

THE EFFECT OF MOISTURE STRESS ON SEEDLING
ESTABLISHMENT OF SOME FOREST SPECIES

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Three month old seedlings of Eucalyptus camaldulensis, E. tereticornis, Acacia senegal, 2 varieties of Acacia nilotica, Casuarina equisetifolia were subjected to seven substrate moisture levels (15.2, 7.4, 6.0, 4.6, 3.2, 2.4 and 2.2 percent) in a randomized block design with 3 replicates in a green house. Statistically significant differences ($p < 0.05$) were observed in percentage survival with substrate moisture level. All the species showed 100% survival above 3.2% moisture level. Of the species tried only E. camaldulensis, A. nilotica and A. senegal survived in the lowest moisture level of 2.2%. Transpiration rate of the tree species reduced significantly ($p < 0.05$) with reduction of substrate moisture content implying that restricted soil moisture supply controlled stomatal closure and thereby reduction in the transpiration rate.

Observations recorded 5 months after initiation of the experiment showed significant differences ($p < 0.05$) in total heights and leaf number between species and moisture levels while diameter at the base varied only with substrate moisture level. The highest values were obtained in the highest substrate moisture level of 15.2% and lowest in that of 2.2% for all the species tried.

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