

# CBO 502 PLANT RESOURCE UTILIZATION, CONSERVATION AND BIOMETRY

## Unit-I Plant resources-I

Adulteration in plant products: Introduction, detection of adulteration in the flowering: oils-groundnut and sunflower, species and condiments: pepper, caraway, cardamoms, saffron and clove. Cereals and pulses-Bajara, Rice, Tur and Gram.

Origin, evolution, botany, cultivation and use of:

- (i) Food (Wheat, chickpea, potato, groundnut),
- (ii) Forage/fodder crops (bajara, guarbean).

Plant fibers: Textile fibers (cotton, jute, linen, sun hemp, cannabis); Cordage (coir); Fibers for stuffing (silk cotton).

## Unit-II Plant resources-II

Dyes (Turmeric, Indigo, *Butea monosperma*, *Lawsonia alba*).

Important fire-wood and timber-yielding plants: *Acacia nilotica*, *Tectona grandis*, *Dalbergia sissoo*, *Terminalia arjuna* (Arjun sadar), *Mangifera indica*.

Rubber: Introduction, chemical composition of rubber, hevea rubber, plantation and production of rubber in the world and India, processing. Uses of rubber and synthetic rubber.

Medicinal Plants: *Atropa belladonna*, *Catharanthus roseus*, *Adhatoda vasica*, *Allium sativum*, *Rauwolfia serpentina*, *Papaver somniferum*, *Phyllanthus amarus*, *Aloe barbadense*.

References

Kochhar S L ( ), *Economic Botany in the Tropics* (2<sup>nd</sup> edition),

Verma V ( ), *A Text Book of Economic Botany* ( edition),

Bendre and Kumar ( ), *Economic Botany* (4<sup>th</sup> edition),

## Unit-III Conservation

Principles of conservation, Strategies for conservation *in situ* conservation: International efforts and Indian initiatives; protected areas in India-sanctuaries, national parks, biosphere reserves, mangroves and coral reefs for conservation of wild biodiversity.

Strategies for conservation *ex situ* conservation: Principles and practices; botanical gardens, field gene banks, seed banks, general account of the activities of Botanical Survey of India (BSI), National Bureau of Plant Genetic Resources (NBPGR), Indian Council of Agricultural Research (ICAR), Council of Scientific Industrial Research (CSIR) and the Department of Biotechnology (DBT) for conservation.

## Unit-IV Biometry

Sampling: Sample characters, sampling techniques.

Probability distribution: Normal, Poisson and Binomial.

Level of significance, Degree of freedom, Chi-square, Homogeneity Chi-square, Binomial expansion, Testing hypotheses using binomial distribution, level of significance, Student's t test, F test. Analysis of variance.

Correlation: Measures of relationship between continuous variables, Types of correlation, Calculation of correlation, coefficient from ungrouped series and grouped series.

Regression, Calculation of regression coefficient.

Non parametric tests: Rank test, F-max test, Mann-Whitney (U) test, and Sign test.

### Main Reference(s):

Banerjee P K (2004) *Introduction to Biostatistics [A Textbook of Biometry]*, S Chand & Company Ltd., New Delhi (1<sup>st</sup> Edition).

Prasad S (2001) *Elements of Biostatistics*, Rastogi Publications, Meerut (1<sup>st</sup> Edition).

Chandel S R S (2006) *A Hand Book of Agricultural Statistics*, Achal Prakashan Mandir, Kanpur (1<sup>st</sup> Edition).