



FACT SHEET

Southern tomato virus (STV) on tomato seed

Southern tomato virus (STV) is a dsRNA virus of the genus Amalgavirus with a genome of 3.5 kb [1]. It was found in tissue from some plants that were found to be affected by general yellowing and poor fruit set in 1984 in California and in southwest Mexico and north-eastern Mississippi in 2005. It was also detected in symptomless plants. Transmission of the virus was shown to be via seed, and not mechanically and/or by grafting [1].

It has also been reported in Europe, Asia and the Americas [2-9]. However, in a majority of these reported cases, in addition to STV at least one other known pathogenic virus was found infecting tomato plants, making it difficult to conclude that STV was the causal agent of any of the observed disease symptoms. Sequence analysis indicates that the homology between the STV strains from Europe, Asia and the Americas is at least 99% [2, 4, 5, 8, 10].

Detection

There are several methods currently used for detection of STV that are all RNA-based: RT-PCR and Northern blot to detect STV RNA in both leaf and seed material [1], while others have used TaqMan RT-qPCR [9], RT isothermal amplification [11], and molecular hybridisation [12] to detect the viral RNA. To date, it has not been possible to detect “viable” virions and raise antibodies against the proposed capsid proteins.

Risk mitigation

There is no seed treatment described to eradicate STV from seeds. The risk of a rapid spread of STV is mitigated by the fact that within infected plants, viral copy numbers grow with the plant [9] and viral RNA appears to multiply only in parallel with the regular cell division.

Is seed a pathway?

Seed is a reported pathway for STV in tomato [1]. The virus is present in many geographical regions of the world [2–9] but it is still not clear to what extent, if any, STV can cause disease in infected plants. *The information that the virus is present in cryptic, symptomless infections in a wide range of varieties and geographical regions indicates there is no scientific basis for regulating STV in tomato seed.*

References

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