

## DISEASE NOTES OR NEW RECORDS

First record of *Fusarium* wilt of *Phoenix canariensis* in South AustraliaB.A. Summerell<sup>A</sup> and L.V. Gunn

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**Abstract.** *Fusarium* wilt of the Canary Island Date Palm (*Phoenix canariensis*), caused by *Fusarium oxysporum* f.sp. *canariensis*, was recorded for the first time in South Australia. The identity of the fungus was substantiated using a polymerase chain reaction-based technique with primers specific for this particular pathogen.

Canary Island Date Palms, *Phoenix canariensis* Hort. ex Chabaud, were widely planted throughout Australia, particularly from 1900 to 1930. *Fusarium* wilt caused by *Fusarium oxysporum* Schlecht. emend. Snyder & Hansen f. sp. *canariensis* (Foc) has devastated plantings in eastern and southern Sydney, particularly in Centennial Park, Sydney, where over 300 mature palms have died from the disease (Priest and Letham 1996; Gunn and Summerell 1999).

In August 2000, samples from a single palm from Akuna Station, Waikerie, South Australia were forwarded to the Plant Disease Diagnostic Unit of the Royal Botanic Gardens, Sydney. Disease symptoms were typical of the disease with one-sided death of the petioles along the frond and discolouration of the vascular tissue in the rachis; the symptoms were evident in only one palm in an avenue of many palms. Sections of the rachis were dissected and plated onto peptone PCNB agar that is selective for *Fusarium* species (Burgess *et al.* 1994). Fungal colonies that grew out of the tissue were subcultured onto carnation leaf-piece agar (Burgess *et al.* 1994). Cultures were purified using the single spore technique and identified as *Fusarium oxysporum* according to the descriptions in Burgess *et al.* (1994). Sections of the rachis and cultures of the fungus were deposited in DAR herbarium, Agricultural Institute, Orange as accession DAR75354.

A molecular technique for the specific identification of Foc, developed by Plyler *et al.* (1999) in Florida, USA using a polymerase chain reaction (PCR) analysis with primers designed to amplify only the pathogenic group, was used to determine the identity of the isolates recovered from the sample. The isolates were grown in liquid medium and DNA extracted using the FastPrep protocol (Integrated Sciences).

PCR was carried out on 2 µL of the product using the primers and protocol of Plyler *et al.* (1999). A 567 bp product is produced in positive reactions indicating identification of the pathogenic strain. The product was produced in all isolates recovered from these samples.

The combination of disease symptoms, isolation of *F. oxysporum* and production of the specific PCR product provide sufficient evidence that this palm is affected by *Fusarium* wilt. The occurrence of *Fusarium* wilt of Canary Island Date Palms in South Australian plantings remote from the previously known area of distribution in New South Wales is of concern as this palm forms an important part of the horticultural heritage in many Australian cities and rural towns. There is no control for the disease and once infected, palms inevitably die. There is no evidence to indicate how the pathogen has been introduced into South Australia.

## References

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