

Importance of Mushroom Cultivation

Krishna Pushkaran

B.Ed scholar, Patriarch Ignatius Zakka I Training College, Malecruz, India

Abstract

Mushrooms once called the “**food of the Gods**” because mushrooms contain most of the essential elements that our body needs for nourishment, to safeguard us against diseases and to maintain an overall good health and wellbeing. Being a potent source of micronutrients, they are also considered among the “super foods”. The cultivation of mushrooms has a great relevance in today’s world in order to rectify the issues of protein deficiency and unhealthy foods. Mushrooms can grow in different agro wastes as substrates which give higher yield by using inexpensive cultivation techniques.

KEYWORDS: Mushroom, Cultivation, Micro nutrients, Protein deficiency, Substrate, Nourishment

INTRODUCTION

Mushrooms are not plants, it is a fleshy, spore-bearing fruiting body of a fungus, typically produced above ground, on soil, or on its food source. Mushroom, the conspicuous umbrella-shaped fruiting body of certain fungi, typically of the order *Agaricales* in the phylum *Basidiomycota* but also of some other groups. The term “**mushroom**” and its deviations may have been derived from the French word *mousseron* in reference to moss (*mousse*). It is also called a **toadstool**. Unlike plants, mushrooms do not use sunlight to make energy for themselves, so they can be grown in complete darkness, but the darkness is not an essential prerequisite. Popularly, the term **mushroom** is used to identify the edible sporophores; the term **toadstool** is often reserved for inedible or poisonous sporophores.

MEDICINAL PROPERTIES & NUTRITIVE VALUE OF MUSHROOMS

Mushrooms have been considered a delicacy from ancient times. They provide high nutritive value to the diet in the forms of proteins, carbohydrates, essential salts, and vitamins. Moreover, edible mushrooms provide a nutritionally significant content of vitamins- B1, B2, B12, C, D and E (Mattila et al., 2001). They have low fat content, high fibre and all essential amino acids and with the exception of iron.

Numerous studies have shown that mushrooms are a rich source of bioactive compounds, e.g. phenolic and flavonoid compounds, that exert antioxidant properties, and these could be beneficial to human health (Lallawmsanga et al., 2018). Mushrooms could help in reducing the risk of diseases, such as Parkinson’s, Alzheimer’s, hypertension, stroke, and cancer, as well as act as an antibacterial, immune system enhancer, and cholesterol-lowering agents (Valverde et al., 2015).

MUSHROOM CULTIVATION

Mushrooms have been cultivated since ancient times for their nutritional value and flavour especially in the far eastern countries. The protein found in mushrooms is less than in animals but much more than in plants (Chakravarty, 2011). It requires low resources and area. At present 3 mushrooms are being in India. These are; **the white button mushroom** (*Agaricus bisporus*), **the paddy straw mushroom** (*Volvariella volvacea*), and **the oyster mushroom** (*Pleurotus sajor-caju*, *P. florida*)

Oyster mushrooms can grow at moderate temperature ranging from 22-28 degree centigrade, and humidity 55-70% for a period of 6-8 months in a year. In the hill region the best growing season is during March/April to September/October and in the lower regions from September/October to March/April. Therefore it is suitable for most of the parts in India. Oyster mushroom can be cultivated on a large number of agro wastes having cellulose and lignin which helps in more enzyme production of cellulose that is correlated with more yield.

So the present study was undertaken to evaluate the yield performance of oyster mushroom (*Pleurotus florida*) on pineapple leaves and coir pith.

CULTIVATION METHOD

The procedure for oyster mushroom cultivation includes - **preparation or procurement of spawn, substrate preparation, spawning of substrate and crop management**. A pure culture of *Pleurotus florida* is needed for inoculation on sterilized substrate. It takes 10-15 days for mycelial growth on cereal grains. Dried pineapple leaves and coir pith were used as a substrate. The popular methods of substrate preparation are; steam pasteurization, hot water treatment, sterile technique (Till method), fermentation or composting and chemical sterilization. I used a sterilisation method which enables to minimize the contamination and also helps to enhance yield. The substrates were autoclaved for 20 minutes at 120 degree centigrade temperature and 1.5 atm pressure. Freshly prepared (20-30 days old) grain spawn is best for spawning. The spawning should be done in a pre-fumigated room (48hrs with 2% formaldehyde).

Spawned bags are arranged in a dark cropping room on raised platforms for mycelium colonization of the substrate, although mycelium can grow from 10 to 33 degree centigrade. When the mycelium has fully colonized, the fungus is ready for fruiting. Contaminated bags were removed and provide frequent spraying of water to regulate the humidity for the growth of fungus. Sufficient ventilation has to be provided during fruiting. The fruit bodies should be harvested before spore release. The right shape for picking can be judged by the shape and size of the fruit body.

RESULT AND DISCUSSION

Mushroom cultivation has acquired popularity all over the world. Mushroom cultivation has provided occupation for unemployed persons. This work is aimed to find out the most suitable medium for mushroom cultivation. For that two substrates were selected, they are pineapple leaves and coir pith. Both are treated in the same procedures but the results showed that the coir pith yields more amount of mushrooms than

pineapple leaves. The fruit body formation, numbers of fruiting bodies, the rate of water consumption were much greater on coir pith than pineapple leaves. It has greater efficiency to produce a greater number of fruiting of *P. florida*.

CONCLUSION

Through this work it is found that mushroom cultivation can be done in easily available agro wastes. We have achieved food security by producing over 200 million tonnes of food grain. However, our struggle to achieve nutritional security is still on. In future, the ever increasing population, depleting agricultural land, changes in environment, water storage and need for quality food products at competitive rates are going to be important issues. To meet these issues and to provide food and nutritional security it is important to diversify the agricultural activities. Mushrooms are one such component that not only impart diversification but also help in addressing the problems of quality food, health and environment related issues. Supplementation of mushrooms in diet will bridge protein gaps and improve the general health of socio-economically backward communities.

Along with these positive sides it has also have negative impact on human health. Mushrooms contain psilocybin is a hallucinogen is considered one of the most well known psychedelics. This causes adverse effects on human health and which is illegal in so many countries. It is available in the forms of mushrooms, mashies, agarics, amine, magic mushrooms etc.. In most cases the younger generations are the victims of this issue. So the public should be aware of the negative impact of mushrooms like magic mushrooms.

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