

Course Objectives

Training is aimed at learning of a wide range of techniques used in research laboratory/ biotechnology industry engaged in development of bio-based drugs, therapeutic proteins and enzymes for pharmaceutical, agricultural and environmental applications.

Theory :

- Fundamental and principles of Downstream Processing
- Principles of different methods of protein/enzyme purification
- Principles of Tangential flow filtration and operations,
- Principles of electrophoresis, *isoelectric focusing (IEF)* and handling of instruments
- Fundamental principles of ultra centrifuge systems, continuous centrifuge systems and their handling

Practical:

- Extraction of intracellular enzymes/proteins using High Pressure homogenizer
- Preparation of cell free extract using ultracentrifugation
- Methods for enzyme/ protein purification (acetone precipitation, ammonium sulphate precipitation, tangential flow filtration, buffer exchange, chromatographic separation and analysis
- Different methods of protein estimation
- Electrophoresis (Native and SDS)
- Isoelectric focusing
- Freeze drying/ lyophilization of protein/enzymes