**Skill Enhancement course**

**Medicinal Botany - I**

**(Credits – 04) (60 hr.)**

**Unit 1: Introduction and Scope**

* Introduction to medicinal plants; status & scope of medicinal Botany.
* Indian contribution to medicinal botany; brief account of traditional medicinal systems – Ayurvedha, Unani, & Homeopathy.
* Some common herbal practices used to cure – fever, worms, diarrhea, cough & cold, Arthritis & rheumatism, stone in urinary tract, eczema or fungal infections.

**Unit 2: Cultivation technologies**

* Agro & Cultivation technology ( nursery raising, cultivation, inter-culture and fertilizers, pests & diseases, harvesting & profits) for some economically important medicinal plants *– Withania somnifera, Aloe vera, Rauvolfia serpentine, Podophyllum hexandrum, Arnebia benthamii & Lavendula*.
* Green House technology – principles, methodology & applications.
* Propagation of medicinal plants through cuttings, rhizomes, bulbs & seeds.

**Unit 3: Medicinal plant constituents**

* Plant secondary metabolites of medicinal importance – Alkaloids, glycosides, mucilages & sterols (Brief account).
* Sources and uses of Morphine, Reserpine, Atropine, Codine & Ephedrine in modern medicine.
* Chemicals constituents & Traditional uses of some medicinal plants of Kashmir Himalaya – *Aconitum heterophyllum, Artemisia absinthium, Fritillaria roylei, Thymus serpyllum & Crocus sativus.*

**Unit 4: Conservation of medicinal plants**

* Concept of IUCN, Red List criteria, threat categories; concept of endemism, threatened and endemic medicinal plants.
* Conservation, In-situ conservation strategies (National Parks, Sanctuaries, Biosphere reserves & sacred grooves), Ex-situ conservation (Botanical Gardens, Ethno-medicinal herbal gardens & Seed banks).
* Conservation through tissue culture and cryopreservation; Brief account of wild life protection Act 1972.

**Suggested readings**

1. Trivedi P C. 2006. Medicinal plants: Ethnobotanical approach, Agrobios, India.
2. Purohit and Vyas, 2008. Medicinal plant cultivation: A scientific approach, 2nd ed. Agrobios, India

**Skill Enhancement course**

**Ethnobotany**

**(Credits – 04) (60 hr.)**

**Unit 1: Introduction and Scope**

* Introduction, concepts and objectives, ethnobotany as an interdisciplinary science.
* Ethnic groups or tribals of India (Santhals, Munda tribe, Khasi tribe, Gonds tribe and Gujjars & Bakarwals) their location, life style, culture and economic status.
* Role of ethnobotany in domestication and conservation of native plant genetic resources.

**Unit 2: Methodology of ethnobotanical studies**

* Field trip to any local tribal community, collection of tribal information (plants used) & its documentation.
* Collection of ethnobotanical specimens from different localities for Museums; concept of archaeo ethnobotany & sacred grooves.
* Herbarium technique and role of herbarium in ethno botany; study the antibacterial activity of any two plants (used by tribals to treat the bacterial diseases) by Agar well diffusion method.

**Unit 3: Ethnobotany in modern medicine**

* Role of ethnobotany in drug development.
* Significane of the following plants in ethno botanical practices (along with their habitat, morphology and chemical constituents): *Saussurea costus, Arnebia benthamii, Fritillaria roylei, Rheum webbianum,Ttribulus terrestris, Aconitum heterophyllum, Artemesia absinthium & Mentha arvensis.*
* Ethnobotany in modern medicine with special reference to *Digitalis purpurea, Atropa belladonna, Rauvolfia serpentine & Withania somnifea.*

**Unit 4: Ethnobotany and legal aspects**

* Ethnobotany as a tool to protect interests of ethnic groups.
* Sharing of wealth concept with few examples from India.
* Biopiracy, Intellectual property rights & traditional knowledge.

Suggested readings:

**Suggested readings**

1. S.K. Jain, Manual of ethnobotany, scientific publishers, Jodhpur, 1995.
2. S.K. Jain (ed.) Glimpses of Indian Ethnobotany, Oxford and I B H, New Delhi, 1981.
3. S.K. Jain, (ed.) Methods and approaches in ethnobotany. Society of Ethnobotanists, Lucknow, India, 1989.
4. S.K. Jain, Contributions of Indian ethnobotany. Scientific Publishers, Jodhpur, 1990.
5. Colton C.M. Ethnobotany- Priciples and applications. John Wiley and sons-Chichester, 1997.
6. Rama R. N. and A.N. Henry, The ethnobotany of Eastern Ghats in Andhra Pradesh, India. Botanical Survey of India, Howrah, 1996.
7. Rajiv K. Sinha, Ethnobotany- the renaissance of traditional Herbal Medicine- I N A-Shree publishers, Jaipur, 1996.