Advanced Food Chemistry 3(2-1)

Theory

Carbohydrates: Nomenclature, classification, structure. Sugars: properties, functions in food, structural and functional changes during processing. Polysaccharides: Starch - structure, properties, gelatinization, retrogradation. Cellulose/Pectins/Gums - structure, properties, industrial uses. Proteins: Amino acids - structure, Classification and functional properties of proteins. Denaturation. Lipids: Classification, reactions of industrial importance, hydrogenation, halogenation, saponification, trans-esterifications. Rancidity: Oxidative and hydrolytic. Vitamins: Structure, sources, functions. Sensitivity to processing conditions. Flavors and aroma compounds: Carbonyl compounds, phenols, alcohol, esters, terpenes and their interactions with other food constituents, synthetic and natural aroma compounds. Food Contaminants: Toxic trace elements, Toxic compounds of microbial origin, Pesticides, Veterinary medicines and feed additives, Polychlorinated biphenyls (PCB,s).

Practical

Isolation and extraction of different food components. Titrametric determination of sugars, vitamin C, Iodine etc. Separation of natural food colors. Extraction of pectin from fruit waste. Estimation of starch, cholesterol, total dietary fiber, glucose, pigments etc.

Books Recommended

1. Belitz, H.D. and Grosch, W. 2004. Food Chemistry. Springer-Verlag, New York.
2. Tim, H. 2002. Food Chemical Composition: Dietary Significance in Food Manufacturing. Campden and Chorley Wood Research Association. Campden, UK.
3. Weaver, M.C. and Daniel, J.R 2003. The Food Chemistry Laboratory: A Manual for Experimental Foods, Dietetics, and Food Scientists. Blackwell Pub. Co., Oxford.

Edited By Dr. Saqib Jabbar (Assistant Professor)
Institute of Food Science and Nutrition
University of Sargodha, Pakistan
Website: www.geocities.ws/saqibuos