

INSTITUTE OF WOOD SCIENCE AND TECHNOLOGY, BANGALORE
BHARAT KA AMRUT MAHOTSAV – WEEK 31 TO WEEK 43

SENSITISATION WORKSHOP
ON
UTILIZATION OF PLANT TISSUE CULTURE TECHNIQUES IN FORESTRY

17th November 2021

A virtual workshop on “Utilization of Plant tissue culture techniques in forestry” was organized by IWST, Bengaluru on 17th November 2021 under ‘Azadi Ka Amrit Mahotsav’ in order to sensitize undergraduate and postgraduate students. At the outset, Mrs. Tresa Hamalton, Scientist-D and Course Director of the workshop, welcomed all the participants and resource persons, after which Shri. V. S. Shetteppanavar IFS, Group Co-ordinator (Research) delivered the inaugural address. He mentioned the tissue culture techniques having potential application in forestry, and advised the students to make use of the opportunity to obtain all information on tissue culture techniques taught during the workshop. Dr. Shivakumar IFS, Head, Extension Division and Dr. B.N. Diwakar, Scientist-F, Head Silviculture Forest Management Division also participated in the program. About 240 students from different colleges and universities participated and were benefited by this online workshop.

The program began with an introductory lecture on “Techniques in plant tissue culture” by Mrs. Tresa Hamalton, Sci-D. She explained about plant tissue culture and the different techniques which are utilized at IWST for forestry species. She explained the use of micropropagation techniques for clonal multiplication of desired genotypes, for conservation of threatened species, for mass production of planting material and for species in which traditional propagation methods are not successful. She elaborated on the *in vitro* production of secondary metabolites and somatic embryos. She also pointed out the drawbacks in adopting tissue culture techniques for trees, and how to overcome problems like *in vitro* secretion of phenolics, when enquired by the participants.

Mrs. Mamata Ravindra, STO gave a lecture on the topic “Micropropagation techniques for Bamboos”. She explained about bamboos, their various uses and methods of propagation. She also explained the necessity of micropropagation for bamboo multiplication, and the tissue culture methods adopted for developing protocols for different bamboo species by IWST. She elucidated the steps involved in the 2 modes of bamboo micropropagation i.e., axillary shoot proliferation and somatic embryogenesis. IWST’s video on “Micropropagation of Bamboos” demonstrating the steps involved in bamboo micropropagation through axillary mode, was screened after the lecture for the benefit of the participants, who then enquired about the price of TC raised bamboo plants sold at IWST nursery.

Ms. Almas Khannam, TO, made a presentation on “Techniques for *in vitro* regeneration of sandalwood”. She explained the various *in vitro* techniques used for *S. album* propagation such as axillary mode of regeneration, somatic embryogenesis and adventitious regeneration. She emphasized about the hardening and acclimatization procedures for sandalwood. She also explained about the genetic fidelity testing of tissue culture raised sandalwood plantlets using various DNA markers.

Shri. B.S. Chandrashekar, Sci-E delivered a lecture on “Secondary metabolite production from medicinally important trees – *Mappia foetida*”. He gave an introduction to the production of secondary metabolites in plant system, and their importance in defense mechanism. He also highlighted the different types of secondary metabolites produced by plants and their pharmaceutical uses. Due to over exploitation of forest resources for extraction of medicinally important compounds, the natural resource is dwindling day by day. Hence, a novel approach to conserve natural resource is to produce secondary metabolites in lab condition, using *in vitro* techniques viz., hairy root culture and suspension cell culture. He explained the process of production of Camptothecin, an anti-cancer drug produced from cell culture of *Nothapodytes nimmoniana* (syn. *Mappia foetida*). He then explained the advantages of *in vitro* production of secondary metabolites.

The lectures were followed by a discussion session, and the participants’ queries were answered. The program ended with a formal vote of thanks proposed by Ms. Gayathri Devi, ACTO.

