



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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Editor: Daniel Hüberli ([email](#))

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INTERNATIONAL SOCIETY FOR PLANT PATHOLOGY (ISPP)

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ICPP2023 PROVISIONAL SCIENTIFIC PROGRAM

MATHIAS CHOQUER AND NATHALIE POUSSEREAU, CO-CHAIRS OF ICPP2023

Our calls for satellite events and concurrent sessions have been successful and the scientific committee, led by Didier Tharreau (CIRAD, Montpellier, France) has enriched this program with new and exciting sessions. Below you will find our provisional scientific program which currently includes 22 satellite events, 8 plenary/keynote sessions, 62 concurrent sessions and 8 round tables. Come to the ICPP2023 in France, and [register now!](#)

22 SATELLITE EVENTS:

- 4th European Conference on *Xylella fastidiosa*
- 5th EURL Bacteriology workshop (not open for registration)
- Big Ideas in Agricultural Microbiome Science: A Community-based Interactive Workshop
- Biological induced resistance in plants against pathogens using beneficial microbes and natural substances
- Biology and paleovirology of the *Caulimoviridae*
- Forest pathology field trip
- *Fusarium* wilt disease of banana: how to tackle a pandemic?
- Global Plant Health Assessment Workshop (not open for registration)
- Harnessing Culture Collections for Improved Plant Health
- High-throughput sequencing in plant virology: from discovery to diagnostics
- How to combine remote sensing with epidemiological modelling to improve plant disease management?
- How to Write Winning Grant Proposals
- Nuts and Bolts for Plant Diseases Image Classification, an Artificial Intelligence Tool
- Oomycete Molecular Genetics Network Annual Meeting (OMGN)
- *Pectobacteriaceae*: soft rot pathogenesis and symbiosis
- Phytobiomes Research for Plant Health
- Plant Health starts with Seed Health
- Powdery mildews: phylogenetics, phylogenomics, and molecular host-pathogen interactions
- Rice diseases
- Soil health and soilborne plant diseases
- Tn-Seq to reveal microbial lifestyles along plant interaction processes
- Understanding the ecology and evolution of bacterial wilt disease in the plant microbiomes

8 PLENARY/KEYNOTE SESSIONS:

- Opening Plenary session (including Jakob Eriksson prize)
- Plant Pathology in a “One-Health” World
- Food Security in an Unsecure Future (including Glen Anderson lecture)
- Invasive and Emerging Plant Diseases

- Global Plant Health Assessment (GPHA)
- Hot Topics on Molecular Plant-Microbe Interactions
- New Developments in Plant Disease Management
- Closing Plenary session

62 CONCURRENT SESSIONS:

- A mechanistic approach of the varietal mixture effects on plant pathogens
- Advances in the use of novel monitoring programs and exotic sentinel trees to detect incipient threats posed by forest pathogens in forest ecosystems
- APP-titude for social media in Plant Disease Research
- At the heart of disease emergence: Determinants and consequences of host range contours of plant pathogens
- Bacteriophages: ecological roles and potential applications against bacterial plant pathogens
- Bioinvasion in the urban environment: pathways, early warning, mitigation measures, institutional frameworks and policy implementation
- BIOLOGICAL CONTROL - Part 1 & Part 2: The importance of augmentative biocontrol and plant microbiome function for plant health
- *Botryosphaeria* dieback, which culture is affected, what we know and how to fight?
- Controlling Globally Developing Disease Threats of Banana
- CRISPR crops: plant Genome Editing Toward Disease Resistance
- Current and emerging forest pathology issues
- Development of Molecular Diagnostic Tools for Plant Pathogens in a Globalising World
- Emerging *Phytophthora*'s Tackling Global Outbreaks that Impact Food security
- Endophytes and diseases
- Food Security for Sustainable Food Systems
- Forest pathogenic fungi and insect: new and ancient associations
- From the deciphering of host pathogen interactions to disease management: the *Leptosphaeria maculans* /rapeseed case study
- Genome evolution in filamentous plant pathogens
- Germplasm seed movement and global plant health
- High throughput sequencing approaches for the detection of pathogens
- Impact of scientific advances in plant health
- Impact of war and conflicts in plant pathology research and food safety of countries
- Insights in Plant Immune Receptors
- Latest advancements in knowledge and management of *Ralstonia* species
- Mind the Gap: Innovation and Opportunities in Seed Health testing
- MOLECULAR ASPECTS: interactions with parasitic plants
- MOLECULAR ASPECTS: plant-bacteria interactions
- MOLECULAR ASPECTS: plant-fungus interactions
- MOLECULAR ASPECTS: plant-nematode interactions

