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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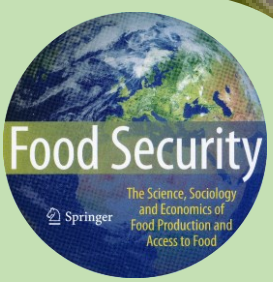


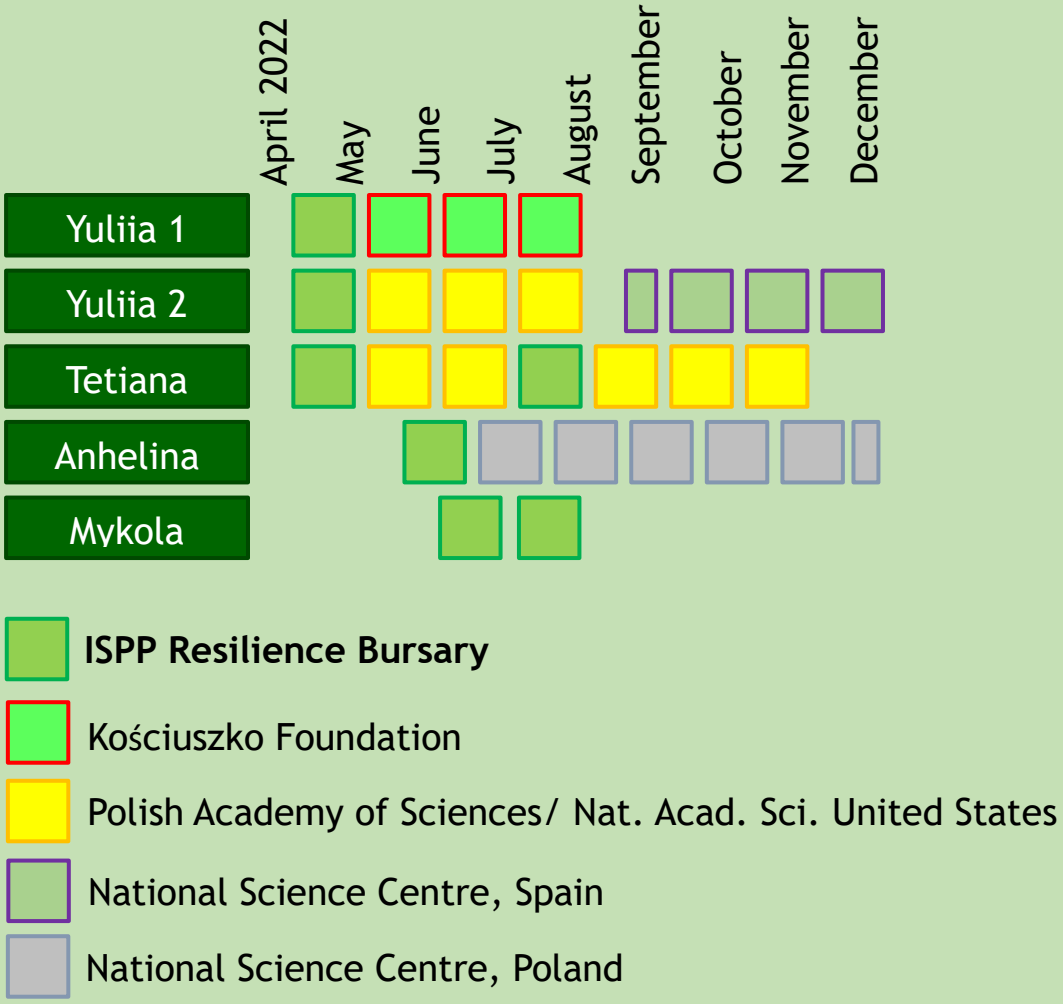
FOURTH UPDATE ON ISPP RESILIENCE BURSARY FOR PLANT PATHOLOGISTS

PREPARED BY MAŁGORZATA JĘDRYCZKA AND TETIANA MAMENKO

Dear Phytopathology Friends,

These colorful tiles clearly show that soon after the beginning of the Russian aggression on Ukraine, scientists worldwide and many funding organisations started helping Ukrainian refugee-researchers.

