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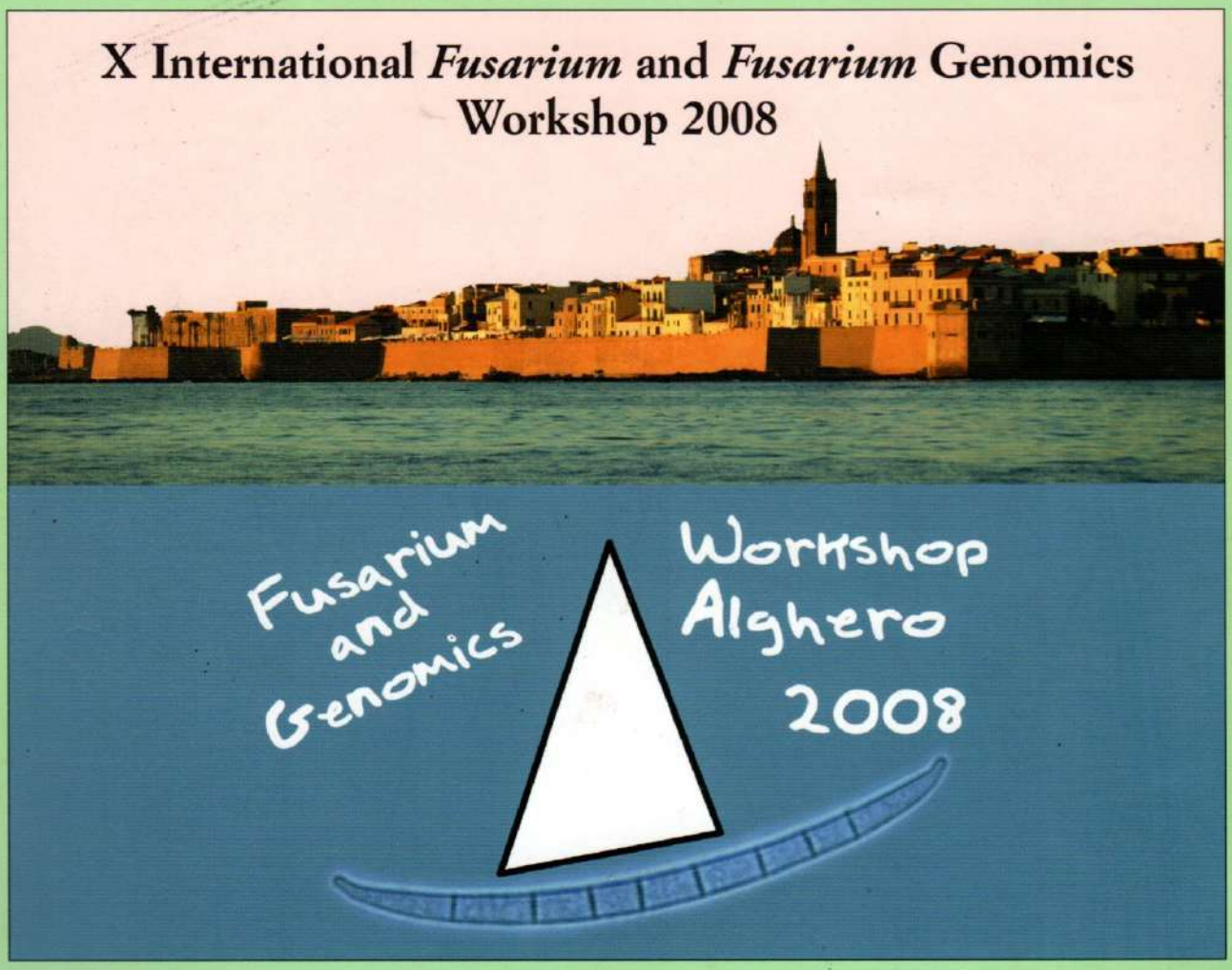
An International Journal of the Italian Society for Plant Pathology

X International *Fusarium* and *Fusarium* Genomics Workshop 2008



Abstracts of presentations

Alghero, Sardinia (Italy), August 30 - September 2, 2008

EDIZIONI ETS, Pisa, Italy

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X International *Fusarium* Workshop and *Fusarium* Genomics Workshop 2008

