

I-Year, I-Semester

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Credits: 4

CH557 INDUSTRIAL MICROBIOLOGY

UNIT-I

Foods as ecological niches, Relevant microbial groups, Microbes found in raw materials and foods that are detrimental to quality, Factors that influence the development of microbes in food.

UNIT-II

Newer and rapid methods for qualitative and quantitative assay demonstrating the presence and characterization of microbes, Stress, damage, adaptation, reparation, death.

UNIT-III

Microbial growth in food: intrinsic, extrinsic and implicit factors, Microbial interactions, Inorganic, organic and antibiotic additives. Effects of enzymes and other proteins, Combination systems, Adaptation phenomena and stress phenomena, Effect of injury on growth or survival, Commercial available databases.

UNIT-IV

Microbial behavior against the newer methods of food processing, Adoption and resistance development, Microbes as test organisms, as sensors and as tools for future applications in energy production and food and non food industrial products.

UNIT-V

Modern methods of cell culture: synchronous and co- cell culture, continuous cell culture in liquid and solid media, Cell immobilization and applications, Pre and probiotics cultures.

Text Books:

1. Adams M. 2006. Emerging Food-borne Pathogens. Woodhead Publ.
2. Adams MR & Moss MO. 2000. Food Microbiology. Panima.
3. Easter MC. 2003. Rapid Microbiological Methods in the Pharmaceutical Industry.
4. Harrigan W. 2003. Laboratory Methods in Food Microbiology. University of Reading, UK, Elsevier.
5. James MJ, Loessner MJ & David A. 2005. Modern Food Microbiology. 7th Ed. Golden Food Science Text Series.
6. Pederson CS.1979. Microbiology of Food Fermentations. AVI Publ.
7. Roberts R .2002. Practical Food Microbiology. Blackwell Publ.
8. Rossmore HW. 1995. Handbook of Biocide and Preservative. Blackie
9. Wood JBB. 1999. Microbiology of Fermented Foods. Vols. I, II. Blackwell Academic.
10. Yousef AE. 2002. Food Microbiology: A Laboratory Manual. AVI.