

**THE EFFECT OF KINETIN AND SUCROSE CONCENTRATION ON
EMBRYOGENIC CALLUS FORMATION IN ROBUSTA
COFFEE (*Coffea canephora* Pierre ex A. Froehner)**

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ABSTRACT

The low productivity of Robusta coffee is caused by less intensive cultivation techniques and the use of planting material from seeds that produce diverse characteristics. To overcome this, it is necessary to provide superior clonal seeds through tissue culture techniques, especially embryogenic callus regeneration. The success of embryogenic callus induction is highly dependent on media optimization, including the concentration of plant growth regulators (ZPT) kinetin and sucrose. This study aims to determine the effect of Kinetin and Sucrose concentrations on the formation of embryogenic callus in Robusta coffee. The research was carried out in July-November 2025 at the Tissue Culture Laboratory Jember State Polytechnic. The method used was a Factorial Completely Randomized Design (CRD) with two factors, namely: Kinetin concentration (K0: 0, K1: 1.5, K2: 3, K3: 4.5 ppm) and Sucrose concentration (S1: 30, S2: 35, S3: 40 g/l). There were 12 treatment combinations which were repeated 3 times. The explant used is Robusta coffee primary callus. The parameters observed included the time the callus appeared, callus color, callus texture, callus area, callus fresh weight, and percentage of callus. Data were analyzed using Analysis of Variance (ANOVA) and continued with the Duncan Multiple Range Test (DMRT) 5%. The results showed that Kinetin concentration had no effect on all observation parameters. Sucrose concentration had a significant effect on callus color parameters and callus percentage, with the best results in treatment S3 (40g/L). The combination of Kinetin and Sucrose had no effect on all observed parameters.

Keywords: *Robusta coffee, Kinetin, Sucrose, Embryogenic Callus*