

PhD. Course

Paper II

MB CW-2 Research Methods & Analytical Techniques

Research Methods

Objective and Scope of Research : purpose and characteristics of scientific research. Process of research: Formulation of objectives, hypothesis. Methods of Research: Survey, observation, case studies, experimental, historical and comparative methods. Challenges in research of Microbiology

Research Proposal and Experimental Design

Research proposal and experimental design: Research material collection, preparation and presentation methods of literature collection, experimental design, planning and execution of investigation.

Preparation of Review, articles, reports and research papers for journals and thesis, Preparation of research proposal for funding agencies, checklist for a good proposal/report/research paper.

Analytical methods

Preparation of reagents, strains and buffers: Molar and normal solutions, preparation of different media, buffers and other reagents, Biochemical calculations, Biosafety measures.

Working with Microbes

Culture methods, isolation and maintenance of anaerobic and aerobic microbes, identification techniques (Microbiological and Biochemical methods), Sequencing (16s and 18s rDNA) and phylogenetic classification.

Working with Biomolecules

Centrifugation, Chromatography, Electrophoresis, Autoradiography procedures involving biomolecules (Carbohydrate, protein and nucleic acid).

Vinayak 21/11/13

Arun 21/11/13

21/11/13