

Elemental concentrations in a tropical montane rain forest in Sri Lanka

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Abstract

As a preliminary to studies on biogeochemistry of a tropical montane rain forest at about 1800 m altitude in Sri Lanka, the concentrations of 17 chemical elements in different forest compartments, i.e. in leaves of six floristically dominant tree species, undergrowth, litter, and soil at 0–10 cm and 11–60 cm depth were determined. Foliar chemical differences between species were large. Mean leaf water content, mean leaf area per leaf, and specific leaf weight of each species were also determined. Calcium seems to be used in relatively large quantities by these plants. Phosphorus concentration in all compartments was consistently low. A few species investigated appeared to concentrate aluminium and silicon at high amounts. Concentration differences between compartments were significant only for certain elements. Location effect on the concentrations in soil was considerable for most of the elements studied. When studying plant-soil chemical interactions in these forests, species-level concentrations must be taken into account as the species-specific chemical differences are obscured when treated as canopy leaves.