- MOLECULAR ASPECTS: plant-oomycetes interactions
- MOLECULAR ASPECTS: plant-virus interactions
- Mycotoxins
- Necrotrophic plant pathogens
- New Developments in Fungicide Resistance
- One health: impact of resistance to antibiotics and fungicides in plant pathogens
- Particle based delivery of biomolecules for crop protection
- Pathovars of *Pseudomonas* and *Xanthomonas* spp.: do they really exist?
- Plant pathogens interactions in multi stress conditions (abiotic and biotic stresses): viruses and other pathogens?
- Plant protection potential of persistent (cryptic) viruses in fungi, plants and insect vectors of plant disease
- Plant responses to pathogen
- Population genomics of plant pathogens
- POST-HARVEST - Part 1: Interactions of postharvest pathogens with the host and its microbiome
- POST-HARVEST - Part 2: Sustainable managements of postharvest diseases: new technologies and approaches
- POST-HARVEST - Part 3: Eco-epidemiological perspectives generating new concepts on postharvest diseases and mycotoxins
- PROGRESS IN DISEASE CONTROL - Part 1 & Part 2
- Raising awareness of plants and ways of teaching plant pathology
- Re-emergence of tobamoviruses threatening global vegetable production
- Resilience in soil health and disease suppression
- RISK ASSESSMENT for plant pathogens key tool for biosecurity under global changes
- Social and cultural dimensions of international forest health
- Soil-borne plant viruses
- Synergism/antagonism between microbial pathogens and disease complexes: implications in epidemiology and management
- The ecology of plant viruses and epidemiology of the disease they cause: How fundamental ecological research in natural systems can inform and advance plant pathology
- The future of disease surveillance and prediction: Beyond the usual suspects.
- The Potential of Seed Microbiomes
- Towards structure-based design of disease resistance genes
- Tracing the long-distance pathways of aerial dissemination of plant pathogens
- Understanding emergence of pathogens in commercial and public forest ecosystems
- Vectors/mechanism of vection
- Viral modification of plant functions affecting interactions with vectors and other organisms

8 ROUND-TABLES:

- Discussion and forum on cross-cutting issues generated by findings of the Global Plant Health Assessment
- Getting rights right: A round table exploration of Indigenous rights and participation in plant pathology
- Jobs in Plant Pathology
- Management of postharvest diseases in Mediterranean countries to reduce food waste
- Research Integrity in Plant Pathology
- Sharing and exploiting HTS data
- The impact of discoveries in plant health
- The pathobiome – New understanding of postharvest diseases



SEVENTH UPDATE ON ISPP RESILIENCE BURSARY FOR PLANT PATHOLOGISTS

YULIIA KORZH, MAŁGORZATA JĘDRYCZKA, MAŁGORZATA MAŃKA AND GREG JOHNSON

As we move closer to winter in the northern hemisphere, the situation in Ukraine remains grim. Despite the successes with Ukrainian forces liberating more land occupied by the Russians, the threats to electricity supplies add to the burdens of citizens and the economy.

