PROMOTING WORLD-WIDE PLANT HEALTH AND FOOD SECURITY

INTERNATIONAL SOCIETY FOR PLANT PATHOLOGY

ISPP NEWSLETTER

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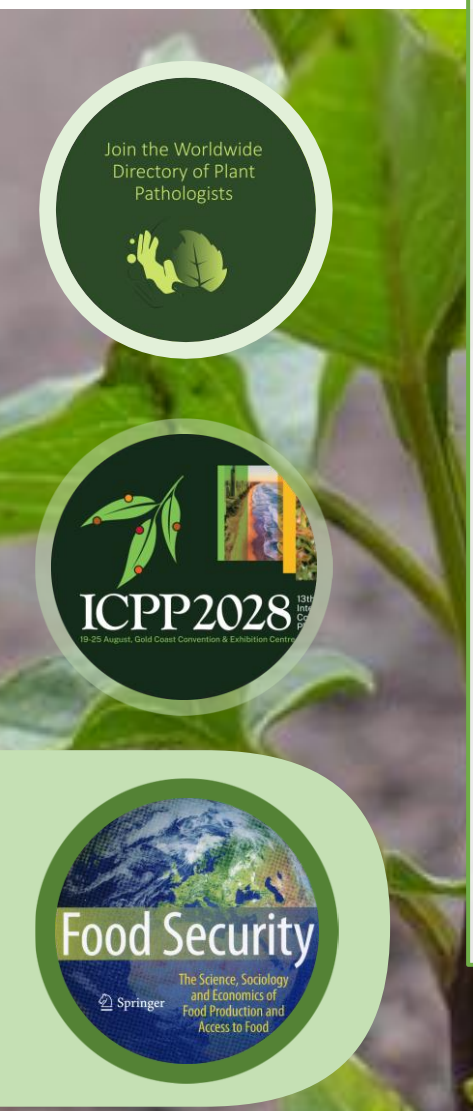


ICPP2023 VIDEOS NOW AVAILABLE

MATHIAS CHOQUER, 30 APRIL 2024

27 videos of the ICPP2023 held in Lyon, France, are now on youtube! About 40 hours of recordings are available, and we invite you to watch the sessions or round-table discussions that interest you - there's something for everyone!

https://www.youtube.com/@ICPP2023

ICPP2023 Plenary Opening & Jakob Eriksson Prize to Silvia RESTREPO
(Jan E. LEACH, Sylvie GERMAN-RETANA, Bart THOMMA, Silvia RESTREPO, Nathalie POUSSEREAU and Mathias CHOQUER)
https://www.youtube.com/watch?v=GUqHNbuBRsc&t=463s

"Emerging diseases in the vegetable sector: Challenges and perspectives."
by Maria Lodovica GULLINO (chairs Philippe REIGNAULT and Nico HORN)
https://www.youtube.com/watch?v=l9EVYdtAFPs

"Uncovering the factors that shape the distribution of vector-borne plant parasites."
by Saskia HOGENHOUT (chairs Jan E. LEACH & Sophien KAMOUN)
https://www.youtube.com/watch?v=tE-Evnf4ze8

Food Security in an Unsecure Future & Glenn Anderson Lecture by Bram GOVAERTS
(Giuseppe STANCANELLI, Lise KORSTEN, Lone BUCHWALDT, Fiona DOOHAN, Daniel A. JACOBSON)
https://www.youtube.com/watch?v=s1Q8iHt8udU

Food Security for Sustainable Food Systems
(Lise KORSTEN, Serge SAVARY, Nina OCKENDON-POWELL, Lisa ROTHMANN, Ivy NYAMBURA, Chandra NAYAKA)
https://www.youtube.com/watch?v=3ecyP1Wpi8I

Impact of war and conflicts in plant pathology research and food safety of countries
(Didier THARREAU, Kateryna UDOVYCHENKO, Irena BUDZANIVSKA, Alina DUNICH, R. A. MOUAFO-TCHINDA, Safaa KUMARI, Alex SHEVCHENKO)
https://www.youtube.com/watch?v=cR_qeN0WGLk

Plant Pathology in a One Health World
(Brenda WINGFIELD, Ivan SACHE, Justin PITA, Cindy MORRIS, Descartes KOUMBA, Melanie MARK-SHADBOLT, Mathias CHOQUER)
https://www.youtube.com/watch?v=wqyF7RHqlas

