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Effect of garbage on performance of rosewood (*Dalbergia latifolia*) seedlings in the nursery

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SUMMARY

The present series of investigations were conducted at Kerala Agricultural University, Vellanikkara, Thrissur to evaluate the effect of potting media containing municipal garbage on the growth and vigour of rosewood (*Dalbergia latifolia* Roxb.), a multi purpose tree species in the nursery. The treatments T_1 (soil), T_2 (soil: sand) and T_3 (soil: sand: cowdung) recorded 100 per cent initial survival rate. In most of the treatments containing municipal garbage, initial establishment were found to be good. Growth and vigour in terms of shoot growth parameters were found to be most promising when the seedlings were grown in potting media containing 4 weeks decomposed municipal garbage and soil: sand: cowdung. Physiological growth parameters did not show any systematic pattern. No uniform trend could be observed with regard to chlorophyll content also. Seedlings grown in potting media containing soil: sand: cowdung recorded maximum content of nitrogen, phosphorous and potassium in the tissues. Media containing 4 weeks decomposed municipal garbage also recorded high content of tissue nitrogen and phosphorous. It was observed that at the end of the study period, percentage of nutrient elements in different potting media slightly increased compared to the initial content.

Key words : Rosewood, Municipal garbage, Chlorophyll, Decomposition, Nutrient content

In India, about 40% of the plant nutrients are consumed by rice crop. Rice (*Oryza sativa* L.) plays a very important role in providing nutrition to human race. The traits like yield and its components are governed by polygens with complex gene action and hence, understanding the nature and magnitude of gene action help the breeder in selection of an appropriable breeding method. For impartment in such an important crop, the most important prerequisite is the selection of suitable parents, which could combine well and produce describable hybrids and segregants. In the presents study, an attempt has been made to estimate the heterosis in F_1 hybrids, using line x tester mating designs.

MATERIALS AND METHODS

The present study was conducted at College of Forestry, Kerala Agricultural University, Vellanikkara (Thrissur district of Kerala state). Uniform healthy seedlings of *Dalbergia latifolia* were planted using different potting media *viz*., soil (T_1), soil : sand (T_2), soil : sand : cowdung (T_3), soil : fresh municipal garbage (T_4), soil : 2 weeks decomposed garbage (T_5), soil : 4 weeks decomposed garbage (T_6), soil : sand : fresh municipal garbage (T_7), soil : sand: 2 weeks decomposed garbage (T_8), soil : sand : 4 weeks decomposed garbage (T_9), fresh municipal garbage (T_{10}), 2 weeks decomposed municipal garbage (T_{11}), 4 weeks decomposed municipal garbage (T_{12}).

The present studies were conducted for a period of six months. Initially the seeds were sown in nursery beds. Uniform vigorous seedlings of 2-3 weeks old were planted in 200 guage polythene covers of 30-40 cm size filled with different treatment media. The components were mixed on v/v basis. Experiment was laid out in CRD with four replications. A total number of 1200 seedlings were maintained in the field as a part of study.

The initial establishment after one week and final survival rate after six months, shoot growth parameters (height, girth, total biomass production), root growth parameters (length, number and biomass production), leaf growth parameters, physiological observations like chlorophyll content, leaf area, relative growth rate, specific leaf area, leaf weight ratio, leaf area ratio etc., were recorded. Nutrient status of the seedlings during the study period and final nutrient content of nitrogen, phosphorous and potassium in the media were also estimated. The data were analyzed statistically.

RESULTS AND DISCUSSION

Results obtained are summarized in Table 1, 2, 3, 4, 5 and 6. Analysis of variance revealed that garbage had significant effect on growth attributed of seedlings.

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