ISPP anticipates that the current need for the ISPP Resilience Bursary Fund to support Ukraine plant pathologists will continue into the New Year. We sincerely acknowledge the generous contributions to the Bursary Fund to date by many individuals and by several Plant Pathology societies, as well as our colleagues in Poland and Ukraine. Thanks to:

- Australasian Plant Pathology Society – APPS
- Canadian Phytopathological Society – CPS
- Plant pathologists at CAU
- Société Française de Phytopathologie – SFP (France)
- Associazione Italiana per la Protezione delle Piante – AIPP (Italy)
- Società Italiana di Patologia Vegetale - SIPaV (Italy)
- Mediterranean Phytopathological Union – MPU
- Koninklijke Nederlandse Plantenziektkundige Vereniging - KNPV (Netherlands)

Meanwhile some other Societies have been considering options with their Executive Boards or members, and we hope to hear from them soon. Of course, support for the ISPP Bursary Fund was preempted by some plant pathologists and Societies contributing to appeals for Ukraine support through their National Academies of Science and or their own institutional appeals.

If you or your group would like to donate, please go to this [link](#).

In this issue we hear from Yuliia Korzh who has been at Jagiellonian University in Krakow.

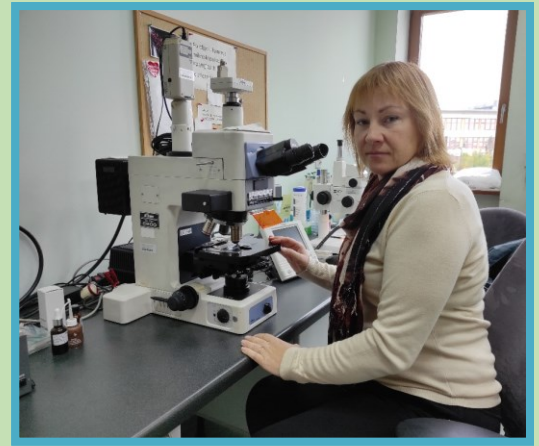
YULIIA KORZH

Like all Ukrainians, my life changed on 24 February 2022, when Russia launched a war against Ukraine. At the beginning of the war, many Ukrainians were forced to leave their homes to protect their family from danger. Running from the war, I ended up in Poland with my children (ages 7 and 14), far from relatives and home. I stayed in a small town near Krakow in the house of my acquaintances - a Ukrainian-Polish family, who helped me a lot in everyday matters and with the registration of children in school (so that they would soon forget the horrors of the war). Among other things, they introduced me to Polish scientists, particularly Prof. Katarzyna Turnau. I wanted to use my time in Poland to expand my knowledge and skills as a microbiology and plant pathology researcher. I was thrilled when I was offered to work for Prof. Turnau, the head of the Plant-Microbial Group, at the Institute of Environmental Sciences, Faculty of Biology, Jagiellonian University.

In Ukraine, before the start of the war, I worked as a researcher in the department of antibiotics at the Institute of Microbiology and Virology of the National Academy of Sciences of Ukraine in Kyiv (Ukraine). I had work experience at the Department of Physiology, Biophysics, Medical Biology and Biological Chemistry at the Private Higher Educational Institution "Kyiv Medical University" and at the research laboratory of the National University of Food Technologies, and in the laboratory of the Ukrainian Research Institute of the Sugar Industry.

I have a PhD in biological sciences, and I focus on the field of enzymology, studying the physical activity of secondary metabolites of microbial origin. In recent years, I have been busy researching secondary metabolites synthesized by bacteria of the genus *Bacillus* and identifying their role in protecting plants from phytopathogenic bacteria and fungi.

The grant I received from the ISPP Bursary Fund through the Polish Phytopathological Society was my first individual grant obtained during my stay in Poland (internship No. 2/2022). I am grateful for the support as it allowed me to start research in Poland, meet interesting people and gain new knowledge.



Dr Yuliia Korzh of the National Academy of Sciences of Ukraine in Kyiv has been working at the Institute of Environmental Sciences of the Jagiellonian University.



Dr Korzh has been investigating the bacteria present in *Chlorella sorokiniana* cultures. This was part of a project to evaluate interactions between algae and endophytes, which can promote growth and protect algal cells from pathogenic bacteria and fungi..

