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

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

BTH-Ma2-3751 (3) **MOLECULAR BIOLOGY** Max. Marks: 50

W.e.f. 2023-24 admitted batch (23AK) **PRACTICAL SYLLABUS**

**OBJECTIVES:** To enable the students to –

1. Gain the knowledge on quantitative estimation of Nucleic acids.
2. Be trained in isolation of DNA from the different sources.
3. Familiarize on purity analysis of nucleic acids.

**COURSE OUTCOMES: Students will**

* **CO1:** Be proficient in determination of growth kinetics through UV radiations.
* **CO2:** Attain expertise in quantitative estimation of Nucleic acids.
* **CO3:** Be Able to isolate DNA from different plant resources.
* **CO4:** Be expertise in analyzing the purity of DNA.

1. **COURSE:**
2. Effect of UV radiations on the growth of microorganisms.
3. Determination of absorption maxima of DNA and RNA and their quantification
4. Quantitative estimation of RNA
5. Quantitative estimation of DNA
6. Isolation of plasmid DNA from bacteria
7. Isolation of genomic DNA from *E.coli*
8. Isolation of DNA from sheep liver
9. Isolation of DNA from plant leaves (Rice or Tobacco or any other plant)
10. Separation of DNA by Agarose gel Electrophoresis
11. Purity analysis of the Nucleic acids
12. **REFERENCES**
13. Cell and Molecular Biology, 8th edition. De Robertis, E.D.P. and De Robertis, E.M.F. 2006; Lippincott Williams and Wilkins, Philadelphia.
14. Cell Biology, (2017), De Robertis & De Roberis, Blaze Publishers & Distributors Pvt. Ltd.
15. The Cell: A Molecular Approach. 5th edition. Cooper, G.M. and Hausman, R.E. 2009. ASMPress & Sunderland, Washington, D.C.; Sinauer Associates, MA.
16. The World of the Cell, 7thedition, Becker, W.M., Kleinsmith, L.J., Hardin. J. and Bertoni, G. P. 2009 Pearson Benjamin Cummings Publishing, San Francisco.
17. David A. Thompson. 2011. Cell and Molecular Biology Lab. Manual.
18. P.Gunasekaran. 2007. Laboratory Manual in Microbiology. New Age International.
19. D O Hall, S E Hawkins. 1974. Laboratory Manual of Cell Biology. British Society for Cell Biology, Published by Crane, Russia.
20. Mary L. Ledbetter. 1993. Cell Biology: Laboratory Manual. Edition: 2. Published by Ron Jon Publishing. Incorporated.
21. Gunasekaran, P. 2009. Laboratory Manual in Microbiology. 1st Edition. New Age International Publishers.
22. Dr. T. Sundararaj. Microbiology Laboratory Manual. 2005. Dr.A.L. MPGIBMS, University of Madras, Taramani, Chennai –600 113.
23. James G. Cappuccino and Natalie Sherman. 2013. Microbiology: A Laboratory Manual. 10th Edition. Benjamin Cummings.
24. Dr. David A Thompson. 2011. Cell and Molecular Biology Lab Manual.
25. George M. Malacinski. 2013. Freifeder’s Essentials of Molecular Biology. Narosa Publishing House.
26. **CO-Curricular Activities**

a) **Suggested Co-Curricular Activities**

1. Assignments
2. Seminars, Group Discussions on related topics
3. Charts on Replication, Transcription and Translation.

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