

FACULTY OF SCIENCE
DEPARTMENT OF BOTANY

SBOTVAC02 - GENETICS AND PLANT BREEDING IN HUMAN LIFE

Learning Objectives:

- To study the sex determination in plants and human beings
- To understand the sex-linked inheritance
- To acquire knowledge on Plant Breeding techniques and their applications
- To understand the Mendelian laws

Course Outcomes:

1. Gain the knowledge of the general feature of sex determination
2. Understand the Mendelian laws
3. Know the mechanisms of the sex linked inheritance
4. Understand the Hybridization techniques.

Unit- I

Introduction – Mendelian's law – Monohybrid cross, Dihybrid cross, Test cross, Back cross, Non- Mendelian Genetics.

Unit -II

Incomplete dominance, Interaction of genes, Multiple alleles, Quantitative inheritance, Linkage and Crossing over, Sex determination , Sex linked inheritance.

Unit- III

Construction of Chromosome Map in *Drosophilla*. Three point cross, Mutation, Spontaneous and induced Mutation, point and frame shift Mutation.

Unit- IV

Objectives of Plant breeding, Methods of Plant Breeding in self and cross pollinated crops

Unit – V

Hybridization, hybrid vigour, Intergeneric hybridization, Interspecific hybridization , Breeding for disease and pest resistance.

Text Books :

1. Chaudhari, H.K.1984. Elementary principles of Plant Breeding. Oxford, IBH, New Delhi.
2. Lynch,M. 2013. Genetics and Analysis of Quantitative traits, Panima Book Distributors, Bangalore.
3. Sambamurthy, A.V.S.S , 2006. Genetics. Narosa Publishers House, New Delhi.
4. Singh, B.D.2017. Genetics. Kalyani publishers, New Delhi.
5. Verma, P.S & Agarwal,W.K. 2016. Cell Biology, Genetics & Molecular Biology. S.Chand & Company pvt Ltd., New Delhi