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PHYSICO-CHEMICAL CHARACTERISTICS OF MANGROVE SEDIMENTS: TOK BALI, KELANTAN

By

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" U might think that what you did form was a little thing because you do so much for others all the time, but it is rare to find people as considerate and thoughtful as U"…..

ABSTRACT

This study was carried out on sediments obtained around the Tok Bali mangrove area in Kelantan, in order to characterize their physico-chemistry. The physico-chemical properties that were investigated included particle size distribution (PSD), particle density, moisture content, pH, organic matter, organic carbon and nutrient content in sediments. Grain size analyses using hydrometer method revealed that the sediments are sandy loam, loamy sand and sandy clay loam as the main textural classes. For the particle density value, the results ranged from 1.73 to 2.16 gcm^{-3} which is comparable to standard value which is 2.65gcm^{-3}. Moisture content values of the studied samples are 0.794 to 2.794%. For the chemical characteristics, pH ranged from 5.86 to 6.27 which are acidic. The sediments seem to have a low attenuation capacity as a result of their physico-chemical and mineralogical properties. The amount of organic C contained in a studied samples range from 2% to 5 % which shows balance between the rate of deposition of plant residues in or on soil and the rate of mineralization of the residue C by soil biota. Nitrogen is a major nutrient in mangrove of Tok Bali, which are cover the value of 3.448% to 8.930 %, and often controls primary productivity in the whole ecosystem.

ABSTRAK

Kajian ini dilakukan di sekitar kawasan hutan paya bakau, Tok Bali, di negeri Kelantan. Ia bertujuan untuk menkaji sifat fizikal dan sifat kimia sedimen yang merangkumi analisis terhadap taburan saiz partikel, densiti/kepadatan partikel, kandungan kelembapan tanah, pH tanah, kandungan bahan organik dan peratusan karbon organik serta kandungan nutrien dalam tanah. Melalui analisis saiz butiran sedimen menggunakan kaedah hydrometer di hutan paya bakau Tok Bali ini, menunjukkan tekstur bagi sedimen adalah dari jenis lom berpasir, pasir berlom, dan lom liat berpasir. Bagi densiti partikel, nilai yang diperolehi dari analisis adalah dari julat antara 1.73 hingga 2.16 gcm^{-3}, dan adalah signifikan jika dibandingkan dengan nilai standard iaitu $2.65gcm^{3}$. Kandungan kelembapan tanah di hutan bakau tok bali ini adalah antara 0.794 sehingga 2.794. Analisis yang dijalankan juga jelas membuktikan bahawa kawasan kajian adalah dari jenis berasid iaitu antara julat 5.86 sehingga 6.27. Jumlah karbon organik di kawasan kajian ini adalah 2% to 5 % yang juga menunjukkan keseimbangan antara kadar pemendapan sisa-sisa pokok sama ada di dalam atau di atas tanah dengan kadar pembentukkan mineral dari sisa-sisa karbon oleh biota tanah. Daripada kajian ini juga, dapat membuktikan bahawa nitrogen adalah sebagai kandungan nutrien yang utama (3.448 % to 8.930 %), dan sekaligus memainkan peranan penting dalam mengawal produktiviti primer di kawasan hutan paya bakau, Tok Bali.