Short Course
On

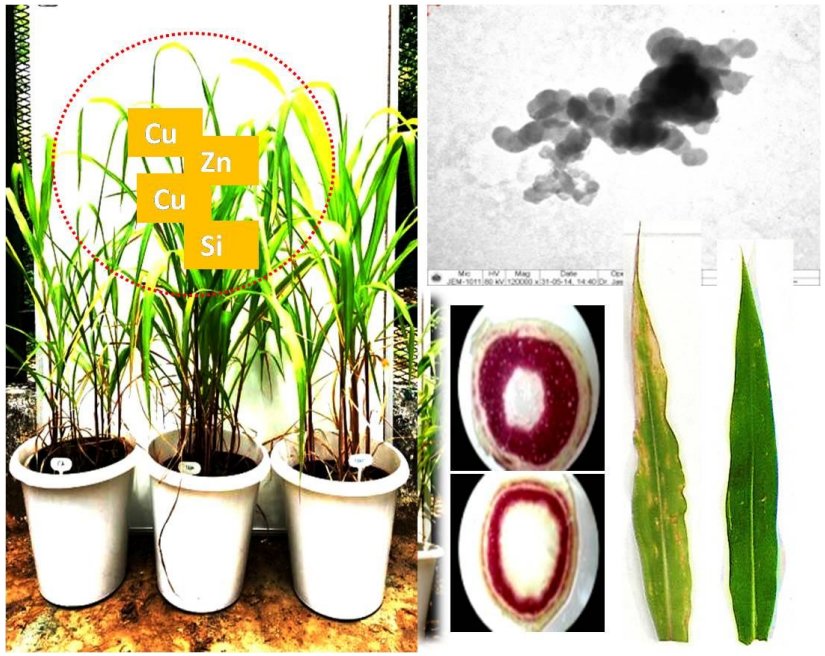
Synthesis and Characterization of Nanomaterials for Plant Protection and Growth

March 5-14, 2018

Sponsored by

Indian Council of Agricultural Research

New Delhi – 110 012



Organized by

Directorate of Research

Maharan Partap University of Agriculture and Technology

Udaipur-313 001, Rajasthan (India)

Important dates to remember

Last date for receipt of nomination	: Feb 15, 2018
Intimation to selected participants	: Feb 20, 2018
Confirmation by participants	: Feb 22, 2018
Course commencement	: March 5, 2018

Course Director

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Overview

Maneuvering or self-assembly of individual/ clusters of atoms or molecules into structures to create nano sized materials and devices with novel properties is known as nanotechnology. Top down (reducing the bulk size to nano scale) and bottom up (reorganize individual atoms and molecules into nanostructures) are two approaches to obtain/synthesize nano-materials for various applications. Largely, the word nanotechnology is used while referring the materials up to size of 100 nanometers. However, the size may extend with the obligation of size dependent novel properties. Novel properties with the size may be variable in biological, physical and chemical responses. Globally, crops are severely affected by diseases which lead to qualitative and quantitative losses in agriculture. Extensive uses of agrochemicals in agriculture to sustained yield and protection from diseases have evoked serious brain storming issues. Scientists and policy makers are gazing solutions to protect the environment by reducing the uses of agrochemicals while attaining the desired crop productivity to feed the ever increasing population. Intensive use of agrichemicals in agriculture adds to global warming and incites pathogenic microbes to evolve resistance. Therefore, researchers have got incited to search for novel approaches through nanotechnology to amend the structural and functional attributes of existing agrochemicals and/or to engineer novel agriculture formulations. Main approaches needed to make the agrochemicals environment friendly are (1) search of biogenic substances (bio-inspired approaches): provide biocompatibility and biodegradability (2) multi-targeted/multi-mode action of active component: delay the resistance development in microbes and (3) act smartly: up on microbial infection. These facts have raised attention to search biogenic materials for synthesis of nano-materials having potential benefits such as biocompatibility, biodegradability, wider biological activities and ecological safety.

Objectives

With the aforementioned outlooks, the major objectives of the training are:

- √ To familiarize the participants with the basics of nanotechnology
- √ To impart hands-on exposure of preparation and characterization of nanomaterials
- √ To explore and portrayal the application of nanomaterials in plant protection and growth

Core curriculum

Lectures and hands-on/ practical demonstrations to cover the basics of nanotechnology. Course will largely focus on preparation and characterization of nanomaterials and their application in plant protection and growth.

About participants

Scientists, Assistant Professors or equivalent and above working in ICAR Institutes/SAUs/KVKs/CAUs/Agriculture faculty of AMU, BHU, Vishwa Bharati and Nagaland University can apply for this training programme. The participant must have a Master's degree in agriculture and allied subjects. The number of participants will be 25 including institutional candidates (10%).

Procedure for participation

Nomination for the training should be sent online through CBP portal (http://cbp.icar.gov.in). The hard copy of successfully submitted online application along with a postal order/DD of Rs 50/- (Non refundable in favor of Director Research, MPUAT, payable at Udaipur) must be sent to the course director after approval of the competent authority. Applications received would be scrutinized and intimated to the participants.

General Information:

The travel expenses will be reimbursed as per entitlement (maximum to 2nd AC train fare). TA will be paid on production of tickets. Participants will also be provided free boarding and lodging. The participants will be accommodated in University guest house located in RCA campus.