The Effect of BAP and 2-iP on In Vitro Shoot Multiplication of Vanilla Plants (*Vanilla planifolia* Andrews)

Supervisor by: Rahmawati S.P., M.P

Nicka Zahra Rasyid
Study Program of Cultivation of Plantation Crops
Majoring of Agricultural Production
Politeknik Negeri Jember

ABSTRACT

Vanilla (Vanilla planifolia) is a plant whose original habitat is in Mexico, which was later cultivated in Indonesia and has a high market value. However, the production value of vanilla in Indonesia is still low due to the declining quality of vanilla being sold. This is caused by the poor quality of the parent seedlings used, suboptimal vanilla plant propagation techniques leading to insufficient seedling availability, and unpredictable rainy seasons making vanilla plants susceptible to stem rot disease. This study aims to determine the effect of BAP on the multiplication of vanilla plant shoots in vitro, determine the effect of 2-iP on the multiplication of vanilla plant shoots in vitro, and examine the combination between BAP and 2-iP on the multiplication of vanilla plant shoots in vitro. The study was conducted from July 2025 to November 2025 at the Tissue Culture Laboratory of Jember State Polytechnic. This research uses a Factorial Completely Randomized Design (RALF) consisting of 2 factors. The first factor was BAP treatment (0 ppm; 1 ppm; 1.5 ppm) and the second factor was 2-iP treatment (0 ppm; 0.025 ppm; 0.05 ppm; 0.075 ppm; 0,1 ppm), resulting in 15 treatment combinations, each repeated 3 times. The research parameters were: bud emergence time (days), number of buds (buds), bud height (cm), and fresh bud weight (grams). BAP and 2-iP individually increased the number of buds, with the best response at 1.5 ppm BAP and 0.05 ppm 2-iP, while the combination of both did not have a significant effect on all observation parameters.

Keywords**:** *BAP, 2-iP, vanilla, tissue culture.*