Peningkatan Viabilitas Benih Kacang Panjang (*Vigna unguiculata* var. *sesquipedalis*) Melalui Osmopriming *Increasing Long Bean Seed Viability (Vigna unguiculata var. sesquipedalis) Through Osmopriming.*
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ABSTRACT

Yardlong bean (*Vigna unguiculata var. sesquipedalis*.) is a horticultural commodity widely used as a food source and holds significant economic value. Seed storage over time can lead to deterioration, resulting in a decline in physiological quality specifically viability and vigor. One method to maintain seed quality is osmopriming, a pre-sowing treatment designed to stimulate seed metabolic activity prior to germination. This study aimed to determine the viability response of yardlong bean seeds to various osmopriming treatments following storage. The research was conducted from December 2025 to January 2026 at the Seed Production Engineering Laboratory and Greenhouse, Department of Agricultural Production, State Polytechnic of Jember. The experiment employed a non-factorial Completely Randomized Design (CRD) comprising four treatments Hot Water, 3% KNO_3, 3% PEG 6000, and 3% $CaCl_2$ with four replications per treatment. Seeds were soaked for 12 hours, then dried and stored for 25 days. Evaluations covered germination capacity, maximum growth potential, vigor index, growth uniformity, and growth rate. The results indicated that osmopriming had a highly significant effect on germination capacity, maximum growth potential, and growth rate, and a significant effect on growth uniformity, though it did not significantly affect the vigor index. The Hot Water treatment yielded the highest values for germination capacity (95.50%), maximum growth potential (93.50%), and growth uniformity (68.75%), whereas 3% KNO_3 produced the highest growth rate at 33.52% per day. PEG 6000 tended to yield the lowest results across most parameters. Based on these findings, Hot Water was the most effective treatment for maintaining and enhancing seed viability, while 3% KNO_3 was superior in accelerating germination.

Keywords: *yardlong bean, osmopriming, viability, vigor, storage.*