Biotechnology Industrial Training Program

This industrial-focused training program is designed to prepare participants for careers in the biotechnology sector by offering hands-on experience in industrial processes, bioprocessing, and product development.

Note: Below modules are designed keeping high end industrial professionals into consideration. Please refer individual protocols below for affordable prices.

Textile Industry Protocols

Kindly review the fees outlined for the individual protocols listed in this module.

- Enzyme Applications for Textile Processing: Amylase Treatment for Starch Removal from Fabrics, Cellulase for Bio-polishing to Enhance Fabric Softness, Laccase-based Decolorization of Dyed Textiles, Pectinase in Scouring Processes to Remove Pectins, Lipase for Degreasing Wool and Other Animal Fibers, Catalase for Hydrogen Peroxide Removal After Bleaching, Protease for Silk Degumming and Modification, Enzymatic Antifelting of Wool Using Proteases and Lipases, Cross-linking Enzymes to Improve Fabric Strength and Resilience
- Biotech Treatments for Textile Waste: Microbial Degradation of Azo Dyes Using Bacteria, Fungal Remediation to Break Down Synthetic Fibers, Enzymatic Treatment to Recycle Cotton and Polyester, Anaerobic Digestion of Textile Sludge to Produce Biogas, Phytoremediation to Remove Heavy Metals from Dye Effluent, Constructed Wetlands for Effluent Treatment, Bioaugmentation with Specific Microbial Strains to Enhance Waste Breakdown, Bacterial Consortiums for Color Removal from Effluents, Bioconversion of Textile Waste into Compost or Feedstock
- Quality Control in Textile Production: Statistical Process Control (SPC) for Monitoring Production Variables, Tensile Strength Testing for Fiber and Fabric Strength, Color Fastness Testing Using Standardized Washing and Light Exposure, Abrasion Resistance Testing to Ensure Durability, Pilling Resistance Tests for Surface Integrity, Dimensional Stability Testing to Prevent Shrinkage and Stretching, Water Repellency Testing for Outdoor and Functional Garments, Flammability Tests to Meet Safety Standards, Spectrophotometry for Precise Color Matching and Consistency

Leather Industry Protocols

Kindly review the fees outlined for the individual protocols listed in this module.

- Biobased Tanning Agents: Use of Vegetable Tannins from Chestnut or Mimosa, Enzymatic Tanning Using Proteases and Oxidoreductases, Utilization of Tannic Acid and Gallic Acid Derivatives, Chitosan-based Tanning for Improved Water Resistance, Application of Lignin as a Sustainable Tanning Agent, Development of Tanning Formulations Using Aloe Vera Extracts, Integration of Natural Oil Emulsions for Softening and Tanning, Testing of Tannin Binding Efficiency and Leather Quality, Optimization of Tanning Processes for Environmental Compliance
- Wastewater Treatment Using Biotechnologies: Aerobic Biological Treatment Using Activated Sludge, Anaerobic Digestion for Sludge Reduction and Biogas Production, Membrane Bioreactors (MBR) for Enhanced Pollutant Removal, Constructed Wetlands for Cost-effective Treatment, Use of Microalgae for Nutrient Removal and Biomass Production, Bioaugmentation with Specific Bacteria to Degrade Toxic Compounds, Bioremediation Using Fungi for Persistent Organic Pollutants, Phytoremediation Techniques to Remove Heavy Metals, Development of Biosorbents from Agricultural Waste for Contaminant Adsorption
- Enzymatic Softening of Leather: Application of Lipases for Fat Dispersion in Leather, Use of Collagenase to Enhance Collagen Fiber Flexibility, Integration of Keratinase to Modify Wool Skins, Protease Treatments for Smoother Leather Surface, Testing of Enzyme Penetration and Distribution with Microscopy, Optimization of pH and Temperature for Maximum Enzyme Activity, Scale-up of Enzymatic Processes to Industrial Batches, Quality Assessment of Softened Leather for Texture and Durability, Development of Enzyme Mixtures for Targeted Leather Softening Properties

Pharmaceutical Industry Protocols

Kindly review the fees outlined for the individual protocols listed in this module.

- Bioproduction of Pharmaceuticals: Use of Recombinant DNA Technology for Drug Synthesis, Cell Line Development for Monoclonal Antibodies Production, Upscaling Production in Bioreactors for Clinical Demand, Purification Techniques Including Chromatography and Filtration, Integration of Continuous Manufacturing Processes, Quality Control of Biopharmaceuticals using ELISA and HPLC, Stability Testing of Bioproducts under Various Conditions, Cell Culture Optimization for Maximum Yield, Post-Translational Modification Engineering for Enhanced

