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Biogeochemistry of Toxic Gas in The Aquatic Subsystem of Selected Peat Swamp Area in Kuala Pahang

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Abstract

Peat land is formed by the accumulation of partially decomposed and undecomposed organic material such as mosses and plants under anaerobic waterlogged situation, it is considered as the most dominant type of organic soils that formed under wetland conditions through centuries [1]. When dead plants are unable to decompose in the flooded environment, it will build up the partially decomposed organic matter which will form dome-shaped "ombrogenous" raised bogs which have ability to absorb and hold water by capillary forces [2]. In this situation, the aquatic subsystem in peat swamp area can be affected due to the chemical breakdown process slower than the production of biomass. Through this study, the biogeochemistry of toxic gases in peat land including Sulphur Dioxide (SO_2), Carbon Monoxide (CO), Nitrogen Dioxide (NO_2) and Ozone (O_3) are analysed by using Aeroqual AQM 65 instrument. All the data recorded are then being converted into Air Pollutant Index (API) value which is recognized by US National Ambient Air Quality Standards (NAAQS) by using a specific mathematical formula. Moreover, the target study place is located at Kuala Pahang, Pekan where contains copious of peat swamp areas. The trends of biogeochemistry of toxic gases at peat swamp area for the past whole year are demonstratively reviewed through graphical representation in this context for identifying the air quality condition at peat swamp area.

Keywords: Air pollution; Peat swamp area; Toxic gases.