

## Raising farmers income by producing Oyster Mushroom

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### Introduction

Mushrooms are a type of fungus lacking chloroplast, which is unable to make their food. They get their food from organic matter containing lignin, cellulose and hemicellulose. There are many varieties of it found in India, but most of them are not edible because of their toxic value. Mushrooms are being used as food in India since ancient times. It has been used mainly in the upper-class community for many years, but in today's environment, the mushroom has become a part of almost everyone's diet, mainly due to the nutrients present in it. It is a good source of iron supply in the body, which is more beneficial for people suffering from anaemia. The people living in India have been using it with good interest in their everyday life, in a state like Uttar Pradesh, Punjab, Haryana, Rajasthan etc, where about 65 per cent of the population is engaged in agriculture, mainly in those areas where agriculture depends on rainfall and people remain unemployment after Kharif season, so in this situation, they have no other option. Therefore mushroom production is a good source of income for them.

Oyster mushroom is also known as Dhingri mushroom. It belongs to the genus *Pleurotus* having diverse species of saprotrophic fungi, commonly known species are *odoratus*, *florida*, *flabellatus*, *sajor-caju* and *columbines*. All these species are primary decomposers and grow well under natural conditions on dead woody branches of trees or tree stumps. Therefore, the cultivation of oyster mushrooms is easy for people. The popularity of mushrooms is increasing day by day, which is good news for the growers. The reason for its popularity is the presence of nutrients taste, medicinal and anti-inflammatory properties and the increase in awareness. It boosts the immune system of an individual. It removes malnutrition problems among people of different regions. Mushrooms are richer in nutrients

than normal vegetables. Various types of nutrients are found in it, which are necessary for the growth and development of the human body. Mushroom contains 22-35% high-quality protein, Vitamins (B and C), minerals, Fat in small amounts (0.41g) and have no cholesterol. They contain an abundance of essential amino acids such as Valine, glutamine and leucine. This mushroom helps in the treatment of chronic illness, cancerous and another cardiovascular diseases. It reduces diabetes, hypertension, and obesity due to the absence of sodium.

### **Material required**

**Mushroom house** - Oyster mushroom cultivation does not require any agricultural land. It can be cultivated in Kachha Jhopda and Pucca houses. A roof can be made from the easily available weeds in the village at an unusable place around the house. There is a need for 20X20 feet room for producing 1000 bags (2 kg substrate per bag).

**Oyster spawn** - Oyster mushroom seed is known as spawn. it is available at a very low cost in DMR (Directorate of mushroom research, solon, H.P.), any certified seed-producing institute, KVKs (Krishi Vigyan Kendra) and agriculture universities .which can be easily obtained by farmers.

### **The technique of Oyster Mushroom production**

The suitable time for its cultivation is from October to mid-February. The suitable room temperature should be 20-28 °C and relative humidity 80-85%. Farmers can choose any one of the cellulose-containing materials such as wheat, maize, millet, paddy etc. to make straw. Take clean water, put 7.5 - 10 g of Bavistin and 125 ml formalin in 100 litres of water and soak the straw into it for at least 18 hours or overnight. The next morning, remove the excess water from the treated straw. This is mainly a disinfection process. Put a layer of straw in a polythene bag of length approx 30 cm and width 20 cm, and then put the spawn. Repeat this process 6 to 7 times. The important thing to keep in mind is that seeds should be put in between each layer. Before closing the open part of the polythene, make 10 to 20 holes with a pointed object and holes should be large enough for emerging fruiting bodies outside.

After that close the open part with the help of rope. Now put this polythene bag on a wooden or steel rack. If there is a lack of space, the bag can be hung above the ground with the help of a rope. To maintain the moisture, water should be sprayed twice a day with the help of a sprayer.

