tier. Six basic forms of subsurface discontinuities were recognized: symmetrical dome, asymmetrical dome, flat top, flat base, orthogonal and irregular. The degree of horizonation was different in all the soils. The pH of the soils was quite similar. All soils had net negative charges that increased with depth, however, the actual amounts of net charges varied between the soils. The soils had negligible amounts of exchangeable cations. The fiber contents, cation exchange capacities, FTIR spectra and Cue' adsorption studies showed critical differences. Despite the fact that these soils are mapped as one mapping unit, major differences in critical properties are expected to influence the behavior and performance. Variations in subsurface discontinuities cast some doubt on the reliability of conventional mapping techniques in such soils. The information generated is very useful to improve soil survey procedures and the subsequent use and management of these soils.

Keyword: Terric material; Histosol; Sapric; Hemic