Funding support for ISPP Resilience Bursary Fellows from Ukraine



The co-operation has had to be both flexible and responsive, and it still greatly depends on accommodation offered by the recipient country. In Poland, we were trying to find plant pathologists in need and help them find placements in active research institutions. Plant pathologists were sometimes lucky to find a lab dealing with plant pathology, but sometimes, if a researcher wanted to stay in science - she had to gain experience in another area of research. We write "she" as most of the refugees were women with kids, sometimes very

small or at school age. It is difficult to be away from home. All the time you feel homesick and you worry about the family members left in Ukraine.

The ISPP Resilience Bursary has helped to establish scientific contacts several times. One or two months of funding awarded using basic selection procedures has helped us to find partner researchers in Poland, write joint projects and find other funding agencies. During the preparation of this text the war has been continuing for five months.

It is hard to learn a completely new subject. With this August Update, please find the successful story of Tetiana, one of the ISPP Resilience Bursary Fellows.

TETIANA MAMENKO

While working in Kyiv, at the Institute of Plant Physiology and Genetics of the National Academy of Sciences of Ukraine, Tetiana was involved in studies on plant health and the role of rhizobia and fungicides. In Poland, she is studying ecohydrology - a totally new field of activity for her. She is currently working at the European Regional Centre for Ecohydrology of the Polish Academy of Sciences in Łódz. It is an academic city located in central Poland (http://www.erce.unesco.lodz.pl/). The Centre is under the patronage of UNESCO.

Photo 1. Tetiana Mamenko analyzing water samples.

In particular she is gaining new skills and experience in the field of physical and chemical quality of water and wastewater, so she is doing numerous analyses of water samples (Photo 1).

Recently, Tetiana has participated in writing project proposals. One of them concerns phytoremediation, as a promising technology for the use of green plants to treat wastewater from pollutants and restore the environment. This project will optimise the use of innovative biofiltration system in central Poland (photo 2).

Photo 2. Tetiana Mamenko studying the use of plants to treat waste water.

The second project will help to study the key metabolic pathways involved in plant responses to water stress in the context of increasing the adaptive capacity of crops to climate change.

Tetiana has also analysed and summarised the results of scientific research that she obtained while working in Kyiv, Ukraine. They relate to the study of legume-Rhizobium symbiosis. She has demonstrated the effectiveness of using seed treatment with fungicides to increase the protective properties of legumes in symbiosis with rhizobia. Based on the results of the research, an article was prepared for publication, as well as a patent. The patent acknowledges the work previously done by Tetiana in Ukraine and it will be the property of Ukraine.

The research results will be presented at the scientific conference of Polish Phytopathological Society "A modern look at phytopathology" (7-8 September 2022, Poznań, Poland, online; https://sparrow.up.poznan.pl/ptfit2022/).

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

ANDREW GEERING, ISPP VICE PRESIDENT 2023-2028 REPRESENTING ICPP2028 ORGANISING COMMITTEE

I am an Associate Professor at The University of Queensland and current President of the Australasian Plant Pathology Society (APPS). My discipline expertise is plant virology, although I have dabbled in mycology throughout my career and also led general biosecurity projects. I have been a member of the APPS for over 30 years, and contributed to the running of this society by being Senior Editor for Virology for the journal Australasian Plant Pathology and acting as Program Coordinator for the 21st Biennial Conference of the APPS (2017) and the 11th Australasian Plant Virology Workshop (2014).

I am Chair of the Organising Committee for the International Congress of Plant Pathology 2028 (ICPP2028), to be held on the Gold Coast in Queensland, Australia. I have also been active in the international plant pathology community, having held three successive terms as Chair of the Caulimoviridae Study Group of the International Committee on Taxonomy of Viruses and I was also Chair of the ProMusa Virus Study Group of Biodiversity International.

