B-43 Decomposition and nitrogen dynamics of leaf litter of some major agroforestry species in the low country wet zone of Sri Lanka

M K T K Amarasinghe, R Senaratne
Dept of Crop Science, Faculty of Agriculture, University of Ruhuna, Mapalana, Kamburupitiya

Time course of decomposition and nitrogen release pattern of leaf litter of *Gliricidia sepium, Acacia auriculiformis, Acacia mangium, Macaranga peltata* (kande), *Alstonia schoralis* (Alstonia), *Artocarpus heterophyllus* (Jak), *Artocarpus altilis* (Breadfruit), *Terminalia catappa* (Indian almond) and *Mangifera indica* (Mango) were investigated using litter bag technique. *G. sepium* had the highest initial N concentration (1.92%) while *M. indica* had the lowest (0.395%). Considerable interspecific variation in decomposition and N release pattern were evident among the litter types.

The leaf litter of *G. sepium* lost as much as 60% of its initial mass by 30 days whereas the corresponding figures for *A. auriculiformis, A. mangium, M. peltata, A. schoralis, A. heterophyllus, A. altilis, T. catappa* and *M. indica* were 37.48, 16.92, 8.75, 26.34, 14.63, 25.61, 25.57 and 12.51%, respectively.

G. sepium and *A. auriculiformis* lost over 50% of its initial N content by 30 days whereas *A. altilis* and *M. indica* immobilized N from the soil. The % N immobilization ranged from 4-20%, the highest being by *M. indica.* The leaf litter of species like *G. sepium* and *A. auriculiformis* while being efficient in producing nutrient for plant growth, were ineffective in checking soil erosion, evaporation, weed growth etc. because of the rapid break-down. The converse is true for species such as *M. peltata* and *M. indica.* These 2 litter types, therefore, complement each other to make an ideal litter. It is important to take this aspect into consideration in identifying plant species for sustainable agroforestry systems.