

PROMOTING WORLD-WIDE PLANT HEALTH AND FOOD SECURITY

INTERNATIONAL SOCIETY FOR PLANT PATHOLOGY

ISPP NEWSLETTER

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Bacteria, fungi interact far more often than previously thought

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VOTING BY COUNCILORS ON BIDS FOR ICPP2028

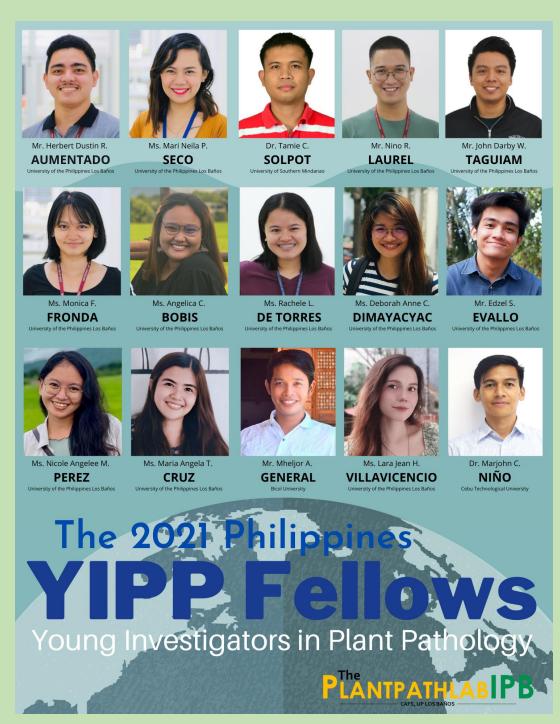
BRENDA WINGFIELD, SECRETARY GENERAL ISPP

Over the last few weeks ISPP Councillors have been voting to choose the successful Society bid to host the International Congress of Plant Pathology in 2028 (ICPP2028). Four Societies submitted bids - the Australasian, Canadian, Hellenic and Korean Societies.

Voting in the first round was completed on 31 October and as no Society gained more than two thirds of votes, a second round of voting will occur during November - with ISPP Councillors asked to choose between the two Society bids that obtained the most first round votes. In the second round, a simple majority will determine the preferred bid.

YOUNG FILIPINO RESEARCHERS RECOGNISED AS "YOUNG INVESTIGATORS IN PLANT PATHOLOGY" FELLOWS

MARK ANGELO BALENDRES. UNIVERSITY OF THE PHILIPPINES LOS BAÑOS



Since 2020, the Plant Pathology Laboratory (PPL) of the Institute of Plant Breeding (IPB), College of Agriculture and Food Science, University of the Philippines Los Baños, has recognised some of the country's brightest and active young researchers plant pathology and allied sciences through "Young Investigators in Plant Pathology (YIPP)" program. In 2020, there were a total of 26 YIPP Fellows from all over the country. This year, 15 YIPP fellows from four universities have been recognised. They were recognised their contributions through scientific outputs and for promoting the science of plant pathology in the country. Most of the publications of this year's YIPP fellows are first country records of plant pathogens infecting crops grown in the country. All recipients are under the age of 40.

SEEING THE FOREST FOR THE TREES

VIRUS DISEASES OF CEREAL AND OILSEED CROPS IN AUSTRALIA

A review by Emily R. Grace *et al.* titled "Seeing the forest for the trees: Use of phages to treat bacterial tree diseases" was published on 3 September 2021 by *Plant Pathology* (early view). The abstract is as follows:-

Trees and woody plants can be attacked by many pests and pathogens either individually or as polymicrobial infections. In particular, infections caused by tree-specific bacterial pathogens have become more common during the last decade, causing serious concern for important tree and woody plant species in horticulture, urban environments, and forests. For example, Xylella and Pseudomonas bacteria are causing significant economic and ecological devastation throughout Europe in olive, cherry, and other stone fruits, mainly because of lack of efficient control methods and the emergence of bacterial resistance to traditional antimicrobial compounds such as copper and antibiotics. Hence, there is an urgent need for innovative approaches to tackle bacterial plant diseases. One way to achieve this could be through the application biological control, which offers a environmentally friendly and targeted approach for pathogen management. This review will explore recent advances in use of pathogen-specific viruses, bacteriophages (or phages), for the biocontrol of bacterial tree diseases. Phages are an important component of plant microbiomes and are increasingly studied in plant pathogen control due to their highly specific host ranges and ability to selectively kill only the target pathogenic bacteria. However, their use still poses several challenges and limitations, especially in terms of managing the bacterial diseases of long-lived trees. A particular insight will be given into phage research focusing on controlling Pseudomonas syringae pathovars, Erwinia amylovora, Xanthomonas species, Ralstonia solanacearum, and Agrobacterium tumefaciens. Recent milestones, current challenges, and future avenues for phage therapy in the management of tree diseases are discussed.

