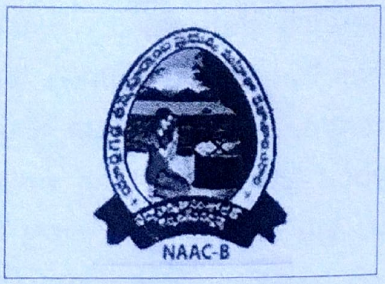
Y.A. GOVT. DEGREE COLLEGE FOR WOMEN

CHIRALA



A STUDY PROJECT ON

OYSTER MUSHROOM CULTIVATION

BY

III B.Sc M.Z.C

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UNDER THE GUIDANCE OF

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STUDY PROJECT

INTRODUCTION:

Mushroom production is completely different from growing green plants. Mushrooms does not contain chlorophyll and therefore depend on other plant material for their food. The part of the organism that we used and call a mushroom is really just the fruiting body. Unseen is the mycelium tiny threads that grow through out the substrate and collect nutrients by breaking down the organic material. Generally each mushroom species prefers a particular growth medium , although some species grow on a wide range of materials that the mushrooms used as a food is as old as human civilization through there are about 2000 edible mushroom species share major part of the world production which is about 1million tonnes per annum.

Mushrooms contain many essential amino acids. Mushrooms are a good source of protein. Mushrooms also contain some unsaturated fatty acids,several vitamins,as well as the minerals.

Punjab is the leading mushroom growing state contributing to 50% of the total production. In India, mushroom has been a non – traditional cash crop grown indoors,both as a seasonal crop and under the controlled environmental conditions.Button mushroom is cultivated in temperate regions of India.

HISTORY OF MUSHROOM CULTIVATION :

The word " Mushroom" is derived from french word "mousseron" a term that includes a edible and poisonous mushrooms. Mushrooms belong to the kingdom fungi/mycota belong to the order agaricales of class basidiomycetes. They are often defined as plants without chlorophyll that lack differentiation into stems,leaves,flowers. Those without the typical stem and cap are identified by specific names such as morels/tuffles,oysters etc.

The edible mushrooms fall into two classes of fungi they are ascomycetes and basidiomycetes. Asian traditions maintain that some speciality mushrooms provide heaith benefits.Chinese doctors use atleast 50 species. Mushroom production is labour and management intensive. Chinese were most probably first people to describe cultivation methods of mushrooms. The cultivation of white button mushrooms originated in paris during 1600 and later extended to other europian countries. Indoor cultivation started around 1810 in france and holland. French botanist Tournefort described its cultivation method in 1907. Gallow in 1831 described the compost preparation and cultivation in green houses.

Spawn used to collected from the fields/tracts where mushrooms were known to grow and pieces were inserted in compost beds. Constantine in france prepared pure spawn on sterilised horse dung compost. Later on dugger in 1905 in USA perfected the production of pure spawn. Grain spawn was introduced by sinden in 1932 in USA.Strains have been improved through selection,hybridisation and mutagenic techniques.

We have visited a near by mushroom unit named **INDISHROOM MUSHROOM UNIT , Mr. Katla Revanth** .The owner of that unit have permitted us to do our mushroom cultivation. He guided us to cultivate mushroom i.e; oyster mushrooms. As we got the necessary information through his guidence it have become so easy for us to know the practical method of cultivation.



In addition to the mushroom cultivation, he developed a sustainable agriculture farm. He used the spent media for the preparation of the compost. He uses that compost material in his farms. The contaminant mushrooms are used to feed dogs after cooking them.

We tried to cultivate oyster mushrooms in a nearby mushroom unit.Oyster mushroom (pleurotus spp) is well known as dhingri in India. There are about half a dozen oyster mushroom species *viz.*, P.ostreatus, P.florida,P.flabellatus , P. citrinopileatus,P.sajor caju ,P.djamor etc. being artificially cultivated in different parts of the world . They grow in nature in temperate,sub-tropical and tropical forests on dead and deacying woods. Their fruiting bodies are shell or spatula shaped with colours white and light brown.

CULTIVATION OF OYSTER MUSHROOM :

SUBSTRATE AND SUBSTRATE PREPARATION :

1. SUBSTRATE : Paddy straw

2. SUBSTRATE PREPARATION : Straw is chopped into small pieces and soaked in fresh water for 2-3 hrs. Main purpose of soaking is to saturate the substrate with water.



3. PASTEURIZATION : The purpose of pasteurization is to kill harmful microbes.

Steam pasteurization : Wet straw is filled inside insulated chamber. Steam is released under pressure from a boiler and temperature of the substrate is raised at 60-65 degrees celsius for 4hrs/80 degrees celsius for 2hrs. Air inside the chamber should be circulated to have uniform temperature in the substrate.

CULTIVATION METHOD :

CYLINDER SYSTEM : This system is well suited for large scale production of oyster mushrooms. Here cylinder is erected on a stand 35-40cm diameter,having 4(15cm) legs, 5.2cm ring in centre to support the PVC pipe (5-15cm in diameter and 150-180 cm in height). The polythene tube (150-200 guage , 30-36cm diameter) is tied at the base of the PVC pipe. Substrate is filled in the polythene tube maintaining central position of the PVC pipe.





SPAWNING : Spawning means broadcasting spawn (boiled and sterilized grain covered with mushroom mycelium) on substrate.

Layer spawning : In this method spawning is done in two layers. First layer is spawned at about 8-10 cm depth after filling compost and ruffled as above and pressed. Compost is filled and spawned .

Spawn running : It is the period of vegetative growth of mushroom fungus in the substrate. The number of days required for completing the spawn running is species and temperature specific. After spawning cylinders are incubated at 25 -27 degrees celsius for the growth of mycelium on substrate. Light is not required.Fresh air requirement is negligible. High carbon-dioxide is required. The mycelium starts spreading as thread like structure and covers whole substrate in about 18-25 days.

Cropping: Once substrate is fully colonised with mycelium, it is ready for mushroom production. The cylinders fully covered with mycelium are shifted to the cropping room. The cylinders are kept on floor 30cm apart to facilitate fruiting. At this stage R.H. of 80-85% , temperature of 24-26 degrees celsius and cross ventilation should be maintained. Diffused light is also important for fruiting . Needle shaped pinning starts appearing within 3-7days. These develpo into a mushroom with another 2,3 days.

The mushrooms must be plucked before spore schedule .The walls and floor of the cropping rooms are watered with the help of sprayer to maintain humidity. Mushrooms appear in flushes at 7-10 days intervals.Total cycle spawn running and cropping covered in 35-45 days.

Mushrooms are cleaned and packed in polystrene and wrapped with a grade anti-fog film. The shelf life of fresh oyster mushroom at 25-30 degrees celsius is 1-2 days, in refrigerator it can be kept for 3-4days and at 4 degrees celsius its shelf life is 7-8 days.





CONCLUSION : Under the guidance of Mr. Katla Revanth , we completed study project by maintaining proper temperature and humidity and sanitation while doing work and I got good and healthy mushrooms .

ACKNOWLEDGEMWNT : My special thanks to the owner of " INDISHROOM MUSHROOM UNIT " Mr. Katla Revanth , for directing us to complete my oyster mushroom cultivation project and also creating awareness on sustainable agriculture .