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## POPULAR MUSHROOMS IN UTTAR PRADESH

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### ABSTRACT

Mushroom is one of most nutritive food commodity. It preferred not only for its flavour, taste and aroma, but it also has a high nutrient value. Mushroom is rich in minerals and the essential aminoacids, equivalent to those obtained from animal protiens. As it lacks lipids and sugar, it is recommended to all type of patients. As a result of the present study, it has been concluded that three varietis of mushroom is cultivated in U.P. Availability and cultivation period of different mushroom has also been explored.

**Keywords:** Mushroom, minerals, *Agaricus bisporus*

The state of Uttar Pradesh is rich in biodiversity and varied agro-climatic conditions. However, mushroom cultivation is unique as it is the most efficient and economically viable biotechnology process for the conversion of lignocelluloses waste materials into high quality protein rich food. Its cultivation started in 1974 by Uttar Pradesh Department of Agriculture (UPDA) on trial basis at Vivekanand Parvatiya Krishi Anusandhan (VPKA) Almora (Now in Uttaranchal).

Mushrooms are fruiting body of certain fungi belonging to the group of Basidiomycetes and Ascomycetes, some are edible and many are poisonous and non-edible. They are an accepted ideal food item, rich in protein, low in fat and carbohydrates and an efficient tool for recycling of organic wastes. There are more than 10,000 species of mushrooms and about 2000 of them are considered edible. Of these, less than twenty five species are widely accepted as food item and only about a dozen of them have been artificially cultivated (Arora, et al., 2013).

Button, oyster and paddy straw mushrooms are commonly used for human consumption, particularly in Uttar Pradesh. Due to their very low content of carbohydrate, mushrooms are suitable ingredients in the diet of diabetic individuals. They are also rich in vitamin and minerals. They have pleasant flavour and are delicious to eat. Mushrooms are referred to as “vegetarian meat” as it is rich in protein (35%). It can be called 'heart food' because they contain ergosterol, which converts into Vitamin D in due course of time, in the human body. The deadly cholesterol is absent in this food item. They are suitable diet for the obese persons as these are low in calories (32 KCal / 100g fresh mushroom) and low in fat (max. 0.3%). Most people eat mushrooms because of its flavour, meaty taste and medicinal value (Moore and Chiu, 2001). Mushrooms generally possess most of the attributes of nutritious food as they contain many essential nutrients in good quantity (Fukushima et al., 2000). It must however be emphasized that some mushrooms are poisonous and may kill within few hours after consumption (Phillips, 1985).

<u>Species</u>	<u>Production Period</u>
<i>Agaricus spp.</i>	November to March February to April and
<i>Pleurotus spp.</i>	September to November

*Volvariella spp.* June to September

Considering mushroom’s growth requirement, they grow well on a wide range of lignocellulosic wastes as substrates (Okhuoya and Okogbo, 1990; Kadiri, 1991). It has been established that they grow and fruit on various agricultural wastes (Moncaio et al., 2005).

Cultivation of Mushroom has been in vogue for almost 300 years. However, commercial cultivation in Uttar- Pradesh has started only recently. Its popularity is growing and it has become a business which is export- oriented. Mushroom is an excellent source of protein, vitamins, minerals, folic acid and is a good source of iron for anemic patient.

Some of the mushrooms cultivated in Uttar Pradesh are:

- a) Button Mushroom (*Agaricus spp.*)
- b) Oyster (*Pleurotus spp.*)
- c) Paddy Straw Mushroom (*Volvariella spp.*)

### *Agaricus bisporus*



White Button mushroom (*Agaricus bisporus*) is the most popular, economically best and is extensively cultivated. However, commercial production of this mushroom was initiated in the hilly regions of India (17-18°C) like Himachal Pradesh followed by Kashmir and Ooty, then slowly spread to North western plains of India. In controlled conditions it can be grown anywhere. These conditions include- controlled temperature, moisture, ventilation and good spawn. The temperature requirement for the spread of the mycelium or the vegetative growth is 22 to 25° C. For the reproductive stage the temperature requirement is 14 to 18° C. Within the limits prescribed, the temperature should be uniform throughout the growth of the crop. If it is too cold the development of

the spawn will be retarded. A high temperature will favour the development of moulds and bacteria, which will soon destroy the spawn or crop. On an average the growers can take 3-4 crops of white button mushrooms in a year depending upon the type and varieties cultivated. Factors affecting the yield of the crop both in terms of quality and quantity are incidence of pests or pathogens and non-availability of pure quality of spawn.

#### *Pleurotus sajor caju*



Common name oyster mushroom or Dhingri etc., this mushroom is not as popular as white button mushroom in the domestic market. It is widely cultivated due to their simple and low cost production technology and higher biological efficiency (Mane et al., 2007). *Pleurotus* species are efficient lignin degraders which can grow on wide variety of agricultural wastes with broad adaptability to varied

agro-climatic conditions. It thrives well in a moderate range of temperature 20-30°C and requires 80-85% humidity. Its growing season is longer that is February to April and September to November. *Pleurotus* species are rich source of proteins, minerals (Ca, P, Fe, K and Na) and vitamin C, B- complex (thiamine, riboflavin, folic acid and niacin) (Caglarırmak, 2007). They are consumed for their nutritive as well as medicinal values (Agrahar-Murugkar &Subbulakshmi, 2005). Mushroom protein is intermediate between that of animals and vegetables (Kurtzman, 1976) and is of superior quality because of the presence of all the essential amino acids (Purkayastha & Nayak, 1981). *Pleurotus* sp. contains high potassium to sodium ratio, which makes mushrooms an ideal (Jandaik & Goyal, 1995).

#### *Volvariella volvacea*



Common Name 'Chinese' or 'paddy straw' mushroom is commercially less attractive due to low yield per unit weight, of the substrate. As a kitchen garden crop it is preferred because of its taste and nutritional properties. In India, three species of *Volvariella* are commonly grown, namely *V. diplasia*, *V. volvacea* and *V. esculenta*. Out of these *Volvariella volvacea* is the common growing mushroom in Uttar Pradesh.

It is a high temperature mushroom grown largely in tropical and subtropical regions. This mushroom can be grown on a variety of agricultural wastes e.g. paddy straw, water hyacinth, banana, cotton or wood waste. (I.O. Fasidi (1995) Mushroom production is encouraged by heavy watering, temperature reduction and light. This mushroom can be grown up to 35°C and it should be harvested at egg stage.

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