Getting rights right: A round table exploration of Indigenous rights and participation in plant pathology
(Hanareia EHAU-TAUMAUNU, Alby MARSH, Hori PARATA /Tohe ASHBY, Danny HAELEWATERS)
https://www.youtube.com/watch?v=v2qoiJ1NQHQ

Plant pathogens interactions in multi stress conditions (abiotic and biotic stresses).
(Piotr TREBICKI, Manuella VAN MUNSTER, Larissa ADAMIK, Clara LAGO, Antoine DAVIERE, Karla CARDENAS GOMEZ, Christina STEIDELE)
https://www.youtube.com/watch?v=2pmrMDeqkQg

New Developments in Plant Disease Management
(Jochen KLEEMANN, Mathews PARET, David HODSON, Lava KUMAR, Helen BRABHAM)
https://www.youtube.com/watch?v=Ow_-ItJ6c5M

Biological Control
(David B COLLINGE, Dan Funck JENSEN, Sabrina SARROCCO, Mukesh DUBEY, Enrique MONTE, Magnus KARLSSON, Mudassir IQBAL)
https://www.youtube.com/watch?v=YDdQaT2Okpk

Progress in disease control
(Helge SIEROTZKI, Anne Sophie WALKER, Eric CHANTELOT, Oscar VILLANUEVA, Kari PETER, Dolores FERNANDEZ-ORTUNO, Caspar LANGENBACH)
https://www.youtube.com/watch?v=PYkfMkgkXko

A mechanistic approach of the varietal mixture effects on plant pathogens
Frédéric SUFFERT, Elisabeth FOURNIER, Jean-Benoit MOREL, Laura MATHIEU, Alexey MIKABERIDZE, Tiphaine VIDAL)
https://www.youtube.com/watch?v=103pNjgFI9M

Germplasm seed movement and global plant health
(Lava KUMAR, Safaa KUMARI, Yilmaz BALCI, Karen GARRETT, Celia Chalam VASIMALLA)
https://www.youtube.com/watch?v=yoRiewd5k-A

A Global Plant Health Assessment of the state of Plant Health and its Impact on Ecosystem Services
(Pascal FREY, Neil MCROBERTS, Federica BOVE, Manjari SINGH, Paul ESKER)
https://www.youtube.com/watch?v=NXvlLvPX7i4

Discussion and forum on cross-cutting issues generated by findings of the Global Plant Health Assessment
https://www.youtube.com/watch?v=rm2SoXRjp8U

Molecular drivers of plant bacterial interactions
(Jonathan JACOBS Boris SZUREK, Alice BOULANGER, Chiara BERNARDINI, Yael HELMAN, Suayb USTUN, Huanbin ZHOU)
https://www.youtube.com/watch?v=Fzdh2AIWg84

Molecular aspects of plant-fungal interactions: Effectors
(Marc-Henri LEBRUN, Andrea SANCHEZ-VALLET, Nick TALBOT, Sylvain RAFFAELE, Paul BIRCH, Tim FRIESEN, Amin DJAMEI, Bart THOMMA)
https://www.youtube.com/watch?v=Br3llRcVnq8

Session on the impact of discoveries in plant health
(Odile CARISSE, Claire BAKER, Bernard SLIPPERS, Mike JEGER, Anna BERLIN, Bryony TAYLOR, Touseef HUSSAIN)
https://www.youtube.com/watch?v=kwf9hai6iYM

Round table on Impact of scientific advances in plant health (Cindy MORRIS, Mireille MATT)
https://www.youtube.com/watch?v=O9Tn2payLtE

Round table on sharing and exploiting HTS data (Valérie GRIMAULT, Charlotte TRONTIN)
https://www.youtube.com/watch?v=OkDjjfle7II

Round table on the Pathobiome - New understanding of postharvest diseases (Samir DROBY, Davide SPADARO)
https://www.youtube.com/watch?v=u0vO0Zp3310

Round table on the Management of postharvest diseases in Mediterranean countries to reduce food waste
(Gianfranco ROMANAZZI, Lluis PALOU, Maria Bernardita PEREZ-GAGO, Giulia REMOLIF, Mohamed BECHIR ALLAGUI)
https://www.youtube.com/watch?v=0FJBntZ8_ew

