The XXIII Conference of the International Organization of Citrus Virologists.

16-20th March, 2025

Mildura Australia

Program

IOCV XXIII CONFERENCE
MILDURA, AUSTRALIA 2025

THE INTERNATIONAL ORGANIZATION OF CITRUS VIROLOGISTS - IOCV

Welcome

Welcome to the XXIII Conference of the International Organization of Citrus Virologists (IOCV). The IOCV is the one organization dedicated to the study and control of diseases of citrus. There is a focus on virus and virus-like pathogens, but we encourage discussion on all citrus diseases and related topics.

This week, we are meeting in Mildura, Australia on the traditional lands of the Latji Latji, Ngintait and Nyeri Nyeri people, who have been custodians of this land for thousands of years.

Mildura is a regional city located on the Murray River in the north-western corner of Victoria. The first Europeans arrived in the area in 1857. By the late 1800's, the area had become an irrigation settlement, led by the Chaffey brothers from Canada.

Mildura remains surrounded by irrigated horticulture and is the largest city in the Murray Valley (also known as Sunraysia), one of the largest citrus growing regions in Australia.

The Sunraysia is also the home of the Auscitrus propagation scheme, the only provider of certified propagation material to industry in Australia, and the Dareton Primary Industries Institute, a major national research hub for citrus run by the New South Wales Department of Primary Industries and Regional Development (NSW DPIRD). We will be visiting these locations on the mid-conference tour.

We would like to thank our conference sponsors: Auscitrus, Horticulture Innovation Australia, the Australian Centre for International Agricultural Research and Mildura Rural City Council. We also thank item sponsors Syngenta and Victorian Citrus Farms.

We hope you enjoy your time in Australia, and we sincerely hope that this conference was worth the trip!

Best wishes,

Nerida Donovan (NSW DPIRD)

XXIII IOCV Conference Chair and IOCV Chair

On behalf of the XXIII IOCV Conference Committee

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Australian Centre for International Agricultural Research

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XXIII Conference of the
International Organization of Citrus Virologists
16-20 March 2025, Mildura, Australia

Conference Program

Mildura Arts Centre, 199 Cureton Avenue, Mildura

Sunday 16th March

1400 **Registration open**

1600 **Welcome Reception**

1700 **Welcome Address and Cultural Ceremony**

1800 Close of registration and Welcome Reception

Monday 17th March

Session 1 - Opening and Huanglongbing I

Chair: Nerida Donovan

830 **Opening and Acknowledgement of Country**
Nerida Donovan and Councillor Healy

900 **Keynote: Diagnostic challenges for plant health surveillance in extremely remote locations. The part that huanglongbing has played through 35 years of Northern Australia Quarantine Strategy plant health surveys**
Richard Davis

930 **Huanglongbing progress, control practices, and current situation in California**
Georgios Vidalakis

945 **Proposed integrated huanglongbing (HLB) management for citrus in Florida**
Ozgur Batuman

1000 **Citrus orchards for profitability under HLB and natural hardships - the Texas experience**
Mani Skaria

1015 **The forgotten disease: why CTV resistance is critical in the battle against HLB**
Malcolm Smith

1030 Morning tea

Session 2 - Huanglongbing II

Chair: Georgios Vidalakis

1100 **Keynote: Strategies to develop genetic solutions to citrus huanglongbing disease**
Chandrika Ramadugu

1130 **Citrus-relative genotypes as potential sources of resistance to huanglongbing (HLB)**
Monica Neli Alves

1150 **National experimental program for HLB-tolerant rootstock evaluation in Australia and Indonesia**
Tahir Khurshid

1205 **Efficacy of oxytetracycline (OTC) trunk injection for huanglongbing (HLB) management of Rio Red Grapefruit trees in Texas**
Madhurababu Kunta

1220 Questions

1230 Lunch

Session 3 - Mid-conference tour

1330 Tours of the Dareton Primary Industries Institute and Auscitrus propagation scheme

1700 Return to Mildura

Tuesday 18th March

Session 4 - Huanglongbing and other bacterial diseases

Chair: Mengji Cao

830 **Keynote: CVC and HLB - history, current situation and effectiveness of management practices**
Silvio Lopes

900 **Effector CLas0185 targets methionine sulphoxide reductase B1 of *Citrus sinensis* to promote multiplication of '*Candidatus* Liberibacter asiaticus' via enhancing enzymatic activity of ascorbate peroxidase 1**
Changyong Zhou

