PHENOLOGY AND NUTRIENTS OF LITTERFALL OF SOME DOMINANT TREE SPECIES IN SINHARAJA RAIN FOREST

R.M.U. Senerath*, I.A.U.N. Gunatilleke*,
M.K.S.A. Samaraweera** & J.M. Anderson***
*Dept. of Botany, University of Peradeniya,
**Rubber Research Institute, Agalawatta,
***Dept. of Biological Sciences, University of Exeter, UK.

Litterfall and its nutrient release through decomposition play a major role in the transfer of energy and nutrients from the vegetation to the soil in forest ecosystems. Litterfall studies in Sinharaja rain forest were carried out to understand the phenology of litterfall and its contribution to ecosystem functioning.

Fortnightly collections of litterfall (> 2mm diameter) from litter traps (1m above ground level) and ground quadrats of 0.5 x 0.5 sq.m size made over a period of one year (Dec. 1987 - Dec. 1988) estimated a total small litter input of 8.40 mt/ha/yr in litter traps and 10.46 mt/ha/yr in ground quadrats. While leaves contributed most of the litterfall in both litter traps and ground quadrats (76% and 72% respectively) twigs contributed 14% and 19%, respectively, and the litter fragments (trash) contributed the remainder.

Leaf litter collections when separated into individual plant species, some dominant canopy species such as Palaquium petiolare (Sapotaceae) Shorea cordifolia and Shorea disticha. (Dipterocarpaceae) showed a single distinct peak in litterfall during the relatively dry period of March and April. Still other species, such as Cullenia rosayrona (Bombacaceae), Mesua nagassarium (Clusiaceae), and Palaquium thwaitesii (Sapotaceae) showed no distinct seasonality in litterfall.

Macro-nutrient levels of quarterly bulked samples of leaf litter showed little variation in % N (0.79 - 0.83), but larger variations in % P (0.014 - 0.032), % K (0.11 - 0.22), % Ca (0.67 - 0.94) and % Mg (0.22 - 0.41) between different quarters of the year. Twig litter showed the following variations in nutrient contents in different quarters of the year. % N (0.8 - 1.9), % P (0.015 - 0.050), % K (0.085 - 0.156), % Ca (2.26 - 2.69) and % Mg (0.37 - 0.64). The Corresponding values for trash were % N (1.1 - 1.2), % P (0.04 - 0.07), % K (0.11 - 0.14), % Ca (0.94 - 1.14) and % Mg (0.16 - 0.84).

These results indicate that some seasonality do exist in the litterfall of at least some rain forest species which may influence the distribution and timing of nutrient input to the forest floor. Such nutrient fluxes may in turn, have an influence on species distribution in this ecosystem.

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