Determination of the Optimum Dose of Guano Fertilizer and Addition Rhizobium spp Inoculant to Increase the Growth and Production of Corn Plants (Zea mays L.)

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ABSTRACT

Rhizobium spp has the potential to associate with non-legume plants directly or indirectly. Microbial activity can increased by adding guano fertilizer to the planting medium. This research aims to analyze the effect of Rhizobium spp application and guano fertilizer dosage on the growth and yield of maize plants. The study designed using a Completely Randomized Design (CRD) with a factorial design of two factors and three replications. The first factor is guano fertilizer dosage, consisting of 5 treatment levels (5 g/polybag, 15 g/polybag, 25 g/polybag, 35 g/polybag, and 45 g/polybag), and the second factor is Rhizobium spp, consisting of 3 types (origin of the roots rice, maize, and peanut roots). The results showed that the interaction between guano fertilizer dosage and Rhizobium spp from peanut root shows a significant effect on plant height (201.77 cm). The results of the orthogonal polynomial quartic test show that the optimum dose of guano fertilizer of 10 g/polybag has a significant effect on the height growth of corn plants. The inoculation of Rhizobium spp from the peanut root zone shows a significant result on plant height (172.98 cm). This is related to the ability of Rhizobium spp to solubilize phosphorus better, as phosphorus plays a role in cell formation in growing tissues.

Keywords*: Organic, Rhizobacteria, Rhizobium-Non Legume Association*