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LANDSCAPE HETEROGENEITY OF DISSOLVED ORGANIC CARBON (DOC) CONCENTRATIONS WITHIN TROPICAL PEAT LANDSCAPES AND LINKS TO HEAVY METAL MOBILISATION

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Tropical peatlands are globally significant carbon stores. To date, many studies have shown the impact of conversion of peat swamp forests (PSFs) into agriculture and the associated C emission from peat soils with clearance and drainage. Yet losses from fluvial carbon have so far received little attention. Fluvial C plays an important role as a transfer pathway of carbon between the terrestrial, freshwater and eventually marine C pools. However in addition to this, it forms a vector for mobilisation of micronutrients such as Iron (Fe) and other trace elements, between those same pools. Yet the heterogeneity of fluvial C concentrations in relation to land use type has not been addressed in any detail, nor has the role of these low oxygen, low pH, dissolved organic carbon (DOC)-rich ‗blackwaters‘ in mobilising and transporting heavy metals within tropical peat catchments in relation to this landscape heterogeneity. Here we present data on DOC concentrations across peat drainage systems in Selangor, Peninsular Malaysia and link these data to seasonality, landscape heterogeneity and heavy metal concentration gradients. Links to rice and oil production and potential implications to catchment food safety are made.

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