



ISPP INTERNATIONAL SOCIETY
FOR PLANT PATHOLOGY

PROMOTING WORLD-WIDE PLANT HEALTH AND FOOD SECURITY

INTERNATIONAL SOCIETY FOR PLANT PATHOLOGY

ISPP NEWSLETTER

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IN THIS ISSUE:

Fundraising Campaign for ISPP Resilience Bursary for Plant Pathologists

Türkiye after the earthquake, and impact on plant pathologists and institutions

Twelfth Update on ISPP Resilience Bursary for Plant Pathologists

International Day of Plant Health is 12th May

ICPP2023

Call for nominations for ISPP Fellows 2023

ISPP Council 2023-2028

Second Reminder – Please Complete our Survey on Plant Pathology in the Social Media Age

Immunized Plants – New book

Wheat's ancient roots of viral resistance uncovered

Webinar “Chemical treatments to manage seedborne pathogens” – 21 April 2023

Research team proves bacteria-killing viruses deploy genetic code-switching to deceive hosts

7th edition of the summer school Plant Health and Quality, University of Angers, France

Current Vacancies

Acknowledgements

Coming Events



INTERNATIONAL SOCIETY FOR PLANT PATHOLOGY (ISPP)

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FUNDRAISING CAMPAIGN FOR ISPP RESILIENCE BURSARY FOR PLANT PATHOLOGISTS

Dear Colleagues,

The recent earthquakes in Türkiye and Syria have had devastating consequences for many of our plant pathologist colleagues. We are learning of losses that are unimaginable and heart-breaking.

Last year, the International Society for Plant Pathology (ISPP) established a “Resilience Bursary for Plant Pathologists”. ISPP contributed to and solicited funds to support emergency/refugee situations, specifically for plant pathologists.

Many societies and individuals responded to that call with contributions totaling \$28,734. To date, we have supported nine scientists from Ukraine, who are working in plant pathology labs in Poland, and have disbursed \$27,500 through partnership with the Polish Phytopathological Society. The need to support Ukrainian plant pathologists continues!

Now, in partnership with the American Phytopathological Society (APS) Office of International Programs (OIP), we are reaching out to you again, with a plea to contribute towards also helping our plant pathology colleagues in Türkiye and Syria. We have connected with colleagues in the Turkish Society of Plant Pathology (<https://www.fitopatoloji.org.tr/>) and plant pathologists of Turkish origin based in U.S institutions and associated with APS/ISPP and are working to determine how support can best be provided in Türkiye.

Meanwhile, we have initiated the process towards getting information from Syria, working with colleagues in the Arab Society for Plant Protection (<https://asplantprotection.org/en/>) and the Mediterranean Phytopathological Union (<http://www.mpunion.eu>) to learn the best ways to help plant pathologists in Syria.

Please know that every \$ that you donate will be set specifically to support plant pathologists in need and will be disbursed with careful immediate attention and verification. ISPP will establish a process for reviewing support requests, and routine updates will be provided through ISPP Newsletter and APS Phytopathology News.

If you have any suggestions, questions, or information that you would like to share about colleagues that may need help, please email us at: resilience@isppweb.org.

A credit card payment link for donation to the Fundraising Campaign for ISPP Resilience Bursary is below. You will have the option to specifically donate to plant pathologists in Türkiye, Syria, Ukraine, or any emerging needs.

Funds can also be provided as a check or bank wire to ISPP. Please communicate with resilience@isppweb.org to get specific information. The donation will be considered a gift to this program and is tax deductible in the U.S.

Please share this with everyone whom you think would also be interested in supporting and contributing. ISPP is also seeking support from institutional partners.

Thank you!

Sincerely,

Jan E. Leach
ISPP President



TÜRKIYE AFTER THE EARTHQUAKE, AND IMPACT ON PLANT PATHOLOGISTS AND INSTITUTIONS

FULYA BAYSAL-GUREL

The magnitude 7.8 earthquake on 6 February 2023 at 4:17 am, followed by a magnitude 7.7 earthquake at 1:24 pm, killed more than 55,000 people in Türkiye. At least 13.5 million people and 4 million buildings were affected across 11 provinces of Türkiye (Adana, Adiyaman, Batman, Diyarbakir, Elazig, Gaziantep, Hatay, Kahramanmaras, Kilis, Malatya, Mardin, Osmaniye and Sanliurfa). Several universities and their personnel were impacted in those provinces. The Hatay Mustafa Kemal University Plant Pathology department faculties (12), Kahramanmaras Sutcu Imam University faculties (4), Adana Cukurova University faculties (9), Harran University faculties (3), their graduate/undergraduate students and staff were all affected. Teaching lab and classroom infrastructures in some of the institutions were damaged. These heavily impacted institutions are planning to continue their education in online platforms or students transferred to other institutions.



