

## 2.13 30713 FOOD MICROBIOLOGY

### UNIT-1

- 1.1 Introduction to Food Microbiology
- 1.2 History and Development of Food Microbiology
- 1.3 Definition and Scope of food microbiology
- 1.4 Inter-relationship of microbiology with other sciences

### UNIT-2

- 2.1 Characteristics of Microorganisms in Food
- 2.2 Types of microorganisms associated with food, their morphology and structure
- 2.3 Significance of spores in food microbiology

### UNIT-3

- 3.1 Microbial Growth in Food
- 3.2 Bacterial growth curve and microbial growth in food
- 3.3 Factors affecting the growth of microorganisms in food

### UNIT-4

- 4.1 Microbial Food Spoilage
- 4.2 Sources of Microorganisms in foods
- 4.3 Some important food spoilage microorganisms
- 4.4 Spoilage of specific food groups- Milk and dairy products, Meat, poultry and seafood's, Cereal and cereal products, Fruits and vegetables and Canned products

### UNIT-5

- 5.1 Food Fermentations
- 5.2 Fermentation, definition and types
- 5.3 Microorganisms used in food fermentations
- 5.4 Dairy Fermentations-starter cultures and their types , concept of probiotics,
- 5.5 Fermented Foods-types, methods of manufacture for vinegar, sauerkraut, tempeh, miso , soya sauce ,beer, wine and traditional Indian foods

### UNIT-6

- 6.1 Foodborne Diseases
- 6.2 Types, foodborne infections, foodborne intoxications and toxiinfections
- 6.3 Common and Recent Examples

### UNIT-7

- 7.1 Cultivation of Micro-organisms
- 7.2 Pure culture technique
- 7.3 Methods of isolation and cultivation
- 7.4 Enumeration of Microorganisms- qualitative and quantitative

## **UNIT-8**

8.1 Control of Microorganisms in Foods

8.2 Principles and methods of preservation

8.3 Physical Methods of Food Preservation- Dehydration, Freezing, Cool Storage, Heat Treatment (esp.thermobacteriology), Irradiation,

8.4 Bio preservatives esp. Bacteriocins

8.5 Introduction to Hurdle concept and Non Thermal methods

## **UNIT-9**

9.1 Trends in Food Microbiology

9.2 Rapid Methods of Detection

9.3 Recent Advances

### **Reference Books:**

1. Frazier William C and Westhoff, Dennis C. Food Microbiology, TMH, New Delhi, 2004
2. Jay, James M. Modern Food Microbiology, CBS Publication, New Delhi, 2000
3. Garbutt, John. Essentials of Food Microbiology, Arnold, London, 1997
4. Pelczar MJ, Chan E.C.S and Krieg, Noel R. Microbiology, 5th Ed., TMH, New Delhi, 1993

