



**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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INTERNATIONAL SOCIETY FOR PLANT PATHOLOGY (ISPP)

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# ENDING SPEECH AT THE CLOSING CEREMONY BY YONG-HWAN LEE, PRESIDENT OF THE ISPP, ON 25<sup>TH</sup> AUGUST 2023 AT THE 12<sup>TH</sup> INTERNATIONAL CONGRESS OF PLANT PATHOLOGY IN LYON, FRANCE

Thank you very much.

I am Yong-Hwan Lee at Seoul National University in South Korea.

First of all, I am deeply honored to be the the President of the International Society for Plant Pathology for the next five years. With my own experiences gained over the past forty years in the field of plant pathology, and learning from the experiences of the esteemed Past Presidents and Executive Committee Members who have contributed to making this outstanding society, I am committed to doing my best to further elevate our ISPP into an even greater society.

I would like to begin by expressing my gratitude to all those who have worked tirelessly for our society. A special thank you to Dr. Jan Leach, who served as the ISPP President for the past five years. Despite the challenges posed by the COVID-19 pandemic, we have now successfully concluded ICPP2023 in such a remarkable manner and numbers.



 **Thank you!**  
**Executive Committee 2018 - 2023**

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- **Secretary General** - Brenda Wingfield
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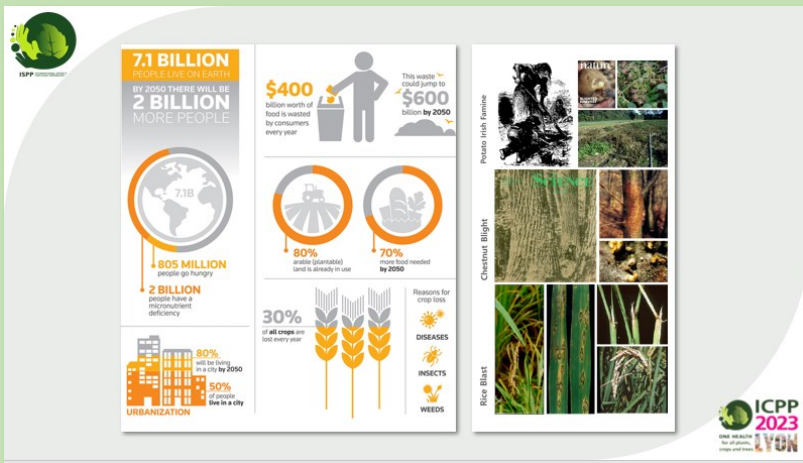
I also extend my appreciation to those who have actively served on the ISPP Executive Committee during the past five years, as well as to those who have contributed to the publication of the Food Security journal, the Newsletter, and have managed the society's website. Especially to Dr. Greg Johnson, “You did a super contribution during last seventeen years, as Secretary General, President, and Immediate Past President!”

Additionally, my thanks go to the Organising Committee Members of this ICPP2023. Your team did a fantastic job! Thank you! And Congratulations!

 **Thank you!**  
**Organizing Committee for ICPP 2023**

- Valérie Verdier, President
- Nathalie Poussereau and Mathias Choquer, Organizing Chairs
- Didier Tharreau, Scientific Program Chair
- Sylvie German-Retana, SFP President
- The French Phytopathological Society
- The International Advisory Committee
- Volunteers
- Staff
- Sponsors





As you all understand well, the global population has exceeded seven billions and is projected to reach over nine billion by 2050. To feed this growing population, it is estimated that we need approximately 70% more food production than today. Unfortunately, plant diseases and pests result in the loss of about 30% of our harvest annually, and recent climate changes even threaten more this issue.

The International Society for Plant Pathology, founded in 1968, has played a pioneering role in overcoming these challenges. Currently, it has 63 national and regional plant pathology societies as associate members. In addition to hosting the International Congress of Plant Pathology every five years, our society also engages in various committee activities, and publishes the Food Security journal as well as a monthly Newsletter.

From its inaugural conference in London in 1968 to this 12<sup>th</sup> ICPP2023 here in Lyon, we have come a long way. While there are many challenges ahead, I like to emphasise a few key points. Our collective objective should be to raise awareness about the significance of plant pathology and to translate the knowledge we gained from basic science into practical solutions for plant disease management. To achieve these goals, we need to work together, especially creating platforms where plant pathologists from both advanced and developing countries can collaborate together. I hope we can unite and work toward these common goals!



Lastly, I want to express my gratitude once again for entrusting me as the President of ISPP. I pledge my utmost dedication and commitment to this esteemed society!

Thank you very much.

