# Announcement

## ICAR Sponsored 21 days Winter School

on

## Microbe-mediated strategies for alleviation of abiotic stress: Bioresources to technology development

**(17th February 2026 - 9th March 2026)**

**Organized by**

Division of Microbiology
ICAR-Indian Agricultural Research Institute
New Delhi 110 012

**Sponsored by**

Education Division,
Indian Council of Agricultural Research
KAB-II, New Delhi 110012

### How to apply?

The application in the prescribed format must be filled and submitted in physical form, as the ICAR online HRD portal is currently non-functional. Interested candidates need to register through Google link by **10th January 2026**. The candidates need to pay a non-refundable Registration Fee of Rs. 50/- (DD or Postal Order) in favour of **"Director, ICAR-IARI"**, otherwise application will not be accepted.

The interested candidates need to take approval of the competent authority of your Institution/ University/ College for application in advance. The final selection will be made only **if the application duly recommended by the** competent authority is received. The duly forwarded application form along with DD/Postal order should be received by the Course Director latest by **15th January 2026** through email/postal services/courier.

### Organizers:


**Course Director**

**Dr. Minakshi Grover**
Division of Microbiology
ICAR-Indian Agricultural Research Institute
New Delhi 110 012
Telephone No. (O): 011-25847649
Contact: 9177232952, minigt3@yahoo.co.in

**Course Coordinators**

**Dr. Seema Sangwan**
Division of Microbiology, ICAR-IARI, New Delhi
Contact: 9991185254; cmasangwan123@gmail.com

**Dr. Brijesh Kumar Mishra**
Division of Microbiology, ICAR-IARI, New Delhi
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### About the Winter School

Worldwide abiotic, biotic and nutritional stresses are among the major constraints to crop production and food security. The situation has aggravated due to the drastic and rapid changes in global climate. In addition, overexploitation of land resources and poor farming practices have degraded soil health & quality. These stresses limit plant growth and productivity. Some of the key aspects of sustainable development in agriculture involve resource conservation-based strategies and exploitation of microbial resources. Addressing abiotic, biotic and nutritional stresses using microbial resources can boost agricultural productivity sustainably. The dynamics of soil microbial communities and their associated functions largely control the nutrient status of soil and the overall productivity of agroecosystems. This needs to be understood in the context of abiotic, nutritional and biotic stresses to sustain crop productivity.

Recently, the concept of habitat adapted bacterial microbiome, rhizobacteria and endophytes promoting abiotic stress tolerance in host plants has been gaining attention. The plants growing in many stress environments/ habitats are reported to select their specific microbiome and the key bacterial/ fungal groups possess the potential to elicit abiotic stress tolerance in both host and other plants. Comprehensive analysis of plant-microbe interaction studies, genomes, genes, and pathways is needed to understand mechanisms by which microbes impart stress tolerance to the plants. The seed microbiome and its dissection have also generated lot of interest in recent years to identify the core microbiome. Recent research reports have emphasized on the importance of seed endophytic microflora that can be

transmitted vertically from one generation to the next, which has implications on plant growth and health.

The basic objective of the course is to acquaint the participants with the latest developments and innovations in **microbe-mediated strategies for alleviation of abiotic stress in crop production**. This course would offer the theoretical and practical oriented understanding of the microbe-based strategies for improving stress resilience in agriculture. This will help the participants to comprehend and utilize management strategies better towards future planning of research, teaching and extension in sustainable agriculture.

## Location and climate

The ICAR- Indian Agricultural Research Institute, popularly known as 'Pusa Institute', is the country's premier institution for research and higher education in the field of agricultural sciences. The primary mission of the Institute is to explore new frontiers of science and knowledge and develop human resources to provide leadership in agriculture to the country. The Institute conducts basic and strategic research, serves as a center for academic excellence, and provides national leadership in agricultural research, education and extension.

The Division of Microbiology is one of the important divisions of Natural Resources Management School of ICAR-IARI, and the national lead centre for advancing knowledge and understanding of the microbial domains towards developing integrated strategies in modern agriculture. The Division is engaged in teaching, research, extension and human resource development since its inception in 1961. The Division is adequately equipped with modern infrastructure for carrying out high quality teaching and research, leading to the development of environmentally-sound and economically-viable biofertilizers and other microbial inoculant technologies.

ICAR-IARI is located about 8 km west of New Delhi Railway Station and 10 km from the Maharana Pratap Inter-State Bus Terminus (ISBT). The weather during proposed Winter School is expected to be cold in New Delhi (average temp. 25°/14° C).

