



Science and Engineering Research Board (SERB)  
Department of Science and Technology (DST)  
Govt. of India



**AMITY**  
UNIVERSITY



**Amity Institute of Microbial Technology  
Organises  
SERB Sponsored Three Days Symposia on**

# **MICROBIOME IN CLIMATE CHANGE & FOOD SECURITY**

**9<sup>th</sup> TO 11<sup>th</sup> NOVEMBER, 2022**

# MICROBIOME IN CLIMATE CHANGE & FOOD SECURITY



## BACKGROUND

The present world population of 7 billion is expected to reach 10 billion by the middle of the 21st century due to the high growth rate, in developing countries.

By 2050, there is a need to produce about 70% more food to feed world's population. The major limiting factors of the agricultural sector that adversely affects the crop productivity worldwide are climate changes wherein abiotic and biotic stresses are serious conditions and also land-degradation, causing major problem for soil and crop productivity. About 20% of cultivable lands and more than 50% crop loss, worldwide are severely affected by both types of stresses. Among abiotic stresses drought and salinity stress is recognized as the main threats to environmental resources, affecting almost 1 billion ha worldwide or globally representing about 7% of earth's continental extent.

Drought stress is common in many parts of the world, and more than 50 % of the globe is arid, semi-arid. Soil water deficiency affects the water relations at whole plant level and finally makes plants more susceptible to other environmental stresses by decreasing the adequacy of defense mechanisms and can also adversely affect plant growth and yield, causing the most fatal economic losses in agriculture and forestry. Soil is a largest favorable ecological niche for the microbes and their metabolic activities.

## CONCEPT

Improvement of our understanding of soil-microbe and soil-plant-microbe interaction under a variety of climate change is essential because several studies have been carried out on inoculation of benign microbes under normal conditions, but the overall impact of these interactions, specifically under varying adverse environmental conditions are often lacking. Microbial processes associated with biogeochemical cycles play an important role in global fluxes of key greenhouse gases like CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O.

These microbial processes are influenced greatly by climate change. These changes can be either positive (increased cell biomass and/or enhanced physiological functioning) or negative (decreased cell biomass/or reduced physiological functioning). Depending upon the response of the microorganisms, they either can help in maintaining the ecological balance and mitigating the effect of climate change or can aggravate the problem. Thus, it is necessary to study the changes caused due to climate change on microbial processes associated with biogeochemical cycles.

## PURPOSE

This panel discussion will invite researchers to dissect the microbe based amelioration and their application to unravel the perplexity of climate change on sustenance of the ecosphere. In addition, understanding of the microbial physiology and optimal conditions for agricultural productivity will also be considered in this panel discussion. This panel discussion will cover the detailed discussion in context of different types of functional microbes, their properties and recent emerging ideas for their

application in agricultural fields as well as the effect on the already established microbiome. We highly believe that this panel discussion will be of high importance to unfold SDGs (e.g., 1, 2, 11, 13, & 15)

with principles and practices of climate change on soil microbiome or vice versa and will foster the knowledge transfer among scientific communities, industries, and young researchers along with students and will enable a better understanding of the nature of microbial application procedure for sustainable ecosystem



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## ABOUT AIMT

The Amity Institute of Microbial Technology (AIMT) was established in September 2004. AIMT aims at excellence in performance, committed to providing quality educational opportunities and services that meet or exceed the needs of learners, industry/business, and our community. AIMT is now supported by the Department of Science & Technology (DST) under the Fund for Improvement of S&T Infrastructure (DST-FIST) to rebuild the Science & Technology infrastructure in the country.

