

Course Code	Course Title	L	T	P	C
1151BT302	BIOCHEMISTRY LABORATORY	0	0	2	1

Course Category : Program Core

a. Preamble : To learn and understand the principles behind the qualitative and quantitative estimation of biomolecules and laboratory analysis of the same from the body fluids.

b. Course Outcomes: Upon the successful completion of the course, students will be able to:

CO Nos.	Course Outcomes	Knowledge Level (Based on revised Bloom's Taxonomy)
CO1	Understand the role of buffer in maintaining acid base balance	K2
CO2	Distinguish between non-reducing sugars and keto from aldo sugars	K2
CO3	Distinguish between amino acid and imino acid	K3
CO4	Understand Biuret and Lowry's methods	K3
CO5	Understand Bradford and Spectroscopic methods	K3
CO6	Analyze extracted lipids using TLC	K4
CO7	Identify nucleic acids using absorbance	K3
CO8	Understand Enzymatic assay	K2

COs		PROGRAMME OUTCOMES											
		1	2	3	4	5	6	7	8	9	10	11	12
CO1	Understand the role of buffer in maintaining acid base balance	L	H	H	H	H	L	L	L	L	L	L	L
CO2	Distinguish between non-reducing sugars and keto from aldo sugars	L	H	H	H	H	L	L	L	L	L	L	L
CO3	Distinguish between amino acid and imino acid	L	H	H	H	H	L	L	L	L	L	L	L
CO4	Understand Biuret and Lowry's methods	L	H	H	H	H	L	L	L	L	L	L	L

CO5	Understand Bradford and Spectroscopic methods	L	H	H	H	H	L	L	L	L	L	L	L
-----	---	---	---	---	---	---	---	---	---	---	---	---	---

EXPERIMENTS

1. Preparation of buffer –titration of a weak acid and a weak base.
2. Qualitative tests for carbohydrates – distinguishing reducing from non-reducing sugars and keto from aldo sugars.
3. Quantitative method for amino acid estimation using ninhydrin – distinguishing amino from imino acid.
4. Protein estimation by Biuret and Lowry's methods.
5. Protein estimation by Bradford and spectroscopic methods.
6. Extraction of lipids and analysis by TLC.
7. Estimation of nucleic acids by absorbance at 260 nm and hyperchromic effect (demo).
8. Enzymatic assay: (a) Phosphatase from potato, (b) Enzymatic assay: estimation of glucose by GOD-POD method after hydrolysis of starch with acid and specificity of the enzymatic method.

TEXT BOOKS

1. Practical Biochemistry by R.C. Gupta and S. Bhargavan.
2. Introduction of Practical Biochemistry by David T. Phummer. (II Edition)

REFERENCES

1. Harpers Biochemistry Ed. R.K. Murray , D.K. Granner, P.A. Mayes and V.W.Rodwell, Appleton and Lange ,Stanford ,Conneticut.
2. Textbook of Biochemistry with clinical correlations. Ed. Thomas M. Devlin. Wiley Liss Publishers