

Phenol and Sugar Distributions in Mangrove Plants and Peats from Guadeloupe (FWI)

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The present work is focused on the molecular degradation of ligno-cellulosic constituents along 2-metres deep profiles in tropical mangrove peat-bogs developed along the littoral of Guadeloupe.

As attested by the variation of phenols contents (analysed by capillary zone electrophoresis) with depth, lignin decomposition occurs in the upper centimetres of the series. The evolution of the total sugar content (have been identified and quantified by Gas Chromatography, as TMS derivatives) with depth evidences the early decomposition of hemicelluloses and cellulose. The polysaccharide degradation is particularly marked in the zones which are seasonally submitted to oxic events. Contrary to the total monosaccharides content which decreases with depth, those of rhamnose which increase slightly, denote a most probable microbial origin. At about 40-50 cm depth, the decomposition of carbohydrate and lignin is fairly complete : this depth coincides to the lower level of the water table which plays a large role in organic preservation as shown by elemental, isotopic and optical composition of the organic matter.

Buried samples, with radiocarbon ages > 1000 years B.P., exhibit higher total phenols and lower (Ac/Ald)/V ratios, that is in agreement with previous studies suggesting that these deep levels would contain a better preserved OM. They would belong to an ancient mangrove system developed when the base level was higher. However, despite these more favourable conditions, sugars have not been preserved.