

B. Sc. I: Semester-II
BOT/ VSC /31205
Open Elective Course: Biofertilizers
w.e.f.June 2023-24

Credit – 2, Contact Hours-30

BOT/OE/PRO/31204 *Credit – 2 for Project based upon paper

Objectives

- To impart the knowledge of Preparation of Biofertilizers.
- To study of different microbes role as biofertilizer
- To learn the Mycorrhizal association importance
- To acknowledge the students about the of Organic farming

Unit 1: General account about the microbes used as biofertilizer. 10

- **Rhizobium:** Isolation, identification, mass multiplication, carrier based inoculants, Actinorrhizal symbiosis.
- **Azospirillum:** isolation and mass multiplication – carrier based inoculant, associative effect of different microorganisms.
- **Azotobacter:** classification, characteristics – crop response to Azotobacter inoculum, maintenance and mass multiplication.
- **Cyanobacteria** (blue green algae), Azolla and Anabaena azollae association, nitrogen fixation, factors affecting growth, blue green algae and Azolla in rice cultivation.

Unit 4: Mycorrhize 10

- Mycorrhizal association,
- Types of mycorrhizal association,
- Taxonomy, occurrence and distribution,
- Phosphorus nutrition, growth and yield
- Colonization of VAM
- Isolation and inoculum production of VAM, and its influence on growth and yield of crop plants.

Unit 2: Organic farming 10

- Green manuring and organic fertilizers,
- Recycling of biodegradable municipal,
- Agricultural and Industrial wastes
- Biocompost making methods, types and method of vermicomposting – field Application.

Outcomes: Students will able to –

- To impart the knowledge of Preparation of Biofertilizers.
- To understand the different microbes role as biofertilizer
- To learn the Mycorrhizal association importance
- To understand importance of Organic farming

Suggested Readings

2. Dubey, R.C., 2005 A Text book of Biotechnology S.Chand & Co, New Delhi.
3. Kumaresan, V. 2005, Biotechnology, Saras Publications, New Delhi.
4. John Jothi Prakash, E. 2004. Outlines of Plant Biotechnology. Emkay Publication, New Delhi.
5. Sathe, T.V. 2004 Vermiculture and Organic Farming. Daya publishers.
6. Subha Rao, N.S. 2000, Soil Microbiology, Oxford & IBH Publishers, New Delhi.
7. Vayas,S.C, Vayas, S. and Modi, H.A. 1998 Bio-fertilizers and organic Farming Akta Prakashan,Nadiad

BOT/ SEC /31206
Skill Enhancing Course (SEC):
Paper I: Mushroom Cultivation

Credit – 1, Contact Hours-15

Objective

- To impart the knowledge of Mushroom Cultivation.
 - To gain attention of students towards Cultivation and Harvesting.
 - To aware about the importance of mushroom for nutritional supplement
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Unit: I – Preparation and Cultivation of Mushroom

15

A. Introduction and Preparation of Spawn

- Definition.
- Types of edible mushrooms.
- Mushroom industry in India.
- Nutritional value of mushroom.
- Spawn & their preservation.

B. – Cultivation and Harvesting

- Components for cultivation process.
 - Sterilization and Application of spawn.
 - Preparation of straw bags.
 - Watering.
 - Use of fungicides.
 - Harvesting time and methods.
 - Storage and Packing for marketing.
 - Preservation
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Outcomes: Students will be able –

- To know the Mushroom cultivation process.
 - To get a detailed idea about Spawn & their preservation.
 - To know the different kinds of edible mushroom.
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Reference:

1. The Easy Edible Mushroom Guide by David Pegler.
2. The Complete Mushroom Hunter
3. All That the Rain Promises and More: A Hip Pocket Guide to Western Mushrooms
4. Mushrooms: How to Identify and Gather Wild Mushrooms and Other Fungi
5. National Audubon Society Field Guide to North American Mushrooms
6. The Psilocybin Mushroom Bible Fantastic Fungi
7. Mycelium Running: How Mushrooms Can Help Save the World
8. Entangled Life: How Fungi Make Our Worlds, Change Our Minds & Shape Our Futures

BOT/ SEC /PR/31206
Practical Paper III: Mushroom Cultivation
w.e.f.June 2023-24

Credit – 1, Contact Hours-30

1. Preparation of spawn.
2. Preparation of culture bags.
3. Application of spawn and cultivation of Oyster (Dhingri).
4. Cultivation of Oyster mushroom
5. Packing and storage of mushroom.
6. Preparation of Mushroom Manchurian
7. Preparation of Mushroom omelettes
8. Preparation of Mushroom pulav
9. Preparation of Mushroom soup
10. Preparation of Mushroom biryani
11. Preparation of Mushroom roll
12. Preparation of Mushroom masala
13. 13 Preparation of Kadai Mushroom.
14. Preparation of Mushroom curry.
15. Preparation of Mushroom Pickles