

**ICAR SPONSORED CENTRE OF
ADVANCED FACULTY TRAINING IN
MICROBIAL MEDIATED SOIL NUTRIENTS
TRANSFORMATION**

INTRODUCTION

Soil microorganisms are very important as almost every chemical transformation taking place in soil involves active contributions from soil microorganisms. In particular, they play an active role in soil fertility as a result of their involvement in the cycling of nutrients like carbon and nitrogen, which are required for plant growth. For example, soil microorganisms are responsible for the decomposition of the organic matter entering the soil (e.g. plant litter) and therefore in the recycling of nutrients in soil. Certain soil microorganisms such as mycorrhizal fungi can also increase the availability of mineral nutrients (e.g. phosphorus) to plants. Other soil microorganisms can increase the amount of nutrients present in the soil. For instance, nitrogen-fixing bacteria can transform nitrogen gas present in the soil atmosphere into soluble nitrogenous compounds that plant roots can utilise for growth. These microorganisms, which improve the fertility status of the soil and contribute to plant growth, have been termed 'biofertilizers' and are receiving increased attention for use as microbial inoculants in agriculture. Similarly, other soil microorganisms have been found to produce compounds (such as vitamins and plant hormones) that can improve plant health and contribute to higher

crop yield. These microorganisms (called 'phytostimulators') are currently studied for possible use as microbial inoculants to improve crop yield.

Soil organic matter is vital in rebuilding depleted soil as it ensures a continuous energy source for soil biomass. Soil biomass, consisting of microbes, fungi, algae, protozoa *etc.* (1) transform organic molecules into mineral elements that are readily available to plants and (2) help maintain good soil structure by transforming organic matter into humus and producing compounds that cement small soil particles together, promoting both increased drainage and moisture retention.

Soil nutrient management involves not only the physical properties and mineral structure of the soil, but also the balance between soil pathogens and beneficial microbes. Beneficial microbes increase nutrient availability, reduce disease, reduce nutrient losses, and help degrade toxic compounds. Plants thrive or suffer, depending on the type of microbes in the rhizosphere (the area around the roots.) In a healthy rhizosphere, dominated by beneficial microbes, plant life and soil life work together to produce healthy plants. Conversely, in unhealthy soil, dominated by pathogenic microbes, optimum plant growth is unattainable.

TRAINEES

Teachers and researchers working in this area in SAUs, ICAR and other institutes not below the rank of Assistant Professor and equivalent

in the concerned subject are eligible. The number of participants will be limited to twenty.

COURSE OUTLINE

Crop nutrition- major nutrients - Microbial transformation of major nutrients- micronutrients transformation by microbes- Microbes involved in "N" transformation- Microbes involved in "P" transformation- Potash solubilizing microbes- Sulphur Oxidizers- Formulations of bioinoculants-carrier based and liquid bioinoculants- seed bacterization- compatibility of biofertilizers and biocontrol agents- organic farming- role of vermicompost in crop production- metagenomics.

DURATION

Twenty one days (2nd to 22nd September, 2015)

VENUE

Department of Agricultural Microbiology, Directorate of Natural Resource Management, Tamil Nadu Agricultural University, Coimbatore -641 003, Tamil Nadu.

TRAVEL

Travelling allowance will be met by the organizers. Depending on the availability of funds, reimbursement will be restricted to III tier AC/Sleeper class fares. No DA will be paid for the journey period.

FOOD & ACCOMMODATION

DA for the stay at Coimbatore during the training period will be paid as per the recently

revised rates of ICAR. Food and accommodation will be arranged at the University campus only for the participants on payment basis.

LAST DATE

Completed application form in the prescribed format through proper channel should reach the **Director, CAFT in Agricultural Microbiology** on or before **31.07.2015**.

COURSE DIRECTORS

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***Corresponding address**

ICAR SPONSORED CENTRE OF ADVANCED FACULTY TRAINING IN "MICROBIAL MEDIATED SOIL NUTRIENTS TRANSFORMATION" (2nd to 22nd September, 2015)

APPLICATION FORMAT

1. Name :
2. Designation :
3. Age and Sex :
4. Institute employed :
5. Total Service :
6. Experience :
7. a) Teaching :
 I) Undergraduate :
 ii) Postgraduate :
- b) Research :
8. Academic record :
9. Field of specialization :
10. Address for communication :
(Include mobile no., e-mail id & Fax nos.)
11. Accommodation : Required / Not required
12. Address of the sponsoring institute :

Affix Recent
Passportsize
Photo

Signature of the candidate

Recommendation of the
sponsoring authority

Signature and designation of
the sponsoring authority

ICAR Sponsored Centre of Advanced Faculty Training in MICROBIAL MEDIATED SOIL NUTRIENTS TRANSFORMATION

(2nd to 22nd September 2015)



Department of Agricultural Microbiology
Tamil Nadu Agricultural University
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