I used the skills I learned during this internship in research conducted by the Plant-Microorganism Interaction Group of the Institute of Environmental Sciences of the Jagiellonian University. This was made possible by the following project, which was funded by the Kosciuszko Foundation (grant no. 2022/04/07 "Microbial interactions in *Chlorella* cultures and effects on photosynthesis and CO₂ capture"). During the internship, I investigated the bacteria present in *Chlorella sorokiniana* cultures. This was part of a project to evaluate interactions between algae and endophytes, which can promote growth and protect algal cells from pathogenic bacteria and fungi. Some of the research results were presented as part of a presentation at the Polish Phytopathological Society conference "Modern developments in plant pathology" (September 7-8, 2022, Poznan, Poland).

The war has changed us all, but I now know that there are people ready to help others in a difficult moment, and I am very grateful to everyone who does. I am very thankful to Professor Turnau and her laboratory for the opportunity to enrich my professional activity with new experiences. I am grateful to the family supporting us and everyone who helps Ukraine.

RESEARCH BEARS ITS FRUIT: AGROINNOVA CELEBRATES ITS TWENTIETH ANNIVERSARY WITH HARVEST

BY ANDREA MASINO

Agroinnova, the Centre of Competence for the Innovation in the agro-environmental field of the University of Torino, celebrated its twenty years of activity with the show HARVEST, staged on Monday 17 October in Torino at the Carignano Theatre, in the presence of over 500 people. A great moment to celebrate twenty years of research, projects, meetings, technology transfer and training activities, carried out with passion by the hundreds of researchers who have made and are part of Agroinnova. In those years, Agroinnova has been involved in many projects funded by the European Union as well as other National and International Agencies in the field of plant protection. Its researchers worked on aspects related to the use of pesticides and biocontrol agents, plant and food biosecurity, effects of climate change on plant diseases, food safety and plant health from a circular health perspective. A key aspect of Agroinnova has always been the international vision, coupled with a great attention to knowledge and technology transfer, at local and international level. A special thanks to Maria Lodovica Gullino, the Director, and Angelo Garibaldi, the President, for leading Agroinnova in those twenty successful years and wishes to the Centre for a brilliant future.



Photo Credits Marco Carulli



THE MISSING LINK: FATTY ACID METABOLISM IMPACTS PLANT IMMUNITY

AMERICAN PHYTOPATHOLOGICAL SOCIETY, 13 OCTOBER 2022

That healthy salad you ate for lunch contains fatty acids—surprised? Fatty acids, lipids, and fats in our food may sound undesirable, but they are foundational to human life and to the plants we consume. Their interaction with certain proteins helps regulate plant growth.

Plant fatty acids (FAs) serve as structural constituents of cell membranes and are building blocks for certain hormones, among other things. Fatty acids are stabilised during synthesis by acyl carrier proteins (ACPs), found throughout all branches of life, which support and elongate the growing FA chains. A recent study, by Zhenzhen Zhao of The Ohio State University and colleagues, reveals a new dimension to the role of FA biosynthesis in plants by providing a direct link to the plant defense mechanism.

Published in *Molecular Plant-Microbe Interactions*, the study

found that the *Arabidopsis* plants lacking the Acyl Carrier Protein 1 (ACP1) were more resistant to the bacterial pathogen *Pseudomonas syringae*, indicating that FA metabolism plays a critical role in plant immunity. Corresponding author Ye Xia comments, “Our research provided a direct link between FA metabolism and plant immunity and unraveled the potential role of ACP1 in plant defense across economically important crops.”

The study shows that ACP1 is essential to maintaining the homeostasis of hormones that affect a variety of plant stress responses. This effect on hormone signaling creates a broad arena for ACP1 to influence other biotic and abiotic stresses, an area ripe for further exploration. In addition, this research emphasises the importance of studying individual members of gene families that may have discrete functions, since ACP1 plays a role in plant resistance—distinct from that of its close family member, ACP4.

ACP1 homologs are currently present in a variety of economically important crops. In the future, genetically engineering these important crops to modulate the expression of ACP1 is an exciting avenue to create disease-resistant varieties that withstand bacterial and other pathogen infections.