As a member of the Executive Committee of the International Society for Plant Pathology, my first priority would be to ensure the success of the ICPP2028 by providing a channel of communication between the conference organising committee and the ISPP. It is very important that the ICPP2028 reflects the diverse interests of affiliate societies of the ISPP and appeals to a broad audience. I consider that we are hosting the ICPP2028 on behalf of our whole region and I am keen to engage and promote the participation of plant pathologists throughout South East Asia and Oceania in organising the Congress. For most of my career, I have worked to solve disease problems of tropical crops and this is a focus I would like to bring to the ISPP. I would particularly like to promote programs for smallholder farmers, to ensure they have fundamental requirements for a healthy crop like clean seed and they are also provided with good training materials to avoid indiscriminate use of agrichemicals.

TERESA COUTINHO, ISPP SECRETARY GENERAL 2023-2028

EXPERIENCE WITH NATIONAL SOCIETIES Although I am a member of several societies in South Africa, I have intentionally only actively been involved in the Southern African Society for Plant Pathology (SASPP). I joined in 1984 and was involved in organising three conferences. I served as the regional representative for eight years and was responsible for organising seminars, workshops etc. I was President of the Society from 2012-2015 and become a Fellow in 2017. This year my book will be published entitled "History of plant pathology in South Africa" which includes a section on the SASPP. I am extremely passionate about the Society. I am now on a mission to ensure that documentation related to the Society is stored appropriately and intend reinitiating the newsletter the "SA plant pathologist" which was discontinued in 1998 due to high printing costs.

EXPERIENCE WITH INTERNATIONAL SOCIETIES I am a member of the American Phytopathological Society (APS), Australasian Plant Pathology Society (APPS), British Plant Pathology Society (BPPS) and the American Society for Microbiology (ASM). I served on the APS Education Committee (2015-2017) for three years and was the ASM South African ambassador from 2016 to 2018. I served on the executive nomination committee for the International Society for Plant Pathology (ISPP) in 2013 and 2018. I am a co-chair on the Specialist Committee on Plant Pathogenic Bacterial Nomenclature. I have served on this committee since 2012.

MY CONTRIBUTION TO ISPP IF NOMINATED TO THE POSITION AS SECRETARY-GENERAL Throughout my career I have been actively involved in the administrative side of running research programmes, at the National Research Foundation and at the University of Pretoria. For over 20 years, I fined tuned these skills while managing (administratively) the Tree Protection Cooperative Programme, directed at the time by Mike Wingfield. I consider these skills to be one of my strengths which can easily be applied to the position of Secretary-General of ISPP.

WHAT I WOULD LIKE TO ACHIEVE FOR THE ISPP As I move towards the end of my career, I am determined to contribute to ensuring the continuation of Societies, including the ISPP. In my experience, there is a general apathy among the younger generation towards scientific societies. I would like to change their opinion. I believe this can be achieved by promoting ISPP activities on, for example, social media. Although the Society has a profile on Facebook, I discovered that none of my postgraduate students belong to this medium – they consider it to be an "old peoples" platform. Another method of ensuring continuation of the ISPP is to recruit early career plant pathologists to the various Special Committees.

Although there are a number of African plant pathology societies, there is a need to enhance the ISPP profile among them. Through APS, there is now an African Phytopathology Group who is actively recruiting members. We should link to, and expand this group, beyond APS. Again, we should target early career scientists.

RESEARCHERS IDENTIFY GENES MAKING STRAWBERRIES RESISTANT TO FUSARIUM WILT

EMILY C. DOOLEY, UC DAVIS NEWS, 19 JULY 2022

Strawberry losses from Fusarium wilt could become less of a threat after researchers at the University of California (UC), Davis, discovered genes that are resistant to the deadly soilborne disease. The findings, published in the journal *Theoretical and Applied Genetics*, are the culmination of several years' work, and the discovery will help protect against disease losses, said Steve Knapp, director of the Strawberry Breeding Program at UC Davis.

Strawberry plants affected by Fusarium wilt (Photo credit: Fred Greaves/UC Davis).

