

## About NRCB

The National Research Centre for Banana (NRCB), established in 1993 under the aegis of Indian Council of Agricultural Research (ICAR) in Tiruchirappalli, Tamil Nadu, focusing on advancing banana and plantain cultivation through research, technology dissemination, and capacity building. NRCB focuses on genetic enhancement, disease management, and post-harvest practices, while also conserving banana germplasm for future generations. It provides quality planting materials, modern farming techniques, and technical training to support farmers and industry stakeholders. By collaborating with national and international organizations, NRCB aims to promote sustainable and profitable banana cultivation.

## Background of the training

The training on advances in banana tissue culture and its applications aims to provide participants with cutting-edge techniques in micropropagation and genetic modification. It covers important topics such as the principles of plant tissue culture, including somatic embryogenesis and bioreactor usage for rapid banana plant multiplication. This is a kind of faculty development program.

## Key areas include

**Embryogenic Cell Suspension:** Scalable methods for plant propagation.

**Genetic Modification:** Improving fruit quality, pest and disease Resistance to create novel banana varieties.

**Hands-On Experience:** Somatic embryogenesis, mutation breeding, genetic transformation, genome editing, and secondary metabolite production for pharmaceutical and industrial uses.

The training also emphasizes ensuring genetic fidelity and virus indexing, which are crucial for producing high-quality planting materials in commercial tissue culture. It covers advanced techniques such as embryo and another culture, and chromosome doubling for generating doubled haploids. This program is designed for researchers, students, biotechnologists, and professionals looking to leverage tissue culture for large-scale production, genetic improvement, and sustainable banana farming.

## Objectives of the training

- **Enhance proficiency in advanced tissue culture techniques**
  - **Ensure production of high-quality, genetically uniform plants**
  - **Application of Somatic embryogenesis in banana improvement**
- ### Course outline
- **Introduction to Tissue Culture and Its Importance:** Participants will receive foundational knowledge of tissue culture principles, focusing on the role it plays in banana propagation and its advantages over traditional cultivation methods.
  - **Advanced Micropropagation Techniques:** Practical training in advanced methods such as embryogenic cell suspension, somatic embryogenesis, and bioreactor systems to ensure efficient production of high-quality banana planting materials.
  - **Genetic Improvement Methods:** Techniques like genetic transformation, chromosome doubling, mutation breeding, and genome editing (including CRISPR) are taught to develop banana varieties with improved traits, such as disease resistance and enhanced quality.
  - **Genetic Fidelity:** Instruction on implementing protocols genetic fidelity, ensuring the production true-to-type plants using ISSR markers of NCS-TCP
  - **Ensuring the virus free quality planting materials:** Testing methods to detect the viruses and other pathogens, indexing protocols as per NCS-TCP
  - **Commercial Applications and Future Trends:** Participants will explore real-world case studies, commercial use of tissue culture, and future trends in the field

## Eligibility to apply

- Assistant Professor/Scientists-Students-Private/Govt. Tissue Culture Industry personal, Students pursuing Ph.D.,

**Total Number of candidates:** 10

**Last date for submission of application:** 03<sup>rd</sup> Dec'2024

## Course Fee

- Rs.15,000–Students/academic persons of Govt. Institution
- Rs.25,000–Private Organization

- ✓ No TA and DA will be provided
- ✓ Training hostel is available on payment basis.
- ✓ Application form available at <https://nrcb.icar.gov.in/>
- ✓ Registration form :<https://forms.gle/deSG2rtoUPFDBYSC9>



## Training Programme On Cutting-Edge Techniques in Banana Tissue Culture and Its Application

11<sup>th</sup> to 24<sup>th</sup> December 2024

Organized by

ICAR-National Research Centre For Banana  
Tiruchirappalli, Tamil Nadu



## Course Directors

Dr.S.Backiyarani, Principal Scientist, ICAR-NRCB,

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Dr. R. Selvarajan

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## Course Coordinators

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Venue:ABI Hall, ICAR-NRCB.

## Application Form

1.	Name of the Applicant	
2.	Designation	
3.	Date of Birth	
4.	Gender	
5.	Highest Degree Obtained	
6.	Subject Discipline	
7.	Professional Experience (in years)	
8.	Name of the Organization /Company	
9.	Complete Official Address	
10.	PIN Code	
11.	District	
12.	State	
13.	Email ID	
14.	Phone No (with code)	
15.	WhatsApp number	
16.	Professional Experience (in years)	
17.	Payment of Programme Fee (Please $\checkmark$ )	Paid/To be Paid Later
18.	Details of Fee Paid	
19.	Name and Designation of your Reporting Officer (To whom you report)	
20.	Signature of the Applicant with Date	

Mode of Payment of Programme Fee:

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UPI ID: ICARUNITNRCB@SBI

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**SCAN & PAY**



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**BHIM**  
**SBI Pay**  
**BHIM | UPI**