Two of the study's authors, Dr. Ye Xia (right) and Zhenzhen Zhao. Credit: Dr. Ye Xia.

RESEARCHERS IDENTIFY GENES POTENTIALLY RESPONSIBLE FOR SUGARCANE'S RESISTANCE TO PESTS, COLD AND DROUGHT

RICARDO MUNIZ, [AGÊNCIA FAPESP MEDIA RELEASE](#), 28 SEPTEMBER 2022

A study conducted at the State University of Campinas (UNICAMP) in Brazil identified orphan genes in Wild sugarcane, *Saccharum spontaneum*, a species with exceptional resistance to biotic stresses such as nematodes, fungi, bacteria and other pests and diseases, and abiotic stresses such as cold, drought, salinity and nutritionally deficient soil.

According to the study published in the journal *Frontiers in Plant Science*, the scientists responsible set out to see if the orphan genes in *S. spontaneum* played a significant role in its stress resistance properties.

All living beings have genes that closely resemble those of other organisms' genomes. Plants, for example, share the genes involved in photosynthesis. On the other hand, most organisms also have orphan or lineage-specific genes. Orphan genes are genes found in a particular taxonomic group with no significant sequence similarity to genes from other lineages. They are sometimes called taxonomically restricted genes for this reason.

The researchers were interested in *S. spontaneum* because of characteristics such as past whole-genome duplication events that resulted in several copies of the same gene. Scientific evidence suggests orphan genes can originate in copies of pre-existing genes whose sequences change over time owing to mutations and eventually differ entirely from the original sequences. Another possible explanation for the origin of orphan genes could be reorganisation of genomic regions that do not encode genes, frequently seen in organisms with complex genomes, such as sugarcane.

“In the study, we identified parts of the genome of *S. spontaneum* that have no similarities to genes in any other organism. We believe they may be responsible for physiological traits or properties peculiar to the species,” said Cláudio Benício Cardoso-Silva, first author of the article. He conducted the project as postdoctoral research at UNICAMP's Center for Molecular Biology and Genetic Engineering (CBMEG), with FAPESP's support.

“As these plants evolved, some genes were expressed to a greater or lesser extent in response to various types of abiotic stress, particularly cold. This may mean they're regulated as a result of these stresses,” said Cardoso-Silva, whose postdoctoral research was supervised by Anete Pereira de Souza, professor of plant genetics at UNICAMP's Institute of Biology and last author of the article.



A study conducted at the State University of Campinas provides a foundation for future research to confirm identification of the best candidate genes for biotech applications such as insertion into commercially valuable plants and development of sugarcane varieties resistant to environmental pressures (photo credit: Luciana Rossini/IAC, Sugarcane Center, Ribeirão Preto).

The researchers do not believe they can categorically conclude that the orphan genes they identified make the plant more stress-tolerant based on the results of the study. “But the fact that they’re regulated under conditions of stress serves as an alert to the possibility that they may play an important role in these processes,” he said.

The next step will be to experiment on plants submitted to various kinds of stress in order to investigate how orphan genes behave in terms of expression, compared to non-stressed plants. Once the best candidate genes are confirmed, biotech applications involving their insertion into commercially valuable plants can be studied, leading in future to the possibility of developing sugarcane varieties more resistant to environmental pressures.

“We shone a spotlight on this possibility for anyone who wants to use the data in the article to continue the research, or for scientists who work with gene transformation and editing, which is a different research field, to choose one or two genes as candidates and do the validation,” said Cardoso-Silva, who continues to work with genomics at the State University of Northern Rio de Janeiro (UENF). “My current research focuses on the evolutionary aspect of gene family expansion,” he explained.

Cardoso-Silva spent a year at the University of British Columbia in Vancouver, Canada, with a fellowship from FAPESP.

“Today we have CRISPR [the gene editing technique], which offers biotech professionals a chance to select genes for tolerance of drought, salinity, cold or heat at a time when crop resilience with fewer inputs is paramount,” Souza said.

