

THE EFFECT OF RED ONION EXTRACT PGR ON THE GROWTH OF SUGAR CANE (*Saccharum officinarum* L.) BUDSETS OF THE BULULAWANG VARIETY

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ABSTRACT

*Sugarcane (*Saccharum officinarum* L.) is a high-value plantation commodity that is the main raw material for sugar. However, national sugar productivity still faces obstacles, one of which is caused by low seed quality and slow nursery techniques. The use of bud set techniques is often hampered by slow root formation and uneven shoots, so natural Plant Growth Regulators (PGRs) such as shallots containing auxin and gibberellin are needed to stimulate growth. This study aims to determine the effect of red onion extract as a natural PGR on the growth of Bululawang variety sugarcane seedlings using the bud set method, and to determine the most optimal concentration. The study was conducted from June to October 2025 at the Field Laboratory of Jember State Polytechnic. The method used was a non-factorial Randomized Block Design (RBD) with 5 treatments and 5 replications, consisting of P0 (Control 0%), P1 (30%), P2 (50%), P3 (70%), and P4 (90%). Observation parameters included plant height, number of leaves, stem diameter, number of tillers, and root volume. The experimental data were analyzed using ANOVA and if there were significant differences, further tests were conducted with the smallest significant difference (LSD) at the 5% level. The results showed that the administration of shallot extract PGR had a very significant effect on plant height, stem diameter, number of tillers, and root volume, but was not significantly different on the number of leaves. The best treatment was obtained at a concentration of 70% (P3), which produced maximum average growth in plant height (164.92 cm), stem diameter (19.41 mm), number of tillers (5.44 stems), and root volume (77.40 ml) compared to other treatments.*

Keywords: *Natural growth regulators, red onion extract, bud set, sugar cane, sugar cane plant growth*