EFFECTIVENESS OF VARIOUS BIOPRIMING MATERIALS IN ENHANCING VIABILITY, VIGOR, GROWTH, AND YIELD OF SOYBEAN (*Glycine max* L.)"

By: Shofi Syahira Qoirunnisa

Supervised by: Ami Suryawati and Bambang Supriyanta

ABSTRACT

Deterioration of seed quality has the potential to decrease production rates. Soybean seeds are known for their rapid deterioration in quality. One method to improve germination quality is through priming treatments. This study aims to identify the most effective biopriming material to enhance the viability, vigor, growth, and yield of soybean (*Glycine max* L.). The research was conducted at the Seed Technology Laboratory, Faculty of Agriculture, and Pacing Kidul, Pacarejo, Semanu, Gunungkidul from June to August 2024. The experimental design used in both the laboratory and field studies was a Completely Randomized Design (CRD) with a single factor, which was the type of biopriming material and its respective solution concentrations. The biopriming materials used were red onion extract at concentrations of 45% and 75%, coconut water extract at concentrations of 45% and 75%, and tomato extract at concentrations of 45% and 75%. The data were analyzed using analysis of variance (ANOVA), followed by an ortogonal contrast test at the 5% significance level. The results of the study showed that biopriming treatments had a significant effect and were more effective compared to the control in terms of electrical conductivity, germination rate, vigor index, and maximum growth potential. The 45% red onion extract treatment was found to be the most effective in improving seed quality and soybean (*Glycine max* L.) plant growth.

Keywords: Soybean, viability, vigor, priming, biopriming.