

Mushblok Organic Fertilizer

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Abstract : Mushroom block waste is increasing nowadays. It will cause the pollution and also increase the waste production. Due to this problem, this research is producing the MushBlok organic fertilizer (Mushroom block organic fertilizer). It is an organic fertilizer that made from mushroom block waste. This organic fertilizer was made up by using mushroom block composed (Expired) for 5kg, water was 5L, any domestic waste (fruits, vegetable, fish, eggs) for 1kg (optional), yeast-22g, beneficial microorganism (BMO) 2L to 3L and molasses 0.5L. The ingredients were mixed together and left for 5 days in a room temperature. The results showed that the organic mushblok increase the growth and also increase the yields of vegetables. Thus, the production of Mushblok is very useful and efficiently prevents the increase of water and pollution. At the same time, this product can generate the profit.

Keywords: Mushroom Block, Waste, Organic

1. Introduction

Waste of agricultural production is increasing nowadays. Normally, the producer focuses on the yield but not the utilization of the waste that produces along with the processing and production of the main product. The mushroom block has been discarded without recycling or reuse. However the mushroom media is very good as a source of fertilizer.

Fertilizer is the source of nutrients that are added to the soil to improve plant growth. Plants need 17 types of nutrients for growth processes and to complete their life cycle. If any of these nutrients are not available, the life processes of the plants will be retarded. However, using organic fertilizer can improve the quality and also quantity of yields.

This organic fertilizer is good for stimulant plant growth, to make the plant stronger and healthy. So, the mushblok fertilizer is a good product that can help the plant in order to grow well and produce a high yield. At the same time, it can reduce the cost of spending on chemicals. It is produced from the

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waste that comes from the expired mushroom block which is good to prevent the pollution and also reduce the cost of fertilizer production [1] .

2. Materials and Methods

2.1 Materials

Organic fertilizer was produced by using the mushroom plant medium as a main ingredient. The ingredients were as listed below:

- a. Mushroom block composed (Expired)-5kg
- b. Water 5L
- c. Any domestic waste (fruits, vegetable, fish, eggs)-1kg *optional
- d. Yeast-22g
- e. Beneficial microorganism (BMO) 2-3 L
- f. Molasses 0.5L

2.2 Methods

The steps of producing this product were listed below:

- a. Prepared a gunny sack
- b. Place 5 kg of mushroom compost
- c. Add yeast on the medium and mix well
- d. Left for 5-7 days for the medium do aerobic respiration
- e. If solution show white mycelium, it means that the medium enough mature
- f. Prepared a BMO and Molasses
- g. Mix substance together with the medium and left for 5 days
- h. Keep the medium in room temperature and ready to used

3. Results and Discussion

3.1 Results

Results showed that the increasing amount of mushblock fertilizer, the yield and growth performance of vegetables increased. This is depicted in Table 1.

Table 1: Result

Parameter	Result
Plant Height	Increasing by increase the amount of mushblock fertilizer
Plant Diameter	Increasing by increase the amount of mushblock fertilizer
Plant wet weight	Increasing by increase the amount of mushblock fertilizer
Number of Fruits	Increasing by increase the amount of mushblock fertilizer

3.2 Discussions

Mushroom media waste is one source of potassium (K) which is cheap and easily available. The return of mushroom media waste to the soil can meet most of the K nutrients needed by plants. Naturally potassium is easily lost from the soil, so the application of K fertilizer should be given in two types, as inorganic form (KCl fertilizer) and organic form (straw compost) [2].

The expired mushroom block is a good waste to produce organic fertilizer [3]. It is good for economic benefit which reduces waste flow to landfills. It can reduce contamination. Then, it just required low capital investment and relatively simple technologies to make organic fertilizer from mushroom block waste practical for less-developed agricultural regions. The benefit of using expired mushroom blocks as organic fertilizer to the environment is helps to close the "metabolic gap" through recycling waste on-site [3]. It also reduces greenhouse gas emissions such as methane and nitric oxide (produced in landfills or incinerators when not composted).

4. Conclusion

The use of this organic-based fertilizers product in sustainable agriculture benefits farmers, growers, consumers and the environment in many ways. It can increase the yield by about 20-30 %. Fertilizer provides additional nutrition to plants. Plants may not receive enough nutrients from the soil. So, fertilizers can improve yields in a vegetable garden or increase flowering in an ornamental garden and help in plant long-lasting life. Thus, organic fertilizers break down, they improve the structure of the soil and increase its ability to hold water and nutrients. Over time, organic fertilizers will make your soil and plants healthy and strong.

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