



ISPP INTERNATIONAL SOCIETY
FOR PLANT PATHOLOGY

PROMOTING WORLD-WIDE PLANT HEALTH AND FOOD SECURITY

INTERNATIONAL SOCIETY FOR PLANT PATHOLOGY

ISPP NEWSLETTER

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IN THIS ISSUE:

ICPP2023 in Lyon, the place to be!

Sixth Update on ISPP Resilience Bursary for Plant Pathologists
Report on the 14th International Conference on Plant Pathogenic Bacteria (14th ICPPB) and 4th International *Erwinia* Workshop (4th IEW), Assisi (Italy) July, 2022

Obituary of Nicola Sante Iacobellis, 1949-2022

Obituary of Professor Emeritus, Chuji Hiruki, 1931-2021

New banana disease is spreading and poses a threat to Africa's food security

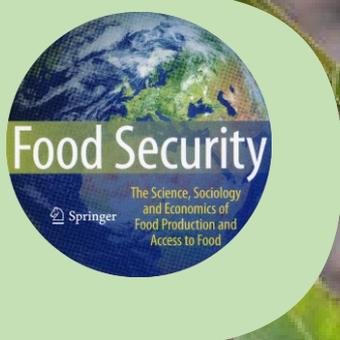
Back to the roots

20 Years of Highly Influential Publications in Molecular Plant Immunity

Current Vacancies

Acknowledgements

Coming Events



INTERNATIONAL SOCIETY FOR PLANT PATHOLOGY (ISPP)

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ICPP2023 IN LYON, THE PLACE TO BE!

Dear Colleagues,

The French Phytopathological Society (SFP; <https://www.sfp-asso.org/>) is delighted to invite you to join the 12th International Congress of Plant Pathology (ICPP; <https://www.icpp2023.org/>) in Lyon, France from August 20-25, 2023.

ICPP is under the patronage of the International Society for Plant Pathology (ISPP; <https://www.isppweb.org/>) gathering about 60 national societies with an interest in Phytopathology or Plant Health and Protection. This world conference takes place only every 5 years which makes it an exceptional and well-attended meeting not to be missed! Previous sessions of the ICPP Congress have toured the world and were successful with a huge number of delegates from about 80 countries: 2200 at ICPP1998 (Edinburg, UK), 1300 at ICPP2003 (Christchurch, New Zealand), 2000 at ICPP2008 (Torino, Italy), 1800 at ICPP2013 (Beijing, China) and 2400 at ICPP2018 (Boston-USA).



The ICPP2023 congress will be hosted by the Lyon Convention Center in its nice Amphitheater 3000 (<https://www.ccc-lyon.com/>). This meeting will give the opportunity for all scientists to meet in person again and share recent advances in plant pathology and plant health research. The theme for ICPP2023 will be the «ONE HEALTH for all Plants, Crops and Trees». The One Health concept is a worldwide strategy for expanding interdisciplinary collaborations and communications in all aspects of health care for humans, animals, and the environment. ICPP2023 will promote the integration of Plant Health & Plant Pathology into the One Health concept. ICPP will offer an update of the issues around Global Plant Health Assessment, Food Security, Invasive and Emerging Plant Diseases, New Developments in Plant Disease Management, and Hot Topics on Molecular Plant-Microorganism Interactions. ICPP2023 scientific programme is based on 8 plenary sessions with 20 invited keynote lectures, 60 concurrent sessions, 4 poster viewing sessions (more than 1300 posters are expected) and 8 round-tables. About 20 pre-congress satellite events will also complement the ICPP2023 program.

This scientific conference will offer you a direct contact and access to over 2000 delegates from leading universities, research institutes and private companies working in the field of plant pathology and plant health in Europe, North America and the rest of the world. It will host numerous established research group leaders as well as young early-career researchers. This balanced composition of attendees will give sponsors and exhibitors access to both the current and the up-and coming next generation of leading researchers.

One important mission of ISPP is to support plant pathologists from all over the world and 100 k Euros has been budgeted for bursaries at ICPP2023, for financial assistance to postgraduate students and established plant pathologists from developing, emerging or warring countries.

On behalf of the French Phytopathological society and the International Society for Plant Pathology, we look forward to warmly welcome you to ICPP2023 in the nice city of Lyon. Please do not miss the opportunity to join us knowing that the ICPP after will only be in 2028 in Australia!

Sincerely yours,

Dr. Nathalie Poussereau (ISPP vice-President) and Dr. Mathias Choquer (SFP board)

Co-chairs of ICPP2023.

ICPP2023@univ-lyon1.fr

GOOD PLANT HEALTH FOR GOOD HUMAN HEALTH

Why be interested in plant pathology?

Plant Pathology is the science that studies plant and tree diseases caused by pests such as viruses, bacteria, fungi, nematodes, parasitic plants and the insect vectors that may carry them. Crops and trees are particularly affected by these diseases with losses estimated between 20-40% depending on the plant species and this despite the use of treatments or preventive measures. These losses cause a considerable deficit for the economies of the countries leading to an aggravation of the poverty in the world. In a context where the population and the food demand are constantly growing, these diseases also threaten the balance of the world food security leading to malnutrition. Microorganisms also produce toxins that can be found in human and animal food leading to a serious health risk with the appearance of pathologies such as cancers. "Wild" plants are also impacted by these pathogens and it is the whole plant biodiversity that is potentially threatened within ecosystems.

