

Validation report

DAS-ELISA PPV

Article No.: 150577 (PPV Complete kit 96) / 150575 (PPV Complete kit 480) / 150572 (PPV Complete kit 960)

General information:

| | |
|-----------------|----------------------|
| Target Pathogen | PPV (Plum pox virus) |
| Genus | <i>Potyvirus</i> |
| Method | DAS-ELISA |

Technical information:

| | |
|----------------|--|
| Antibodies | Polyclonal and monoclonal antibodies developed against an isolate of PPV from the Netherlands |
| Sampling | Leaf samples: 1:20 (w/v) in extraction buffer "general" but, depending on the plant sample (species/season) a dilution of 1:10 (w/v) can be beneficial (e.g. for <i>Prunus persica</i>) |
| Controls | Negative control (NC): lyophilized extracts from healthy plants Positive control (PC): lyophilized PPV infected plant extracts |
| Working volume | 200 µl / well |

Host matrix:

| | |
|-------------------------|--|
| Tested plant material | Leaf, Blossoms, Phloem |
| Tested species infected | <i>Nicotiana benthamiana</i> (Tobacco) <i>Prunus armeniaca</i> (Apricot) <i>Prunus avium</i> (Cherry) <i>Prunus domestica</i> subsp. <i>Domestica</i> (Prune) <i>Prunus glandulosa</i> (Chinese plum) <i>Prunus Mexicana</i> (Mexican plum) <i>Prunus persica</i> (Peach) <i>Prunus saliciana</i> (Japanese plum) <i>Prunus tomentosa</i> (Nanking cherry) |

Specificity:

| | |
|--|---|
| Analytical Specificity | 100% |
| Number of tested samples from target organism (True Positives) | >100 |
| Diagnostic Specificity | 100% (Valitest: 93.8% PT: 100%) |
| Number of tested samples non-target organism (True Negatives) | >100 |
| Detected isolates / geographic regions (Inclusivity) | PPV 967 (Switzerland, Tobacco) PPV-D 968 (Switzerland, Tobacco) PPV 1086 (Switzerland, Tobacco) PPV St. Julien (Switzerland, Prune) PPV EARL Valence 1 (France, Peach) PPV EARL Valence 9 (France, Apricot) PPV-W EARL N°17-20 (Switzerland, Tobacco) PPV N°27404 (Switzerland, Prune) PPV N°27405 (Switzerland, Prune) PPV N°27396 (Switzerland, Peach) PPV N°27397 (Switzerland, Peach) |



| | |
|--|--|
| | PPV N°27404 (Switzerland, Prune) PPV N°27414 (Switzerland, Prune) PPV N°27536 (Switzerland, Peach) PPV N°27904 (Switzerland, Apricot) PPV N°34708 (Switzerland, Prune) PPV N°34791 (Switzerland, Prune) PPV N°34698 (Switzerland, Prune) PPV N°35008 (Switzerland, Prune) PPV Prune blossoms (Switzerland, Prune) PPV Topking Nr. 35008 (Switzerland, Prune) PPV Cacaks Nr. 34698 (Switzerland, Prune) PPV-D 968 (Switzerland, Tobacco) PPV-W 1306 (Switzerland, Tobacco) PPV-W (Canada, Tobacco) PPV-M 1949-01XL1 (Canada, Nanking cherry) PPV-M 1949-01XZ1 (Canada, Peach) PPV-D 2630-01Z1 (Canada, Peach) PPV-D 2630-02Z1 (Canada, Nanking cherry) PPV-D 3121-01Z1 (Canada, Chinese plum) PPV-W 3174 (Canada, Tobacco) PPV-W 3174 01A1 (Canada, plum) PPV-W 3174 01Z1 (Canada, Japanese plum) PPV-D 3217-01Z1 (Canada, Peach) PPV-D 3 (Canada, Mexican plum) PPV-C "Sweet Cherry" (Canada, Tobacco) PPV-EA (Canada, Tobacco) PPV-M (Canada, Tobacco) PPV-D (Canada, Tobacco) PPV-W Shiro Plum (Canada, Japanese plum) PPV-Rec LIP (Czech Republic, Plum) PPV-Rec BOH (Czech Republic, Plum) PPV-D (Serbia, Plum) PPV-M Pasohlavky GF305 (Czech Republic) PPV-M SK22 (Netherlands, Prune) PPV-M SK59 (Netherlands, Prune) PPV-D 00-0034 (Netherlands, Prune) PPV-D 94-0025 (Netherlands, Prune) PPV-Rec 97-0009 (Netherlands, Tobacco) PPV -EA T+PPV#10 (Netherlands, Tobacco) PPV-T T+PPV#9 (Netherlands, Prune) PPV-CR T+PPV#23 (Netherlands, Tobacco) PPV-C 17-0125-05 (Netherlands, Tobacco) PPV-An T+PPV#28 (Netherlands, Tobacco) PPV 03/2015 (Germany, Tobacco) PPV PV-0305 BN4835 (Germany, Tobacco) |
| Cross reaction with (Exclusivity) | None known |
| No cross reaction tested with (Exclusivity) | ACLSV (Apple chlorotic leaf spot virus) CGRMV (Cherry green ring mottle virus) CLRV (Cherry leaf roll virus) CMLV (Cherry mottle leaf virus) CMV (Cucumber mosaic virus) CVA (Cherry virus A) ErLV (Erysimum latent virus) GFkV (Grapevine fleck virus) GLRaV-4-9 (Grapevine leafroll-associated virus generic 4-9) |

