

ANÁLISE DE SEQUENCIAMENTO REVELA QUE PIMENTÃO É UM NOVO HOSPEDEIRO POTENCIAL DE POTATO LEAFROLL VIRUS

SEQUENCING ANALYSIS REVEALS THAT PEPPER IS A POTENCIAL NEW HOST FOR POTATO LEAFROLL VIRUS

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Resumo:

Tomato (*Solanum lycopersicum*) and pepper (*Capsicum annuum*) are among the most important vegetable crops worldwide. However, these crops are severely affected by multiple viral diseases. To survey the diversity of viral species infecting tomato and pepper plants in different regions of Brazil, symptomatic plants were sampled from the Federal District, Mato Grosso, Pernambuco, Goiás and São Paulo states. Pools of leaves were used for semi-purification of virus particles through a method of differential centrifugation. The pellets were resuspended and used for total RNA extraction, followed by standard Illumina library preparation with ribosomal RNA deletion, and sequencing. After trimming the reads, and performing the initial analysis of assembly, the contigs were used to search against viral sequence database using BLASTn. One contig of 5884 nt (477 reads out of 55,703,940) and one contig of 5875 nt (1097 reads out of 23,828,659) were identified from tomato and pepper samples, respectively, collected from São Paulo (Campinas). These contigs shared high identity with the genome of potato leafroll virus (PLRV). The contig assembled from the tomato samples shared 96.14% nucleotide identity with a PLRV isolate from potato (*Solanum tuberosum*) in Kenya (MN689377; e-value 0.0). The contig assembled from the pepper samples shared 95.84% identity with PLRV also from potato in Kenya (MN689381; e-value 0.0). No PLRV-like contigs were found in the sequenced samples from the other regions. These results strongly suggest that PLRV is infecting tomato and pepper crops in Campinas. The presence of this virus will be confirmed through RT-PCR and inoculation procedures. PLRV is an aphid-transmitted virus belonging to the family *Solemoviridae*, genus *Polerovirus*. It is one of the most devastating potato-infecting viruses, leading to a reduction in crop yield worldwide. It has also been reported to infect other plants, mostly in the family Solanaceae, such as tomato, as well as weeds like *Datura stramonium* and *Physalis floridana*. Although there was a single report in the early 1960s of a PLRV isolate recovered from pepper plants, this may be the first well-supported report of PLRV infecting pepper in Brazil. It is important to monitor the diversity of viral species in these commercial growing areas since an outbreak of a new disease can affect crop yield and cause great economic losses.

Palavras-chave: Sequencing; Pepper; *Polerovirus*

Apoio

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