Many factors aggravate these diseases, and their impacts could increase in the near future:

- Climate change (global warming, storms, floods...) leads to the emergence or re-emergence of bioaggressors.
- Globalisation, with its increasing and uncontrolled flow of people and goods, allows the dissemination of pathogens throughout the world.
- The multiple military conflicts (Ukraine) or pandemics (Covid-19) are vectors of disorganization in the production and protection of crops.

Better control plant diseases to reduce the impact of future food crises in our societies has become urgent.

The ICPP2023 congress will be an opportunity to establish an updated global plant health assessment. The latest knowledge on diseases will be presented as well as the latest solutions proposed to fight them. This congress will bring together scientists from all over the world working on this issue and will also be a place of reflection to imagine and propose new strategies to protect plants and trees, and to ensure their sustainability for future generations. In the context of "One Health", aiming at a better human health through a healthy environment and a better animal health, **the health of plants must also appear as a major societal issue.**

Support our action and join us !

10 GOOD REASONS TO JOIN US!

- 1) ICPP is the world's largest conference on Plant Pathology, promoting World-Wide Plant Health and Food Security, and it has attracted in 2018 more than 2400 participants from 88 countries.
- 2) ICPP fosters cooperation between plant pathologists from developed and emerging countries.
- 3) ICPP fosters intense scientific discussions between young scientists and experienced researchers.
- 4) ICPP fosters interactions between academia and industry, offering the opportunity for company representatives to connect with conference delegates and providing them a platform to showcase products and get global visibility.
- 5) ICPP conference series has a long tradition of 55 years, and is the place where the eminent Jakob Eriksson Prize for distinct achievements in the field of plant pathology is awarded.
- 6) The ICPP2023 has a rich scientific programme with 2 plenary, 6 keynotes, 60 concurrent sessions, 8 round-tables, 8 h dedicated to about 1000 posters viewing and about 20 pre-congress satellite meetings.
- 7) The ICPP2023 militates for the recognition of Plant Pathology and Plant Health within the ONE-HEALTH, in the city of Lyon where this globalized concept was invented by the veterinarian Claude Bourgelat in the 18th century.
- 8) Lyon, the capital of Gauls, is a human scale city located in the middle of Western-Europe between Paris, the Mediterranean sea, and the Alps, and with easy access by plane, train and car.
- 9) Lyon, the French capital of gastronomy, is a UNESCO world heritage site with 2000 years of history and was awarded the World's Leading Emerging Tourism Destination 2021 by the World Travel Awards.
- 10) After 3 years of Covid health crisis, it's now the time to go back to the congresses and to meet the people of your community face to face.

Come and join us!

SIXTH UPDATE ON ISPP RESILIENCE BURSARY FOR PLANT PATHOLOGISTS

PREPARED BY MAŁGORZATA JĘDRYCZKA, MYKOLA BARANETS, MAŁGORZATA MAŃKA AND GREG JOHNSON

During September in Poznań, Poland, the [Polish Phytopathological Society](#) (Polskie Towarzystwo Fitopatologiczne) held their triennial conference under the theme “Modern developments in plant pathology”. The conference was held in the form of an online meeting on the ZOOM platform and 132 scholars from 31 scientific and research institutions participated, including all our Fellows from Ukraine who had received an ISPP Resilience Bursary. The meeting began with lectures by invited international speakers –

- Greg Johnson, Immediate Past President of the International Society for Plant Pathology (ISPP), spoke about the activities of the society and the ways in which individual plant pathologists can connect with ISPP, and
- Oleksiy Shevchenko, of the Institute of Virology at the of the Taras Shevchenko National University of Kyiv outlined the plant virology research and the organisation of academic education at the University. He also described the impacts on the agricultural sector of Russia's aggression.

Subsequently, two plenary talks and 21 thematic talks were presented in four sessions on the following topics: *Fusarium* - 5 papers, Molecular Studies - Viruses and Resistance Genes - 5, Soil Pathogens and Microbiome - 5, Mycorrhiza and Endophytes - 6. The scientific sessions concluded with a lecture on climate change and its impact on phytopathological and entomological problems, which may pose a great challenge for Polish phytopathologists in the near future. In addition, scientific research was presented in 68 posters, of which 14 selected by the Scientific and Organisational Committee were also presented during flash talks. The work of all of the ISPP resilience Bursary recipients was also presented at the conference.

