



SRI YN COLLEGE(A) – NARSAPUR

(Affiliated to Adikavi Nannaya University)

II B.Sc (Hon's) Botany Major Syllabus - Semester – V, Course – 15

For 2023 – 2027 batch (w.e.f. 2026 – 2027)

Mushroom Culture Technology

I. Learning Objectives: By the end of this course the learner has:

1. To learn about the morphology and nutritional value of some edible mushrooms.
2. To gain knowledge on basic requirements for establishing a mushroom culture unit.
3. To learn the cultivation methods and management practices specific to certain edible mushrooms.

II. Learning Outcomes:

Students at the successful completion of the course will be able to:

1. Understand the structure and life of a mushroom and discriminate edible and poisonous mushrooms.
2. Identify the basic infrastructure to establish a mushroom culture unit.
3. Demonstrate skills preparation of compost and spawn.
4. Acquire a critical knowledge on cultivation of some edible mushrooms.
5. Explain the methods of storage, preparation of value-added products and marketing.

Syllabus of theory

Unit – 1: Introduction and value of mushrooms

1. Mushrooms: Definition, structure of a mushroom and a brief account of life cycle; historical account and scope of mushroom cultivation; difference between edible and poisonous mushrooms.
2. Morphological features of edible mushrooms - Button mushroom (*Agaricus bisporus*), Milky mushroom (*Calocybe indica*), Oyster mushroom (*Pleurotus sajor-caju*) and Paddy straw mushroom (*Volvariella volvacea*).
4. Nutritional value of mushrooms; medicinal mushrooms in South India (*Ganoderma lucidum*, *Phellinus rimosus*, *Pleurotus florida* and *Pleurotus pulmonaris*) and their therapeutic value; Poisonous mushrooms - harmful effects.

Unit – 2: Basic requirements of cultivation system

1. Small village unit and larger commercial unit; layout of a mushroom farm - location of building plot, design of farm, bulk chamber, composting, equipment and facilities, pasteurization room and growing rooms.
2. Compost and composting: Definition, machinery required for compost making, materials for compost preparation.
3. Methods of composting- long method of composting and short method of composting.

Unit – 3: Spawning and casing

1. Spawn and spawning: Definition, facilities required for spawn preparation; preparation of spawn substrate.
2. Preparation of pure culture, media used in raising pure culture; culture maintenance, storage of spawn.
3. Casing: Definition, Importance of casing mixture, Quality parameters of casing soil, different types of casing mixtures, commonly used materials.

Unit – 4: Mushroom cultivation

Raw material, compost, spawning, casing, cropping, and problems in cultivation (diseases, pests and nematodes, weed molds and their management strategies), picking and packing of the following mushrooms:

(a) Button mushroom (b) Oyster mushroom (c) Milky mushroom and (d) Paddy straw mushroom

Unit – 5: Post harvest technology

1. Shelf life of mushrooms; preservation of mushrooms - freezing, dry freezing, drying and canning.
2. Quality assurance and entrepreneurship - economics of different types of mushrooms; value added products of mushrooms.
3. Management of spent substrates and waste disposal of various mushrooms.

IV. Textbooks:

1. Tavis Lynch (2020) Mushroom Cultivation: An Illustrated Guide to Growing Your Own Mushrooms at Home, Rockridge Press, Emeryville, California, USA
2. Chang, P. and C. P. Bhatnagar (2003) Mushrooms: Cultivation, Nutritional Value, Medicinal Effect, and Environmental Impact, CRC Press, Boca Raton, Florida, USA
3. Tripathi, D.P. (2005) Mushroom Cultivation, Oxford & IBH Publishing Co. Pvt. Ltd, New Delhi.
4. Pathak, V. N. and Yadav, N. (1998). Mushroom Production and Processing Technology. Agrobios, Jodhpur.

V. Reference Books:

1. Tewari Pankaj Kapoor, S. C. (1988). Mushroom Cultivation. Mittal Publication, New Delhi.
2. Pandey R.K, S. K Ghosh, (1996). A Hand Book on Mushroom Cultivation. Emkey Publications
3. Nita Bhal. (2000). Handbook on Mushrooms (Vol. I and II). Oxford and IBH Publishing Co. Pvt. Ltd., New Delhi
4. Pathak V.N., Nagendra Yadav and Maneesha Gaur (2000), Mushroom Production and Processing Technology Vedams Ebooks Pvt. Ltd., New Delhi
5. Rattan, S.S. and R.C. Upadhyay (2006) Mushroom Production Technology: Recent Advances, Daya Publishing House, Delhi, India



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Mushroom Culture Technology
Practical Syllabus

Course Outcomes: On successful completion of this practical course, student shall be able to:

1. Identify and discriminate different mushrooms based on morphology.
2. Understand facilities required for mushroom cultivation.
3. Demonstrate skills on preparation of spawn, compost and casing material.
4. Exhibit skills on various cultivation practices for an edible mushroom.

Laboratory/field exercises:

1. Identification of different types of mushrooms.
2. Preparation of pure culture of an edible mushroom.
3. Preparation of mother spawn.
4. Production of planting spawn and storage.
5. Preparation of compost and casing mixture.
6. Demonstration of spawning and casing.
7. Hands on experience on cropping and harvesting.
8. Demonstration of storage methods.
9. Preparation of value-added products.



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Mushroom Culture Technology
Model Question Paper

Time: 3Hrs

Max. Marks: 60M

SECTION – I

Answer any FIVE questions, each question carries FOUR marks. Draw diagrams wherever necessary.

5 x 4M = 20M

1. Differences between Poisonous and Edible mushrooms.
2. Importance of Mushrooms
3. Write a short note on materials for compost preparation.
4. Write a short note on factors affecting composting.
5. What is Casing? Why is Casing necessary?
6. What are the characteristics of a good Spawn?
7. Post harvest handling of Button mushroom.
8. Mushroom soup recipe preparation.

Answer any FIVE questions , each question carries EIGHT mars. Draw diagrams wherever necessary.

5 x 8M = 40M

SECTION – II

9. Write an account on morphological features of button mushrooms (*Agaricusbisporous*), milky mushrooms (*Calocybeindica*).
10. Write an essay on Nutraceutical and medicinal value of mushroom.
11. What is Composting? Write an essay on need and advantages of composting.
12. Write an essay on structural details of cropping room.
13. Give an account of facilities required for Spawn preparation.

SECTION – III

14. Explain the preparation of different media used in Pure culture.
15. Write an essay on the production / cultivation of Oyster mushrooms.
16. Given an account of common problems associated with mushroom growing.
17. What is the shelf life of mushrooms? What are the conditions required to improve shelf life of mushrooms.
18. Write an essay on quality assurance and entrepreneur ships in mushroom cultivation.



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Note: The question paper setters are requested to adhere to the format given below.

Unit	Essay questions	Short questions	Marks allotted to the unit
Unit - 1	2	2	24
Unit – II	2	2	24
Unit – III	2	2	24
Unit – IV	2	1	20
Unit – V	2	1	20



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Practical Model Question Paper

Time: 3Hrs

Max. Marks: 50

1. Write aim, principal, procedure and requirements for experiment 'A'. 15M
2. Write aim, principal, procedure for experiment 'B'. 10M
3. Identify the following photograph / chart / specimen / slide/specimen. 15M
 - C)
 - D)
 - E)
4. Record + Viva - voice

$7 + 3 = 10M$

Total Marks = 50M
