

Assessment of carbon stock at oil palm plantation in Klias Peninsular west coast of Sabah

ABSTRACT

The assessment of carbon stocks in oil palm plantation were carried out in the Klias Peninsular West Coast of Sabah. The geological setting of the oil palm plantation mainly consists of Crocker Formation and Quaternary Alluvium which in mainly composed of peat soil. The peat soil from 10 sites was collected for the carbon percentage values and physico-chemical analysis. The geophysical surveys were performed to measure the thickness of peat deposits and the water table, which influenced the value of carbon stocks. The geochemical analysis of the peat soil at 0.5m depth shows an acidic pH value (3-4) and a high organic matter (30-100) %. The results of the geophysical surveys show the water table in oil palm plantation ranging from 0.3m-1.5m. Moreover, the thickness of peat as carbon storage at oil palm plantation varies from 0-6m. The bulk density obtained at selected depth varies from (0.09-0.59) g/cm³. The carbon stock in oil palm plantation is calculated around 50 tanC/ha - 900 tanC/ha. Site OP7 shows the highest carbon stock (947.73 tanC/ha) compared to site OP1 (91.33 tanC/ha). The high estimated carbon stocks resulted from a high-water table and a thick layer of organic matter.