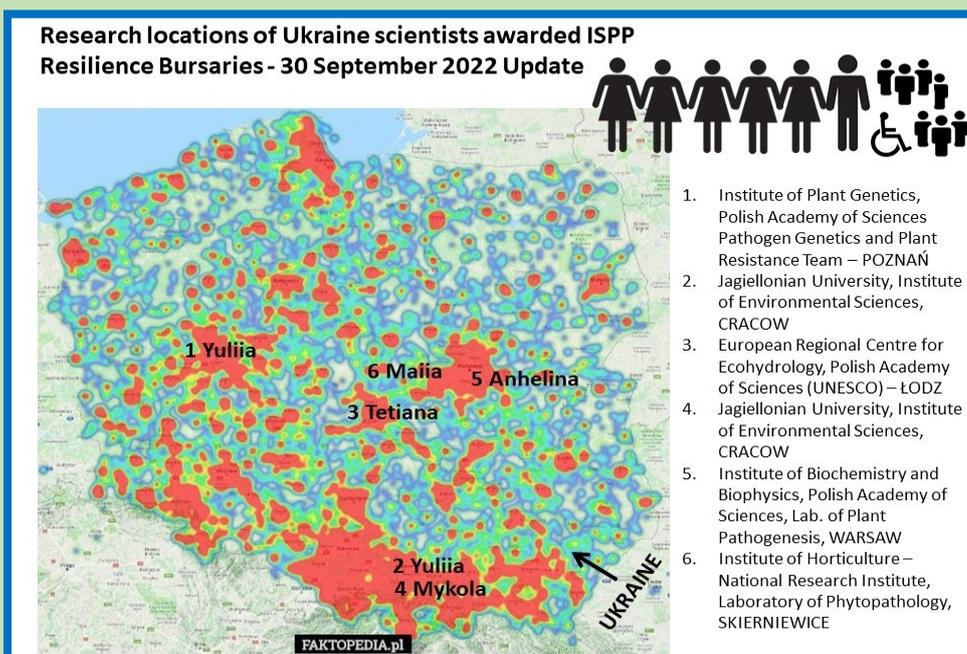


Figure 1. The location of the recipients of ISPP Resilience Bursaries in Poland. As at September 30, 6 Ukraine scientists have received ISPP Resilience Bursary support with 6 Polish Institutions hosting their research. The colour shading shows location and of refugees arriving since February 24, 2022, with red showing the highest density of arrivals (cities) and blue the lowest density (extending to almost every village). Numbers are lowest near the Eastern border (except border crossings).

September has been a month of gains in Ukraine counter offenses enabling reclamation of large areas of territory and the negotiated repatriation of prisoners of war.

This month we hear from Dr Mykola Baranets, a botanist from Kryvyi Rih Botanical Garden, Ukraine, who has been studying invasive plant species' interaction with soil mycobiota in the laboratory of Professor Katarzyna Turnau at the Institute of Environmental Sciences of Jagiellonian University in Cracow.

MYKOLA BARANETS STORY



Dr. Mykola Baranets, a botanist from Kryvyi Rih Botanical Garden, Ukraine, in a field of *Solidago canadensis* (Canadian goldenrod), a serious invasive plant.

My scientific career began during my postgraduate studies at the Kryvyi Rih Botanical Garden of the National Academy of Sciences of Ukraine. It was ecological research on anthropogenically transformed territories. The region where the research was conducted has a developed mining industry. Part of the territories is exploited permanently and is not subject to recultivation. Such areas are a good testing ground for long-term study of the spontaneous formation of vegetation cover in these areas, identifying mechanisms of these processes, and methods of controlling their course.

After three years, I started working in the department of the natural flora of the Kryvyi Rih Botanical Garden. During this period, I researched the natural vegetation of the Ukrainian steppe, went on many expeditions, and worked with a team of scientists to create collections of protected

plant species. One of the areas of my work was the research of populations of protected plant species and the development of effective strategies for their protection. After some time, we combined these two directions of work.

Our botanical garden also works on the recultivation of post-mining landscapes. We started using some Red List plant species from our collection to recultivate disturbed landscapes. The result of this work was the repatriation of rare plant species in post-mining areas as an alternative method of biodiversity conservation. Another critical focus of my work was the research of plant invasions and the assessment of risks to biodiversity as a result of this factor. These scientific lines of study became the basis of my Ph.D. dissertation: Flora of the catchment area of Ingulets river, current state sozological¹ assessment.

¹ Sozology is the science of the systemic protection of the biosphere from the destructive effect on it of the anthroposphere.

I am sure that some scientific achievements are the result of the work of narrow specialists, and others are the result of expanding scientific horizons. As a result of the Russian war against Ukraine, I had to evacuate to Poland with my family. At first, we had stress and some difficulties, because I have a son with disabilities, but moving to Poland helped me to direct my research activities in a new direction. Thanks to the Polish Phytopathological Society, I had an internship at the Institute of Environmental Sciences of Jagiellonian University in Cracow. During my training I learned some methods of studying the interaction of plants with other organisms. These were, in particular, experiments to check the interaction between the endophyte *Rhodotorula mucilaginosa* and the model plant *Plantago lanceolata* creating mycorrhiza with arbuscular mycorrhizal fungi. The investigation was carried out under controlled conditions.

In addition, I focused on establishing the hydroponic culture of the arbuscular mycorrhizal fungi assisted by *Plantago lanceolata*. I had the opportunity to get acquainted with the literature on pathogenic fungi and interaction with mycorrhizal fungi, differences between mycorrhiza types with special attention to arbuscular mycorrhizal fungi.

Research of a botanist requires a lot of lab work and microscopy. Dr. Mykola Baranets is preparing roots for mycorrhiza analysis.

My supervisor, Prof. Dr hab. Katarzyna Turnau, encouraged me in researching invasive plant species' interaction with soil mycobiota, identifying their interaction mechanisms, and establishing the relationship with local microbiota and the rapid expansion of introduced species to determine the possibility of combating plant invasions without threatening biodiversity. The experience gained as a result of an internship helped me receive a grant to study this problem at the Institute of Environmental Sciences of the Jagiellonian University. I expect this study's results to become a basis for me to return to solving the issues of biodiversity conservation and reintroduction of rare plant species at a new scientific level.

I am very grateful to the ISPP and Polish Phytopathological Society for financial support for my family's stay in Poland.

Dr. Mykola Baranets

For information on the ISPP Resilience Bursaries which are supporting displaced Ukrainian plant pathologists, see the April to September issues of the ISPP Newsletters or go to https://www.isppweb.org/PP_Resilience_Bursary.pdf.



