

**EUROPEAN AND MEDITERRANEAN PLANT PROTECTION ORGANIZATION**  
**ORGANISATION EUROPEENNE ET MEDITERRANEENNE POUR LA PROTECTION DES PLANTES**  
(11-17239)

**Summary sheet of validation data for a diagnostic test**

The EPPO Standard PM 7/98 *Specific requirements for laboratories preparing accreditation for a plant pest diagnostic activity* describes how validation should be conducted. It also includes definitions of performance criteria.

<b>Target Organism</b>	Cucumber vein yellowing virus Cucurbit yellow stunting disorder virus	
<b>Short description</b>	Detection of CVYV and CYSDV in host plant material	
<b>Laboratory contact details</b>	Anses, Laboratoire de la Santé des Végétaux - Unité de bactériologie, virologie OGM 7 rue Jean Dixméras, 49044 Angers, France	
<b>Date and reference of the validation report</b>	2014 - Cousseau P., Gentit P. (2014). Assesment of a detection method for Cucurbitaceae yellow diseases: Cucumber vein yellowing virus (CVYV), Cucurbit yellow stunting disorder virus (CYSDV), Anses, Laboratory of Plant Health, Angers.	
<b>Validation process according to EPPO Standard PM 7/98:</b>	Yes	
<b>Reference of the test description</b>	0 Gil-Salas et al., 2007. Development of real-time RT-PCR assays for the detection of Cucumber vein yellowing virus (CVYV) and Cucurbit yellow stunting disorder virus (CYSDV) in the whitefly vector Bemisia tabaci. Journal of Virological Methods 146, pp. 45-51.	
<b>Is the test the same as described in the EPPO DP?</b>	No Gil-Salas et al., 2007. Development of real-time RT-PCR assays for the detection of Cucumber vein yellowing virus (CVYV) and Cucurbit yellow stunting disorder virus (CYSDV) in the whitefly vector Bemisia tabaci. Journal of Virological Methods 146, pp. 45-51.	
<b>Is the lab accredited for this test?</b>	No	
<b>Plant species tested (if relevant)</b>	Cucumis melo, Cucumis sativus, Cucumis lanatus, Cucurbita pepo, Solanum lycopersicum	
<b>Matrices tested (if relevant)</b>	Leaves	
<b>List of methods used</b>		
<b>Method for extraction / isolation / baiting of target organism from matrix</b>		
<b>Molecular methods, e.g. hybridization, PCR and real time PCR</b>	X	real-time RT-PCR - Gil-Salas (2007)
<b>Serological methods: IF, ELISA, Direct Tissue Blot Immuno Assay</b>		
<b>Plating methods: selective isolation</b>		

<b>Bioassay methods: selective enrichment in host plants, baiting, plant test and grafting.</b>		
<b>Pathogenicity test</b>		
<b>Fingerprint methods: protein profiling, fatty acid profiling &amp; DNA profiling</b>		
<b>Morphological and morphometrical methods intended for identification</b>		
<b>Biochemical methods: e.g. enzyme electrophoresis, protein profiling</b>		
<b>Other</b>		
<b>Analytical sensitivity (= limit of detection)</b>		
<b>What is smallest amount of target that can be detected reliably?</b>	Not concerned because a virus is not quantifiable	
<b>Diagnostic sensitivity</b>		
<b>Proportion of infected/infested samples tested positive compared to results from the standard test , see appendix 2 of PM 7/98</b>	CVYV: 100% CYSDV: 100%	
<b>Specify the standard test</b>	CVYV: 30/30 (3 replicate for each sample) CYSDV: 30/30 (3 replicate for each sample)	
<b>Analytical specificity</b>		
<b>Specificity value</b>	100% for each virus	
<b>Number of strains/populations of target organisms tested</b>	<p>Target organisms tested :</p> <ol style="list-style-type: none"> <li>1.Cucumis melo infected by Cucumber vein yellowing virus (CVYV)</li> <li>2.Cucumis melo infected by Cucumber vein yellowing virus (CVYV)</li> <li>3.Cucumis sativus infected by Cucumber vein yellowing virus (CVYV)</li> <li>4.Cucurbita pepo infected by Cucumber vein yellowing virus (CVYV)</li> <li>5.Cucumis lanatus infected by Cucumber vein yellowing virus (CVYV)</li> <li>6. Cucumber vein yellowing virus (CVYV)</li> <li>7.Cucumber vein yellowing virus (CVYV)</li> <li>8. Cucumber vein yellowing virus (CVYV)</li> <li>9.co-infected Cucumber vein yellowing virus (CVYV) and Cucurbit yellow stunting disorder virus (CYSDV)</li> <li>10-0 : co-infected Cucumber vein yellowing virus (CVYV) and Cucurbit yellow stunting disorder virus (CYSDV)</li> <li>1. Cucurbit yellow stunting disorder virus (CYSDV)</li> <li>2. Cucurbit yellow stunting disorder virus (CYSDV)</li> <li>3. Cucurbit yellow stunting disorder virus (CYSDV)</li> <li>5. co-infected Cucumber vein yellowing virus (CVYV) and Cucurbit yellow stunting disorder virus (CYSDV)</li> <li>6. Cucurbit yellow stunting disorder virus (CYSDV)</li> <li>7. co-infected Cucumber vein yellowing virus (CVYV) and Cucurbit yellow stunting disorder virus (CYSDV)</li> <li>8. Cucurbit yellow stunting disorder virus (CYSDV)</li> </ol>	

	9. Cucumis sativus infected by Cucurbit yellow stunting disorder virus (CYSDV) 10. Cucumis sativus infected by Cucurbit yellow stunting disorder virus (CYSDV)
<b>Number of non-target organisms tested</b>	Non-target organisms tested : 11. Cucurbita pepo infected by Squash vein yellowing virus (SqVYV) 12. Solanum lycopersicum infected by Tomato chlorosis virus (ToCV) 13. Cucurbita pepo infected by Zucchini yellow mosaic virus (ZYMV) 14. Cucumis sativus infected by Watermelon mosaic virus (WMV) 15. Cucurbita pepo infected by Papaya ringspot virus (PRSV) 16. healthy Cucumis melo 17. healthy Cucumis sativus 18. healthy Cucurbita pepo 19. healthy Cucumis lanatus
<b>Cross reacts with (specify the species)</b>	No cross reaction observed
<b>Diagnostic Specificity</b>	
<b>Proportion of uninfected/uninfested samples (true negatives) testing negative compared to results from a standard test</b>	CVYV: 100% CYSDV: 100%
<b>Specify the standard test</b>	CVYV: 30 samples agreement/30 (3 replicate for each sample) CYSDV: 30 samples agreement/30 (3 replicate for each sample)
<b>Reproducibility</b>	
<b>Provide the calculated % of agreement for a given level of the pest (see PM 7/98)</b>	Not tested
<b>Repeatability</b>	
<b>Provide the calculated % of agreement for a given level of the pest (see PM 7/98)</b>	CVYV: 100% - 60 samples agreement/60 CYSDV: 100% - 60 samples agreement/60
<b>Test performance study</b>	
<b>Test performance study?</b>	No
<b>Include brief details of the test performance study and its output. If available, provide a link to published article/report</b>	
<b>Other information</b>	
<b>Any other information considered useful e.g. robustness, ease of performing the test, etc.</b>	For details, contact lab.