NEW DISEASE REPORT

First report of an isolate of ‘Candidatus Phytoplasma australiense’ associated with a yellow leaf roll disease of peach (Prunus persicae) in Bolivia

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Phytoplasmas, prokaryote plant pathogens, have been reported to cause peach yellow leaf roll (PYLR) (Smart et al., 1996) and peach red leaf (PRL) diseases. The PYLR phytoplasma belongs to the 16SrX Apple proliferation group (‘Candidatus Phytoplasma mali’) (Seemüller & Schneider, 2004), but PRL still has not been assigned to a subspecific lineage in ‘Candidatus Phytoplasma asteris’ (Lee et al., 2004). Symptoms similar to PYLR disease were observed in a peach plantation at San Isidro, Santa Cruz Province, Bolivia during a survey in 2003. Older leaves had symptoms of yellowing of the leaf margin and rolling, drying and necrosis. Young leaves were tightly rolled and yellow, and proliferation of shoots was evident along branches. Many trees were dead or dying. Samples of young shoots and leaves were taken from affected and apparently healthy trees and returned to Rothamsted Research, Harpenden, UK. Total DNA was extracted and indexed by nested PCR with generic phytoplasma rDNA primers P1/P7 and R16F2n/R16R2. PCR products were characterized by RFLP analysis using the restriction endonucleases HaeIII, RsaI and Alul and direct sequencing. All samples from affected trees gave a 1250 bp PCR product and identical RFLP profiles. Sequence of phytoplasma rDNA (accession no. AY 725212) was compared with others in the GenBank database using BLAST. The greatest similarity (98%) was with papaya dieback phytoplasma (accession no. Y10095) from Australia, a member of the 16SrXII Stolbur group (‘Candidatus Phytoplasma australiense’) (Firrao et al., 2004).

This is the first report of a peach yellow leaf roll-like disease in Bolivia, and the first record of the presence of a Stolbur group phytoplasma in peach. These results contribute to the known diversity of phytoplasmas found in peach and in Bolivian crops.

Acknowledgements

This work was supported by the Department for International Development (UK) through the Global Plant Clinic. Work in the UK was done under Defra plant health licence no. 174B/4612(09/2003). Y. Arocha thanks the Royal Society (UK) for financial support.

References


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Accepted 29 March 2005 at www.bspp.org.uk/ndr where figures relating to this paper can be viewed