Strawberries are a key crop in California, where about 1.8 billion pounds of the nutritious fruit are grown each year, making up roughly 88% of what is harvested in the United States.

Finding the genes could prevent a Fusarium wilt pandemic. "The disease has started to appear more often up and down the state," said Glenn Cole, a breeder and field manager with the Strawberry Breeding Program. "Once the wilt gets in, the plant just crashes. You have total die out."

SEARCHING FOR RESISTANCE

UC Davis scientists screened thousands of strawberry plants in the College of Agricultural and Environmental Sciences' nursery and took DNA samples. They then used genetic screening and developed DNA diagnostics to identify genes that are resistant to the primary race of Fusarium wilt. "The genes have been floating around in the strawberry germplasm for thousands of years," Cole said, but no one worked to identify them. This latest development brings "strawberry into the 21st century in terms of solving this problem," Knapp said.

PROTECTING FUTURE CROPS

This work means breeders can introduce the resistant gene into future strawberry varieties. This autumn the program will release new cultivars that have the Fusarium wilt resistance gene. And the DNA diagnostic tools will help breeders respond to new Fusarium wilt variants that develop.

Fusarium wilt hasn't traditionally been an issue, but when the fumigant methyl bromide was phased out in 2005, things changed. The disease was in the soil, and without the fumigant, instances of wilt increased, especially in areas where crops weren't rotated.

BREEDING NEW VARIETIES

Knapp and Cole have informed the industry about current strawberry varieties that have the resistance so they can select plants with that added protection. The new resistant varieties coming out later this year will be suitable for several growing seasons.

PHYLLOSPHERE MICROBIAL COMMUNITIES DEVELOP DISEASE SUPPRESSION

A paper by Hanareia Ehau-Taumaunu and Kevin Hockett titled "Passaging phyllosphere microbial communities develop suppression towards bacterial speck disease in tomato" was published on 20 June 2022 by *Phytobiomes* (e-ISSN:2471-2906). The abstract is as follows:-

Microbial community-based disease management approaches have the potential to substitute or combine with currently employed strategies. Suppressive soils are great examples of microbial communities that suppress soilborne plant disease after severe outbreaks and are maintained over multiple years or crop cycles. While there are many suppressive soil examples, to our knowledge, there are no descriptions of disease suppressive phyllosphere communities. Therefore, we investigated whether a phyllosphere microbial community could be developed through a selective passaging method to suppress disease using the model pathosystem of *Pseudomonas syringae* pv. *tomato* (*Pto*) and tomato. Field tomato phyllosphere microbial communities were recovered, and spray transferred to greenhouse tomato plants, after which were inoculated with *Pto*. Disease severity was visually estimated, and the microbial communities were recovered to be independently applied to the next passage. Overall, greenhouse passaging resulted in an increase in disease severity for all passage lines from the initial passage, which peaked at passage 4-5, followed by a sharp decline until passage 9. The disease severity at passage 9 was also significantly lower than a non-passaged *Pto* only comparison. Heat-treatment of passage 9 communities resulted in elevated disease severity over several subsequent passages in the growth chamber, whereas the untreated community maintained low disease. Community-only passage lines (without *Pto* inclusion during passaging) did not show disease suppression after subsequent pathogen introduction. This work presents an experimental approach to develop phyllosphere microbial communities in the presence of a phytopathogen to enrich for a low disease phenotype and results in maintained disease suppression.

Read paper.

SHOOT TIP CRYOTHERAPY FOR PLANT PATHOGEN ERADICATION

A review by Min-Rui Wang *et al.* titled "Shoot tip cryotherapy for plant pathogen eradication" was published on 6 April 2022 by *Plant Pathology* (vol. 71, pages 1241-1254). The abstract is as follows:-

Diseases caused by plant pathogens such as viruses, viroids and phytoplasmas cause huge economic losses of agricultural production and limit the safe movement of plant materials across borders. The use of pathogen-free planting materials provides a strategy for efficient management of these diseases and facilitates the global exchange of genetic resources. Shoot tip cryotherapy is a novel biotechnology method that uses cryogenic procedures to eradicate plant pathogens from the diseased plants. Combining thermotherapy or chemotherapy with shoot tip cryotherapy has further enhanced pathogen eradication efficiency. This review provides updated and comprehensive information on shoot tip cryotherapy and the combination of thermotherapy or chemotherapy with shoot tip cryotherapy for pathogen eradication. Prospects are proposed for future studies.