APP-titude for social media in Plant Disease Research (Greg JOHNSON, Maria Lodovica GULLINO, Frédéric SUFFERT)
https://www.youtube.com/watch?v=aFtK4ggM7vw

Raising awareness of plants and ways of teaching plant pathology
(Elsa BALLINI, Erik ALEXANDERSSON, Maria Lodovica GULLINO, Brett ARENZ, James STACK, Demetrio MARCIANO, Benjamin PETRE)
https://www.youtube.com/watch?v=M7ReLWnCOzc

Conference on Research Integrity in Plant Pathology by Olivier Le Gall
https://www.youtube.com/watch?v=wOD26O-MeBc

ICPP2023 Poster Prize awards ceremony
https://www.youtube.com/watch?v=7DGaoxI2qko

HOW CAN OUR BEHAVIOURS AFFECT THE WASTE OF FRESH FRUIT AND VEGETABLES?

GIANFRANCO ROMANAZZI

Fresh fruit and vegetables are important source of nutrients for us, but also for a list of pests and pathogens, that induce loss, occurring from the farm along the supply chain, and waste, where consumer is involved. Half of production of fresh fruit and vegetables is not consumed for loss and waste, and its reduction con provide more food for a growing world population. Halving of food waste is planned by SDG 12 – Responsible consumption and production, target 12.3, and it was adopted by Farm to Fork Strategy in European Union. The COST CA22314 Action FoodWaStop defined a questionnaire to (re)think on our daily behaviour, that affect deeply the amount of waste. You can fill and share the questionnaire through the QR code or at the link https://www.rescoop.com/limesurvey/index.php?sid=98621&lang=en. The FoodWaStop Action also opened the call for 18 STSM Grants of 2500 Euro, you have time to apply until 5 June 2024, call at the link Call for Short Term Scientific Missions (STSM) (foodwastop.eu). Further info on the Action at the pages Action CA22134 - COST, https://www.foodwastop.eu/ and Facebook

THE WORLD'S MOST POWERFUL ANTI-FUNGAL CHEMISTRIES CAUSE FUNGAL PATHOGENS TO SELF-DESTRUCT

LOUISE VENNELLS, UNIVERSITY OF EXETER NEWS, 1 JUNE 2024

Scientists have discovered that the most widely-used class of antifungals in the world cause pathogens to self-destruct. The University of Exeter-led research could help improve ways to protect food security and human lives.

Fungal diseases account for the loss of up to a quarter of the world's crops. They also pose a risk to humans and can be fatal for those with weakened immune systems.

Our strongest "weapon" against fungal plant diseases are azole fungicides. These chemical products account for to a quarter of the world agricultural fungicide market, worth more than £3 billion per year. Antifungal azoles are also widely used as a treatment against pathogenic fungi which can be fatal to humans, which adds to their importance in our attempt to control fungal disease.

Azoles target enzymes in the pathogen cell that produce cholesterol-like molecules, named ergosterol. Ergosterol is an important component of cellular bio-membranes. Azoles deplete ergosterol, which results in killing of the pathogen cell. However, despite the importance of azoles, scientists know little about the actual cause of pathogen death.

In a new study published in *Nature Communications*, University of Exeter scientists have uncovered the cellular mechanism by which azoles kill pathogenic fungi.

Funded by the BBSRC, the team of researchers, led by Professor Gero Steinberg, combined live-cell imaging approaches and molecular genetics to understand why the inhibition of ergosterol synthesis results in cell death in the crop pathogenic fungus *Zymoseptoria tritic* (*Z. tritici*). This fungus causes septoria leaf blotch in wheat, a serious disease in temperate climates, estimated to cause more than £250 million per year in costs in the UK alone due to harvest loss and fungicide spraying.

The Exeter team observed living *Z. tritici* cells, treated them with agricultural azoles and analysed the cellular response. They showed that the previously accepted idea that azoles kill the pathogen cell by causing perforation of the outer cell membrane does not apply. Instead, they found that azole-induced reduction of ergosterol increase the activity of cellular mitochondria, the "powerhouse" of the cell, required to produce the cellular "fuel" that drives all metabolic processes in the pathogen cell. While producing more "fuel" is not harmful in itself, the process leads to the formation of more toxic by-products. These by-products initiate a "suicide" programme in the pathogen cell, named apoptosis. In addition, reduced ergosterol levels also trigger a second "self-destruct" pathway, which causes the cell to "self-eat" its own nuclei and other vital organelles – a process known as macroautophagy. The authors show that both cell death pathways underpin the lethal activity of azoles. They conclude that azoles drive the fungal pathogen into "suicide" by initiating self-destruction.

