

# Handbook on Mushroom Cultivation and Processing (with Dehydration, Preservation and Canning)

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Mushrooms are the health food of the world. These are that fast growing basidiomycetous fungi which produce fleshy fruit bodies. They are rich in proteins, vitamins and minerals, so they are consumed as energy rich food. Mushroom has been attracting attention of mankind since ancient times and use of mushroom, as food is as old as human civilization. Mushrooms are superior to many vegetables and beans in their nutritive value. It is very rich in protein, vitamins and minerals. Fresh mushrooms contain about 85% water and 3.2% protein. But dried mushrooms water content is low and protein level is high as 34 to 44% and the fat content is less than 0.3%. There are about 100 species of edible mushrooms all over the world. But only three of them are cultivated in India which are *Agaricus bisporus*, *Volvariella volvacea* and *pleurotus sajor caju*. Unfortunately, it is realized that mushrooms did not receive universal acceptance over the years since a number of naturally growing mushrooms are poisonous. Now the situation has been changed because the cultivated edible mushrooms are totally safe for human consumption. Mushroom cultivation fits in very well with sustainable farming and has several advantages: it uses agricultural waste products, a high production per surface area can be obtained, after picking; the spent substrate is still a good soil conditioner. They have less carbohydrate so they are believed to be suitable for diabetic patients. Fresh mushrooms have very limited life and hence they need to be consumed within few hours. But processing and canning increases their shelf life to few months. Osmotic dehydration is one of the important methods of processing mushroom which involves drying technology of mushroom. Mushrooms are very popular in most of the developed countries and they are becoming popular in many developing countries like India. Applications and market for mushrooms is growing rapidly in India because of their nice aroma, nutritious values, subtle flavour and many special tastes. Mushroom cultivation has been declared as a major thrust area by Government of India. Mushroom dish is a common item in all the big hotels. Mushroom production has increased many folds during the recent past. Mushrooms have found a definite place in the food consumption habits of common masses and there is a constant demand for it throughout the year.

Some of the fundamentals of the book are nutritive value of edible mushrooms, medicinal value of mushrooms, advantages of mushrooms, symptoms of mushroom poisoning, morphology of common edible mushrooms, classification of fungi a brief survey, chemical composition, anti nutritional factors and shelf life of oyster mushroom, osmotic dehydration characteristics of button mushrooms, mushroom cultivation, cultivation of white button mushroom (*agaricus bisporus*), factors determining the amount of spawn needed, fungicides for mushroom diseases insecticides for mushroom pests etc.

The present book contains cultivation, processing, dehydration, preservation and canning of various species of mushrooms. It is resourceful book for agriculturists, researchers, agriculture universities, consultants etc.

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 Hygrophorus Cossus (Sow. ex Fr.) Fr.  
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 Hygrophorus marzuolus  
 (Fr.) Bres.  
 Camarophyllus Pratensis  
 (Pers. ex Fr.) Kumm.  
 Hygrocybe nigrescens  
 (Quel.) Kuhner  
 Hygrocybe punicea  
 (Fr.) Kumm.  
 Omphalina epichysium  
 (Pres. ex Fr.) Quel.  
 Gerronema chrysophyllum  
 (Fr.) Sing.  
 Laccaria amethystina  
 (Huds. ex Hook) Cooke  
 Laccaria laccata  
 (Scop. ex Fr.) Cooke  
 Clitocybe odora  
 (Bull. ex Fr.) Kumm.



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 (Pers. ex Fr.) Kumm.  
 Clitocybe geotropa  
 (Bull. ex St. Amans) Quel.  
 Clitocybe maxima  
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 Common Funnel Cap  
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 (Fr.) Kumm.  
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 (Pers. ex Fr.) Kumm.  
 Clitocybe brumalis  
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 Lepista nuda (Bull. ex Fr.) W. G. Smith  
 Blewitt, Bluettes, Blue Leg  
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 (Viv.) Ricken  
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 (DC. ex Fr.) Sacc.  
 Tricholoma Vaccinum  
 (Pers. ex Fr.) Kumm.  
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 Tricholoma flavovirens  
 (Pers. ex Fr.) Lund.  
 Tricholoma sejunctum  
 (Sow. ex Fr.) Quel.  
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 Tricholoma Sulphureum (Bull. ex Fr.) Kumm.  
 Tricholoma Columbetta  
 (Fr.) Kumm.  
 Tricholoma Terreum  
 (Schaeff. ex Fr.) Kumm.  
 Honey Fungus, Honey Agaric, Shoestring Mushroom  
 Armillaria mellea (Vahl. ex Fr.) Kumm.  
 Lyophyllum connatum  
 (Schum. ex Fr.) Sing.  
 Lyophyllum fumosum  
 (Pers. ex Fr.) Orton  
 Tephroclype atrata  
 (Fr. ex Fr.) Donk  
 St. George's Mushroom  
 Calocybe gambosa (Fr.) Donk  
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*Leucopaxillus giganteus* (Sibth. ex Fr.) Sing.  
*Melanoleuca brevipes*  
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*Catathelasma imperiale*  
 (Fr.) Sing.  
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 Russet Shank  
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*Hohenbuehelia Petaloides*  
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*Megacollybia Platyphylla*  
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*Mycena rosea*  
 (Bull.) ex Sacc. et Dalla Costa  
*Mycena fagetorum*  
 (Fr.) Gill.  
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*Amanita gemmata*  
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*Amanita phalloides* (Fr.) Link  
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 False Death Cap  
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*Amanita porphyrea*  
 (Alb. et Schw. ex Fr.) Schummel  
*Amanita spissa* (Fr.) Opiz  
 Blusher  
*Amanita rubescens* (Pers. ex Fr.) S. F. Gray  
*Agaricus brunnescens* Peck  
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*Agaricus campestris* L. ex Fr.  
*Agaricus augustus* Fr.  
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*Lepiota clypeolaria*  
 (Bull. ex Fr.) Kumm.  
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 Shaggy Parasol  
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*Macrolepiota excoriata*  
 (Schaeff. ex Fr.) Acker-Sch.  
*Cystoderma amianthinum*  
 (Scop. ex Fr.) Maubl  
*Cystoderma cinnabarinum*  
 (Alb. et Schw. ex Fr.) Maubl  
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(Fr. ex Fr.) R. Maire  
Psathyrella velutina  
(Pers. ex S. F. Gray) Sing.  
Yellow Cow-pat Toadstool  
Bolbitius vitellinus (Pers. ex Fr.) Fr.  
Agrocybe dura  
(Bolt. ex Fr.) Sing.  
Agrocybe praecox  
(Pers. ex Fr.) Sing.  
Stropharia rugosoannulata  
Farlow in Murrill  
Verdigris Agaric  
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Stropharia albonitens  
(Fr.) P. Karst.  
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Hypholoma capnoides  
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Gymnopilus spectabilis  
(Fr.) Sing  
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(Fr.) R. Maire  
Kuehneromyces mutabilis  
(Schaeff. ex Fr.) Sing. et Smith  
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(Pers. ex Fr.) Fayod  
Crepidotus variabilis  
(Pers. ex Fr.) Kumm.  
Inocybe patouillardii Bres  
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Inocybe argillacea  
(Pers. ex Pers.) Sing.  
Inocybe lacera  
(Fr.) Kumm.  
Hebeloma radicosum  
(Bull. ex Fr.) Ricken

Jewâ€™s Ear, Judasâ€™ Ear  
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Yellow Chanterelle Pixie Stool  
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(Fr. ex Fr.) Fr.

## 25. GLOSSARY OF BASIC MYCOLOGICAL TERMS

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