APPLICATION OF AMINO ACIDS, ROOT BACTERIA AND SUGAR CANE LAND EXPLORATION ON SUGAR CANE PLANT GROWTH (*Saccharum officinarum L.*)

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ABSTRACT

Sugarcane (*Saccharum officinarum* L.) is one of the plantation crops cultivated as the main raw material for sugar. Efforts to increase sugarcane production, namely sugarcane cultivation techniques, need to be considered, especially fertilization to maintain soil fertility. The purpose of this study was to determine the effect of amino acid application, root bacteria and sugarcane land exploration on the growth of sugarcane (*Saccharum officinarum* L.) in the Gapoktan Jaya Makmur Tegal Besar Jember garden. The method used in this study was the T Test consisting of 3 different treatments, namely treatment P1 (100% inorganic fertilizer (control): ZA 37.960 kg, NPK 18.984 kg), treatment P2 (50% inorganic fertilizer: ZA 18.98 kg, NPK 9.492 kg, BC Bacteria 22.78 liters, and Amino Acid 5.7 liters) and treatment P3 (25% inorganic fertilizer: ZA 9.492 kg, NPK 4.746 kg, BC Bacteria 28.48 liters, and Amino Acid 8.54 liters). Treatments P1, P2 and P3 each consisted of 50 sugarcane plant samples. The results of this study indicate that the treatment of P1 (ZA 37.960 kg, NPK 18.984 kg) against P2 (50% inorganic fertilizer, 22.78 liters of BC Bacteria, and 5.7 liters of Amino Acid) had no significant effect on the parameters of the number of tillers, plant height, sugarcane stem diameter, and had the highest root volume. The growth of sugarcane plants in the P2 treatment could balance the growth of sugarcane plants in the P1 treatment. While the P3 treatment (25% inorganic fertilizer, 28.48 liters of BC Bacteria, and 8.54 liters of Amino Acid) could balance the growth of the P1 treatment except for the parameter of sugarcane plant height.

***Keywords**: Sugarcane, Amino Acids, Root Bacteria and Sugarcane Land Exploration*