

Applied Microbiology Industrial Training

Module 1: Industrial Applied Microbiology Techniques

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Profits of Learning Industrial Applied Microbiology Techniques

Learning industrial applied microbiology techniques is essential for optimizing microbial processes in the production of biofuels, pharmaceuticals, and other valuable bioproducts. These protocols enable the scaling up of laboratory methods to industrial levels, ensuring efficiency and cost-effectiveness. Mastery of these techniques allows researchers to innovate in biotechnology, enhance production yields, and contribute to the development of sustainable industrial processes.

Industrial Level Approaches and Protocols

1. Batch Fermentation Techniques (Stirred Tank Reactors, pH Control)
2. Fed-Batch Fermentation Methods (Substrate Feed Strategies, Monitoring Systems)
3. Continuous Fermentation Processes (Chemostat, Turbidostat)
4. Downstream Processing (Centrifugation, Filtration, Chromatography)
5. Bioreactor Design and Operation (Control Systems, Sensors)
6. Scale-Up of Fermentation Processes (Pilot Plant, KLa Measurement)
7. Optimization of Fermentation Parameters (DoE, Response Surface Methodology)
8. Enzyme Production and Purification (Fermentors, Ultrafiltration)
9. Bioethanol Production from Biomass (Hydrolysis, Fermentation)
10. Biogas Production from Waste (Anaerobic Digesters, Gas Chromatography)
11. Microbial Cell Factories (Strain Engineering, Metabolic Pathway Optimization)
12. Production of Organic Acids (Fermentation, Purification)
13. Bioreactor Monitoring (pH, DO, CO₂ Sensors)
14. High-Density Cell Cultures (Perfusion Systems, Hollow Fiber Bioreactors)
15. Immobilized Cell Systems (Packed Bed Reactors, Fluidized Bed Reactors)
16. Solid-State Fermentation (SSF Reactors, Moisture Control)
17. Submerged Fermentation (SmF Reactors, Aeration)
18. Production of Biopolymers (Fermentation, Polymerization)
19. Bioprocess Modeling and Simulation (MATLAB, Aspen Plus)
20. Continuous Product Recovery (Membrane Filtration, In Situ Extraction)
21. Process Analytical Technology (PAT) (Spectroscopy, Chemometrics)
22. Industrial Enzyme Production (Fermentation, Downstream Processing)
23. Antibiotic Production Optimization (Stirred Tank Reactors, Fed-Batch Strategies)
24. Single-Use Bioreactors (Disposable Reactors, Sensors)
25. Microbial Fuel Cells (MFCs) (Anode/Cathode Materials, Electrochemical Analysis)
26. GMP in Bioprocessing (Documentation, Quality Control)

27. Fermentation Kinetics (Monod Equation, Yield Coefficients)
28. Advanced Bioprocess Control (PID Control, Fuzzy Logic)
29. Fermentation Data Analysis (Software Tools, Statistical Methods)
30. High-Throughput Screening (Microtiter Plates, Robotics)

Duration: 4 Months

Fee: Rs 3,50,000/-

Statutory Note: NTHRYS Team can change the protocols, software, or tools used to achieve the tasks linked to the above-mentioned approaches or protocols.

Module 2: Environmental Microbial Biotechnology Techniques

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Profits of Learning Environmental Microbial Biotechnology Techniques

Learning environmental microbial biotechnology techniques is crucial for addressing environmental challenges such as pollution, waste management, and ecosystem health. These protocols enable researchers to harness microbial processes for bioremediation, pollutant degradation, and sustainable resource management. Mastery of these techniques facilitates the development of innovative solutions for environmental conservation and restoration, contributing to a cleaner and healthier planet.

