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ITALIAN SOCIETY FOR
CROP PROTECTION



INTERNATIONAL SOCIETY
FOR PLANT PATHOLOGY



UNIVERSITY OF TORINO



ICPP 2008

**9th INTERNATIONAL CONGRESS
OF PLANT PATHOLOGY**

**August 24-29, 2008
Torino, Italy**

*Healthy
and Safe Food
for Everybody*

**BOOK OF
ABSTRACTS**

Edited by
A. Porta-Puglia and P. Gonthier



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Abstracts of invited and offered papers

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The **SOCIETÀ ITALIANA DI PATOLOGIA VEGETALE, SIPaV, (Italian Society for Plant Pathology)** was established in 1992 following the dissolution of the Italian Society for Crop Protection (SIF) and the Italian Phytopathological Association (AFI). Its main aims are to promote research into different branches of plant pathology, to disseminate knowledge about plant diseases and their aetiological agents and to promote cooperation among experts working in the field of plant pathology, and partnership in fundamental and applied research. The Society organizes meetings, gathers and distributes information about plant diseases, and maintains cooperation with other national and international scientific organizations and with national and local administrative authorities on problems involving plant health management.

The Society publishes a journal (*Journal of Plant Pathology*), which hosts articles by members and external contributors, a bulletin and other bibliographic material to exchange information among members.

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mated the industry in South America. Its biology and genetics have also been studied over 30 years at Aberystwyth, Wales and increasing research interest worldwide has led to a number of recent advances, for instance a genome sequencing programme and extensive transcriptomic studies in Brazil. This unusual hemibiotrophic basidiomycete has two life stages, exhibiting intercellular growth *in planta* after basidiospore germination and infection of meristems, followed by a prolonged saprotrophic (lignocellulose-degrading) phase in necrotic host tissues. The mechanisms involved in host specificity, broom formation and the switch to saprotrophy are still poorly understood. We have taken a proteomic approach (2D gel electrophoresis combined with mass spectrometry) to identify proteins specifically associated with isolates of differing pathogenicity on cacao and also to compare different biotypes of the fungus (infecting non-cacao hosts). A protein specifically expressed in a particularly virulent strain from Bahia – where the disease is particularly destructive – has been identified, by microsequencing, as an aldo-keto reductase. This protein could be related to stress and/or hormonal response in this strain. We have also detected host defence (PR) proteins during infection of a tomato model system.

2.30 FUSARIUM SPECIES ASSOCIATED WITH VANILLA STEM ROT IN INDONESIA. A. Pinaria, L.W. Burgess and E.C.Y. Liew. Faculty of Agriculture, Food and Natural Resources, The University of Sydney, NSW 2006, Australia. Email: apin3761@mail.usyd.edu.au

Indonesia is one of the world's leading producers of vanilla, an important crop offering high economic returns to small-holder farmers. A major constraint in vanilla production in Indonesia is stem rot disease, which has caused significant economic losses over the last decade. Previous reports of vanilla stem rots in the Asia Pacific region include those caused by *Fusarium*, *Colletotrichum*, and *Phytophthora* species. In this paper, we report *Fusarium* species associated with the disease. Seven major vanilla-producing provinces were surveyed for disease incidence. Isolates were obtained from diseased stem tissues using selective media. Pure cultures were subcultured onto CLA and PDA for species identification. A total of 542 *Fusarium* isolates were recovered, comprising 7 species, namely *F. decemcellulare*, *F. oxysporum*, *F. proliferatum*, *F. pseudograminearum*, *F. semitectum*, *F. solani*, *F. subglutinans*, and 14 isolates of undescribed species. *F. oxysporum* was most commonly isolated from all the areas surveyed, followed by *F. solani* and *F. semitectum*. Of the species tested in pathogenicity studies, only *F. oxysporum* was shown to be pathogenic on vanilla. Further studies to investigate genetic diversity of the pathogen and host resistance are underway.

