

ST. JOSEPH'S COLLEGE FOR WOMEN (AUTONOMOUS), VISAKHAPATNAM
VIII SEMESTER **BIOTECHNOLOGY** TIME: 3 Hrs/ Week
BTH 8701 (3) **MICROBIAL DISEASES AND MANAGEMENT** Max. Marks: 100
(Core Course)

W.e.f 20AH Batch

OBJECTIVES: To enable the students to –

- Know the history of microbial resources
- Have comprehensive knowledge on important contributions in microbiology
- Understand the role of microbes in disease development
- Compare various methods for control of diseases

I. Learning outcomes:

1. Will get the history of microbial origin
2. Can realize the contributions of famous microbiologists
3. Comprehend the role of microorganisms in disease development
4. Be adopted to learn about different methods for control of diseases

UNIT-I: Microbiology

1. History of Microbiology.
2. Introduction to microorganisms, Theories of spontaneous generation.
3. Evolution of prokaryotic organism, Classification of prokaryotes, Ultra structure of bacterial cell,
4. Contribution of van Leuwenhoek, Pasteur, Lister, Koch, Fleming, Ehrlich

UNIT – II: Disease establishment

1. Distinguish between contamination, infection and disease.
2. Normal flora of gut and skin.
3. Transmission, stages of diseases of development, inflammation.
4. Collection and transport of specimens.
5. Processing of clinical specimens for microbiological examination.

UNIT – III: Plant bacteriology

1. Economic importance of bacterial diseases.
2. Plant pathogenic bacteria, ecology and spread of bacterial diseases.
3. Entry of bacteria into plants, pathogenicity and virulence factors in bacterial diseases,
4. Causal agent, Symptoms and control of disease caused by *Pseudomonas*, *Xanthomonas*, *Erwinia* and *Streptomyces*.

UNIT – IV: Fungal diseases to plants

1. Importance of mycology, ultrastructure of fungal cell, characters of fungi.
2. Role of environment and host nutrition on symptomatology, disease development and defence strategies in rust, wilt and blight diseases.

UNIT V: Management of diseases

1. Antibiotics, types, Mode of action.
2. General principles of plant quarantine.
3. Exotic pathogens, breeding of disease resistance plants.

4. Production of disease-free seeds and planting materials.
5. Seed certification solarisation, integrated disease management practices.
6. Bio pesticides, production& applications.

REFERENCES

1. Microbes and Evolution by Roberto Kolter, Publisher: ASM Press, 24 June 2012
2. Plant pathology and Plant diseases, Anne Marte, David B, Publisher : CABI Publishing, 16 October 2020
3. A text book on integrated pest management, G.S.Phalliwal, Ram Singh, Vikas Jin
4. A text book of Microbiology - R. AnanthNarayana, Publisher : Universities Press (India) Pvt. Ltd.; Eleventh edition, 3 July 2020
5. Clinical Microbiology - Mark Gladwin, Publisher : Medmaster; 6th edition, 10 August 2013

** ** *