REPORT ON THE 14TH INTERNATIONAL CONFERENCE ON PLANT PATHOGENIC BACTERIA (14TH ICPPB) AND 4TH INTERNATIONAL ERWINIA WORKSHOP (4TH IEW), ASSISI (ITALY) JULY, 2022

ROBERTO BUONAURIO AND IAN TOTH

The 14th International Conference on Plant Pathogenic Bacteria ([14th ICPPB 2022](#)) entitled “The Impact of Plant Pathogenic Bacteria on Global Plant Health” was held from 3rd to 8th July, 2022 at Assisi in the city of peace and dialogue between different cultures and religions, located in the Umbrian region: the Green Heart of Italy. The conference, whose programme was arranged by the [organising](#) and [scientific](#) committees, was hosted at [Hotel Valle di Assisi](#) located in a typical Umbrian landscape. The event attracted 196 delegates (including 52 early career scientists) from 37 countries across most continents.

The 14th ICPPB was opened by the chairperson Prof. Roberto Buonauro, professor at the University of Perugia ([Department of Agricultural, Food and Environmental Sciences-DSA3](#)), who on behalf of the organising committee dedicates the conference to the co-chairman Prof. Nicola Sante Iacobellis, who prematurely passed away on 22nd May 2022. Prof. Iacobellis had the merit of having brought the conference to Italy, which he strongly desired with all his heart.

During the opening, the delegates were welcomed by Prof. Engineer Stefania Proietti, President of Perugia Province and Mayor of Assisi, Prof. Roberto Rettori, delegate of the Perugia University Rector, and Prof. Gaetano Martino Dean of DSA3.

The principal sponsors of the conference were Agdia-Emea and Diachem, while the Federation of European Microbiological Societies (FEMS) provided an important contribution to support the participation of early career researchers. Other sponsors were the Italian Phytopathological Society, the open access journal Microorganisms by MDPI, Itaka Crop Solution, ISI Sementi S.p.A., Agritest (Plant Health Management) and Sicer (Italian Ceramic Surfaces).

The scientific program of the conference was opened by Sheng-Yang He, the Benjamin E. Powell distinguished Professor of Biology at Duke University and an Investigator at Howard Hughes Medical institute (Durham, North Carolina-USA), with the talk ‘Climate impact on plant-bacterial interactions’, in which he gave an example of interplay between disease, environment and microbiota during *Pseudomonas syringae* infection of host plants. Prof. He concluded his talk by pointing out that future studies should increasingly consider the multi-dimensional nature of “disease-environment-microbiome” interactions, which are likely more reflective of what occurs in natural ecosystems.



Prof. Roberto Buonauro chair of the 14th ICPPB.



Prof. Sheng-Yang He presented his opening talk ‘Climate impact on plant-bacterial interactions’.



Participants at the 14th International Conference on Plant Pathogenic Bacteria, Assisi (Italy)-4-8 July, 2022.

Spread over four intense days of work (4, 5, 7 and 8 July), the scientific program was organised in 7 sessions: 1. Molecular Plant - Bacteria (and Insect) Interactions, 2. New Tools in Disease Diagnostics and Pathogen Identification, 3. Disease Epidemiology and Pathogen Ecology, 4. Bacterial Pathogens and the Phytobiome, 5. Disease Emergence and Pathogen Evolution, 6. Disease Control and Prevention, and 7. Natural and Engineered Plant Disease Resistance. In addition, two special sessions were also included: A) Nanotechnology in Disease Control and B) New insights on *Xylella fastidiosa*. In total, 15 keynotes (25 min) and 70 oral talks (15 min) were presented. The poster sessions were vibrant, well attended and informative. In total, 135 posters were exhibited, 63 of which were introduced at the conference with 2-minute oral presentations. The 221 abstracts that had been received were collected in a book of abstracts, kindly printed by “Centro Stampa-Giunta Regionale-Regione Umbria”.

During the conclusion of the conference, Prof. Nicole Cotte-Pattat and Prof. Roberto Buonauro awarded six prizes of € 200 (gross) each for the best posters. The winners were: 1) Dr. Lavado-Benito Carla of the Malaga University (Spain) with the poster “Characterization of the GacS/GacA system in the virulence regulation of *Pseudomonas savastanoi*” presented in the session Molecular Plant - Bacteria (and Insect); 2) Dr. Siri Maria Ines of the University of Montevideo (Uruguay) with the poster “Phylogeny and identification of pathogenic *Pantoea* species associated with bulb rots and leaf blight of onion crops in Uruguay” presented in the session New Tools in Disease Diagnostics and Pathogen Identification; 3) Dr. Zeng Quan of the Southern Connecticut State University, New Haven (USA) with the poster “Glandular and non-glandular trichomes are colonization sites and host entry points of the fire blight pathogen on apple leaves” presented in the session Disease Epidemiology and Pathogen Ecology; 4) Dr. Herold Laura of the University of Zürich (Switzerland) with the

poster “Investigating the targets of conserved essential bacterial effectors” presented in the session Bacterial Pathogens and the Phytobiome; 5) Dr. Gueguen Erwan of the University of Lyon (France) with the poster “*Dickeya solani* D s0432-1 produces an arsenal of secondary metabolites with anti-prokaryotic and anti-eukaryotic activities against a wide range of organisms” presented in the session Disease Emergence and Pathogen Evolution; 6) Dr. Nanami Sakata of the University of Tsukuba (Japan) with the poster “Exploring amino acids for controlling bacterial blight on cabbage” presented in the session Disease Control and Prevention. The awards were sponsored by ISI Sementi Spa (1 and 2), Microorganisms (3 and 6) and Italian Ceramic Surfaces (4 and 5), and we would like to thank the winners, and indeed all those who presented posters, for the presentation of their work.

