MANGALORE UNIVERSITY

Department of Microbiology

M.Sc. Microbiology

MBS-457: Phytopathology

40h

OBJECTIVES

1. To learn general concepts of Plant disease and its history.
2. Study of Plant diseases caused by different pathogens and their life cycle.
3. To learn prevention and plant disease management.
4. To understand Mechanism of host- Parasite interaction in the development of disease.

COURSE OUTCOME

CO1: Understanding natural defense mechanism of plants in controlling pathogens.
CO2: Understanding genetics of plant disease and the factors responsible for wide spread of disease around the globe.
CO3: Development of eco-friendly disease control methods.
CO4: Collection of plant pathogens and preservation for further studies.

Unit I

History and Scope of Pathology, Nature and Concept of plant diseases, Parasitism, Disease symptoms, Plant pathogenic Organisms, Disease Triangle, and Plant disease Cycle, Phytopathological Methods.

Unit II

General aspects of plant diseases by Viruses, Mycoplasmas, Bacteria, Fungi, Protozoa, Nematodes – symptoms, Etiology, Transmission and Life Cycle, Non Parasitic diseases, Management of Plant Disease by Physical, Chemical and Biological Methods, Cultural Practices, Plant Quarantine, Integrated Disease Management Concepts.

Unit III

Host –Parasite Interactions, Mechanism of Penetrance and Infection, Pre penetration and Infection, Invasiveness – Bio trophic and Neotrophic Pathogens, Effect of Infection, Physiological Functions of Hosts, Translocation of Water and Mineral Nutrients, Organic Nutrients, Respiration and Permeability.

Unit IV

Structural and Biochemical Host Defence Mechanisms. Genetics of Host – Parasite Interaction, Genes and Variability in Pathogens, Genetics of Virulence and Resistance, Gene to Gene concept, Horizontal and Vertical Resistance, Development of Epidemics, Disease Forecasting, Post-Harvest Diseases, Seed Borne diseases.