## VIDEO RECORDINGS NOW AVAILABLE OF SOME ICPP2023 SESSIONS

The video recordings for some sessions of the ICPP2023 held in Lyon, France, are now available in the programme section of the [conference website](#).

Recorded sessions are freely available and include:

- Plenary Opening session and Jacob Eriksson Prize
- Key Note - Plant pathology in a One Health World
- Biological control – Part 1: The importance of augmentative biocontrol and plant microbiome function for plant health
- Impact of war and conflicts on plant pathology research and food safety of countries
- Key note - Food security in an unsecure future and Glen Anderson Lecture
- Getting rights right: A round table exploration of Indigenous rights and participation in plant pathology
- Management of postharvest diseases in mediterranean countries to reduce food waste – Round table
- Key note - Invasive and emerging plant diseases
- Molecular drivers of plant bacterial interactions
- Food security for sustainable food systems
- Molecular aspects of plant-fungal interactions, Part 1: Effectors
- Germplasm seed movement and global plant health
- Key note – A Global Health Assessment of the state of plant health and its impact on ecosystem services
- Discussion and forum on cross-cutting issues generated by findings of the Global Plant Health Assessment – Round table
- The pathobiome – A new understanding of postharvest diseases – Round table
- Key note – Current topics in molecular plant-microbe interactions
- Progress in disease control
- Impact of scientific advances in plant health
- Key note – New developments in plant disease management
- Best posters awards ceremony
- The impact of discoveries in plant health – Round table
- Sharing and exploiting HTS data – Round table
- Plant pathogens interactions in multi stress conditions (abiotic and biotic stresses): Viruses and other pathogens?
- A mechanistic approach of the varietal mixture effects on plant pathogens
- APP-titude for social media in plant disease research
- Research integrity in plant pathology – Round table
- Raising awareness of plants and ways of teaching plant pathology



# EIGHTEENTH UPDATE ON ISPP RESILIENCE BURSARY FOR PLANT PATHOLOGISTS

HEORHIY HRYNYK, MAŁGORZATA JĘDRYCZKA, MAŁGORZATA MAŃKA, PERVIN KINAY TEKSUR, MATHEWS PARET AND GREG JOHNSON

This month's update on the Resilience Bursary for Plant Pathologists, we report briefly on the ICPP2023 session The Impacts of War and Conflicts in Plant Pathology research and food safety of countries, and brief news on the Bursary awards for students from Türkiye who were affected by the February Earthquake. We'll hold over a report on the #ICPP\_by\_Bike initiative held just prior to the Congress until a future edition of the Newsletter.

**Congress Session.** At ICPP2023 in Lyon, the concurrent session, instigated at the suggestion of Alex Shevchenko of Kyiv, Ukraine, and Małgorzata Jędruczka of Poznan, Poland, was an illuminating and heartfelt series of presentations highlighting some of the impacts and tragedies of war and conflicts in plant pathology research and food safety of countries. There were four presentations on the situation, challenges and hopes for the future for Ukraine with by necessity two talks pre-recorded. In addition, there was a presentation on disease severity and pests in banana, cassava, potato, and sweet potato in the Lake Kivu Region of Rwanda and Burundi and a recounting of some of the wartime challenges arising for ICARDA'S germplasm seed collections in Syria and reference to loss and recovery of seedbanks arising from conflicts and calamities in other countries. The Session was chaired by the Chair of the ICPP2023 Scientific Program Committee, Didier THARREAU of Montpellier, FRANCE, and Kateryna UDOVYCHENKO of Novosilky, UKRAINE. Speakers and topics were as follows:

- Irena BUDZANIVSKA (Kyiv, UKRAINE) - Research and education in plant virology in Ukraine: the present is foggy, the future is bright?
- Alina DUNICH (Kyiv, UKRAINE) (pre-recorded presentation on) - Impact of war and climate change on viral diseases of winter wheat a threat to food security
- Kateryna UDOVYCHENKO (Novosilky, UKRAINE) - Keep calm and grow plants, or how horticulture survives in war in Ukraine
- R. A. MOUAFO-TCHINDA (Gainesville, FL, UNITED STATES) - Crop pathogen severity and pests in banana, cassava, potato, and sweet potato production in the Lake Kivu region of Rwanda and Burundi
- Safaa KUMARI (Zahle, LEBANON) - Phytosanitary management of ICARDA's germplasm seed collections for better future use
- Alex SHEVCHENKO (Kyiv, UKRAINE) - (pre-recorded presentation) - Emerging and (re)emerging viral threats for commercial plants in Ukraine: war and other problems.

Fortunately, this session was recorded and can be [viewed here](#).