915 **Enhancing qPCR detection of '*Candidatus* Liberibacter asiaticus' with a novel synthetic internal standard**
Sohrab Bodaghi

930 **Characterization of a new RNA virus isolate of citrus, NMV-M/CFL and exploration of its potentials for HLB control**
Yongping Duan

945 **Evaluation of the spatial and temporal distribution of '*Candidatus* Liberibacter africanus' in citrus host plants**
Hans Maree

1000 **Citrus tristeza virus (CTV) vectors as an epigenetic tool to identify therapeutics to mitigate huanglongbing (HLB)**
Choaa El Mohtar

1015 Questions

1030 Morning tea

Session 5 - Viruses I

Chair: Andrew Geering

1100 **Looking for resistance to tristeza decline in genetically modified sour orange through RNA interference against the three viral silencing suppressors**
Leandro Peña

1115 **Testing for potential of citrus tristeza virus (CTV) hybrid T36-VT genotype emergence in mixed infections using engineered infectious clones**
Choaa El Mohtar

1130 **A T30 genotype of CTV causes quick decline of citrus on sour orange rootstocks in California**
Subhas Hajeri

1145 **Transmission of citrus yellow vein clearing virus in California**
Ray Yokomi presented by Subhas Hajeri

1200 **ClBeclin1 positively regulates citrus defence against citrus yellow vein clearing virus through mediating autophagy-dependent degradation of ClAPX1**
Yan Zhou

1215 **Citrus vein enation virus encodes two distinct suppressors of RNA silencing**
Arunabha Mitra

1230 Lunch / Poster session 1

Session 6 - Viruses II

Chair: Mark Jackson

1330 **Investigating the biology of citrus yellow vein-associated virus (CYVaV): insights from a California field trial**
Arunabha Mitra

1345 **Unlocking viral synergism: interactions between citrus vein enation virus and citrus yellow vein-associated virus**
Stacey Comstock

1400 **Detection of *Brevipalpus* transmitted viruses in multiple hosts in California, Florida and Hawaii enhance the possibility of citrus leprosis disease reemergence in United States**
Avijit Roy

1415 **The role of cysteine-rich protein in enhancing mandarivirus infectivity and pathogenicity**
Xiaofei Liang

1430 **Characterization of two distinct viral suppressors of RNA silencing encoded by citrus tatterleaf virus**
Arunabha Mitra

1445 Afternoon tea

Session 7 - What's in a name?

Chair: Glynnis Cook and Juliana Freitas-Astúa

1515 **Keynote: Binomial nomenclature for virus and viroid species**
Juliana Freitas-Astúa

1530 **Discussion session**

Chaired by Glynnis Cook and Juliana Freitas-Astúa

1630 **IOCV Business Meeting**

1800 Close

Wednesday 19th March

Session 8 - Programs

Chair: Silvio Lopes

830 **Keynote: Whatever? From Blowfly to Huanglongbing**
George (Andrew) Beattie

930 **Safeguarding California citrus for over 65 years: Innovations and achievements of the Citrus Clonal Protection Program**
Georgios Vidalakis

945 **The journey of post entry quarantine of citrus in South Africa**
Elize Jooste

1000 **Dynamics of Pakistan's citrus sector – threats and challenges**
Muhammad Jamroz Khan

1015 **History and evolution of the Auscitrus budwood scheme**
Nerida Donovan

1030 Morning tea

Session 9 - Viruses and Viroids

Chair: Grant Chambers

1100 **Rootstock sensitivity to citrus viroids**
Glynnis Cook

1115 **Determining citrus viroid prevalence in Australia with multiplex RT-qPCR assays**
Grant Chambers

1130 **Unveiling the role of the terminal right domain in modulating accumulation and pathogenicity in citrus exocortis viroid**
Mengji Cao

1145 **Current and future research of viral and other graft-transmissible diseases of citrus in Pakistan**
Sagheer Atta

1200 **Viruses and viroids in citrus plants: insights from historic Latin American herbarium samples**
Juliana Freitas-Astúa

1215 **Growth evaluation of citrus rootstock seedlings and graft-transmission of citrus viruses and viroids in different rootstocks**
Madhurababu Kunta

