AMFT04 FOOD MICROBIOLOGY

UNIT-1 ROLE OF MICROBES IN SPOILAGE OF FOODS

1.1 Factors affecting spoilage of foods,
1.2 Microbial flora associated with various food groups their spoilage potential.
1.3 Microbiological spoilage problems associated with typical food products.

UNIT-2 CONTROL OF MICROBES IN FOODS

2.1 Use of antimicrobial chemicals- organic acids, sugars, sodium chloride, nitrites, phosphates, sulphites, benzoates, sorbates / propionates naturally occurring antimicrobials;
2.2 Physical method slow and high temperatures, drying,
2.3 Radiation and high pressure;
2.4 Tolerance of microbes to chemical and physical methods in various foods.

UNIT-3 MICROBES IN FOOD FERMENTATIONS

3.1 Microbes of importance in food fermentations,- homo & hetero-fermentative bacteria, yeasts & fungi;
3.2 Biochemistry of fermentations- pathways involved lactic acid bacteria fermentation and starter cultures,
3.3 Alcoholic fermentations- yeast fermentations - characteristics and strain selection, fungal fermentations.
3.4 Microbes associated with typical food fermentations- yoghurt, cheese, fermented milks, breads, idli, soy products, fermented vegetables and meats.

UNIT-4 MICROBIAL AGENTS OF FOOD BORNE ILLNESS

4.1 Food borne infections and food poisoning, microbial toxins,
4.2 Gram Negative and Gram positive food borne pathogens;
4.3 Toxigenic algae and fungi;
4.4 Food borne viruses;
4.5 Helminths, nematodes and protozoa.

UNIT-5 MICROBIAL EXAMINATION OF FOODS

5.1 Detection & Enumeration of microbes in foods;
5.2 Indicator organisms and microbiological criteria;
5.3 Rapid and automated microbial methods - development and impact on the detection of food borne pathogens;
5.4 Applications of immunological, techniques to food industry;
5.5 Detection methods for E. coli, Staphylococci, Yersinia, Campylobacter, B. cereus, Cl. botulinum& Salmonella, Listeria monocytogenes Norwalk virus, Rotavirus,
5.6 Hepatitis A virus from food samples.

References Books

1 Montville, Thomas J. and Karl R. Matthews "Food Microbiology: An Introduction". ASM Press, 2005

2 Ray, Bibek and ArunBhunia. "Fundamental Food Microbiology" 4th Edition, CRC Press, 2008

3 Pawsey, R. K. "Case Studies in Food Microbiology for Food Safety and Quality". The Royal Society of Chemistry, 2001.

4 Forsythe, S.J. "The Microbiology of Safe Food". Blackwell Science, 2000.

5 Doyle, Michael P. "Food Microbiology: Fundamentals and Frontiers". 2nd Edition, ASM Press, 2001.