Heat content and burning time of tropical peat

ABSTRACT

Peat composes of organic matter and easily drying out during the dry season. This situation will result in a smouldering fire in peat swamp forest especially with the help of El-Nino phenomenon and eventually will destroy home for endangered species such as Orangutan. It is important in order to study the effect of forest fire on peat thermal properties. The study was conducted in Binsuluk Forest Reserve, Sabah, Malaysia, The aims of this study were to measure the heat of content and burning time of peat at a different level and to find the relationship of the heat of content in Binsuluk Forest Reserve. Samples of burnt peat were taken using an auger at 1.5 m, 2.0 m, 2.5 m and 3.0 m depths. The peat samples were tested for heat of content (MJ Kg-1) and burning time (minutes). Results shown that peat has a higher heat of content at a depth of 3.0 m with 51.65· 2.07 MJ Kg-1 and lower heat of content at 2.5 m depth with 49.60· 0.46 MJ Kg-1. Burnt peat takes longer time recorded at 3.0 m peat depth with mean value of 127.20· 1.88 minutes and the shorter time recorded at the depth of 1.5 m with mean 101.40· 0.51 minutes. Thus, these data suggest that increases in the heat of content of the peat can increase the time for the peat to completely burnt. The heat content and burning time were perhaps influenced by the moisture content of the peat in Binsuluk Forest Reserve with range of moisture content between 209.88· 0.18 % to 1013.51· 1.39 % . The informat ion on thermal properties of peat in Sabah is important for the forest managers and researchers to get an idea of the impact of forest fire on peat and can create better management on the peat swamp forest area.