The International Society for Plant Pathology promotes the world-wide development of plant pathology and the dissemination of knowledge about plant diseases and plant health management

PROMOTING WORLD-WIDE PLANT HEALTH AND FOOD SECURITY

INTERNATIONAL SOCIETY FOR PLANT PATHOLOGY

ISPP NEWSLETTER

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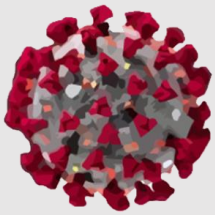
IN THIS ISSUE:

How is COVID-19 affecting plant pathologists?



In the sixth month of this series, Christina Supramaniam shares her story on: "How is the COVID-19 pandemic impacting your research, teaching, outreach and lives? Share your stories with our ISPP community on how you and your family and colleagues are coping. Send a few lines through the online form to share in the ISPP Newsletters over the next few months!

Christina Supramaniam, University of Nottingham, Malaysia

My PhD student and I are investigating a time-course role of soil microbiome for the suppression of basal stem rot disease in young oil palm treated with antagonistic fungi. We planted more than 200 seedlings in the shade house in November 2019 and wanted to collect data periodically every 3 months starting in December 2019 until September 2020. When Malaysia started the Movement Control Order on 18 March 2020, our access to campus and shade house was denied and all of our plants died, subsequently. We have limited data and it is daunting to repeat the 9 month experiment because of limited resources. We resort to analysing 0 and 3 month data and find the biodiversity of soil bacteria and fungi as opposed to 0, 3, 6 and 9 months. The entire experiment will be repeated once the restrictions related to COVID-19 is no longer in place.

Postponed conference due to COVID-19

In order to protect the health, safety and well-being of our international community from COVID-19 some conferences and workshops have been postponed or changed to virtual meetings. Affected meetings with cancellations or new dates, where confirmed, are listed here. These changes have also been updated in the Coming Events list. Please let me know of any date changes that I may have missed.

- 13th Arab Congress of Plant Protection, has been postponed to 31 October - 5 November, 2021.

ROCK-EATING BACTERIA AND FUNGI TO ENSURE FOOD SECURITY

JULES BERNSTEIN, UC RIVERSIDE NEWS, 23 SEPTEMBER 2020

University of California (UC) Riverside is leading an effort that could help ensure food security and improve the worst effects of climate change by studying rock-eating bacteria and fungi. These microbes break apart chemical bonds in deep underground layers of rocks, then die and release nutrients such as nitrogen and phosphorus into the soil. Aside from fertiliser, this is the main way soil obtains these nutrients, and agriculture is dependent on the process.

Microscopy image of Tympanidaceae, a fungus found at a research sample site (Photo credit: Danny Newman and Mia Maltz/UCR).

"Despite how critical they are for food production, our general knowledge of microbes in soils is so lacking," said Emma Aronson, associate professor of microbiology and plant pathology.

A new $4.2 million National Science Foundation grant aims to close the gap in scientists' understanding. It will enable scientists to install sensors in the ground at five different sites and monitor the microbes' activity for the next five years. The sensors will measure, among other things, carbon dioxide concentration at these sites throughout the five years of the study.

One application of the research could include a tool to help trap carbon in the ground. Researchers may be able to identify some deep soil bacteria that are better at extracting nutrients from rocks than others. Those bacteria would allow plants to become larger and, if they have extra nutrients, take up more carbon that would otherwise end up in the atmosphere, trapping heat. Bacteria that encourage plant growth also offer the potential for increased agricultural yields, and more food, which is critical given the potential for decreased crop production as the climate changes.

A chief benefit of the project is its interdisciplinary nature, allowing collaboration between microbiologists, ecologists, geoscientists, and soil and rock scientists.