Anadolu Agency, Türkiye.

We regret learning that many faculty, staff members and students lost their lives, and we would like to honor one of them with this ISPP newsletter article.

Hatay Mustafa Kemal University Plant Pathology department faculty Dr. Mona Gazel (professor; pictured RHS), 52, was rescued from the rubble 48 hours after the disaster; but unfortunately passed away from earthquake injuries at the hospital. She received her bachelor's degree in plant protection from Ankara University, her master's degree in plant pathology from Hatay Mustafa Kemal University, and her doctorate degree in plant pathology from Adana Cukurova University. She then came to Hatay Mustafa Kemal University as an assistant professor with responsibility for virology in the Department of Plant Protection. Dr. Gazel dedicated over 20 years to education, research and service to the fruit industry in Hatay and Türkiye. As a professor, she taught and mentored numerous master's and doctoral students. During her professional and academic career, she published over 60 refereed journal articles, book chapters and research reports. She served as the editor for ISHS Acta Horticulturae Proceeding of the Third International Symposium on Plum Pox Virus and was a member of the Turkish Society of Plant Pathology. She was very passionate about plant pathology and mentoring students, and she loved to share her scientific opinion and more with her colleagues and friends. She was a devoted wife and mother who will be truly missed.



TWELFTH UPDATE ON ISPP RESILIENCE BURSARY FOR PLANT PATHOLOGISTS

VERONIKA NECHYTAILO, MAŁGORZATA JĘDRYCZKA, MAŁGORZATA MAŃKA AND GREG JOHNSON

As we write this update, Spring, the season of growth, is in the air in the northern hemisphere, while Autumn, the season of harvest advances in the southern hemisphere. Meanwhile in the equatorial regions as always it is hot. March has been a month of continuing conflict in Ukraine, gradual recovery from the Earthquakes in Türkiye and Syria.

As April comes, we are less than five months to the 12th International Congress of Plant Pathology in Lyon, France from 20 - 25 August 2023, with opportunities for many to report on and hear about the latest research, gain new insights and inspiration, and make and renew friendships with colleagues from around the globe.

This month we hear from ISPP Resilience Bursary Recipient, Dr Veronika Nechytailo from the National Research Centre Institute of Agrarian Economy in Kyiv, Ukraine who has recently been based at the Institute of Plant Genetics Polish Academy of Sciences in Poznan, Poland. If you would like to contribute to the Bursary Fund, please use the link in the letter from ISPP President, Jan Leach on the first page.

VERONIKA NECHYTAILO

I do not even know where to start my story, but first of all, I need to introduce myself. My name is Veronika Nechytailo, I am the doctor of economy, I work at the National Research Center, Institute of Agrarian Economy, in Kyiv, Ukraine in the position of a senior researcher. The field of my scientific interests covers investment, material and technical support for agriculture of Ukraine. But I will write about this later.

I want to tell about the day that changed me forever. I remember the morning of 24 February 2022 as a terrible dream. Until that day I had a normal life. However, at 5 o'clock in the morning that day I found out that everything has changed. My mother called me, it was very strange call at such an early hour, the first thing she asked was: "Veronika, are you all right?" Then a little pause, and I hear these words: "Daughter, the war has started." To say that I was shocked is an understatement. My husband and I live near Kyiv, and at that time the sounds of explosions had not yet reached us. However, closer to 8 in the morning, we felt all the horror of the war. Many military planes were in the sky, people with suitcases rushed to their cars fleeing from the war, there were long queues in shops, pharmacies, and gas stations. The first day of the war seemed to be in a fog, and then every day it became more and more frightening, numerous Russian tanks, subversive reconnaissance groups, rockets that destroy all living things when they reach their target. I remember how I called my father. He and my mother live in the city of Uman. That day he was at work, he is a military pensioner, he knows what the war is. I remember my conversation with him that day, now we are alive, but at that moment we said goodbye as if we would never see each other again. And all this is happening in the center of Europe, in the 21st century.



