

**B-119 Effect of soil physical properties on the nutrient inflow in coconut seedlings (*Cocos nucifera* L.)**

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The effect of soil physical properties on nutrient absorption and distribution pattern of coconut seedlings, based on primary and fine roots was investigated. Soil physical properties such as texture, bulk density, penetrometer resistance, moisture retention and pore size distribution of major soil horizons of Andigama and Madampe series were evaluated. Homogeneous, roots pruned 2-month old coconut seedlings (Tall x Dwarf) were placed on different soil horizons of both series to evaluate the nutrient uptake efficiency of coconut seedlings with respect to soil physical properties of each horizon. Lithium was used as a non-radioactive tracer to estimate the nutrient uptake efficiency. Randomized Complete Block Design with 3 replicates were followed with 5 coconut seedlings in each replicate.

Results showed that seedlings treated with 10%  $\text{LiNO}_3$  performed satisfactorily, without any detrimental effects even after 1 month of the experiment. Results also indicated that the fine roots were more responsible for nutrient absorption than primary roots and absorption efficiency was positively correlated with clay content in soil profiles. However, gravel compacted with high clay reduced the absorption efficiency. Specially, soil compaction higher than a penetrometer reading of  $250 \text{ N/cm}^2$  and ratio of macro/micro porosity lower than 2.5 reduced the uptake efficiency. Results also showed that translocation and accumulation of lithium was higher in leaves compared to petiole and collar parts of coconut seedlings.

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