

Food Biotechnology 3(2-1)

Theory

Biotechnology: introduction, history. Microbial metabolism. Developments in metabolic and biochemical engineering: metabolites, range of fermentation processes, components of fermentation processes. Isolation and preservation of industrially important microorganisms. Industrial fermentations: media, design and types of fermentors, process variables in fermentation, recovery, purification of fermentation products. Production of organic acids, enzymes, amino acids, single cell proteins, carotenoids and fermented food products. Microbial genetics: conjugation, transduction, transformation. GMO in food biotechnology. Legal and social aspects of food biotechnology.

Practical

Isolation, purification and maintenance of yeast and bacterial cultures. Aerobic and anaerobic fermentation and production of various fermented food products.

Books Recommended

1. El-Mansi, F.M.T, Bryee, C.F.A, Demain, A.L. and Allman, A.R. 2007. Fermentation microbiology and biotechnology. CRC Press, Taylor & Francis Group, Boca Raton, Florida, USA.
2. Shetty, K., Paliyath, G, Pometto, A. and Levin, RE. 2005. Food Biotechnology. Marcel Dekker Inc., New York, USA.
3. Borem, A., Santos, F.R. and Bowen, D.E. 2004. Understanding biotechnology. Pearson Education Inc., New Jersey, USA.

**Edited By Dr. Saqib Jabbar (Assistant Professor)
Institute of Food Science and Nutrition
University of Sargodha, Pakistan**