PROMOTING WORLD-WIDE PLANT HEALTH AND FOOD SECURITY

INTERNATIONAL SOCIETY FOR PLANT PATHOLOGY

ISPP NEWSLETTER

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The International Society for Plant Pathology promotes the world-wide development of plant pathology and the dissemination of knowledge about plant diseases and plant health management

IN THIS ISSUE:

SEASONS GREETINGS

DANIEL HUBERLI

The ISPP Executive Committee and Secretariat send our warm and sunny greetings for the holiday season to all ISPP members and their families and colleagues. Jan Leach, the ISPP President, will be sending her special annual message and greetings to everyone in the January issue of the ISPP Newsletter. Best wishes for a happy and safe 2020 from DownUnder!

Living la dolce vita in Florence – Collagraph print with watercolour and manipulated *Eucaltptus* oil photo transfer (D. Huberli, 2019)

NEW PHYTOPHTHORA ISOLATED FROM DISEASED CHRISTMAS TREES

A paper by De-Wei Li *et al.* titled "*Phytophthora abietivora*, a new species isolated from diseased Christmas trees in Connecticut, U.S.A." was published in December 2019 by *Plant Disease* (vol. 103, pp. 3057-3064). The abstract is as follows:-

A number of fir species (*Abies*) are produced as Christmas trees around the world. In particular, Fraser fir (*Abies fraseri* (Pursh) Poir.) is popular as it yields high-quality Christmas trees in temperate North America and Europe. A *Phytophthora* sp. causing root rot on Fraser fir was isolated from a Christmas tree farm in Connecticut, U.S.A., and found to be new to science according to morphological and molecular phylogenetic analysis using multilocus DNA sequences from ITS, Cox1, β-Tub, Nadh1, and Hsp90 loci. Thus, it was described and illustrated as *Phytophthora abietivora*. An informative Koch's postulates test revealed that *P. abietivora* was the pathogen causing root rot of Fraser fir.

Read paper.

ISPP OFFERS LIFE MEMBERSHIPS

ISPP is an international association of societies for plant pathology. Individuals who are members of one of the associated societies are automatically associate members of ISPP. However, anyone can join ISPP as an individual member on an annual basis, with two options available including individual membership and individual membership package. The individual package includes:

- Individual membership of ISPP,
- Online personal calendar year subscription to Food Security, and
- 20% discount on all English-language books from Springer.

As of 2019, ISPP now also offers life individual memberships! The life membership does not include the journal subscription. (ISPP Fellows are automatically Life Members of ISPP).

Details about individual memberships are on the ISPP website where you can securely purchase memberships.

OFFICIAL LAUNCH OF THE INTERNATIONAL YEAR OF PLANT HEALTH 2020 (IYPH2020)

FOOD AND AGRICULTURE ORGANIZATION, 3 DECEMBER 2019

Photo credit: Andrea Masino

The official launch event of the International Year of Plant Health (IYPH) 2020 took place on 2 December 2019 at FAO headquarters in Rome, Italy, with the active participation of FAO staff members, governments, plant health experts from the International Plant Protection Convention (IPPC) community, and representatives of various stakeholder groups.

An encouraging opening speech from the FAO Director-General, Mr Qu Dongyu inaugurated the IYPH2020. "Plants provide the core basis for life on Earth and are the single most important pillar of human nutrition", remarked the FAO DG in his opening statement. "But healthy plants are not something that we can take for granted", he added. FAO estimates that up to 40 percent of the global food crop production is lost every year due to plant pests and diseases, while climate change and human activities are posing new urgent challenges for plant health. "As we launch this International Year, plant health is increasingly under threat", recalled the FAO DG. Under the slogan "protecting plants, protecting life", Mr Qu Dongyu pointed out that much still needs to be done to ensure plant health worldwide,

calling on everyone to contribute to this global effort.

Mr Roberto Ridolfi, Assistant-Director-General for Programme Support and Technical Cooperation, who moderated the opening session of the IYPH2020 launch event read out a message by the Secretary-General of the United Nations. “On this International Year and throughout this Decade of Action to deliver the Sustainable Development Goals, let us dedicate the necessary resources and increase our commitment to plant health. Let us act for people and the planet,” said the UN Secretary General, Mr António Guterres.

Opening remarks were given by Mr Edward Centeno Gadea, Minister of Agriculture and Livestock, Nicaragua; Mr Andrew Doyle, Minister of State at the Department of Agriculture, Food and the Marine, Ireland; Ms Jaana Husu-Kallio, Permanent Secretary of the Ministry of Agriculture and Forestry, Finland; and Ms Tamara Finkelstein, Permanent Secretary of Department for Environment, Food and Rural Affairs, United Kingdom of Great Britain and Northern Ireland.