Functionality

- Fermentation Technology in Drug Production: Selection and Optimization of Microbial Strains for Target Compound, Bioreactor Design and Scale-Up for Large-Scale Production, Control of Fermentation Parameters like pH, Temperature, and Oxygen, Use of Fed-Batch, Batch, or Continuous Fermentation Processes, Real-Time Monitoring of Biomass and Product Concentration, Application of Metabolic Engineering to Boost Production, Downstream Processing Including Centrifugation, Precipitation, and Drying, Implementation of Aseptic Techniques to Prevent Contamination, Evaluation of Fermentation Efficiency through Metabolic Flux Analysis
- Regulatory Compliance for Biotech Products: Adherence to GMP (Good Manufacturing Practices) Standards, Documentation for IND (Investigational New Drug) Applications, Clinical Trial Design and Implementation Following ICH Guidelines, Submission of DMF (Drug Master File) for Active Ingredients, Validation of Analytical Methods According to FDA Guidelines, Risk Management Planning and Safety Reporting, Environmental Impact Assessment for Biotech Manufacturing, Pharmacovigilance to Monitor Adverse Effects Post-Market, Continuous Update of Labeling to Reflect Safety and Efficacy Data

Agricultural Biotechnology Protocols

Kindly review the fees outlined for the individual protocols listed in this module.

- Genetically Modified Crops: Plasmid Construction for Agrobacterium-Mediated Transformation, Gene Synthesis and Assembly for CRISPR Vectors, Tissue Culture and Regeneration of Transformed Cells, Assays for Transgene Expression via Quantitative PCR, Protocols for Creating Herbicide Tolerant Varieties, Strategies for Virus Resistance through RNA Interference, Greenhouse Protocols for Initial GMO Trait Evaluation, Environmental Release and Cross-Pollination Risk Assessment, Consumer Sensory Testing for Market Acceptance
- Biopesticides and Biofertilizers: Isolation and Culture of Microbial Strains with Pesticidal Properties, Optimization of Solid State Fermentation for Biopesticide Production, Liquid Fermentation Systems for Scalable Biofertilizer Production, Formulation Development for Maximizing Viability of Microbial Products, Field Application Techniques using Drones and Sprayers, Efficacy Testing against Specific Pests and Diseases in Field Conditions, Stability and Compatibility Testing with Chemical Fertilizers and Pesticides, Protocols for EPA Registration of Biopesticides, Market Analysis and Distribution Strategy Development
- Soil Health Biotechnologies: Isolation Techniques for Beneficial Soil Microorganisms, DNA Barcoding for Identification of Soil Biodiversity, Application of Biochar and its Impact on Soil Microflora, Development of

CRISPR Tools for Soil Bacterial Genome Editing, Protocols for Synthesizing Biodegradable Polymer for Soil Conditioning, Deployment of Sensor Technology for Real-Time Soil Health Monitoring, Experimental Design for Field Trials Testing Soil Amendments, Protocols for Quantifying Soil Carbon Sequestration, Workshops and Training for Farmers on Microbial Inoculants Application

Environmental Biotechnology Protocols

Kindly review the fees outlined for the individual protocols listed in this module.

- Bioremediation Techniques: Soil Washing with Surfactants to Remove Contaminants, Bioaugmentation with Specific Bacteria to Degrade Organic Pollutants, Phytoremediation Using Hyperaccumulator Plants for Heavy Metals, In Situ Bioremediation by Enhanced Natural Attenuation, Ex Situ Bioremediation in Bioreactors for Contaminated Soil, Use of Fungal Consortia for Mycoremediation of Polluted Sites, Bioventing to Enhance Aerobic Degradation of Hydrocarbons in Soil, Rhizofiltration to Cleanse Wastewater with Plant Roots, Constructed Wetlands for Treatment of Urban Runoff
- Biosensors for Environmental Monitoring: Development of Nanomaterial-Based Biosensors for Toxin Detection, Electrochemical Biosensors for Real-Time Water Quality Testing, Fabrication of Optical Biosensors Using Fluorescent Proteins, Use of Microbial Fuel Cells as Biosensors for Organic Load, Implementation of Portable Biosensors for Field Testing, Calibration Protocols for Gas Sensors Detecting Air Pollutants, Integration of Biosensor Data with IoT for Continuous Monitoring, Development of Lab-on-a-Chip Devices for Multiplex Analysis, Tailoring Enzyme-Linked Immunosorbent Assays (ELISA) for Specific Contaminants
- Waste Conversion Technologies: Anaerobic Digestion Processes for Biogas Production, Thermal Depolymerization for Conversion of Waste to Oil, Gasification Technologies for Syngas Production from Organic Waste, Pyrolysis for Char, Oil, and Gas Production from Municipal Solid Waste, Composting Protocols for Organic Waste Stabilization, Mechanical Biological Treatment (MBT) before Landfilling, Plasma Arc Recycling for Hazardous Waste, Fermentation of Organic Waste to Produce Ethanol, Biodiesel Production from Waste Vegetable Oils and Animal Fats

