

**EUROPEAN AND MEDITERRANEAN PLANT PROTECTION ORGANIZATION**  
**ORGANISATION EUROPEENNE ET MEDITERRANEEENNE 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.

Target Organism	Candidatus Liberibacter solanacearum	
Short description	Detection of 'Candidatus Liberibacter solanacearum' by means of the real-time PCR procedure	
Laboratory contact details	ILVO Institute for Agricultural and Fisheries Research Burg. Van Gansberghelaan 96, 9820 Merelbeke - Melle, Belgium	
Date and reference of the validation report	28/06/2016 - F16_V13	
Validation process according to EPPO Standard PM 7/98:	Yes	
Reference of the test description	0 DP21 (IPPC) Li et al. 2009 Li W., Abad J.A., French-Monar R.D., Rascoe J., Wen A., Gudmestad N.C., Secor G.A., Lee I-M., Duan Y., Levy L. Multiplex real-time PCR for detection, identification and quantification of ‘Candi-datus Liberibacter solanacearum’ in potato plants with zebra chip. Journal of Microbiological Meth-ods 78, 59–65 (2009).	
Is the test the same as described in the EPPO DP?	Yes	
Is the lab accredited for this test?	Yes	
Plant species tested (if relevant)	Solanum tuberosum (potato) and Daucus carota (carrot)	
Matrices tested (if relevant)	leaves, petioles, roots	
List of methods used		
Method for extraction / isolation / baiting of target organism from matrix	X	DNeasy (Qiagen)
Molecular methods, e.g. hybridization, PCR and real time PCR	X	DP21 (IPPC) Li et al. 2009
Serological methods: IF, ELISA, Direct Tissue Blot Immuno Assay		
Plating methods: selective isolation		
Bioassay methods: selective enrichment in host plants, baiting, plant test and grafting.		
Pathogenicity test		

<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>		
<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>		
<b>Specify the standard test</b>		
<b>Analytical specificity</b>		
<b>Specificity value</b>		
<b>Number of strains/populations of target organisms tested</b>	2  Ca. L. solanacearum Isolate potato (USDA, Venkat, Texas, USA) RefV_CaLso_01 Ca. L. solanacearum Isolate carrot (origin Morocco) RefV_CaLso_02	
<b>Number of non-target organisms tested</b>	20  Arabis mosaic virus Cucumber mosaic virus Potato leaf roll virus Potato virus Y Potato virus X Potato spindle tuber viroid Strawberry latent ringspot virus Tobacco rattle virus Tomato black ring virus Tomato ringspot virus Clavibacter michiganensis subsp. sepedonicus Dickeya solani Ralstonia solanacearum Rhizoctonia solani Verticillium dahliae Candidatus Phytoplasma asteris (aster yellows fytoplasma) Candidatus Phytoplasma solani (stolbur fytoplasma) Candidatus Liberibacter asiaticus Candidatus Liberibacter africanus Candidatus Liberibacter americanus	
<b>Cross reacts with (specify the</b>	In some cases, late reaction (Cq >38) for Ca L americanus	

species)	observed
<b><u>Diagnostic Specificity</u></b>	
<b>Proportion of uninfected/uninfested samples (true negatives) testing negative compared to results from a standard test</b>	
<b>Specify the standard test</b>	
<b><u>Reproducibility</u></b>	
<b>Provide the calculated % of agreement for a given level of the pest (see PM 7/98)</b>	100%
<b><u>Repeatability</u></b>	
<b>Provide the calculated % of agreement for a given level of the pest (see PM 7/98)</b>	100%
<b><u>Test performance study</u></b>	
<b>Test performance study?</b>	Yes
<b>Include brief details of the test performance study and its output. If available, provide a link to published article/report</b>	2017 - ANSES (Test performance study, including two real-time PCR methods (Li et al 2009 and Teresani et al 2014) and three conventional PCR (Li et al 2009; Munyaneza et al 2009, Ravindran et al 2011)
<b><u>Other information</u></b>	
<b>Any other information considered useful e.g. robustness, ease of performing the test, etc.</b>	