



Competence of straw of various Wheat varieties (Strains) and new method of mushroom monolith preparation for cultivation of the *Pleurotus florida*

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ABSTRACT :

Our country has tremendous potential for cultivation of edible Mushroom due to the vast availability of agricultural by-product the main raw material for *Pleurotus florida* production six wheat varieties namely Hi-8759 Pusa tejas HD-4728 pusa malawi, HD-1605 Pusa ujala, HS-562, HD-3226 and HW-5207 (cow³) were tested for cultivation of *P. florida* by new method.

Key Words : *Wheat varieties, pusa, Pleurotus florida dextrose, Agar, Basidio corp.*

INTRODUCTION

Wheat straw a byproduct obtained after harvesting of wheat grains has an annual global production of 529 million tons (Govumoni et al 2013) wheat straw is composed of Internodes ($57 \pm 10\%$), Nodes ($10 \pm 2\%$), Leaves ($18 \pm 3\%$), Chaffs ($9 \pm 4\%$) and rachis ($6 \pm 2\%$) oyster mushroom (*Pleurotus florida*) is an edible mushroom that belongs to the subdivision, Basidiomycotina play an important role in nature by recycling carbohydrate through lignin degradation is achieved through enzymes. Oyster mushroom can be grown at temperature ranging from 20 to 28C⁰ and relative humidity (RH) 75-85% the best growing season is during March/April to September/October and lower regions from September/October to March/April. In the present study unchopped and chopped wheat straw were evaluated as substrate to improve the mushroom yield by using a strain of the species *Pleurotus florida*. To study also aims at identifying the best variety of wheat straw suited for *Pleurotus florida* cultivation.

Experiment was conducted during 2018-2019 in mycology and plant pathology lab, Department of Botany, U.P. College, Varanasi the pure culture of *Pleurotus florida* was obtained from Mushroom spawn production unit Inst. of Agricultural Sciences, BHU, Varanasi. They maintained in PDA medium used for preparation of mother culture and mushroom seed or spawn used present study.

An experiment was conducted to study competent of straws of various wheat strains either whole or chopped for cultivation of *P. florida*. The dried wheat straws from the strains Hi-8759, Pusa tejas, HD-4728, Pusa Malawi, HD-1605 Pusa ujala, HS-562, HD-3226 and HW- 5207 (Cow³) were tested chopped wheat straw of about 3-5 cm length and unchopped wheat straw (Modified cylindrical bed preparation method) was tried as treatment. Cylindrical beds prepared using 500g of dry wheat straw following layer spawning method as described by Vijay and Sohi with modification as follows. The unchopped whole wheat straw was made into coil and layer of coiled wheat straw was placed at bottom of polythene bag over this a layer of seed was sprinkled and other coils were similarly placed with layer spawning in between coils and bag was tied at top. The mushroom bags on monolith were hung from the ceiling by means of Nylons threads instead of the usual method of keeping them in tiers made of Eucalyptus stacks. 2-5 opposite holes of 1cm diameter were made in the polythene bags. The bags were kept in Mushroom house where relative humidity was maintained above 80% by sprinkling the walls and floor with water and the temperature was maintained range 21-28 C⁰. Due care was taken for proper air circulation. The procedure of Bahl (1988), Singh et al 1995, Dhoks et al 2001 was adopted with certain modifications for cultivation of *P. florida*. Water was sprinkled regularly as in the standard cylindrical bed preparation method. Daily observation were recorded for yield parameter viz spawn run, maturity period, numbers and weight of fruiting body (Basidiocarp) and Biological efficiency (BE) were studied as in the standard procedure.

Table : 1- Competence of wheat straw from various wheat varieties for the cultivation of *P.florida*.

Wheat Variety	Treatment	Mycelial growth (days)	Basidiocorp maturity (days)	Biological efficiency (BE)%
HS-562	Unchopped	11.50	17.20	89.50
	chopped	11.80	17.82	80.25
HD-4728 Pusa malawi	Unchopped	9.50	14.25	103.50
	chopped	10.50	15.75	91.99
HD-1605 Pusa ujala	Unchopped	10.35	15.50	94.90
	chopped	11.11	16.70	87.90
HD-3226	Unchopped	11.11	16.50	80.75
	chopped	11.50	17.20	76.55
Hi-8759 Pusa tejas	Unchopped	11.13	16.50	92.75
	chopped	11.80	17.20	81.25
HW-5207 (Cow-3)	Unchopped	12.80	17.82	72.50
	chopped	13.50	19.20	65.35

RESULT AND DISCUSSION :

Results obtained in the present study are shown in Table-1 that out of six varieties of wheat straw of the variety DH-4728, Pusa malawi gave the highest yield followed by HD-1605 Pusa ujala and HS-562 unchopped wheat straw was superior to chopped wheat straw in the all the treatments fastest mycelia growth and Basidiocarp formation was also in HD-4728 Pusa malawi which indicated better nutrition and degradability of this straw. The study brought out that unchopped wheat straw of HD-4728 Pusa malawi strain (variety) can be used as a substrate for *Pleurotus florida* cultivation.

Straw from short duration varieties like Hi-8759, Pusa tejas, HS-562, HD-3226 and HW-5207 (Cow-3) gave lower yields of mushroom.

The present results indicate that *Pleurotus florida* can be cultivated in Laboratory condition this will enable the farmer to get extra income and leads us to cultivate and commercialize the *P.florida* production for the benefit of society and sustain food security for peoples.

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