Hotel Carlos V, Alghero, Sardinia (Italy), August 30 – September 2, 2008

I.N.B.B.
Istituto Nazionale di Biostrutture e Biosistemi

Program schedule:

Saturday 30 August
13.00-14.30: registration of participants
14.30-15.30: Keynote address (Marie-Josèe Daboussi and Lester W. Burgess)
15.30-17.30: Systematics and phylogenetics (session leaders: Kerry O'Donnell, Keith Seifert)
17.30-17.45: ISPP Fusarium Committee Meeting
17.30-19.30: poster session and Welcome party

Sunday 31 August
08.30-10.00: Genomics (session leaders: Li-Jun Ma, Corby Kistler)
10.00-10.15: coffee break
10.15-13.15: Host-fungal interactions (session leaders: Willie Schäfer, Antonio Di Pietro)
13.15-14.30: lunch
14.30-16.00: Biological control (session leaders: Claude Alabouvette, Angelo Garibaldi)
16.00-17.30: Ecology and biogeography (session leaders: David Geiser, Brett Summerell)
17.30-17.45: coffee break
17.45-18.00: ISPP Fusarium Committee Meeting
18.00-18.30: Fusarium Genomes Research Policy Group Meeting
18.00-19.00: poster session

Monday 1 September
08.30-10.45: Mycotoxins and metabolism (session leaders: Naresh Magan, Ulf Thrane)
10.45-11.00: coffee break
11.00-13.15: Diagnostics (session leaders: Kamel Abd-El Salam, Theo van der Lee)
13.15-14.30: lunch
14.30-16.45: Disease management (session leaders: Rafael M. Jiménez-Diaz, Wade Elmer)
16.45-17.00: ISPP Fusarium Committee Meeting
17.00-18.00: poster session and coffee break
18.00: sightseeing tour and evening banquet

Tuesday 2 September
09.30-11.45: Pathogenicity and disease epidemiology (session leaders: Paul Nicholson, Sukumar Chakraborty)
11.45: coffee break and departure
12.00-13.00: Meeting of the International Society of Plant PathologyInternational Mycological Association Subcommittee on Fusarium Systematics (chair David M. Geiser)
14.00-17.00: NordForsk Network Meeting (chair Tapani Yli Mattila)

yields. Field and laboratory pathogenicity tests with the two species showed that they were pathogenic, that more than one fungus is associated with this disease, their prevalence varying with location and season, and that these *Fusarium* species reproduced similar symptoms on the same rice hosts. Generally dwarf cultivars were more susceptible than the taller ones.

FUSARIUM WILT OF CHICKPEA AND PIGEONPEA AND THEIR MANAGEMENT IN SEMI-ARID TROPICS. S. Pande[1], M. Sharma[1], P.M. Gaur[1], K.B. Saxena[1], C.L.L. Gowda[1], O. Gupta[2], L. Kaur[3], M.S. Sangwan[4], R.N. Chaudhary[5], B.M. Jamadagni[6], D.R. Saxena[7] and H.K. Ramappa. *[1]International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), Patancheru, Andhra Pradesh. [2]Department of Plant Breeding & Genetics, JNKVV, Jabalpur. [3]Department of Plant Breeding, Genetics and Biotechnology, PAU, Ludhiana, Punjab. [4]Department of Plant Pathology, CCSHAU, Hisar. [5]Indian Institute of Pulses Research, Kanpur. [6]MPKV, Rahuri, Maharashtra. [7]RAK College of Agriculture, Sehore, Madhya Prades. [8]UAS, GKVK, Bangalore, India. E-mail: s.pande@cgiar.org*