Read paper.

A review by Roger A. C. Jones *et al.* titled "Virus diseases of cereal and oilseed crops in Australia: Current position and future challenges" was published on 12 October 2021 by *Viruses* (vol. 13, Article number: 2051). The abstract is as follows:-

This review summarizes research on virus diseases of cereals and oilseeds in Australia since the 1950s. All viruses known to infect the diverse range of cereal and oilseed crops grown in the continent's temperate, Mediterranean, subtropical and tropical cropping regions are included. Viruses that occur commonly and have potential to cause the greatest seed yield and quality losses are described in detail, focusing on their biology, epidemiology and management. These are: barley yellow dwarf virus, cereal yellow dwarf virus and wheat streak mosaic virus in wheat, barley, oats, triticale and rye; Johnsongrass mosaic virus in sorghum, maize, sweet corn and pearl millet; turnip yellows virus and turnip mosaic virus in canola and Indian mustard; tobacco streak virus in sunflower; and cotton bunchy top virus in cotton. The currently less important viruses covered number nine infecting nine cereal crops and 14 infecting eight oilseed crops (none recorded for rice or linseed). Brief background information on the scope of the Australian cereal and oilseed industries, virus epidemiology and management and yield loss quantification is provided. Major future threats to managing virus diseases effectively include damaging viruses and virus vector species spreading from elsewhere, the increasing spectrum of insecticide resistance in insect and mite vectors, resistance-breaking virus strains, changes in epidemiology, virus and vectors impacts arising from climate instability and extreme weather events, and insufficient industry awareness of virus diseases. The pressing need for more resources to focus on addressing these threats is emphasized and recommendations over future research priorities provided.

Read paper.

THE JAKOB ERIKSSON PRIZE FOR PLANT PATHOLOGY - CALL FOR NOMINATIONS

JAKOB ERIKSSON PRIZE COMMISSION

The premier award for achievement in plant pathology, the <u>Jakob Eriksson Prize</u>, was established in 1923 to honor the memory of Jakob Eriksson, a prominent Swedish mycologist and plant pathologist who died in 1931. He was also a dedicated internationalist who espoused the cause of international cooperation in plant pathology. The Prize will be awarded at the <u>International Congress of Plant Pathology</u> held in Lyon, France from 20-23 August 2023. The Royal Swedish Academy of Sciences administers the Jakob Eriksson Prize Fund which provides for a gold medal award at Congresses of the International Society for Plant Pathology.

Nominations are solicited for a candidate of distinction in recognition of research in mycology, in plant pathology, or in virus diseases, or of a particular publication dealing with such subjects, with the understanding that the work being recognised is of a distinct international value and merit.

The following rules apply to those making nominations:

- i. Nominators must provide a short statement (2 pages or 500 words) justifying the selection of the nominee plus a short CV maximum three pages, and a publication list of the most relevant papers/publications or reports maximum 20 references. Do not send a detailed Curriculum Vitae. More detail than these requirements will be sought by the Commission if required.
- ii. Names of all nominees must be strictly confidential,
- iii. Individuals cannot nominate themselves and nominators should declare any professional affiliation with the nominee.
- iv. No correspondence concerning unsuccessful nominations will be entered into.

All nominations are to be sent to the Chair of the Prize Commission, in an email headed "Jakob Eriksson Prize Nomination 2023". Send the email to ErikssonPrize@ISPPweb.org with a c.c. to the ISPP Business Manager (andrea.masino@unito.it). The call for nominations will close on 15 March 2022.

Prize Selection

- i. The Jakob Eriksson Prize Commission, in consultation with the Executive of ISPP, will independently undertake the selection processes to enable a recommendation of the Jakob Eriksson Prize recipient at least one year before each International Congress of Plant Pathology.
- ii. The Chair of the Commission will advise the ISPP President of the Commission's recommendation, and after appropriate deliberation, the President of the ISPP will invite the successful nominee to accept the award.

