



MANGALORE UNIVERSITY

DEPARTMENT OF BIOCHEMISTRY

MSc Biochemistry

HARDCORE BC P 554: PRACTICAL BIOTECHNOLOGY

PRACTICAL- 4 CREDITS 8 HOURS/WEEK

Course objectives

- To isolate the DNA from microbial, plant and animal source by various methods
- To quantify the DNA and assess the purity of nucleic acids.
- To prepare competent cells
- Isolate the plasmids from *E. coli* and ligation of gene into vector and transformation.

Course outcome

- The students would be able to isolate DNA from microbial, plant and animal, employing suitable method.
- Assess the purity and quantify the nucleic acids.
- Steps involved in gene cloning.

Experiments

1. Isolation of DNA from animal source
2. Estimation of DNA by diphenylamine method
3. Isolation of RNA from yeast
4. Estimation of RNA by orcinol reaction
5. UV absorption of nucleic acids
6. Estimation of phosphorous content in nucleic acids
7. Electrophoresis of DNA and RNA nucleotides
8. Preparation of media, culturing of transgenic *E. coli* and Yeast.
9. Preparation competent cells.
10. Isolation of plasmids, ligation, transformation.
11. Restriction digestion of DNA.
12. PCR: Primer design and amplification.
13. RT-PCR

REFERENCES:

An introduction to Practical Biochemistry, David T Plummer

Molecular Cloning: A laboratory manual, Sambrook and Russell