A high-level panel discussion was moderated by Mr Hans Dreyer, Director of the FAO Plant Production and Protection Division (AGP) and attended by Mr Bukar Tijani, FAO Assistant Director-General of Agriculture and Consumer Protection Department; Mr Ralf Lopian, Chairperson of the IYPH2020 International Steering Committee; Mr Michael Keller, Secretary-General of International Seed Federation; amd Mr Ulrich Kuhlmann, CABI Executive Director, Global Operations.

All the panelists stressed the urgency for all partners to join FAO and IPPC to share best practices and work hand-in-hand to make the IYPH2020 a remarkable global event. Finally, in his closing remarks, Mr Jingyuan Xia, IPPC Secretary, highlighted the major activities to be carried out in 2020 at global, regional and national level, and encouraged all stakeholders from all sectors to work together to sustain plant health and achieve the UN Sustainable Development Goals.

Photo credit: Andrea Masino

BIOCONTROL2019, 9-11 JULY, VITERBO, ITALY

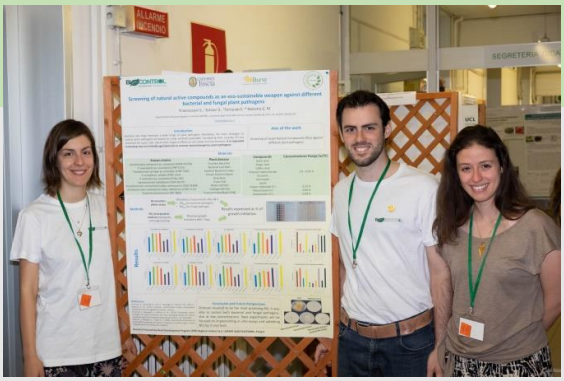
PROF. GIORGIO M. BALESTRA, UNIVERSITY OF TUSCIA, ITALY

The 4th International Symposium of Biological Control of Bacterial Plant Diseases (BIOCONTROL2019) organised by the Department of Agricultural and Forestry Sciences (DAFNE) UNITUS, in collaboration with the FAO, held in Viterbo, Italy, last 9-11 July, was a real success.

BIOCONTROL2019 was developed under the Patronage of the Italian Ministry of Agricultural, Food, Forestry and Tourism Policies (MIPAAFT), the Italian Society of Plant Pathology (SIPaV), the Italian Society of Plant Protection (AIPP), the Mediterranean Phytopathological Union (MPU), the International Society for Plant Pathology (ISPP), IPPC, IYPH, the most relevant Italian organic associations (AIAB; RIRAB; FEDERBIO, FIRAB) and by National CIA, CONAF, CNPA, Italian Olive Academy, Confagricoltura VT-RI and, the municipality of Viterbo.

It was characterised by nine Core sections (1) Interactions between plants and microbiomes; 2) Genetics and Genomics: Basis for innovative control strategies; 3) Epidemiology and forecasting models; 4) Biocontrol of bacterial diseases; 5) Fire blight control: innovation from science to field applications; 6) Improvements in Bacterial Wilt biocontrol; 7) Sustainable strategies for the control of fastidious bacteria and their insect vectors; 8) Production, Safety and Regulation of Biocontrol Agents; and 9) Science and Politics meet Industry, and 2 parallel meetings related to relevant EU projects concerning several aspects of bacterial plant diseases (WG4 meeting COST Action CA16107 EuroXanth, PONTE and XFactors).

Some data: 250 participants from 44 different countries to represent all the continents, most young researchers; 112 scientific reports of the highest level, several nat./int. private companies involved to propose new organic and sustainable solutions to contrast bacterial plant disease as well as to establish worldwide concrete collaborations with research groups, farmers and coop. organisations.




The abstracts of BIOCONTROL2019 have been recently published by *Journal of Plant Pathology* (2019) 101 (4), pp. 849-883. https://doi.org/10.1007/s42161-019-00395-3, moreover, the extended abstracts, have been published by FAO (ISBN 978-92-5-131621-4).


During the social dinner Dr. M. Ouada worldwide known wine maker, introduced his organic wines selected for BIOCONTROL2019 and, later, the winner of 'The Best BIOCONTROL2019 Young Researcher' was announced for his scientific contribution, delivered by the AIPP President Prof. V. Rossi and the Symp. Chair Prof. G.M. Balestra, to the winner, Dr. R. Caracciolo.


