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Supply of Coconut Water As a Nutritional Supplement CornCob Media on Growth White Oysters (*Pleurotus ostreatus)*

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ABSTRACT

Provisioning of coconut water as nutrient addition for corncob media toward the growth of white oyster mushroom (*Pleurotus ostreatus*) was carried out at the Jaya Mushroom Farmer Group. This study aimed to investigate the effect of young coconut water as nutrient addition for corncob media toward the growth of white oyster mushroom. This study used a completely randomized design (CRD) consist of 5 treatment levels and 2 replications in order to obtain 10 experimental units. Each experimental unit consist of 5 baglogs, it overall 50 baglogs. The treatments consist of A = 20 kg of cobs: control, B = 20 kg of cobs: 7 liters of coconut water, C = 20 kg of cobs: 8 liters of coconut water, D = 20 kg of cobs: 9 liters of coconut water, E = 20 cobs: 10 liter of coconut water. The cap number, cap length (cm), cap width (cm), and fresh weight (kg) were observed. The study shown 20 kg of cobs: 10 liters of coconut water the best treatment toward of white oyster mushrooms result.

Keywords: *Corncob, Coconut water, White oyster mushroom.*

INTRODUCTION

White oyster mushroom (*Pleurotus ostreatus*) is a type of food fungus from the Basidiomycota group. This fungus can be found in the wild all year round. Oyster mushroom is a type of wood fungus grows on the surface of rotten tree trunks or on tree trunks that have been felled. The name oyster mushroom is taken from the shape of its curved, oval and rounded hood resembling a clam or oyster shell with a wavy edge. This type of mushroom is in great demand because of its delicious taste and can be made into various kinds of processed dishes (Alex, 2011).

Oyster mushrooms generally can grow in various media, both naturally (woody tree trunks) and other media, such as wood dust, rice straw, cogongrass, bagasse, peanut shells, and other media materials. In addition, oyster mushrooms grow in places that contain enough carbon in the form of carbohydrates and contain enough nitrogen in the form of ammonium salts which will be converted into protein (Shifriyah, 2012).

The problem usually occurs for white oyster mushroom cultivation and it causes the solutions that oyster mushrooms do not have chlorophyll, oyster mushrooms are not able to photosynthesis. Oyster mushrooms are unable to provide their own food, eventually the mushrooms absorb nutrients from the medium where they grow (baglog). Due to reduced nutrition, it is necessary to add or provide nutrition. There are many theories for making additional nutrition, some are given rice washing water, and other organic ingredients. However, this is not optimal, the most appropriate way is to use young coconut water as a substitute for water in the media mixture (Shifriyah, 2012). From some previous farmers, there was no mixing with oyster mushroom media, they generally gave it by spray/injected it into the baglog. Oyster mushrooms require nutrients that are relatively easy to absorb, a growing medium that is rich in vitamins and minerals to fulfill the metabolic activities of their cells. Supplements are also relatively inexpensive and can easily be provided by mushroom growers. Agricultural waste has the potential to be suitable as a medium for mushroom cultivation is increasingly limited because utilization technology is increasingly advanced. For this reason, it is necessary to look for potential agricultural waste that can be used as an alternative to growing media, one of them is corn cobs (Sutarman, 2012). Corn cobs are waste from consumers or society, which is quite abundant and its used still not optimal. To reduce the high level of pollution, corn cobs can be used to have economic value, namely making it a growing medium for mushroom plants (Muchroji, 2010).

Unprocessed corn cobs only contain about 2.94% protein with a lignin content of 5.2%, high cellulose up to 30%, and digestibility level of up to 40%. Whereas grass has a protein content of about 6%. "Minimum animal protein requirement is in the range of 6-8%. Therefore, several treatments must be carried out to increase the nutrition from corn cobs waste (Tangendjaja et al., 2008).

Effect of Corn Cobs as a Growth Media on the Quality of Oyster Mushrooms (*Pleurotus ostreatus*). The results that can be drawn from this research that corn cobs have an effect on the physical quality of mushrooms is better than the control (sengon wood) as a growing medium for oyster mushrooms when mixed with sengon wood using a ratio of 25:75. Composition 25:75 grows the slowest of control and all other formulas shows superior physical quality which has an

average mass of 159.67 grams, a mushroom stalk length of 14.67 cm, a hood diameter of 9.5 cm, a hood thickness of 0, 37 cm and the number of hoods as much as 18.67 pieces so the composition of 25:75 can be used as an alternative growth medium in oyster mushroom cultivation aims to obtain good physical qualities of mushrooms (Hakiki et al., 2013)

Research purposes

To determine the effect of coconut water as an additional nutrient on corncob media on the yield of white oyster mushroom (*Pleurotus ostreatus*).

MATERIALS AND METHODS

The design used in this experiment was a completely randomized design (CRD) consisting of 5 treatments and 2 replications. Each experimental unit consist of 5 baglogs, so the total baglog were 50 baglogs.

The treatment were as follows:

A = 20 kg of cobs: Control, B =20 kg cobs: 7 liters of coconut water, C =20 kg cobs: 8 liters of coconut water, D =20 kg cobs: 9 liters of coconut water, E=20 kg cobs:10 liters of coconut water

RESULTS AND DISCUSSION

Number of caps

The results of observations on the number of caps of white oyster mushroom (*Pleurotus ostreatus*) were statistically analyzed using the F test at the 5% significance level and showed significantly different results. The average number of white oyster mushroom caps can be seen by Table 1.