Compendium of Pea Diseases and Pests, Third Edition – new book

Edited by Robert M. Harveson, Julie S. Pasche, Lyndon D. Porter, Weidong Chen, and Mary Burrows

First update in 20 years, with contributions from nearly 50 scientists. Includes 205 high-quality images, 189 new to this edition. New sections on the histories of pea usage and production and the botany of the pea plant. Coverage of all types of peas, including those that utilise both pods and seeds.

For more information on this book please visit APS Press.

What can plants teach us about pandemics?

The 13th episode of Plantopia podcast series is about tracking, testing, and stopping viruses that would otherwise wreak havoc within a population is the everyday work for some plant pathologists.

Listen here.

ONE CGIAR GLOBAL WEBINAR SERIES

The One CGIAR webinar series will cover a number of timely topics, including:

- Applications of genome editing for crop and livestock improvement across CGIAR: An overview of the ongoing work in various CGIAR centers providing context for and examples of agricultural applications of the technology in plant and animal agriculture.
- Regulation of genome edited plants and animals: Exploring considerations that may impact how or when genome edited products may trigger regulatory oversight, with examples from various countries.
- Path to commercialisation for genome editing crops: Addressing considerations of environmental and food safety for broad categories of genome edited plants (SDN1, SDN2 and SDN3). Exploring issues related to commercial release of genome edited plants, such as stewardship, trade, and regulatory and policy harmonisation.

Webinar 3 Applications of Genome Editing in Agriculture: CGIAR Fo-cus on Livestock and Aquaculture, 6 Oct 2020

Webinar 4 Regulation and Genome Edited Plants, 13 Oct 2020

Webinar 5 Path to Commercialisation for Genome Edited Crops, 20 Oct 2020

We will do our best to include as many questions as possible during the dedicated Q&A session. We, however, encourage all participants to send their questions in advance as these will be useful to facilitate the guided panel discussions, which are the cornerstone of the program. Please send your questions, comments and feedback to p.bhatnagar@cgiar.org.

MANAGING MYCOTOXINS IN LOW-RESOURCE SETTINGS

This is the final webinar in a 3-part series which introduces participants to international agriculture and development and provide them with an overview of key concepts and tools that will aid in international agriculture collaborations.

Part 3, Managing mycotoxins in low-resource settings, will draw upon experiences in Africa and India to discuss five aspects of mycotoxin management:

- surveys and surveillance
- crop genetics and breeding
- post-harvest grain management
- grain sorting
- the links between soil health, plant health and human health.

October 12 | 11:30 a.m. Central Daylight Time

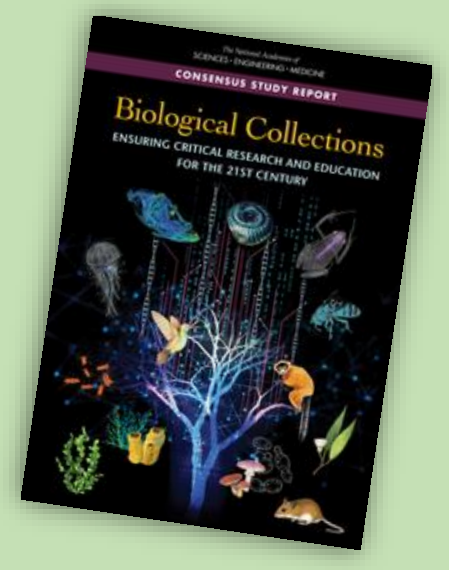
Price: $49 / Free for APS Members

Speaker: Rebecca Nelson

Register for Part 3.

BIOLOGICAL COLLECTIONS: ENSURING CRITICAL RESEARCH AND EDUCATION FOR THE 21ST CENTURY

Biological collections are a critical part of the nation's science infrastructure and a fundamental resource for understanding the natural world. Without enhanced strategic leadership and investments in their infrastructure and growth many biological collections could be lost. This new report recommends approaches for biological collections to develop long-term financial sustainability, advance digitisation, recruit and support a diverse workforce, and upgrade and maintain a robust physical infrastructure in order to continue serving science and society.