**Türkiye.** Professor Pervin Kinay Teksur, President of the Society of Turkish Phytopathology has advised that two students who were affected by the earthquake have been recommended for ISPP Bursary support and ISPP is following through with funding arrangements. The bursary recipients include:

- Resul VARHAN (Hatay, TÜRKIYE) - HATAY MUSTAFA KEMAL UNIVERSITY, PhD student in Phytopathology department affected by earthquake in Türkiye.
- Senem ÇAKIRBEY (Hatay, TÜRKIYE) - HATAY MUSTAFA KEMAL UNIVERSITY, PhD student in Phytopathology department affected by earthquake in Türkiye.

Currently the Fund is focussed on support for scientists from Ukraine, Türkiye and Syria with options for expanding the initiative to other emergent conflicts and calamities. Perhaps as you read this you or your society may also wish to contribute to the fund (or organise a fundraiser) since the need remains urgent, while our funds are dwindling. Enquiries can be directed to [resilience@isppweb.org](mailto:resilience@isppweb.org).

The PayPal Button and QR code donation links provides donors with the opportunity to choose the destination of their donation as for (a) Any emerging need, (b) Türkiye, (c) Syria, or (d) Ukraine.



This month, we hear from Professor Heorhiy Hrynyk of the Ukrainian National Forestry University in Lviv (UNFU), released from Ukraine with family due to his very poor eyesight which would not allow him to serve in the armed forces.

## HEORHIY HRYNYK

My acquaintance with the Forest Research Institute (FRI) in Poland began back in 2001. The first internship abroad began immediately in the Department of Forest Protection (DFP) at the FRI. Although my PhD thesis was devoted to the morphological and assessments features of the structure of silver fir forests stands in the Ukrainian Beskids (2000), the topic of the internship concerned the influence of root pathogens on the sanitary condition of spruce forests stands. The internship lasted three months, but the acquired new knowledge and new acquaintances helped me expand the horizons of my knowledge and skills.



Professor Heorhiy Hrynyk speaking to students on the discipline "Forest Management" at the UAK (Kraków, University of Agriculture in Kraków, March 2023). Clarification of similarities and differences in forest typologies of Poland and Ukraine.

The next internship in the FRI took place in the following year, 2002, and related to monitoring studies of the state of forest stands in Poland. The internship was financed by the NATO scholarship fund "Partnership for Peace" and took place in the same DFP. Based on the results of the research, several scientific monographs and a number of articles in professional publications were published in co-authorship during 2003-2005 in Poland and Ukraine. Based on the results of the internship in Ukraine, several thematic seminars were held for the practical implementation of ICP Forest monitoring research methods in the practice of forestry in Ukraine during 2005-2010. The results of the research were presented in the form of scientific articles in specialised publications in the forestry field.

My main place of work has always been my *alma mater* – the Ukrainian National Forestry University in Lviv (UNFU), where I graduated with Honors in 1995. Then postgraduate studies, preparation and writing of a doctoral dissertation. After my doctoral studies, I worked as a researcher and senior researcher. For significant scientific achievements, I received the academic title of "Senior Researcher" (2005).

At the same time, I also worked as a teacher – starting in 2000 as an assistant and continued as Associate Professor. I received the academic title "Docent" in 2011. For several years, I also worked in the Botanical Garden at our University. The habilitation dissertation study was devoted to the complex influence of orographic factors in the corresponding types of forest site conditions on the growth and development of the main forest species in the Ukrainian Carpathians (2013). Forest monitoring has always occupied a significant place in my research. The results were also presented to Master's level students during the "Environmental monitoring" course. From 2014, teaching became my main occupation. Now I work at the Department of Dendrometry and Forest Management at the UNFU.

In 2017, I was able to visit FRI once again and undergo an internship at the DFP under the guidance of Prof. Tomasz Oszako, conducting research together in almost all corners of Poland. This time, the topic of the internship was devoted to the assessment of the impact of the use of phosphines on the health of oak trees on the Krotoszyn Plateau in Poland: "Phosphites as fine root protection against *Phytophthora*." At that time, it was possible to process a large amount of field material collected only partially due to lack of time.

I have been working as a Professor since 2016, and the academic title was awarded in February 2021. In 2021, I was invited to the Warsaw University of Life Sciences and worked as a visiting Professor for three months starting in November at the Institute of Forest Sciences at the Department of Forest Botany. The scientific guardian was Prof. Mirela Tulik.