This superbly organised conference, with its outstanding talks and lively discussions, closed with the election of the venue for the 15th ICPPB. The proposal by Prof. Boris Vinatzer to hold the meeting in Blacksburg (Virginia-USA) was warmly welcomed by all the delegates. Between the two options 2026 and 2025, the overwhelming majority of delegates voted to plan the 15th ICPPB for 2025. Prof. Buonauro therefore passed on the baton to Prof. Vinatzer as chair of the 15th ICPPB.

The social program of the 14th ICPPB included three convivial moments: the welcome party, the excursion to Gubbio and the gala dinner on July 3, 6 and 7, respectively. The welcome party occurred near the swimming pool of the Hotel Valle di Assisi with a backdrop of a sunset behind the beautiful scenery of Assisi, which was an opportunity to meet old and new friends and to taste Italian food and wines.

During the excursion to Gubbio, one of the best-preserved medieval cities in Italy, the delegates visited many sites located along alleyways between typical medieval houses. “Palazzo dei Consoli” stood out as one of the most majestic and audacious building projects carried out in the middle ages bearing witness to the ambitious nature of Gubbio’s political and institutional objectives at the beginning of the 14th century. Inside the palace, seat of the civic museum, the delegates had the opportunity to see the “Tavole Eugubine” seven bronze tablets, dating back to the 3rd-1st century BC, describing ceremonial rituals, daily life and prescriptions on the legal status of the city-state in the dual languages of Umbrian and Latin. The visit continued with the Diocesan museum, the Cathedral



The lunch at Gubbio (Ristorante Parco Coppo).



Excursion to the medieval city of Gubbio (some delegates on the steps of “Palazzo dei Consoli”).

and the Saint Ubaldo church on the Ingino Mount, where there is the mummy of Saint Ubaldo, the patron of Gubbio, and the 3 tall heavy wooden pedestals (*ceri*) which are preserved for the race of the candles, an ancient feast celebrated each year on 15th May. In a restaurant on the Ingino Mount, the delegates tasted typical Umbrian food and wines.

The gala dinner took place in the star cloister of the Abbey of Saint Peter in Perugia, where the Department of Agricultural, Food and Environmental Sciences of the University of Perugia is based. The dinner was preceded by a well-appreciated concert of the [Coro Santo Spirito Volumnia](#) and accompanied by the Tenor Carlo Montanari, a flutist and a keyboard player. Prof. Buonauro, who performs with the group, added a personal touch to a warm and friendly evening. At the end of the dinner, a rainstorm occurred but still delegates danced and sang in the rain.

The 14th ICCPB was preceded by a satellite event, the 4th International Erwinia Workshop ([4th IEW](#)), which was organised on 2 and 3 July by Ian Toth and Sonia Humphris of the James Hutton Institute, Scotland, UK in collaboration with Roberto Buonauro and Chiaraluce Moretti of the DSA3. The event was a success also due to the high number of participants: 61. During the scientific program, organised in 5 sessions, 24 oral talks and 13 posters were presented. Each session began with a keynote presentation, followed by a series of short talk across a range of pathogens, including *Erwinia*, *Pectobacterium*, *Dickeya* and *Pantoea*, to allow everyone the chance to present their work after several years without a meeting. Due to COVID-19, it was 8 years since the group last met so there were some exciting updates and a nice buzz, as people met old friends and many new ones; our next generation of scientists in this area of research.

The 4th IEW workshop dinner took place on Saturday night at the Hotel Giotto in the medieval town of Assisi on a terrace with wonderful views over the olive trees and countryside. We also had the opportunity to stroll through the streets of Assisi and walk up to Basilica di San Francesco, one of the 54 UNESCO World Heritage sites in Italy, and the final resting place of St. Francis of Assisi. Our next venue is still to be decided but we will let people know in plenty of time and hope to see you there!



Participants at the 4th International Erwinia Workshop, Assisi (Italy)-2-3 July, 2022.

OBITUARY OF NICOLA SANTE IACOBELLIS, 1949-2022

ITALIAN PHYTOBACTERIOLOGY GROUP

Perseverance, passion for research and scientific rigor: here is the synthesis for our colleague and friend Nicola Sante Iacobellis, who suddenly and prematurely left us on 22nd May 2022. The phytobacteriological group of the Italian Phytopathological Society like to remember a talented phytobacteriologist, whose scientific outputs extend from 1975 to February 2022. In his last paper (Turco *et al.*, 2022. *Environmental Microbiology Reports* 14:274-285), showing the same constant and irreducible desire, he was still working to unveil the biology and epidemiology of *Pseudomonas savastanoi*, the bacterial causal agent of olive and oleander knot disease. *P. savastanoi* has been a lifelong companion for Nicola, together with several other phytopathogenic pseudomonads. Many of his studies have been carried out together with his friends Giuseppe Surico and Dino Varvaro, who had the opportunity to meet Nicola over 50 years ago when he was a resolute biology student already working as a technician at the National

