

Climate and geochemical controls on soil phosphorus in Bornean tropical rainforest soils

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Phosphorus (P) is a major limiting nutrient controlling primary productivity in terrestrial ecosystems especially on highly-weathered soils. It was recently suggested that P depletion during soil weathering may also control long-term ecosystem evolution and plant species diversity. However, the connection between soil P forms and availability, forest productivity, and other ecosystem properties remains uncertain. The stock and chemical forms of soil P in ecosystem development is a fundamental issue because it affects plant and microbial strategies for acquiring P.

Here we examined how climate and parent materials control soil P in tropical rainforest ecosystems on Mt. Kinabalu, northeastern Borneo. We selected the sites developed on two chemically-contrasting rock types (ultramafic igneous and acidic sedimentary rocks) along an elevation gradients. We will present the results of soil P concentration (relative to C and N) as well as P forms assessed by liquid-state ³¹P NMR spectroscopy using NaOH/EDTA extracts.

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