I returned to Ukraine and the war started exactly one month later. Together with my family, they helped the refugees and the Ukrainian military as much as they could. Scientific and research work took a back seat. It was impossible to conduct field research. Colleagues from Poland from FRI came to the rescue once again. They organised the possibility of scientific internships and participation in scientific projects for scientists from Ukraine. I met the requirements and got the opportunity to participate in the research project "Growth and development of English oak saplings (*Quercus robur* L.) fully or partially exposed from under the canopy of a pine stand". The scientific guardian was Prof. Rafał Paluch. The internship began on 22 August 2022.

At the beginning of October 2022, I received information about awarding me a scholarship at the Prize of named Iwan Wyhowski in 2022/2023 under the honorary patronage of the President of the Republic of Poland. The application for the scholarship was made back in 2021, but due to the COVID-19 quarantine, the competition was postponed until 2022. The scholarship allowed me to complete an internship at two Polish Universities. In particular, according to my technical specialty, they were the Warsaw University of Life Sciences (WULS) and the University of Agriculture in Kraków (UAK). In each of the Universities, the internship lasted 2 months.

My academic supervisor at WULS was Prof. Mirala Tulik, and at UAK – Prof. Stanislaw Malek. During the internship at UAK, Prof. S. Malek offered me the opportunity to take part in the educational process as a visiting Professor at the Department of Forest Ecology and Silvicultural at UAK. Thus, I was in Krakow from January to the end of June 2023. In July 2023, I continued my research in a research project at FRI under the guidance of Prof. Rafał Paluch. The opportunity to gain new experience and knowledge over a long period of time allowed me to return to research work.

Professor Heorhiy Hrynyk providing practical lessons in the forest from the educational discipline "Ecological basis of Silvicultural" (Krynica Górská, June 2023). Assessment of natural regeneration of wood species.



Thanks to the Polish Society of Phytopathology and the ISPP Resilience Bursary, I had the opportunity in August and September 2023 to continue the research started in 2017. Together with Prof. Tomasz Oszako developed the theoretical concept of the research, and its practical implementation is foreseen.

My wife Dr Olena Hrynyk, who works at UNFU, also received an invitation to participate in a research project that is being implemented at FRI under the guidance of Prof. Janusz Czerepko. She came to Poland in April 2023 with our son – and our family is now together.

I am grateful to all colleagues from Poland who help Ukrainians and Ukraine in times of need. I am grateful to the members of the Polish Society of Phytopathology for the opportunity to continue scientific research. I am also sincerely grateful to all my scientific guardians from Warsaw, Krakow, Białowieża and the management of FRI for financial assistance and moral support in a difficult situation.



## THE CONTRIBUTION OF FUNGI TO THE GLOBAL ECONOMY

A review by William Makaza *et al.* titled “Harnessing plant resistance against *Striga* spp. parasitism in major cereal crops for enhanced crop production and food security in Sub-Saharan Africa: a review” was published on 14 February 2023 by *Food Security* (vol. 15, pp 1127–1149). The abstract is as follows:-

Given their long-lasting seed viability, 15–20-year lifespan and their high seed production levels, a significant impact of parasitic plant *Striga* spp. on African food production is inevitable. Over the last decades, climate change has increasingly favoured the adaptability, spread and virulence of major *Striga* species, *S. hermonthica* and *S. asiatica*, across arable land in Sub-Saharan Africa (SSA). These parasitic weeds are causing important yield losses on several staple food crops and endangering food and nutritional security in many SSA countries. Losses caused by *Striga* spp. are amplified by low soil fertility and recurrent droughts. The impact of *Striga* parasitism has been characterized through different phenotypic and genotypic traits assessment of their host plants. Among all control strategies, host-plant resistance remains the most pro-poor, easy-to-adopt, sustainable and eco-friendly control strategy against *Striga* parasitism. This review highlights the impact of *Striga* parasitism on food security in SSA and reports recent results related to the genetic basis of different agronomic, pheno-physiological and biochemical traits associated with the resistance to *Striga* in major African cereal food crops.

[Read paper.](#)

## THE MANIFOLD COSTS OF BEING A NON-NATIVE ENGLISH SPEAKER IN SCIENCE

A paper by Tatsuya Amano *et al.* titled “The manifold costs of being a non-native English speaker in science” was published on 18 July 2023 by *PLOS Biology* (vol. 21(7), e3002184). The abstract is as follows:-

The use of English as the common language of science represents a major impediment to maximising the contribution of non-native English speakers to science. Yet few studies have quantified the consequences of language barriers on the career development of researchers who are non-native English speakers. By surveying 908 researchers in environmental sciences, this study estimates and compares the amount of effort required to conduct scientific activities in English between researchers from different countries and, thus, different linguistic and economic backgrounds. Our survey demonstrates that non-native English speakers, especially early in their careers, spend more effort than native English speakers in conducting scientific activities, from reading and writing papers and preparing presentations in English, to disseminating research in multiple languages. Language barriers can also cause them not to attend, or give oral presentations at, international conferences conducted in English. We urge scientific communities to recognise and tackle these disadvantages to release the untapped potential of non-native English speakers in science. This study also proposes potential solutions that can be implemented today by individuals, institutions, journals, funders, and conferences.

