

BBO -C401
DSC-4 Medicinal and Economic Botany

MM : 100
Time : 3 hrs
L Credit
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Sessional : 30
ESE : 70
Pass Marks : 40

Total Hours: 60

Learning objectives:

- To understand the basic knowledge of medicinal and economic botany.
- To acquire the basic information about the introduction and history of Ayurveda.
- To acquire an overall knowledge on conservation of endangered and endemic medicinal plants.
- To become familiar with Ethno-botany and folk medicines.

Learning outcomes:

- The student shall be able to familiar with the history, scope and importance of medicinal plants; indigenous medicinal sciences.
- The student shall be able to understand about the endemic and endangered medicinal plants, red list criteria; *in-situ* and *ex-situ* conservation strategies.
- The student shall be able to understand the various methods of propagation of medicinal plants.
- The student shall be able to understand the about the palaeo-ethnobotany, folk medicines of ethno botany.
- The student shall be able take the decisions for carrier point of views in research, industries and academia entrepreneurship.

Unit 1: Introduction and History of Ayurveda:

(18 Lectures)

History, scope and Importance of medicinal plants; indigenous medicinal sciences; definition and scope- Ayurveda: history, origin, saptadhatu and tridosha concepts, Plants used in Ayurveda treatments, Siddha system of medicines: Introduction, origin and Basis of Siddha system, Unani System of Medicine: Introduction, history, and concept; Polyherbal formulations.

Unit 2: Conservation of Endangered and Endemic Medicinal Plants:

(12 Lectures)

Definition: endemic and endangered medicinal plants, red list criteria; *in-situ* conservation: Biosphere reserves, sacred groves, national parks; *Ex-situ* and *in-situ* germplasm conservation: Botanical gardens, Ethno-medicinal plants. Cultivation, conservation and propagation of medicinal plants.

Unit 3: Ethnobotany and Folk Medicines:

(10 Lectures)

Ethnobotany definition and concept: methods to study the ethnobotany; applications of ethnobotany: Palaeoethnobotany. Folk medicines and ethno-medicine, ethnoecology, ethnic communities of India; application of natural products to certain diseases: Jaundice, diabetics, blood pressure and skin diseases.

Unit 4: Origin of Cultivated Plants:

(10 Lectures)

Concept of centers of origin, their importance with reference to Vavilov's work. Wheat - origin, morphology, uses. General description with special reference to cotton (botanical name, family, part used, morphology and uses).

Unit 5: Beverages, Oils, Legumes and Spices

(10 Lectures)

Tea (morphology, processing, uses). General description with special reference to groundnut. General account with special reference to Chick-pea and soybean. General account with special reference to clove and black pepper (botanical name, family, part used morphology and uses).

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DSC-4 SEMESTER-IV BBO-C451 (LAB COURSE-CC-04)

1. Cultivation and conservation techniques of medicinal and economic plants .
2. Factors affecting cultivation of medicinal plants.
3. Plants of medicinal importance: Tulsi, Giloy, Rauvolfia, Aswagandha, Bhang, Dhatura, Bhrangraj, Punarnava, Mint etc.
4. Plants of economic importance: Wheat, Rice, Maize
5. Plants of protein sources: Chana, Soybean, Black gram, Green gram, Chick pea.
6. Plants of beverages sources: Tea and Coffee.
7. Plants of oil sources: Sesame, Ground nut and Sarso.
8. Plants of spices sources: Cardamom, Pepper and Coriander.
9. Plants of Fiber sources: Jute and Sunn Hepm.
10. Plants of sugar and starch sources: Sugarcane and Potato.

Suggested Reading

1. Kochhar, S.L. (2011). Economic Botany in the Tropics, MacMillan Publishers India Ltd., New Delhi. 4th edition.
2. Sambamurthy, AVSS & Subrahmanyam, NS (2000). Economic Botany of Crop Plants. Asiatech Publishers. New Delhi.
3. Singh, D.K and K.V. Peter. 2014. Protected cultivation of horticultural crops. New India Publishing Agency, India.
4. Reddy P. Parvatha. 2016. Sustainable crop protection under protected cultivation. Springer, Singapore.
5. Amit Deogirikar. 2019. A Text Book on Protected Cultivation and Secondary Agriculture. Rajlaxmi Prakashan, Aurangabad, India.
6. Singh, B., B. Singh, N. Sabir and M Hasan. 2014. Advances in protected cultivation. New India Publishing Agency, India.
7. Sharma, OP. 1996. Hill's Economic Botany (Late Dr. AF Hill, adopted by OP Sharma). Tata McGraw Hill Co. Ltd., New Delhi.
8. Joe J. Hanan. 1997. Greenhouses: Advanced Technology for protected horticulture. CRC Press.
9. Krishnamurthy, K.V. (2004). An Advanced Text rbook of Biodiversity - Principles and Practices. Oxford and IBH Publications Co. Pvt. Ltd. New Delhi.
- 10 Raychudhuri, S.P., 1991. (Ed.) Recent advances in Medicinal aromatic and spice crops. Vol.1, Today& Tomorrow's printers and publishers, New Delhi.
11. Jain S. K. 1989. Methods and approaches in Ethnobotany, Society of Ethnobotanists, Lucknow.

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