EFFECT OF DIFFERENT SUBSTRATES ON THE PRODUCTION OF *PLEUROTUS FLORIDA*

A Dissertation submitted for the partial fulfillment of Masters Degree in Botany, Institute of Science and Technology, Tribhuwan University, Kathmandu, Nepal.

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RECOMMENDATION

This is to certify that Ms. Sarika Vaidya has carried out the dissertation work entitled "Effect of Different Substrate on the Production of *Pleurotus florida"*, under our supervision. The entire work is based on the collection of primary data by the student. This result has not been submitted elsewhere for any other academic degree. We, therefore, recommend this dissertation for the partial fulfillment of Master's Degree in Botany from Tribhuvan University, Nepal.

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LETTER OF APPROVAL

The dissertation paper submitted by Ms. Sarika Vaidya entitled 'Effect of Different Substrates on The Production of *Pleurotus Florida*" has been accepted as a partial fulfillment of M. Sc. Degree of Botany.

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Sarika Vaidya

ABSTRACT

Oyster mushroom is highly used edible mushroom that can utilize lignocellulosic materials as substrate. This capability of the oyster mushroom is due to the presence of its lignocellulitic enzymes which help it convert cellulose and lignin into useful carbohydrates such as glucose that can be used as an energy source for the fungi. Any source that contains cellulose and lignin is a possible substrate for growing these fungi.

The preparation of substrate was based on the dry weight of each component before mixing. The substrate used in this study for the cultivation of oyster mushroom is straw, sissoo saw dust, newspaper and rice husk. First all the substrates are individually used. Then paper, saw dust and rice husks are combined with straw in the ratio 1:1 (w:w). Then the substrate paper is treated with rice bran. The rice bran is mixed with paper in the ratio 1:9 (w:w).

The experiment was laid out in a complete randomized design (CRD) with three replications. The data was analyzed on various aspects like completion of spawn running, appearance of pinheads, maturing of fruit bodies and number of fruit bodies.

The highest time taken for colonization was in substrate rice husk and substrate sawdust (9.7 days) and shortest was in substrate paper + 10% bran (3 days). For primordial formation the longest time taken was in substrate rice straw (16.7 days) and shortest in substrate paper (9.3 days). The maximum average time taken for the crop to be ready for first harvest was 22 days in rice husk and shortest was 15.3 days in paper. Maximum production 1714 gm was in substrate rice straw followed by substrate straw + rice husk with the production 974.7 gm and least was 74 gm in sawdust. The total weight of each eight dry substrate was 1500 gm.

Rice straw is the most appropriate substrate in the mushroom production. This study has also successfully demonstrated the possibility of using paper, rice husk and sawdust as substrate in mushroom production.

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Acronyms

Gm	= gram
NARC	= Nepal Agricultural Research Council
CAT	= Centre for Agricultute Technology.
TU	= Tribhuvan University
w:w	= weight:weight