Research Council. After that, they continued sharing personal and professional friendship and collaboration, including when Nicola moved to the University of Basilicata as full professor of plant pathology until his retirement in 2015. Nicola's international scientific activity dates back many decades as a visiting scientist at the University of California, Davis (1984-1985), University of Wisconsin, Madison (1988), Washington State University, Pullman (1994) and University of Navarra, Pamplona (1997). He obtained important results studying the phytotoxins of *Pseudomonas syringae* pv. *syringae* and of *Pseudomonas tolaasii* as well as the role of indole-3-acetic acid and cytokinins in the development of olive and oleander knot diseases. He was chairperson of the memorable 6th International Conference on *Pseudomonas syringae* pathovars and related pathogens held in Maratea (Italy) in 2002 and co-chair, together with Roberto Buonauro, of the 14th International Conference on Plant Pathogenic Bacteria, Assisi (Italy) 3-8 July, 2022. We would like to remember Nicola, the main leader in the organisation of the 14th ICPPB 2022, in particular when he was reproaching us with his simple and spontaneous old fashioned paternal way of speaking. We now remember you and are shocked by an apparent contrast of feelings: although deeply sad, we are now scolding you because you left us a few weeks before the finish line. Yes, finish line is the most suitable expression for this adventure that we have lived together for the last several years. It has been like an endurance test, with you and Roberto Buonauro as the tireless promoters and the helmsmen of this important and international event that should have been held in 2020, during the International Year of Plant Health, mockingly blocked by the SARS-Cov2 pandemic. "Ciao" Nicola, we will all miss you, not just as a scientist or a colleague but also as a person with high moral strength and a trustworthy frankness.



OBITUARY OF PROFESSOR EMERITUS, CHUJI HIRUKI, 1931-2021

人々は常に植物の病害を驚きと恐れをもって眺めてきました。植物病害の本質を理解し、それらが決して神の意志に基づいたものではなく、また不適當な条件によるものでもないことを理解するには長い年月を必要としました（赤井、1974）。

People have always observed plant disease with surprise and terror. A long time was required to understand the nature of plant disease and that they were not attributable to God or unfavourable conditions (Mitsutaro Akai 1974).

It is with sadness, we advise of the passing of Dr. Chuji Hiruki, Professor Emeritus, of Edmonton, Canada on 15 November 2021, at the age of 90 years. Chuji was the Treasurer of the ISPP from 1998 to 2008, steering the finances of the Society through two Executive terms and maintaining contact with associated societies. Along with colleagues in the Chinese, Japanese and Korean Plant Pathology Societies and the ISPP, he also helped plan the First Asian Conference on Plant Pathology in Beijing, in 2000, and the establishment of the Asian Association of Societies for Plant Pathology as a sub-group of the ISPP.

Chuji will be remembered by his wife of 60 years, Yasuko; his son Tadaaki (Kayoko) and grandson Tadahiro; his daughter Lisa (Nate), grandson Alec, and granddaughter Mika; siblings Tomiko, Sachiko, Toshinobu (Michiko), Takeo (Mitsuko) and Mihoko (Hisayoshi) and their children.

Professor Hiruki was born a farmer's son in Japan and obtained his BSc and PhD degrees from the University at Kyushu in Fukuoka. He then worked for 11 years at the Hatano Tobacco Experimental Station before completing work as a visiting plant pathologist at the University of California and as an honorary fellow at the University of Wisconsin. In 1966 he accepted a position at the University of Alberta as virologist in plant science to begin a graduate programme. He continued his research and teaching career at Alberta until he retired in 1996, but remained Emeritus Professor at the University of Alberta.

Chuji's research focused on the characterisation, diagnosis, and control of important plant diseases caused by viruses and phytoplasmas. He was a worldwide authority on phytoplasma diseases. Of particular note was Prof Hiruki's research on the genus *Dianthovirus*. After he made a field collection of diseased sweet clover (*Melilotus alba*) in 1979, he discovered that the causative virus encapsidated two segments of single-stranded RNA and shared many other biochemical characteristics with viruses that were placed in the newly created 'dianthovirus group'. With his colleagues at the University of Alberta, he then showed that both RNA segments were required for an



Chuji Hiruki at the Centenary celebration of the Phytopathology Society of Japan in 2015.

infection to develop and by mixing RNA1 and RNA2 segments from different dianthovirus species, provided definitive proof through genetic complementation that these viruses were members of the same virus genus. Through this work, he became a pioneer in the use of genetic information for virus classification. His contributions have also been in diagnostic techniques and the analysis of genomic interactions between hosts and pathogens under controlled and natural environmental conditions. His research has contributed to the basic understanding of the biology of plant pathogens and development of strategies for the control of important plant diseases.

At the University of Alberta, Prof Hiruki was the first to introduce a graduate program in plant virology, and he supervised many students through MSc and PhD studies and has also supervised many Canadian and foreign students in postdoctoral studies. He had one of the most active virus research programs in Canada and attracted funding from federal, provincial, international and industry sources. He was the founding Chair of the International Working Group on “Plant Viruses with Fungal Vectors”, established in 1988. He has acted as an international consultant, with UNESCO (on biotechnology) and with FAO (on the enhancement of forest trees in China). He authored and co-authored over 200 research publications, including books and book chapters.

Chuji was active in professional societies and as an international consultant on biotechnological and agricultural issues. He created one of the most productive virus research programs in Canada, with a postgraduate education program that attracted many graduate students and postdoctoral fellows from around the world.

Chuji was recognised with many awards and honours, including the McCalla Professorship, American Phytopathology Fellow, Royal Society of Canada Fellowship, University of Alberta Distinguished University Professor, Canadian Phytopathological Society Fellow, J. Gordin Kaplan Award for Excellence in Research, and Canadian Phytopathological Society Outstanding Research Award. He retired in 1996, but continued his plant pathology research. In 2008, he was made an honorary member, later, Fellow of the International Society of Plant Pathology. In 2018, Chuji was conferred the Order of the Sacred Treasure, Gold Rays with Rosette, an award of appreciation from the Emperor of Japan to those who have made distinguished contributions to their field.