To download or read the report online for free as well as access a video recording of the key findings (30 min), please visit The National Academies of Sciences Engineering Medicine website.

NEWLY IDENTIFIED GENE GRANTS TOMATOES RESISTANCE TO BACTERIAL SPECK DISEASE

EMILY HUMPHREYS, BOYCE THOMPSON INSTITUTE NEWS, 31 AUGUST 2020

Bacterial speck disease, which reduces both fruit yield and quality, has been a growing problem in tomatoes over the last five years. Because the culpable bacterium, *Pseudomonas syringae*, prefers a cool and wet climate, crops in places such as New York State have been particularly susceptible.

A tomato plant with the newly discovered Ptr1 gene (left) is resistant to the race 1 strain of bacterial speck disease, while a tomato plant without the gene (right) is susceptible (Photo credit: Greg Martin).

Recent research at the Boyce Thompson Institute headed by postgraduates Carolina Mazo-Molina and Samantha Mainiero and overseen by faculty member Greg Martin may change this. Published in the August issue of *The Plant Journal*, their work has uncovered the first known gene to impart resistance to a particular strain, called "race 1", of the bacterium causing speck disease.

Another resistance gene, Pto, which provides resistance to race 0 strains of *Pseudomonas syringae*, has been used for over 25 years. However, crops remain vulnerable to the increasingly common race 1 strain, resulting in significant losses for growers.

With the discovery of this new gene, which the researchers have dubbed Pseudomonas tomato race 1 (Ptr1), damage caused by bacterial speck disease may soon become a thing of the past.

"We are working with plant breeders now to introduce the Ptr1 gene into tomato varieties that already have Pto," explains Martin, who is also a professor at Cornell University's School of Integrative Plant Science. "If you do that, then you will have resistance to all known bacteria that cause speck disease."

Read more.

HOSTILE FUNGUS FOUND TO PROTECT AGAINST CEREAL DISEASES

UNIVERSITY OF WESTERN AUSTRALIA NEWS, 8 SEPTEMBER 2020

A fungus that devastates many crops can act as a powerful biocontrol agent against fungal diseases in cereal plants when modified by mycovirus infection, according to research by The University of Western Australia's Institute of Agriculture and Huazhong Agricultural University in China.

The world-first findings, published in *The ISME Journal*, show that – when infected by a 'mycovirus' (a virus that infects a fungus) – the fungus Sclerotinia was debilitated and therefore no longer a threat to crops.

The mycovirus-debilitated Sclerotinia readily grew as a beneficial 'endophyte' (harmless fungus) within plants of diverse cereal crops including wheat, rice, barley and maize.

The study, led by Huazhong Agricultural University Professor Dahong Jiang, found that the beneficial endophyte effectively protected cereal plants against multiple fungal diseases and increased the growth and yield of crops in-field.

It reduced Fusarium Head Blight in wheat by up to 60 per cent in multiple field trials in China, and also provided effective protection against rice blast and wheat stripe rust diseases.

Sclerotinia is commonly regarded as a damaging pathogen (disease-causing fungus) of non-cereal crop plants in which it causes multimillion dollar losses worldwide every year.

Study co-researcher, UWA School of Agriculture and Environment and Institute of Agriculture Professor Martin Barbetti, said the discovery was "the silver bullet we have all been looking for".

"Amazingly, the risk from virulent Sclerotinia was also simultaneously greatly reduced on normally susceptible non-cereal crops like canola," Professor Barbetti said.

"This is because the mycovirus in the debilitated Sclerotinia endophyte meant it was no longer able to cause serious disease in non-cereal crops."

Professor Barbetti said there was now huge potential to exploit the same principle and discover new mycovirus-disabled fungal biocontrol agents to address other devastating crop-fungal disease combinations.

"Debilitated biocontrol agents like this can be applied as a beneficial seed treatment, while avoiding the risk of in-field release of virulent fungal pathogens," he said.

