

MB3PGP3 - LABORATORY COURSE III

Credit 4

(Agricultural, Food, Industrial and Environmental Microbiology)

Agricultural and Environmental Microbiology

- Isolation and Study of common soil bacteria, fungi and actinomycetes
- Enumeration of soil microbes by plate culture methods
- Study of antagonistic activities among soil microbes
- Estimation of rhizosphere microbial population and calculation of R:S ratio
- Isolation of non-symbiotic nitrogen fixing bacteria
- Isolation of *Rhizobium* from nodules of leguminous plants
- Study of common plant pathogens
- Isolation of phosphate solubilizing microorganisms
- Isolation of mycorrhizal spores and its identification
- Azolla cultivation
- Bacteriological examination of air
- Bacteriological examination of water- SPC, Presumptive, Confirmed and Complete test etc.
- Determination of BOD, DO & COD

Food and Industrial Microbiology

- Bacteriological examination of food- vegetables, meat products, traditional foods etc
- Bacteriological analysis of milk, standard plate count, presumptive test for coliforms, methylene blue reduction test and phosphatase test.
- Cultivation of edible mushrooms.
- Crowded plate technique for screening of industrially important microorganisms- microbes producing enzymes, antibiotics etc.
- Production of ethyl alcohol, Alcoholimetry
- Production of wine
- Production of citric acid
- Solid state and submerged fermentation

References

1. Practical Microbiology (2002) Dubey R.C.and Mahaswari D.K. S.Chand & Company Ltd. New Delhi.
2. Experiments in Microbiology, Plant pathology and Biotechnology. (1996) K.R.Aneja, New Age International (P) Limited, New Delhi. 2nd ed.