

Course contents for Laboratory Techniques-I

1. Faculty: FLSB

2. Course Code:

3. Course Title: Laboratory Techniques-I

4. Number of Credits: Eight

5. Course Structure:

S.No. Title of the experiments

- 1 UV absorbance spectra of the three aromatic amino acids
- 2 Extraction and assay of an enzyme (Acid Phosphatase)
- 3 Effect of pH on enzyme activity (Acid Phosphatase)
- 4 Effect of substrate concentration and inhibitor on enzyme activity
- 5 Preparation of SDS PAGE gel
- 6 Estimation of molecular weight of protein
- 7 Recombinant protein (Enzyme) expression in E.coli (BL21)
- 8 Preparation of Cell free lysate
- 9 Affinity Chromatography for the purification of recombinant protein
- 10 Measuring the purity of purified proteins on SDS-PAGE
- 11 Measuring the concentration of the purified protein (BCA kit)
- 12 Enzyme kinetics with purified proteins

- 1 Simple staining
- 2 Negative staining
- 3 Pure Culture Technique
- 4 Growing and Observing bacterial biofilms
- 5 Gram staining
- 6 Acid- fast staining
- 7 Cultivation of Microorganisms-Use of Differential and Selective Media
- 8 Metabolite production by E.Coli and its extraction
- 9 Antibiotic Sensitivity assays
- 10 Nitrate Reduction test
- 11 Oxidase Test

- 1 Colorimetric determination of DNA concentration: DPA method
- 2 Isolation of plasmid DNA from E.coli - alkaline lysis method
Spectrophotometric method for estimation and purity check of plasmid DNA including OD scanning (230, 260, 280, 320)
- 3 Characterization of denaturation of DNA using 60% DMSO and 1M NaOH
- 4 Demonstration of Photoreactivation repair mechanism in banana.
- 5 Assay of topoisomerase I and EcoRI activities
- 7 Analysis of supercoiled and linear DNA migration on agarose gel
- 8 Restriction Enzyme Mapping of pUC18 plasmid DNA
- 9 Analysis of Single and double Restriction digestion product on agarose gel
- 10 Isolation of bacterial genomic DNA.
- 11 Genomic DNA quantitation and agarose gel analysis

- 1 Study of different stages of mitosis in onion root tip cells
- 2 Study of the effect of colchicine on mitosis in onion root tip cells
- 3 Chromosome preparation from cell line
- 4 Cell counting using haemocytometer
- 5 Cell culture using cell line (Counting, maintenance, freezing, thawing)
- 6 Cell viability-MTT assay
- 7 Cell Death- DNA fragmentation

- 1 Cell transfection-GFP
- 2 Protein estimation and Western blot