Fusarium wilt of chickpea (*Cicer arietinum* L.) caused by *Fusarium oxysporum* f. sp. *ciceris* (FOC) and pigeonpea (*Cajanus cajan* (L.) Millsp. caused by *F. udum* (FU) are the major production constraints to these legumes worldwide, specifically in the Indian subcontinent and Eastern Africa (chickpea and pigeonpea) and the Mediterranean region (chickpea). In India alone these wilts cause up to 100% crop losses on susceptible cultivars under favorable environmental conditions. Host plant resistance offers the most sustainable and effective wilt management option either alone or as a major component of integrated disease management. Effective greenhouse and field screening techniques have been developed at the International Crops Research Institute for the Semi-Arid tropics (ICRISAT), Patancheru, India to identify resistance in the germplasm and to incorporate resistance in breeding lines of chickpea and pigeonpea. More than 17,000 lines of chickpea and 12,000 lines of pigeonpea have been screened using these techniques at ICRISAT. Significant positive correlation was found between seedling screening in greenhouse and adult plant screening in the wilt-sick fields. Chickpea and pigeonpea lines found resistant to Fusarium wilt at ICRISAT were further evaluated through International Chickpea Wilt and Root Rot Nursery (ICWRRN) and International Pigeonpea Wilt Nursery (IPWN) to identify stable and broad based resistance at hot spot locations in Asia and Africa. Several breeding lines have shown stable and durable resistance to Fusarium wilt of chickpea and pigeonpea, and many improved wilt resistance varieties have been adopted by farmers. The differential wilt disease reaction in few lines in multilocation testing indicated variability in FOC and FU populations.

***FUSARIUM LANGSETHIAE* INFECTION AND MYCOTOXIN CONTENTS OF OATS AND BARLEY. P. Parikka[1], V. Hietaniemi[2], S. Rämö[2] and H. Jalli[1].** *[1]MTT Agrifood Research Finland, Plant Production Research, Finland. [2]MTT Agrifood Research Finland, Laboratories, 31600 Jokioinen, Finland. E-mail: paivi.parikka@mtt.fi*

In the field trial of 2004-2006, the first *Fusarium* species, detected at panicle emergence of oats, was *F. langsethiae*. It was found also on barley at ear emergence, but the amount of infected kernels was not so high as on oats. *F. langsethiae* was the most common *Fusarium* species on oats during the early development of kernels. The other species detected at early stages in flowers and kernels of oats was *F. poae*. Later in the season, other *Fusarium* species infected kernels and the prevalence of *F. langsethiae* in harvested grain was low. In 2006, however, infection by species like *F. avenaceum* and *F. culmorum* was inhibited in dry conditions and *F. langsethiae* was fairly abundant in harvested, dried grain. It was present both in oats and barley grown in traditionally tilled and direct drilled areas. As a whole, more infection was seen on oats than on barley and more in late cultivars than in early ones. The prevalence of *F. langsethiae* varied: in 2004 it was slightly more prevalent in tilled than in direct drilled areas but in 2006 in dry conditions direct drilling seemed to produce more infected kernels and grain than tillage. *F. langsethiae* seems to be a more important producer of T2 and HT-2 toxins than *F. sporotrichioides* in Finland. The analysed contents of these mycotoxins were higher on oats (max 950 µg/kg) than on barley (max. 710 µg/kg). In 2006, the T2+HT-2 contents of oats were higher in direct drilled than in tilled plots.

***FUSARIUM* SPECIES ASSOCIATED WITH VANILLA STEM ROT IN INDONESIA. A. Pinaria[1], L.W. Burgess[1] and E.C.Y. Liew[2].** *[1]Faculty of Agriculture, Food and Natural Resources, The University of Sydney, NSW 2006, Australia. [2]Botanic Gardens Trust, Mrs Macquaries Road, Sydney, NSW 2000, Australia; E-mail: 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 to vanilla. Further studies to investigate genetic diversity of the pathogen and host resistance are underway.

ASSESSMENT OF ENDOPHYTIC COLONIZATION OF *SORGHUM BICOLOR* SEEDLINGS BY *GIBBERELLA ZEAE*. S.A.J. Quazi[1], L.W. Burgess[2] and J. Smith-White[2]. *[1]Plant Pathology Division, Bangladesh Rice Research Institute, Gazipur-1701, Bangladesh. [2]Faculty of Agriculture, Food and Natural Resources, The University of Sydney, NSW 2006, Australia. E-mail: q.shireen@bdonline.com*

The susceptibility of grain sorghum (*Sorghum bicolor*) to colonization by *Gibberella zeae* was assessed by isolation studies involving plants grown in the glasshouse. The glasshouse studies on infection of sorghum seedlings by *G. zeae* indicated that this pathogen can infect sorghum at early growth stages and gradually colonize adjacent tissues as an endophyte. The results also showed that roots as well as stalk tissues are susceptible to infection. The results suggested that the fungus could infect and colonize the proximal parts of roots more aggressively than the leaf sheaths and