Due to the quality of the Symposium as well as the high level of studies and results obtained in the organic control of different bacterial plant diseases, the Delegate of FAO, Dr. T. Yaseen, announced an official Declaration with Dep. DAFNE of UNITUS, as the main partner for future collaborations on different activities (training, projects, field activities, technical and academic courses) related to the biological control of worldwide bacterial plant diseases.

Further to the scientific sessions, the participants had the chance to visit the 'S. Pellegrino' Medieval neighbourhood of Viterbo, take a relaxing thermal bath at the 'Terme dei Papi' and, on the last day of the symposium, an excursion to Lake Bolsena to discover the natural beauties with a refreshing swim in front of the Bisentina island.

Prof. Giorgio M. Balestra, BIOCONTROL2019 Symposium Chair
Dipartimento di Scienze Agrarie e Forestali (DAFNE), University of Tuscia,
Via S. Camillo de Lellis snc. 01100 Viterbo (I) **balestra@unitus.it**

POTENTIAL CLIMATE CHANGE EFFECTS ON PLANT PATHOGENS AND CROP DISEASE RISKS

A review by P. Juroszek *et al.* titled "Overview on the review articles published during the past 30 years relating to the potential climate change effects on plant pathogens and crop disease risks" was published online on 11 November 2019 by *Plant Pathology* (early view). The abstract is as follows:-

From 1988 to July 2019 more than 100 review articles were published, including opinion papers and book chapters, that focused on potential climate change effects on plant pathogens and the future crop disease risks. Therefore, an overview of them is presented herein, particularly helpful for beginners and non-experts in climate change biology research. Specifically, this overview contributes to a faster and more convenient identification of appropriate review articles, for example, related to a certain crop, pathogen, plant disease or country of interest. However, not all important crops, pathogens, diseases and countries are considered specifically and in-depth in any of these review articles, suggesting that there are still research gaps prevalent, which are also highlighted herein. Nevertheless, the overview suggests that researchers are increasingly busy and successful in summarizing the fragmented information spread throughout the international literature. Consequently, they are providing 'step-by-step' a comprehensive, in-depth, and continuously updated knowledge platform on potential climate change effects on plant pathogens and the respective crop disease risks in the future, although some aspects will, by nature, be repeated.

Read review.

FIRST HIKER CHARGED IN NEW ZEALAND WITH ENTERING QUARANTINED KAURI FOREST

ELEANOR AINGE ROY, THE GUARDIAN, 26 NOVEMBER 2019

A hiker in New Zealand has become the first to be charged with walking on closed tracks in the Waitakere ranges, violating a ban put in place to stop the devastating spread of a fungal disease called Kauri dieback caused by *Phytophthora agathidicida*. Each breach carries a separate maximum penalty of NZ$20,000. The *Phytophthora* can be spread by as little as a pinhead of soil on the sole of a hiker's boots or a dog's paw. A stern response was needed to deter others from behaviour that threatened the survival of one of the country's most precious native trees – sacred to its Indigenous people and prized for its beauty, strength and use in boats, carvings and buildings.

Read more.

ELIMINATING BACTERIAL BLIGHT FROM RICE

EUREK ALERT, 28 OCTOBER 2019

One dangerous threat to food security, is the rice disease "bacterial blight", caused by the bacterium *Xanthomonas oryzae* pv. *oryzae* (Xoo). The annual losses caused by bacterial blight are estimated at US$ 3.6 billion in India alone. Xoo can destroy a smallholder's entire annual harvest, putting their food supply, income and land ownership at risk.

Healthy Crops is a consortium comprised of six research institutions on three continents, including two universities in the USA (University of Florida and University of Missouri), the International Centre for Tropical Agriculture (CIAT) in Columbia, the Institut de Recherche pour le Développement (IRD) in France, the International Rice Research Institute (IRRI) in the Philippines, and Heinrich-Heine-Universität (HHU) in Germany. It aims to provide rice farmers with effective tools to combat bacterial blight and thus eliminate the epidemic in the long term.

In two back-to-back publications in *Nature Biotechnology*, Healthy Crops present a series of variants for two popular rice varieties that are resistant to a large collection of different bacterial strains that cause 'bacterial blight disease' collected from all over the world. It also describe the 'SWEETR-RESISTANCE KIT' that enables rapid characterization of new bacterial strains to devise a rapid and well-targeted deployment strategy of new resistances to defeat the disease also in the long term.. This kit should soon be available to rice growers and researchers in Asia and sub-Saharan Africa.

