

MICROBIOLOGY

Unit 1

Bacteriae. Eubacteria, cyanobacteria, Archaeobacteria, Bergey's classification scheme for bacteria. Staining of bacteria. Size and shape of bacterial cells. Modes of reproduction, enumeration, bacterial growth curve, synchronous growth, physical and chemical methods of controlling bacterial growth. Cultivation of bacteria. Nutritional requirements. Types of media. Factors affecting growth. Choice of media and conditions of incubation. Isolation and maintenance of pure cultures.

Unit 2

Fungi, Algae and viruses. Fungi- classification, cultivation and morphology of yeasts and molds. Control of fungal growth. Algae- occurrence, characteristics, classification and biological importance. Viruses of bacteria, bacteriophages, general characteristics.

Unit 3

Food Microbiology- Food spoilage, food preservation, fermented foods. Infected foods and human illness- botulism, Clostridium welchi poisoning, Staphylococcus poisoning, Salmonella- infection. Dairy microbiology- contamination of milk by bacteria. Bacterial count. Reactions occurring in milk. Pasteurization and sterilization, fermented milk products, cheese.

Unit 4

Medical Microbiology. Infection- sources and transmission of infection. Types of infection and factors influencing infection. Harmful microbes- endo and exotoxins. Antimicrobial agents. Sterilization and disinfection.

Unit 5

Microscopical examination of microorganism- Bright field, Dark field principle and applications of fluorescent and phase contrast, scanning electron microscope and transmission microscopy

References

1. Microbiology M.J. Pelezar, Jr. Et al. Mc Graw Hill.
2. Microbiology – Essential and applications Mc Kane and Kendel Mc Graw Hill.
3. Text book of Microbiology. Ananthanarayanan and Paniker Orient Long.
4. Review of Medical Microbiology, Jawetz et al. Large Medical.
5. Encyclopedia Microbiology – Lederberg, Academic Press.
6. Text Book of Microbiology - Jayaraman panikar,