

ROOTING SUCCESS OF STEM CUTTINGS FROM PRIMARY AND SECONDARY BRANCHES OF TWO SELECTED COFFEE VARIETIES

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Effective propagation is crucial for sustainable coffee production where stem cuttings offer a reliable vegetative method for multiplying high-quality plants. This study comprised a two-factor factorial experiment arranged in a completely randomized design (CRD), with two coffee varieties (*IMY* and *Lak Parakum*) and two branch types (primary and secondary). Each treatment combination was replicated three times under shade house conditions. Shoot height, the number of shoots and leaves and shoot diameter were recorded in two-week intervals for 4 months. Root count, root volume and length, and fresh and dry weights of both shoots and roots were recorded in one-month intervals. The results showed no significant differences in shoot height or leaf count based on variety, branch type, or their interaction. Significant differences ($p < 0.05$) were observed for shoot diameter, with *IMY* having a larger mean diameter (3 ± 0.41 mm) than *Lak Parakum* (2.7 ± 0.22 mm). Primary branches (3.3 ± 0.52 mm) also exhibited a larger diameter than secondary branches (2.66 ± 0.13 mm) in both varieties. The effect of variety on shoot diameter was independent of branch type, as no significant interaction was found ($p > 0.05$). Primary branches produced significantly ($p < 0.05$) more shoots (0.29 ± 0.09) than secondary branches (0.15 ± 0.04) with no interaction between branch type and variety. *IMY* showed a significantly higher mean root volume increment compared to *Lak Parakum*. No significant differences ($p > 0.05$) were observed in the number of roots, root length, and fresh and dry weights of shoots and roots. This study revealed that certain growth parameters were influenced by coffee variety and branch type, while many traits remained unaffected. The lack of significant effects on root development and biomass accumulation suggested the need to explore additional factors such as environmental conditions, hormone treatments, or nutrient availability to enhance propagation efficiency in coffee cultivation.

Keywords: Branch type, Root parameters, Shoot production, Vegetative propagation