

Open Elective

MBE-509: Microbial Techniques

40h

Unit I

12h

Isolation techniques of microorganisms: Isolation of pure cultures; dilution, spread plate, streak plate, pour plate, micromanipulator method, colony morphology and other characteristics of cultures. Maintenance and preservation of pure cultures, culture collection center-national and international. Direct microscopic count, standard plate count, membrane filtration.

Unit II

14h

Microscopy- Principles and Applications of Bright field and Dark field Microscopy. Fluorescent Microscopy, Phase contrast Microscopy, Confocal Microscopy. Electron Microscope-Principles and Applications of Transmission Electron Microscope, Scanning Electron Microscope, Sample preparation for Electron Microscopy.

Unit III

14h

Centrifugation- Basic principles of sedimentation, Types of centrifugation and their Applications, Rotors, Ultracentrifugation. Principle and applications of spectrophotometer- UV/visible, fluorescence. Electrophoresis, SDS-PAGE, Isoelectric focusing, 2D gel Electrophoresis, PFGE. Principles and applications of Chromatography.

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