

Value added Course
Mushroom Cultivation

Course structure-

| Course Title & Code | Credits | Credit distribution of course | | | Prerequisite of the course |
|----------------------|-------------------|-------------------------------|----------|--------------------|----------------------------|
| | | Theory | Tutorial | Practical/Practice | |
| Mushroom cultivation | Non credit Course | 01 | - | 01 | Nil |

Credit scheme-

Course credits- 2 Credits

No. of hours per week: 2 hrs

Total no. of teaching hours: 30 Hrs.

Examination Scheme-

Total marks of End semester Exam. -

50

Internal Assessment -

Nil

Maximum Marks-

50

Minimum Marks -

18

Time Duration-

2 hrs

Paper pattern-

Attempt all questions

Part –I: Question 1-10 very short answer type question carry 1 marks- 10 marks

Part –II: Question 11-15 Short question type questions carry 4 marks- 20 marks

Part – III : Question 16-17 long answer type question carry 10 marks- 20 marks

Domain skills expected to achieve: Identification of different edible species, skill in media and substrate preparation, isolation of pure culture for spawn, compost preparation, and practices in growing methods of different cultivated mushrooms, Postharvest handling and packing.

Syllabus

Unit I

Introduction, history Pure culture-spawn preparation - (15hrs)

Scope of edible mushroom cultivation, Types of edible mushrooms cultivated in India

–*Volvariella volvacea*, *Pleurotus citrinopileatus*, *Agaricus bisporus*. Nutritional and medicinal value of edible mushrooms; Poisonous mushrooms.

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

Unit II

Cultivation Technology, Storage and nutrition- (15 hrs)

Infrastructure: Substrates (locally available agrowastes Polythene bags, vessels, Inoculation hook, inoculation loop, culture rack, mushroom unit (Thatched house) water sprayer, tray, small polythene bags.

Cultivation Technology : (a) *Pleurotus citrinopileatus* (Oystermushroom)cultivation: Substrates, spawning, pre-treatment of substrate, mycelial run, Pin head stage , Harvesting and yield economics of cultivation . Storage :Short-term storage (refrigeration) and Long term Storage (canning, pickels, papads, drying,storage in saltsolutions).

Nutritional value of mushrooms

Suggested Readings:Mushroom bed preparation - Low cost technology, composting technology in mushroom production.

1. Marimuthu, T. Krishnamoorthy, A.S. Sivaprakasam, K. and Jayarajan. R (1991) Oyster Mushrooms, Department of Plant Pathology, Tamil Nadu Agricultural University, Coimbatore.
3. Tewari, Pankaj Kapoor, S.C., (1988). Mushroom cultivation, Mittal Publications, Delhi.47
4. Nita Bahl (1984-1988) Hand book of Mushrooms, II Edition, Vol. I & Vol. II.
5. Biswas, S., M. Datta and S.V. Ngachan. 2011. Mushrooms: A Manual For Cultivation. PHI learning private Ltd., New Delhi, India.
6. Chang, S. and P.G. Miles. 2004. Mushrooms: cultivation, nutritional value, medicinal effect, and environmental impact. CRC Press. USA.

Outcome of course-

This course provide the basic knowledge of mushroom cultivation , storage and marketing, which is useful for opening startup programme or industrial purposes.

Value added Course

Medicinal and Aromatic plants Cultivation

Course structure-

| Course Title & Code | Credits | Credit distribution of course | | | Prerequisite of the course |
|---|-------------------|-------------------------------|----------|--------------------|----------------------------|
| | | Theory | Tutorial | Practical/Practice | |
| Medicinal and aromatic Plants Cultivation | Non credit Course | 01 | - | 01 | Nil |

Credit scheme-

Course credits- 2 Credits

No. of hours per week: 2 hrs

Total no. of teaching hours: 30 Hrs.

Examination Scheme-

Total marks of End semester Exam. -

50

Internal Assessment -

Nil

Maximum Marks-

50

Minimum Marks -

18

Time Duration-

2 hrs

Paper pattern-

Attempt all questions

Part –I: Question 1-10 very short answer type question carry 1 marks- 10 marks

Part –II: Question 11-15 Short question type questions carry 4 marks- 20 marks

Part – III : Question 16-17 long answer type question carry 10 marks- 20 marks

Domain skills expected to achieve -Course in Medicinal and Aromatic Plants is a specialized program that provides individuals with comprehensive knowledge and skills in the cultivation, management, and utilization of medicinal and aromatic plants. This course focuses on various aspects related to these plants, including their medicinal properties, cultivation techniques, processing, and marketing. It aims to equip participants with the necessary expertise to contribute to the herbal medicine industry and promote sustainable practices in plant-based healthcare.

Syllabus

Unit –I

(15 hrs)

Introduction to Medicinal and Aromatic plants: Definition importance and future prospects. National Medicinal Plant Board and State Medicinal Plant Boards - objectives and functions.

Important medicinal plants of India : Their geographical distribution and uses. *Acorus* , *Adhatoda* , *Abrus* , *Aloe vera* , *Phyllanthus* , *Stevia* , *Atropa* , *Cinchona* , *Catharanthus* , *Withania* .

Important aromatic plants of India: Medicinal purpose of Ginger, Rose, Lemon grass, Citronella, Mentha, Ocimum , Eucalyptus, Thyme, Oregano . Aromatic spices - Clove, Cinnamon, Nutmeg, Ajwain and saffron.

Unit-II

(15 hrs)

Cultivation technique for medicinal and aromatic plants: High density cultivation, Different cropping systems in medicinal and aromatic plants production and training. Biofertilizers, Vermicompost and Organic farming. Weed management and Irrigation systems.

Post harvest handling and processing: Brief account on extraction techniques and essential oil production, Quality control and standardization.

Suggested Readings:

1. Medicinal Plants of Uttarakhand by C.P. Kala (2010).
2. Indian Medicinal Plants by P.C. Trivedi (2009).
3. Medicinal Plants of Indian Himalaya by S.S. Samant and U. Dhar.
4. Hand Book of Aromatic Plants by S.K. Bhattacharjee (2004).
5. Handbook of MAPs by S.K. Bhattacharjee (2009).
6. Medicinal Plants: Conservation Cultivation & Utilization by A.K. Chopra, Daya publishing house, Trinagar, Delhi (2007).

Outcome of Course:

Hands-on training and field visits provide practical exposure to the plant propagation, field management cultivation and processing of medicinal and aromatic plants. Identification and knowledge of medicinal use is very significant on entrepreneurial approach.