

Course Code	Course Name	Credits
26BY105	MUSHROOM CULTIVATION AND TECHNOLOGY	04

### Course Objectives

- To provide fundamental knowledge on the biology, diversity and nutritional importance of mushrooms.
- To develop understanding of mushroom cultivation techniques, including composting and spawn preparation.
- To impart knowledge on identification of poisonous mushrooms, their toxic effects and preventive measures.
- To equip students with skills in mushroom production, post-harvest management and entrepreneurship opportunities.

### Learning Outcomes

Upon successful completion of this course it is intended that a student will be able to:

- Explain the biology, classification and economic importance of mushrooms.
- Acquire practical skills in cultivation, spawn preparation and maintenance of mushroom farms.
- Distinguish edible and poisonous mushrooms and understand mushroom poisoning management.
- Apply knowledge in mushroom processing, marketing and small-scale enterprise development.

#### Unit 1 - Introduction (12 Hrs.)

History of mushroom cultivation; biology of mushrooms; Nutritional value: (Proteins, amino acids, mineral elements, carbohydrates, fibers, vitamins); Medicinal value of mushrooms; Poisonous mushrooms: poisoning symptoms and prevention; edible mushrooms; Mycorrhizal mushrooms and its application.

#### Unit 2- Cultivation Technology (12 Hrs.)

Infrastructure and equipment: mushroom house, trays, polythene bags, culture racks, sprayers, boilers, driers, sieves; Substrates used in mushroom cultivation, Pure culture techniques and spawn: types and preparation, mushroom bed preparation and factors affecting mushroom bed preparation.

#### Unit 3 - Composting, Casing and Sanitation in Mushroom Cultivation (12 Hrs.)

Compost: materials used for compost preparation, methods of composting-long method of composting (LMC) & short method of composting (SMC), Casing: materials, preparation and importance; Sanitation practices during different stages of cultivation.

#### Unit 4- Cultivation, Protection, Storage and Value Addition of Mushrooms (12 Hrs.)

General process for the cultivation of *Agaricus bisporus*, *Pleurotus ostreatus* and *Volvariella volvacea* Pests and Pathogens of mushrooms and their management with reference to *Agaricus bisporus*; Storage methods of mushroom: Long term and short term storage of mushrooms; Mushroom-based food products and recipes.

#### Unit 5 - Mushroom Industry, Entrepreneurship and Sustainable Practices (12 Hrs.)

Mushroom research centers (National and regional), Marketing of mushrooms in India and world; Role of mushrooms in food security and nutrition; Entrepreneurship development and small-scale mushroom farming; Case studies of successful mushroom entrepreneurs in India; Sustainable practices and waste management (spent compost utilization).

### Reference Books:

1. Cotter, T., 2014. Organic mushroom farming and mycoremediation: Simple to advanced and experimental techniques for indoor and outdoor cultivation. Chelsea Green Publishing.
2. Tripathi, D.P., 2005. Mushroom Cultivation, Oxford & IBH Publishing Co. PVT.LTD, New Delhi.
3. Nita Bahl, 2002. Hand Book on Mushroom Cultivation. 4th Edition, Vijay Primplani for Oxford & IBH Publishing Co., Press, New York, New Delhi.
4. Stamets, P., 2000. Growing gourmet and medicinal mushrooms (3rd ed.). Ten Speed Press.
5. Biswas, S, Datta, M and Nagachan, S.V. 2012. Mushrooms- A manual for cultivation. PHI Learning Private Limited, New Delhi.
6. Krishnamoorthy, 1999. Hand Book of Mushroom Cultivation. TNAU Publications, Coimbatore, TN,India.
7. SubbaRao, N. S., 1977, Soil microorganisms and Plant Growth. Oxford & IBH Publishing Company, New Delhi.
8. SubbaRao, N. S., 1998, Biofertilizers in agriculture and forestry. India Book House Ltd. New Delhi.