The Russian Federation has been terrorising Ukraine for almost a year now. Our military protects state territories, people - at the cost of their own lives, how many of them died, only God knows. The situation in Ukraine is complicated, many power plants were damaged, there are no lights in most cities and villages for many hours, there is no water, there may also be no gas, it is very cold. When you go to bed, you are not sure that you will open your eyes the next day, since there is a high risk of missile strikes. And what is more frightening in this situation, that you get used to war. And all these are the current realities of the Ukrainian people.

However, in Ukraine, there is a lot of support

from our partner country, the Republic of Poland. This country has been very helpful and supportive of Ukrainians since the very first day of the war until now. I also felt this support. The Polish scientific community gave me the opportunity to get two internships in the Institute of Plant Genetics Polish Academy of Sciences. At the end of 2022, I completed my first internship at this Institute. I also had opportunity to visit the headquarters of the Polish Academy of Sciences in Warsaw and meet Prof. Jerzy Duszyński, the President of the Polish Academy of Sciences, at the meeting for PAS scholarship holders: «Supporting scientists from Ukraine: results and new opportunities».

At the beginning of the current year 2023, on the basis of the International Society of Plant Pathology (ISPP), which cooperates with the Polish Phytopathological Society (PPS), I got a scholarship called the ISPP Resilience Bursary. I am very grateful to Prof. Małgorzata Mańka - the President of Polish Phytopathological Society, Prof. Małgorzata Jędrzycka - the Head of the Pathogen Genetics and Plant Resistance Team at the Institute of Plant Genetics Polish Academy of Sciences, who agreed to accept me to her team during the scholarship and Dr. Joanna Kaczmarek, who supervised me during my internship. During my stay my job was to arrange the meteorological data for the system CERBET, which may be used in the future to protect sugar beet plants against the fungal pathogen *Cercospora beticola*.

Regarding my scientific research in Ukraine, the main emphasis is on investment support for agriculture. I research the trends of quantitative and qualitative changes in investments for the development of agriculture of Ukraine in conditions of instability. The war caused significant damage to the agriculture of my state. The greatest losses were incurred as a result of destruction or partial damage to agricultural land, loss of the opportunity to harvest as well as damage of agricultural products in farm warehouses due to the complications of logistical communications. Agricultural lands were significantly damaged - pollution by damaged military equipment and direct physical damage. In addition, places affected by active hostilities, contaminated with unexploded ordnance which poses a deadly threat to farmers. This problem is very close for me because my relatives are engaged in this type of activity.



Solving the problem of activation of investment processes for agricultural development in conditions of full-scale war is extremely difficult, but subject to its termination is possible. The war does not contribute to the investment activity of agribusiness, although its importance for the state is increasing, and investment attractiveness causes a significant increase in world food prices and the aggravation of the world food problem, caused by the war. Great part of it is also the lack of agricultural crop protection, so the internship in Poland helps me to understand and take this aspect into account.

INTERNATIONAL DAY OF PLANT HEALTH IS 12TH MAY

DANIEL HÜBERLI, ISPP NEWSLETTER EDITOR

The United Nations has designated 12th May as the International Day of Plant Health to raise global awareness on how protecting plant health can help end hunger, reduce poverty, protect biodiversity and the environment, and boost economic development. The Day is a key legacy of the International Year of Plant Health 2020.

Both our health and the health of our planet depend on plants. **Plants make up 80% of the food we eat** and 98% of the oxygen we breathe and yet they are under threat. Up to **40% of food crops are lost due to plant pests and diseases** every year. This is affecting both food security and agriculture, the main source of income for vulnerable rural communities.

Climate change and human activities are altering ecosystems and damaging biodiversity while creating new niches for pests to thrive. **International travel and trade**, which has tripled in volume in the last decade, is also spreading pests and diseases. We need to protect plants both for people and the planet, and all of us have a role to play.

A number of events are planned globally including a Plant health science exchange in Canberra, Australia. Join experts and the general plant health community for an exchange of knowledge and innovation on plant health, environmental protection and biodiversity. The event will be chaired by the Australian Chief Plant Protection Officer, Dr Gabrielle Vivian-Smith. The keynote speaker will be the new Australian Chief Environmental Biosecurity Officer, Dr Bertie Hennecke, who will address the day's theme of environmental protection and biodiversity. [Register through Eventbrite](#). Details of the livestream will be sent to those registered.

Consider hosting your own celebration through a morning tea or other event in the lead up to the day. Some of the activities that can be undertaken to mark the day include planting trees, organising plant clinics, conducting awareness campaigns, and advocating for policies that promote plant health. Here are more [ideas to participate](#).