- iii. The Prize Ceremony
- iv. The participation of the Jakob Eriksson Prize recipient in the International Congress of Plant Pathology will be facilitated by the ISPP and the Congress Organisers. Normally this will include complementary Congress registration and attendance at Congress social functions, return economy travel to the Congress and some support for accommodation and reasonable expenses for the duration of the Congress.
- v. The Prize Ceremony will be planned by the ISPP in consultation with the Prize recipient, the Commission Chair and the Congress Organisers.
- vi. As part of the Prize Ceremony, the Prize recipient will also be invited to briefly present their work at the Congress as The Jakob Eriksson Oration with scope and coverage in a style suitable for a more general audience.

The Royal Swedish Academy of Sciences will provide the Jakob Eriksson gold medal.

Information about the selection process is available <u>here</u>.

Jacob Eriksson Prize - 1993-2018

Past recipients of the Prize have included:

- 1993. 7th Recipient Prof Dr Ir Ariena H.C. van Bruggen, Professor Biological Farming Systems at Wageningen University, at the 6th International Congress of Plant Pathology.
- 1998. 8th Recipient Dr Richard Frederiksen, Professor of Plant Pathology at Texas A&M University, at the 7th International Congress of Plant Pathology in Edinburgh.
- 2003. 9th Recipient Dr. Jaccov Katan of the Hebrew University, Jerusalem, at the 8th International Congress of Plant Pathology in Christchurch, New Zealand.
- 2008. 10th Recipient Dr. Laurence V. Madden of the Ohio State University, at the 9th International Congress of Plant Pathology in Torino, Italy.
- 2013. 11th Recipient Professor Jeffrey B. Jones of the University of Florida at the 10th International Congress of Plant Pathology in Beijing, China.
- 2018. 12th Recipient Emeritus Professor Pierre JGM de Wit of the Laboratory of Phytopathology, Wageningen University, the Netherlands, at the 11th International Congress of Plant Pathology in Boston, USA.

FUSARIUM WILT OF COTTON MORE AGGRESSIVE AND DIVERSE THAN PREVIOUSLY UNDERSTOOD

AMERICAN PHYTOPATHOLOGICAL SOCIETY NEWS RELEASES, 20 OCTOBER 2021

Cotton is an important crop worldwide and grown in large amounts in the United States, which provided 38% of cotton exports in 2017. One of the greatest threats to cotton production is Fusarium wilt, a fungal disease caused by the soil-borne pathogen *Fusarium oxysporum* f. sp. *vasinfectum* (FOV).

In a study recently published in <u>Plant Disease</u>, plant pathologists, agronomists, and breeders in California, Texas, and North Carolina identified current populations of FOV in infected plants and examined their diversity and aggressiveness during the seedling and wilt stages of disease development. They also examined three FOV artificial-inoculation assays under control of greenhouse conditions to measure the pathogen's aggressiveness during the seedling stage. They collected a total of 181 *Fusarium* isolates from the San Joaquin Valley in California and 19 isolates from the Rio Grande Valley in Texas.

"This is one of the few studies that evaluated the aggressiveness of FOV isolates at different stages of seedling development in cotton," explained Margaret Ellis, one of the scientists involved with the research. "It also compared the

usefulness or abilities of different inoculation assays to evaluate FOV disease development, which might be utilised as screening methods alongside field evaluations for developing cotton varieties with resistance to FOV."

Ellis and colleagues found a population shift toward FOV4, a fourth race of the fungus first discovered in 2003. In California, two unique genotypes of FOV4 are common in infested fields today. Originally planting Pima varieties with natural resistance toward FOV4 had been an effective and economical approach to dealing with this disease, but this study shows that FOV4 has been able to overcome some of the resistance in current commercial Pima varieties. Their research showed that all tested isolates can produce seedling or wilt symptoms on cotton and suggested a difference in how FOV4 types interact with the plant host.

"Our research addresses current cotton production issues with Pima resistant varieties and changes of this fugus, revealing the complexity of the Fusarium wilt disease and host plant resistance mechanisms," said Ellis. "This research is especially important for the continued plant breeding efforts to develop more durable Pima and Upland cotton tolerant to FOV4. Breeder's screening efforts and selection has focused largely on disease development based on the later stage's seedling development which still important. However, our results also suggest that earlier screenings would be beneficial due to the complexity in the plant-host interactions."