Read paper.

CLIMATE CHANGE RENDERS PINE TREES SUSCEPTIBLE TO FUNGAL DISEASE

EMILY CALDWELL, OHIO STATE NEWS, 18 JULY 2022

The high heat and low water conditions produced by global warming weaken pine trees' resistance to disease by hindering their ability to mount an effective defense at the same time that pathogenic fungi in their tissues become more aggressive, new research suggests. The study is the first to simultaneously examine metabolic gene expression in both host trees and the pathogens attacking them under normal and climate-change conditions. The findings published recently in the journal *Frontiers in Forests and Global Change* help explain the mechanisms behind what has become a well-known fact: The warming world makes trees more susceptible to disease.

The study was conducted on Austrian pines, which are native to southern Europe and used ornamentally in the United States. Researchers tested climate change conditions' effects on the trees after infection by two related fungi that have killed large swaths of these pines over time.

"We decided to study the effects of the combined stresses of higher temperatures and lower water availability because that's what trees will experience in the future," said senior author Enrico Bonello, professor in The Ohio State University College of Food, Agricultural, and Environmental Sciences (CFAES). "Within three days of infection under climate-change conditions, the tree was pulled in two different directions: It was deprived of carbon by both reduced photosynthesis and enhanced acquisition of the carbon by the fungi," said Bonello, who is a professor of molecular and chemical ecology of trees in the CFAES Department of Plant Pathology. "When we're talking about carbon, we're talking about sugars, food and reserves for all other metabolic processes in the trees, including growth and defense."

Carbon sequestration by the world's forests is a major mitigator of climate change's effects, and could be accelerated if improvements are made to their protection, management and restoration, experts say. In a 2021 study of U.S. forest plots, scientists estimated recent disease and insect disturbances had lowered carbon sequestration rates by 28% and 69%, respectively, from 2001-2019 compared to undisturbed forests. "This is another reason to combat global warming induced by human activities – another piece of evidence that what we are doing to the planet has so many implications," Bonello said.

He and colleagues exposed 3-year-old Austrian pines to two sets of conditions: daily temperatures ranging from 59 to 82.4 degrees Fahrenheit for the control or, to mimic climate change conditions, daily temperatures of 68 to 91.4 degrees Fahrenheit, which reduced the amount of water in the atmosphere compared to available water in the cooler temperatures. After trees got accustomed to their conditions, they were inoculated with one of two strains of the pathogenic fungus.

Diplodia sapinea, an aggressive fungus, and its less-aggressive relative *Diplodia scrobiculata* are found in both the Northern and Southern hemispheres. They remain dormant much of the time, waiting for the best opportunity to kill host cells and feed on the dead plant material – usually when their host is weakened. In addition to killing Austrian pines, the fungi have also begun damaging Scots pines in Scandinavia.

"The hypothesis is that the warming and lower water availability in those areas is making trees more susceptible to a pathogen that would normally sit in the background," Bonello said.

Three days after infection, the team collected plant and pathogen tissue that was used for an RNA sequencing analysis to identify gene activation, or expression, pattern changes in the trees and both strains of the fungi.

The analysis showed a fundamental change in the trees exposed to the climate-change conditions: Their capacity to carry out photosynthesis decreased, meaning they had fewer resources to invest in their own food supply, growth and defense against disease. At the same time, both strains of the fungus ramped up their carbon utilisation machinery, and the usual difference between their aggressiveness disappeared – they became significantly more pathogenic, and to the same extent, than under normal conditions.

"Essentially, climate change conditions led the host to starvation, which is compounded by the fact that the fungi became more aggressive, grew faster and killed more host tissue faster," Bonello said. "These were early responses, but it gives us an idea of what's happening in the system."

