

## VEGETATIVE PROPAGATION OF TWO NATIVE TREE SPECIES FOR THE RESTORATION OF DEGRADED GRASSLANDS IN KNUCKLES FOREST RESERVE

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*Symplocos cochinchinensis* (Lour.) S. Moore and *Acronychia pedunculata* (L.) Miq. are two pioneer tree species that can be used for restoration of degraded lower montane sites in Sri Lanka. However, scarcity of seedlings of these two native species hinders their use in restoration work at Knuckles Forest Reserve (KFR). This study was conducted to investigate the possibility of using vegetative propagation methods to raise nurseries of these species for restoration programmes. The effect of potting media, liquid media and the use of propagators were tested on the rooting of the two tree species using softwood and hardwood cuttings. The effect of illumination was tested only on the rooting of *S. cochinchinensis* using distilled water and tap water as the media. Stem section anatomy was observed. Sand only, sand + topsoil+ leaf litter (1:1:1), sand + coir dust + compost (1:1:1) were used as media for experiments carried out in the semi glass house. Additionally forest soil + sand (1:1) and forest soil only were used as the potting media for experiments conducted at KFR. Distilled water and three concentrations of Albert's solution; 1, 2 and 3  $\text{gl}^{-1}$  were used as the liquid media. The parameters assessed were the percentage survival of plants and the root biomass.

Softwood cuttings of *S. cochinchinensis* grown in sand only medium showed the highest percentage survival (30 %) and average root biomass (0.004g) in the semi glass house. At KFR, highest percentage survival (40 %) was shown by hardwood cuttings in forest soil + sand and forest soil only media. However, roots were only produced by cuttings grown in soil + sand medium. The average root biomass was significantly higher in cuttings grown inside propagators and it could be due to high relative humidity and temperatures within propagators that maintains sufficient water potential in cuttings and influence their cambial activity, respectively. Cuttings of *S. cochinchinensis* in distilled water showed the highest percentage survival and rooting was observed only in them. Death or rooting failure of cuttings grown in Albert's solution could be due to high salt concentrations resulting in phytotoxicities. Illumination had no effect on rooting of *S. cochinchinensis*. Adventitious roots of *S. cochinchinensis* initiated from the phloem region. However, none of the cuttings of *A. pedunculata* survived in any of the experiments probably due to restriction of initiation and elongation of adventitious roots by the sclerenchymatous tissue surrounding the vascular cylinder in their stems. *S. cochinchinensis* can be successfully propagated using sand only medium inside propagators or in distilled water in semi glass houses.