Table 1. Number of white oyster mushroom plant covers (strands)

Treatment	Average number of hoods
A	8.37ab
B	7.37a
C	7.50a
D	7,75a
E	12.25 b

KK = 8.2%

The numbers in the column followed by the same lowercase letter are not significantly different according to DNMRT at the 5% significance level.

Table 1 shows the number of white oyster mushroom plant covers (*Pleurotus ostreatus*) with E treatment 20 kg of corn cobs with 10 (ten) liters of young coconut water is higher yield (12.25 pieces) than the others, because treatment E is The treatment was given a lot of corn cobs and coconut water from all the treatments given, so the nutrition given a lot also. Its because the addition of full young coconut water (10 liters) can provide sufficient nutrients in accordance with the amount needed for growth, the amount of nutrients contained the growing media can stimulate cell division and stimulate the formation of new cells. Whereas in C treatment 20 kg of corn cobs with 8 liters of young coconut water was the lowest result (7.5 strands) of all treatments, its because in treatment C the nutrients was given unable to be absorbed by the white oyster mushroom. To produce the lowest results with an average of 7.5 strands.

Coconut water produces faster sprouting time, shoot length, number of leaves, length, and high root wet weight. In addition, coconut water also contains growth regulators in the form of auxin and gibberellin hormones, so it can spur growth. Both sources of growth regulators can replace

synthetic root stimulants (Irmansyah et al., 2017) and (Heriansyah, 2019).

Cap Length

Table 2. Cap length of white oyster mushroom (cm)

Treatment	Average number of Cap Length
A	7,46
B	9,13
C	8,97
D	7,81
E	8,20
KK= 9,55%	

Table 2 shows the longest cover on the white oyster mushroom plant (*Pleurotus ostreatus*) with treatment B 20 kg of corn cobs with 7 (seven) liters of young coconut water produces average (9.13 cm), its because Treatment B has sufficient nutritional content, so it can extend the white oyster mushroom covering. While in treatment A is the shortest hood length (7.46 cm), its because treatment A without nutrition, so we can see in table 2 that treatment A is the shortest.

For growth and development, white oyster mushrooms need a source of nutrition or food such as Nitrogen (N), Phosphorus (P), Potassium (K), and several other elements. These elements are readily available, although its not a lot are needed. Therefore, it is necessary to add from outside (Suriawiria, 2002).

The addition of coconut water aimed to meet the nutritional needs of mushroom growing media. Meeting nutritional needs can stimulate growth to reach its maximum size

Cap Width

Table 3. Cap width of white oyster mushroom plant (cm)

Treatment	Average Cap width (cm)
A	8.25
B	9.75
C	9.46
D	8.77
E	9.56
KK = 7.31%	

Table 3 shows the widest cover on the white oyster mushroom plant (*Pleurotus ostreatus*) with treatment B 20 kg of corn cobs with 6 (six) liters of young coconut water (9.75 cm) was not significantly different. The width of the hood can also be affected because of the environmental conditions at the time of maintenance in accordance with the conditions desired by white oyster mushrooms for growth and development. Whereas treatment A was the shortest hood width with an average of 8.25 cm, because in this treatment without additional nutrition.

Fresh weight

Table 4. fresh weight of white oyster mushrooms (gr)

Average	Treatment Fresh weight (gr)
A	0.63
B	0.63
C	0.73
D	0.75
E	1.06
KK = 6.24%	

Table 4 shows the fresh weight of white oyster mushroom (*Pleurotus ostreatus*) with E treatment of 20 kg of corn cobs with 10 (ten) liters of young coconut water (9.75 grams) was not significantly different. Treatment E was the highest dosage of all treatments given to white oyster mushroom plants, so the nutrients was also a lot. While treatment A is treatment without nutrition so, the fresh weight in the treatment becomes light with an average of 0.63 grams.

Provisioning of coconut water affects the wet weight of the mushroom fruit body, because coconut water contains auxin and cytokinin hormones which can affect the quality of the harvest, one of them is the wet weight of the mushroom fruit body. Auxin functions to help increase the quality of crop yields, stimulate the process of root formation and root

growth properly, stimulate and enhance proteases for the emergence of fruit bodies. Cytokinin hormones function to influence root growth and differentiation, promote cell division and growth in general, promote germination and aging (Netty and Donowati, 2007) and (Heriansyah, *et al.* 2020).

CONCLUSIONS

From the research conducted, it can be concluded that:

a) Provisioning of young coconut water as a nutrient for the yield of white oyster mushroom (*Pleurotus ostreatus*) in treatment B with a dosage of 20 kg of corn cobs and 7 liters of coconut water can show results on an average hood width of 9.75 cm and average hood length. 9.13 cm.
b) Provisioning of coconut water to increase the production of white oyster mushrooms in treatment E with dosage of 20 kg of corn cobs and 10 liters of coconut water can produce production on wet weight with an average of 1.06 grams and many caps with average of 12.25 pieces.
c) The best treatment is E treatment with dosage of 20 kg of corn cobs and 10 liters of coconut water

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