Chuji loved flowers and gardening, photography, and traveling. He especially enjoyed cultivating and studying camellias. After his retirement, he researched the history of his hometown of Fukue and continued his involvement with flowers as the Vice-President of the International Camellia Society. He was also recognized by the city of Fukue with a Distinguished Citizen Award. He enjoyed visits from his grandchildren and watching them grow up.

Sources: Chuji Hiruki - Nomination as an Honorary member of ISPP by Richard Falloon (2008) and <https://www.connelly-mckinley.com/obituaries/chuji-hiruki/>

NEW BANANA DISEASE IS SPREADING AND POSES A THREAT TO AFRICA'S FOOD SECURITY

WAGENINGEN UNIVERSITY AND RESEARCH, 22 SEPTEMBER 2022

A new banana fungus is rapidly spreading across the globe. It hit Africa a decade ago, but now spreads, a genetic study conducted by Wageningen University & Research (WUR) and Utrecht University reveals. They state that the disease poses a threat to Africa's food security. Plant Pathology Professor Gert Kema and his colleagues sound the alarm.

The *Fusarium* wilt is advancing in Mozambique, where the dominant TR4 strain is affecting banana farmers. But this is not the only country affected; over the past decade, the disease spread from Asia to South America and Africa. Following the first reports from Mozambique in 2013, no further reports were made for many years. 'The disease appeared to be under control in Africa. However, we have since learned that this is, sadly, not the case', Gert Kema, who heads the Phytopathology Laboratory, sighs.

The new study, conducted by Kema's PhD student Anouk van Westerhoven and bioinformatics and data scientist Michael Seidl of Utrecht University in collaboration with a local researcher, shows that the TR4 fungus has spread as far as at least 200 kilometres from the original plantation. Genetic research shows that the strains found in different locations are closely related, which means that the pathogen found in Mozambique has a single origin.

SPREAD THROUGH AFRICA

'That first outbreak was not controlled after all. The disease continues to spread, including among small-scale farmers and people with banana plants in their gardens. They probably do not recognise the disease and, as a result, are unable to adequately treat it', says Van Westerhoven.

'The question is not whether, but rather when, the disease will spread to other African countries', she states. In countries such as Tanzania, Malawi, Uganda and Ruanda, bananas are a staple food for millions of people. They often grow the Cavendish banana that is sold in supermarkets all over the world, but often also local banana strains. 'Whether or not they are susceptible to TR4 is not known for all strains. This disease thus threatens food security in those countries', Kema warns.

NEW STRAIN, OLD DISEASE

Kema's expectation is based on past experiences. The *Fusarium* fungus is well-known within the world of banana growers. In the twenties, thirties and forties of the last century, Panama disease wreaked havoc throughout Latin America. This disease was caused by different *Fusarium* fungi, and its destruction was finally halted when farmers started growing the resistant Cavendish banana.

The Cavendish currently dominates the world market. TR4 is a new *Fusarium* species that affects this and many other banana varieties. The fact that this is largely unknown regarding African banana species almost ten years after TR4 first appeared in Mozambique is 'inconceivable', says Kema.

TRANSFERRED BY HUMANS, CARS AND WATER

With plantations everywhere growing the same banana, the disease spreads rapidly. ‘It is a soilborne fungus’, Kema explains. ‘Floods help the spread enormously. Moreover, the fungus may be transferred through contaminated tools, soil carried on shoes and car tyres. There is abundant traffic on plantations, and the bananas are picked by hand. That makes it difficult to control such a fungus. During last century’s epidemic, all efforts proved to be vain.’

GROWING ALTERNATIVE VARIETIES

‘Our first priority is to find out what varieties are susceptible and which are not’, Kema continues. ‘A proactive approach. As soon as TR4 pops up somewhere, every conceivable effort must be made to contain the outbreak. Furthermore, what varieties can still be grown must be known. The ultimate solution lies in new, resistant varieties. That requires breeding, which is a time-consuming process.’

WUR and its partner KeyGene are involved in an extensive breeding initiative funded by the Bill & Melinda Gates Foundation in East Africa. ‘But we have also started breeding our own varieties in collaboration with Chiquita. This effort focuses on diversifying varieties for the export trade. However, the knowledge gained will also be used to breed local varieties for domestic markets’, Kema explains. He refers to a study that was published in *PLoS One* recently. Lead author Dr. Fernando Garcia- Bastidas, banana breeder at Keygene and previously PhD student in Kema’s team, says ‘we discovered how to trigger an immune response in Cavendish by using an avirulent *Fusarium* strain. More research is required, but understanding this phenomenon can contribute to future solutions’.

CONCERNS OVER AFRICAN FOOD SECURITY

Kema: ‘Eventually, other bananas will be sold on the European markets. But my biggest concern is not whether western consumers will be able to eat bananas in the future. This is about food security in Africa. This is what we are worried about now that this fungus spreads so easily.’