To acknowledge the International Day of Plant Health, the May issue of the ISPP Newsletter will be released on 12th May. The special issue will be released containing activities and events organised by ISPP community including plant health related videos created by students. If you have any activities planned consider adding an article to forth coming issue of the Newsletter.

ICPP2023

MATHIAS CHOQUER AND NATHALIE POUSSEREAU, CO-CHAIRS OF ICPP2023



The banner features the ICPP 2023 Lyon logo on the left, which includes a stylized leaf and the text 'ONE HEALTH for all plants, crops and trees'. To the right, the text '12th INTERNATIONAL CONGRESS OF PLANT PATHOLOGY' is displayed in white on a dark green background. Below this, the subtitle 'The International Society for Plant Pathology & the French Phytopathological Society' is written in smaller white text. A central image shows two hands holding a small green plant in soil. To the right of the hands, the dates '20-25 August, France' are written in pink. Further right are the logos for ICPP and SFP. The background of the banner is a scenic view of Lyon, France, showing a river and historic buildings.

2000 abstracts have been received!

Notification to authors: 14 April, 2023 / Early bird rate ending: April 28, 2023

Register now to benefit from the Early Bird rate!

<https://www.icpp2023.org/registration>

8 plenary/keynotes sessions

(<https://www.icpp2023.org/programme/keynotes-sessions>)

63 concurrent sessions / 8 round-tables / 20 satellite events

The Global Plant Health Assessment (GPHA) satellite event, scheduled for Sunday, August 20, is now open for registration for all who wish to attend!

IN THE HEART OF THE CITY, THE PARC DE LA TÊTE D'OR IS BORDERED BY THE CITÉ INTERNATIONALE AND THE LYON CONVENTION CENTER AS WELL AS THE RHÔNE RIVER. NEED A BREAK BETWEEN TWO CONFERENCES? ACCESS TO THE ZOO AND THE BOTANICAL GARDEN IS FREE AND CLOSE TO THE AMPHITHEATERS. WITH MORE THAN 15000 PLANTS, IT IS COMPOSED OF LARGE GREENHOUSES INCLUDING TROPICAL PLANTS, VEGETATION OF MADAGASCAR, CARNIVOROUS PLANTS. IT ALSO INCLUDES AN ALPINE GARDEN AND SEVERAL ROSE GARDENS.



CALL FOR NOMINATIONS FOR ISPP FELLOWS 2023

JAN LEACH, ISPP PRESIDENT

At the 2023 International Congress of Plant Pathology (ICPP) in Lyon, France, the International Society for Plant Pathology (ISPP) intends to recognise the outstanding contributions of individuals to plant pathology, the aims of the ISPP, or both as Fellows of the ISPP. A call for nominations is now open. Nominations will close on 15th May 2023. Nominations should be sent with name and contact details of the nominee and the nominator. The nominator should state the rationale for the nomination by outlining in 500-700 words (Helvetica 9 point single-spaced text) how the individual nominated has made an outstanding contribution to plant pathology, the aims of ISPP, or both. A more detailed CV may also be sent with the nomination. Individuals cannot nominate themselves.

Nominations (and enquiries) should be sent to the ISPP President, Dr Jan Leach (Jan.Leach@colostate.edu) with the subject heading "ISPP Fellow Nomination". Nominations and deliberations of the Fellow's Selection panel will remain confidential.

ISPP Fellows elected by Council:

- 1988 in Kyoto:- Arthur Kelman dec.; RKS Wood dec.
- 1998 in Edinburgh:- Johannes Dekker dec.; Chiu Wei Fan dec.
- 2008 in Torino:- Chuji Hiruki dec.; Wenhua Tang; Peter Scott; Brian Deverall dec.; James Cook; Charles Delp.
- 2013 in Beijing:- Richard Falloon; Richard Strange dec.; Yaacov Katan.
- 2018 in Boston:- Gloria Abad, Thomas Evans, M. Lodovica Gullino, Michel Heath, You Liang Peng, Dov Prusky, Mauritz Ramstedt, Paul Teng, Shinji Tsuyumu, Peter Williamson.

ISPP COUNCIL 2023-2028

ISPP Member Societies and Nominating Bodies are reminded of the need to review and to submit to the Council the name(s) of their appointee(s) for the ISPP Council 2023-2028.

Societies can send the names and email address of their Councillors to the ISPP Business Manager (business.manager@isppweb.org always copying to andrea.masino@unito.it)

During March the ISPP will be conducting an email ballot of Councillors about changes to the ISPP Statutes and Rules of Procedure.

