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

III SEMESTER  **BIOTECHNOLGY** TIME: 2Hrs/Week

BTH-Ma-4-3751 (3) **METABOLISM** Max. Marks: 50

W.e.f. 2024-25 admitted batch (23AK) **PRACTICAL SYLLABUS**

**OBJECTIVES:** To enable the students to

1. Learn the basic concepts in immobilization and evaluate the factors.
2. Comprehend various specific enzyme assays.
3. Evaluate the amount of starch from vegetables.
4. Expertise in qualitative determination of carbohydrates and proteins.

**COURSE OUTCOMES: Students will**

* **CO1:** Familiarized with immobilization & entrapment of enzymes with gels.
* **CO2:** Determine the specific enzyme assays.
  + - **CO3:** Acquaint with isolation protocols for stach.
    - **CO4:** Be proficient in determining the concentrations of carbohydrates and proteins.

1. **COURSE:**
2. Immobilization of enzymes /cells by entrapment in alginate gel-19. Effect of temperature/pH on enzyme activity.
3. Assay of protease activity.
4. Assay of alkaline phosphatase.
5. Preparation of starch from Potato and its hydrolysis by salivary amylase.
6. Isolation of urease and demonstration of its activity
7. Estimation of amino acids by ninhydrin method
8. Estimation of protein by Biuret method
9. Estimation of glucose by DNS method
10. Estimation of glucose by Benedicts titrimetric method
11. Estimation of total carbohydrates by anthrone method
12. **REFERENCES**
13. Understanding enzymes: Palmer T., Ellis Harwood ltd., 2001.
14. Enzyme structure and mechanism. Alan Fersht, Freeman & Co. 1997
15. Principles of enzymology for food sciences: Whitaker Marc Dekker 1972.
16. Principles of Biochemistry, White. A, Handler, P and Smith.
17. Biochemistry, Lehninger A.L.
18. Biochemistry, Lubert Stryer.
19. Review of physiological chemistry, Harold A. Harper.
20. Text of Biochemistry, West and Todd.
21. Metabolic pathways – Greenberg.
22. **CO-Curricular Activities**

a) **Suggested Co-Curricular Activities**

1. Assignments
2. Seminars, Group Discussions on related topics
3. Charts on cycles – Carbohydrate, lipid and amino acid metabolism.