

“Dissemination of Education for Knowledge, Science and Culture”

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Raje Ramaro Mahavidyalaya, Jath

(AFFILIATED TO SHIVAJI UNIVERSITY, KOLHAPUR)

Post Graduate Department of Chemistry

Certificate Course

In

**Identification, Cultivation and
Conservation of Medicinal
Plants**

To be implemented from

June 2020

Aims:

During the course of “Certificate Course in Identification, Cultivation and Conservation of Medicinal Plants” a candidate is trained on professional skill, professional knowledge and Employability skill related to job role. In addition to this a candidate is entrusted to undertake project work, extracurricular activities and on job training to build up confidence.

Introduction:

Human being has developed intimate relationship with plant and plant products for his sustenance. Treating the ill-using natural herbal resources is one of such activities. India has a rich in herbal diversity and heritage of traditional herbal knowledge. The study and research in these areas need trained personnel, who are good at plant taxonomy, field work and the applied aspects of Botany, especially medicinal plants. There is a great demand and production of herbal Pharmaceuticals, Nutraceuticals and Cosmeceuticals in India. In that connection pharma companies are in need of trained personnel at their quality control department.

Objectives:-

The main objectives of the course are to train the students to develop the following:-

- Capacity building of identification of medicinal plants from local Areas.
- To get the knowledge of medicinal uses of medicinal plants.
- To get the knowledge of collection, processing and storage of herbal raw material.
- To study the methods of cultivation
- Commitment for conservation of Medicinal Plants.

1. Duration of course: 6 months

2. Eligibility to course: Students studying in M.Sc. II (Analytical Chemistry)

Learning Outcomes:

Students will -

- be able to identify medicinal plants (family/genus -level)
- identify by name and understand the effects of plant chemical constituents on humans
- be able to clearly and logically articulate their ideas in writing and orally
- be able to find reliable information about medicinal plants and herbal supplements at the library or on the internet
- demonstrate understanding of the importance of medicinal plants among different cultures through clear, logical writing
- demonstrate how different cultures approach plant use in different ways and how plants and people interact.
- apply basic ethnobotanical techniques to the study of a specific cultural use of medicinal plants.
- be able to logically defend a position regarding the intersection of religion, government regulation and healthcare.

Evaluation System:

All the students will be continuously evaluated by,

a. Attendance	10 M
b. Assignments	10 M
c. Theory examination (Two papers)	80 M
d. Practical examination (Two papers)	50 M
e. Project	50 M
	200 M

Nature of Theory question paper:-

- Q.1. Multiple choice question and compulsory, containing 08 questions. (08 marks)
- From Q.2-Q.6. (To be divided into sub-questions A, B, C &/or D) **any four** questions to be solved. (32 marks)

Project:

Simple project work is to be given and dissertation to be submitted at the end of the course. This is to be valued for 40 marks and 10 marks for viva voce examination.

Grades: - **A grade**= above 75, **B grade** = above 60, **C grade** = above 50

Certification: - A certificate will be issued on successful completion of the course.

Paper- I [Total periods: 15L]

Identification and Classification of medicinal plants their constituents.

Unit-1: Systematic study of medicinal plants. (4L)

- A) General account of medicinal plants & their importance.
- B) Classification & morphological study of various medicinal plants.

Unit-2: Pharma co-gnostic studies of medicinal plants. (4L)

- A) Classification of crude drugs on the basis of their parts (stem, root, leaves, ruts)
- B) Macro & microscopically characters of crude canny fine medicinal plants locally available.
- C) Powder analysis & adulteration of any composite herbal drug.

Unit-3: Medicinal Plants and Their Importance. (4L)

Introduction, Scientific interest in herbal medicines with brief historical account of Traditional System of Medicine- Ayurveda, Siddha, Unani and, Homeopathy. Concept of herbalism and its Significance; phyto-medicines and herbal raw materials. Local health traditions, ethnomedicines. Methods of collection and Preservation of Medicinal plants in different seasons and Formulations: infusion, decoction, dosage, juices, powders, ointments etc.

Unit-4: Adulterations of plants. (3L)

Adulterations of plants and plant parts used in the formulation of Ayurvedic medicine and Methods of identification of adulterations.

Paper- II [Total periods: 15L]

Conservation & Cultivation of medicinal plants.

Unit-1: Conservation of medicinal plants. (4L)

- A) Methods of conservation (Ex-situ & In-situ)
- B) Conservation methods in medicinal plant conservation.
 - 1) Nursery techniques (Use of fertilizers water & disease management)
 - 2) Seed bank

Unit-2: Advanced methods for medicinal plant conservation.(4L)

- A) Tissue culture techniques
- B) Hardening & Greenhouse technology

Unit-3: In situ and ex situ conservation of medicinal plants: (4L)

- A) **In situ conservation:** Micro-propagation, factor affecting tissue culture, Tissue culture room, hardening, hardening of plants in nurseries, approaches in micro propagation.
- B) **Ex situ Conservation:** Plant Nursery, Methods propagation: sexual method- seed formation, production, seed dormancy, quality analysis treatment and asexual methods- Cutting, Budding, Grafting and Layering. and vegetative propagation. Seed Bank, Seed germination and dormancy.

Unit-4: Cultivation of medicinal plants. (3L)

Origin and distribution, important cultivars, propagation; Cultivation requirements including climate and soil, manuring, irrigation, weed management, plant growth regulators, integrated nutrient management, disease and pest control, maturity, harvesting, yield, processing, drying, storage.

PRACTICALS (BASED ON PAPER I & II):

1. Study of Morphology of Medicinal plants: Study of root, stem, inflorescence, flowers and fruits.
2. Study of Important medicinal plants with reference to their medicinal parts and their general medicinal uses. (any 10 plants)
3. To study methods of Cultivation of medicinal plants: Methods of cultivation, use of fertilizers, and watering, weeding, disease and pest control of any 10 medicinal plants.

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