While these results are one example of one tree species and one type of pathogen, the research offers insights into how much damage global warming may do to one of the planet's main carbon sinks.

"Pathogen and pest invasions are already having an effect on carbon sequestration," Bonello said. "If you make it even worse with climate change, carbon sequestration will be affected negatively because trees will die in ever larger numbers. Trees that might otherwise survive adverse environmental conditions for a while, and recover if conditions become better or intermittent, may be killed by pathogens in the meantime."

PROF MICHAEL WINGFIELD WINS HARRY OPPENHEIMER FELLOWSHIP AWARD

UNIVERSITY OF PRETORIA, 12 JULY 2022

Jonathan Oppenheimer and Professor Mike Wingfield.

Professor Mike Wingfield, a professor at the University of Pretoria's (UP) Forestry and Agricultural Biotechnology Institute (FABI), is the recipient of the annual Harry Oppenheimer Fellowship Award for his research into disease-causing fungi. The R2 million award recognises scholarship of the highest calibre across various academic and research disciplines, and is ranked as one of Africa's most prestigious research grants. The flagship award was initiated by the Oppenheimer Memorial Trust in 2000 to commemorate the trust's founder, Harry Oppenheimer, and his efforts to support human and intellectual development and to advance scholarship. The trust, which dates back to 1958, has become a significant funder of education, arts and culture, and civil society organisations. Over the past five years, disbursements have ranged from R100 million to R130 million annually, with about 60% allocated to higher education. This is part of a sustained effort to build the local academy.

Prof Wingfield's winning project – titled 'Quest to unravel the origin and ecology of two human pathogenic fungi and expand the base of medical mycology in South Africa' – focused on fungi that cause diseases in humans in South Africa and elsewhere in the world.

"This award has come to me in the latter part of my career," said Prof Wingfield in his acceptance speech. "Perhaps that is mostly the case for awards of this type that have huge prestige and likely would not go to early-career scientists. I see my role primarily as one of mentorship: to pass on my knowledge and experience to younger scientists, and to share my passion for fungi and for research with others that might build on what I have been privileged to do – not only via this award – but linked to my career as a scientist."

Through his project, Prof Wingfield hopes to learn more about where disease-causing fungi live naturally, to better understand them and to avoid the diseases they cause. "One fungus occurs in mines and infects the skin and lymphatic tissues; the other causes a serious pulmonary disease. With regard to mines, it is important to know whether the fungus is in the wood or whether injuries from wooden splinters provide entry points for the fungus, which is found naturally in the environment. "We know very little about them, other than from a medical perspective," he added.

"Prof Wingfield's project is a game-changer," said Jonathan Oppenheimer, Chair of the trust, upon presentation of the award. "Although some excellent work on the ecology of fungi such as Sporothrix has been conducted by members of the Southern African Society for Plant Pathology, very little connection has been made to those researchers working on the clinical relevance of these fungi. An important part of this project will be to fortify the field of medical mycology in South Africa, and the Oppenheimer Memorial Trust will give him the necessary support in line with its vision."

Read more.

MOLECULES BOOSTING PLANT IMMUNITY IDENTIFIED

MAX PLANCK INSTITUTE NEWS, 7 JULY 2022

Two studies published by researchers at the Max Planck Institute for Plant Breeding Research in Cologne, Germany in collaboration with colleagues in China have discovered natural cellular molecules that drive critical plant immune responses. These compounds have all the hallmarks of being small messengers tailored by plants to turn on key defense-control hubs. Harnessing these insights may allow scientists and plant breeders to design molecules that make plants, including many important crop species, more resistant to disease.

World food production must double by 2050 in order to feed the anticipated extra 2 billion people living on earth by then. Boosting food production requires increases in the yields of many of our staple crops. To do so, strategies need to be in place to ensure that we can make plants more resistant to microscopic infectious agents, whilst also ensuring that food production is environmentally safe. Achieving this, in turn, requires a detailed understanding of the plant immune system – the defenses that plants mount when confronted with invading microorganisms.