NANOTECHNOLOGY-BASED SUSTAINABLE ALTERNATIVES FOR THE MANAGEMENT OF PLANT DISEASES — NEW BOOK

Giorgio Mariano Balestra and Elena Fortunati, Editors (2021). Nanotechnology-Based Sustainable Alternatives for the Management of Plant Diseases, Elsevier inc., USA. 400 pp.

Nanotechnology-based Sustainable Alternatives for the Management of Plant Diseases addresses the power of sustainable nanomaterials for plant and food protection. The book highlights dangers arising from bacteria, fungi, viruses, insects, seeds, plants, fruits and food production and summarizes new and sustainable strategies. It places a particular focus on plant pathogen control, and in the food packaging sector in agri-food applications. The control of plant pathogens in plants and in food has been conventionally made by adding chemical preservatives and by using thermal processing, but sustainable nanotechnology can be a power tool to aid in this complex set of challenges.

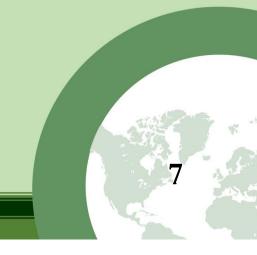
Advances in materials science have led to the rapid development of nanotechnology that has great potential for improving food safety as a powerful tool for the delivery and controlled release of natural antimicrobials.



Key Features:

- Analyses and lays out information related to sustainable strategies, taking a nano-based approach to the management of plant diseases and biotic damage on fresh food
- Presents the latest discoveries and practical applications of nanotechnology based, sustainable plant protection strategies to combat dangerous microorganisms and improve the shelf-life of food
- Assesses the major challenges of manufacturing nanotechnology-based pesticides on a mass scale

For more information and the full table of contents visit Elsevier.



67TH ANNUAL CONFERENCE ON SOILBORNE PLANT PATHOGENS AND 52ND ANNUAL STATEWIDE CALIFORNIA NEMATOLOGY WORKSHOP, 22-24 MARCH 2022

After canceling our meeting in 2020 due to COVID and doing a virtual meeting in 2021, we are planning an in-person meeting at California Polytechnic State University in San Luis Obispo for 2022. Come and meet with colleagues from the western U.S. working on various aspects of soilborne fungal pathogens, nematodes and diseases- from the molecular to the applied. This meeting is very informal and loosely structured, allowing lots of time for discussions and interactions.

Highlights will include:

- Field trip of Santa Maria strawberry and vegetable production on 22 March. Separate field trip tickets required, limited to 50.
- Social/Dinner Weds. evening 23 March
- One and a half days of scientific presentations 23-24 March, including keynote symposium talks by Dr. Krishna Subbarao of UC Davis and a nematology talk, TBA
- Meeting of the California Nematology Workgroup – TBA

More information and to register

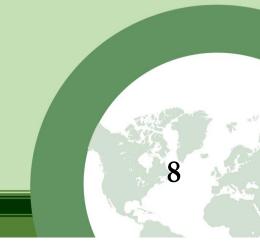
I I[™] AUSTRALASIAN SOILBORNE DISEASE SYMPOSIUM, 2-5 AUGUST 2022

We are pleased to advise that the Australian Soilborne Diseases Symposium is being held 2 – 5 August 2022 at the Hilton Cairns in Queensland, Australia. With the postponement of the symposium from 2020 we are excited to be able to announce the new date and open abstracts. The theme of the meeting will be "Soil Health,"

This will be an in-person symposium with limited international on-line attendance. The in-person meeting will depend on federal and state restrictions, but contingencies have been made should restrictions not allow gatherings or travel.

We look forward to seeing you.

