



**National Training**  
on  
**Rhizosphere microbiology: Classical to Omic**  
**approaches**  
**12<sup>th</sup> to 21<sup>st</sup> March 2018**

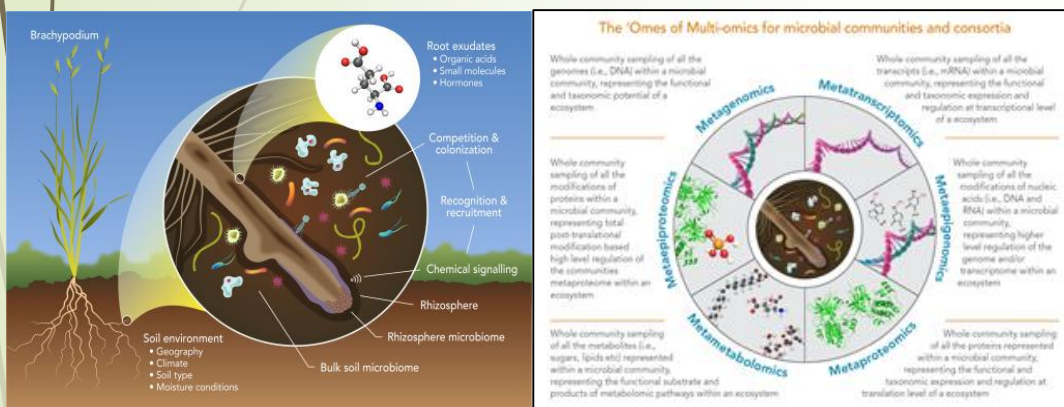


Image adopted from  
White et al (2017). Rhizosphere, DOI:10.1016/j.rhisph.2017.05.003

**National Training**  
on

**Rhizosphere microbiology: Classical to Omic approaches**

**Background**

Rhizosphere is the region of soil surrounding plant roots in which bacterial growth is stimulated. Several agriculturally important microorganisms (AIM's) inhabit the rhizosphere and interact with plant roots and support physiological requirement of plants through involvement in biogeochemical cycles. Apart from being the nutrient mobilizers for its partner plants, they also act as microbial cell factories for various secondary metabolites and plant growth promoting hormones which acts as protection shield for the plants against various abiotic and biotic stresses. During the green revolution various chemical inputs in the form of fertilizers and pesticides have been used to sustain the crop growth and to get the luxurious yields, but the long term indiscriminate application of these inputs has been serious threat to environmental health. Due to the environmental concerns, associated with the conventional agro-practices, the focus has tilted more towards adoption of ecological practices for sustaining crop growth. Among the various eco-friendly approaches manipulation of rhizo-microbiome by introduction of AIMS has been contributing towards more of environmentally benign agriculture. Hence, various scientific efforts were made for gaining insights of rhizo-microbiome. Particularly the introduction of next generation sequencing techniques has helped a lot in gaining in-depth understanding of various complexities and variability of this niche. Since the inception of ICAR-NBAIM, the bureau has done several phenomenal researches in the area of rhizosphere microbiology and developed several popular agro-inputs out of its findings. This national training will give us the opportunity to share our knowledge and experience in the area of rhizosphere microbiology. The course content of training is designed to enable the participants to gain orientation about the classical as well as latest techniques which are being utilized in this area.

**Objective**

To provide overview of the tools and techniques and its application in the field of rhizosphere microbiology.

**ICAR-National Bureau of Agriculturally Important Microorganisms**  
**(NBAIM), Mau, Uttar Pradesh-275103, India**

## – Methodology and Content

- The national training brings the platform to connect with the experienced resource experts of the bureau in the area of rhizosphere microbiology to share their experiences ideas and content. The programme will be an excellent opportunity for the participants for one to one mutual interactions with the resource experts and to gain hands on experience with the state of the art laboratories and research facilities of the bureau.
- A total of 16 sessions will be held consisting of lectures and hands on practical sessions which will personally be monitored and handled by the resource experts from bureau and other reputed national institutes.

Date	Programme
12.03.2018	Registration, inauguration and course overview, Visit to laboratories
13.03.2018	Relevance of soil biological properties as soil health indicator
14.03.2018	Culturable microbial diversity in rhizosphere – Structure, function and estimation
15.03.2018	Free living, associative and symbiotic microbes in the rhizosphere
16.03.2018	Nutrient cycling in rhizosphere and its transient manipulation
17.03.2018	Ecological monitoring of microbial inoculants for rhizosphere engineering
18.03.2018	Omics approaches to decipher soil microbial diversity
19.03.2018	Isolation of soil metagenome and its processing for library generation for Next Generation Sequencing
20.03.2018	Hands-on Training for data analysis: <ol style="list-style-type: none"><li>DNA fingerprinting and metabolic fingerprinting data and its interpretation</li><li>Interpretation of results of molecular identification of bacteria</li><li>Taxonomic and functional annotation of metagenome and its interpretation</li><li>ORF mining from the whole metagenome shotgun assembled data, its annotation and gene mining</li></ol>
21.03.2018	Evaluation and valedictory session

## About NBAIM

National Bureau of Agriculturally Important Microorganisms (NBAIM) is among the premier institutions of Indian Council of Agricultural Research (ICAR) for microbiological research in India. The Bureau is aimed to work for the collection, conservation and preservation of agriculturally important microbial cultures and their genomic resources for future needs. The Bureau is engaged in the cutting-edge research themes in microbial biotechnology and bioinformatics for the development of technologies, processes, protocols and products which will ultimately benefit Indian academics, research institutions and farmers. As part of our Human Resource Development (HRD) Programs, NBAIM successfully organized several National and international training programs on different areas of molecular microbial identification, characterization, molecular taxonomy, biocontrol, plant-microbe interactions and the applications of bioinformatics in gene mining since the inception of the Bureau.

Microbial research at NBAIM basically focuses in the areas of microbial diversity analysis from extreme habitats, biological control of plant diseases, microbe mediated plant growth promotion, plant-microbe interaction, quality microbial management system with special emphasis on biosystematics, DNA fingerprinting, microbial genomics and proteomics, metabolomics, stress tolerance in microbes and bioinformatics.

## Eligible participants

Research scholars, Post-docs, Students, Technical officers, Scientists/Assistant Professors/Lecturers or above, from any university/institute/organization working in the area of biological sciences.

## Fees for the training

Rs. 2500 per trainee for students/ research scholars and Rs. 5000/- for Technical officers/Scientists/Lecturers/Assistant Professors or above from Universities or Govt. Institutions. Rs. 10000 per trainee for researchers from private or non-government organizations.

## How to apply?

Eligible participants may write to the Director, ICAR-NBAIM in the given application forms along with their RESUME (not more than one page). Latest by 20<sup>th</sup> February, 2018. The selected candidates will be notified on 22<sup>nd</sup> February, 2018 by email.

## Applications should be sent to

1. Director ICAR-NBAIM, email id : [nbaimicar@gmail.com](mailto:nbaimicar@gmail.com)
2. Dr Arjun Singh's email id: [arjun.iari@gmail.com](mailto:arjun.iari@gmail.com)