CAFT 2017-18



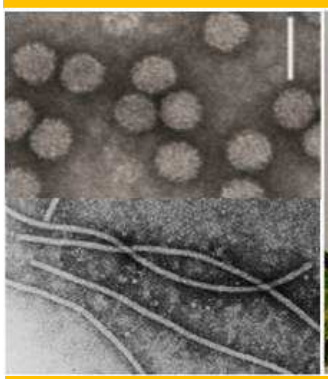
Training Programme

Use of biotechnological and conventional tools in understanding virus-host interactions

November 07-27, 2017

Course Director
Dr. Rashmi Aggarwal

Course Co-ordinators
Dr. Kajal Kumar Biswas
Dr. R.P. Pant, Dr. Saritha R.K




Centre of Advanced Faculty Training
Division of Plant Pathology
ICAR- Indian Agricultural Research Institute
New Delhi-110012

Training Programme
on
"Use of biotechnological and conventional tools in understanding virus-host interactions"

November 07-27, 2017

The Indian Agricultural Research Institute, New Delhi, invites applications from faculty members, and researchers of Indian universities / research institutions for a 3-week training programme on **"Use of biotechnological and conventional tools in understanding virus-host interactions"** sponsored by the Indian Council of Agricultural Research, New Delhi, scheduled from November 07-27, 2017.

Introduction

Advancement in molecular biology and biotechnology over the last three decades has enhanced our understanding of plant viruses, plant virus-host interaction and transport by insect vectors, interference with transmission, and the counter-defensive strategies used by viruses. Studies on plant viral genome sequence have redefined plant virus identification at a molecular level. For designing suitable breeding programmes against plant viruses, proper identification of the virus is essential which involves studies at biological and molecular level. With the availability of molecular tools it is now possible to characterize viruses correctly and thus identification of the viruses is more robust now.

Today, a rich source of genome sequence of plant viruses occurring in India is available, which has provided foundation for designing molecular tools for diagnosis and control of plant viruses in India. The complete genome sequence and infectious clones of many plant viruses are available. A number of specific biotechnological tools have recently been developed and used to study host-virus interactions for disease development and management. With the advent of next generation sequencing, more and more numbers of viral genomes and transcriptomes are now being sequenced and their bioinformatic analysis have enriched the knowledge of the interplay between plant and virus. The study of virus host interplay has thus become essential for developing alternative strategies for viral disease management. In SAUs and NARSs, there is a need to enhance the expertise in handling the modern-day biotechnological tools and therefore, this training program has been developed to promote knowledge and improve capabilities of the faculties of SAUs and NARSs.

Trainees

Teachers and researchers working in this area in SAUs, ICAR and other institutes not below the rank of Asst. Professor or equivalent in the concerned subject are eligible. The number of participants will be limited to twenty five.

Course Outline

The training schedule is divided into following parts:

(i) Lectures on principles of basic techniques used for plant virus studies (all participants): Biotechnological and conventional tools in understanding virus-host interaction in crop plants; Application of pathogenomics in host-microbe interactions; Virus-whitefly interaction for transmission of begomoviruses; Immunological assays used to study host-virus interaction; Development of agroinfectious virus clone in binary vector; Agroinfection and determination of pathogenecity; Electron microscopy as tool to study virus-host interaction; Cotton-begomovirus and whitefly interaction for development of leafcurl disease in cotton; Molecular cloning and sequence analysis of virus genome; Genomics research of plant viruses in India with special reference to begomoviruses; Host virus interaction, insect transmission and determination of pathogenecity of tospoviruses; Host virus interaction in perennial fruit crops; Host virus interaction in development of phytoplasma diseases in India; Biological indexing- a conventional tool for understanding virus-host interaction in citrus plants; Application of Confocal microscopy in understanding interaction of virus in plant cells; Interaction of Badnavirus with banana crops; DNA-Micro array and Next Generation sequencing in relation to virus host interplay.

(ii) Demonstration (all participants)
Demonstration of EM and Confocal microscopy; Detection of viruses by multiplex PCR and different forms of ELISA; Development of infectious clones of viral genomes; Transgenic construct development; *In vitro* plant transformation; *In planta* cotton transformation; Agromobilization, Agroinoculation, Agroinfiltration, Insect transmission, Mechanical (graft/crude sap) transmission; DNA Microarray; Real-time PCR.

(iii) Case studies (participants will be divided into three to four groups)
Detection, characterization and virus-host interaction of Cotton leaf begomovirus; Detection, characterization and virus-host interaction of Chilli leaf curl/tomato leaf curl begomoviruses; Detection, characterization and virus-host interaction of tospovirus; Detection, characterization and virus-host interaction of sap transmitted plant viruses

(iv) Interactive discussion and Quiz (Group wise)

Duration
Twenty one days (7th November to 27th November, 2017)

Venue
Advanced Centre for Plant Virology, Division of Plant Pathology, ICAR-Indian Agricultural Research Institute, Pusa Campus New Delhi-110012.

Travel
Travelling allowance will be met by the organizers; depending on the availability of funds, reimbursement will be restricted to II or III tier AC class fare.

Food & Accommodation
Food and accommodation will be arranged at the ICAR-IARI campus only for the participants and expenditure will be met from the training budget.

Last Date
Complete application form in the prescribed format through proper channel should reach the **Director, CAFT in Plant Pathology on or before 07-09-2017.**

Training organizers

Course Director:
Dr.Rashmi Aggarwal
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CAFT 2017-18

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

Application form for training programme on **"Use of biotechnological and conventional tools in understanding virus-host interactions"**, November 07-27, 2017.

1. Name of the applicant
2. Sex: Male/ Female
3. Present position
4. Age and date of birth
5. Communication Address
6. Phone Office Residence
7. Mobile
8. Fax
9. E-mail
10. Permanent address
11. Educational qualifications (from graduation onwards)

Degree	Subject	Year	Percentage of marks /Division	Name of the University/Institution

12. Research experience

a) Area of research

b) Publications during last five years (Please attach list)

c) Indicate the future plans on utilizing the technical expertise gained from the training programme in your research (Attach separate sheet if necessary)

d) Indicate whether you have attended for summer/winter school /training programme earlier

13. Dietary requirements:

14. Arrival information

a) Train Name / No.

b) From To

c) Date

d) Time

15. Departure information

a) Train Name / No.

b) From To

c) Date

d) Time

Date:
Place:

Signature of the Applicant

Endorsement & Seal of the Head of Department /Head of the Institution