New Disease Reports

First report of *Pratylenchus crenatus* in Brazil

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During a survey in February 2011, root and soil samples were collected from 16 common bean (*Phaseolus vulgaris*) fields in Paraná state, southern Brazil. These samples were processed by the centrifugal flotation method (Coolen & D´Herde, 1972) and two species of root-lesion nematode were detected: *Pratylenchus brachyurus* in all samples, and *P. crenatus* in two samples (96 specimens per gramme of roots) of cultivars Carioca and Uirapuru from the municipality of Guarapuava (25°23'42"S / 51°27'28"W). Sixteen adult females belonging to the *Pratylenchus* genus, with three lip annuli (Fig. 1A), lateral fields with six lines and crenate tails (Fig. 1B) were measured in temporary formaldehyde slides. The average measurements were as follows: stylet length, 16.54 (±0.81) µm; body length, 477.16 (±29.44) µm; and vulva position, 81.10% (±1.28). The spermatheca was round, small and without sperm (males were not found). It was not possible to observe any clear secretory-excretory duct swelling as described by Karssen & Bolk (2000) because the identification was based on fixed specimens in temporary formaldehyde slides. However, morphological and morphometric characters were consistent with those described for *P. crenatus* (Castillo & Vovlas, 2007). The molecular identification was made through sequencing part of the ITS-1 region of rDNA, D2/D3 expansion fragments of the 28S rDNA, applying DNA barcode technology (Powers 2004) and using the *P. crenatus*-specific primers developed by Makete *et al.* (2011). The specimens used for molecular analysis showed a high degree of sequence identity (98%) with *P. crenatus*, isolate PcrKL2, from Finland, (GenBank Accession No. FJ712913). The D2/D3 sequence identity ranged from 99 to 100% with several *P. crenatus* population from Europe (Fig. 2). The specific primers yielded the expected PCR product (610 bp) only with DNA extracted from *P. crenatus*.

This is the first report of this species in Brazil. *Pratylenchus crenatus* has a worldwide distribution (27 countries), mainly in temperate and subtropical zones, however it has also been reported in tropical Africa (Castillo & Vovlas 2007). It is possible that *P. crenatus* has been introduced into Brazil through either contaminated seed potatoes or in association with international vehicle movements. Based on the sequence data and phylogenetic tree (Fig. 2), the Brazilian population seems likely to have originated in Europe. Guarapuava is located in the Brazilian subtropics which provides a favourable environment for *P. crenatus* development. This nematode has been reported in other countries causing yield losses in barley, common bean, potato and soybean which are important crops in Paraná state. Taking into account the large cultivated area in the neotropical region and the potential for *P. crenatus* to disseminate to the tropics, this nematode should be considered a risk to the economy of the region. In neotropical America, the only locality *P. crenatus* had been reported previously was the temperate zone, more specifically in natural grassland, at Balcarce in the province of Buenos Aires (Torres & Chaves, 1999). The Brazilian Ministry of Agriculture, Livestock and Food Supply has been notified of this new finding in order to implement appropriate phytosanitary measures to reduce adverse impacts caused by *P. crenatus*.

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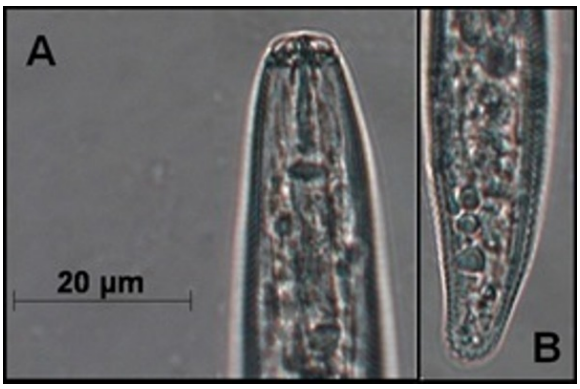

Figure 1

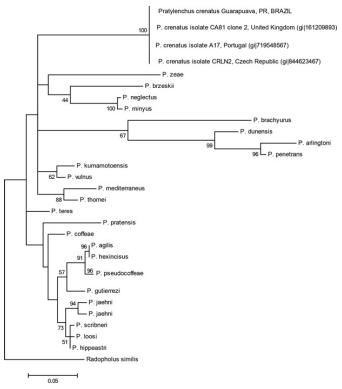

Figure 2

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