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Paddy Straw Mushroom Cultivation and Importance

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The mushroom is a macro fungus with a single fruiting body that can be seen and picked by hand. It is rich in carbohydrates, fibre, minerals and it contains several essential amino acids. Mushroom cultivation has a significant impact on the cottage industry due to its low input and high return. The cultivation process of straw mushrooms can be done with the help of paddy straw. Soak the straw bundles in fresh water for 12-18 hours. Place the bundles on a cemented floor to drain excess water. After draining, inoculate the bed with spawn. The first flush appears after about 10-15 days of spawning. The harvesting of mushrooms should be done at the bud stage. Paddy straw mushrooms are a good choice for year-round cultivation because they require high temperatures. They have low production costs and a cropping duration of about 45 days. It has many advantages, like nutritional value, medicinal value, and cosmetics value. Mushroom cultivation practices are considered environmentally friendly practices.

Keywords: Mycelium growth, paddy straw mushroom, *Volvariella spp*., yield evaluation

Introduction

The scientific name of the paddy-straw mushroom is *Volvariella volvacea*. The mushroom is defined as "a macro fungus with a single fruiting body, visible to the naked eye and pickable by hand'' (Chang and Miles, 1992). Generally, plants and mushrooms are heterotrophs. They do not have chlorophyll. The nutrients cannot be created by photosynthesis, but they uptake the nutrients from their surroundings (Palitha Rajapakse, 2011). There are many different kinds of mushrooms in the globe, but only a handful are edible. It serves as a meal, medicine, and tonic (Chang, 2007). Mushrooms are high in carbohydrates, fibre and minerals and they also contain several necessary amino acids. Mushrooms comprise 80-90% water, 3% protein, 4% carbs, 0.1% fat, 1% minerals and trace amounts of vitamins (Tripathi, 2010; Bolton and Blair, 1982). Mushroom growing has a significant impact on the cottage sector due to its minimal input and great return. Paddy straw mushroom cultivation has traditionally been done outside. The use of unpasteurised paddy straw promotes the growth of a variety of contestant moulds, Various contestant moulds have been observed in the straw mushroom beds during the fruiting stage. Because of the mushroom production, the wastes contain the most nutrients and have the highest concentration and capacity for digestion (Chandra and Chaubey, 2017). Outdoor farming had higher bed contamination (46.8%) than indoor farming (27%) (Chintara *et al*., 2014). For a 2% calcium carbonate solution, the substrate was pre-soaked for eight hours. Significantly better than the treatments in providing a higher yield with a corresponding increase in the biological efficiency is 14.52%. Benomyl (0.2%) and streptomycin (0.01%) reduce the *Corprinus spp*. emergency (Mohapatra and Chinara, 2014). There are also chemical and biological methods used to regulate various contestant moulds. Paddy straw, also known as straw mushroom, is grown in tropical and semi-tropical climates in China. Southeast Asia is a region. The mushroom is well known however, as a delicacy, throughout the world. It is available in canned and dried forms. We don't know about the

United States having any commercial production in this field. There has recently been straw mushroom cultivation gaining popularity both in Europe and Asia.

Materials Required

1.	Paddy straw bundles	60/Cage
2.	Spawn bottle	2/Cage
3.	Wooden cage	1no.(1m*50cm*25cm)
4.	Drum	1no. (100-liter cap.)
5.	Binding thread	3 meters
6.	Polythene sheet	4 meters
7.	Thermometer	1no.
8.	Dao (Hand chopper)	1no.
9.	Dettol /Formalin	1 bottle(1/2litre)
10.	Malathion	1 bottle(250ml)
11.	Dithane Z-78/Bavistin	1 Pkt.
12.	Sprayer/Rosecane	1 no.

Materials Required to Prepare One Bed of Mushroom

Straw bundle: 15-20 bundles of straw OR 15 kg (as per thickness of bundle)
Mushroom Spawn (Seed): One bottle or 250 gm
Nutrition: 250 gm of Bengal gram or red gram
Bed Size: 2ft*2ft or 1.5*1.5ft
Space: - 3ft*3ft or 2.5*2.5ft

Cultivation Process

1. Remove the straw bundle's leaves and cut it into 2 ft lengths with a straw cutter. For 12 to 18 hours, the required number of straw bundles are soaked in a tank of clean water. Dirty water from ditches, ponds and other bodies of water should not be used. Use 100 ml of formalin and 10 gm of Bavistin per 100 litres of water when soaking. Hot water should be bundled where electric heaters are available.
2. From water, remove the straw bundles and leave them standing for 5 to 6 hours to allow excess water to drain from the outside and inside to be used to treat the straw.
3. Straw bundles: leaving only 75% moisture in the straw bundles.
4. Use spawn that is 2 to 3 weeks old. Break the bottle and take the glasses out. If a small glass piece becomes stuck to the spawn, use cotton to remove it. Divide the spawn into four equal parts and cut it into small pieces the size of a thumb finger.
5. From the whole Bengal gram grain, we have to use 250 grams of dal powder ground. To reduce cultivation costs, use paddy husk or rice bran. It should be divided into four equal parts as well.
6. Prepare the beds after arranging the straw, spawn, and nutrition. First, make a 6-inch-high layer of straw. Allow the first layer to run east-west or north-south. Take one of the four spawn pieces and place it on the bed, leaving 2 inches on each side and 3 inches between them. Sprinkle Bengal gram or red gram dal powder over the spawn blocks and surrounding area.
7. Place 6 inches of straw on top of the first layer. Arrange the spawn in the opposite direction as the first layer. Take another piece of spawn and place it at a distance of 3 to 4 inches as in the first layer.
8. Place the third layer of 6 inches of straw parallel to the first layer and sprinkle the remaining 2 parts of spawn all over the third layer.
9. The third layer will be covered with the final fourth layer of straw, 1 to 2 inches wide and parallel to the second layer.
10. Once the bed is ready, cover it with white polythene or a stitched sheet of fertiliser bags. Keep the beds as they are for the first 4-5 days.

11. When mycelium growth is observed after 10 to 11 days, the polythene cover can be removed.
12. Harvesting: The first flush of mushrooms appears 13-15 days after sowing. The mushroom should be harvested at the bud stage.

The first phase of harvesting is complete within 14-15 days and 90% of the total yield. The beds can be kept for another 5-10 days for the 10% second phase harvest.

Conclusion

Mushroom cultivation has become a profitable business with the produce fetching good market returns due to an increase in demand for edible mushrooms. Mushrooms can help with high cholesterol, breast cancer, prostate cancer and diabetes. It also prevents anaemia and is good for heart health. Another advantage of paddy straw mushrooms is their shorter life cycle, rapid growth, simple cultivation technique and high consumer acceptance due to texture and aroma.