More inforantion and to submut an abstract

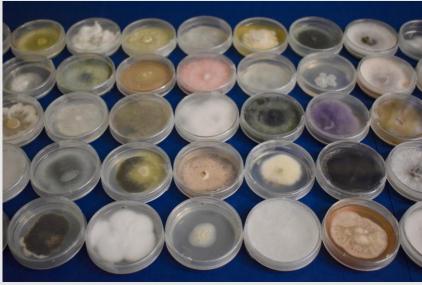


BACTERIA, FUNGI INTERACT FAR MORE OFTEN THAN PREVIOUSLY THOUGHT

LOS ALAMOS NATIONAL LABORATORY, 19 OCTOBER 2021

In a novel, broad assessment of bacterial-fungal interactions, researchers using unique bioinformatics found that fungi host a remarkable diversity of bacteria, making bacterial-fungal interactions far more common and diverse than previously known.

"Until now, examples of bacterial-fungal interactions were pretty limited in number and diversity," said Aaron Robinson, a biologist at Los Alamos National Laboratory and lead author of a new paper describing the research in Nature's *Communications Biology* journal. "It had been assumed that bacterial-fungal associations might not be that common. But we found a lot of diverse bacteria that appear to associate with fungi, and we detected those associations at a frequent rate."



A diverse culture collection of fungal isolates obtained from around the world has been screened by researchers at Los Alamos National Laboratory for potential bacterial associates (Photo credit: Los Alamos National Laboratory).

The research contributes to an emerging understanding of the fungal bacteriome, the existence of bacteria both within and in close association with a fungal host, opening up possibilities for studying the interactions more intimately and connecting that research to issues such as ecosystem functioning and climate change impacts.

"This is a starting point to investigate mechanisms of bacterial-fungal interactions at a more intimate level," said Robinson. "That research will be valuable for understanding what allows bacteria to associate with fungi, and how to best leverage that insight to accomplish goals for the Laboratory, for the Department of Energy, and for society in general. Understanding how these organisms interact with each other and contribute to larger systems is highly valuable in everything from modeling things like climate change to societally beneficial activities such as agricultural or industrial utilisation of microbes."

Researchers screened a total of 294 diverse fungal isolates from four culture collections from Europe, North America, and South America for potential bacterial associates. Collaborations with the Center for Integrated Nanotechnologies at Los Alamos allowed researchers to visually examine several of these associations using fluorescence in situ hybridisation techniques. These fluorescence microscopy examinations complemented the screening and confirmed the widespread and variable presence of bacterial associates among diverse fungal isolates and even within the hyphae (fungal tissue) of a single fungal host.

Read more.

CURRENT VACANCIES

There are no current job vacancies.

ACKNOWLEDGEMENTS

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

COMING EVENTS

Association of Applied Biologists Virtual Conference - Thinking differently about soilborne disease management

10 November, 2021

Website: web.cvent.com/event/adc5a4f6-0657-496b-

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7th International Conference of Pakistan Phytopathological Society

21 November - 23 November, 2021 University of Agriculture Faisalabad and Ayub Agricultural Research Institute, Faisalabad, Pakistan Website: <u>7icpps.pakps.com</u>

Australasian Plant Pathology Society Conference – Staying Connected for Plant Health

23 November - 26 November, 2021

Online conference

Website: appsconference.com.au/home

BFPP and EFPP Joint Presidential Conference, 'Our Plants, Our Future'

6 December - 8 December, 2021 Edgbaston Conference Centre, Birmingham, UK Website: www.bspp.org.uk/conferences/bspp2021

International Plant & Animal Genome XXIX

8 January -12 January, 2022 San Diego, California, USA Website: <u>www.intlpag.org/2021</u>

10th International IPM Symposium

28 February - 3 March, 2022 Denver, Colorado, USA

Website: <u>ipmsymposium.org/2021</u>

67th Annual Conference on Soilborne Plant Pathogens and the 52nd Annual Statewide California Nematology Workshop

22 March - 24 March, 2022

California Polytechnic State University, San Luis Obispo,

USA

Website: soilfungus.wsu.edu

16th Congress of the Mediterranean Phytopathological Union

4 April - 8 April, 2022 Limassol, Cyprus

Website: cyprusconferences.org/mpu2022

7th International Congress of Nematology

1 May - 6 May, 2022

Antibes Juan-les-Pins, France

Website: www.alphavisa.com/icn/2020/index.php

International Plant Health Conference "Protecting Plant Health in a Changing World"

Week of 12 May 2022 Location to be advised

Website: www.fao.org/plant-health-2020/events/events-

detail/en/c/1250609

4th International Erwinia Workshop

2 July - 3 July, 2022

Assisi, Italy

Website: www.icppb2020.com

14th International Conference on Plant Pathogenic Bacteria

3 July - 8 July, 2022

Assisi, Italy

Website: www.icppb2020.com

12th International Workshop on Grapevine Trunk Diseases (ICGTD12)

