

BIOCHEMISTRY (BS-ADP 5th Semester)

Module Code:	Chem-316
Module title:	Carbohydrates
Name of Scheme:	BS-ADP 5th Semester
Department:	School of Chemistry
Faculty:	Science
Module Type:	Optional
Module Rating:	2 credits

OBJECTIVES

This course will help students to understand major types of carbohydrates and their function in the human body. Students will be able to learn metabolism and metabolic pathways of carbohydrates. It will also help in understanding of ATP production in cell, normal level of blood sugar and its regulation.

SYLLABUS OUTLINES

Introduction, occurrence and importance of Carbohydrates in biosphere and life processes. classification of carbohydrates; chemistry, physical, chemical properties and biological significance of monosaccharide's, oligosaccharides and polysaccharides; Homo-polysaccharides and Hetro-polysaccharides with special emphasis on Glycosaminoglycans. Haworth configuration, D and L configuration of monosaccharides. Optical isomerism and mutarotation in glucose. Invert sugar. A brief discussion of digestion, absorption, and transport of Carbohydrates. Description about the Metabolism, biological importance and ATP production of carbohydrates; glycolysis, citric acid Cycle, HMP pathway, uronic acid pathway. gluconeogenesis, glycogenesis, glycogenolysis, electron transport chain, oxidative phosphorylation and uncoupler agents involved in oxidative phosphorylation.

RECOMMENDED BOOKS

1. Principles of Biochemistry by Lehninger AL, Nelson DL and CoxMN,2000
Pub: worth Publishers
2. Biochemistry by Lubert Stryer(2006) Pub: Freeman and Company
3. Harpers Biochemistry, 27th ed. (2006) McGraw Hill Inc.
4. Lippincott's Biochemistry by Champ C; Harvey.R.A and Ferrie.D.R. 3rd Edition., Pub: J.B. Lippincott company