Dr. Boris Szurek, the team leader from IRD, explains: "We used the most advanced tools to get one step ahead of the pathogen in its arm's race with the rice plant." According to lead author Dr. Ricardo Oliva, who heads the IRRI team: "It is an exciting time to work on rice breeding for disease resistance. Our findings pave the way for the eradication of diseases that have severely affected the lives of smallholder farmers who depend on rice for their livelihood. It is now even more possible to outsmart the enemy by being a step ahead of it."

Rice terraces in Sapa, Vietnam: Rice is the world's most important food plant, playing a vital role for nutrition in Asia and Africa in particular. In those countries, rice is generally grown by small farmers. If their fields are infected by bacterial blight, their very existence is threatened (Photo credit: HHU / Sarah M. Schmidt)

Read more.

***Nature Biotechnology* publications:**

Ricardo Oliva *et al.* (2019) Broad-spectrum resistance to bacterial blight in rice using genome editing. *Nature Biotechnology* 37, 1344–1350.

Joon-Seob Eom *et al.* (2019) Diagnostic kit for rice blight resistance. *Nature Biotechnology* 37, 1372–1379.

ILLUSTRATED GENERIC NAMES OF FUNGI – NEW BOOK

Miguel Ulloa and Elvira Aguirre-Acosta. Illustrated Generic Names of Fungi. APS Press, USA. 451 pp.

According to mycologist, author, and artist Miguel Ulloa, "The best way to understand and remember scientific names is to understand their component parts or roots." This philosophy is the inspiration for Illustrated Generic Names of Fungi: Etymology, Descriptions, Classifications, and References, a unique combination of scientific and artistic content with 1,000-plus original watercolors (by Ulloa himself) and 1,700 descriptions of genera. This exquisitely illustrated and up-to-date reference is the first of its kind published in English.

Illustrated Generic Names of Fungi contains alphabetically organised descriptions for genera in the kingdoms Fungi, Chromista, and Protozoa from countries across five continents. Each genus description includes the etymology, authority, and morphology, as well as the current taxonomic classification. The authors also provide details about the living modes of fungi in nature, revealing interactions with other organisms as saprobes, parasites, and symbionts.

By learning the Greek and Latin roots of generic names, mycologists and biologists will gain a deeper and broader understanding of fungi. Additionally, by being provided with the bibliographic citation of the journal or book in which a given genus was first described, readers will better comprehend the nature of scientific authorities.

Authors Miguel Ulloa and Elvira Aguirre-Acosta are mycologists who have worked many years at the Instituto de Biología, Universidad Nacional Autónoma de México. They teach basic mycology in the biology curriculum and contribute to fungi expositions and congresses. Illustrated Generic Names of Fungi is a culmination of their years of research and teaching and will be an indispensable resource for students of mycology, as well as educators, researchers, and other professionals.

Illustrated Generic Names of Fungi is available now through the APS PRESS bookstore.

ORIGINS OF THE WORLD'S DEADLIEST STRAIN OF CEREAL RUST, UG99

CSIRO NEWS, 8 NOVEMBER 2019

Wheat stem rust (Photo: Dr Zacharias Pretorius).

Researchers from Australia's national science agency, the Commonwealth Scientific and Industrial Research Organisation (CSIRO), together with partners in the US and South Africa have solved a 20-year-old mystery with findings published today in *Nature Communications*. Their works shows that the devastating Ug99 strain of the wheat stem rust fungus was created when different rust strains simply fused to create a new hybrid strain. This process is called somatic hybridisation and enables the fungi to merge their cells together and exchange genetic material without going through the complex sexual reproduction cycle.

The study found half of Ug99's genetic material came from a strain that has been in southern Africa for more than 100 years and also occurs in Australia. The discovery shows that other crop-destroying rust strains could hybridise in other parts of the world, and scientists found evidence of this in their study. It also means Ug99 could once again exchange genetic material with different pathogen strains to create a whole new enemy. While it was proposed that rust strains could hybridise based on laboratory studies in the 1960s, this new research provides the first clear molecular evidence that this process generates new strains in nature.

Rusts are a common fungal disease of plants. Globally they destroy over $1 billion worth of crops each year. Australian crops have largely been protected for the past 60 years by the breeding of rust-resistant crop varieties. Group Leader at the CSIRO Dr Melania Figueroa said Ug99 is considered one of the most threatening of all rusts as it has managed to overcome many of the stem rust resistance genes used in wheat varieties and has evolved many variants.