The authors found the same mechanism of how azoles kill pathogen cells in rice-blast fungus *Magnaporthe oryzae*. The disease caused by this fungus kills up to 30 per cent of rice, an essential food crop for more than 3.5 billion people across the world. The team also tested other clinically relevant anti-fungal drugs that target the ergosterol biosynthesis, including Terbinafine, Tolfonate and Fluconazole. All initiated the same responses in the pathogen cell, suggesting that cell suicide is a general consequence of ergosterol biosynthesis inhibitors.

Lead author Professor Gero Steinberg, who holds a Chair in Cell Biology and is Director of the Bioimaging Centre at the University of Exeter, said: "Our findings rewrite common understanding of how azoles kill fungal pathogens. We show that azoles trigger cellular "suicide" programmes, which result in the pathogen self-destructing. This cellular reaction occurs after two days of treatment, suggesting that cells reach a "point of no return" after some time of exposure to azoles. Unfortunately, this gives the pathogen time to develop resistance against azoles, which explains why azole resistance is advancing in fungal pathogens, meaning they are more likely to fail to kill the disease in crops and humans.

"Our work sheds light on the activity of our most widely used chemical control agents in crop and human pathogens across the world. We hope that our results prove to be useful to optimise control strategies that could save lives and secure food security for the future."

OBITUARY OF DIANA H. WALL, 1943-2024

JANE LUBCHENCO AND KATHLEEN A. GALVIN, SCIENCE, 23 MAY 2024

Diana Harrison Wall (formerly Diana Wall Freckman), founder of the field of soil biodiversity, died on 25 March 2024. She was 80. Diana's fondness for nematodes led to improved understanding of the role of soils in climate change and a global campaign for soil health. Having experienced gender discrimination early in her career, she became a gifted mentor and eloquent champion for equity and diversity in science. Her passion and leadership enriched numerous professional scientific organizations.

Born on 27 December 1943 in Durham, North Carolina, Diana was raised in her beloved Lexington, Kentucky. She earned a BA in biology in 1965 and a PhD in plant pathology in 1971 from the University of Kentucky, Lexington. A passion for microscopic nematodes in soils brought her to the University of California, Riverside, for two decades. In 1993, she became associate dean for research and the director of the Natural Resource Ecology Laboratory in the College of Natural Resources at Colorado State University (CSU). She was the founding director of CSU's School of Global Environmental Sustainability from 2008 until her death.

Diana pioneered the measurement of anhydrobiosis, a physiological mechanism that allows nematodes to cope with extended dry and hot periods in soils. She then became interested in the structure of soil food and interaction webs. She sought to understand their ecological dynamics, vulnerability to environmental changes, and roles in biogeochemical processes such as carbon cycling.

To answer these questions, Diana and colleague Ross A. Virginia looked for simple ecosystems. They found the perfect model system in the Dry Valleys of Antarctica. The prevailing wisdom was that the soils on the coldest, windiest, and driest continent would be as sterile as the ground was barren. To test that theory, the National Science Foundation agreed to fund an exploratory trip in 1989.

In Antarctica, Diana and Ross discovered an ideal simple food web consisting of yeast, bacteria, fungi, rotifers, and arthropods, with nematodes as top predators. The trip triggered an annual expedition, recurring for decades, "to the ice." The "wormherders"—as the helicopter crew ferrying Diana's team affectionately called them—uncovered the pivotal role of soil invertebrates and microbes in carbon cycling and climate change, as well as their susceptibility to environmental changes. The findings provided insight into desert ecosystems, which are under increasing threat from climate change.

Diana was recognized for her inspiring work with numerous awards. She received the Tyler Prize for Environmental Achievement in 2013, the Ulysses Medal of the University College Dublin in 2015, a National Academy of Sciences membership in 2018, and the British Ecological Society's President's Medal in 2019. Since 2004, Wall Valley in Antarctica has borne her name.

Through her insights on nematodes and soil ecosystems, Diana became a guardian of the hidden universe of soil biodiversity. Her energy, kindness, mentoring, and leadership are precious gifts relished by everyone who knew and worked with her. Her contributions to the understanding of soil ecology and health will continue to benefit humanity and the planet in the future.

