The Effect of Kinetin Plant Growth Regulator Formulation on Somatic Embryo Regeneration of Robusta Coffee (Coffea canephora* Pierre ex A. Froehner*)

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ABSTRACT

Robusta coffee is one of the coffee varieties with strategic value in empowering the people's economy. To significantly increase coffee yields, it is necessary to propagate plants in order to provide high-quality Robusta coffee seedlings from superior clones to support high productivity. Plant propagation through tissue culture is one alternative for mass propagation of coffee plants. The use of cytokinins, a class of plant growth regulators (PGRs), influences the formation of globular embryos, the number of globular embryo stages, the weight of embryo and callus clusters, and the percentage of globular embryo development—one such cytokinin being kinetin. The aim of this study was to determine the effect of kinetin on the development of somatic embryos of Robusta coffee. The study used a Completely Randomized Design (CRD) with a non-factorial (single-factor) arrangement. The research was conducted in the Plant Tissue Culture Laboratory of Politeknik Negeri Jember from November 2023 to March 2024. The plant material used was embryogenic callus. The study included four treatments: 0 ppm kinetin, 2 ppm kinetin, 4 ppm kinetin, and 6 ppm kinetin. Based on the results, the 4 ppm kinetin formulation was found to be the most effective among all treatments, as it accelerated the formation of globular embryos and resulted in the highest final callus weight. However, the use of kinetin was not optimal for parameters related to the formation of torpedo and cotyledon stages, as kinetin mainly supports early stages such as callus initiation and formation.

***Keywords**: Robusta coffee, Tissue Culture, Kinetin, Somatic Embryo*