



Study on rapid and sensitive detection of ToBRFV in tomato and pepper seeds

Tomato brown rugose fruit virus (ToBRFV) represents an emerging viral threat to the productivity of tomato and pepper protected cultivation worldwide. This virus has got the status of quarantine organism in the European Union (EU) countries. In particular, tomato and pepper seeds will need to be free of ToBRFV before entering the EU and before coming on the market. Thus, lab tests are needed.

This study develops and validates a one-step reverse transcription LAMP platform for the detection of ToBRFV in tomato and pepper leaves, by real-time assay [reverse transcription loop-mediated isothermal amplification (RT-LAMP)] and visual screening (visual RT-LAMP). Moreover, these methods can also be applied successfully for ToBRFV detection in tomato and pepper seeds. The diagnostic specificity and sensitivity of both RT-LAMP and visual RT-LAMP are both 100%, with a detection limit of nearly 2.25 fg/ μ l, showing the same sensitivity as RT-qPCR Sybr Green, but 100 times more sensitive than end-point RT-PCR diagnostic methods. In artificially contaminated seeds, the proposed LAMP assays detected ToBRFV in 100% of contaminated seed lots, for up to 0.025-0.033% contamination rates in tomato and pepper, respectively.

The results demonstrate that the proposed LAMP assays are simple, inexpensive, and sensitive enough for the detection of ToBRFV, especially in seed health testing. Hence, these methods have great potential application in the routine detection of ToBRFV, both in seeds and plants, reducing the risk of epidemics.





Etude complète :

<https://www.researchgate.net/publication/351023227> Rapid and Sensitive Detection of Tomato Brown Rugose Fruit Virus in Tomato and Pepper Seeds by Reverse Transcription Loop-Mediated Isothermal Amplification Assays Real Time and Visual and Comparison W

Lien article :

<https://www.hortidaily.com/article/9315434/study-on-rapid-and-sensitive-detection-of-tobrfv-in-tomato-and-pepper-seeds/>