SCIENTISTS SAY ONE HEALTH APPROACH TO PLANT HEALTH IS VITAL TO ACHIEVING SUSTAINABLE GLOBAL FOOD SECURITY

EUREK ALERT, NEWS RELEASE, 28 SEPTEMBER 2022

A team of scientists argue that a One Health approach to plant health is vital if we are to sustainably feed a growing population expected to reach 10 billion by 2050. The researchers, who published a commentary in the *CABI Agriculture and Bioscience* journal, suggest that a One Health perspective can help optimise net benefits from plant protection to realise greater food security and nutrition gains.

One Health is an integrated, unifying approach that aims to sustainably balance and optimise the health of people, animals and ecosystems. It recognises that the health of humans, domestic and wild animals, plants and the wider environment are closely linked and inter-dependent.

Dr Vivian Hoffmann, Senior Research Fellow at the [International Food Policy Research Institute](#) (IFPRI), is a lead author of the commentary which focuses on two primary trade-offs that lie at the interface of plant health with animal, ecosystem and human health. Dr Hoffmann and the researchers say that protecting plant health through use of agrochemicals versus minimising risks to human health and antimicrobial and insecticide resistance is one consideration. While another, the scientists argue, is ensuring food security by prioritising the health of crops to maximise agricultural production versus protecting environmental systems.

The commentary, which stems from a webinar organised by CGIAR and attended by over 200 participants from around the world, discusses challenges and opportunities for advancement associated with each of these trade-offs – by taking account of how the priorities and constraints of stakeholders may vary by gender.

It stresses that building the capacity of regulatory bodies in low and middle-income countries to conduct cost-benefit analysis has the potential to improve decision-making in the context of these and other multi-dimensional trade-offs.

The webinar included presentations on sustainable intensification, benefits to plant health, and risks to human health, of using manure and wastewater to fertilise food crops; Tanzania's experience with pesticide regulation? management of plant associated food safety hazards where regulatory capacity is weak, and the role of gender in One Health.

Dr Hoffmann said, "Increasing crop yields through healthy plants is critical to achieving food security for a growing global population. But agricultural production also poses threats to environmental processes that underpin human health."

The commentary, for instance, highlights that agriculture contributes 34% of greenhouse gas emissions, consumes 84% of fresh water and is the single biggest source of eutrophication causing nitrogen and phosphorus pollution in aquatic systems.

“Interventions to encourage plant health practices that balance ecological concerns and food production will need to consider the constraints, needs, and motivations of farmers, including those mediated by gender,” Dr Hoffmann added. Webinar participants made the point that farmers and other stakeholders of limited means, and women in particular, may not have the luxury of prioritising environmental sustainability. Dr Hoffmann said, “This points to the need for external financing, perhaps through international green development or climate funds, to promote ecologically sustainable agricultural practices.”

The scientists also believe that trade-offs are expected to depend critically on the intensity of exposure to environmental hazards, food security status, and income levels – all of which vary across countries. There therefore a need, they say, for context-specific analysis and, as such, greater capacity for cost-benefit analysis in low land middle-income countries as a matter of priority.

PLANT RESOURCES THREATENED BY PESTS AND DISEASES

OSAMA EL-LISSY AND NICOLA SPENCE, SCIDEV.NET, 21 SEPTEMBER 2022

Not only will our world look incredibly different, but humanity would likely cease to exist altogether. Plants provide 98% of the air we breathe and 80% of the food we eat. That's how much our lives depend on plants, yet we often overlook how vital they are.

Our global plant resources are under threat from pests and diseases. Once plant pests are established in an area, it becomes nearly impossible and extremely costly to eradicate them. This sets back global efforts to achieve the Sustainable Development Goals by curtailing our ability to provide food security for all, protect our environment and biodiversity for future generations, and to ensure that crops and plant products are traded safely to help boost economic growth.

Every year, we lose as much as 40% of global crop yields or around US\$220 billion due to plant pests. In Africa alone, nearly US\$10 billion worth of annual maize yield is lost due to fall armyworm, a dangerous transboundary pest that has now spread in more than 70 countries. Reducing this menace will help alleviate hunger of the type faced by some 828 million people around the world in 2021, according to the latest report of the UN's Food and Agriculture Organization (FAO).

