ST. JOSEPH’S COLLEGE FOR WOMEN (AUTONOMOUS) VISAKHAPATNAM

IV SEMESTER **BOTANY** TIME: 2Hrs/WEEK

B 4154(2) **CELL BIOLOGY, GENETICS, PLANT BREEDING Max**MARKS: 50

w.e.f. 20AH **PRACTICAL SYLLABUS**

**OBJECTIVES:** The student is able to

* Know the structure of plant cell, and cell organelles
* Know the cytochemical methods of fixation and nuclear staining.
* Make suitable cytological preparations for study of mitosis, meiosis and karyotype.
* Solve problems in genetics.
* Understand principles and techniques of Plant Breeding

**COURSE OUTCOMES:** After successful completion of this practical course the students hall be able to:

CO1: Show the understanding of techniques of demonstrating Mitosis and Meiosis in the laboratory and identify different stages of cell division.

CO2: Identify and explain with diagram the cellular parts of a cell from a model or picture and prepare models.

CO 3: Solve the problems related to crosses and gene interactions.

CO 4: Demonstrate plant breeding techniques such as emasculation and bagging

# PRACTICALSYLLABUS:

1. Study of ultra-structure of plant cell and its organelles using Electron microscopicPhotographs/models.
2. Demonstration of Mitosis in Allium cepa/Aloe vera roots using squash technique; observation of various stages of mitosis in permanentslides.
3. Demonstration of Meiosis in P.M.C.s of Allium cepa flower buds using squashtechnique;observation ofvariousstages of meiosisin permanent slides.
4. Studyof structureof DNAand RNAmolecules usingmodels.
5. Solving problems monohybrid, dihybrid, back and test crosses.
6. Solving problems on gene interactions (at least one problem for each of the gene interactions in the syllabus).
7. Chromosome mapping using3-point test cross data.
8. Demonstration of emasculation, bagging, artificial pollination techniques forhybridization.

**REFERENCE BOOKS:**

1. Text book of Practical Botany (Vol. II) – Ashok Bendra& Kumar, Rastogi Publications, Meerut – 2001-2002
2. Practical Botany (Vol.II) – H.N. Srivastava, Pradeep Publications, Jallandhar – 200.
3. Modern Practical Botany – B.P.Pandey – S.Chand & Co., New Delhi – 1988.
4. Practical Book of Botany (BSc-Second Year) – Dr. M. Raghuram & M. V. Rao; Technical Publishers (P) Ltd.;Guntur, India; 2010.
5. College Botany Practical (Vol.1) – S. C. Santra, T. P. Chatterjee & A. P. Das; New Central Book Agency (P) Ltd, Kolkata, India.

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