NEW PLANT VIRUS DISEASE RECORDS IN NEW ZEALAND: UPDATE 2004-2005

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The MAF Investigation and Diagnostic Centre is responsible for the surveillance of pests and diseases in New Zealand. Diagnostic tools used include herbaceous indexing, electron microscopy, ELISA, (RT)-PCR, cloning and sequencing. During 2004 and 2005, four viruses were detected in New Zealand for the first time. *Spinach latent virus* (SpLV) was detected on *Lycopersicon esculentum*. *Broad bean wilt virus 1* (BBWV-1), *Verbena latent virus* (VeLV), *Turnip mosaic virus* (TuMV) and an unidentified *Carmovirus* were found co-infecting *Tropaeolum majus*. This is the first report of SpLV, VeLV and the unidentified *Carmovirus* for this host. Other new host-virus associations reported include *Alfalfa mosaic virus* (AMV) on *Lycium chinense*, *Apple stem grooving virus* (ASGV) on *Nandina domestica*, *Cherry leafroll virus* (CLRV) on *Rumex* sp., *Cucumber mosaic virus* (CMV) on *Macropiper excelsum*, *Passiflora latent virus* (PLV) on *Passiflora tarminiana*, *Strawberry latent ringspot virus* (SLRSV) on *Rubus* sp., and TuMV on *Erodium moschatum*. SLRSV was also found on its own or in combination with AMV, *Potato virus M* (PVM), *Potato virus S* (PVS) and *Potato virus X* (PVX) in *Solanum muricatum*. This is the first report of PVX and SLRSV on this host. The significance of these findings in New Zealand is discussed.

EVALUATION OF THREE INTERNAL CONTROL PRIMERS FOR ROUTINE RT-PCR PLANT VIRUS DETECTION

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The parallel amplification of plant host RNA is commonly used as an internal control to improve the reliability of RT-PCR detection of plant viruses. In this system, the amplification of the host RNA correlates with the quantity and quality of the total extracted RNA and by implication the availability for amplification of any target virus present. Difficulties may arise in practice due to conflict between the need to distinguish control from target virus amplicons while seeking to optimize their respective PCR cycling conditions. Three different internal control primers targeting the mitochondrial gene NADH dehydrogenase subunit 5 (*nad5*-s, *nad5*-as), ribosomal 5S gene (A, B) and chloroplast gene *ndh*B (9F-13R) were tested. The expected amplicon sizes are 181 bp for *nad*5, two products of 385 and 1065 bp for *5S* and a variable product size of 300-900 bp for *ndh*B. Each primer pair was tested at two annealing temperatures in eight crop plants, three ornamentals and nine herbaceous indicator plants. The choice of internal control and PCR conditions is discussed in relation to virus-specific primers being used.