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

III SEMESTER   **ZOOLOGY** TIME:2HRS/WEEK

Z-Ma3-3551(2) **ANIMAL BIOTECHNOLOGY** MARKS:50

w.e.f 2024-2025 (23AK Batch) **PRACTICAL SYLLABUS**

# LEARNING OBJECTIVES

This course will provide students with a practical knowledge in animal biotechnology, by the completion of the course the graduate shall able to –

* Acquire knowledge on Cloning vectors widely used in biotechnology
* Empower with the process of DNA quantification and amplification
* Explain purification of biological compounds by paper chromatography
* Get insight maintenance of laboratory apparatus
* Understand principles of animal culture, media preparation

# LEARNING OUTCOMES

By the end of the course, students will be able to

CO1:L3-Demonstrate the separation of biological compounds using chromatography technique.

CO2:L4-Perform practical tasks involving the separation and purification of biological compounds using paper and thin-layer chromatography techniques.

CO3: L4-Comply to standardized procedures using safety measures in the laboratory and careful handling of glass ware and maintaining laboratory equipments.

# SYLLABUS:

* 1. Cloning Vectors: Plasmid vectors: pBR and pUC series, Bacteriophage lambda and M13 based vectors, Cosmids, BACs, YACs, (Charts/Images/Models)
  2. DNA quantification using DPA Method.
  3. Techniques: DNA Fingerprinting
  4. Separation, Purification of biological compounds by paper chromatography
  5. Cleaning and sterilization of glass and plastic wares for cell culture.
  6. Preparation of cell culture media.
  7. Amplification of DNA by PCR
  8. Isolation and visualization of Plasmid DNA from E-coli.

***Note: above practical may be demonstrated in the lab or demonstrated by V- lab***

# RFERENCE WEB LINKS:

* <https://vlab.amrita.edu/>
* <https://www.vlab.co.in/broad-area-biotechnology-and-biomedical-engineering>
* <https://blog.praxilabs.com/2020/06/30/dna-extraction-virtual-lab/>
* <http://mbvi-au.vlabs.ac.in/>
* <https://webstor.srmist.edu.in/web_assets/downloads/2021/18BTC203J-lab-manual.pdf>
* [https://webstor.srmist.edu.in/web\_assets/srm\_mainsite/files/files/BT%200312%20-](https://webstor.srmist.edu.in/web_assets/srm_mainsite/files/files/BT%200312%20-%20ANIMAL%20CELL%20AND%20TISSUE%20CULTURE%20LABORATORY.pdf)
* [%20ANIMAL%20CELL%20AND%20TISSUE%20CULTURE%20LABORATORY.pdf](https://webstor.srmist.edu.in/web_assets/srm_mainsite/files/files/BT%200312%20-%20ANIMAL%20CELL%20AND%20TISSUE%20CULTURE%20LABORATORY.pdf)
* <https://davjalandhar.com/dbt/biotechnology/SOP/BSc%20Biotechnology%20Semester%20V%20%26%20VI.pdf>
* [https://www.austincc.edu/awheeler/Files/BIOL%201414%20Fall%202011/BIOL1414\_Lab%20](https://www.austincc.edu/awheeler/Files/BIOL%201414%20Fall%202011/BIOL1414_Lab%20Manual_Fall%202011.pdf) [Manual\_Fall%202011.pdf](https://www.austincc.edu/awheeler/Files/BIOL%201414%20Fall%202011/BIOL1414_Lab%20Manual_Fall%202011.pdf)

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