



Hungarian University of Agriculture and Life Sciences
Budai Campus

M.Sc. Horticulture Engineering

EFFECTS OF LARVA'S PROTEIN AND FRASS SUPPLEMENTATION ON OYSTER
MUSHROOM CULTIVATION

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ABSTRACT

Oyster mushrooms are increasing for their easy cultivation technology, availability of raw materials, high yield potential as well as its high nutritional and medicinal value. supplementation is one of the key practices research projects have shown for better results in production of oyster mushrooms. Agricultural waste supplements are mostly used like rice bran, wheat bran and spent mushroom substances. The recent years spent mushroom substances have been a challenge to the mushroom farmers, however as one of the solutions is to feed the spent mushroom substrate on insects for decomposition which is economically cheap and environmentally friendly. Meal worm's larva is one of good decomposers of spent mushroom substance, since their breeding cycle is fast. As they feed, they drop their frass and multiply easily. It is on this point of finding the best way to recycle the spent mushroom substrate and find supplements for oyster mushrooms to boost production. This study aims to find the Effects of larva's protein and frass supplementation on oyster mushroom cultivation.

The experiment was carried out in the mushroom laboratory of Hungarian University of Agriculture and Life science at the department of Vegetable and Mushroom growing. Two separate supplements were tested on the growth rate of oyster mushroom mycelium for 7 days at room temperature (larva additive and protein) respectively at three different levels namely 1%, 5% and 10%. Two different sets of control were used: positive control with 10% larva additive and protein + water agar and the main control with PDA. The highest growth rate was recorded at 1% larva additive with the mean value of 78.419 mm, followed by 5% larva additive with 76.723 mm and the positive control of 10% larva additive + water agar with 76.812 mm while the lowest growth rate was observed in protein 10% with a mean of 50.209 mm. Larva additive supplement had a high growth rate as compared to protein supplements from the results, it is concluded that supplementation of both larva and protein supports growth of the oyster mycelium and can be used in cultivation to boost yield potential on a lower concentration. However, recommend testing of the treatments in vivo experiment to establish the effect of the supplements on the fruiting body and nutritional values.