First report of citrus psorosis virus (CPsV) in persian lime in Veracruz, Mexico

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Abstract

This study reports for the first time the presence of citrus psorosis virus (CPsV) in Persian lime (*Citrus latifolia*) orchards from five counties of the Veracruz state, the main producer and exporter of this fruit in Mexico. The disease was detected in 2016 only in plants grafted on non-certified rootstocks: Volkamerian lemon, Sour orange, Swingle, C-35 and Flying Dragon.

Keywords Psorosis · Incidence · Detection · *Citrus latifolia* · Veracruz

Persian lime (*Citrus latifolia*) is the main citrus fruit exported by Mexico. Symptoms such as severe bark scaling of trunk and branches, trees with scarce foliage, yellowing, die back and low yields, often associated to citrus psorosis virus (CPsV) (Achachi et al. 2014) have been observed in this crop in Veracruz, main producer state of this fruit. To explore the presence of CPsV, on summer 2016 one hundred-ten samples were collected from 22 commercial orchards located in the most important Persian lime producing areas in Veracruz. Each sample consisted of stems and leaves collected from four sides of each tree; five trees by orchard. Total RNA was extracted according to Achachi et al. (2015) and amplified using the specific primers ps66 and ps65. A representative PCR product of the expected size (430 bp) was sequenced. Sixteen out of 22 orchards (72.7%) were positive to CPsV in the municipalities of Martínez de la Torre (37.5%), Atzacan (18.8%), San Rafael (12.5%), Cuicahuac (25%) and Amatlan de los Reyes (6.2%). The positive trees showed severe bark scaling of trunk and branches, scarce foliage and yellowing. The incidence

ranged from 50 to 100% only in plants grafted on non-certified Volkamerian lemon (VL), Sour orange (So), Swingle (Sw), C-35 and Flying Dragon (FD) rootstocks. In orchards in which the certified rootstocks So, VL and C-35 were used, CPsV was never found. Blast analysis showed that a representative sequence (accession No. KY473933) obtained from a positive citrus plant showing symptoms of CPsV, grafted on So rootstocks and collected from an orchard with 80% incidence, had 97% similarity to the accession AB537976.1. To our knowledge, this is the first molecular identification of CPsV in Persian lime in Veracruz, Mexico.

References

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