



Institute of Forest Genetics and Tree Breeding Coimbatore



Monthly Seminar on

Sensitization of Researchers on Biosafety and Chemical safety guidelines

Date: 28.09.2021 ; 10.00 am-1.00 pm

The meeting started with the Organizing Secretary, Dr. Mathish Nambiar Veetil, Scientist F, informing that the seminar on "*Sensitization of researchers on biosafety and chemical safety guidelines*" had its genesis from the recommendations of the Institutional Biosafety Committee (IBSC) of IFGTB. He then welcomed and introduced the keynote speaker, Dr. R. G. Kala, Principal Scientist (Biotechnology), Rubber Research Institute of India (RRII), Kottayam, and the speakers from IFGTB, viz., Dr. R. Yasodha, Group Coordinator (Research) & Scientist G, Dr. Modhumita Dasgupta, Scientist-G and Head, PBT&C, and Dr. A. Balasubramanian, Research Officer Grade-I. He also welcomed the online and offline participants comprising 100 staff of IFGTB, including research fellows and PhD scholars involved in laboratory research involving biosafety issues.



In the inaugural address on the "*Importance of Biosafety and Chemical Safety in Research*" by Dr. R. Yasodha, the key guidelines and protocols for biosafety and chemical safety were highlighted. To emphasize on the importance of the laboratory safety measures, the accidents that have occurred in various institutions in India were mentioned. Safe handling of

commonly used laboratory chemicals like ethidium bromide, liquid nitrogen, SDS and phenol, and the need for SOPs for handling equipment, electrical and fire safety guidelines were highlighted. The importance of bio-safety guidelines for handling micro-organisms and safety guidelines for nanomaterials were also emphasized.

Dr. Modhumita Dasgupta, delivered a talk on “***Guidelines for Conducting Research having Bio-safety Concerns***” in which India's Biosafety Regulatory framework was elaborated. The Environmental Protection Act and the statutory committees involved in monitoring research having bio-safety issues were detailed. Dr. Modhumita Dasgupta described the Classification of genetic engineering experiments and the role of IBSC. Procedure for approval of confined field trials and environmental release of GE plants were explained. Regulatory coordination between the Institutional Biosafety Committee (IBSC), Review Committee on Genetic Manipulation (RCGM), Genetic Engineering Appraisal Committee (GEAC), Ministry of Environment, Forest and Climate Change, Ministry of Agriculture, and State Biotechnology Co-Ordination Committee (SBCC), their functions were elaborated.

A detailed talk on “***Good Lab Practices for Chemical and Bio-safety***” was then presented by **Dr. A. Balasubramanian**. He highlighted the purpose of good laboratory practices with respect to chemical and bio-safety aspects. He gave a detailed account on do's and dont's of handling, storage and disposal methods of various chemical and biological materials. He added that these could be referred in the document available in the intranet at <http://ifgtbnet1/announcements/announcements.html>

Dr. Mathish Nambiar Veetil then presented a talk on “***Bio-safety issues of genetically modified plants***”. He emphasized the importance of continuing plant breeding innovation cycle to meet the challenges associated with increasing population and climate change. He briefed about the beneficial impacts of genetic modification and biosafety concerns associated with genetic engineering. He cited the controversial studies that caused

unfavourable public perceptions about transgenic crops. He informed that the regulatory guidelines for transgenic crops help to assess issues like horizontal gene transfer, gene flow from GM crops, potential weediness, impact on non-target organisms, food safety, animal health issues, ethical and social considerations. He elaborated about hazard assessment and characterisation of all elements involved in release of a new GM variety. He added that issues of food safety do not arise in case of tree crops like Eucalyptus and Rubber. He also added that the new gene editing technologies will pave way for reduced biosafety concerns as they don't harbour transgenes. He also highlighted the ongoing research projects on gene editing and transgenics that address the biosafety issues.

Key note address was delivered by Dr. R. G. Kala on "***Biosafety Aspects of Hevea Transgenics and way to the Confined Field Trial (CFT)***". The ongoing research on transgenics at the Rubber Research Institute of India was elaborated. The need for biology document for a species, adhering to the bio-safety regulations of transgenic plants, food safety guidelines, the need for characterization of the site of gene integration, protein characterization and its allergicity were emphasized. The delay in getting approval for the confined field trials of Hevea transgenics, and the efforts taken by RRII, Rubber Board, and the Ministry of Commerce and Industry in obtaining the approval were highlighted.

In the concluding session, Dr. Kala emphasised that Scientists working in transgenics should come together to raise public awareness on transgenics, and take their research to the field despite the difficulties. She informed that although Rubber Research Institute of India (RRII) was the first to publish work in 2003 on *Hevea* transgenics, Malaysian Rubber Board was able to take it for confined field trials ahead of RRII. Dr. Modhumita highlighted the need for undertaking social research on GM crops. In the context that release of transgenic crops by public sector research institutes would be more reassuring to farmers, Dr. Mathish called for increasing funding to the public sector research institutes for research on transgenics. Meeting concluded with the vote of thanks by Dr. A. Balasubramanian.