[Read paper.](#)

## PAVING THE WAY FOR SUSTAINABLE AGRICULTURE: FUNGAL-PLANT SYMBIOSIS OFFERS A PROMISING TOOL TO BOOST CROP RESILIENCE

UNIVERSITY OF TURKU PRESS RELEASE, 28 AUGUST 2023

Researchers inoculated oilseed rape plants with a species of fungus that is known for its ability to combat pest insects. Utilising the relationship between beneficial fungi and crop plants may introduce a new era of agriculture where the plant resilience is improved and the ecological footprint of traditional/chemical pesticides is minimised.

A study led by researchers from the University of Turku in Finland has shown that a species of fungus that normally grows in the wild and kills insects can be successfully inoculated in oilseed rape plants where it fosters a unique symbiotic relationship. The discovery is a step towards a future of sustainable agriculture, for which harnessing the power of beneficial fungi to enhance crop protection and productivity holds great potential.

The researchers used *Beauveria bassiana*, a species of fungus known for its ability to combat pest insects. It is commonly used as a biopesticide that is sprayed on the leaves of crops. These biopesticides are used around the world, but their weakness has been their vulnerability to UV degradation. This led the researchers to explore an alternative approach where they inoculated oilseed rape plants with the fungus to foster a unique symbiotic relationship.

"We embarked on a journey to unlock the potential of *Beauveria bassiana* in crop protection, while it might live endophytically within the plant tissue. This way, we aimed to create a natural defence mechanism against pests," explains the first author of the study, Docent Anne Muola from the Biodiversity Unit of the University of Turku.

### SUCCESSFUL SYMBIOSIS CAUSED AN INCREASE IN FLAVONOID BIOSYNTHESIS

Researchers made a breakthrough by establishing an endophytic relationship between the fungus and oilseed plants. The growth of the fungus in the plant tissue triggered a remarkable increase in flavonoid biosynthesis and compounds known for multiple plant benefits including antioxidant properties.



"Our findings suggest that the interaction between the fungus and the plant spurred a positive response in the form of enhanced metabolite production, rather than a defence response against the fungal intruder," states lead author of the study, Academy Research Fellow Benjamin Fuchs from the Biodiversity Unit of the University of Turku.

Flavonoids produced by the oilseed rape plant and renowned for their antioxidant properties and their role in UV protection, flower pigmentation, and herbivore deterrence, took centre stage in the study's results. Next, the researchers aim to find out how great of an impact this particular fungus has on plant resilience against environmental stressors and how it impacts crop quality.

## **USING MICROBES IN AGRICULTURE CAN REDUCE RELIANCE ON CHEMICAL PESTICIDES**

"Our study holds immense promise for sustainable agriculture. By embracing the symbiosis between beneficial microbes and crop plants, we're ushering in a new era of agricultural practices that reduce reliance on chemical pesticides," says Fuchs.

According to the researchers, partnerships between organisms like the one unveiled in this study offer a glimpse into the future of agriculture where society strives to secure its food supply while minimising the ecological footprint.

"With the increasing recognition of the role of microbes in plant health and advanced biotechnological tools at hand, the stage is set for innovative approaches to optimise crop resilience and quality on a smart and sustainable path," notes Fuchs.

The research article was published in the [Pest Management Science](#) journal.

## **ISOLATION AND CHARACTERIZATION OF FILAMENTOUS FUNGI CAPABLE OF DEGRADING THE MYCOTOXIN PATULIN**

A paper by Megumi Mita *et al.* titled "Isolation and characterization of filamentous fungi capable of degrading the mycotoxin patulin" was published in August 2023 by *Microbiology Open* (vol. 12 (4), e1373). The abstract is as follows:-

