

Effect of Biofertilizers Containing N-Fixer Application on Growth and Yield of Rice (*Oryza sativa* L.) Variety Bg 300

J. Vijayakumari* and S. Sivaneson

Rice Research Station, Paranthan, Department of Agriculture.

*vkkumari89@gmail.com

Rice (*Oryza sativa* L.) is one of the most important staple food crops. The usage of chemical fertilizers supplies essential nutrients, increases the growth and yield of rice. It causes several health hazards. The study was conducted at Rice Research Station, Paranthan, during Yala 2021 to determine the effects of biofertilizers containing N- fixer application on the growth and yield performance of rice Bg 300, and reduced chemical fertilizer for yield maximization with minimum hazards. The experiment was laid out in the Randomized Complete Block Design with twelve treatments and three replicates. The treatments were T1: - *Azotobacter*; T2: - *Azotobacter* + Nitrogen (N) at 100% of recommended rate; T3: - *Azotobacter* + N at 50% of recommended rate; T4: - *Rhizobium*; T5: - *Rhizobium* + N at 100% of recommended rate; T6: - *Rhizobium* + N at recommended rate 50%; T 7: - *Azolla*; T8: - *Azolla* + N at 100% of recommended rate; T9: - *Azolla* + N at 50% of recommended rate; T10: N at 100% of recommended rate; T11: - N at 50% of recommended rate and T12: - Control (without fertilizer) using Bg 300 rice variety. The plant height (cm), number of tillers and panicles/m², panicle length (cm), 50% heading, 85% of maturity, 1000 grains weight (g), and grain yield (t/ha) were collected and subjected to ANOVA with means separation using the DMRT at 5% of significant level. The results revealed that T3: *Azotobacter* + N at recommended rate 50% as found to be the best in promoting the plant height (100.60 cm), tiller production/m² (280), panicles /m² (280), filled grain/panicle (140) and yield (4.174 t/ha). The control treatment, where no fertilizers were showed the lowest growth attributes and yield. The application of bio fertilizer *Azotobacter* + N at 50% recommended rate indicated the maximum values for growth and yield parameters and can be used as an alternative way in the production of rice to boost the yield with reduced cost and hazards to human health and environment.

Keywords: Biofertilizer, Growth, Nitrogen, Rice, Yield