Earlier this year, the CSIRO worked with the University of Minnesota and the 2Blades Foundation to achieve good results in wheat resistance by stacking five resistance genes into the one wheat plant to combat wheat stem rust. This latest research is the result of a collaboration between scientists from the CSIRO, the University of Minnesota, University of the Free State, and Australian National University. The breakthrough came as Dr Figueroa's group was sequencing Ug99 (then at the University of Minnesota) and at the same time a CSIRO team led by Dr Peter Dodds was sequencing Pgt 21 in Australia.

Pgt21 is a rust strain that was first seen in South Africa in the 1920s and believed to have been carried to Australia in the 1950s by wind currents. When the two groups compared results, they found the two pathogens share an almost identical nucleus and therefore half of their DNA.

Read more.

VECTOR-BORNE PLANT VIRUS TRAINING

RICHARD WYATT, CONNECTED NETWORK, 7 NOVEMBER 2019

A group of African early career researchers feature in a new short film about vector-borne plant viruses that devastate crops in Sub-Saharan African countries. The seven-minute film focuses on the ground-breaking Virus-Vector Vice-Versa training course for early career researchers, run by the CONNECTED Network, which took place at The University of Bristol, UK, in summer 2019.

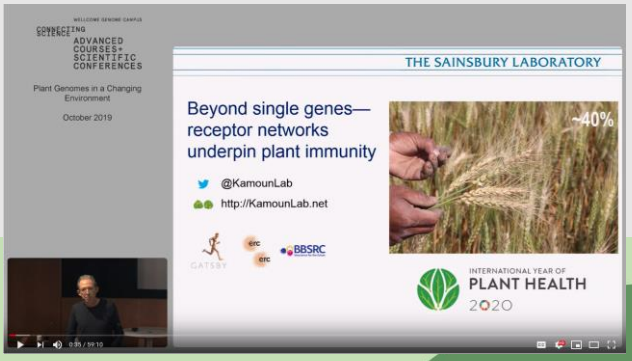
A group of early career researchers from 11 African countries took up fully-funded places at the course. The film features interviews with delegates discussing:

- what they learned on the course
- how they will use their new skills and knowledge, and
- the value to them of the collaborative CONNECTED network.

There are also clips from interviews with:

- Prof. Nicola Spence, Defra, UK (Chair of the CONNECTED Management Board)
- Prof. Gary Foster, University of Bristol (CONNECTED Network Director)
- Prof. Susan Seal, Natural Resources Institute, University of Greenwich (CONNECTED Management Board member).

BEYOND SINGLE GENES: RECEPTOR NETWORKS UNDERPIN PLANT IMMUNITY



Recent keynote lecture titled "Beyond single genes: Receptor networks underpin plant immunity" by Sophien Kamoun from The Sainsbury Laboratory, UK, at "Plant Genomes in a Changing Environment 2019" organised by Wellcome Genome Campus Advanced Courses and Scientific Conferences.

HEALTHY AND UNHEALTHY PLANTS PHOTO COMPETITION

The Food and Agriculture Organization is calling on people from all over the world to submit photos that illustrate their idea of healthy or unhealthy plants. You can submit photos to the following categories:

Unhealthy plants: We want you to send us photographs of pests attacking plants in your area, or to show us the damage being caused. Pests are defined as any species, strain or type of plant, animal or pathogen that damage plants or plant products. They include insects, virus, bacteria, nematodes and invasive plants.

Healthy Plants – Custodians of our air, food and environment: Send us photographs that capture the natural beauty of plants and reflect their importance as the source of the air we breathe, our food and as protectors of our environment..

The entry period will begin at 18:00 (CEST) on 2 December 2019 and will close at 18:00 (CEST) on 15 June 2020. Submit entries online.

CURRENT VACANCIES

No current vacancies.

ACKNOWLEDGEMENTS

Thanks to Giorgio M. Balestra, Grahame Jackson, Greg Johnson, Andrea Masino, and Richard Wyatt for contributions.