| | |
|--|---|
| | LChV-1 (Little cherry virus 1) LChV-2 (Little cherry virus 2) PDV (Prune dwarf virus) PLMVD (Peach latent mosaic viroid) PLRV (Potato leafroll virus) PMV (Panicum mosaic virus) PNRSV (Prunus necrotic ringspot virus) PVA (Potato virus A) PVM (Potato virus M) PVX (Potato virus X) RpRSV (Raspberry ringspot virus) Sss (Spongospora subterranean f. sp. Subterranea) TMV (Tobacco mosaic virus) ToMV (Tomato mosaic virus) ToRSV (Tomato ringspot virus) TSV (Tobacco streak virus) |
| No matrix effect observed with (Selectivity) | <i>Chenopodium quinoa</i> (Quinoa) <i>Juglans nigra</i> (Black walnut) <i>Malus</i> (Apple) <i>N. benthamiana</i> (Tobacco) <i>Prunus armeniaca</i> (Apricot) <i>Prunus avium</i> (Cherry) <i>Prunus domestica</i> subsp. <i>Domestica</i> (Prune) <i>Prunus persica</i> (Peach) |

Sensitivity:

| | |
|-----------------------------------|---|
| Diagnostic Sensitivity | 100% (Valitest: 81.3% PT: 100%) |
| Analytical Sensitivity / LoD | 10 ⁻⁴ dilution of infected tissue (pathogen titer unknown). Valitest: Prepared extracts from <i>Nicotiana benthamiana</i> infected by PPV, diluted up to at least 10 ⁻⁴ in PPV free <i>Prunus</i> sp. could be detected. |
| Sensitivity on host matrix | PPV on leaves of prune: 1:31'250 dilution PPV on leaves of tobacco: 1:56'250 dilution Pathogen titer unknown |
| Other sensitivity characteristics | Valitest median true results: 83.18% |

Validation:

| | |
|---------------------|--|
| Internal validation | 2005 and 2010 |
| External validation | Validation by 1 external research partner in 2005 (Canada). Validation by 2 external research partners in 2010 (Czech Republic, USA) Participation on EU H2020 project «Valitest» (n°773139) with these reagents (6 labs). 1 proficiency test (PT) in 2022 with 6 labs (Germany). |
| Reproducibility | 100% (Valitest: 87.5%) |

| | |
|------------------------|---|
| Repeatability | 100% (Valitest: 87.5%) |
| Validation information | <p>Every two years BIOREBA participates with PPV reagents on an external proficiency test (PT).</p> <p>Internally, the reagents have been validated with the BIOREBA isolate collection composed of various samples collected within the last 40 years.</p> |

Validation release Date:
April, 6th, 2023

QC manager:



Version: 4 – 17.07.2024 - Information about sensitivity on host matrix and limit of detection (LoD) added.