

**VEGETATIVE GROWTH AND PRODUCTION OF SORGUM (*Sorghum bicolor* L. Moench var. Suri 4) WITH BIOSTIMULANT HYDROGEN PEROXIDE (H<sub>2</sub>O<sub>2</sub>) TREATMENT**

**ABSTRACT**

To fulfill basic food needs in Indonesia, it is necessary to carry out sustainable agriculture by utilizing marginal land. Utilization of marginal land can be done by developing adaptive alternative food crops with high production, one of which is sorghum (*Sorghum bicolor* L. Moench var. Suri 4). Increasing sorghum growth and production can be done by applying biostimulants such as hydrogen peroxide (H<sub>2</sub>O<sub>2</sub>). This research aims to determine the effect of H<sub>2</sub>O<sub>2</sub> at different concentrations on vegetative growth and production of sorghum plants and to determine the optimal concentration of H<sub>2</sub>O<sub>2</sub> that has the maximum effect on vegetative growth and production yields of sorghum plants. This research used a single factor Completely Randomized Design (CRD) in the form of H<sub>2</sub>O<sub>2</sub> concentration with four treatment levels, namely 0 mM (control), 5 mM, 10 mM, and 15 mM. Treatment by spraying once a week as much as 25 mL/polybag. Vegetative growth parameters include plant height, leaf area, fresh weight and dry weight of the plant, crown length and root length. Meanwhile, production parameters include flowering age, panicle weight, fresh seed weight, seed dry weight, and dry weight of 100 seeds. The data obtained was then analyzed using ANOVA and Duncan's distance test. The research results showed that H<sub>2</sub>O<sub>2</sub> treatment with different concentrations had a significant effect on vegetative growth and production of sorghum plants. The optimal concentration of H<sub>2</sub>O<sub>2</sub> treatment that can produce vegetative growth and maximum sorghum plant production is 5-10 mM.

*Keywords: foliar spray application, optimal concentration, ROS, signaling molecules*