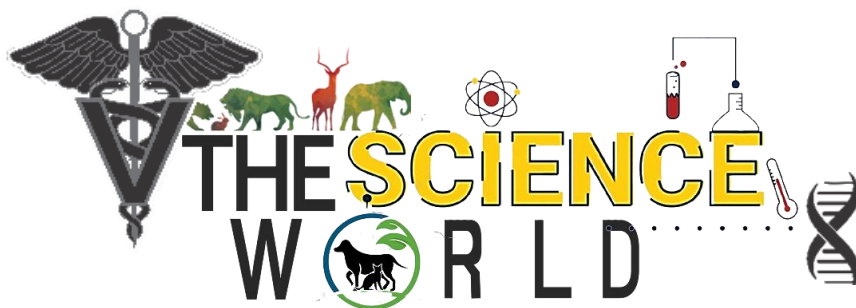




A Monthly e Magazine
ISSN:2583-2212

Popular Article

Sept, 2026 Vol.6(9), 2648-2652

Mushroom Cultivation

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doi.org/10.5281/ScienceWorld.22867789

Abstract

Mushroom is a fungus considered to be edible due to its high nutrition facts. It is a great source of vitamin D, some minerals and protein. In addition, due to short or quick growing, good prices and health benefits, It is popular amongst farmers and new entrepreneurs. Their spawns are produced carefully in healthy conditions and sown on a well-prepared compost bed containing required nutrition for spawn. Harvesting starts 50 to 55 days after sowing and mushrooms are twisted in opposite directions for harvest. Their fleshy nature leads to deterioration if not consumed within some hours or refrigerated or not utilized for canning, pickling, drying etc. which are post harvesting processes.

Introduction:

Mushrooms are the eukaryotic, spore bearing organisms, macro-fungi lacking chlorophyll and grow on dead decomposed matter as saprophytes. They derive nutrients through their mycelia. This mycelium forms the fleshy structures, the fruit bodies, which are generally called the mushrooms. There are more than 10,000 varieties of mushroom out of which only 200 varieties identified as edible varieties.

Oyster mushroom is basically an edible mushroom. Oyster mushroom name originated from Latin [pleurotus- sideways, oyster- shape of the cap] which is namely refers to the shape of the fruiting body and the sideway growth of the stem with respect of the cap. Edible Mushroom belongs to the wide range of Division –Basidiomycota and Kingdom–Fungi. Oyster Mushroom is commonly known as “Dhingri” in India. It may also grow on rot and organic matter. At present time it is commercially cultivated all over the world but firstly cultivated at Germany during World War. Even now a days it is used as industrially for mycoremediation purpose. Oyster mushroom is commonly sought wild mushroom, it is lingo cellulose fungus



growing in nature on living or dead. Recognized as peculiar morphology with eccentric short stem or stipe. Cultivation technology of oyster mushroom is very simple and cheap.

Advantages:

Mushrooms have been shown to promote immune function; boost health; lower the risk of cancer; inhibit tumor growth; help balancing blood sugar; ward off viruses, bacteria and fungi; reduce inflammation; and support the body's detoxification. The growing recognition of mushrooms in complementing conventional medicine is a promising way for fighting many diseases.

Types of mushroom

Edible mushroom:

Agaricus bisporus (Button Mushroom)
Volvariella volvacea (Paddy straw Mushroom)
Pleurotus ostreatus (Oyster Mushroom)
Calocybe indica (Milky White Mushroom) etc.

Poisonous mushroom:

Examples:- Amanita phalloides (Death Cap)
Conocybe filaris / Pholiotina rugosa
Galerina marginata (Autumn Skullcap)
Cortinarius rubellus (Web caps)
Amanita virosa (Destroying Angels)
Podostroma cornu-damae (Poison Fire coral)
Lepiota brunneoincarnata (Deadly Dapperling) etc.



