GOUR MAHAVIDYALAYA
Department of Botany
ACCREDITED BY NAAC (2nd Cycle) B+

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Mushroom Cultivation for Entrepreneurship

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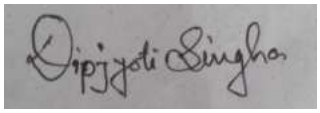
Gour Mahavidyalaya

Title of the Activity: *Mushroom Cultivation for Entrepreneurship*

NOTICE

Department of Botany planned on Mushroom Cultivation for Entrepreneurship In our Department from 02-01-2022 to 30-06-2022. All students are asked to enroll themselves positively.



Dipjyoti Singha,
Department of Botany

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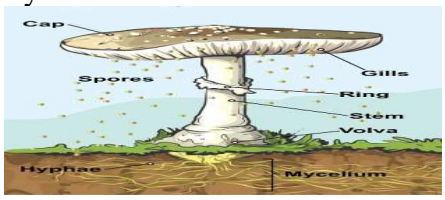
Mushroom is edible fungi which is suitable for wide range of age group. It produces high quantity and quality of food which has high biological value and grown on many substrates. Mushroom can supply a high protein diet and lower calorific value so it is suitable for many patients as it also contains all kinds of amino acids needed by human body and due to its high potassium to sodium ratio it is ideal for heart disease and hypertension. There are many different species of mushroom, and among those species, white oyster mushroom is most commonly cultivated. The cultivation process was done in GOUR MAHAVIDYALAYA DEPERTMENT OF BOTANY for entrepreneurship Purpose. The spawns are locally collected. The steps involved in cultivating oyster mushroom are substrate preparation, spawning of substrate, incubation, fruiting and harvesting. For this cultivation paddy straw was used as a mushroom bed. This complete process takes 45-60 days to get a healthy yield, and the cultivation was undertaken in aseptic condition. Growth and development of mushroom were monitored daily.



INTRODUCTION

Mushroom is a macro fungus which has distinctive fruiting bodies that can either be epigeous or hypogenous. Due to the lack of chlorophyll in mushroom it cannot synthesize its own food so it depends on dead and decay as their saprophytes and it has the potentiality to solve many growing global problems like food demand, unemployment, environmental pollution etc. Mushroom produces enough amount of quality and quantity food which is of high biological value and suites by wide range of groups from child to elder people.

Pleurotus florida, also known as oyster mushroom, is commercially important in the world mushroom market belonging to the genus ***Pleurotus*** sp under the **class :- Basidiomycetes**. Oyster mushroom was having excellent flavor and taste. P. florida has received increasing attention for applications in the catalysis of difficult chemical conversions in the paper industry, textile dye decolorization, and detoxification of environmental pollutants (Park et al., 2014).

Mushroom cultivation can be an agro-industrial activity, thus can help generate income and employment, particularly for women and youth in developing countries. Mushrooms are relatively fast growing organisms, thus, mushroom cultivation as a short return agricultural business can be of immediate benefit to the community. While land availability is usually a limiting factor in most types of primary production, mushroom cultivation requires relatively

little space; they can be stacked using shelf-like culture systems.

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SIGNIFICANCE AND OBJECTIVES OF THE ENTREPRENEURSHIP

Significance

- To create awareness about the mushroom among people.
- To gain practical knowledge about mushroom farming.
- To improve safe and healthy production.

Objective

- To strengthen the promotion of mushroom cultivation by establishing a well-equipped laboratory and offices.
- To provide the Unit with appropriately trained personnel for the promotion of mushroom production in the country.
- To exploit possibilities and assist in building up a mushroom industry that will make a significant contribution to the general economy.
- To foster self-reliance through the possibility of foreign trade opportunities, thus diversifying the export base of the economy.
- Mushroom Cultivation improve the economic position of the locality.
- It will also help to crate sustainable development from the point of view of environment.

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CULTIVATION METHOD

Substrate preparation

Substrate preparation is known to be the most critical stage in the production process to make sure the occurrence of diseases is less with better yield So as to eliminate potential competitors. White oyster mushroom was grown on various substrates paddy straw, wheat straw, Sugarcane husk, Vegetable plant residues etc.

Soaking

The paddy straw was soaked into fresh water for 9-12 hours. Excess water from straw was drained off squished by hand.

Fig: - soaking of water

Heat treatment

Heat treatment of substrate results in minimizing contamination problem. It can be done by pasteurization.

The autoclave used for pasteurized the substrate. The wet substrate was filled in autoclave with water and start that and maintain the temperature between 80-85^{0}C for about 10-15 minutes. After pasteurization, excess hot water was drained off from autoclave.

Chemical treatment

A chemical mixture of **Aqueous Formaldehyde (50ml)** and **Bavistin (3.5gm)** added in **40ltr** of water. And after pasteurization, the substrate was dipped down in the chemical mixture for **30sec** and drained the excess mixture squishing by hand.

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Fig: - Chemical treatment

Spawning of substrate

When the substrate cooled down in room temperature and substrate moisture contain 70%, the substrate was transferred into the polythene bags **(35X50cm, 150 gauges).** Layer spawning was done in this process, so substrate was filled in bags, press to depth of 8-10cm and broadcast with a handful spawn above it. Similarly, 2nd and 3rd layer were put and simultaneously after spawning. The bag were closed by the ropes after spawning and several (6-8) holes were punched on the sides of plastic bags to facilitate cross-sectional ventilation.

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Cropping and harvest

After 25-30 days, when bags were fully impregnated with white mycelium the polythene covers were removed. Relative humidity was maintained by spraying water twice a day on the walls and floor of the room. After 35 days the mushroom was fully developed and the mushroom was ready to harvest by gently twisting the fruit body or cut it with the scissor Mushrooms were plucked.

Fig:-1st harvest of mushroom

RESULTS

The overall result is based on the observation of main paddy straw bed .Results on overall time required for spawn running, pin-head formation (primordial initiation),and maturity of fruiting bodies in paddy straw are illustrated that the mycelium growth takes 20-25 days, pin-head formation takes 4 days and maturity of fruit body takes 5-10days.

CONCLUTION

Mushroom cultivation needs proper knowledge to complete the procedure, prior to the start of the cultivation. Each step in mushroom cultivation determines the yield of final products. True culture should be obtained from reliable sources and spawning should be done carefully. Spawning is a tedious job so proper method with all precautions should be employed. Incubation period depends on species. After incubation when growth of mycelium is completed casing is done. Casing should be done strictly according to the procedure described with suitable material. Time, depth and material of casing are important aspects to be considered. After casing conditions for the growth ventilation, temperature, and humidity are maintained. Depending on the system employed, cropping period varies from 6 to 12 weeks. The mushrooms are picked up carefully, graded and packed. It is necessary to dispose of the substrate after use.

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Student Signature and Feedback:

Mushroom Cultivation (From January 2021 to June 21)

Enrolled Student's Name.

Name of the Student's	Signature.
1. Parag Majumdar	Parag Majumdar
2. Achintya Mandal	Achinta Mandal
3. Sonal Chowdhury	Sonali Chowdhury
4. Gargi Lahiri	Gargi Lahiri
5. Nisha Gupta.	Nisha Gupta
6. Bhaskar Dutta.	Bhaskar Dutta
7. Sairendue Paul.	S. Paul.
8. Mamta Neha.	Mamta Neha
9. Soumen Das.	Soumen Das
10. Sumi Paul.	Sumi Paul

Abhi kumar Sarkar
Principal
GOUR MAHAVIDYALAYA
Mangalbari, Malda.