

3. Extraction of Chlorophylls from natural source and their estimation by UV-Vis spectroscopy
4. Separation of protein by Ion exchange chromatography
5. Separation of protein by Gel filtration chromatography
6. Purification of immunoglobulin by Affinity chromatography
7. Estimation of Phospholipids
8. Extraction and estimation of Phosphatidylcholine from egg yolk
9. Determination of pKa of an acid
10. Estimation of calcium from natural source (Ragi)

Course outcome:

- Students will have the ability to think critically and analyze biochemical problems.
- They can present scientific and technical information resulting from laboratory experimentation in both written and oral formats.
- They are in a position to explain the principle, instrumentation and applications of colorimetric analysis of various biochemical compounds.

REFERENCES:

1. Introduction to practical Biochemistry. David T. Plummer
2. Lab Manual of Biochemistry. By Nigam. 2007. Tata McGraw-Hill Education, USA.
3. Biochemical Methods. S. Sadasivam and A. Manickam. 3rd ed, New Age International P.

BCP 407: PRACTICAL GENERAL BIOCHEMISTRY: SOFT CORE

Practical: 8 hours/week

Total credits: 03

Course objectives:

- To establish broad knowledge of general biochemistry.
- To impart the basic analytical and technical skills to work effectively in biochemistry laboratories.
- To perform accurate quantitative measurements with an understanding of the theory and use of instrumentation, interpret experimental results perform calculations on these results and draw reasonable accurate conclusion.

EXPERIMENTS

1. Buffers: a) Introduction b) Preparation of acetate, citrate and phosphate buffers
2. Quantitative determination of protein concentration by Biuret method.
3. Estimation of protein by Lowry's method.
4. Estimation of protein by Bradford method.
5. Bicinchonnic acid protein assay.
6. Measurement of protein concentration by UV spectroscopy.
7. Estimation of glucose from natural or synthetic source by Dinitrosalicylic acid method.
8. Estimation of total carbohydrates from natural source by Phenol sulphuric acid method.
9. Estimation of starch by Anthrone method
10. Estimation of ascorbic acid from natural source (guava, green chilli, orange etc.) by DNPH method.
11. Estimation of inorganic phosphate by Fiske- Subba Rao's method.
12. Estimation of DNA by Diphenylamine method
13. Estimation of RNA by Orcinol acid method

Course outcome:

- Students will have the ability to think critically and analyze biochemical problems.
- They can present scientific and technical information resulting from laboratory experimentation in both written and oral formats.
- They are in a position to explain the principle, instrumentation and applications of colorimetric analysis of various biochemical compounds.

Course outcome:

- Students will have the ability to think critically and analyze biochemical problems.
- They can present scientific and technical information resulting from laboratory experimentation in both written and oral formats.
- They are in a position to explain the principle, instrumentation and applications of colorimetric analysis of various biochemical compounds.

REFERENCES:

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BCP 408: PRACTICAL BIOANALYTICAL TECHNIQUES: HARD CORE

Practical: 8 hours/week

Total Credits: 04

Course objectives:

- To use different types of chromatographic techniques to detect amino acids, lipids and carbohydrates.
- To characterize oil and fat to check their purity.
- To use various techniques to purify proteins.
- To separate and detect proteins using electrophoretic techniques.

Experiments:

1. Detection of amino acids by circular chromatography.
2. Detection of amino acids by ascending chromatography.
3. Detection of amino acids by descending chromatography.
4. Detection of amino acids by 2D- paper chromatography.
5. Detection of amino acids by thin layer chromatography.
6. Detection of lipids by thin layer chromatography.
7. Detection of carbohydrates by paper chromatography.
8. Detection of carbohydrates by thin layer chromatography.
9. Saponification number of oil and fat.
10. Iodine number of oil and fat.
11. Trichloroacetic acid precipitation of proteins.
12. Preparation of casein from milk.
13. Acetone precipitation of proteins
14. Purification of proteins: Ammonium sulphate precipitation (salting out), Dialysis,.
15. Separation and detection of proteins – Native PAGE, Denaturing PAGE.

Course outcome:

- Students would gain knowledge about the biochemical techniques and their applications in day to-day life.