

Tropical Plant Pathology

Molecular characterization and survey of viruses and viroids infecting apple and pear trees in southern Brazil

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Abstract:	<p>Apple and pear cultivation plays a crucial role in the Brazilian economy, particularly in the states of Rio Grande do Sul (RS) and Santa Catarina (SC). Viruses and viroids pose a significant threat, affecting tree health, fruit quality, and orchard productivity. This research aimed to identify both established and novel etiological agents contributing to the decline of apple and pear trees in SC and RS. A total of 53 samples were collected from nurseries and commercial orchards in the municipalities of Lages, Fraiburgo, São Joaquim, and Paineira (SC), as well as Vacaria (RS). Viral infection was assessed via total RNA extraction. Fourteen of these samples underwent high-throughput sequencing (HTS), revealing the presence of citrus concave gum-associated virus (CCGaV) and apple hammerhead viroid (AHVd), two pathogens recently identified in Brazil. Phylogenetic analysis was performed using a global dataset incorporating the sequences generated in this study. Given the potential for viral and viroid infections across different orchards, all 53 samples were also screened by RT-PCR using specific primers for apple stem pitting virus (ASPV), apple stem groove virus (ASGV), apple mosaic virus (ApMV), apple chlorotic leaf spot virus (ACLSV), CCGaV and AHVd. CCGaV was detected in 16 samples, 13 of which originated from SC. Co-infections of ASPV and ASGV were prevalent, observed in 23 samples, and 18 samples exhibited infections with three or more pathogens, highlighting the complex nature of viral infections impacting orchard management. This constitutes the first detection of CCGaV in SC and the first global report of AHVd in pear trees.</p>		
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Dear Dr. da Silva,

We are pleased to inform you that your manuscript, "Molecular characterization and survey of viruses and viroids infecting apple and pear trees in southern Brazil", has been accepted for publication in Tropical Plant Pathology.

You will receive an e-mail in due course regarding the production process.

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With best regards,

Emerson Medeiros Del Ponte, D.Sc.
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