Patulin is a toxic secondary metabolite synthesized by various fungal strains. This mycotoxin is generally toxic to microorganisms as well as mammals due to its reactivity with the important cellular antioxidant glutathione. In this study, we explored the presence of microorganisms capable of degrading patulin. Microorganisms were screened for the ability to both grow in culture medium containing patulin and reduce its concentration. Screening of 510 soil samples resulted in the isolation of two filamentous fungal strains, one of which, *Acremonium* sp. TUS-MM1 was characterized in detail. Liquid chromatography-mass spectrometry and nuclear magnetic resonance analyses revealed that TUS-MM1 cells degraded patulin to desoxypatulic acid. In addition, extracellular components of strain TUS-MM1 also exhibited patulin-transforming activity. High-performance liquid chromatography analysis revealed that the extracellular components generated several products from patulin. Disc diffusion assay using *Escherichia coli* cells revealed that the patulin-transformation products by the extracellular components are less toxic than patulin. We also demonstrated that a thermostable, low-molecular-weight compound within the extracellular components was responsible for the patulin-transforming activity. These results suggest that strain TUS-MM1 transforms patulin into less-toxic molecules by secreting a highly reactive compound. In addition, once patulin enters the cells, strain TUS-MM1 can transform it into desoxypatulic acid to reduce its toxicity.

[Read paper.](#)

## NOVEL PLANT PATHOGEN DISCOVERED ON WORLD'S NORTHERNMOST ISLAND

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Ellesmere Island (76°N–83°N) is one of the northernmost islands in the world, along with Greenland and Spitsbergen Island. More than 100 species of vascular plants are distributed across this island in the ice-free areas in summer. However, there has been little research on fungal diseases in these plants.

In this new study published in *Forest Pathology*, a researcher at the University of Tsukuba discovered a pathogenic fungus that forms a unique black stroma (reproductive organs of fungi, such as mushrooms) on the leaves of the Arctic willow, which is a dominant plant on the island.

The morphological characteristics of fungus were different from those of any related species discovered as yet in terms of the key points for species identification, namely, the size of the spores and shape of stroma. Molecular phylogenetic analysis also supports the uniqueness of this specimen, and it has been described as a novel species of fungus of the genus *Rhytisma*.

This study has shown that even in the Arctic, the regional location and the host species-level differences drive the diversity of the pathogens. Further data on *Rhytisma* spp. from other regions in the Arctic will help researchers understand how they spread across the Arctic region with their hosts and how they survived in the tundra ecosystem.

## REGISTER FOR THE RESEARCH ETHICS COURSE

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How do you know the "right" decision to make in ethically dubious situations? Do you have a strategy in place to uphold your personal ethical standards in research? The APS Research Ethics Course is here to help!

Discover your own sense of ethics and get the tools you need to deal with research misconduct through our interactive, discussion-based course. Upon successful course completion, attendees will receive a Certificate of Completion toward NIH, NSF, and USDA NIFA Responsible Conduct of Research (RCR) training requirements.

The course will be online every Wednesday from 17<sup>th</sup> January to 24<sup>th</sup> April 2024 during 4-5pm central time.

[More info and to register click here.](#)

## **THE JOURNAL SCIENTIFIC REPORTS (NATURE PORTFOLIO) LAUNCHES A NEW COLLECTION ON POSTHARVEST BIOLOGY**

Ensuring food production has the capacity to meet the needs of populations worldwide requires not only innovative production methods, but also strategies to minimise food waste. Currently, around one third of the harvested fruits and vegetables ends up being wasted before consumption, due to multiple factors, such as overproduction or accidents during distribution. Once harvested, fresh produce remain biological active and undergo a series of reactions that alter their composition, nutritional value, maturation stage, and make them vulnerable to pathogen infections. Understanding the biological processes that take place after harvest will thus enable the development of new strategies to prolong the shelf-life of fresh produce and ultimately contribute to the increase food security.



This new **Collection on Postharvest Biology**, guest-edited by the journal editorial board members **Tie Liu** (University of Florida, USA), **Lluís Palou** (Valencian Institute of Agrarian Research (IVIA), Spain), **Sunil Pareek** (National Institute of Food Technology Entrepreneurship and Management, India), and **Gianfranco Romanazzi** (Marche Polytechnic University, Italy), considers submissions of original research on vegetable and fruit postharvest biology, including postharvest physiology, senescence, and pathology.

Deadline for manuscript submissions is **28 December 2023**.

For additional information and manuscript submission:

<https://www.nature.com/collections/ebidbbfdce>

# UNDERSTANDING AND MINIMISING FUNGICIDE RESISTANCE – NEW BOOK

Francisco J. Lopez-Ruiz, Editors (2023). Understanding and minimising fungicide resistance. Burleigh Dodds Science Publishing, UK. 420pp.

The emergence of fungicide resistance is a major challenge facing agriculture. With increasing regulation and costs limiting the development of new fungicides, farmers remain reliant on a relatively small group of working fungicides, many of which are decreasingly effective as major crop disease pathogens develop resistance to them.

*Understanding and minimising fungicide resistance* provides an authoritative review on the wealth of research on understanding the development of fungicide resistance in agricultural crops and the establishment of preventative measures which can be implemented to limit its spread and the consequent impact of disease on yields.