Climate change has increased pest incursions, particularly in new places where they had not been detected previously but have now thrived. Changing temperatures, humidity, light and wind are the second most important factors for pests to disperse, next to international travel and trade.

Invasive pests remain the main drivers of biodiversity loss. As the world becomes more globalized and interconnected, the increase in the movement of people and goods has been associated with the rise of the introduction and spread of plant pests across borders.

[Read more.](#)

AWARDS FOR PROFESSOR MAŁGORZATA MAŃKA AND PROFESSOR MAŁGORZATA JĘDRYCZKA IN POLAND



On 20-22 October 2022, the 3rd Congress of Scientific Societies in Gdańsk was held in Gdańsk, Poland devoted to the “Social dimension of the activities of scientific societies.” During the Congress, Prof. Małgorzata Mańka and Prof. Małgorzata Jędrzycka received the Medal of the 100th Anniversary of the Society of Friends of Science and Art in Gdańsk, the Gdańsk Scientific Society, and the Gdańsk Society of Friends of Art for their contribution to Polish science and culture. Professor Mańka is the President of the Polish Phytopathological Society and an ISPP Councillor, while Prof. Małgorzata is also an ISPP Councillor.

WHY DO PLANT-PATHOGENIC FUNGI PRODUCE MYCOTOXINS?

A symposium article by Rebecca R. Sweany, *et al.* titled “Why do plant-pathogenic fungi produce mycotoxins? Potential roles for mycotoxins in the plant ecosystem” was published on 22 September 2022 by *Phytopathology* (Vol. 112, e-ISSN:1943-7684). The abstract is as follows:-

For many plant-pathogenic or endophytic fungi, production of mycotoxins, which are toxic to humans, may present a fitness gain. However, associations between mycotoxin production and plant pathogenicity or virulence is inconsistent and difficult due to the complexity of these host–pathogen interactions and the influences of environmental and insect factors. Aflatoxin receives a lot of attention due to its potent toxicity and carcinogenicity but the connection between aflatoxin production and pathogenicity is complicated by the pathogenic ability and prevalence of nonaflatoxigenic isolates in crops. Other toxins directly aid fungi in planta, trichothecenes are important virulence factors, and ergot alkaloids limit herbivory and fungal consumption due to insect toxicity. We review a panel discussion at the American Phytopathological Society's Plant Health 2021 conference, which gathered diverse experts representing different research sectors, career stages, ethnicities, and genders to discuss the diverse roles of mycotoxins in the lifestyles of filamentous fungi of the families Clavicipitaceae, Trichocomaceae (Eurotiales), and Nectriaceae (Hypocreales).

[Read paper.](#)

THE TRANSCRIPTIONAL REGULATOR CTR_A CONTROLS GENE EXPRESSION IN ALPHAPROTEOBACTERIA PHAGES

A paper by Elia Mascolo *et al.* titled “The transcriptional regulator Ctr_A controls gene expression in Alphaproteobacteria phages: Evidence for a lytic deferment pathway” was published on 19 August 2022 by *Frontiers in Microbiology* (Vol. 13). The abstract is as follows:-

Pilitropic and flagellotropic phages adsorb to bacterial pili and flagella. These phages have long been used to investigate multiple aspects of bacterial physiology, such as the cell cycle control in the Caulobacterales. Targeting cellular appendages for adsorption effectively constrains the population of infectable hosts, suggesting that phages may have developed strategies to maximize their infective yield. Brevundimonas phage vB_BsubS-Delta is a recently characterized pilitropic phage infecting the Alphaproteobacterium *Brevundimonas subvibrioides*. Like other Caulobacterales, *B. subvibrioides* divides