Read full obituary in Science.

TEACHING PLANT PATHOLOGY: A FORTY-FIVE YEAR LONG JOURNEY

A review by Maria Lodovica Gullino titled "Teaching plant pathology: a forty-five year long journey" was published on 29 April 2024 by *Journal of Plant Pathology* (online). The abstract is as follows:-

This paper describes the experience of teaching plant pathology in Italy and traces the teaching environment over a period of more than 45 years, split into three main periods: 1975–2000; 2001–2020; and after 2020. The three periods are marked by different attitudes towards agriculture and, consequently, by a variable attractiveness of agricultural study programmes for students, as well as significant changes in the population of teachers and students. The teaching experience has been described by focusing on the changes that have taken place, from the perspectives of both students and teachers, all considered in an environment of continuous transformation. The changing importance of agriculture, the different approaches of people (consumers) towards agriculture, and how it has influenced students' choices are considered. Data related to student enrolment at the College of Agriculture of the University of Turin have been used to provide real figures, which are useful to obtain a better understanding of the changes in the student population, also considering the different attractiveness of Agricultural Sciences, Forestry and Food Science, as well as the variations in the composition of the female student population, which increased from 28% in the late 1970's to 38% in 2020. Female students now show the highest interest in Food Science Courses. The changes in the students and teachers' backgrounds and attitudes, as well as in the teaching and learning methods are considered, and some critical considerations are drawn, also on the basis of the developed personal experience. Moreover, the effects of the Covid-19 pandemic disruption are discussed.

Read paper.

MORE ON TOXIC ACADEMIA: DOES INVESTING TIME IN OUTREACH, MENTORING AND COMMUNITY ACTIVITIES MATTER?

SOPHIEN KAMOUN, MEDIUM, 29 APRIL 2024

Outreach, mentoring, and community support are crucial for fostering a positive academic environment. Yet some established academics dismiss their importance, focusing solely on publishing papers and securing grants. So, who's right? Do broader community activities really matter?

After the popular post, 'What's a toxic environment for a PhD student?', many established academics responded with a common refrain: 'I just don't see it.' Some even expressed skepticism about the importance of outreach, mentoring, and other community activities, suggesting that these were secondary to what truly matters: publishing papers and securing grants.

Read article.

EFFECTS OF CLIMATE CHANGE ON PLANT PATHOGENS AND HOST-PATHOGEN INTERACTIONS

A paper by Rachid Lahlali *et al.* titled "Effects of climate change on plant pathogens and host-pathogen interactions" was published on 31 May 2024 by *Crop and Environment* (online). The abstract is as follows:-

Crop production stands as a pivotal pillar of global food security, but its sustainability faces complex challenges from plant diseases, which pose a substantial threat to agricultural productivity. Climate change significantly alters the dynamics of plant pathogens, primarily through changes in temperature, humidity, and precipitation patterns, which can enhance the virulence and spread of various plant diseases. Indeed, the increased frequency of extreme weather events, which is a direct consequence of climate change, creates favorable conditions for outbreaks of plant diseases. As global temperatures rise, the geographic range of many plant pathogens is expanding, exposing new regions and species to diseases previously limited to warmer climates. Climate change not only affects the prevalence and severity of plant diseases but also influences the effectiveness of disease management strategies, necessitating adaptive approaches in agricultural practices. This review presents a thorough examination of the relationship between climate change and plant pathogens and carefully provides an analysis of the interplay between climatic shifts and disease dynamics. In addition to insights into the development of effective strategies for countering the adverse impacts of climate change on plant diseases, these insights hold significant promise for bolstering global crop production resilience against mounting environmental challenges.

Read paper.

FEATURE ENGINEERING TO IDENTIFY PLANT DISEASES USING IMAGE PROCESSING AND ARTIFICIAL INTELLIGENCE

A review by Seyed Mohamad Javidan *et al.* titled "Feature engineering to identify plant diseases using image processing and artificial intelligence: A comprehensive review" was published on 28 May 2024 by *Smart Agricultural Technology* (vol. 8, 100480). The abstract is as follows:-