2.31 VARIATION IN PHYTOPHTHORA PALMIVORA ISOLATES ON COCOA IN PAPUA NEW GUINEA. J. Saul Maora, E.C.Y. Liew and D.I. Guest. Faculty of Agriculture Food and Natural Resources, The University of Sydney, NSW 2006, Australia. Email: d.guest@usyd.edu.au

In Papua New Guinea (PNG), cocoa is the major source of income for 150,000 smallholder families in the lowlands and island regions, who produce over 80% of the national cocoa crop. The main cocoa-producing areas are East New Britain (ENB), Bougainville, Madang, Karkar and East Sepik. Growers lose about 40% of their production to *Phytophthora* pod rot and canker annually. Currently all cocoa planting material is bred in ENB and distributed throughout the country without any com-

prehensive knowledge of the pathogen population structure. Furthermore, all current *Phytophthora* control recommendations for the country were developed in ENB. This study tested the hypotheses that 1. *Phytophthora palmivora* is the sole *Phytophthora* species causing pod rot on cocoa in PNG, and 2. that there is variation in the pathogen populations from the 5 major cocoa growing locations. Diseased cocoa pods were sampled hierarchically from each of the 5 locations, including 8 farms/location and 8 diseased pods/farm. Morphological, physiological, biological, molecular and pathological variation of 263 isolates were studied. While *P. palmivora* was found to be the sole *Phytophthora* species causing disease on cocoa in PNG, the variability in colony and sporangial morphology, pathogenicity, and DNA polymorphisms revealed a high level of diversity. In Madang both mating types were found in similar abundance. Hierarchical sampling revealed that the level of diversity within farms is very high, and that there is a similar level of diversity at the local, regional and national scales. Disease management strategies should not be affected by regional differences in the pathogen population.

2.32 PCR DETECTION OF CANDIDATUS LIBERIBACTER ASIATICUS FROM MURRAYA PANICULATA AND PSYLLID VECTOR IN THAILAND. R. Sdoodee, P. Totham and A. Jumpang. Dept. of Pest Management, Fac. of Natural Resources, Prince of Songkla University, Hat Yai, 90112, Thailand. Email: ratana.sd@psu.ac.th

Candidatus Liberibacter asiaticus is a causal pathogen of Huanglongbing (HLB), the most destructive disease in citrus worldwide including Thailand. The pathogen is spread by the Asian citrus psyllid, (*Diaphorina citri* Kuwayana). Orange jasmine (*Murraya paniculata*), a preferred host of *D. citri* has been reported to be a cryptic or symptomless host of *Ca. L. asiaticus*. Since orange jasmine is widely grown as an ornamental in Thailand, it could be harboring *Ca. L. asiaticus* and act as inoculum source of for HLB. During 2002-2006, *M. paniculata* and *D. citri* were collected from Chiang Mai and Songkla provinces and assayed by directional PCR using primers specific to 16S rDNA of *Ca. L. asiaticus*. PCR amplicons were sequenced and analyzed using the GenBank database. Results from the PCR and sequence analysis indicated that 2/6 and 3/10 *M. paniculata* samples collected from Chiang Mai and Songkla, respectively, were infected with *Ca. L. asiaticus*. The sequences from Songkla shared 100% identity to an Okinawa isolate of *Ca. L. asiaticus*. Eighty percent of the *D. citri* collected from naturally infected Shogun mandarin (*Citrus reticulata* Blanco) grown near the infected *M. paniculata* (600 m apart) at Prince of Songkla university were carrying *Ca. L. asiaticus*. *D. citri* adults and nymphs were found on the *M. paniculata* trees. It is speculated that *D. citri* might have transmitted *Ca. L. asiaticus* from the infected Shogun mandarin to *M. paniculata*.

2.33 CACAO WITCHES' BROOM CAUSED BY MONILIOPTHORA PERNICIOSA: CAN NUMBER OF BASIDIOMATA PRODUCED BE USED AS A MEASURE OF RESISTANCE? S.D.V.M. Silva, E.D.M.N. Luz and L.P. Santos Filho. Plant Pathology & Socio-economics Science Division, CEPLAC Cocoa Research Center, P.O. Box 07, 45600-970 Itabuna, Bahia, Brazil. Email: stela@ceplac.gov.br

Witches' broom disease (WBD) caused by *Moniliophthora perniciosa* is a devastating disease of cacao in Latin America and the Caribbean islands. Vegetative dried brooms are epidemiologically important as the most productive and consistent source of