Subject Code : MBEMB2

MAJOR BASED ELECTIVE II – BIOINOCULANTS

Unit – I

General account of the microbes used as biofertilizers for crop plants and their advantages. Symbiotic N2 fixers : Rhizobium - Isolation, characterization, identification, Classification, inoculum production and field application. Frankia - Isolation, characterization – actinorrhizal nodules – non-leguminous crop symbiosis.

Unit – II

Non – Symbiotic N2 fixers – Azospirillum – Free living - Azotobacter – free isolation, characterization, mass inoculum production and field application.

Unit – III

Symbiotic N2 fixers – Cyanobacteria, Azolla – Isolation, characterization, mass multiplication – Role in rice cultivation – Crop response – field application - immobilization.

Unit – IV

Phosphate solubilizers – Phosphate solubilizing microbes – Isolation, characterization, mass inoculum production, field application – Phosphate solubilization mechanism.

Unit – V

Mycorrhizal bioinoculants – classification – importance of mycorrizal Ectomycorzhizae – Endomycorrhizae – Ectendo mycorrhizae – Taxonomy of mycorrhizae – Isolation of VA mycorrhizae – Quantification and assessment of VAM in roots – Mass inoculum production of VAM – field applications of Ectomycorrhizae and VAM.

Reference:

Kannaiyan, S. (2003). Bioetchnology of Biofertilizers, CHIPS, Texas.

Mahendra K. Rai (2005). Hand book of Microbial biofertilizers, The Haworth Press, Inc. New York.

Reddy, S.M. et. al. (2002). Bioinoculants for sustainable agriculture and forestry, Scientific Publishers.

Subba Rao N.S (1995) Soil microorganisms and plant growth Oxford and IBH publishing co. Pvt. Ltd. NewDelhi.

Subba Rao N.S. (1988) Biofertilizers in Agriculture and forestry Oxford and IBH Publishing Co., Ltd., New Delhi.