STATE OF THE WORLD'S PLANTS AND FUNGI VIRTUAL SYMPOSIUM

State of the World's Plants and Fungi Virtual Symposium
13 – 15 October 2020
Online worldwide
FREE to register
kew.org/sotwpf-symposium

The State of the World's Plants and Fungi Virtual Symposium brings together experts online to discuss findings presented in the report and to motivate actions for protecting and sustainably using the world's plant and fungal diversity.

Programme

The symposium is based around six themed sessions in which invited experts will address a topical question through presentations and a Q&A panel discussion:

- Collections – Why are they important for averting biodiversity loss? What should we do to help them evolve to enable us to address future challenges?
- Biodiversity loss – What is driving the extinction rates?
- Plant and fungal uses – How can we maximise the use of plant and fungal diversity to meet global challenges?
- Genomics – How do we embrace novel approaches to studying plant and fungal biodiversity?
- Commercialisation – How do we optimise the economic benefits of plant and fungal biodiversity in recognition of different stakeholders' needs?
- Policies – How can we work globally to respect and enable Access and Benefit-Sharing and CITES regulations, while increasing the diversity of plants and fungi being studied?

View the programme.

Registration – FREE

To help ensure that the symposium is as open and inclusive as possible, we're making the event free to attend. We rely on donations to help us continue our scientific research and preserve our collections and would welcome your voluntary contributions to support our work.

Register now.

CURRENT VACANCIES

No current vacancies.

ACKNOWLEDGEMENTS

Thanks to Grahame Jackson, Greg Johnson, and Jan Leach for contributions.

COMING EVENTS

International Seed Testing Association Seed Health Workshop: Seed health methods to detect fungi, bacteria and viruses
Postponed – date to be announced
Pretoria, South Africa
Website: www.seedtest.org/en/event-detail---0--0--0--111.html

7th International Bacterial Wilt Symposium
3 November - 7 November, 2020
Montevideo, Uruguay
Website: 7ibws2020.fq.edu.uy

7th International Conference of Pakistan Phytopathological Society
29 November - 1 December, 2020
University of Agriculture Faisalabad and Ayub Agricultural Research Institute, Faisalabad, Pakistan
Website: pakps.com/web/7icpps

4th International Conference on Global Food Security
6 December - 9 December, 2020
Montpellier, France
Website: www.globalfoodsecurityconference.com

10th International IPM Symposium
15 March - 18 March, 2021
Denver, Colorado, USA
Website: ipmsymposium.org/2021

16th Congress of the Mediterranean Phytopathological Union
20 April - 22 April, 2021
Limassol, Cyprus
Website: cyprusconferences.org/mpu2020

7th International Congress of Nematology
25 April - 30 April, 2021
Antibes Juan-les-Pins, France
Website: www.alphavisa.com/icn/2020/index.php

International Symposium on Cereal Leaf Blights
19 May - 21 May, 2021
Hammamet, Tunisia
Website: www.isclb2021.com

4th International *Erwinia* Workshop
5 June - 6 June, 2021
Assisi, Italy
Website: www.icppb2020.com

14th International Conference on Plant Pathogenic Bacteria
6 June - 11 June, 2021
Assisi, Italy
Website: www.icppb2020.com

Joint 18th International *Botrytis* Symposium & 17th International *Sclerotinia* Workshop
7 June - 11 June, 2021
Avignon, France
Website: colloque.inra.fr/botrytis-sclerotinia-2020

International Plant Health Conference "Protecting Plant Health in a changing world"
28 June - 1 July, 2021
Paasitorni Conference Centre, Helsinki, Finland
Website: www.fao.org/plant-health-2020/events/events-detail/en/c/1250609/

International Phytobiomes Conference 2021
14 September - 17 September, 2021
Denver, Colorado, USA
Website: phytobiomesconference.org/