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asymmetrically and its cell cycle is governed by multiple transcriptional regulators, including the master regulator Ctr_A. Genomic characterization of phage vB_BsubS-Delta identified the presence of a large intergenic region with an unusually high density of putative Ctr_A-binding sites. A systematic analysis of the positional distribution of predicted Ctr_A-binding sites in complete phage genomes reveals that the highly skewed distribution of Ctr_A-binding sites observed in vB_BsubS-Delta is an unequivocal genomic signature that extends to other pili- and flagellotropic phages infecting the Alphaproteobacteria. Moreover, putative Ctr_A-binding sites in these phage genomes localize preferentially to promoter regions and have higher scores than those detected in other phage genomes. Phylogenetic and comparative genomics analyses show that this genomic signature has evolved independently in several phage lineages, suggesting that it provides an adaptive advantage to pili/flagellotropic phages infecting the Alphaproteobacteria. Experimental results demonstrate that Ctr_A binds to predicted Ctr_A-binding sites in promoter regions and that it regulates transcription of phage genes in unrelated Alphaproteobacteria-infecting phages. We propose that this focused distribution of Ctr_A-binding sites reflects a fundamental new aspect of phage infection, which we term lytic deferment. Under this novel paradigm, pili- and flagellotropic phages exploit the Ctr_A transduction pathway to monitor the host cell cycle state and synchronize lysis with the presence of infectable cells.

[Read paper.](#)

CURRENT VACANCIES

Assistant/Associate Professor of Plant Pathology at Louisiana State University

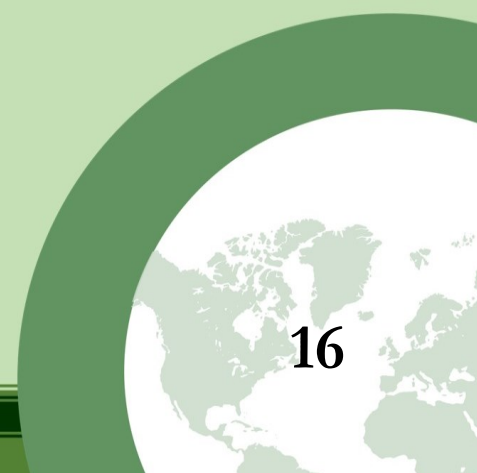
The Department of Plant Pathology and Crop Physiology, Baton Rouge, Louisiana State University is seeking an Assistant/Associate Professor of Plant Pathology. This is a full-time 12-month, tenure-track position with an appointment of 70% research, 20% extension, and 10% teaching, focused on the biology, etiology and management of sugarcane diseases. The successful candidate is expected to develop a strong and innovative research program for managing sugarcane diseases and to develop their own area of specialisation within plant pathology. The application deadline is 14 December 2022 or until a suitable candidate is identified. Apply [online](#) by attaching files containing a letter of application, curriculum vita, official university transcripts, three letters of reference and a one-page statement each on research, extension, teaching and how you would address Diversity, Equity, and Inclusivity in your academic mission. More details about the position is available in the [PDF](#).

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>



ACKNOWLEDGEMENTS

Thanks to Grahame Jackson, Małgorzata Jędrzycka, Greg Johnson, Yuliia Korzh, and Małgorzata Mańka for contributions.

COMING EVENTS

3rd Global Soil Biodiversity Conference

13 March - 15 March, 2023

Dublin, Ireland

Website: gsb2023.org

68th Annual Conference on Soilborne Plant Pathogens and the 53rd Annual Statewide California Nematology Workshop

28 March - 30 March, 2023

California, USA

Website: soilfungus.wsu.edu

13th International Congress on Plant Biotechnology and Agriculture

12 June - 16 June, 2023

Cayo Guillermo, Cuba

Website: bioveg.bioplantas.cu

Plant Health 2023 – APS Annual Meeting

12 August - 16 August, 2023

Denver, Colorado, USA

Website:

www.apsnet.org/meetings/annual/Pages/default.aspx

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





ICPP 2023

ONE HEALTH
for all plants,
crops and trees



20-25 August, France



www.icpp2023.org



INTERNATIONAL SOCIETY FOR PLANT PATHOLOGY (ISPP)

WWW.ISPPWEB.ORG

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