Now, in two landmark studies, scientists led by Jijie Chai and Jane Parker from the Max Planck Institute for Plant Breeding Research in Cologne and the University of Cologne, Germany, collaborating with Junbiao Chang's group at Zhengzhou University in Zhengzhou and Zhifu Han and colleagues at Tsinghua University in Beijing, China, have identified two classes of molecules and determined their modes of action in mediating immune responses inside plant cells. Their findings pave the way for the design of bioactive small molecules that could allow researchers and plant growers to manipulate – and thereby boost – plant resistance against harmful microbes.

At a molecular level, a main immune strategy employed by plants involves proteins called nucleotide-binding leucine-rich repeat receptors, or NLRs for short. NLRs are activated by invading microorganisms and set in motion protective immune responses. These immune responses culminate in the so-called hypersensitive response, which involves restriction of pathogen growth and often strictly demarcated death of cells at the site of infection – akin to amputating a toe to ensure survival of the body.

One class of NLR proteins, those with so-called toll/interleukin-1 receptor (TIR) domains, which are termed TIR-NLRs (or TNLs), have been shown to relay signals to the downstream immune protein Enhanced Disease Susceptibility 1 (EDS1). Smaller TIR-containing proteins also feed signals into EDS1 to potentiate disease resistance. EDS1 functions as a control hub which, depending on the types of other proteins it interacts with, pushes plant cells to restrict pathogen growth or commit to cell death. Earlier work showed that TNL receptors and TIR proteins are actually pathogen-induced enzymes. Evidence suggested that these TIR enzymes produce a small messenger or messenger(s) that signal to EDS1 inside cells. However, the identities of the precise molecules generated by TNLs or TIRs that stimulate the different immune responses have remained elusive.

Parker and colleagues established that the two functional EDS1 modules leading to immunity or cell death can be triggered by pathogen-activated TNL enzymes inside plant cells. To identify the small molecules produced by TNLs or TIRs and that act upon EDS1, the Chai group reconstituted key components of the signaling pathway in insect cells, a system that allows production and purification of high amounts of molecules which can then be isolated and characterised. Using this approach, the authors discovered two different classes of modified nucleotide molecules produced by TNLs and TIRs. These compounds preferentially bound to and activated differentEDS1 sub-complexes. Hence, the authors demonstrate that different EDS1 sub-complexes recognize particular TIR-produced molecules, which function as information-carrying chemicals, to promote immune responses.

The TIR immune receptors and EDS1 hub proteins exist in many important crop species, such as rice and wheat, and Jijie Chai points out that "the identified TIR-catalysed small molecules could be employed as general and natural immunostimulants to control crop diseases." Jane Parker further remarks that "knowing the biochemical modes of action of these small molecules opens a whole new chapter on plant immunity signaling and disease management."

CURRENT VACANCIES

Cooperative Extension Advisor for vegetable crops at the University of California, Agriculture and Natural Resources

The University of California, Agriculture and Natural Resources (UC ANR), a statewide program with local development and delivery, is seeking a UC Cooperative Extension (UCCE) Advisor for vegetable crops. The Vegetable Crops Advisor will implement an innovative and effective extension education and applied research program to address issues related to sustainability, resiliency, innovation, and profitability of vegetable production in the target counties. This position will be headquartered in the CE Yolo County Office, and the geographic area includes Yolo, Solano and Sacramento counties (known as the Capital Corridor Multi-County Partnership).

A minimum of a Master's degree in horticulture, plant physiology, crop science, agronomy or related field is required at the time of appointment. Vegetable crop experience and a demonstrated understanding of soil science, nutrient and pest management, and irrigation are desirable. More info in the PDF.

If interested in this position, please visit: https://recruit.ucanr.edu/ and choose "applicants" (refer to position #22-41). To assure full consideration, application packets must be received by 25 July 2022. Contact Tatiana Avoce tavoce@ucanr.edu with questions.

