



Department of Botany

Sacred Heart College (Autonomous)
Thevara, Cochin

SYLLABUS FOR
VALUE ADDED COURSE
CULTIVATION OF EDIBLE FUNGI
16BOTVAC02

Course Coordinated & Guided by

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Cultivation of Edible Fungi

Introduction:

- Edible Fungi are non-chlorophyllous plants used as food by human beings as well as animals. From the nutrition point of view mushrooms are placed between meat and vegetables. Fungi are rich in protein, carbohydrate and vitamins. They are low in caloric value and hence are recommended for heart and diabetic patients. They are rich in proteins as compared to cereals, fruits and vegetables.
- In addition to proteins, they also contain carbohydrate, fat, minerals and water; contain all the essential nine amino acids required for human growth. Mushrooms are excellent source of thiamine (vitamin-B1), riboflavin (B2), niacin, pantothenic acid, biotin, folic acid, vitamin C, D, A and K which are retained even after cooking. They are ideally suited for diabetic and hypertension patients. They are also reported to possess anticancer activities.
- India in general and Kerala in particular, is primarily agriculture based country blessed with a varied agro-climate, abundance of agricultural waste and manpower, making it most suitable for cultivation of all types of temperate, subtropical and tropical mushrooms. It can profitably be started by landless farmers, unemployed youths and other entrepreneurs. These are the ideal tools for recycling the agricultural wastes which otherwise may pose problem of disposal and atmospheric pollution.
- Therefore, mushroom cultivation is not only of economic importance but also has important role to play in integrated rural development programme by increasing income and self-employment opportunities for village youths, woman folk and housewives to make them financially independent.

Objectives

The course aims to make the students understand the importance of mushroom cultivation. It will help them to acquire knowledge in various methods in mushroom cultivation and develop skill in Poly bag preparation, pest control, harvesting of mushrooms. This will also help them to realize the nutrition value of mushrooms and learn the different aspects of storage and value added food preparation methods.

Unit I - Introduction, Types of Edible Fungi:

Introduction - history - scope of edible mushroom cultivation, Types of edible mushrooms available in India – *Volvariella volvacea*, *Pleurotus citrinopileatus*, *Agaricus bisporus*.
Nutritional and medicinal value of edible mushrooms; Poisonous mushrooms.

UNIT II: Pure culture - Spawn preparation:

Pure culture - preparation of medium (PDA and Oatmeal agar medium) sterilization - preparation of test tube slants to store mother culture – culturing of *Pleurotus* mycelium on Petri-plates, preparation of mother spawn in saline bottle and polypropylene bag and their multiplication.

Unit III: Cultivation Technology:

Infrastructure: Substrates (locally available) Polythene bags, vessels, Inoculation hook, inoculation loop, low cost stove, sieves, culture rack, mushroom unit (Thatched house) water sprayer, tray, small polythene bag. Mushroom bed preparation - paddy straw, sugarcane trash, maize straw, banana leaves. Factors affecting the mushroom bed preparation - Low cost technology, composting technology in mushroom production.

Unit IV: Storage and Nutrition:

Short-term storage (Refrigeration - up to 24 hours) Long term Storage (canning, pickles, papads), drying, storage in salt solutions. Nutrition - Proteins - amino acids, mineral elements nutrition - Carbohydrates, Crude fibre content – Vitamins.


Unit V: Value Added Food Preparation:

Types of foods prepared from mushrooms; soup, cutlet, omlette, samosa, pickles and curry .

Research Centres - National level and Regional level. Cost benefit ratio - Marketing in India and abroad, Export Value.

Suggested Readings:

1. Biswas, S., M. Datta and S.V. Ngachan. 2011. *Mushrooms: A Manual for Cultivation*. PHI learning private Ltd., New Delhi, India.
 2. Chang, S. and P.G. Miles. 2004. *Mushrooms: cultivation, nutritional value, medicinal effect, and environmental impact*. CRC Press. USA.
 3. Harandar Singh. 1991. *Mushrooms – the Art of Cultivation*. Sterling Publications, New Delhi.
 4. Marimuthu, T. Krishnamoorthy, A.S. Sivaprakasam, K. and Jayarajan. R (1991) *Oyster Mushrooms*, Department of Plant Pathology, Tamil Nadu Agricultural University, Coimbatore.
 5. Miles, P.G. and S. Chang. 1997. *Mushroom Biology: Concise basics and current developments*. World Scientific Publishing Co. Pte.Ltd. Singapore.
 6. Nita Bahl (1984-1988). *Hand book of Mushrooms*, II Edition, Vol. I & Vol. II.
 7. Pandey B.P. 1996. *A Textbook of Fungi*. S. Chand & Co., New Delhi.
 8. Swaminathan, M. (1990). *Food and Nutrition*. Bappco, The Bangalore Printing and Publishing Co. Ltd., No. 88, Mysore Road, Bangalore - 560018.
 9. Tewari, Pankaj Kapoor, S.C., (1988). *Mushroom cultivation*. Mittal Publications, Delhi.
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