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“Bridging the gap between increasing knowledge and decreasing resources”

Oyster Mushroom (*Pleurotus ostreatus*) Yield in Different Substrates Prepared by Cowpea Pod Shell Waste

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Abstract

Recently, mushroom cultivation gains more attention as a possibility to use agricultural wastes, and to help alleviate poverty and food insecurity in Turkey. Rising demand for oyster mushroom (*Pleurotus ostreatus*) leads to an increasing interest among small-scale farmers in rural areas and also consumers. This is due to its flavor, aroma and high nutritional value and easy grow process with low inputs, minimum requirements for growing conditions and also equipments. Also, some agricultural and industrial wastes can be used for oyster mushroom production.

This experiment was conducted to determine the possible use of cowpea dry pod shells remaining as a waste after threshing in the oyster mushroom cultivation. In the experiment, ten different substrates prepared from poplar sawdust (S), cowpea pod shell (CP) and rice bran (RB) mixtures were tested. Substrate mixtures were 100S, 90S+10RB, 75S+25CP, 50S+50CP, 25S+75CP, 65S+25CP+10RB, 40S+50CP+10RB, 15S+75CP+10RB and 90CP+10RB, 100CP. HK35 strain of oyster mushroom was used in the study. Moisture, pH, ash, nitrogen (N), carbon (C) content and C:N ratio of the substrates were determined after sterilisation.

Mycelia did not grow on the substrate prepared by S alone. The highest mushroom yields were obtained from 90CP+10RB, 100CP, 15S+75CP+10RB, 25S+75CP and 65S+25CP+10RB (264.80, 257.60, 219.20, 217.6 and 206.00 g per kg substrate, respectively). It was concluded that cowpea dry pod shells can be used in the cultivation of oyster mushrooms. The use of agricultural wastes such as cowpea pod shells will ameliorate the product: efficiency for small scale farmers.

Keywords: Cowpea pod shell, oyster mushroom, *Pleurotus ostreatus*, substrate