

## DSE-1FOOD BORNE DISEASES AND FOOD PRESERVATION

MM : 100

Time : 3 hrs

L Credit

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Total Hours: 60

Sessional : 30

ESE : 70

Pass Marks : 40

**Learning objectives:**

- To understand the prevalence of bacteria in food commodities.
- To understand the occurrence of food-borne diseases.
- To know the different test for the detection of food-borne infection.

**Learning outcomes:**

At the end of course student will be able to

- Explain the role of microorganism in food commodities.
- Explain the factor responsible for the growth of bacteria.
- Perform the different microbiological test to determine the quality of food.

**UNIT – I**

**Food spoilage:** Microbes in food, factors affecting microbial growth in foods: Extrinsic and intrinsic, microbial spoilage of foods, microbial spoilage of food – milk and milk products, fruits and vegetables, meat products, canned foods.

(15 Lectures)

**UNIT – II**

**Food preservation methods:** Aseptic handling, temperature treatment, dehydration, lyophilization, osmotic pressure, radiations canning, chemical preservatives (salt and sugars, organic acids, propylene oxide, wood smoke and antibiotics), mechanism of chemical preservatives.

(09 Lectures)

**UNIT - III**

**Food-borne diseases (Bacteria and Virus):** Food poisoning (food intoxication and food infections); Bacterial food poisoning (*Clostridium*, *Bacillus cereus* and *Staphylococcus*); Viral infections: Rotavirus, Hepatitis A & C

(12 Lectures)

**UNIT – IV**

**Food-borne diseases (Fungus and protozoans):** Fungal food poisoning (*Aspergillus* and *Penicillium*), health hazards of mycotoxins; Protozoal infections; *Entamoebahistolytica*, *Teniasolium*, *Fasciola hepatica*

(12 Lectures)

**UNIT - V**

**Methods for microbiological examination of food and quality control:** Indicator organisms for assuring the suitability of food products, methods of microbiological examination, direct culture technique, enumeration methods (plate count and MPN), alternative methods (dye reduction tests), electrical methods, quality criteria, sampling schemes.

(12 Lectures)

**Suggested Reading**

1. Doyle et al., Food Microbiology: Fundamentals and Frontier, American Society of Microbiology
2. William C Frazier, Food Microbiology, MacGraw Hills Education.
3. Adam and Moss, Food Microbiology, Royal Society of Chemistry
4. Dubey R.C. and Maheshwari, D.K. *A Textbook of Microbiology*. 3rd ed., S. Chand & Co, Ram Nagar, New Delhi, p. 1034. ISBN 81-219-2620-3
5. Mackie and McCartney. *Practical Medical Microbiology*, Elsevier
6. CKJ Paniker. *Test Book of Microbiology*, Orient Longman

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