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Pratylenchus quasitereoides n. sp. from cereals in Western Australia

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Abstract

Pratylenchus quasitereoides **n. sp.** is described from Western Australia. It is characterized by 2 external incisures in the head cuticle, 4 lateral incisures at mid body, stylet length 17 µm to 19 µm, *V* greater than 75%, PUS less than 2 body diameters long and crenate tail terminus. Molecular data confirm the separation of the new species from morphologically similar and sympatric congeners. The host range also differs from *P. teres* as well as the sympatric *P. neglectus*, *P. thornei* and *P. penetrans*. Reproduction rates on oat and lupin differed between the new species and *P. neglectus*. The species was originally described as *P. teres*, but the species concept of *P. teres* now encompasses a considerable range of different attributes spread over two described subspecies and three variant populations. The new species differs from all these subspecies and populations in at least two characters. It differs from all populations of *P. teres teres* most notably in having four rather than 6 lateral lines and a more posterior vulva. It differs from *P. teres vandebergae* in having a longer stylet and longer overlap of the intestine by the oesophageal glands. Characters which can be used under low magnification to separate the new species from the closest sympatric congeners (*P. thornei* and *P. crenatus*) are discussed.

Key words: 28S, *Avena sativa*, cereal, D3, host, lupin, *Lupinus angustifolius*, molecular biology, morphology, oat, *P. teres*, *P. neglectus*, *P. thornei*, reproduction rate, Root Lesion Nematode, rRNA, taxonomy

Introduction

Recently, *Pratylenchus teres* Khan and Singh 1974 was redescribed from Western Australia (Riley & Wouts 2001), having been originally described from Punjab, India. It was also redescribed from the Caribbean and South Africa at about the same time as Western Australia (Carta *et al.* 2002; van den Berg & Queneherve, 2000). Since the original find in Western Australia, many additional specimens have been located which allow a better evaluation of the variability in characteristics among the Western Australian populations relative to the variability in the *P. teres* found elsewhere. They have also given better understanding of the differences between the Western Australian populations and the *P. teres* found elsewhere. These differences are sufficient to differentiate the Western Australian population as a new species, which is described herein as *Pratylenchus quasitereoides* n.sp. Phylogenetic analyses of 28S rRNA also suggest the new species is separate from *P. teres* and other morphologically-similar congeners, as well as sympatric congeners. There are also differences between the new species and others in host relationships.

Material & methods

Specimens of the new species were obtained from several collections between 1998 and 1999, including the first

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Multiplication factors for *P. neglectus* and *P. thornei* on lupin and oats are generally less than 1, but generally greater than 1 for *P. quasitereoides* **n. sp.** (Vanstone *et al.* 2005). On the same varieties of lupin and oats, reproduction rates of *P. quasitereoides* **n. sp.** (1.6 and 8.1, respectively) were much greater than those of *P. neglectus* (1.0 and 1.6, repectively). However, different varieties have different host status to *P. quasitereoides* n.sp. as well as for *P. neglectus* and *P. thornei* (Collins *et al.* 2013, Vanstone 2007, Vanstone *et al.* 2005).

Etymology. The name indicates the similarity of the new species with *P. teres* from the suffix "oides", and that the species has been known as *P. teres* "quasi". The species epithet is mostly Latin neuter, but the suffix is Greek (as with the generic name), and chosen for euphony above the Latin "similis".

TABLE 3. Hosts of the most common species of *Pratylenchus* in Western Australia, plus *P. teres* sensu stricto.

Host	*P. quasitereoides* **n. sp.**	*P. teres*	*P. neglectus*	*P. thornei*	*P. penetrans*
barley (*Hordeum vulgare* L.)	X		X	X	X
wheat (*Triticum aestivum* L.)	X		X	X	X
oat (*Avena sativa* L.)	X		X		X
chickpea (*Cicer arietinum* L.)	X		X	X	X
lupin (*Lupinus angustifolius* L.)	X				X
canola (*Brassica napus* L.)	X		X	X	X
potato (*Solanum tuberosum* L.)		X			
mustard (*Brassica juncea* L.)		X	X	X	
safflower (*Carthamus tinctorius* L.)		X			
cotton (*Gossypium hirsutum* L.)		X			
pearl millet (*Pennisetum glaucum* (L.))		X			
sugar cane (*Saccharum officinarum* L.)		X			
tobacco (*Nicotiana tabacum* L)		X			
medic (*Medicago* spp.)			X		
durum (*Triticum durum* L.)			X		X
common vetch (Vicia *sativa* L.)			X	X	
field pea (*Pisum sativum* L.)					X
faba bean (*Vicia faba* l.)					X
triticale (*Triticum* x *Secale*)					X

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