

THE EFFECT OF SOAKING IN BOTANICAL PGR IN COCONUT WATER AND BEAN SPROUT EXTRACT ON THE GROWTH OF SUGAR CANE SEEDLINGS (*Saccharum officinarum* L.) BULULAWANG VARIETY USING THE BUD SET METHOD

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ABSTRACT

Sugarcane (*Saccharum officinarum* L.) is a strategic plantation commodity as the main raw material for national sugar. Increasing sugarcane productivity is largely determined by the availability of quality seeds, one of which is through the bud set method. However, seedlings using this method often experience obstacles in early growth, especially the formation of roots and shoots. The use of plant-based growth regulators (PGRs) such as old coconut water and bean sprout extract has the potential to be an environmentally friendly alternative to increase the growth of sugarcane seedlings. This study aims to determine the effect of plant-based PGRs of old coconut water and bean sprout extract and their interaction on the growth of Bululawang variety sugarcane seedlings using the bud set method. The study was conducted from July–October 2025 at the Field Laboratory of Jember State Polytechnic using a two-factorial Randomized Block Design (RBD), namely the concentration of old coconut water (0%, 25%, and 50%) and the concentration of bean sprout extract (0%, 25%, and 50%) with three replications. The parameters observed included the percentage of shoot growth, seedling height, pseudo stem diameter, number of leaves, and number of tillers. Data were analyzed using ANOVA and continued with the 5% BNJ test. The results showed that bean sprout extract had a more dominant effect on the growth of sugarcane seedlings compared to old coconut water, especially on the parameters of shoot growth percentage, seedling height at 30 & 90 days after planting, pseudo stem diameter at 60 days after planting, number of leaves at 90 days after planting, and number of tillers at 60 days after planting and 90 days after planting. Old coconut water had a significant effect on parameters including seedling height, stem diameter and number of tillers. The interaction between old coconut water and bean sprout extract had a significant to very significant effect on the parameters of seedling height at 60 days after planting and stem diameter at 60 days after planting and 90 days after planting. The conclusion of this study shows that the use of bean sprout extract at a concentration of 50% is the best treatment, either alone or in combination with old coconut water, thus potentially improving the quality of sugarcane nurseries in a sustainable and environmentally friendly manner.

Keywords: bean sprout extract, *bud set*, old coconut water, plant growth regulators, sugar cane