Individual Protocols Under Biotechnology Industrial Training Program

1. Amylase Treatment for Starch Removal from Fabrics | **Fee: Contact for fee**

2. Cellulase for Bio-polishing to Enhance Fabric Softness | **Fee: Contact for fee**
3. Laccase-based Decolorization of Dyed Textiles | **Fee: Contact for fee**
4. Pectinase in Scouring Processes to Remove Pectins | **Fee: Contact for fee**
5. Lipase for Degreasing Wool and Other Animal Fibers | **Fee: Contact for fee**
6. Catalase for Hydrogen Peroxide Removal After Bleaching | **Fee: Contact for fee**
7. Protease for Silk Degumming and Modification | **Fee: Contact for fee**
8. Enzymatic Antifelting of Wool Using Proteases and Lipases | **Fee: Contact for fee**
9. Cross-linking Enzymes to Improve Fabric Strength and Resilience | **Fee: Contact for fee**
10. Microbial Degradation of Azo Dyes Using Bacteria | **Fee: Contact for fee**
11. Fungal Remediation to Break Down Synthetic Fibers | **Fee: Contact for fee**
12. Enzymatic Treatment to Recycle Cotton and Polyester | **Fee: Contact for fee**
13. Anaerobic Digestion of Textile Sludge to Produce Biogas | **Fee: Contact for fee**
14. Phytoremediation to Remove Heavy Metals from Dye Effluent | **Fee: Contact for fee**
15. Constructed Wetlands for Effluent Treatment | **Fee: Contact for fee**
16. Bioaugmentation with Specific Microbial Strains to Enhance Waste Breakdown | **Fee: Contact for fee**
17. Bacterial Consortiums for Color Removal from Effluents | **Fee: Contact for fee**
18. Bioconversion of Textile Waste into Compost or Feedstock | **Fee: Contact for fee**
19. Statistical Process Control (SPC) for Monitoring Production Variables | **Fee: Contact for fee**
20. Tensile Strength Testing for Fiber and Fabric Strength | **Fee: Contact for fee**
21. Color Fastness Testing Using Standardized Washing and Light Exposure | **Fee: Contact for fee**
22. Abrasion Resistance Testing to Ensure Durability | **Fee: Contact for fee**
23. Pilling Resistance Tests for Surface Integrity | **Fee: Contact for fee**
24. Dimensional Stability Testing to Prevent Shrinkage and Stretching | **Fee: Contact for fee**
25. Water Repellency Testing for Outdoor and Functional Garments | **Fee: Contact for fee**
26. Flammability Tests to Meet Safety Standards | **Fee: Contact for fee**
27. Spectrophotometry for Precise Color Matching and Consistency | **Fee: Contact for fee**
28. Use of Vegetable Tannins from Chestnut or Mimosa | **Fee: Contact for fee**
29. Enzymatic Tanning Using Proteases and Oxidoreductases | **Fee: Contact for fee**
30. Utilization of Tannic Acid and Gallic Acid Derivatives | **Fee: Contact for fee**
31. Chitosan-based Tanning for Improved Water Resistance | **Fee: Contact for fee**
32. Application of Lignin as a Sustainable Tanning Agent | **Fee: Contact for fee**
33. Development of Tanning Formulations Using Aloe Vera Extracts | **Fee: Contact for fee**
34. Integration of Natural Oil Emulsions for Softening and Tanning | **Fee: Contact for fee**
35. Testing of Tannin Binding Efficiency and Leather Quality | **Fee: Contact for fee**
36. Optimization of Tanning Processes for Environmental Compliance | **Fee: Contact for fee**
37. Aerobic Biological Treatment Using Activated Sludge | **Fee: Contact for fee**
38. Anaerobic Digestion for Sludge Reduction and Biogas Production | **Fee: Contact for fee**
39. Membrane Bioreactors (MBR) for Enhanced Pollutant Removal | **Fee: Contact for fee**
40. Constructed Wetlands for Cost-effective Treatment | **Fee: Contact for fee**
41. Use of Microalgae for Nutrient Removal and Biomass Production | **Fee: Contact for fee**
42. Bioaugmentation with Specific Bacteria to Degrade Toxic Compounds | **Fee: Contact for fee**

43. Bioremediation Using Fungi for Persistent Organic Pollutants | **Fee: Contact for fee**
44. Phytoremediation Techniques to Remove Heavy Metals | **Fee: Contact for fee**
45. Development of Biosorbents from Agricultural Waste for Contaminant Adsorption | **Fee: Contact for fee**
46. Application of Lipases for Fat Dispersion in Leather | **Fee: Contact for fee**
47. Use of Collagenase to Enhance Collagen Fiber Flexibility | **Fee: Contact for fee**
48. Integration of Keratinase to Modify Wool Skins | **Fee: Contact for fee**
49. Protease Treatments for Smoother Leather Surface | **Fee: Contact for fee**
50. Testing of Enzyme Penetration and Distribution with Microscopy | **Fee: Contact for fee**
51. Optimization of pH and Temperature for Maximum Enzyme Activity | **Fee: Contact for fee**
52. Scale-up of Enzymatic Processes to Industrial Batches | **Fee: Contact for fee**
53. Quality Assessment of Softened Leather for Texture and Durability | **Fee: Contact for fee**
54. Development of Enzyme Mixtures for Targeted Leather Softening Properties | **Fee: Contact for fee**

Please contact on +91-8977624748 for more details

Cant Come to Hyderabad? No Problem, You can do it in Virtual / Online Mode