Environmental Biotechnology Approaches and Protocols

1. Bioremediation of Contaminated Soils (Bioaugmentation, Biostimulation)
2. Phytoremediation Techniques (Plant Selection, Soil Analysis)
3. Microbial Degradation of Pollutants (Batch Cultures, Analytical Instruments)
4. Bioaugmentation for Wastewater Treatment (Activated Sludge, Biofilm Reactors)
5. Composting and Vermicomposting (Windrow Method, Vermibeds)
6. Biofiltration for Air Pollution Control (Biofilters, Monitoring Systems)
7. Heavy Metal Bioremediation (Biosorption, Bioaccumulation)
8. Microbial Fuel Cells for Energy Production (Electrochemical Cells, Power Meters)
9. Production of Bioplastics from Waste (Fermentors, Polymerization Reactors)
10. Solid Waste Biodegradation (Composting Units, Microbial Inoculants)
11. Biomass Conversion to Bioenergy (Anaerobic Digesters, Gas Chromatograph)
12. Microbial Enhanced Oil Recovery (MEOR) (Core Flood Apparatus, Oil Reservoir Samples)
13. Biological Treatment of Industrial Effluents (Bioreactors, Analytical Instruments)
14. Microbial Desulfurization of Fossil Fuels (Bioreactors, Sulfur Analysis)
15. Algal Biotechnology for Wastewater Treatment (Photobioreactors, Algal Cultures)
16. Microbial Electrolysis Cells for Hydrogen Production (Electrochemical Cells, Power Meters)
17. Biochar Production and Applications (Pyrolysis Units, Soil Analysis)
18. Microbial Carbon Sequestration (Biochar, Soil Microbial Analysis)

19. Ecological Engineering (Constructed Wetlands, Ecosystem Monitoring)
20. Microbial Treatment of Landfill Leachate (Bioreactors, Analytical Instruments)
21. Biogas Production from Organic Waste (Anaerobic Digesters, Gas Chromatograph)
22. Microbial Mining Techniques (Bioleaching, Bioreactors)
23. Biological Nutrient Removal in Wastewater (Denitrification, Phosphorus Removal)
24. Development of Eco-Friendly Pesticides (Microbial Formulations, Field Trials)
25. Waste-to-Resource Technologies (Fermentation, Composting)
26. Biodegradable Plastics Production (Fermentation, Polymerization)
27. Microbial Ecology of Extreme Environments (Sampling Techniques, Metagenomics)

Duration: 5 Months

Fee: Rs 5,50,000/-

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Module 3: Applied Microbial Ecology Techniques

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Profits of Learning Applied Microbial Ecology Techniques

Learning applied microbial ecology techniques is essential for understanding the roles of microorganisms in natural and engineered ecosystems. These protocols enable researchers to study microbial diversity, interactions, and functions in various habitats. Mastery of these techniques provides insights into ecosystem dynamics, supports environmental conservation, and aids in the development of sustainable biotechnological applications.

Microbial Ecology Approaches and Protocols

1. Microbial Diversity Analysis (Next-Generation Sequencing, Bioinformatics Tools)
2. Metagenomics (DNA Extraction, High-Throughput Sequencing)
3. Microbial Community Profiling (DGGE, T-RFLP)
4. Microbial Interactions Studies (Co-culture Systems, Microscopy)
5. Soil Microbial Analysis (Soil Respiration, Microbial Biomass)
6. Microbial Activity Assays (Substrate Utilization, Enzyme Activity)
7. Biogeochemical Cycling Studies (Nitrogen Cycling, Carbon Cycling)
8. Microbial Symbiosis Assays (Plant-Microbe Interactions, Rhizosphere Studies)
9. Environmental DNA (eDNA) Extraction (Centrifuge, DNA Purification Kits)
10. Microbial Biogeography Studies (Spatial Distribution, Diversity Patterns)
11. Biofilm Formation and Analysis (Microtiter Plates, Confocal Microscopy)
12. Microbial Functional Diversity (Functional Gene Analysis, Metabolic Profiling)
13. Microbial Response to Environmental Stress (Stress Response Assays, Omics Approaches)
14. Marine Microbial Ecology (Marine Sampling, Culture Techniques)
15. Microbial Population Dynamics (Growth Models, Population Genetics)
16. Stable Isotope Probing (SIP) (Isotope Labeling, Mass Spectrometry)

17. Microbial Ecology in Extreme Environments (Sampling Techniques, Adaptation Studies)
18. Microbial Pathogen Ecology (Pathogen Detection, Host-Microbe Interactions)
19. Microbial Ecosystem Services (Nutrient Cycling, Decomposition)
20. Microbial Community Resilience (Disturbance Recovery, Resistance Studies)
21. Environmental Metabolomics (Metabolite Profiling, Mass Spectrometry)
22. Microbial Genomics and Metatranscriptomics (Sequencing, Gene Expression Analysis)
23. Microbial Ecosystem Modeling (Ecological Modeling Software, Data Integration)
24. Microbial Network Analysis (Network Construction, Interaction Studies)
25. Microbial Ecology of Agricultural Systems (Soil Health, Crop Productivity)
26. Microbial Ecology of Aquatic Systems (Water Quality, Microbial Diversity)
27. Microbial Ecology of Urban Environments (Air Quality, Indoor Microbiomes)
28. Microbial Bioindicators of Environmental Change (Indicator Species, Monitoring)
29. Microbial Ecology and Climate Change (Greenhouse Gas Emissions, Carbon Sequestration)
30. Microbial Evolutionary Ecology (Adaptive Evolution, Phylogenetics)