The ISPP Council meeting at ICPP2023 in Lyon France will be convened on Tuesday 22 August 2023. The draft Agenda for the Council Meeting is posted [here](#).

SECOND REMINDER – PLEASE COMPLETE OUR SURVEY ON PLANT PATHOLOGY IN THE SOCIAL MEDIA AGE

GREG JOHNSON AND ANDREA MASINO

So far we have received 360 + responses. Help us to get over 1000 by completing it now! Also please encourage your friends and colleagues to complete the survey!

Focussing on social media offered by plant pathology societies and plant pathologists, a session at [ICPP2023](#) - *APP-titude for Social Media in Plant Disease Research* will consider the use and engagement with social media by plant pathologists and considers how to improve social media relevance.

The survey will help us gain insights for the plant pathology societies and plant pathologists who use, or are considering use of, social media so they might reach their audiences more effectively.

At ICPP2023 and in our report via the ISPP newsletter, survey findings will be summarised under

- topics most important to social media readership
- platforms respondents use to access plant pathology related topics and inspiration
- scientific societies and other sources of plant pathology information and
- the demographic profiles of users and non-users.

Finally, we will hope to identify opportunities for improving social media use to enhance science outreach, career prospects and well-being of plant pathologists.

Participants in the survey are asked to provide an email address to help avoid duplicate responses or SPAM but this information will remain confidential to ISPP. The Green Button opposite has the link to the survey.

Number of Responses by Country or Region
(As at 27 March 2023)

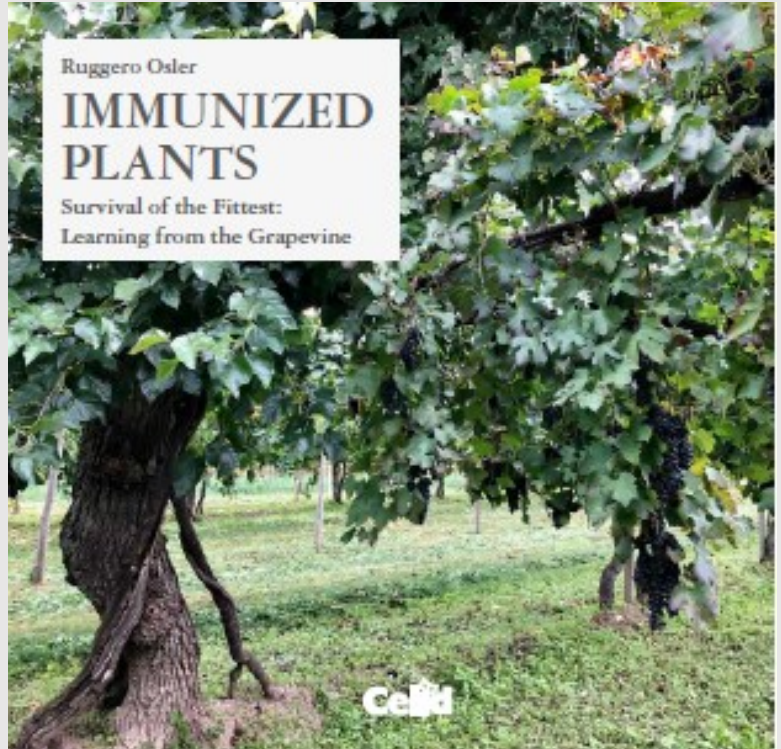
| Country or Region | # Responses |
|--|-------------|
| France | 36 |
| Japan | 31 |
| Italy | 30 |
| United States of America | 29 |
| Poland | 27 |
| Australia | 23 |
| Serbia | 18 |
| New Zealand | 18 |
| Vietnam | 18 |
| Thailand | 16 |
| Spain | 14 |
| Pakistan | 14 |
| United Kingdom | 13 |
| Portugal | 12 |
| India | 10 |
| South Africa | 10 |
| Ukraine | 9 |
| South Korea | 7 |
| Uruguay | 5 |
| Two each: Argentina, Bosnia and Herzegovina, Kenya, Germany, Bangladesh, Lebanon, Singapore | 16 |
| One Each: Croatia, Austria, Taiwan, Canada, Israel, Fiji, Tanzania, Netherlands, Mexico, Nepal, Tunisia, Belgium | 12 |
| Total | 366 |

CLICK HERE TO PARTICIPATE IN THE SURVEY!

IMMUNIZED PLANTS – NEW BOOK

Ruggero Osler. Melissa Pellini, Translator; A. Purcell, Editor (2022). Immunized Plants. Survival of the Fittest: Learning from the Grapevine. Celid, Torino, Italy. 192 pp.

