

## **Aakriti Biotechnology Skill Development Programs** **Modules for Dissertation Program**

At Aakriti Biotechnology, we understand the importance of practical exposure in shaping the skills and knowledge of aspiring biotechnologists. By providing students with the chance to work on real-world projects at our state-of-the-art laboratory, we aim to bridge the gap between academia and industry while nurturing their growth as future leaders in the field.

### **Techniques based training**

**Fee: Rs 3,500**

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| <ul style="list-style-type: none"> <li>- Bio-Instrumentation for Wet Lab.</li> <li>- Media Preparation &amp; Culturing of Microbes.</li> <li>- Gram's staining</li> <li>- Sterilization techniques</li> <li>- Pour plate technique</li> <li>- Spread plate technique</li> <li>- Streak plate technique</li> <li>- Establishment of Pure Culture of Microbes.</li> <li>- Preservation of bacteria.</li> </ul> | <ul style="list-style-type: none"> <li>- Antibiotics Sensitivity Test.</li> <li>- Minimum Inhibitory Concentration (MIC) Test.</li> <li>- Genomic DNA Isolation</li> <li>- DNA quantification</li> <li>- Agarose Gel Electrophoresis for Genomic DNA.</li> <li>- Qualitative Analysis of Nucleic Acid.</li> <li>- Extraction of phytochemical</li> <li>- Plant extracts preparation.</li> <li>- Paper Chromatography</li> </ul> |
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## MODULES FOR 1 MONTH

### **1. Plant Tissue Culture**

**Fee: Rs 2,500**

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| <ul style="list-style-type: none"> <li>- Theoretical Explanation</li> <li>- Media Preparation</li> <li>- Explant Preparation</li> </ul> | <ul style="list-style-type: none"> <li>- Sterilization Techniques</li> <li>- Sub culturing</li> </ul> |
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### **2. Phytochemical Analysis**

**Fee: Rs 2,500**

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| <ul style="list-style-type: none"> <li>- Plant Extract Preparation</li> <li>- Alkaloid Test</li> <li>- Flavanoid Test</li> <li>- Saponin Test</li> </ul> | <ul style="list-style-type: none"> <li>- Glycoside Test</li> <li>- Tanin Test</li> <li>- Steroid Test</li> <li>- Protein Test</li> </ul> |
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### **3. Phytochemical Analysis using Soxhlet Apparatus**

**Fee: Rs 4,000**

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| <ul style="list-style-type: none"> <li>- Plant Extract Preparation</li> <li>- Alkaloid Test</li> <li>- Flavanoid Test</li> <li>- Saponin Test</li> </ul> | <ul style="list-style-type: none"> <li>- Glycoside Test</li> <li>- Tanin Test</li> <li>- Steroid Test</li> <li>- Protein Test</li> </ul> |
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**4. Antimicrobial activity and MIC**

- Test sample preparation
- Bacterial culture
- Pure culture establishment

**Fee: Rs 5,000/-**

- Serial dilution
- Antimicrobial activity test and analysis
- Minimum Inhibitory Concentration Test

**5. Basic Microbiology**

- Isolation from bacteria from soil
- Serial dilution
- Media preparation
- Plating techniques
- Inoculation of bacteria

**Fee: Rs 8,000/-**

- Preparation of glycerol stock
- Preparation of stab culture
- DNA Isolation
- Agarose gel electrophoresis

**6. PCR Optimization**

- DNA Isolation
- Purification and Quantification
- Agarose Gel Electrophoresis

**Fee: Rs 10,000/-**

- Principle and basics of PCR
- Reaction and optimization
- Analysis of Result

## MODULES FOR 2 MONTH

**7. Bacterial Transformation**

- Basic microbiology techniques
- Establishment of pure culture
- Media preparation
- Plating techniques
- Inoculation of bacteria

**Fee: Rs 8,000/-**

- Transformation
- Screening of positive clones
- Plasmid Isolation
- Agarose gel electrophoresis

**8. Thin Layer Chromatography**

- Sample preparation
- Extraction of components using Soxhlet Apparatus

**Fee: Rs 10,000/-**

- Extraction by cold method
- Silica Gel plate preparation
- TLC and analysis

**9. Molecular Cloning**

- Basic microbiology techniques
- Establishment of pure culture
- Inoculation of bacteria
- DNA isolation
- Plasmid isolation
- Vector preparation

**Fee: Rs 12,000**

- Gene of interest ligation
- Transformation
- Screening of positive clones
- Agarose gel electrophoresis

## MODULES FOR 4-6 MONTHS

### 10. 16S rRNA/ITS based identification of microbes

**Fee: Rs 18,000/-**

- Isolation of genomic DNA
- Purification and Quantification
- Agarose Gel Electrophoresis
- Principle and basics of PCR
- Principle of 16S rRNA sequence
- Sequencing of the PCR product
- Analysis of Result
- Generation of Phylogenetic tree

### 11. DNA Fingerprinting

**Fee: Rs 25,000/-**

- Isolation of genomic DNA
- Purification and Quantification
- Agarose Gel Electrophoresis
- Principle and basics of PCR
- Principle of RAPD
- PCR with RAPD primers
- Analysis of Result
- Generation of Phylogenetic tree

### 12. cDNA Synthesis

**Fee: Rs 30,000/-**

- RNA Isolation
- RNA Purification and Quantification
- cDNA Synthesis using Reverse Transcriptase enzyme
- cDNA quality check using PCR

### 13. PAGE and Silver Staining

**Fee: Rs 30,000/-**

- DNA Isolation
- DNA purification and estimation
- PCR using RAPD Primers
- Polyacrylamide Gel Electrophoresis
- Silver Staining of the gel