EUROPEAN AND MEDITERRANEAN PLANT PROTECTION ORGANIZATION ORGANISATION EUROPEENNE ET MEDITERRANEENNE POUR LA PROTECTION DES PLANTES 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.

Laboratory contact details	Council for Agricultural Research and Economics- Research Centre for Plant Protection and Certification Via Carlo Giuseppe Bertero, 22, 00156 Rome, Italy
Short description of the test	detection of Xanthomonas euvesicatoria pv. euvesicatoria, Xanthomonas hortorum pv. gardneri, Xanthomonas euvesicatoria pv. perforans, Xanthomonas vesicatoria Xanthomonas vesicatoria by Molecular Conventional PCR in Seeds
Date, reference of the validation report	2022-01-22 - Validation_ASPROPI_2017_pp143-166
Link to other validation data	- Validation_ASPROPI_2017_pp143-166 detection of Xanthomonas hortorum pv. gardneri, Xanthomonas euvesicatoria pv. perforans, Xanthomonas vesicatoria, Xanthomonas euvesicatoria pv. euvesicatoria Xanthomonas euvesicatoria pv. euvesicatoria by Molecular real time RT PCR in Seeds
Validation process according to EPPO Standard PM7/98?	yes
Is the lab accredited for this test?	no
Was the validated data generated in the framework of a project?	Other_project
If yes, please specify	ASPROPI (Founded by MIPAAF_Italy)
Description of the test	
Organism(s)	Xanthomonas euvesicatoria pv. euvesicatoria (XANTEU) Xanthomonas vesicatoria (XANTVE) Xanthomonas hortorum pv. gardneri (XANTGA) Xanthomonas euvesicatoria pv. perforans (XANTPF)
Detection / identification	detection
Method(s)	Molecular Conventional PCR
Method: Molecular Conventional PCR	
Reference of the test description	
As or adapted from an EPPO diagnostic protocol	yes
EPPO Diagnostic Protocol name	PM 7/110 <i>Xanthomonas</i> spp.

gardneri, Xanthomonas perforans, Xanthomonas		
vesicatoria) causing bacterial spot of tomato and sweet pepper (version 1)		
Conventional PCR (according to Koenraadt et al., 2009)		
no		
no		
no		
Duplex		
Xanthomonas euvesicatoria pv. euvesicatoria(XANTEU)		
10^4 CFU/mL		
95%		
Comparison with samples of known status		
Among 26 non-target strains false positive occurred on: Xanthomonas arboricola pv. celebensis (NCPPB 1832), Pseudomonas fluorescens (NCPPB 1964), one unknown bacterial saprophyte isolate from tomato seeds (CREA-DC 1495).		
88,4%		
<u>Diagnostic Specificity</u>		
74%		
Comparison with samples of known status		
74%		
Repeatability		
79%		

Analytical sensitivity		
What is smallest amount of target that can be detected reliably?	10^4 CFU/mL	
<u>Diagnostic sensitivity</u>		
Proportion of infected/infested samples tested positive compared to results from the standard test, see appendix 2 of PM 7/98	95%	
Standard test(s)	Comparison with samples of known status	
Analytical specificity - exclusivity		
Number of non-target organisms tested	Among 26 non-target strains false positive occurred on: Xanthomonas arboricola pv. celebensis (NCPPB 1832), Pseudomonas fluorescens (NCPPB 1964), one unknown bacterial saprophyte isolate from tomato seeds (CREA-DC 1495).	
Specificity value	88,4%	
Diagnostic Specificity		
Proportion of uninfected/uninfested samples (true negatives) testing negative compared to results from a standard test	74%	
Specify the test(s)	Comparison with samples of known status	
Reproducibility		
Provide the calculated % of agreement for a given level of the pest (see PM 7/98)	74%	
Repeatability		
Provide the calculated % of agreement for a given level of the pest (see PM 7/98)	79%	
Organism 3.:	Xanthomonas hortorum pv. gardneri(XANTGA)	
Analytical sensitivity		
What is smallest amount of target that can be detected reliably?	10^4 CFU/mL	
Diagnostic sensitivity		
Proportion of infected/infested samples tested positive compared to results from the standard test, see appendix 2 of PM 7/98	92%	
Standard test(s)	Comparison of samples with known status	
Analytical specificity - exclusivity		
Number of non-target organisms tested	Among 26 non-target strains false positive occurred on: Xanthomonas arboricola pv. celebensis (NCPPB 1832), Pseudomonas fluorescens (NCPPB 1964), one unknown bacterial saprophyte isolate from tomato seeds (CREA-DC 1495).	
Specificity value	88,4%	
Diagnostic Specificity		

Proportion of uninfected/uninfested samples (true negatives) testing negative compared to results from a standard test	82%	
Specify the test(s)	Comparison of samples with known status	
Reproducibility		
Provide the calculated % of agreement for a given level of the pest (see PM 7/98)	78%	
Repeatability		
Provide the calculated % of agreement for a given level of the pest (see PM 7/98)	81%	
Organism 4.:	Xanthomonas euvesicatoria pv. perforans(XANTPF)	
Analytical sensitivity		
What is smallest amount of target that can be detected reliably?	10^4 CFU/mL	
Diagnostic sensitivity		
Proportion of infected/infested samples tested positive compared to results from the standard test, see appendix 2 of PM 7/98	92%	
Standard test(s)	Comparison with samples of known status	
Analytical specificity - exclusivity		
Number of non-target organisms tested	Among 26 non-target strains false positive occurred on: Xanthomonas arboricola pv. celebensis (NCPPB 1832), Pseudomonas fluorescens (NCPPB 1964), one unknown bacterial saprophyte isolate from tomato seeds (CREA-DC 1495).	
Specificity value	88,4%	
Diagnostic Specificity		
Proportion of uninfected/uninfested samples (true negatives) testing negative compared to results from a standard test	82%	
Specify the test(s)	Comparison with samples of known status	
Reproducibility		
Provide the calculated % of agreement for a given level of the pest (see PM 7/98)	78%	
Repeatability		
Provide the calculated % of agreement for a given level of the pest (see PM 7/98)	81%	
Test performance study		
Test performance study?	no	
Brief details of the test performance study and its output.It available, link to published article/report	Test performance study organized in the frame of a National Project (ASPROPI) involving 7 Italian laboratories	

The following complementary files are available online:	 VALIDATION_Xanthomonas_spp_ASPROPI_2 017

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