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# Elephant Dung as an Alternative Substrate for Oyster Mushroom (*Pleurotus ostreatus*) Cultivation

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## Abstract

Mushrooms are fungi that act as bioconversion agents of lignocellulose in organic waste materials. Consumption of mushrooms is increasing day by day due to their nutritional values. The present experiment aimed to examine the possibility of using elephant dung as an alternative substrate for oyster mushroom (*Pleurotus ostreatus*) cultivation. There were five treatments in the experiment that based on the ratio between sawdust and elephant dung in the substrate: 100% sawdust (T1 - control), 75% sawdust and 25% of elephant dung (T2), 50% sawdust and 50% elephant dung (T3), 25% sawdust and 75% elephant dung (T4) and 100% elephant dung (T5). The experiment was arranged as a completely randomized design with five replicates where each replicate consisted of eight experimental units as grow bags. One-way ANOVA was used to analyze data using SAS statistical package. The growth performances of mycelium and the yield of oyster mushrooms were recorded from the 1st day of bag opening until 50 days. Growth performances were determined by measuring the average mycelia growth as length (cm) and the visual appearance score once a week. The total fresh yield was recorded for 50 days after bag opening. According to the results, mycelia growth and the fresh yield of mushrooms were significantly ($p < 0.05$) different among treatments. The mycelia growth was good in all treatments except the control (T1 - 100% sawdust). The highest fresh mushroom yield was obtained when mixing 50% sawdust with 50% elephant dung (T3) to prepare the growth substrate. The lowest fresh mushroom yield was obtained in the treatment using 100% saw dust (T1), though it recorded greater value of visual appearance score. Furthermore, the growth substrate prepared by mixing equal proportions of sawdust and elephant dung (T3) had the highest value for benefit cost ratio and lowest production cost per bag. Therefore, based on the present study, it can be concluded that 50% of the general mushroom substrate of sawdust can be replaced by elephant dung for oyster mushroom cultivation without compromising the yield.

**Keywords:** *Alternative mushroom substrate, Elephant dung, Mycelia growth, Oyster mushroom, Sawdust*

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