ABSTRACT

Green beans are an important food crop that is rich in protein and has a relatively short harvest period. However, challenges in green bean cultivation include low growth rates under suboptimal conditions, such as unsupportive environments. Therefore, efforts to optimize green bean growth are essential, particularly through tissue culture techniques that allow for controlled manipulation of growth conditions. This study aims to investigate the effect of optimal concentrations of the plant growth regulators cytokinin (BAP) and gibberellin (GA3) on the growth of green bean plants (Vigna radiata L) in vitro. The study was conducted using a Complete Randomized Design (CRD) Factorial, involving two main factors: BAP concentration with five levels (2.5 mg/l; 3.5 mg/l; 4.5 mg/l; 5.5 mg/l; 6.5 mg/l) and GA3 concentration with two levels (4 mg/l; 5 mg/l). Each treatment was repeated three times, resulting in a total of 30 experimental units. The research results will be analyzed if there is a significant effect between treatments and will be tested using the ANOVA statistical test, specifically Duncan's Multiple Range Test (DMRT) at a significance level of 5% and highly significant at 1%. The results showed that the interaction between BAP and GA3 on the growth of mung beans had a significant effect on the number of mung bean roots, with the best average being B3G2 with a value of 2.22. The application of BAP concentration had a significant effect on the number of roots, with the best average being B3 with a value of 1.55. The application of GA3 concentration has a very significant effect on germination time, with the fastest germination time achieved at G1 with a time of 6.87 HST.

Keywords: Cytokinin, Gibberellin, Mung Bean