



CERTIFICATE COURSE MOLECULAR BIOLOGICAL TECHNIQUES

Offered by :

Department of Agricultural Technology,
Faculty of Technology, University of Colombo

Delivery Methods

- ✓ Lectures: Hybrid mode
- ✓ Practicals: Hands-on practical sessions
- ✓ Language: English

Course duration

- Total Duration: 8 weekends (64 hours)
- Lectures: 16 hours
- Practicals: 48 h

Course content

LECTURE MODULE

- Fundamentals of Molecular Biology and Biotechnology
- Applications of Molecular Biology and Biotechnology in Agriculture

PRACTICAL MODULE

Nucleic acid extraction:

- Plasmid DNA extraction
- Bacterial total and genomic DNA extraction
- Fungal DNA extraction
- DNA extraction from Plants, insect and blood samples

Quality assurance of nucleic acid:

- Agarose gel electrophoresis
- Quality and quantity assessment

Gene expression analysis:

- RNA extraction
- Denaturing agarose gel electrophoresis
- 1st strand cDNA / cDNA synthesis
- RT-qPCR

Genotype base methods:

- Conventional PCR
- qPCR
- Gradient PCR
- Molecular markers / marker assisted selection

DNA finger printing:

- Restriction fragment length polymorphism (RFLP)
- PCR RFLP

Genetic engineering:

- Recombinant DNA Technology (restriction digestion, ligation, recombination)
- Competent cell development
- Transformation and screening of recombinants
- Familiarization with natural genetic engineers

Bioinformatics:

- Multiple sequence alignment
- BLAST and vec screening
- Primer Development
- DNA sequence base annotations
- Phylogenetic analysis / Dendrogram construction
- Molecular Docking

APPLICATION
DEADLINE

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14 JUNE, 2024



REGISTER NOW

<https://forms.gle/9ydReRIDD8aePVKm7>

COURSE FEE

Rs. 40,000/ Participant

TARGET AUDIENCE

Students Pursuing Agriculture, Bioscience and Technology

Undergraduate and graduate students studying Agriculture, biology, bioengineering subjects, who want to enhance their understanding of molecular biological techniques for crop improvement

Researchers and Academics

Academics and researchers specializing in fields such as Plant Molecular Biology, biotechnology, and bioengineering

Enthusiasts and Lifelong Learners

Individuals who have a passion for molecular biology, and lifelong learning



DURATION: 8 WEEKENDS



UNIVERSITY OF COLOMBO

Course coordinator

Ms. N.V.T. Jayaprada

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Resource persons

Dr. U.M. Aruna Kumara

Dr. Jayani J. Wewalwela

*The course is scheduled to start in September, 2024