This collection includes ways of understanding and preventing resistance to key groups of fungicides, such as SBI, QoI, SDHI and OSPBI. For more information and to view the full table of contents, visit the Burleigh Dodds Science Publishing [website](#).

### **\*Exclusive Discount for ISPP Members\***

Receive **20%** off your order of the book using code **FR20** via the [BDS Website](#). Please note that this discount code expires 31st October 2023.



## FUNGAL POPULATIONS IN LEAVES MAY GIVE INSIGHTS INTO THE HEALTH OF FOREST ECOSYSTEMS

AGRICULTURE & FOOD DEVELOPMENT AUTHORITY (TEAGASC) NEWS, 8 SEPTEMBER 2023

Jo Ruane and Niall Farrelly provide an overview of ADAPTFORRES, a new research project coordinated by Teagasc, which is an all island research collaboration aimed at strategies to increase the resilience in Irish forests.

Endophytes are fungi which have co-evolved with plants and grow inside plant tissue without causing any negative consequences to the host. Endophytic fungi can be beneficial to plants and promote plant growth by producing phytohormones, which can promote root and shoot formation and/or facilitate better nutrient uptake. Such hormones can also have a protective effect by acting as biological control agents and increase the plants resilience to environmental stresses. This is achieved by the production of antimicrobial and antioxidant like compounds which act to provide the tree with a pest and pathogen like defence mechanism.



Flavio Storino sampling sessile oak (Photo credit: TEAGASC).

Specific species of fungal endophytes have been known to enhance the thermal and drought tolerance of the trees by increasing the rate of photosynthesis and water retention under water limited conditions. The capability for increasing stress tolerance is anticipated to play an important role in the management of plants that are used as crops, albeit for food or timber in the future. In addition, recent studies have demonstrated the role of endophytic fungi as a bio-inoculant to enhance protection against disease.

The presence and composition of endophytes in habitats can tell us a lot about the conditions of a crop on a given site. In their endophytic phase, they work to provide a mutually beneficial symbiotic relationship with the host plant without causing any negative consequences. However, endophytes can also exist as latent pathogens which may become active under certain environmental conditions. If we understand what type of endophytes exist, it may prove to be a useful early indication if there are potential disease causing endophytes present in an ecosystem before they become problematic.

### FUNGAL ENDOPHYTES AS EARLY WARNING SYSTEM

Climate change will create uncertainties for how forest ecosystems will adapt and alter our strategy to manage and protect our forests. We must be vigilant to limit the introduction of novel invasive fungal pathogens and have strategies to limit the spread and effect of existing diseases. It is uncertain whether warmer conditions associated with climate

change will increase the prevalence of certain pathogens by providing conditions which will allow them to proliferate. Early warning systems such as monitoring are good strategies to detect diseases early on, before they become fully established, thus there is a greater chance of attaining a successful outcome for their control.

ADAPTForRes, a new research project coordinated by Teagasc, is an all island research collaboration aimed at strategies to increase the resilience in Irish forests. Changing climate conditions in some cases may result in a positive outcome for forests, by promoting increased growth (e.g. longer growing season) or bring negative effect consequences depending on how well the tree species can adapt to changing conditions.

It is hoped AdaptForRes will increase knowledge on endophyte diversity in Irish forests, including pathogenic endophytes, of Irish trees. The project hopes to provide innovative ways for detecting endophytes in Irish Forests. The goal is to explore ways of improving on the early warning systems that we have in place.

## **ADAPTFORRES – SAMPLING ENDOPHYTIC FUNGI**

Flavio Storino, who is a PhD student, based at University College Dublin, is conducting the study on endophytic fungi in Irish forests. The research will demonstrate a baseline for fungal foliar diversity in trees at specific locations throughout Ireland. This work essentially creates a template for the development of a future surveillance network, which will enable foresters to ascertain the presence of pathogens in particular areas.

This task involves determining fungal endophyte populations in leaf samples from three different tree species in Ireland, both native and non native. These are Sessile oak, Scot's pine and Sitka spruce.

## **HOW DO WE DETERMINE ENDOPHYTIC POPULATIONS?**

Leaf samples are collected and the endophytic fungi are then extracted from the leaves, grown in growth media, isolated and genetically identified. This could have potential as a novel way to detect the presence of disease causing fungi. Essentially, this work is a preliminary study to see if such methods are robust to utilise as part of a surveillance efforts for Irish forests.

Once pure cultures of the fungi have been isolated, the DNA is extracted and segments are amplified by PCR testing (polymerase chain reaction). This is a technique for rapidly producing or amplifying millions to billions of copies of a specific segment of DNA.