Duration: 4 Months

Fee: Rs 5,50,000/-

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Module 4: Biotechnological Applications in Applied Microbiology

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Profits of Learning Biotechnological Applications in Applied Microbiology

Learning biotechnological applications in applied microbiology is essential for developing innovative solutions in healthcare, agriculture, and environmental management. These protocols enable researchers to harness microbial capabilities for the production of biofuels, pharmaceuticals, and bioremediation agents. Mastery of these techniques supports advancements in synthetic biology, metabolic engineering, and industrial biotechnology, driving progress in various scientific and industrial fields.

Biotechnological Approaches and Protocols

1. Metabolic Engineering (CRISPR, Gene Editing)
2. Synthetic Biology (DNA Assembly, Circuit Design)
3. Biofuel Production (Fermentation, Biomass Conversion)
4. Bioremediation (Microbial Degradation, Pollutant Removal)
5. Pharmaceutical Production (Microbial Fermentation, Drug Synthesis)
6. Industrial Enzyme Production (Fermentation, Purification)
7. Probiotic Development (Strain Isolation, Fermentation)
8. Biopesticide Formulation (Microbial Screening, Production)
9. Biofertilizer Production (Nitrogen Fixation, Phosphate Solubilization)

10. Bioplastic Production (Polymer Synthesis, Microbial Fermentation)
11. Microbial Biosensors (Design, Application)
12. Protein Engineering (Directed Evolution, Rational Design)
13. Microbial Enhanced Oil Recovery (MEOR) (Strain Development, Application)
14. Microbial Fuel Cells (MFC) (Construction, Optimization)
15. Microbial Electrolysis Cells (MEC) (Design, Application)
16. Algal Biotechnology (Cultivation, Product Extraction)
17. Microbial Consortia Engineering (Co-culture, Synthetic Ecology)
18. Bioprocess Optimization (DoE, Process Control)
19. High-Throughput Screening (Microtiter Plates, Automation)
20. Downstream Processing (Centrifugation, Chromatography)
21. Microbial Cell Factory Design (Pathway Optimization, Strain Engineering)
22. Continuous Fermentation Processes (Chemostat, Bioreactor Design)
23. Solid-State Fermentation (SSF) (Design, Application)
24. Microbial Lipid Production (Strain Development, Extraction)
25. Genetic Circuit Design (Synthetic Biology, Bioinformatics)
26. Cell-Free Systems (Protein Synthesis, Metabolic Pathway Studies)
27. Microbial Pigment Production (Fermentation, Extraction)
28. Biofilm Engineering (Biofilm Reactors, Industrial Applications)
29. Biocatalysis (Enzyme Engineering, Process Optimization)
30. Metabolomics (Metabolite Profiling, Mass Spectrometry)
31. Proteomics (Protein Identification, Quantification)
32. Transcriptomics (Gene Expression Analysis, RNA-Seq)
33. Marine Biotechnology (Marine Microbial Cultivation, Product Development)
34. Biochemical Pathway Analysis (Flux Balance Analysis, Pathway Mapping)
35. Microbial Strain Improvement (Mutagenesis, Selection)
36. Microbial Natural Product Discovery (Screening, Characterization)

Duration: 4 Months

Fee: Rs 5,50,000/-

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Module 5: Quality Control and Assurance in Applied Microbiology

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Profits of Learning Quality Control and Assurance in Applied Microbiology

Learning quality control and assurance protocols in applied microbiology is crucial for ensuring the reliability and accuracy of microbial analyses. These protocols are essential for maintaining high standards in laboratory practices, preventing contamination, and ensuring compliance with regulatory requirements. Mastery of these techniques supports advancements in clinical microbiology, industrial microbiology, and research, ensuring the production of safe and effective microbial products.

