DISEASE NOTES OR NEW RECORDS

First record of *Meloidogyne fallax* in Australia

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Abstract. *Meloidogyne fallax* (Karssen, 1996) has been recorded for the first time in Australia from potato tubers and soil collected in the south-east of South Australia. Identification was based on morphological observations and DNA sequencing.

A paddock, with a history of pasture dominated by *Trifolium repens* L. (white clover), was sampled at pre-planting (September 1999) for plant parasitic nematodes. *Meloidogyne* juveniles were observed and counted. Potatoes were planted and when harvested the tubers were found to have blister-like swellings suggesting infection of the tubers by root knot nematodes (Fig. 1). These blisters were dissected and a few females, males and juveniles were obtained and processed to obtain permanent slides of perineal patterns, whole males and juveniles. The appearance of the perineal patterns was similar to that of *Meloidogyne hapla* Chitwood except that there were no punctations present in the anal region. The perineal patterns matched the descriptions of *M. fallax* and *M. chitwoodi* Golden, O'Bannon, Santo and Finley both known to affect potatoes. The measurements of key elements of the infective juveniles matched *M. chitwoodi* and *M. fallax* very well. Measurements of stylet, total body length and spicules of the males also matched the original description of *M. fallax*.

Ribosomal ITS DNA from juveniles was amplified and cut with restriction enzymes *Cla*l, *Acc*l and *Rsa*l. Fragment sizes matched those produced by the species *M. fallax* (known as *M. chitwoodi* Baexem–type) and differed from those reported for *M. chitwoodi* (Zijlstra *et al*. 1995). The ITS sequences matched that of the published sequence for *M. fallax* (Zijlstra 1997) and did not match the sequence of *M. chitwoodi* published by Powers *et al*. (1997) (Accession Number U963020). It was concluded that our isolate was *M. fallax.*

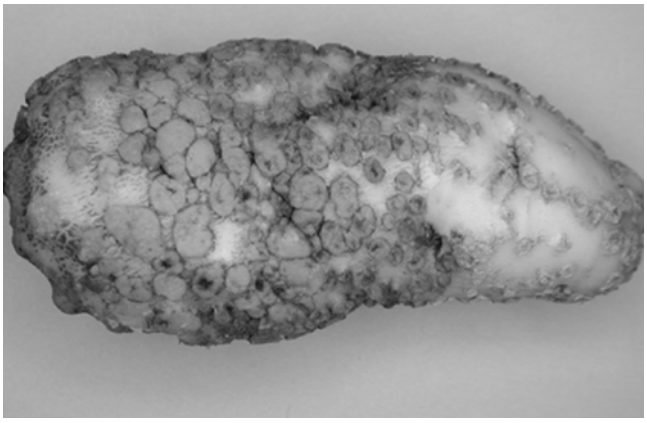

Fig. 1. 'Blister-like' symptoms caused by *Meloidogyne fallax* on the surface of a potato tuber.

From morphological observations and DNA sequence data, we report that *M. fallax* has been found in Australia. From anecdotal evidence and information present in the literature, it appears that *M. fallax* has been present in Australia for some time. There was a report of *M. chitwoodi* being found in a shipment of seed potatoes from Australia sent to South Africa in 1989 (Kleynhans 1989 in Eisenbach and Triantaphyllou 1991) and Stirling and Watchel (1985) found a root knot nematode during a survey of potatoes–pastures in the south-east of South Australia in 1979–80. The species was identified as *M. hapla*. However, *M. fallax* had not been described when the survey was conducted.

Similarly affected tubers have been found in 2001 at other sites around Mt Gambier and at Mt Barker in the Adelaide Hills and the causal agent confirmed as *M. fallax* using morphology and DNA sequencing.

References

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