- State of art facilities: AIMT has the most modern infrastructural facilities including four practical labs fully devoted to teaching B.Sc. and M.Sc. students, two research labs for carrying out the research projects, and specialized labs for plant tissue culture, greenhouse, controlled environment plant/ microbes growth chambers, biochemical analysis and facilities to carry out molecular studies, etc. Apart from routine basic equipment needed for teaching and research, the labs are equipped with state- of the art instruments like Confocal Microscope, RT-PCR, GC, Zeta Potential Analyzer, Bioreactors etc.
- Modern research: Apart from B.Sc./M.Sc. degree programmes, AIMT enrolls PhD & D.Sc. students and is undertaking research in a wide range of specializations including plant-microbe interaction for improving the value of medicinal plants, medicinal mushrooms as nutraceutical, micronutrient management, and crop quality improvement especially oil seed brassica, Nanoagriculture, CRISPAR-CAS9 gene editing etc. Total of 15 projects were completed during 2015 – 2020 worth Rs. 594.7084 Lakhs Funded by: ICAR, NASF - ICAR, SERB DST (5), DST - Nanomission, DST (IndoAustralia), DST-FIST, DST - SEED, DST SARTHI, SBIRI, DBT - BBSRC (Indo-UK), DBT – BIRAC. The institute is presently running 5 research projects, sponsored by Indian government funding agencies like DST, DSIR, ICAR, and CSIR for sum of Rs. 125.83



# MICROBIOME IN CLIMATE CHANGE & FOOD SECURITY



## PATRON-IN-CHIEF



**Dr. ASHOK K. CHAUHAN**  
Founder President RBEF

## PATRONS



**Dr. ATUL CHAUHAN**  
Chancellor, Amity University, Noida



**Dr. W. SELVAMURTHY**  
President,  
Amity Science, Technology  
and Innovation Foundation (ASTIF)



**Prof. Dr. AJIT VARMA**  
Group Dy. Vice- Chancellor,  
Amity University



**Dr. (Mrs.) BALVINDER SHUKLA**  
Vice-Chancellor, Amity University

## CONVENER



**Dr. D.K. CHOUDHARY**  
Associate professor, AIMT



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## SYMPOSIA SCHEDULE

### DAY 1

9:00 – 10.00 am Registration & Networking Tea

10.00 – 10.05 am lighting the lamp & Saraswati Vandana

10.05 – 10.30 am Glimpses of Amity Universe by Dr. W. Selvamurthy, President, ASTIF Amity University

10.30 – 10.40 am Opening Remarks Prof. (Dr.) Ajit Varma, Group Dy. Vice Chancellor

10.40 – 11.00 am Glimpses of AIMT by Dr. Amit C Kharkwal, Deputy Director, AIMTDay 3

10.00 -10.30 am Networking Tea

10.30 –11.15 am Talk by Dr. Siddharth Tiwari

11:15-12:00 pm Dr. Vaibhav Srivastava

12:00- 01:00 pm Talk by Dr. A. K. Sharma

01.00 –2.00 pm Lunch

2.00 – 2.45 pm Talk by Dr. Vishal Tripathi

2:45 – 3:30 pm Valedictory session by Dr. D.K. Choudhary

3:30- 4:00 pm Networking

Tea 11.00 – 11.10 am Some Thoughts Dr. Ashok K. Chauhan Founder President, Ritnand Balved Education Foundation