Plant diseases can significantly reduce crop yield and product quality. Visual inspections of plants by human observers for disease identification are time-consuming, costly, and prone to error. Advances in artificial intelligence (AI) have created opportunities for the rapid diagnosis and non-destructive classification of plant pathogens. Several machine vision techniques have been developed to identify and classify plant diseases automatically based on the morphology of specific symptoms. The use of deep learning models has achieved acceptable disease classification results, but they require large datasets for training, which can be labor-intensive, time-consuming, and computationally costly This problem can be solved, to a point, by using data augmentation techniques and generative AI in order to increase the size of the datasets. Furthermore, a combination of deep feature extraction and classification by machine learning was used for accurate disease detection and classification. In some cases, traditional base classifiers trained with small datasets including basic shape, color, and texture features can be feasible for the efficient identification of plant diseases. The performance of such classifiers depends primarily on the features extracted from images; therefore, feature extraction plays a vital role in identifying diseases. Feature engineering, a process to identify the most relevant variables from raw data in order to develop an efficient predictive model, is explored in this paper.

Read paper.

RESEARCHERS IDENTIFY MICROBES THAT HELP PLANTS THWART PARASITE

LIANA WAIT, UC DAVIS NEWS, 26 MARCH 2024

Bacteria that could help one of Africa's staple crops resist a major pest have been identified by researchers at the University of California, Davis. Their findings, published 26 March in *Cell Reports*, could improve yields of sorghum, a mainstay of food and drink in West and East African countries.

About 20 percent of Africa's sorghum crop is lost due to witchweed (*Striga hermonthica*), a parasitic plant that steals nutrients and water by latching onto the plant's roots.

In the new study, UC Davis researchers show that soil microbes induce changes in sorghum roots that make the plant more resistant to infection by witchweed. They identified specific strains of bacteria that trigger these resistance traits and could be applied as a soil "probiotic" to improve sorghum yields in future.

"These microbes have great promise as soil additives that can help farmers grow sorghum successfully in sub-Saharan Africa," said Siobhan Brady, a professor in the Department of Plant Biology and Genome Center and a senior author on the paper.

A WITCHY WEED

Witchweed is a major issue for smallholder farmers in sub-Saharan Africa. The parasitic plants produce thousands of tiny seeds that can remain dormant in the soil for up to 20 years, making them extremely difficult to eradicate. Current control methods — which include applying chemical agents, crop rotation and breeding resistant sorghum — have achieved only partial control, and many are inaccessible to the farmers who need them most.

Postdoctoral scholar Dorota Kawa worked alongside Brady and collaborators in the Netherlands and Ethiopia to show that soil microbes can mitigate witchweed infections in sorghum.

"This is the first example showing how microbes can induce changes in host root cells that are associated with the suppression of witchweed," said Brady.

HIJACKING A PLANT SIGNAL

When sorghum plants find themselves in low-phosphate soil, they release chemicals from their roots to attract fungi that help them acquire phosphate. Unfortunately for sorghum, witchweed has evolved to respond to this same signal.

"This parasitic plant has hijacked the signaling so that its seeds germinate when they perceive that same signal from the root," said Brady.

After germinating, witchweed responds to additional chemical cues from sorghum that trigger the parasite to grow appendages called "haustoria" that enable it to latch on and penetrate the sorghum roots.

"Once it has made this connection with the sorghum vasculature, it's like a superhighway of nutrients to the parasitic plant," said Brady.

Brady and Kawa wanted to know whether soil microbes could interrupt this hijacking. Previous studies have shown that a species of soil fungus, Fusarium, suppresses witchweed germination, and thus infection of sorghum, but little is known about whether soil bacteria or fungi suppress witchweed infections by changing the sorghum root.

As a first test, the researchers compared the susceptibility of sorghum seedlings that had been sprouted in "natural" soil to seedlings grown in sterilised soil. They found that plants grown in natural soil had fewer witchweed hangers-on than those grown in sterilised soil, suggesting that bacteria play an important role in the plants' ability to resist infection.

MICROBIAL MECHANISMS

Next, the team wanted to investigate the mechanisms behind this resistance. Using a combination of genetics, microscopy and in vitro experiments, they showed that microbes degrade the chemical cues that help witchweed attach to its host and also alter the sorghum's root anatomy to make it harder for witchweed to latch on. They observed that when sorghum plants are grown in natural, microbe-laden soil, the bacteria induce genes that result in a thicker layer of suberin, a waxy substance that may act as a barrier to witchweed, and more air-filled gaps or "aerenchymas" that may also impede witchweed's attachment to sorghum.