Immunized Plants is a very recently published book, which outlines how to defend plants from common stress factors, in particular the ones connected with epidemic disease. The book is a sort of extended discussion proposed by a plant pathologist turned epidemiologist, who has always been observant to the inner workings of fields, farms, and vineyards. This discussion stems from a basic observation: cultivated plants are becoming increasingly fragile and difficult to defend against disease, especially epidemic disease. The book also emphasizes that while reacting to this state of decline, we are polluting our environment. The most important reasons for crop resilience decline are described within the book's pages, as well as current plant epidemic control strategies, commenting on those that have become unreliable. Rather, grapevine massal or population selection is identified as one practical solution to increase crop resilience. The book goes on to propose that in areas with significant natural infection pressure, in order to concretely try to counteract epidemics, it is recommended to grow plants that are not only free from dangerous plant pathogens, but also bear some form of resistance.



THE CLASSIC “TRIPTYCH” OR THREE-PRONGED APPROACH ISN’T ENOUGH TO TAKE ON EPIDEMICS

For more than 50 years, people have insisted on overcoming plant epidemics with little or no success by applying the “trierarchy” formula: roguing, vector control, and the use of virus or in general pathogen free plants. A new vision is imperative to support current defense guidelines: it is time to think less about pathogen control and more about the plant and its self-defense capabilities.

WE NEED PLANTS WITH SOME KIND OF DISEASE RESISTANCE

At the onset of severe epidemics, often resistant cultivars are enthusiastically cited as rising above the epidemic wave; but over time even these varieties generally show susceptibility and sensitivity. Currently, not even engineered plants have successfully avoided epidemics: neither genetically modified plants (GMPs), nor those obtained with the prominent technique of genome editing. After all, genetically modified plants are new organisms and we cannot know how they will react when released into the flood of competition.

EPIDEMICS CAN BE RESOLVED FROM WITHIN

Instead of importing plants to areas currently experiencing an epidemic from disease-free areas, the idea is to cultivate plants that have been induced for resistance by the same pathogen that is responsible for the epidemic. In addition to the classic inherent-genetic resistances, induced-epigenetic resistances are now known, those originating from encounters between plants and natural elicitors, including those represented by pathogenic organisms. These resistances and tolerances can be long-lasting and transmissible to offspring. For this reason they are also defined as "evolutionary" and can contribute to increasing resilience in cultivated plants. After an epidemic it is common to find some plants with normal development among others that are noticeably sick, emaciated or dead. These "saved" plants can be precious and should be studied at the end of their production cycles, and then propagated rather than destroyed.

Immunized Plants references resistance-induced plants which have escaped disease and then are successfully reproduced. The book also gives examples of "recovered" plants, an interesting form of induced resistance that occurs with delay in plants clearly suffering from disease that yet are eventually able to successfully reproduce for several generations. An anecdote of apricot trees which "recovered" from European Stone Fruit Yellows (ESFY) in this way can be found within the book.

Ultimately the discussion within the pages of Immunized Plants concludes with a call-to-action for those responsible for plant defense, researchers and farmers alike, to investigate and cultivate plants with lasting and transgenerational induced resistances: immunized plants, that have passed the gauntlet of Darwinian Natural Selection.

For more information and to view the full table of contents, visit <https://www.celid.it/scheda-libro?aaeref=1595>.

WHEAT'S ANCIENT ROOTS OF VIRAL RESISTANCE UNCOVERED

UNIVERSITY OF MELBOURNE NEWS, 6 MARCH 2023

The DNA sequence of a gene in wheat responsible for resisting a devastating virus has been discovered, providing vital clues for managing more resistant crops and maintaining a healthy food supply. Wheat crops across the Americas, Asia, Europe, and Africa are frequently ravaged by wheat yellow mosaic virus, so there is high demand for wheat varieties or cultivars that can resist this virus. Published in *Proceedings of the National Academy of Sciences*, the study found the resistance gene originated in an ancient Mediterranean wild plant relative of wheat.

Study lead researcher University of Melbourne Dr. Mohammad Pourkheirandish said, “This discovery could assist with the development of more resistant wheat cultivars, increase crop yields, and reduce the use of harmful fungicides. It also emphasises the need to preserve biodiversity to protect food supplies.”

