

**THE EFFECT OF COCONUT WATER SOAKING DURATION ON EARLY
GROWTH OF SUGAR CANE (*Saccharum officinarum* L.) USING
THE BUD CHIPS METHOD**

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ABSTRACT

*Sugarcane (*Saccharum officinarum* L.) is a plantation commodity that plays an important role as the main raw material for the sugar industry. One effort to improve the growth of sugarcane seedlings using the Bud Chips method is the application of natural plant growth regulators, such as coconut water, which contains auxin, cytokinin, and gibberellin. This study aimed to determine the effect of coconut water soaking duration on the growth of sugarcane Bud Chips seedlings and to determine the soaking duration that provided the best growth response. The study was conducted from June to September 2025 at the Field Laboratory of Politeknik Negeri Jember using a non-factorial Randomized Complete Block Design (RCBD) with five treatments: P0 (no soaking), P1 (16 hours), P2 (20 hours), P3 (24 hours), and P4 (28 hours), with five replications. The observed parameters included germination percentage, seedling height, number of leaves, number of tillers, and stem diameter. The data were analyzed using analysis of variance anova followed by the least significant difference test. The results showed that coconut water soaking duration affected the growth of sugarcane seedlings, particularly seedling height, number of leaves, number of tillers, and stem diameter from 28 to 70 days after planting. At 70 days after planting, P1 produced the highest seedling height of 185.08 cm, while P3 produced the highest number of leaves and stem diameter, at 8.68 leaves and 19.62 mm, respectively. Treatment P4 tended to produce lower growth compared with the other treatments. A soaking duration of 20–24 hours provided a relatively good growth response for most observed parameters and can therefore be considered an effective soaking duration to support the growth of sugarcane seedlings using the Bud Chips method..*

Keywords: *Coconut water, bud chip, soaking time, plant growth regulators*