Quality Control and Assurance Approaches and Protocols

1. Sterility Testing (Membrane Filtration, Direct Inoculation)
2. Environmental Monitoring (Air Sampling, Surface Sampling)
3. Microbial Limit Testing (Plate Count Method, MPN Technique)
4. Quality Control of Culture Media (Sterility, Performance Testing)
5. Validation of Microbiological Methods (USP, EP, JP Guidelines)
6. Microbial Identification (Biochemical Tests, MALDI-TOF)
7. Antimicrobial Effectiveness Testing (USP, EP Methods)
8. Environmental Monitoring in Cleanrooms (Particle Counters, Microbial Air Samplers)
9. Bioburden Testing (Plate Count Method, Membrane Filtration)
10. Endotoxin Testing (LAL Assay, Turbidimetric Assay)
11. Contamination Control (Aseptic Techniques, Disinfection)
12. Mycoplasma Testing (Culture Methods, PCR)
13. Viral Safety Testing (Cell Culture, PCR)
14. Water System Monitoring (TOC, Conductivity, Microbial Testing)
15. Data Integrity in Microbiology (ALCOA Principles, Electronic Records)
16. Audit and Inspection Preparation (Internal Audits, Regulatory Inspections)
17. Standard Operating Procedures (SOPs) (Writing, Review, Implementation)
18. Proficiency Testing and Interlaboratory Comparisons (External Quality Assessment)
19. Quality Management Systems (ISO 17025, GLP)
20. Laboratory Accreditation (ISO/IEC 17025, NABL)
21. Documentation and Record Keeping (Lab Notebooks, Electronic Systems)
22. Sample Handling and Traceability (Labeling, Chain of Custody)
23. Analytical Method Validation (Accuracy, Precision, Specificity)
24. Training and Competency Assessment (Staff Training, Competency Tests)
25. Equipment Qualification (IQ/OQ/PQ, Calibration)
26. Internal Quality Control (Positive and Negative Controls, Trend Analysis)
27. Risk Assessment in Microbiology (Risk Identification, Mitigation Strategies)
28. Supply Chain Management (Vendor Qualification, Material Specifications)
29. Microbial Contamination Investigations (Root Cause Analysis, Corrective Actions)
30. Regulatory Compliance in Microbiology (FDA, EMA, WHO Guidelines)

Duration: 4 Months

Fee: Rs 3,50,000/-

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Module 6: Applied Microbial Biotechnology in Agriculture

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Profits of Learning Applied Microbial Biotechnology in Agriculture

Learning applied microbial biotechnology techniques in agriculture is essential for improving

crop yields, soil health, and plant disease management. These protocols help in understanding the interactions between microorganisms and plants, which is critical for developing sustainable agricultural practices. Mastery of these techniques supports advancements in agricultural biotechnology, contributing to food security and environmental sustainability.

Agricultural Biotechnology Approaches and Protocols

1. Isolation of Rhizobia (Culture Media, Nodulation Tests)
2. Azospirillum Inoculation Techniques (Seed Treatment, Soil Application)
3. Mycorrhizal Association Studies (Root Staining, Microscopy)
4. Biological Nitrogen Fixation Assays (Acetylene Reduction Assay)
5. Phosphate Solubilization Assay (Pikovskaya's Agar)
6. Plant Growth-Promoting Rhizobacteria (PGPR) Isolation (Selective Media)
7. Soil Microbial Biomass Estimation (Chloroform Fumigation Method)
8. Compost Microbiology (Temperature Monitoring, Microbial Assays)
9. Biocontrol Agent Screening (Dual Culture Technique, Pathogen Inhibition)
10. Pathogen Detection in Plants (ELISA, PCR)
11. Biofertilizer Production (Fermentation Tanks, Quality Control)
12. Soil Enzyme Activity Assays (Dehydrogenase, Phosphatase Assays)
13. Plant-Microbe Interaction Studies (Gnotobiotic Systems, Fluorescence Microscopy)
14. Green Manure Microbiology (Microbial Assays, Soil Health Indicators)
15. Microbial Degradation of Pesticides (Bioreactors, Analytical Techniques)
16. Biological Control of Plant Diseases (In Vivo and In Vitro Assays)
17. Microbial Inoculants for Sustainable Agriculture (Carrier Materials, Inoculation Techniques)
18. Soil Microbial Diversity Analysis (Metagenomics, Bioinformatics Tools)
19. Microbial Biofertilizers (Carrier Materials, Quality Control)
20. Bioassay for Plant Growth Promoters (Pot Experiments, Growth Chambers)
21. Rhizosphere Microbiology (Rhizosphere Soil Sampling, Microbial Analysis)
22. Organic Farming Microbial Techniques (Compost Analysis, Microbial Inoculants)
23. Detection of Soilborne Pathogens (PCR, Serological Methods)
24. Integrated Pest Management (IPM) Microbial Strategies (Biocontrol Agents, Field Trials)
25. Endophytic Microbial Isolation (Surface Sterilization, Culture Techniques)
26. Bioremediation of Agricultural Soils (Bioreactors, Soil Analysis)
27. Microbial Induced Plant Systemic Resistance (ISR) Studies (Pathogen Challenge, Plant Assays)
28. Plant Growth-Promoting Rhizobacteria (PGPR) Production (Fermentors, Inoculants)
29. Microbial Soil Health Indicators (Soil Respiration, Microbial Biomass)
30. Soil Fertility Enhancement (Microbial Biofertilizers, Soil Amendments)
31. Crop Protection with Biocontrol Agents (Trichoderma, Bacillus spp.)
32. Bioaugmentation of Soil (Beneficial Microbes, Field Application)
33. Microbial Consortia for Soil Health (Diverse Microbial Communities, Soil Applications)
34. Microbial Degradation of Agricultural Waste (Composting, Fermentation)
35. Algal Biofertilizers (Microalgae Cultivation, Soil Applications)
36. Biochar in Agriculture (Production, Soil Amendment)
37. Microbial Ecology of Agroecosystems (Soil Microbiome Analysis, Crop Microbiome)