ASST. PROFESSOR OF C.E. IN Nursery, Greenhouse & native crop PATHOLOGY in the Dept of Plant Pathology, UC Davis

The Dept. of Plant Pathology is seeking applications for an Asst Professor of Cooperative Extension. Full time, career-track faculty position. The successful candidate will conduct original applied research resulting in information that can be used towards managing diseases of nursery & greenhouse plants including native plants for ecological restoration, ornamentals, vegetable transplants, & hemp/cannabis. As a member of the UCANR, the candidate will be expected to develop an extension and outreach program that extends information to stakeholders. Mentoring of grad students & performance of depart & university service is expected.

Ph.D. degree in Plant Pathology required. Successful candidate must have a record that documents research as evidenced by pubs in peer-reviewed journals. Postdoctoral experience desirable but not required. More info in the PDF.

Submit at https://apptrkr.com/3134238 by 31 August 2022. Inquiries directed to Dr. Eskalen, Search Committee Chair, aeskalen@ucdavis.edu; 530-752-0304.

Assistant Professors – Extension Field Crop Plant Pathology

The Department of Entomology & Plant Pathology at North Carolina State University invites applications for **two** 12-month tenure-track positions at the Assistant Professor level in Extension Plant Pathology. Both faculty positions are located on the main campus in Raleigh, and incumbents are responsible for extension engagement and research related to their extension responsibilities. We are a top-ranked department for our disciplines and recently hired a new enthusiastic department head bringing us new vitality. We welcome energetic candidates that share our vision.

Minimum qualifications include a PhD in a field of study directly related to the position. A demonstrated background in plant pathology or related fields, and expertise in the biology, ecology, etiology, epidemiology, population biology and/or management of plant diseases are preferred. NC State University is especially interested in qualified candidates who can contribute, through their experience, research, teaching, extension, and/or service, to the diversity and excellence of the academic community. More info in the PDF.

Submit at: https://jobs.ncsu.edu/postings/166234

ACKNOWLEDGEMENTS

Thanks to Teresa Coutinho, Andrew Geering, Grahame Jackson, Greg Johnson, Jan Leach, Małgorzata Jędryczka and Tetiana Mamenko for contributions.

COMING EVENTS

11th Australasian Soilborne Diseases Symposium
1 August - 5 August, 2022
Cairns, Queensland, Australia
Website: asds2022.w.yrd.currinda.com

APS Plant Health 2022
6 August - 10 August, 2022
Pittsburgh, Pennsylvania, USA
Website: www.apsnet.org/meetings/annual/PH2022

Annual Oomycete Molecular Genetics Meeting
22 August - 25 August, 2022
Mendel University, Brno, Czech Republic
Website: omgn.org/

16th International Cereal Rusts and Powdery Mildews Conference
31 August - 2 September, 2022
University of Cambridge, UK
Website: www.niab.com/international-cereal-rusts-and-powdery-mildews-conference-2022

BSPP2022 – Microbial lifestyles: from symbionts to pathogens
5 September - 7 September, 2022
Newcastle University, UK
Website: www.bspp.org.uk/conferences/bspp2022/

International Phytobiomes Conference 2022
13 September - 15 September, 2022
Denver, Colorado, USA
Website: phytobiomesconference.org

1st International Plant Health Conference
21 September - 23 September, 2022
London, UK
Website: www.ippc.int/en/news/press-release-the-first-international-plant-health-conference/

8th International Cereal Nematodes Symposium
26 September - 29 September, 2022
Abant, Turkey
Website: www.cimmyt.org/events/8th-international-cereal-nematodes-symposium-icns/

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.bioplantas.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

12th INTERNATIONAL CONGRESS ON PLANT PATHOLOGY

ICPP 2023

ONE HEALTH for all plants, crops and trees

LYON

20-25 August, France

www.icpp2023.org

ISPP INTERNATIONAL SOCIETY FOR PLANT PATHOLOGY

SFP Société Française de Phytopathologie

The International Society for Plant Pathology & the French Phytopathological Society

INTERNATIONAL SOCIETY FOR PLANT PATHOLOGY (ISPP)

WWW.ISPPWEB.ORG

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

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

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

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

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