### Major Stages of Oyster Mushroom Production

- To get spawn from a well-recognized institute or KVK and its Preparation.
- To prepare substrate using wheat, maize, bajra grains and paddy straw
- Treatment of straw with bavistin and formalin
- Filling bags by putting spawn after each layer of straw with pressure, making 10-20 holes and then closing the open mouth of a bag
- Keeping bags in a dark room for 20-25 days for the running of mycelium
- Keep spraying water on bags and walls of a room for maintaining optimum moisture and temperature.
- After 10 days of mycelium formation, fruiting bodies emerge from holes and mature within 1 day.
- Collection of matured mushroom from bags at 5 – 6 days interval for at least 2 months
- Packaging of fresh mushroom for marketing or it can be used by farmers for their consumption
- Processing raw mushrooms to make useful products – chutney, powder, soup, pickle.
- Selling mushrooms and it's by-products in the market to get more benefits.

### Sequence of producing mushroom

Stages	Duration	Remark
Mycelium formation	Around after 20-25 days of spawning	White colour mycelium appears in the bag.
Fruiting	Around after 4-5 days of running mycelium.	Small fruiting bodies begin to emerge
Harvesting	Around after 5-7 days of fruit emergence	Fruit matures and become ready to dispatch from bag.
Yield	Approx 500-600 gm from 1 kg substrate	Yield can be increased under suitable environment and substrate.
Storage	Stored at 5 °C for 3-5 days.	It is also preserved after drying under fan, sunrays or making powder for longer duration.



a



b



c



d

**Disease and their management-** The mushroom is prone to **fungal diseases** like green mould, dry mold etc. occur in the substrate used for cultivation.

**Control** – Benomyl and bavistin spray immediately after observing symptoms.

**Bacterial disease** – soft rot, yellow blotch, brown spot, cobweb and die-back disease.

**Control** – Application of Streptocycline and oxytetracycline. Also apply chlorinated water having 100 - 150 ppm of freely available chlorine at an interval of 3-5 days, followed by proper management of humidity and temperature during the growing phase.

#### **Key Precautions in Oyster Mushroom Production**

- Mushroom seeds should be purchased from KVK and a certified institution only.
- The wheat husk should not be rotten and Mushroom spawns must be carefully prepared so that they are completely germ-free.
- If any unnecessary mold is seen in the spawn bags, such infected spawns should not be used and all the unnecessary molds can be identified by colors like black, green, yellow etc.
- Seeds can be stored in a 4 to 50c freeze for a couple of months. It should be kept at room temperature 24 hours before sowing. Keep the seed safe from rats, insects and pests.
- To protect the mushroom from insect pests and flies, mix 20 ml of Nuwan or Dijinon in 10 liters of water and spray it on the walls.

#### **Benefits of Oyster Mushroom Production**

- Oyster mushroom production can be started at a very low cost.

Apart from regular agriculture, it is the best source of getting most of the income.



- Farmers can easily become self-reliant by this and can improve their standard of living.
- Today when people are suffering from the problem of unemployment, they can get self-employment by mushroom production.
- It does not require any special degree or training and can be grown in a much-closed space or room.

**Marketing and processing:** -Harvested oyster mushrooms should be pierced in polypropylene bags. Farmers can earn good profits by keeping these bags in cartoon or cardboard boxes and selling them in nearby markets, hotels etc. after drying mushrooms, pickles, soups, chutneys, the powder can also be sell in the market. As a result, income can be increased in a short time, an average of 500- 600 grams of mushroom can be obtained from 1 kg straw. The ratio of profit to cost in mushroom production is good.

### **CONCLUSION**

In addition to the nutritional value of mushroom, it has been known to be a source of bioactive compounds. Mushrooms work as dietary supplements for mankind. It contains components having properties to prevent diseases as mentioned by several studies and research work. It also includes essential nutrients with low calories and low-fat content. By keeping in view the present studies, further research work should be carried out on mushrooms and it's by-products for the sustainable development of farmers and their health benefits so that an alternative source is kept for financial support.