

Realizing Potential of Commercial Plant Tissue Culture: Challenges and Way Forward

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Plant tissue culture of orchid. © Pitakarekul | Dreamstime.com

Commercialization of plant tissue culture in India has attained significant growth in the last three decades, with current capacity at 500 million plants per annum starting from just 5.0 million in the late 80's, as well as increasing quality and productivity of crops. Adoption of tissue culture has created demand for producers, farmers, and nursery owners for high quality planting material of fruits, ornamentals, forest tree species, and vegetables. India has attained the top rank in banana production globally, for which tissue culture technology has played a key role. There is an urgent need to expand commercial applications to many other species, in addition to a few plants, namely banana, sugarcane, potato, pomegranate, date palm, orchids, flowering plants, etc.

In this context, the webinar on *Realizing Potential of Commercial Plant Tissue Culture: Challenges and Way Forward* was organised by Biotech Consortium India Limited (BCIL) on September 9, 2021. This webinar focused on the importance and potential of plant tissue culture technology, highlighting its current status, challenges encountered, and exploring the possibilities of establishing support systems for industry to expand applications of tissue culture for sustainable agriculture. More than 200 participants from 27 countries attended this webinar.

Following a welcome note by Dr. Purnima Sharma, Managing Director, BCIL, Dr. V.P. Kamboj, Chairman, BCIL spoke about the glorious journey of plant tissue culture from research to commercialization in India and highlighted the importance of a tissue culture quality management and certification system. Dr. Naveen Kumar Patle, Additional Commissioner (Horticulture), Ministry of Agriculture and Farmers Welfare spoke about the use of tissue culture technology in horticulture crops, particularly banana, orchids, date palm, pineapple, and papaya,

and encouraged all young entrepreneurs to take advantage of incentives/schemes provided by the government. Dr. Vidya Gupta, Former Chair and Chief Scientist, CSIR-National Chemical Laboratory, Pune spoke about opportunities and demand for plant tissue culture in new areas, such as medicinal and aromatic plants.

The event had presentations from esteemed experts from Bangladesh and Nigeria. Dr. Shaikh Mohammad Bokhtiar, Executive Chairman, Bangladesh Agricultural Research Council (BARC) and Former Director, SAARC Agricultural Centre (SAC), Bangladesh spoke about potential avenues for plant tissue culture in South Asia. He emphasized the need for applied research and collaborations for expanding use of

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plant tissue culture to improve agricultural productivity. Discussing the potential of tissue culture technology in African countries, Dr. Olusola Sokefun, Professor, Lagos State University, Nigeria talked about the urgent need for replicating the Indian experience of a quality management system in Africa. In

the concluding presentation, Dr. Shiv Kant Shukla spoke about the challenges faced by the plant tissue culture industry. He underscored the importance of selection of explants from suitable sources, disease-free stock material, authenticity of varieties, and elimination of somaclonal variants as some of the most critical parameters for ensuring the quality of tissue culture plants. He suggested an action plan to address the need for quality stock material and robust quality control mechanism to succeed in getting recurrent demand. There was enthusiastic response from industry participants, who shared their experiences and clarifications from experts.

Overall, the webinar provided an excellent platform to discuss opportunities and challenges of plant tissue culture.



Speakers at the webinar on *Realizing Potential of Commercial Plant Tissue Culture: Challenges and Way Forward* (September 9, 2021).