

NUTRITIONAL RETRANSLLOCATION EFFICIENCIES IN SOME AGROFORESTRY SPECIES OF SRI LANKA

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Studies on nutrient resorption efficiency of 13 major agroforestry species (*Gliricidia sepium*, *Alstonia scholaris*, *Macaranga peltata*, *Artocarpus integrifolia*, *Artocarpus altilis*, *Mangifera indica*, *Terminalia cattapa*, *Acacia auriculiformis*, *Acacia mangium*, *Psidium guajava*, *Nephelium lappaceum*, *Manilkara sapota* and *Trema orientalis*) in Sri Lanka were conducted at the Faculty of Agriculture, Mapalana, Kamburupitiya during 1997/98. Here, three trees from each species, and 3 branches from each tree were randomly selected and mature and senescent leaves were collected from each branch and analysed for per cent nitrogen, phosphorous and potassium.

Considerable variations in foliar nutrient concentration were evident among the species as well as within species, depending on the ontogenic stage of leaves. Both in mature and senescent leaves *G. sepium* showed the highest concentration of nitrogen (3.51% and 2.4%, respectively) while *M. indica* had the lowest (1.42% and 0.41%, respectively). Significant inter-specific variation in nitrogen translocation efficiency (NRE) was observed ($p = 0.01$), which varied 28.94 to 54.95%. *T. cattapa* had the highest value while *G. sepium* had the lowest. *M. indica* (48.78%) *T. orientalis* (48.69%) also had a relatively high NRE. NREs of *N. lappaceum*, *M. sapota*, *A. integrifolia*, *A. altilis*, *A. auriculiformis*, *M. peltata*, *A. mangium*, *A. scholaris* and *P. guajava* were 43.39, 42.57, 42.43, 41.83, 40.41, 39.76, 36.80, 34.53 and 31.88%, respectively. *P. guajava* had the highest concentration of phosphorous both in mature (0.338%) and senescent (0.204%) leaves. As for potassium, *M. sapota* had the highest concentration both in mature (1.078%) and senescent (0.73%) leaves. *T. orientalis* showed the highest phosphorous resorption efficiency (PRE), i.e. 62.7%, which was significantly higher than that of *N. lappaceum* (50.27%), *M. sapota* (40.09%) and *P. guajava* (37.8%). *M. sapota* had the highest potassium resorption efficiency (32.99%) followed by *T. orientalis* (29.64%), *N. lappaceum* (26.97%) and *P. guajava* (23.55%). But they did not differ significantly. Possible implications of nutrient retranslocation on adaptability of trees to nutrient limiting situations and successional development in disturbed terrestrial ecosystems are discussed.