

COMPARATIVE EVALUATION OF MODIFIED GROWING MEDIA AND PROPAGATOR ENVIRONMENTS ON THE ADVENTITIOUS ROOTING AND VEGETATIVE VIGOR OF *Catharanthus roseus* (L.) G.DON STEM CUTTINGS

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Catharanthus roseus L. G. Don is an economically significant medicinal and ornamental species, yet its vegetative propagation is often limited by poor rooting and low post-transplant survival. This study aimed to identify the optimal growing media composition and environmental condition (propagator vs. ambient) to maximize propagation success and post-uproot survival under tested conditions. A two-factor factorial Completely Randomized Design (CRD) was employed with 10 replicates per treatment, integrating seven growing media formulations (T1-T7) and two environmental conditions: a high-humidity polythene propagator environment and a conventional nursery (under 50% shade). The experiment was conducted at the Royal Botanic Gardens, Peradeniya. The standard nursery mixture (T1: topsoil: leaf mould: sand: cow manure at a 4:2:1:1: ratio) served as the control, while other treatments included varying proportions of coir dust, sand, leaf mould, and topsoil (ranging from modified organic-heavy combinations to 100% sand). Uniform 10 cm tip cuttings were treated with Indole-3-Butyric Acid (IBA) to enhance rooting and planted in sterilized media. Growth parameters were recorded at regular intervals. Cuttings remained in the nursery phase until day 56, with a critical uprooting assessment on day 35, before being transplanted into outdoor field beds. Data were analyzed using Two-Way ANOVA in IBM SPSS (version 23). Results indicated that the propagator environment facilitated a distinct numerical increase in early survival, while porous media T3 (17.333 ± 3.679 roots) and T4 (15.000 ± 2.850 roots) optimized root proliferation. Mean values identified medium T6 (topsoil and sand) as the most resilient, yielding the greatest vertical shoot growth (3.102 ± 0.168 cm). Although two-way ANOVA showed no statistically significant differences ($p > 0.05$) across treatments (shoot height $p = 0.380$; root number $p = 0.083$; longest root length $p = 0.844$), numerical trends favored well-aerated media under high-humidity conditions. Survival declined markedly after uprooting, confirming transplant shock as a major establishment barrier. Consequently, successful *C. roseus* propagation under these tested conditions requires the integration of high-humidity propagation, well-aerated media (T3, T4, or T6), and careful hardening-off to minimize root disturbance.

Keywords: *Catharanthus roseus*, growing media, propagator, transplant shock, vegetative propagation