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DISEASE NOTE

# First report of the *Citrus tristeza virus* resistance-breaking strain in Morocco

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*Citrus tristeza virus* (CTV), a member of the genus *Closterovirus*, causes the most destructive virus disease of citrus in the world. During 2008, an important outbreak of CTV was detected in the Loukkos region in Northwestern Morocco (Afechtal et al. 2011). One CTV isolate recovered from a 'common' clementine tree in this region was collected for characterization studies. Total nucleic acids were extracted from leaves with RNeasy Plant Mini Kit (Qiagen, Germany) and analyzed by reverse transcription polymerase chain reaction (RT-PCR) using specific primers to amplify the coat protein (CP) gene (Hilf and Garnsey 2000). The RT-PCR products were cloned into the pUC18 plasmid vector (Agilent Technologies, USA), then five clones were sequenced. All of them were nearly identical; consequently only one was deposited in GenBank under the accession number HF947330. Nucleotide sequence analysis indicated 98.8% identity to *Poncirus trifoliata* resistance-breaking (RB) isolate B301 from Puerto Rico (JF957196), and 97% to RB isolate NZRB-90 from New Zealand (FJ525432; Harper et al. 2010). The RB phenotype was confirmed by RT-PCR detecting CTV replication in graft-inoculated *P. trifoliata*, and graft transmission from *P. trifoliata* to sweet orange. CP gene amplicons were amplified from the graft-inoculated *P. trifoliata* and the relative sequences showed highest nucleotide identity with the RB strain. To the best of our knowledge, this is the first report of CTV *P. trifoliata* RB strain in Morocco. It is important to highlight that all CTV-infected trees in the Loukkos region have been completely eradicated by the national plant protection organization.

## References

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