



MANGALORE UNIVERSITY

Department of Microbiology

M.Sc. Microbiology

Open Elective

MBE- 460: Bio fertilizers and Biopesticides

40h

OBJECTIVES

1. Study of various agricultural importance microbes and their significance.
2. Role of microbes in the agricultural field.
3. Significance of nitrogen fixation and its mechanism.
4. Preparation of biofertilizers and biopesticides.

COURSE OUTCOME

CO1: Understand advantages of bio-fertilizers and Bio-pesticides.

CO2: Learn mass production of bio-fertilizers and Bio-pesticides.

CO3: Screening for new agricultural important microbes.

Co4: Establishment of own industries.

Unit I

Biofertilizers- Definition & types, Biological Nitrogen fixers- symbiotic and non- symbiotic- *Gluconoacetobacter*, *Rhizobium*, *Frankia*, *Azatobacter*, *Azospirillum*, *Azolla*, Blue green alage.

Unit II

Phosphate solubilizers- mechanisms, examples. Phosphate Mobilizers- Mycorrhizae- Ecto and Endomycorrhizae- Orchid, Arbutoid, Ericoid and VAM. Compost making: Decomposition of Agroresidues

Unit III

Biopesticides- Definitions, Importance in management of crop pests- *Numorearelays*, *Verticillium*, *Metarrhizium*, *Beaveria*. Biofungicides: *Trichoderma* and its importance in Biocontrol of plant diseases.

Note: Unit – I – 14h, Unit II & III 13h