A technique known as barcoding allows the isolates to be further studied. These DNA barcodes can be compared to a reference library to provide a precise identification. An existing database of reference material has been compiled through previous research studies for example, Gembank.

Evaluation of the diversity of fungi out using statistical analysis (incl. diversity indices-which is a way to give a numerical value to how diverse an ecological community is). Overall, this research is invaluable and provides the first study of the population genetics of forest endophyte on the island of Ireland.



## CURRENT VACANCIES

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### **Assistant Professor of Plant Pathology - University of California, Davis**

The Department of Plant Pathology at the University of California, Davis is recruiting a tenure track, Assistant Professor with an emphasis in disease ecology. Applicants should have a strong quantitative background and broad training in plant pathology, ecology, epidemiology, and/or population biology to focus on current or newly emerging plant diseases. The candidate is expected to develop an independent, productive and competitively funded research program on diseases in orchard, vegetable, field and/or native plant communities. The appointee will be responsible for teaching at the undergraduate level in courses supporting the Global Disease Biology major and the graduate program in Plant Pathology. More info about the position and further instructions in the [PDF](#).

Applications should be submitted by 23 October 2023 at <https://apptrkr.com/4526762> (full position announcement at this site).

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## COMING EVENTS

### 7<sup>th</sup> International Conference on Bacterial Blight of Rice

16 October - 19 October, 2023  
Manila, Philippines  
Website: [irc2023.irri.org/international-conference-on-bacterial-blight-of-rice](http://irc2023.irri.org/international-conference-on-bacterial-blight-of-rice)

### 24<sup>th</sup> Australasian Plant Pathology Society Conference

20 November - 24 November, 2023  
Adelaide, South Australia  
Website: [eventstudio.eventsair.com/apps2023/](http://eventstudio.eventsair.com/apps2023/)

### 8<sup>th</sup> International Conference of Pakistan Phytopathological Society - “Sustainable Agriculture & Food Security: A nexus of Plant Pathogens, Climate Change and Water Challenges”

26 November - 28 November, 2023  
Department of Plant Pathology, The Islamia University, Bahawalpur, Pakistan  
Website: [pakps.com/8icpps](http://pakps.com/8icpps)  
Email: [8icpps@pakps.com](mailto:8icpps@pakps.com)

### International Plant and Animal Genome (PAG 31)

12 January - 17 January, 2024  
San Diego, California, USA  
Website: [intlpag.org/31/](http://intlpag.org/31/)

### 7<sup>th</sup> International Research Conference on Huanglongbing (IRC-HLB)

26 March - 29 March, 2024  
Riverside, California, United States  
Website: [web.cvent.com/event/7c12d9c3-01db-4e6e-b781-aafef0f7109a/summary](http://web.cvent.com/event/7c12d9c3-01db-4e6e-b781-aafef0f7109a/summary)

### XX International Plant Protection Congress

1 July - 5 July, 2024  
Athens, Greece  
Website: [www.ippcathens2024.gr](http://www.ippcathens2024.gr)

### International Conference on Plant Pathogenic Bacteria & Biocontrol 2024

7 July - 12 July, 2024  
Virginia Tech, Blacksburg, Virginia, United States  
Website: [icppbbiocontrol2024.org](http://icppbbiocontrol2024.org)

### Plant Health 2024

27 July – 31 July, 2024  
Memphis, Tennessee, USA  
Website: [www.apsnet.org/meetings/annual/Pages/default.aspx](http://www.apsnet.org/meetings/annual/Pages/default.aspx)

### Asian Conference on Plant Pathology 2024

3 August – 7 August, 2024  
Changchun, Jilin, China  
Website: tba

### Australasian plant virology workshop (APVW 2024)

29 October – 31 October, 2024  
Gold Coast, Australia  
Contact and Email: [Fiona.Filardo@daf.qld.gov.au](mailto:Fiona.Filardo@daf.qld.gov.au)  
Website: [apvw-2024.w.kamevents.currinda.com](http://apvw-2024.w.kamevents.currinda.com)

### 9<sup>th</sup> ISHS International Postharvest Symposium

11 November – 15 November, 2024  
Rotorua, New Zealand  
Website: [scienceevents.co.nz/postharvest2024](http://scienceevents.co.nz/postharvest2024)

### International Congress of Plant Pathology 2028

19 August – 25 August, 2028  
Gold Coast, Queensland, Australia  
Website: [www.icpp2028.org](http://www.icpp2028.org)



## INTERNATIONAL SOCIETY FOR PLANT PATHOLOGY (ISPP)

[WWW.ISPPWEB.ORG](http://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.

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