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

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

B 4153(2) **PLANT PHYSIOLOGY AND METABOLISM**  MAX.MARKS: 50

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

**OBJECTIVES:** To enable the student to

* Perform experiments, record observations, analyze the results and draw logical conclusions of different physiological processes.
* Apply the experimental technique related to plant metabolism, growth & development.

**COURSE OUTCOMES:** On successful completion of this practical course, students shall be able to:

CO 1: Conduct lab and field experiments pertaining to Plant Physiology, that is, biophysical and biochemical processes using related glassware, equipment, chemicals and plant material.

CO 2: Estimate the quantities and qualitative expressions using experimental results and calculations

CO 3: Demonstrate the factors responsible for growth and development in plants.

# PRACTICALSYLLABUS:

1. Determination of osmotic potential of plant cell sap by plasmolytic method using

Rhoeo /Trade scantia leaves.

1. Calculation of stomatal index and stomatal frequency of a mesophyte and axerophyte.
2. Determination of rate of transpiration using Cobalt chloride method / Ganong’s potometer(at least for adicot and amonocot).
3. Effect of Temperature on membrane permeability by colorimetric method.
4. Study of mineral deficiency symptoms using plant material/photographs.
5. Demonstration of amylase enzyme activity and study the effect of substrate and Enzyme concentration.
6. Separation of chloroplast pigments using paper chromatography technique.
7. Demonstration of Poly phenol oxidase enzyme activity (Potato tuber or Apple fruit)
8. Anatomy of C3, C4 and CAM leaves
9. Estimation of protein by biuret method/Lowry method
10. Minor experiments – Osmosis, Arc-auxono meter, ascent of sap through xylem, cytoplasmic streaming.

**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. College Botany Practical (Vol.1) – S. C. Santra, T. P. Chatterjee & A. P. Das; New Central Book Agency (P) Ltd, Kolkata, India.

5. Practical Book of Botany, Dr. M. Raghuram, Technical Publishers, Guntur, India; 2010.

# \*\* \*\* \*\*