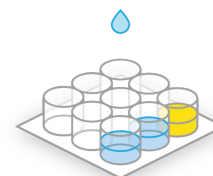


Validation Report: PCR Primers

PCR 98100 • *Tospovirus* group (Tospo)



Test Characteristics

Test Name	Tospovirus group	Format	RT-PCR Primers
Catalog Number	98100	Extraction Method	Nucleic acid extraction
Acronym	Tospo		
Genus	Orthotospovirus		

Summary

The Tospovirus Group PCR primers offer a sensitive diagnostic method to detect members of the Orthotospovirus genus of the Tospoviridae family. The primer sequences are based on conserved genome regions and can detect characterized and unassigned members of the Orthotospovirus genus.

Diagnostic Sensitivity

True Positives	117
Correct Diagnoses	117
Percent	100%

Analytical Specificity

Inclusivity:

Orthotospoviruses¹ Detected:

Virus Name	Binomial Species Name
Alstroemeria necrotic streak virus (ANSV)	Orthotospovirus alstroemerinecrosis
Alstroemeria yellow spot virus (AYSV) ²	Orthotospovirus alstroemeriflavi
Bean necrotic mosaic virus (BeNMV) ²	Orthotospovirus phaseolinecrotessellati
Calla lily chlorotic spot virus (CCSV) ²	Orthotospovirus callaflavi
Capsicum chlorosis virus (CaCV)	Orthotospovirus capsiciflavi
Chrysanthemum stem necrosis virus (CSNV)	Orthotospovirus chrysanthinecrocaulis
Groundnut bud necrosis virus (GBNV) ^{2,4}	Orthotospovirus arachinecrosis
Groundnut chlorotic fan-spot virus (GCFSV) ²	Orthotospovirus arachiflavi
Groundnut ringspot virus (GRSV)	Orthotospovirus arachianuli
Hippeastrum chlorotic ringspot virus (HCRV) ²	Orthotospovirus hippeflavi
Impatiens necrotic spot virus (INSV)	Orthotospovirus impatiensnecromaculae
Iris yellow spot virus (IYSV)	Orthotospovirus iridimaculaflavi
Melon severe mosaic virus (MeSMV)	Orthotospovirus melotessellati
Melon yellow spot virus (MYSV)	Orthotospovirus meloflavi
Mulberry vein banding associated virus (MVBaV) ²	Orthotospovirus morivenae



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Orthotospoviruses¹ Detected:

Virus Name	Binomial Species Name
Pepper chlorotic spot virus (PCSV) ²	Orthotospovirus capsicimaculaflavi
Polygonum ringspot virus (PoRSV) ²	Orthotospovirus polygonianuli
Soybean vein necrosis virus (SVNV)	Orthotospovirus glycininecrovenae
Tomato chlorotic spot virus (TCSV)	Orthotospovirus tomatoflavi
Tomato necrotic ringspot virus (ToNSV) ^{2,3}	
Tomato necrotic spot-associated virus (TNSaV) ^{2,3}	
Tomato spotted wilt virus (TSWV)	Orthotospovirus tomatomaculae
Tomato yellow fruit ring virus (TYFRV) ^{2,3}	
Tomato yellow ring virus (TYRV) ²	Orthotospovirus tomatanuli
Tomato zonate spot virus (TZSV) ²	Orthotospovirus tomatozonae
Watermelon bud necrosis virus (WBNV) ²	Orthotospovirus citrullonecrosis
Watermelon silver mottle virus (WSMoV)	Orthotospovirus citrullomaculosi
Zucchini lethal chlorosis virus (ZLCV) ²	Orthotospovirus cucurbichlorosis

¹The list above represents viruses that have been shown to be detected by this group PCR test. It also represents viruses that may be detected based on *in silico* analysis. If you have confirmed detection of a predicted virus detection or a virus not on this list, please contact us. We would like to work with you to further validate detection capabilities.

²Predicted detection by *in silico* analysis only

³Tentative Orthotospovirus

⁴Peanut bud necrosis virus (PBNV) is now known as Groundnut bud necrosis virus (GBNV)

Orthotospoviruses Not Detected:

None Known	
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Exclusivity:**Cross-reacts With:**

None Known	
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Diagnostic Specificity

True Negatives 495
Correct Diagnoses 495
Percent 100%

Selectivity:

No Matrix Effect Observed With:			
Aglaonema leaves	Alstroemeria leaves	Chrysanthemum leaves	Cucurbit leaves
Delphinium leaves	Echeveria leaves	Nemesia leaves	Pepper leaves
Philodendron leaves	Portulaca leaves	Pothos leaves	Rhaphidophora leaves
Rose leaves	Soybean leaves	Tradescantia leaves	



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Glossary

Diagnostic sensitivity¹:	The percentage of positive samples correctly identified in an experiment with known positive controls.
Diagnostic specificity¹:	The percentage of negative samples correctly identified in an experiment with known negative controls.
Analytical sensitivity²:	The smallest amount of target that can be detected reliably (this is sometimes referred to as the 'limit of detection')
Analytical specificity²:	(comprises inclusivity and exclusivity)
Inclusivity³:	The performance of a test with a range of target isolates covering genetic diversity, different geographical origin and/or hosts associated with the target organism.
Exclusivity³:	The performance of a test with a range of non-targets (e.g. cross-reaction with closely related organisms, contaminants)
Selectivity²:	The level of effect that matrices and relevant plant parts have on the performance of the assay.
Repeatability²:	The agreement between test replicates of the same sample tested by the same operator.
Reproducibility³:	The ability of a test to provide consistent results when applied to aliquots of the same sample tested under different conditions (e.g. time, users, equipment, location)
Robustness^{1,3}:	The extent to which varying test conditions (e.g. temperature, volume, change of buffers) affect the established test performance values. May also be referred to as planned deviation analysis.
Stability¹:	The performance of test reagents or controls over time.

References:

¹Groth-Helms, D., Rivera, Y., Martin, F. N., Arif, M., Sharma, P., Castlebury, L. A. (in press). Terminology and Guidelines for Diagnostic Assay Development and Validation: Best Practices for Molecular Tests. *PhytoFrontiers*.

²Eads, A., Groth-Helms, D., Davenport, B., Cha, X., Li, R., Walsh, C., Schuetz, K., (in press). The Commercial Validation of Three Tomato Brown Rugose Fruit Virus Assays. *PhytoFrontiers*.

³EPPO (2018) PM 7/76 (5) Use of EPPO Diagnostic Standards, EPPO Bulletin 48, 373– 377.



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