11.10 – 11.30 am High Tea

11.35 am – 12.00 pm Prologue by Dr. D.K. Choudhary, Convener

12.00 – 12.45 pm Talk by Dr. I.S. Thakur

12.45 –1.40 pm Lunch

1.45 –2.30 pm Talk by Dr. H.B. Singh

2.35 –3.20 pm Talk by Dr. B.K. Sarma

3:20 – 3:45 pm A candid rendezvous

3.45 – 4.00 pm Networking Tea

### DAY 2

10.00 -10.30 am Networking Tea

10.30 –11.15 am Talk by Dr. A. Rakshit 11:15-12:00 pm Dr. Prafull Salvi

12:00- 01:00 pm Talk by few Ph.D. Scholar

01.00 –2.00 pm Lunch

2.00 – 2.45 pm Talk by Dr. Shekar Jain

2:45–3:30pm Talk by Dr. Anukool Vaishnav

3:30- 4:00 pm Networking Tea

### DAY 3

10.00 -10.30 am Networking Tea

10.30 –11.15 am Talk by Dr. Siddharth Tiwari

11:15-12:00 pm Dr. Vaibhav Srivastava

12:00- 01:00 pm Talk by Dr. A. K. Sharma

01.00 –2.00 pm Lunch

2.00 – 2.45 pm Talk by Dr. Vishal Tripathi

2:45 – 3:30 pm Valedictory session by Dr. D.K. Choudhary

3:30- 4:00 pm Networking Tea

### Venue:

E2 Auditorium, E block, Amity University, Noida



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## KEYNOTE SPEAKERS

### DAY 1<sup>st</sup>



**Dr. INDU SHEKHAR THAKUR**  
Prof. & Director Amity School of Earth  
& Environmental Sciences

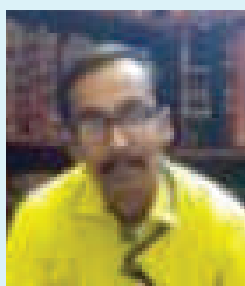


**Prof. HARIKESH BHADUR SINGH**  
GLA University



**Prof. BIRINCHI KUMAR SARMA**  
Associate professor, AIMT

### DAY 2<sup>nd</sup>



**AMITAVA RAKSHIT PhD**  
(IIT-KGP), BHU



**Dr. PRAFULL SALVI**  
National Agri- Food  
Biotechnology Institute,  
Mohali, Punjab, India



**Dr. SHEKHAR JAIN**  
Mandsaur University, MP

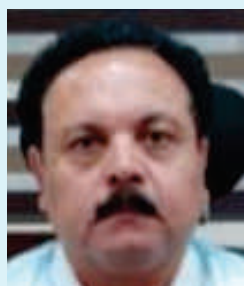


**Dr. ANUKOOL VAISHNAV**  
Assistant Professor, GLA

### DAY 3<sup>rd</sup>



**Dr. SIDDHARTH TIWARI**  
National Agri- Food Biotechnology



**Prof. Dr. A.K. SHARMA**  
G.B. Pant University



**Dr. VAIBHAV SRIVASTVA**  
Researcher, KTH, Sweden



**Dr. VISHAL TRIPATHI**  
Assistant Professor,  
GLA University



# MICROBIOME IN CLIMATE CHANGE & FOOD SECURITY



## INSTITUTIONAL ORGANIZING COMMITTEE

### FACULTIES & STAFF

- Dr. Rajni Singh
- Dr. Amit C. Khakarwal
- Dr. Neeraj Shrivastava
- Dr. Swati Tripathi
- Dr. Menaka Devi Salam
- Dr. Naveen Chandra Joshi
- Dr. Shalini Porwal
- Dr. Arti Goel
- Dr. Smitha MS
- Dr. Arti Mishra
- Dr. Surbhi Dabral
- Dr. Monika Gupta
- Dr. Manpreet Kaur Attri
- Dr. Jaagriti Tyagi
- Dr. Anil Chandra
- Mr. Mahendra Singh
- Ms. Tamanna Thapa
- Mr. Vivek Yadav
- Mr. Neeraj kumar
- Mr. Neeraj Pandey
- Mr. Hemraj
- Mr. Dharmendra
- Mr. Ram Yadav

### Ph.D.SCHOLARS

- Shradha Nirwan
- Reeta Bhati
- Sonal Chaudhary
- Ayushi Singh
- Swati Srivastava
- Swati Gaba
- Namdol Nilza
- Gaurav Yadav
- Neha Sharma
- Khusboo Iqbal
- Ritika Chauhan
- Ishan Tiwari
- Samridhi Syal
- Shrishti Sharma
- Divya Choudhary
- Himanshi Aggarwal
- Himani Aggarwal
- Richa Vaishnav
- Nikita Pradhan
- Ayushi Chauhan
- Jasleen Kaur



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## POSTER PRESENTATION

### Guidelines for Abstract Submission:

Participation in the poster presentation is open to all scientists, faculty members, research scholars, and students who are working in the field of microbiology and life sciences. Abstract for Poster presentation should be maximum of 250 words excluding the title, authors, and address. Abstracts should be prepared in MS-word, Time New Roman, 12 Font, and Single spacing leaving a 1" margin on the left and right side of the page. Abstract should be submitted on or before 1 November 2022 in electronic form that will be printed only after receiving the registration fee. The acceptance will be communicated to the corresponding author via email.

Guidelines for poster presentation:- Poster should be prepared in advance and should be brought in person by the participant. The size of the poster should be

0.75 m (Width) × 1.0 m (Length). The poster should be legible from a distance of 1-2m.

### Registration Details

#### Registration Link:-

REGISTRATION FEES	INR
Scientists, Research Scholars, and Academicians	: 2,000
Delegates from the Industry	: 10,000
UG/PG Students	: 500

For any queries please contact

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