Studies)

Duration: 6 Months

Fee: Rs 4,50,000/-

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Module 7: Applied Microbial Techniques in Probiotics

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Profits of Learning Applied Microbial Techniques in Probiotics

Learning applied microbial techniques in probiotics is crucial for the development and optimization of beneficial microbial products. These protocols enable researchers to isolate, culture, and evaluate probiotic strains, ensuring their efficacy and safety. Mastery of these techniques supports advancements in health, nutrition, and biotechnology, contributing to the development of functional foods and therapeutic products.

Probiotics Approaches and Protocols

1. Isolation of Probiotic Strains (Selective Media, Anaerobic Culture)
2. Identification of Probiotics (Molecular Techniques, MALDI-TOF)
3. Probiotic Fermentation (Batch Culture, Fed-Batch Culture)
4. Evaluation of Probiotic Properties (Acid Tolerance, Bile Salt Tolerance)
5. Antimicrobial Activity Assays (Agar Diffusion, Broth Microdilution)
6. Probiotic Formulation (Encapsulation, Freeze-Drying)
7. Stability Testing of Probiotics (Storage Conditions, Shelf Life)
8. Genetic Characterization of Probiotics (Genome Sequencing, Plasmid Analysis)
9. Microencapsulation of Probiotics (Spray Drying, Extrusion)
10. Assessment of Probiotic Safety (Antibiotic Resistance, Hemolytic Activity)
11. Probiotic Viability Testing (Plate Count, Flow Cytometry)
12. Gut Microbiota Interaction Studies (In Vitro Fermentation, Animal Models)
13. Production of Probiotic Yogurt (Fermentation, Quality Control)
14. Probiotic Cheese Production (Starter Cultures, Ripening Conditions)
15. Development of Probiotic Supplements (Capsule Filling, Tablet Formulation)
16. In Vitro Digestive System Simulation (Gastrointestinal Models)
17. Adhesion Assays (Caco-2 Cell Lines, Mucin Binding)
18. Probiotic Prebiotics Synergy Studies (Co-Culture, Growth Promotion)
19. Metabolomic Profiling of Probiotics (GC-MS, LC-MS)
20. Transcriptomic Analysis of Probiotics (RNA-Seq, qRT-PCR)
21. Probiotic Functional Genomics (Gene Knockout, Overexpression)
22. Assessment of Immunomodulatory Effects (Cytokine Assays, Flow Cytometry)
23. Development of Synbiotics (Probiotic-Prebiotic Combinations)
24. In Vivo Efficacy Studies (Animal Trials, Clinical Trials)

