

IDENTIFICATION OF SUITABLE AND EFFICIENT
SUBSTRATE FOR THE PRODUCTION OF OYSTER
MUSHROOMS

(*Pleurotus ostreatus*)



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ABSTRACT

Mushroom production can play an important role in managing farm organic wastes when agricultural and food processing by-products are used as growing media for edible fungi. Mushrooms are completely different from growing green plants and do not contain chlorophyll and therefore depend on other plant material (the "substrate") for their food. Small-scale mushroom production represents an opportunity for farmers interested in an additional enterprise and is a specialty option for farmers without much land.

The experiment was carried out to identify the suitable and efficient substrate for the production of oyster mushrooms. It was carried out with seven treatments and three replicates in the mushroom hut belongs to the Department of Agricultural Biology of Eastern University, Sri Lanka. The mushroom species used was *Pleurotus ostreatus*.

The T₁ is the control treatment which is sawdust substrate and the substrate paddy straw, dry leaves, shredded paper, sawdust + paddy straw, sawdust + dry leaves and sawdust + shredded paper are denoted by T₂, T₃, T₄, T₅, T₆ and T₇ respectively. The average yield in terms of fresh weight, total number of bloom, harvest interval, large bloom percentage, large bloom diameter and weight and small bloom diameter and weight were the parameters used to evaluate the efficiency of substrate in this study. At each harvest from the substrate bags all these parameters were measured.

The results revealed that there were significant differences observed in yield performance in T₅ (sawdust + paddy straw) and T₇ (sawdust + shredded paper) from other treatments T₁, T₃ and T₆ and also the sawdust + paddy straw substrate showed significant difference from sawdust + shredded paper substrate in yield. It was found that, there was no significant difference in total number of blooms among the

substrates except sawdust + shredded substrate (T₇) which has shown significant differences from the treatments T₂, T₅ and T₆. There was no any significant difference among the treatments in large bloom percentage and hence, the different substrates do not affect the formation of large blooms.

When analyzing the harvest interval, it was found that there was a significant difference in shredded paper substrate from the treatments T₁ and T₅ and there was no significant difference between the T₁ and T₅. It was observed that the diameter and weight of the large blooms and small blooms were high in sawdust + shredded paper substrate. There was a positive correlation of large bloom diameter and weight with average yield, significant at $p = 0.01$.

In the present study, the sawdust + paddy straw (T₅) substrate depicts as efficient substrate than the other substrates because this substrate shows the highest yield, higher number of blooms and large bloom percentage with minimum harvest interval. The sawdust + shredded paper substrate is also considered as a suitable substrate next to T₅ due to the higher yield, large bloom percentage with low harvest interval. The sawdust + dry leaves substrate is found to be the less efficient substrate for the production of oyster mushrooms because of the lowest yield and large bloom percentage with longer time period between two harvests.

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