13th Arab Congress of Plant Protection
31 October - 5 November, 2021
Le Royal Hotel, Hammamat, Tunisia
Contact: Dr. Asma Jajar, Chairperson of Organising Committee info@acpp-aspp.com
Website: acpp-aspp.com

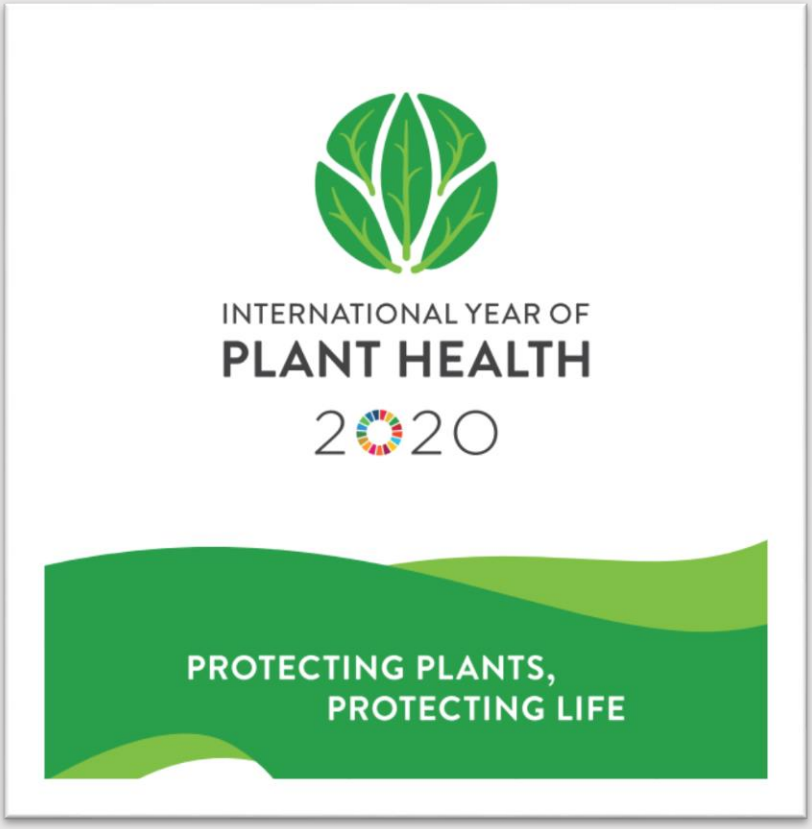
11th Australasian Soilborne Diseases Symposium
Mid-late 2022
Cairns, Queensland, Australia
Website: asds2020.w.yrd.currinda.com

XX International Plant Protection Congress
10 June - 15 June, 2023
Athens, Greece
Website: www.ippcathens2023.gr

12th International Congress of Plant Pathology (ICPP2023)
20 August - 25 August, 2023
Lyon, France
Website: www.icpp2023.org

9th ISHS International Postharvest Symposium
11 November – 15 November, 2024
Rotorua, New Zealand
Website: scienceevents.co.nz/postharvest2024

INTERNATIONAL SOCIETY FOR PLANT PATHOLOGY (ISPP)



WWW.ISPPWEB.ORG

The ISPP List is an e-mail list server which broadcasts messages and announcements to its subscribers. Its goal is to facilitate communication among members of the International Society for Plant Pathology and its Associated Societies. Advertised vacancies in plant pathology and ISPP Newsletter alerts are also sent to members of the ISPP List.

In accordance with the guidelines and recommendations established by the new EU General Data Protection Regulation 679/2016 (GDPR), the International Society for Plant Pathology has created a Privacy Information Notice containing all the information you need to know about how we collect, use and protect your personal data.

This policy explains when and why we collect personal information about our users, how we use it, the conditions under which we may disclose it to third parties, how we keep it safe and secure and your rights and choices in relation to your personal information.

Should you need further information please contact business.manager@issppweb.org

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