Using genetic sequencing, Brady and her collaborators identified over 100 bacteria taxa that were associated with witchweed resistance. When they tested the functions of eight of these bacterial strains in vitro, they identified a strain of Pseudomonas bacteria that degrades chemical cues in the soil and a strain of Arthrobacter that increased root suberisation in sorghum.

"It's exciting that we were able to identify individual microbes because typically you have a whole suite of microbes within the soil and it's possible that they're acting together," said Brady.

Another tool in the toolkit

"The ultimate goal is to identify microbial solutions that farmers can treat the soil or seeds with to help prevent Striga infection," Brady said. "The intention is that this should be part of an integrated package of solutions to farmers—another tool in the toolkit."

Now, the researchers are searching for microbes responsible for conferring other resistance traits. They're also characterising soil microbes from other regions, beginning with Ethiopia, and investigating whether these same microbes can confer witchweed resistance to other crop species that are also impacted by the parasite.

"We need to make sure that we're using microbes that come from the country in which those microbes will be applied so that we maintain biodiversity," said Brady. "We also want to prioritise microbes that are able to work well in other crop species, like pearl millet and rice."

CURRENT VACANCIES

Scientific Officer (P2) at EPPO working on Information Services including Horizon Scanning

The European and Mediterranean Plant Protection Organization (EPPO) is an intergovernmental organization responsible for international cooperation in plant protection in the European and Mediterranean region. In the sense of the article IX of the FAO International Plant Protection Convention (IPPC), it is the Regional Plant Protection Organization for Europe. Founded in 1951 with 15 member governments, it now has 52 member governments including nearly every country of Western and Eastern Europe and the Mediterranean region. The organization work on two main areas, Plant Protection Products and Phytosanitary Regulations. EPPO is also hosting two networks: Euphresco (research coordination) and the European Minor Uses Coordination Facility.

EPPO is financed directly by annual contributions from its member governments and activities are administered by the EPPO Secretariat. The EPPO Secretariat is based in Paris and consists of an international team of 22 staff members, including Scientific Officers, IT Officers and Administrative staff headed by a Director-General and an Assistant Director. Its official languages are English, French and for certain purposes Russian and the working language is English.

In the field of information services, EPPO maintains databases, websites, newsletters, and develops Standards. In particular, it actively searches and collects information (horizon scanning) on emerging pests and pests that are of regulatory interest to the EPPO region. The EPPO Secretariat also participates in social media and communication campaigns promoting the importance of plant health.

Deadline: 2024-06-10 23:59:59 (Paris time)

More information on job and submit application: https://jobs.eppo.int/p2info

ACKNOWLEDGEMENTS

Thanks to Grahame Jackson, Greg Johnson, Diwakar Kandula, George Karaoglanidis, Javier Martinez, and Gianfranco Romanazzi for contributions.

COMING EVENTS

International Symposium on Grapevine Epidemic Diseases
16 May – 18 May, 2024
Austin, Texas, USA
Website: web.cvent.com/event/7b4a5e7f-3901-4d94-b035-5c96932142a1/summary

6th European Bois noir workshop and Prophylactic and Agro-Ecological Control of flavescence dorée and other Grapevine Yellows (Pro-AECOGY)
14 June – 16 June, 2024
Bordeaux, France
Website: https://boisnoirwkshop.sciencesconf.org/

10th International conference on *Pseudomonas syringae*
4 June – 7 June, 2024
Porto, Portugal
Website: psyringae2024.com

International Plant Molecular Biology (IPMB) Congress
24 June – 28 June, 2024
Cairns, Queensland, Australia
Website: www.ipmb2024.org/

XX International Plant Protection Congress
1 July – 5 July, 2024
Athens, Greece
Website: www.ippcathens2024.gr

Wild Plant Pathosystems 2024
7 July – 10 July, 2024
Kiel, Germany
Website: wildplantpath.net

International Conference on Plant Pathogenic Bacteria & Biocontrol 2024
7 July – 12 July, 2024
Virginia Tech, Blacksburg, Virginia, United States
Website: icppbbiocontrol2024.org

Triennial Conference of the European Association for Potato Research (EAPR)
7 July – 12 July, 2024
Oslo, Norway
Website: nibio.pameldingssystem.no/eapr2024

miCROPe 2024 conference - Microbe-assisted crop production – opportunities, challenges and needs
15 July – 18 July, 2024
Vienna, Austria
Website: www.micrope.org