COMING EVENTS

International Symposium on Microbe-Assisted Crop Production – Opportunities, Challenges and Needs
2 December - 5 December, 2019
Vienna, Austria
Website: micrope.org/

Indian Phytopathological Society 7th International Conference on "Phytopathology in Achieving UN Sustainable Development Goals"
16 January - 20 January, 2020
New Delhi, India
Website: ipsdis.org

45th Annual Conference of the Nigerian Society for Plant Protection
15 March - 19 March, 2020
University of Uyo, Main campus, Akwa Ibom, Nigeria
Website: nsppnigeria.org

16th Congress of the Mediterranean Phytopathological Union
23 March - 27 March, 2020
Limassol, Cyprus
Website: cyprusconferences.org/mpu2020

7th International Bacterial Wilt Symposium
29 March - 3 April, 2020
Montevideo, Uruguay
Website: 7ibws2020.fq.edu.uy

7th International Congress of Nematology
3 May - 8 May, 2020
Antibes Juan-les-Pins, France
Website: www.alphavisa.com/icn/2020/index.php

14th International Conference on Plant Pathogenic Bacteria
7 June - 12 June, 2020
Assisi, Italy
Website: www.icppb2020.com

Joint 18th International *Botrytis* Symposium & 17th International *Sclerotinia* Workshop
8 June - 12 June, 2020
Avignon, France
Website: colloque.inra.fr/botrytis-sclerotinia-2020

4th International Conference on Global Food Security
16 June - 19 June, 2020
Montpellier, France
Website: www.globalfoodsecurityconference.com

Plant Health 2020 – APS Annual Meeting
8 August - 12 August, 2020
Denver, Colorado, USA
Website:
www.apsnet.org/meetings/annual/planthealth2020/Pages/default.aspx

Asian Conference on Plant Pathology: Importance and Impact of Global Plant Health
15 September - 18 September, 2020
Tsukuba International Congress Center, Ibaraki, Japan
Website: iapps2010.me/2019/02/05/asian-conference-on-plant-pathology-2020/

International Plant Health Conference "Protecting Plant Health in a changing world
5 October - 8 October, 2020
Paasitorni Conference Centre, Helsinki, Finland
Website:
https://www.ippc.int/en/iyph/chronology/international-conference-on-plant-health/

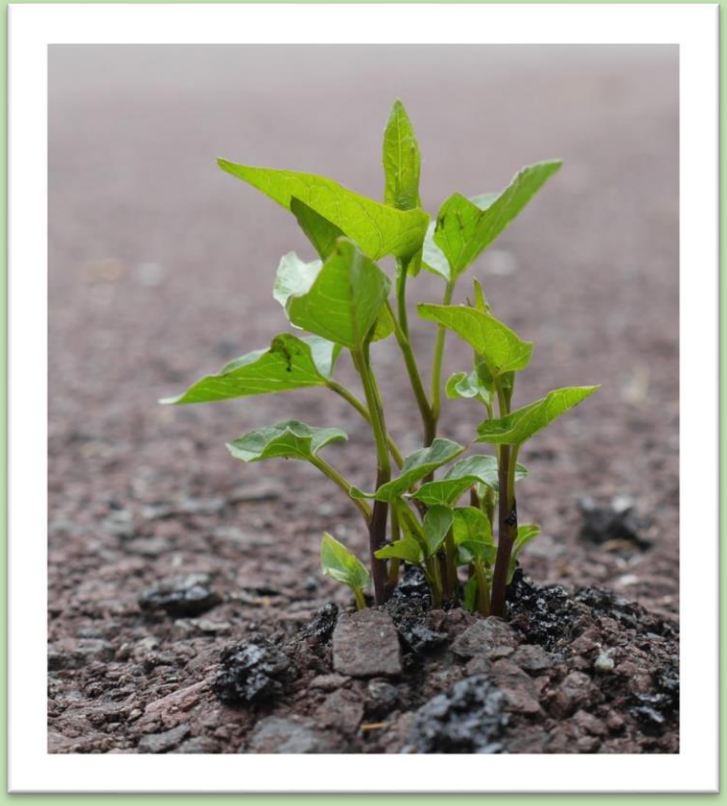
13th Arab Congress of Plant Protection
1 November - 6 November, 2020
Le Royal Hotel, Hammamat, Tunisia
Contact: Dr. Asma Jajar, Chairperson of Organising Committee info@acpp-aspp.com
Website: acpp-aspp.com

IX International Postharvest Symposium
9 November - 13 November, 2020
Rotorua, New Zealand
Website: scienceevents.co.nz/postharvest2020

11th Australasian Soilborne Diseases Symposium
24 November - 27 November, 2020
Cairns, Queensland, Australia
Website: asds2020.w.yrd.currinda.com

12th International Congress of Plant Pathology (ICPP2023)
20 August - 25 August, 2023
Lyon, France
Website: www.icpp2023.org

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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