

Report of five days HRD CAMPA training program on “Basic Techniques in Plant Molecular Biology” for the Technical personnel of ICFRE at ICFRE-IFGTB, Coimbatore

The ICFRE-Institute of Forest Genetics and Tree Breeding, Coimbatore, conducted a five days training program on **“Basic Techniques in Plant Molecular Biology”** for the Technical personnel of ICFRE from 25th November 2024 to 29th November 2024 under HRD CAMPA. The training was attended by 14 Technical staff from 7 different Institutes of ICFRE. In the inaugural session, Dr. A. Shanthi, Scientist-E and the Training Coordinator & Head in charge, Division of Plant Biotechnology and Cytogenetics, ICFRE-IFGTB, welcomed the participants. This was followed by screening of the short film “Walking Tall with Trees” highlighting the achievements of ICFRE-IFGTB. Dr. A. Shanthi, presented an overview of the five days training program. In the introductory talk on “Biotechnology” delivered by Dr. B. Nagarajan, Group Coordinator (Research), ICFRE-IFGTB, highlighted the various biotechnologies being used for the benefit of the society. This was followed by an inaugural address delivered by the Director in charge, Dr. R. Yasodha, Scientist-G, ICFRE- IFGTB where in the importance of Basic and Applied Biotechnology in forestry was emphasized. The inaugural session concluded with the vote of thanks by Training Co-coordinator Dr. A. Balasubramanian, Scientist-B, Division of Plant Biotechnology and Cytogenetics, ICFRE-IFGTB.

On the first day (25.11.2024) of the training program, Dr. A. Balasubramanian, Scientist-B, delivered a lecture on “Good Laboratory Practices-Chemical Safety and Biosafety”. He explained in-depth on the procedure for handling of hazardous chemicals, safeguards and disposal methods of biological materials. This was followed by a lecture on “Application of DNA Markers in Forestry” delivered by Dr. R. Yasodha. The lecture covered different types of DNA marker and its role in forestry. In the afternoon session a lecture on “PCR Technology:

Principles and Optimization Strategy in ISSR and SSR DNA Markers” was delivered by Dr. A. Shanthi. The lecture covered the basic principles and applications of PCR based DNA markers, including the ISSR, SSR DNA markers and their optimization strategies. The participants then visited the Vegetative Propagation Complex and the activities were explained by Mrs. K. Shanthi, CTO. This was followed by a visit to the ICFRE-IFGTB Gass Forest Museum. The forenoon session of the second day (26 November 2024) of the training program was scheduled in Genomics lab for hands-on training on DNA isolation, RNA isolation, quantification using Nanodrop spectrophotometer by Mrs. K. C. Madhuvanthi, SPF, and Ms. Pragya Dasgupta, Ph.D Scholar. In the afternoon session, at the DNA finger printing and Isozyme lab, PCR set up for ISSR and SSR reactions was demonstrated to the participants by Mrs. B. Sathya Vani, SPF and M.V. Anju, JPF. The participants then visited the ICFRE-IFGTB Fischer Herbarium. On the third day (27 November 2024), a lecture on “Biochemical Characterization of Plants” was delivered by Dr. D. Thangamani, Scientist-D, Chemistry and Bioprospecting Division. This was followed by practical session on “Agarose and Polyacrylamide Gel Electrophoresis by Mrs. B. Sathya Vani, SPF and M.V. Anju, JPF. In the afternoon session, a lecture on “SSR Genotyping by Sequencing: Methodology and Analysis” was delivered by Mrs. Sindhu, SRF. She explained about SSR Marker development through high throughput sequencing methodology and analysis. The practical session was handled by Mrs. S. Maheswari, SPF on interpretation of molecular data using softwares like DARwin 6.0 at the Molecular Genetics lab.

On the fourth day (28.11.2024) a lecture on “Introduction to Transgenesis and Genome Engineering” was delivered by Dr. Mathish Nambiar-Veetil, Scientist-G & Head, Division of Plant Biotechnology and Cytogenetics. This was followed by a lecture on “Principles of Plasmid Isolation, Restriction Digestion, Bacterial and Plant Transformation” delivered by Dr A.

Balasubramanian, Scientist-B. In the afternoon, practical session on “Plasmid Isolation, Restriction Digestion, Bacterial and Plant Transformation” was demonstrated by Ms. S. Sreeja, SPF and Mr. R. Manoj kumar, SRF. The participants then visited Tissue Culture laboratory and the activities were explained by Mrs. R. Mahalakshmi, TO. On the last day of the training program (29 November 2024), a lecture on “Introduction to Genomics and NGS technology” was delivered by Dr. Modhumita Dasgupta, Scientist-G. This was followed by a practical session on “Real Time PCR” at the Genomics Lab. In the afternoon session, a Quiz program was conducted by Dr. A. Balasubramanian, Scientist-B for the trainees to evaluate their level of understanding on the subjects learnt during the training period.

In the valedictory session Dr. Mathish Nambiar-Veetil, Scientist-G & Head, Plant Biotechnology and Cytogenetics Division welcomed all in gathering. Dr. A. Shanthi, Scientist-E and Training Coordinator, Division of Plant Biotechnology and Cytogenetics, ICFRE-IFGTB, presented glimpses of the training program. Resource persons Dr. Modhumita Dasgupta, Scientist-G and Smt. K. Shanthi, Chief Technical Officer expressed their support to the participants in all the aspects learnt in the training program. Dr. B. Nagarajan, Scientist-G and Group Coordinator (Research) urged the trainees to be innovative to troubleshoot issues faced during molecular biology experiments. In his valedictory remarks, Dr. C. Kunhikannan, Director, ICFRE-IFGTB exhorted the trainees to enhance their knowledge base through regular interactions, hard work and in-depth reading. The Director appreciated the coordinators of the training program for receiving an excellent feedback from the participants. Training certificates and prizes for Quiz winners were distributed to the trainees. The program ended with a vote of thanks by Training Co-coordinator, Dr. A. Balasubramanian, Scientist-B, Division of Plant Biotechnology and Cytogenetics.

**ICFRE- INSTITUTE OF FOREST GENETICS AND TREE BREEDING,
COIMBATORE**
**Basic Techniques in Plant Molecular Biology for the Technical Personnel
of ICFRE**
29th November to 2nd November 2024

Group photo



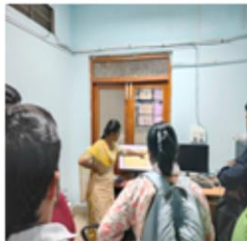
Inaugural session



Lectures



Hands on Training in Biotechnology Labs



VISIT TO IFGTB FACILITIES

Vegetative Propagation Complex



Fischer Herbarium



CERTIFICATES AND PRIZES DISTRIBUTION