1230 Lunch / Poster session 2

Session 10 - Diagnostics I

Chair: Hans Maree

1330 **Optimizing RNA extraction protocols for reliable detection of citrus viruses and viroids using RT-qPCR**
Rachelle Bester

1345 **Innovative on-site sample preparation and detection methods for citrus pathogens using micro-homogenizers and RT-LAMP assays**
Sohrab Bodaghi

1400 **Development and validation of a multiplex real-time RT-PCR assay for the detection of three dichoraviruses associated with citrus leprosis disease syndrome**
Avijit Roy

1415 **A real time PCR array for rapid detection of multiple citrus pathogens**
Manjunath Keremane presented by Chandrika Ramadugu

1430 **Development and validation of a suite of e-probes for electronic diagnostic nucleic acid analysis (eDNA) for 20 graft-transmissible pathogens of citrus using MiFi® and testing novice trees**
Kitty Cardwell

1445 **Point of care detection of CTV and HLB in citrus: applying work undertaken in other crops**
Nitin Mantri

1500 Afternoon tea

Session 11 - Diagnostics II

Chairs: Fiona Constable and Daniel Bogema

1530 **Keynote: Diagnostic innovations for different applications**

Daniel Bogema

1550 **Discussion session**

1630 Close

1800 **IOCV 2025 Conference Dinner**

Powerhouse Hall, Hugh King Drive, Mildura

Thursday 20th March

Session 12 - Other citrus pathogens

Chair: Nitin Mantri

900 **Keynote: Phytoplasmas affecting citrus**
Fiona Constable

930 **Unravelling black core rot in Australian citrus**
Zali Mahony

945 **Altering volatiles to control citrus pests and diseases**
Berta Alquézar

1000 **Effects of temperature and water content for storage of citrus rootstock seeds**
Paulina Quijia-Lamiña

1015 Questions

1030 Morning tea

Session 13 - Diagnostics III

Chair: Subhas Hajeri

1100 **Global sanitary diagnosis of AlUla citrus orchards**
Lorène Belval

1115 **Improved shoot-tip grafting (STG) technique for pathogen elimination of citrus germplasm**
Paulina Quijia-Lamiña

1130 **Towards Point-of-Care Testing with CRISPR/Cas-Based Assays in the Field to Detect Exotic Pathogens in Citrus and Improve Preparedness**
Frank Bedon

1150 **Light manipulation under controlled environment agriculture conditions affects viral symptom expression in biological indexing**
Stacey Comstock

1205 Lunch

Session 14 - Vectors and Concluding remarks

Chair: Changyong Zhou

1300 **Keynote: Managing the psyllid vector of the huanglongbing pathogen**
Jawwad Qureshi

1330 **Studying the biodiversity of Australian native insect species and associated microbiomes around citrus**
Michael Edwards

1345 ***Murraya* spp. as the alternative host of *Candidatus* Liberibacter asiaticus and the insect vector, *Diaphorina citri***
Siti Subandiyah

1400 **Future conference announcements**

1415 **Concluding remarks and acknowledgments**

1430 Conference close

Poster Session 1 - Tuesday 18th March

MIQE Guidelines: A framework for ensuring accuracy and reliability in qPCR-based citrus pathogen detection
Sohrab Bodaghi

Development of a point-of-care field detection kit for huanglongbing (HLB) using aptamer-based technology
Divya

Improving plant indicator growth for bioindexing in citrus germplasm programs
Georgios Vidalakis

Detection of citrus-associated rhabdovirus in Australia using high throughput sequencing
Grant Chambers

First report of citrus vein enation virus in lemon trees in commercial orchards of Tucumán, Argentina
Maria Florencia Palacios

Poster session 2 - Wednesday 19th March

Development of qPCR markers for assessing resistance and susceptibility to *Phytophthora* spp. in new Citrus germplasm
Lourdes Carmona

Exploring the boundaries of engineering citrus yellow vein clearing virus genome by inserting an exotic gene cassette
Sydney Helm Rodriguez presented by Subhas Hajeri

Strategies to identify or engineer mild cross-protecting strains of citrus tristeza virus to safeguard the Australian citrus industry
Mark Jackson

Citrus exocortis viroid symptom mitigation using biochar and bokashi fermented citrus fruit waste as potting media amendments
Michelle Ortiz

Effect of rootstocks on the development of huanglongbing disease on lemon
Sri Widyaningsih