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 Xanthomonas spp. (Xanthomonas euvesicatoria, Xanthomonas

	gardneri, Xanthomonas perforans, Xanthomonas vesicatoria</i>) causing bacterial spot of tomato and sweet pepper (version 1)
Name of the test	Conventional PCR (according to Koenraadt et al., 2009)
As or adapted from an IPPC diagnostic protocol	no
Is the test modified compared to the reference test	no
Kit	
Is a kit used	no
Other information	
Reaction type	Duplex
Performance Criteria :	
Organism 1.:	**Xanthomonas euvesicatoria pv. euvesicatoria(XANTEU)**
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	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 2.:	**Xanthomonas vesicatoria(XANTVE)**

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	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_2017

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