More information:

- Anouk C. van Westerhoven *et al.* (2022). Uncontained spread of *Fusarium* wilt of banana threatens African food security. *PLoS Pathogens*. DOI: [10.1371/journal.ppat.101076](https://doi.org/10.1371/journal.ppat.101076)
- Anouk C. van Westerhoven *et al.* (2022). Dissemination of *Fusarium* wilt of banana in Mozambique caused by *Fusarium odoratissimum* Tropical Race 4. *Plant Disease*. DOI: [10.1094/PDIS-07-22-1576-SC](https://doi.org/10.1094/PDIS-07-22-1576-SC)
- Fernando A. García-Bastidas *et al.* (2022). Induced resistance to *Fusarium* wilt of banana caused by Tropical Race 4 in Cavendish cv Grand Naine bananas after challenging with avirulent *Fusarium* spp. *PLOS ONE*. DOI: [10.1371/journal.pone.0273335](https://doi.org/10.1371/journal.pone.0273335)

BACK TO THE ROOTS

A review article by Evans Were *et al.* titled “Back to the roots: Understanding banana below-ground interactions is crucial for effective management of Fusarium wilt” was published on 9 September 2022 by *Plant Pathology* (early view). The abstract is as follows:-

Global banana production is affected by Fusarium wilt, a devastating disease caused by the soilborne root-infecting fungus, *Fusarium oxysporum* f. sp. *cubense* (Foc). Fusarium wilt is notoriously difficult to manage because infection arises through complex below-ground interactions between Foc, the plant, and the soil microbiome in the root–soil interface, defined as the rhizosphere. Interactions in the rhizosphere play a pivotal role in processes associated with pathogen development and plant health. Modulation of these processes through manipulation and management of the banana rhizosphere provides an auspicious prospect for management of Fusarium wilt. Yet, a fundamental understanding of interactions in the banana rhizosphere is still lacking. The objective of this review is to discuss the state-of-the-art of the relatively scant data available on banana below-ground interactions in relation to Fusarium wilt and, as a result, to highlight key research gaps. Specifically, we seek to understand (a) the biology of Foc and its interaction with banana; (b) the ecology of Foc, including the role of root-exuded metabolites in rhizosphere interactions; and (c) soil management practices and how they modulate Fusarium wilt. A better understanding of molecular and ecological factors influencing banana below-ground interactions has implications for the development of targeted interventions in the management of Fusarium wilt through manipulation of the banana rhizosphere.

[Read paper.](#)

20 YEARS OF HIGHLY INFLUENTIAL PUBLICATIONS IN MOLECULAR PLANT IMMUNITY

A review article by Benjamin Petre *et al.* titled “2000–2019: Twenty years of highly influential publications in Molecular Plant Immunity” was published on 14 September 2022 by *Molecular Plant-Microbe Interactions* (Vol. 35). The abstract is as follows:-

Molecular plant immunity is a dynamic research field that broadly addresses how plants interact with their associated organisms and defend themselves against pests and pathogens. Here, we aimed at providing readers with a snapshot of influential molecular plant immunity research by identifying and analyzing 170 highly influential publications in molecular plant immunity (hereafter called HIPPYs) published in this field between 2000 and 2019. Our analysis draws a broad analytical knowledge of influential scientific advances in the field as well as of the research community that made them. We notably show that HIPPYs are shared by a small, structured, and connected research community. The HIPPYs address coherent research questions using a handful of key model objects (i.e., organisms or molecules) and report findings and concepts that contribute to our integrated understanding of the molecular interactions between plants and their associated organisms. Our ‘HIP in’ (‘highly influential publication in’ ...) method is easily transposable to other large research areas and may help early career researchers to gain a broader knowledge of their field of interest.

[Read paper.](#)

CURRENT VACANCIES

Assistant Professor of Plant Pathology at the University of California, Davis

The Department of Plant Pathology in the College of Agricultural and Environmental Sciences at the University of California, Davis is recruiting an Assistant Professor of Plant Pathology with an emphasis in plant virology. This is an academic year (9-month), tenure track Assistant Professor position, with responsibilities for research, teaching, mentoring and service, that includes an appointment in the California Agricultural Experiment Station (AES). Faculty members who hold an Agricultural Experiment Station appointment have a responsibility to conduct research and outreach relevant to the mission of the California Agricultural Experiment Station. Participation in outreach programs and performance of University service are also expected.

The successful candidate is expected to develop an independent, productive and competitively funded research program in fundamental and/or applied virology regarding viruses and/or virus-like agents associated with plants. This includes work with emerging viral diseases of field, fruit and nut and vegetable crops in California and around the world. Areas of interest include virus-plant host interactions, diagnostics, epidemiology, seed transmission, and virus-vector interactions. We expect that this proposed position will exploit new technologies to develop knowledge that will contribute environmentally sound disease control methods for plant virus diseases that threaten agriculture. The individual may take advantage of the large-scale diagnostic capabilities at Foundation Plant Services (FPS) for virus discovery and develop associations with the Seed Biotechnology Center and Genome Center. More info in the [PDF](#).

To apply, please visit: <https://recruit.ucdavis.edu/JPF05269>

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COMING EVENTS

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

13th International Congress on Plant Biotechnology and Agriculture

12 June - 16 June, 2023

Cayo Guillermo, Cuba

Website: bioveg.bioplantitas.cu

12th International Congress of Plant Pathology (ICPP2023)

20 August - 25 August, 2023

Lyon, France

Website: www.icpp2023.org

XX International Plant Protection Congress

1 July - 5 July, 2024

Athens, Greece

Website: www.ippcathens2024.gr

9th ISHS International Postharvest Symposium

11 November – 15 November, 2024

Rotorua, New Zealand

Website: scienceevents.co.nz/postharvest2024





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