DEPARTMENT OF BOTANY

SBOTVAC01 Impact of Medicinal Plants on Society

Learning Objectives

To acquire knowledge on medicinal and aromatic plants

Course Outcomes

On the successful completion of this course the students will be able to

- Understand the drug Extraction methods
- Gain knowledge on the various chemical components present in the plants
- Understand the post-harvest technology of herbs

Unit I

Medicinal Plants – Importance and Scope. Classification of medicinal plants. Cultivation of medicinal plants – Processing and utilization. Chemical nature of crude drugs - Extraction, Preparation and preservation of crude drugs. Ayurveda, Siddha and Unani systems of herbal medicine.

Unit II

Traditional herbal teas. Herbs for woman, Babies and children. Concepts of Herbal garden– Home, School Herbal gardens.

Unit III

Classification and Estimation of primary metabolites- Carbohydrates, fatty acids, aminoacids and Proteins. Secondary Metabolites - Classification , General characters, Chemical nature, Extraction and Estimation methods for Glycosides, Tannins, Volatile oils, Resinous substances, Terpenoids – Phenolic compounds and Alkaloids.

Unit IV

Plants defense mechanism – Antioxidants – Reactive Oxygen Species- enzymatic and non-enzymatic antioxidants - Role of antioxidants - Estimation of antioxidants – Ascorbic acid, Alpha Tocopherol. Antioxidant

enzymes – preoxidase, SOD and catalase. Free radical, Types of Free radicals – Production of free radicals.

Unit V

Post-harvest technology in medicinal plants scope and importance. Importance of herbal marketing -Future prospects and constraints of the herbal drug industry - Regulatory status of herbal medicine in India. Adulteration with reference to plant drug, types of adulterants and methods of adulteration.

Practicals:

1. Estimation of Carbohydrates
2. Estimation of Proteins
3. Estimation of fatty acids
4. Estimation of Phenols
5. Estimation of Flavionoids
6. Preparation of crude extracts
7. Herbarium preparation
8. Estimation of Ascorbic acid and α – Tocopherol.

Text Books:

Faroogi, A.A. and B. S. Sreeramu, 2004. Cultivation of medicinal and aromatic crops. Revised edition, Universities Press (India) Private Limited, Hyderabad

Harbone, J.B. 1998. Phytochemical Methods: A guide to modern techniques of plant analysis. 3rdEdn., Springer (India) Private Limited, New Delhi.

Supplementary Reading:

WHO, 2002. Quality control methods for medicinal plant materials, World Health Organization, Geneva, A.I.T.B.S., Publishers and Distributors, New Delhi.

Halliwall, B. and J.M.Gutteridge. 1985. Free radicals in Biology and medicine. Oxford university press.