

CHEMISTRY OF LEAF LITTER OF SOME AGRO-FORESTRY SPECIES IN SRI LANKA

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Decomposition of leaf litter is a major process in the nutrient dynamics of agroecosystems, which is intricately governed by the litter chemistry. The chemistry of leaf litter determines both the time course of decomposition and the nutrient release pattern. There are many agroforestry species in Sri Lanka, but information available on their litter chemistry is scanty. Such information proves useful in identifying appropriate agroforestry species for developing sustainable agroecosystems. Therefore studies were carried out to determine the concentrations of nutrients (% N, P, K, Ca and Mg), lignin and cellulose of nine agroforestry species in Sri Lanka, viz., *Acacia auriculiformis*, *Acacia mangium*, *Giricidia sepium*, *Macaranga peltata* (Kande), *Altonia scholaris* (Alstonia), *Artocarpus integrifolia* (Jak), *Artocarpus altilis* (bread fruit), *Terminalia cattapa* (Indian almond), and *Mangifera indica* (mango).

Considerable interspecific variation in the above parameters was observed in the leaf litter. As regards the per cents of N, P, K, Ca and Mg, the values observed varied from 0.395 - 1.92, 0.025 - 0.171, 0.16 - 0.95, 1.76 - 2.57 and 0.22 - 0.51, respectively. The highest concentration of N was in *G. sepium* while *A. altilis*, *A. altilis*, *A. integrifolia* and *A. schoars* had the highest concentration of P, K, Ca and Mg, respectively. This underlines the importance of introducing diverse species (biological diversity) in order to establish a balanced fertility regime. *M. indica* and *A. mangium* had the highest concentration of lignin (22.99 %) and cellulose (32.76 %), respectively. A salient feature in the leaf litter in *M. indica* was that, it had the lowest concentration of N (0.395 %) and cellulose (14.59 %) and the highest concentration of lignin (22.99%). These data prove useful in identifying a suitable combination of agroforestry species for sustainable soil fertility management.