

Study of Combination Biofertilizer for increasing Production of *Jatropha curcas* (*Jatropha curcas*, linn)

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ABSTRACT: Bio fertilizer is the collective name for all types of organic materials from plants and animals, that can be reorganized into nutrient available to plants. In Permentan No.2/Pert/Hk.060/2/2006 about Bio fertilizer and soil improvement, Explained that fertilizer is largely Bio fertilizer or all contain organic fertilizer from plants or animals and who have been through the engineering process, solid or liquid form can be used to supply organic material to repair the physical, chemical, and biological land. Definition of Bio fertilizer is more on the C-organic content or organic materials than nutrient level; level C-organic that's what being a differentiator with the organic fertilizers. Two different treatment were imposed, i.e., POH: with bio fertilizer and POH+VAM: with VAM addition. Between this fertilizer, all of observed variables were not significant different.

Keywords : POH, Material organic, Nutrient Contain

1. Introduction

Bio fertilizer works for a particular nutrient or holds to facilitate the availability of nutrients in the soil for plants. Facilitate the availability of this nutrient can take place through increased access to the crop nutrient or example by mycorrhizal mushroom arbuskuler, dissolving solvent by microbial phosphate, as well as an overhaul of the actinomycete. fungi, or earthworms. This takes place through the nutrient supply relations symbiosis or non-symbiosis. In symbiosis with certain plant groups or with most plants, While non-symbiosis takes place through the absorption of nutrients by dissolving the Group result of microbial phosphate, solvent and the restructuring of organic matter by a group of decomposer organisms. Group of microbes symbiosis is especially covering bacteria and fungi root nodules mycorrhizal. Pre-inoculated Pistacia seedlings with VAM fungi

could have a better growth in the harsh field conditions (Caglar and Akgun, 2006).

2. Methodology

This research was conducted at the Research of PT Bumimas Ekapersada, located at Kp. Jambal Cikarang Pusat Bekasi. This study used a Randomized Complete Design (RCD) with one Factor. This research factor is type of fertilizer which consists of 1. Bio fertilizer (POH) and 2. Bio fertilizer (POH) with 10 g Vesicular Arbuscular Mycorrhizae (VAM). This research consists of three replications.

Observed variables consist of plant height (cm), no.of branches, no.of flowering branches, no.of bunches per plant, no.of capsule per plant, and dry seed (g) per plant. This observed variables were analyzed using T-test with $\alpha = 5\%$. The assumptions according to the corresponding scenarios were shown in Figure 1.

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3. Result and Discussion

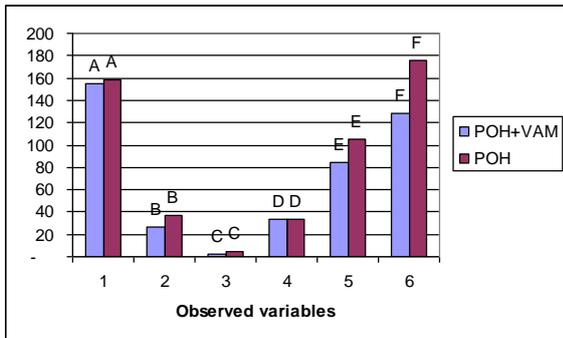


Figure 1. Effect of POH+VAM and POH to observed variables 1=Plant height (cm), 2=no.of branch, 3=no.of flowering branch, 4=no.of bunches, 5=no.of capsule, and 6=dry seed (g)

(Figure 1). This is not analogous with other research. Other researches conclude any increasing yield with VAM application. Inoculation of *Rhizobium* with VAM (*Glomus fasciculatum*) enhanced seed yield of chickpea (Maya, et al. 2012). This is possible because it is not optimal provision of VAM application. In this research, VAM is given only once at the beginning of the planting at a dose of 10 g / plant.

VAM treatment in Bio fertilizer application does not give significant different to the number of bacteria in soil (Figure 2). This is showing that VAM dose on treatment 10 g per plant still not optimal.

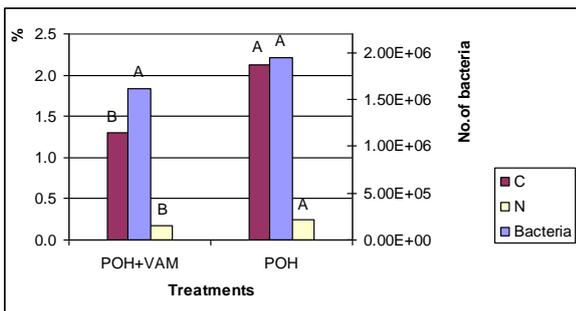


Figure 2, Content of Bacteria, % Carbon, and % Nitrogen in Soil Test Samples

From this soil analysis results, showed a significant difference in the percentage of C and N content. Soil samples with VAM application give

lowest percentage of C and N content, this indicates that the presence of VAM activity in the soil. The use of VAM fungus led to significant enhancement in nutrient uptake (Taiwo, at al. 2001).

4. Conclusion

Bio fertilizer with VAM showed a same response with the Bio fertilizer without VAM to increase production of *Jatropha curcas*. It shows a good symbiosis between the two materials in improving the availability of nutrients, as indicated by the decrease in %C and N in the soil with VAM. Further optimization is needed in the determination of VAM doses to be able significantly increase of *Jatropha* production.

The addition of VAM in this study does not give a significant difference to the observed variables if compared with POH treatment without VAM

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