

**COMPARATIVE STUDY OF DIFFERENT PROPAGATION MEDIA
COMBINED WITH CHARCOAL ON THE GROWTH
PERFORMANCE OF HIBISCUS (*Hibiscus rosa-sinensis*) CUTTINGS**



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ABSTRACT

The pot experiment was conducted to evaluate the effect of various growing media on the rooting and growth of hibiscus cuttings. The experiment was arranged under a completely randomized design (CRD) with five treatments and five replicates. The treatments potting materials used to prepare combined at the ratio volume basis in the treatment of 3:3:4 (T₂ to T₅). They are: T₁ – Topsoil (control), T₂ – Topsoil + Charcoal + Compost, T₃ – Topsoil + Charcoal + Paddy husk, T₄ – Topsoil + Charcoal + Cow Dung, and T₅ – Topsoil + Charcoal + Cocopeat.

The agronomic practices for cutting establishment were followed. Hibiscus variety of *Hibiscus rosa-sinensis* semi-hard wood cutting (10-15cm) were used. Growth parameters such as shoot length, root length, number of leaves, leaf area, wet weight, and dry weight were recorded at weekly intervals from the 3rd to 8th week after planting. Statistical analysis revealed significant differences ($p < 0.05$) among treatments for all measured parameters. The results indicated that T₅ (Topsoil + Charcoal+ Cocopeat) and T₄ (Topsoil + Charcoal + Cow dung) produced the highest mean values in shoot and root development, leaf number, and leaf area. These media combinations provided improved aeration, moisture retention, and nutrient availability, resulting in vigorous growth and higher survival rates of hibiscus cuttings. In contrast, the control treatment (T₁) recorded the lowest performance in all parameters, likely due to limited nutrient and poor soil structure.

Overall, the findings demonstrate that the inclusion of charcoal with organic components significantly enhances the propagation success of hibiscus cuttings. The combination of T₅ (Topsoil + Cocopeat + Charcoal) was found to be the most effective medium for rooting and growth performance among the tested medium. Therefore, it can be recommended as a low-cost and sustainable propagation medium for nursery-level hibiscus production.

Keywords: *Hibiscus rosa-sinensis*, propagation media, charcoal, growth and development, cuttings.

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