

**THE EFFECT OF PGPR BIOELISITOR APPLICATION OF INDIGENEOUS  
RHIZOSPHERE OF WELLING RICE ON GROWTH AND YIELD  
OF RICE (*Oryza sativa* L.)**

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**ABSTRACT**

*PGPR (Plant Growth Promoting Rhizobacteria) has the ability to synthesize secondary metabolites with potential as bioelicitors (compounds that induce plant growth and resistance). This study aims to analyze the growth response and yield of rice plants to the application of PGPR bioelicitors derived from indigenous rice rhizosphere. The research was conducted from September to December 2024 in the greenhouse of Jember State Polytechnic. The experiment utilized a completely randomized design (CRD) with a non-factorial arrangement consisting of five treatments: 0 ml.l<sup>-1</sup> (control), 5 ml.l<sup>-1</sup>, 15 ml.l<sup>-1</sup>, 25 ml.l<sup>-1</sup>, and 35 ml.l<sup>-1</sup>, with four replicates for each treatment. Observed variables included plant height, number of tillers per clump, number of productive tillers per clump, stem diameter, chlorophyll content in leaves, panicle length, total dry grain weight per clump, filled grain weight per clump, weight of 1000 grains per clump, and dry biomass weight. The data were analyzed using ANOVA followed by the Honest Significant Difference (HSD) test. The results showed that the application of 25 ml.l<sup>-1</sup> PGPR had a significant effect on stem diameter (65,4 cm). *Bacillus* sp. bacteria in PGPR were found to produce IAA hormones that promote stem diameter growth. Increasing the PGPR application up to 35 ml.l<sup>-1</sup> enhanced variables such as the number of tillers per clump (19,8 stems), number of productive tillers per clump (17,5 stems), chlorophyll content in leaves (287218074.8 mmol.cm<sup>2</sup>), total dry grain weight per clump (21,1 gram), filled grain weight per clump (16,5 gram), and weight of 1000 grains per clump (13,9 gram). However, these increases were not statistically significant. PGPR facilitates improved nitrogen nutrient effectiveness, thereby optimizing plant growth and yield.*

**Keywords:** *Rice Fields, Bioelicitor, Rhizobacteria*