

PTH215:BIOPESTICIDES AND BIOFERTILIZERS IN PLANT DISEASE MANAGEMENT

L:0 T:0 P:4 Credits:2

Course Outcomes: Through this course students should be able to

CO1 :: recall the characteristics, types, and applications of biopesticides and biofertilizers

CO2 :: explain the the mechanisms, ecological roles, and quality standards of biopesticides and biofertilizer

CO3 :: demonstrate the isolation, mass multiplication, and field identification of biofertilizers and biopesticides

CO4 :: analyze the effects of different doses and application methods of biopesticides and biofertilizers on plant growth promotion and disease suppression

CO5 :: evaluate the efficacy of different biopesticide and biofertilizer formulations for the management of plant diseases under laboratory and field conditions

CO6 :: design an integrated production and application strategy for biopesticides and biofertilizers.

List of Practicals / Experiments:

Laboratory practices and microbial techniques

- To study of laboratory practices and microbial techniques used in the production of biofertilizers and biopesticide

Isolation and characterization of biopesticides

- To study the isolation and characterization of microorganisms used as biopesticides from different environmental samples.

Botanical pesticides and bioassays

- To study the preparation, extraction, and evaluation of botanical pesticides using standard laboratory techniques

Production and formulation of biopesticides

- To study the mass production and formulation techniques of microbial biopesticides using standard laboratory methods

Quality assurance of biopesticides

- To study the quality assurance parameters and quality control procedures for microbial biopesticides

Isolation and characterization of biofertilizers

- To study the isolation and characterization of beneficial microorganisms used as biofertilizers from soil and plant samples.

Arbuscular Mycorrhizal Fungi (AMF)

- To study the isolation, identification, and quantification of arbuscular mycorrhizal fungi (AMF) spores from soil samples

Production technology and quality control of biofertilizers

- To study the production technology and quality control parameters of microbial biofertilizers using standard laboratory methods

Application technologies for plant disease management

- To study of laboratory practices and microbial techniques used in the production of biofertilizers and biopesticide

Evaluation of biological disease management

- To study the evaluation of biological disease management strategies against plant pathogens under laboratory and greenhouse conditions

Diagnosis of field disease and pathogens

- To study the diagnosis of field diseases and identification of their causal pathogens

Integrated biological plant disease management

- To study the integrated biological management of plant diseases using biopesticides, biofertilizers, and botanical pesticides

Text Books: 1. INTEGRATED PLANT DISEASE MANAGEMENT by R. C. SHARMA AND J. N. SHARMA, SCIENTIFIC PUBLISHERS

References: 1. PRACTICAL MANUAL ON BIOPESTICIDE AND BIOFERTILIZER by DR. PRINCE MAHORE, DR. DWARKA, DR. SAKSHI SAXENA, DR. SHIVANI SUMAN, Taneesha Publishing