Plant Health 2024
27 July – 31 July, 2024
Memphis, Tennessee, USA
Website:
www.apsnet.org/meetings/annual/Pages/default.aspx

Asian Conference on Plant Pathology 2024
3 August – 7 August, 2024
Changchun, Jilin, China
Website: acpp2024.tri-think.cn

Australasian Soilborne Disease Symposium 2024
26 August – 29 August, 2024
Kingscliffe, New South Wales, Australia
Website: www.asds-apps.com/

11th IUFRO *Phytophthora* in Forests and Natural Ecosystems working party
8 September – 13 September, 2024
Bay of Islands (Paihia), New Zealand
Website: www.scienceevents.co.nz/iufro2024

International Phytobiomes Conference 2024
8 October – 10 October, 2024
St. Louis, MO, USA
Website: phytobiomesconference.org

Australasian plant virology workshop (APVW 2024)
29 October – 31 October, 2024
Gold Coast, Australia
Contact and Email: Fiona.Filardo@daf.qld.gov.au
Website: apvw-2024-.w.kamevents.currinda.com

9th ISHS International Postharvest Symposium
11 November – 15 November, 2024
Rotorua, New Zealand
Website: scienceevents.co.nz/postharvest2024

16th International *Trichoderma* & *Gliocladium* Workshop
12 November – 14 November, 2024
Lincoln University, Canterbury, New Zealand
Website: www.tg2024.org

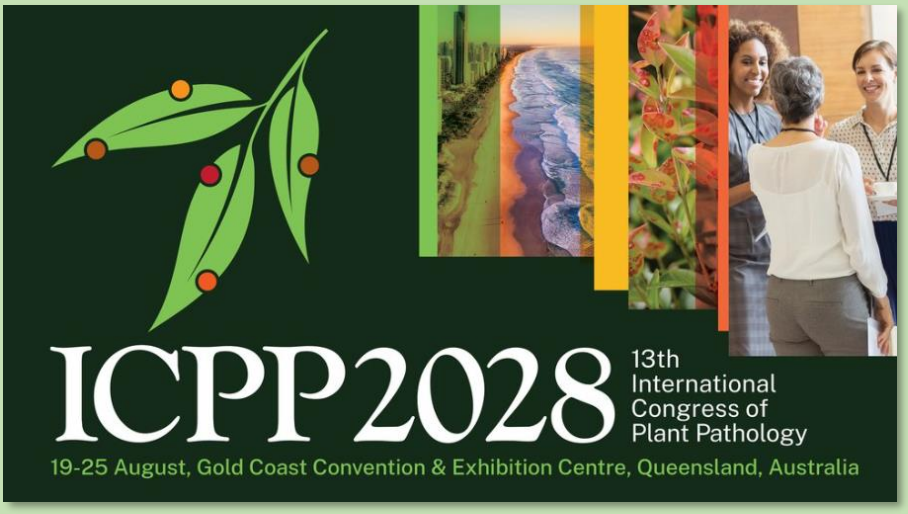
International Symposium on Plant Pathogenic Sclerotiniaceae - BotryScleroMoni 2025. Joint meetings of XIX International *Botrytis* Symposium, XVII International *Sclerotinia* Workshop, and II International *Monilinia* Workshop
25 May – 30 May, 2025
Thessaloniki, Greece
Website: botryscleromoni.com

17th Congress of the Mediterranean Phytopathological Union - New phytopathology frontiers of research and education for plant health and food safety
7 July – 10 July, 2025
Ciheam-Bari, Italy
Contact and Email: Anna Maria D'Onghia,e-mail: mpu2025@iamb.it
Website: www.mpunion.org

13th International Workshop on Grapevine Trunk Diseases
21 July – 25 July, 2025
Ensenada, Baja California, México
Contact and Email: Rufina Hernández 13iwgtd@cicese.mx
Website (under construction): 13iwgtd.cicese.mx

14th Arab Congress of Plant Protection Sciences
3 November – 7 November, 2025
Algeria
Contact and Email: hou.boureghda@gmail.com
Website will be developed soon.

International Congress of Plant Pathology 2028
19 August – 25 August, 2028
Gold Coast, Queensland, Australia
Website: www.icpp2028.org



INTERNATIONAL SOCIETY FOR PLANT PATHOLOGY (ISPP)

WWW.ISPPWEB.ORG

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