WYMV reduces grain yield by up to 80%, causing significant economic losses. The virus is hosted and transmitted by a soil-dwelling fungus that colonises the roots of wheat plants, discolouring wheat leaves, and stunting plant growth. Microscopic fungal spores containing WYMV can live in soil for up to a decade. While fungicides can kill the spores and stop transmission, the fungicide treatment is neither cost-effective nor ecologically sustainable.

“The viable alternative is to selectively breed or genetically engineer wheat with resistance to WYMV,” Dr. Pourkheirandish said. “Before this research, we knew that a dominant gene called Ym2 reduces the impact of WYMV on wheat plants by more than 70%, but we didn't understand how the gene achieved this.”

The research team used a technique called positional cloning to locate the Ym2 gene on a chromosome in bread wheat, and found that its DNA sequence codes for a protein of the type known as NBS-LRR. These proteins are “guardians” that detect pathogens and trigger an immune response in plants. “Now that we know the gene's DNA sequence, we can select breeding lines carrying Ym2 by simply analyzing DNA from a small piece of leaf even without the virus inoculation step,” Dr. Pourkheirandish said. “It will also make it easier to find variants of Ym2 in wild relatives of wheat, which may provide superior disease resistance for further crop improvement.”

The DNA of modern wheat is chimeric, meaning its genetic material derives from several ancestral plants through natural interbreeding, or hybridisation, followed by selective breeding by humans. By comparing DNA sequences across related species, the researchers discovered that Ym2 in modern bread wheat derives from an ancient wild plant called *Aegilops sharonensis*, native to eastern Mediterranean countries. A similar gene occurs in *Aegilops speltoides*, another wild ancestor of bread wheat.

“These wild species would have interbred with cultivated wheat at some point and passed on the genetic resistance that is now so commercially critical,” Dr. Pourkheirandish said. “Ancestral wild plants are a rich source of useful traits, like disease resistance, that plant breeders and geneticists can mine to protect modern crops and maintain a healthy food supply—including the bread, pasta, noodles, couscous, pastries, cakes and other wheat products that many of us depend upon and enjoy.”

WEBINAR “CHEMICAL TREATMENTS TO MANAGE SEEDBORNE PATHOGENS” – 21 APRIL 2023

ISPP SEED PATHOLOGY COMMITTEE

Seedborne pathogens, if seed transmitted, can induce severe outbreaks and loss of production, together with the introduction of new diseases in area in some cases with a single infected seed. Therefore, the management of seedborne pathogens is crucial to have high quality and quantity of production. For this reason, the [ISPP Seed Pathology Committee](#) organise the webinar “Chemical treatments to manage seedborne pathogens” where the experience of the industry that produce chemical compounds for seed decontamination and of the research on need to apply these treatments is shared with people interested to the subject. The webinar is organised together with [International Seed Federation \(ISF\)](#), [International Seed Testing Association \(ISTA\)](#) and [Italian Association for Plant Protection \(AIPP\)](#).

It is possible to register and follow the webinar at the link <https://us06web.zoom.us/meeting/register/tZ0lcOqrqz0iGtCBEtM-SjXs6kspgLczDM9u>. The webinar will be also delivered on the page [\(2\) ISPP Seed Pathology Committee | Facebook](#).






Webinar
“CHEMICAL TREATMENTS TO MANAGE SEEDBORNE PATHOGENS”
 21 April 2023, 4 pm GMT+2



ORGANISERS: ISPP Seed Pathology Committee, in cooperation with ISTA, ISF and AIPP

WELCOME ADDRESS
 Gianfranco Romanazzi – Chair of ISPP Seed Pathology Committee
 Rose Souza Richards – Seed Health Manager of International Seed Federation
 Ruud Barnhorn – Vice Chair of ISTA Seed Health Committee

TALKS
 Michael Klueken – Bayer
 Synthetic pesticides for management of seedborne pathogens
 Jay-Ram Lamichhane – INRAe
 Chemical seed treatment of field crops: is it worth it?

DISCUSSION

-  [ISPP Seed Pathology](#)
-  [ISPP Seed Pathology](#)
-  [ISPP Seed Pathology](#)
-  [ispp_seedpathology](#)
-  [ISPP Seed Pathology](#)

RESEARCH TEAM PROVES BACTERIA-KILLING VIRUSES DEPLOY GENETIC CODE-SWITCHING TO DECEIVE HOSTS

OAK RIDGE NATIONAL LABORATORY NEWS, 15 MARCH 2023

Scientists at the Department of Energy's Oak Ridge National Laboratory (ORNL) have confirmed that bacteria-killing viruses called bacteriophages deploy a sneaky tactic when targeting their hosts: They use a standard genetic code when invading bacteria, then switch to an alternate code at later stages of infection. Their study provides crucial information on the life cycle of phages. It could be a key step toward the development of new technologies such as therapeutics targeting human pathogens or of methods to control phage-bacterial interactions in applications ranging from plant production to carbon sequestration.

