

Growth performances of selected tree species as affected by different levels of salinity

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In recent years, a significant amount of land areas were affected due to salinity rendering them unproductive. In Sri Lanka, salt-affected land area is estimated to be 223,000 hectares or about 3% of the land area of the island. Therefore the selection of salt-tolerant tree species is considered to be one of the alternatives to overcome this problem. Three separate pot experiments were conducted by using three selected tree species (i.e. Ipil-Ipil (*Leucenea leucocephala*), Kottamba (*Terminalia catappa*) and Kathurumurunga (*Sesbania grandiflora*) at the Faculty of Agriculture, University of Ruhuna, Mapalana, Kamburupitiya during May to November 2003 to assess the influences of different levels of saline water (i.e. 0.12 (normal water), 1, 2, 3, 4 and 6 mmhos/cm) on growth performances of above three species. The experiments were arranged in a Completely Randomized Design with four replicates and each replicate represent three plants. One month old seedlings raised in 15 x 20 cm black polythene bags were used for the experiment. Seedlings were transferred to larger polythene bags (25 x 30 cm) after two months and applied different concentration of saline water. Plant height, root length and dry matter (shoot, root and total) were measured after 12 weeks of treatment application.

Results revealed that all tested growth parameters were not significantly affected by different levels of salinity up to 6 mmhos/cm in all three species except shoot height and shoot dry weight of Ipil-Ipil and shoot dry weight and total dry weight of Kathurumurunga which were increased with increasing level of salinity up to 4 mmhos/cm and thereafter decreasing trend was observed.

Therefore it can be concluded that Kottamba can be grown successfully up to 6 mmhos/cm of salinity while Ipil-Ipil and Kathurumurunga can be grown up to 4 mmhos/cm of salinity level. Further experiments should be conducted by using higher salinity levels than 6 mmhos/cm to study the growth performances of Kottamba.

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