The Effect of Amino Acid Application on the Growth and Brix Value of Sugarcane (*Saccharum officinarum* L.) Juice of the Bululawang Variety Irma Wardati. S.P., M.P.

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ABSTRACT

Sugarcane (*Saccharum officinarum* L.) is a strategic crop that serves as the main raw material for sugar production and plays an important role in the economy. Domestic sugar production has yet to meet national demand due to several constraints, including low sugar yield (rendemen), poor seed quality, and soil degradation caused by the use of inorganic fertilizers. The application of amino acids as organic fertilizers has the potential to enhance sugarcane productivity by improving plant metabolism and soil microbial activity. This study aimed to determine the effect of amino acid application on the growth and Brix value of sugarcane (*Saccharum officinarum* L.), Bulu Lawang variety. The research was conducted from February to June 2024 at the Field Laboratory of the Agricultural Production Department, Politeknik Negeri Jember. The method used was a Randomized Complete Block Design (RCBD) with one factor: amino acid organic fertilizer, consisting of four dosage levels: A0 = Control (no amino acid), A1 = 250 ml/polybag, A2 = 500 ml/polybag, and A3 = 750 ml/polybag. The observed parameters included plant height (cm), stem diameter (mm), Brix value (%), and root volume. Data obtained were analyzed using ANOVA and further tested with the Honestly Significant Difference (HSD) test at a 5% significance level. The results showed that amino acid application significantly affected plant height at 188 Days After Planting (DAP), stem diameter at 218 and 249 DAP, and had a highly significant effect on stem diameter at 188 DAP and root volume at 249 DAP. However, no significant effect was observed on plant height at 218 and 249 DAP, or on Brix value.

Keywords: Amino Acid, Sugarcane, Brix