Scientists have predicted since the mid-1990s that some organisms may use an alternate genetic code, but the process had never been observed experimentally in phages. ORNL researchers obtained the first experimental validation of this theory using uncultivated phages in human fecal samples and the lab's high-performance mass spectrometry to reveal the intricacies of how phage proteins are expressed in the host organism. The work is detailed in Nature Communications.



Samantha Peters co-designed and conducted experiments using ORNL's high-performance mass spectrometry techniques to prove that bacteriophages deploy genetic code-switching to overwhelm and destroy host bacteria (Photo credit: Genevieve Martin, ORNL/U.S. Dept. of Energy).

"Phages can be major drivers of ecosystem change," said Samantha Peters, a postdoctoral researcher in ORNL's Biosciences Division who helped design and conduct the experiments. Phages have been known to upend bacterial life in a variety of environmental systems, killing as much as 20% of bacteria each day. But not much is known about their role in environments such as the human gut microbiome or in soils, she said.

The scientists confirmed that the phages convert a genome-coding signal that usually halts protein production to instead express a different amino acid entirely, one that supports replication of the phage. That code switch allows the phage to take over the bacteria's biological processes.

"These phages use a standard genetic code early on as they infect bacteria, one that's compatible with the bacterial host," Peters said. "Once the phages are integrated into the host, they hijack the machinery and begin pumping out phage proteins." By the late stage of infection, the host bacterium is unable to stop producing phages and dies.

"It's a bit of a cat-and-mouse process when the phage invades, encounters the bacterial host's defenses, and then switches the coding," said Robert Hettich, who led the ORNL work and heads the lab's Bioanalytical Mass Spectrometry group. By using sophisticated analytical technologies to measure and examine protein functions in a community, ORNL discovered more than 100 distinct peptides, or genetic building blocks, expressing the code-switching tactic.

Recognising this change to an alternate genetic code helps ensure that scientists' assumptions about phage protein structure and function are correct, Hettich said. Otherwise, phages may not be accurately identified.

Understanding the phage genetic code could lead to insights regarding the transition between when it invades a bacterium and goes silent and when it decides to become a predator. "Alternate coding may provide a key piece of information about how that switch flips in the phage," Hettich said.

The findings also raise the question of whether scientists might be able to use alternate coding to achieve desired outcomes with genetic engineering. "Can you exploit this alternate coding with synthetic biology to build a different kind of protein? This information suggests that ability," Hettich said.

ORNL's Richard Giannone was part of the research team, along with Jillian Banfield of Lawrence Berkeley National Laboratory and the University of California-Berkeley, Adair Borges of UC Berkeley, and Michael Morowitz of the University of Pittsburgh School of Medicine.

7TH EDITION OF THE SUMMER SCHOOL PLANT HEALTH AND QUALITY, UNIVERSITY OF ANGERS, FRANCE

**LAURE PERCHEPIED AND LYDIE HUCHE-THELIER, SCIENTIFIC COORDINATORS OF
THE SUMMER SCHOOL**

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Submit the application online (<https://hrs.wsu.edu/jobs/>).

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COMING EVENTS

13th International Congress on Plant Biotechnology and Agriculture

12 June - 16 June, 2023
Cayo Guillermo, Cuba
Website: bioveg.bioplantas.cu

International Fusarium Laboratory Workshop

18 June - 23 June, 2023
Bari, Italy
Website: fusarium2023.ispacnr.it/

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

Plant Pathology 2023

5 September - 8 September, 2023
Birmingham, UK
Website: www.bspp.org.uk/conferences/plant-pathology-2023/

X International Conference “Bioresources and Viruses”

11 September - 13 September, 2023
Kyiv, Ukraine
Website: icbv.knu.ua

24th Australasian Plant Pathology Society Conference

20 November - 24 November, 2023
Adelaide, South Australia
Website: eventstudio.eventsair.com/apps2023/

XX International Plant Protection Congress

1 July - 5 July, 2024
Athens, Greece
Website: www.ippcathens2024.gr

9th ISHS International Postharvest Symposium

11 November – 15 November, 2024
Rotorua, New Zealand
Website: scienceevents.co.nz/postharvest2024





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