Cultivation of Oyster mushroom (*Pleurotus ostreatus*):

Materials:

- Thatched hut/polythene chamber/mud or pucca house.
- Dry wheat straw or other Argo waste-100kg
- Spawn bottles
- Polythene bag 1 kg
- Water sprayer

Process of Substrate preparation:- Substrate was soaked in 100 litre of water containing 3 gm Bavistin, 3 gm calcium carbonate and 120 ml formaldehyde for 18 hours as suggested by Vijay and Sohi (1987). After sterilization the excess water was drained off by spreading the straw on the sloppy cemented floor till the moisture content of straw declined to 65-70 per cent.



The 60% moisture content in the straw was judged by taking a handful of straw and squeezing tight.

Methods:

1) Spawning:

- The 20-30 days old grain spawn is best for spawning. The old spawn approximately 3-6 months can be stored at room temperature (20-30°C).
- It forms very dense mat like structures due to mycelium aggregation and sometimes young pinheads and fruit bodies start developing in the spawn bottle itself. The spawning must be done in a pre-fumigated room (48 hrs. with 2% formaldehyde).
- The spawn should be mixed with 2 to 3% of the wet weight of the substrate. One bottle of contamination free spawn of 300 g is enough for 10-12 kg of wet substrate or 8 to 3 kg of dry substrate weight.
- The spawn can be mixed thoroughly or mixed in layers wise, because in mixing method the quantity of spawn increased. Spawned substrates should be filled in polythene bags (60 x 45 cm) of 125-150 gauze thickness. Ten to 16 small holes (0.5-1.0cm diameter) should be made on all sides specially 2-4 holes in the bottom for leach Out excess water.
- The perforated bags give superior and early crop (4-6 days) than non-perforated bags because of accumulation of high Co₂ which inhibits fruiting.
- Spawned wheat substrate is filled and the polythene sheet is folded from all the four sides to make a compressed rectangular box. It should be tightly pressed and tied with a nylon rope.
- The bags are incubated as such and after mycelium growth polythene sheet is removed.

2. Cropping:-

- The spawned bags or blocks are kept in incubation room for mycelial growth. Spawned bags should be kept on a raised platform or shelves or can be hanged in cropping room for mycelial colonization of the substrate.
- Although mycelial growth the bags are not to be opened or no aeration is needed. Likewise, there is no need for any high relative humidity, so no water should be sprayed.



- Previously the mycelium has fully colonized the spawned substrate and forms thick mycelial mat it is ready for fruiting.
- Those bags become contaminate with mould may be discarded while bags with patchy mycelial growth may be left for few more days to complete the mycelial growth.
- In case of oyster mushroom cultivation, no need to casing material on it. All bundles, cubes or blocks are set on wooden shelves with a minimum space of 15-20 cm between every bag in the tier.

3. Harvesting: -

- The mushrooms should always be harvested before spraying water.
- The right stage for picking can be judged by the shape and size of fruiting body. In young mushrooms the edge of the cap is thick and cap margin is enrolled while the caps of mature mushroom become flat and inward curling starts.
- After harvesting lower portion of the stalk with adhering debris must be cut using a knife. Stipe is kept short or almost nonexistent because it is hard and not liked by many consumers.
- Fresh mushrooms should be filled in perforated polythene bags for selling in market. They can also be sun dried by spreading thinly on a cotton cloth in bright sunlight or diffused light. The dried produce with 2-4% moisture can be stored for 3 to 4 months after sealing well.

Economic benefits of mushroom:

- Room size =25ftx15ftx8ft
- Capacity =400 bags (at a time)
- Crop duration =2months
- Total no of bags produced in a year =400x6=2400 bags
- Production per bag =2kg
- Total production in a year =2x2400 =4800kg
- Considering 5% production loss=240kg
- Net production =4800-240=4560kg
- Selling price @Rs.80 per kg (Raw)
- Total selling price =4560x80=Rs.364000/-
- Total expenditure =Rs.99700/-
- Total profit (yearly) =(364000-99700)=Rs.264300/-



- Cost: benefit =1:2.6

Conclusion:

Mushroom cultivation is a profitable, sustainable, and environmentally friendly agricultural practice that can contribute to food security, rural development and economic growth. With increasing awareness and technological support, it has great potential for future expansion.

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