

ABSTRACT

Sorghum (*Sorghum bicolor* L.) is one of the important crops in the world because it can be used as a promising alternative food source. However, sorghum cultivation in Indonesia is still constrained by low land fertility and dependence on chemical fertilizers. It was hoped that the right planting spacing and the combination of Jakaba and Photosynthetic Bacteria (PSB) can increase sorghum growth and productivity. This research was carried out at the Experimental Garden and the Plant Physiology Laboratory, Faculty of Agriculture, Universitas Malikussaleh. This research was conducted for 4 months from February, 2025 to June, 2025. This study used a Factorial Group Random Design (GRD) with three replicas. The results showed that the treatment of planting distance had a very real effect on plant height, stem diameter, number of leaves, leaf area and panicle length. The treatment of LOF Jakaba and Photosynthetic bacteria (PSB) has a significant effect on the variables of plant height, stem diameter, number of leaves, length of stomata, width of stomata, chlorophyll, leaf area, dry weight of seeds and length of panicles. There was an interaction between variety treatment and the application of LOF Jakaba and Photosynthetic bacteria (PSB) at the variables of plant height, stem diameter, number of leaves, chlorophyll content and amount of production per hectare (ton).

Keywords: food crops, microorganism, numbu, planting spacing