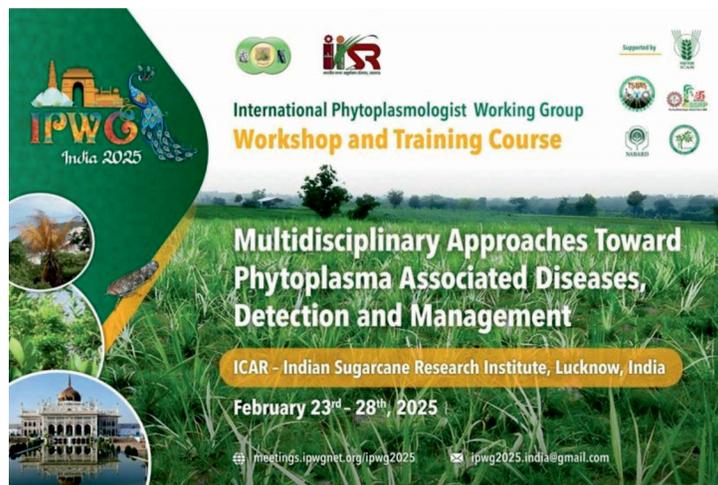


**International Training/Conference Report**

## International Phytoplasmologist Working Group Workshop and Training Course (IPWG-2025)

**Venue:** ICAR-Indian Institute of Sugarcane Research, Lucknow, Uttar Pradesh, India



### International training program on “Phytoplasma outbreaks: collect, preserve, identify phytoplasmas and their insect vectors” (February 23-24, 2025)



An international training program on “Phytoplasma outbreaks: collect, preserve, identify phytoplasmas and their insect vectors” was jointly organized by the International Phytoplasma Working Group and the Indian Sugarcane Research Institute, Lucknow, with the support of the Technology Society of Basic & Applied

Sciences, New Delhi. Twenty-five training delegates registered from six countries participated. The training covered a field trip for the collection of phytoplasma-infected brinjal little leaf, sesame phyllody, and sugarcane grassy shoot samples and potential insect vectors; molecular detection of phytoplasmas in plants



**Glimpses of the IPWG 2025 training program at ISRI, Lucknow, India (February 22-23, 2025)**

and insects; and utilization of bioinformatics tools for phytoplasma molecular identification.

The primary objective of this training program was to provide participants with basic and practical knowledge, along with hands-on training on the symptomatology, detection, identification and taxonomy of phytoplasmas, as well as the

identification of insect vectors responsible for phytoplasma transmission. In addition to lectures on various aspects of insect vector identification and transmission, updates on identification and characterization of phytoplasmas were delivered and discussed by senior plant pathologists from India, the United States of America, Italy and Germany.

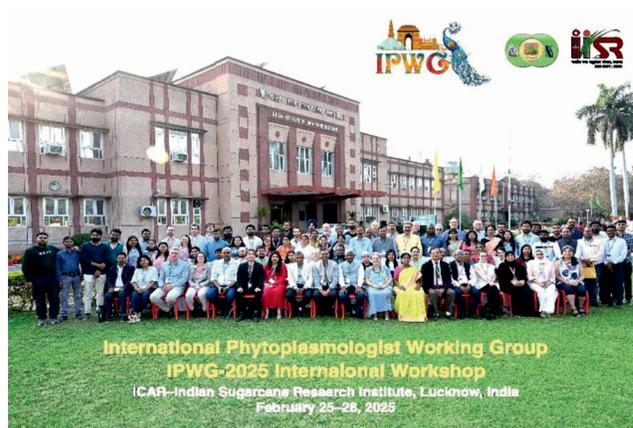
A technical manual was also prepared and printed incorporating relevant protocols involved in the collection of field samples, recording symptoms, DNA extraction from plant and insect samples, PCR/nested PCR assays, gel electrophoresis, amplicon detection, and phytoplasma DNA sequence analysis through bioinformatics tools. A lecture series was also given by senior experts (Dr. Assunta Bertaccini, Italy; Dr. Barbara Jarausch, Germany; Dr. Wei Wei and Dr. Valeria Trivellone, United States of America), and hands-on training of related experiments was demonstrated for molecular identification of detected phytoplasma.

This training program also introduced bioinformatics focusing on the analysis and interpretation of sequence data. All the trainees were requested to prepare and assess DNA sequences, performing sequence alignment with ClustalW, and using BLAST for sequence identification and annotation. The program also covered phylogenetic analysis with MEGA, as well as phytoplasma classification updates. Participants had gained experience and learnings in submitting annotated sequences to public repositories, equipping them with essential skills for genomic and molecular biology research.

The training manual will be very useful for the students and young career scientists involved in phytoplasma and phloem-limited microorganisms' research and also serve as good resource material. Each participant got the opportunity to discuss its individual queries with the training experts. Overall, the IPWG training program was a grand success.

### **International Workshop on “Multidisciplinary Approaches toward Phytoplasma-Associated Diseases Detection and Management” (February 25-28, 2025)**

Besides the training program, an international workshop on “Multidisciplinary approaches toward phytoplasma-associated diseases detection and management” was also organized at the Indian Institute of Sugarcane Research, Lucknow, from 25-28 February 2025. Nearly 136 delegates from 16 countries participated in the workshop and discussed their research findings on the latest updates in the



distribution, diagnosis, epidemiology, and management of phytoplasma associated diseases infecting important agricultural crops worldwide. There were nine technical sessions divided into 4 days: omics, new detection tools, interactions, country status, epidemiology and control, and special sessions on phytoplasma diseases in sugar and citrus crops, and palm trees. All the sessions were actively attended, and all the delegates participated in the question and answer session for each presentation. Six online presentations by delegates of the United States of America, India, Russia and Italy were also organized in different technical sessions of the workshop.

A cultural evening was organized on the 25<sup>th</sup> of February, and a social gala dinner was organized on the 27<sup>th</sup> of February 2025. A post-workshop tour to the Taj Mahal, Agra, India, was also organized for the foreign delegates.

All the papers accepted for the IPWG workshop have been published in the *Phytopathogenic Mollicutes* journal (SCOPUS indexed) June 2025 (Vol. 15, No. 1, 2025) issue and distributed to the workshop-registered delegates. An IPWG scientific committee meeting was held on 26<sup>th</sup> of February 2025 at the Indian Sugarcane Research Institute, to discuss the present and future activities and progress of the IPWG group.

This workshop was a grand success and provided updated knowledge and literature on the geographic distribution of phytoplasma diseases worldwide, which would help in focusing specific targets on the important diseases for developing their management in respective countries and also alert about emerging phytoplasma diseases of quarantine concern. The



**Glimpses of the IPWG 2025 Workshop at ISRI, Lucknow, India (February 25-28, 2025)**

discussion on diagnosis, transmission, epidemiology, host-pathogen interactions and management would be helpful for rapid detection of phytoplasma diseases and accurate identification of both emerging and known phytoplasmas for their effective management strategies.

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