11 July - 15 July, 2022

Mikulov, Czech Republic

Website: <u>ucanr.edu/sites/ICGTD/Workshops</u> 559/

11th Australasian Soilborne Diseases Symposium

2 August - 5 August, 2022

Cairns, Queensland, Australia

Website: asds2022.w.yrd.currinda.com

International Phytobiomes Conference 2022

13 September - 15 September, 2022 Denver, Colorado, USA

Website: phytobiomesconference.org

13th Arab Congress of Plant Protection

16 October - 21 October, 2022 Le Royal Hotel, Hammamat, Tunisia

Contact: Dr. Asma Jajar, Chairperson of Organising

Committee info@acpp-aspp.com

Website: acpp-aspp.com

XX International Plant Protection Congress

10 June - 15 June, 2023 Athens, Greece

Website: www.ippcathens2023.gr

13th International Congress on Plant Biotechnology and Agriculture

12 June - 16 June, 2023 Cayo Guillermo, Cuba

Website: bioveg.bioplantas.cu

12th International Congress of Plant Pathology (ICPP2023)

20 August - 25 August, 2023

Lyon, France

Website: www.icpp2023.org

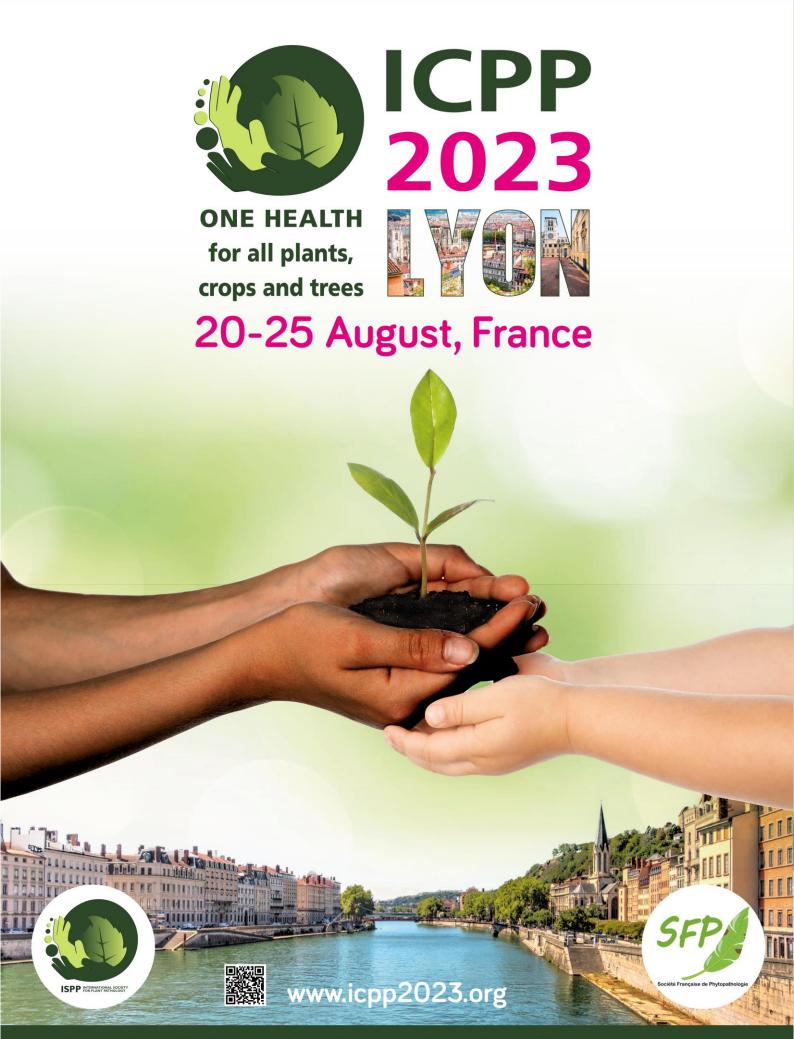
9th ISHS International Postharvest Symposium

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 <u>Privacy Information Notice</u> 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 <u>business.manager@issppweb.org</u>

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