25. Probiotic Production Scale-Up (Bioreactors, Fermentation Optimization)
26. Regulatory Compliance for Probiotics (GRAS Status, FDA Guidelines)
27. Probiotic Quality Assurance (Batch Consistency, Microbial Contaminants)
28. Antioxidant Activity Assays (DPPH, FRAP)
29. Anti-Inflammatory Activity Studies (Cell Line Assays, Animal Models)
30. Probiotic Postbiotics Analysis (Metabolite Identification, Bioactivity Testing)
31. Fermentation Monitoring (pH, DO Sensors)
32. Probiotic Strain Improvement (Mutagenesis, Adaptive Evolution)
33. Microbial Consortia Development (Co-Culture Techniques, Functional Assays)
34. Probiotic Delivery Systems (Nanoencapsulation, Hydrogel Formulations)
35. Gut-Brain Axis Studies (Neurotransmitter Assays, Behavioral Studies)
36. Probiotic Bioprocessing (Fermentation Control, Downstream Processing)
37. Probiotic Biotechnology (Genetic Engineering, Synthetic Biology)

Duration: 4 Months

Fee: Rs 4,50,000/-

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Module 9: Applied Microbial Techniques in Bioburden Assessment

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Profits of Learning Applied Microbial Techniques in Bioburden Assessment

Learning applied microbial techniques in bioburden assessment is essential for ensuring the safety and quality of pharmaceutical, medical, and food products. These protocols enable researchers to detect, quantify, and analyze microbial contamination, helping to maintain compliance with regulatory standards. Mastery of these techniques supports advancements in quality control, product safety, and microbiological research, contributing to public health and consumer protection.

Bioburden Assessment Approaches and Protocols

1. Total Viable Count (TVC) (Plate Count Method, Membrane Filtration)
2. Environmental Monitoring (Air Sampling, Surface Sampling)
3. Microbial Limit Testing (USP <61>, <62> Methods)
4. Surface Bioburden Testing (Swab Method, Contact Plates)
5. Water Microbiology Testing (Heterotrophic Plate Count, MPN Method)
6. Endotoxin Testing (LAL Assay, Chromogenic Method)
7. Mycoplasma Testing (Culture Method, PCR)
8. Fungal Bioburden Testing (Sabouraud Dextrose Agar, Potato Dextrose Agar)
9. Rapid Microbial Detection Methods (ATP Bioluminescence, Flow Cytometry)
10. Bioburden Recovery Efficiency (Swab Recovery Studies, Surface Rinse Method)
11. Sampling Plan Design (Statistical Sampling, Risk-Based Sampling)

12. Bioburden Reduction Strategies (Disinfection, Sterilization Validation)
13. Antimicrobial Efficacy Testing (Time-Kill Studies, Suspension Tests)
14. Microbial Enumeration in Medical Devices (Membrane Filtration, Direct Inoculation)
15. Validation of Bioburden Testing Methods (Accuracy, Precision)
16. Microbial Identification (MALDI-TOF, 16S rRNA Sequencing)
17. Bioburden in Packaging Materials (Contact Plates, Swab Method)
18. Automated Bioburden Testing Systems (Robotics, Automated Plate Readers)
19. Bioburden Monitoring in Cleanrooms (Air Samplers, Particle Counters)
20. Analysis of Airborne Microbial Contamination (Settle Plates, Air Impaction)
21. Microbial Contaminant Profiling (Genotyping, Phenotyping)
22. Data Analysis and Interpretation (Statistical Methods, Trend Analysis)
23. Regulatory Compliance for Bioburden Testing (FDA, EMA Guidelines)
24. Standard Operating Procedures (SOPs) for Bioburden Testing (Writing, Implementation)
25. Proficiency Testing and Interlaboratory Comparisons (EQA Programs)
26. Microbial Bioburden in Pharmaceutical Products (Liquid, Solid Dosage Forms)
27. Risk Assessment in Bioburden Testing (Risk Management, HACCP)
28. Quality Control of Culture Media (Growth Promotion Testing, Sterility Testing)
29. Bioburden in Cosmetics and Personal Care Products (USP <61>, <62> Methods)
30. Environmental Bioburden Control (HVAC Systems, Cleanroom Design)
31. Bioburden in Biopharmaceutical Production (In-Process Testing, Final Product Testing)
32. Microbial Enumeration in Food Products (Plate Count Method, MPN Method)
33. Bioburden in Veterinary Products (Sterility Testing, Microbial Enumeration)
34. In-Process Bioburden Monitoring (Intermediate Products, Process Waters)
35. Validation of Rapid Microbial Methods (Accuracy, Sensitivity)
36. Bioburden in Biologic Products (Cell Cultures, Tissue Samples)
37. Microbial Load Testing in Beverages (Juices, Soft Drinks)

Duration: 3 Months

Fee: Rs 3,50,000/-

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