## Course content

The core topics of the winter school are:

- Principles and practices of Abiotic stress management in agriculture
- Impact and mitigation strategies for sustainable crop production
- Abiotic stress adaptation/mitigation strategies in microorganisms
- Screening of microbes for abiotic stress tolerance (moisture, salinity, temperature)
- Strategies for developing synthetic microbial communities for abiotic stress management in crop plants
- Genomic & metagenomic tools to study plant-microbe interactions under stress conditions
- Metabolomics & Transcriptomics for studying plant microbe interaction under stress conditions
- Microbial Biostimulants
- Microbial volatiles for abiotic stress mitigation in crop plants
- Preparation of compost and other organic manures and their quality testing
- Bioinoculants in integrated / organic production systems

## Eligibility

This Winter School is meant for active researchers/ teachers/ scientists in ICAR Institutes/ State AUs / CAU/ Agricultural faculty of AMU, BHU, Vishwa Bharti, Nagaland University and other similar Institutions in India in the cadre of Assistant Professors or equivalent and above in the field of Microbiology/ Agricultural Microbiology/ Soil Science/ Plant Pathology/ Plant Physiology/ Environmental Sciences/ Agronomy /Horticultural Sciences/ Plant Protection/ Organic Agriculture, Biotechnology and related disciplines etc.

A maximum of 25 participants will be selected for the course by the screening committee as per the ICAR guidelines. The decision of the selection committee will be final and no correspondence in this regard will be entertained.

## Travel, lodging and boarding

The selected p**articipants will be paid for the journey, to and fro, restricted to AC-II tier train fare or bus or any other means of transport in vogue, as the case may be. Actual TA for the shortest route will be paid on production of the tickets, as per ICAR rules**. Participants are requested not to bring their family members as there is no scope for their accommodation. Participants are requested to make their own arrangement for transport to reach ICAR-IARI, Pusa, New Delhi. Free lodging and boarding will be provided during the winter school in the Guest Houses of the Institute to the participants only. Accommodation will be provided on sharing basis. The local candidates are not eligible for boarding and lodging, however, the local hospitality (lunch, tea, snacks etc.) will be provided to them.

## IMPORTANT DATES

- ✓ Last date for Online Registration: **10th January 2026**
- ✓ Last date for Receipt of Duly Forwarded Application: **15th January 2026**
- ✓ Intimation to selected candidates: **20th January 2026**

# APPLICATION PROFORMA FOR PARTICIPATION IN WINTER SCHOOL

## "Microbe-mediated strategies for alleviation of abiotic stress: Bioresources to technology development"

**(17th February 2026 – 9th March 2026)**

Division of Microbiology
ICAR-Indian Agricultural Research Institute
Pusa Campus, New Delhi-110012

Photograph

1. **Full Name (in Block letters):**
2. **Date of Birth (DD/MM/YYYY):**
3. **Gender: [ ] Male [ ] Female [ ] Other**
4. **Nationality:**
5. **Category: [ ] General [ ]SC [ ]ST [ ]OBC [ ]EWS**
6. **Aadhaar Number:**
7. **Contact Information:**
8. **Permanent Address:**
9. **Correspondence Address (if different):**
10. **Phone (Mobile):**
    **Phone (Landline):**
11. **Email ID:**
12. **Educational Qualifications:**

| Degree | Institution/ University | Year of Passing | Percentage/ CGPA | Specialization |
|---|---|---|---|---|
| PhD | | | | |
| Post Graduation | | | | |
| Graduation | | | | |

13. **Professional Experience:**

| S. No. | Position/ Designation | Organization/ Institution | Duration (From-To) | Nature of Work |
|---|---|---|---|---|
| | | | | |
| | | | | |

14. **DD/Postal order No:**
15. **Declaration**

I hereby declare that the information furnished above is true and correct to the best of my knowledge. I am not employed in any organization that prohibits participation in such programs. I agree to abide by the rules and regulations of the winter school program and will complete the full 21-day duration, if selected.

**Signature of Applicant:**
**Date & Place:**

16. **Recommendation**
    **(To be filled by the Sponsoring Authority)**

I recommend the above candidate for participation in the ICAR Winter School Microbe-mediated strategies for alleviation of abiotic stress: Bioresources to technology development (17th February 2026 – 9th March 2026) at Division of Microbiology, ICAR- Indian Agricultural Research Institute, New Delhi. The candidate will be relieved for the full duration.

**Signature:**
**Name:**
**Designation:**
**Seal of Organization:**
**Date & Place:**

**Note:** All applications duly approved by competent authority must be received along with a non-refundable Registration Fee of Rs. 50/- (DD or Postal Order) in favour of **"Director, ICAR-IARI"**, payable at New Delhi **on or before the last date (15th Jan 2026).**

**QR code for Google form link**

**Venue**
**Lectures and Practicals**
**Division of Microbiology, ICAR-IARI,**
**Pusa Campus, New Delhi-110012**