

Validation report

DAS-ELISA PepMV

Article No.: 161577 (PepMV Complete kit 96) / 161575 (PepMV Complete kit 480) / 161572 (PepMV Complete kit 960)

General information:

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| Target Pathogen | PepMV (Pepino mosaic virus / Potexvirus pepini) |
| Genus | <i>Potexvirus</i> |
| Method | DAS-ELISA |

Technical information:

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| Antibodies | Polyclonal antibodies developed against a selection of PepMV isolates representing all major genotypes and geographic origins. |
| Sampling | Leaf samples: 1:20 (w/v) in extraction buffer "General" Seed samples: 1:25 (w/v) in extraction buffer "General" One sample/subsample: 250 seeds validated |
| Controls | Negative control (NC): lyophilized extracts from healthy plants Positive control (PC): lyophilized PepMV infected plant extracts |
| Working volume | 200 µl / well |

Host matrix:

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|-------------------------|---|
| Tested plant material | Leaf, seed Seed transmittable / mechanical transmittable |
| Tested species infected | <i>Nicotiana occidentalis</i> (Tobacco) <i>Nicotiana glutinosa</i> (Tobacco) <i>Nicotiana benthamiana</i> (Tobacco) <i>Solanum lycopersicum</i> (Tomato) |

Specificity:

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| Analytical Specificity | 100% |
| Number of tested samples from target organism (True Positives) | 48 |
| Diagnostic Specificity | 100% |
| Number of tested samples non-target organism (True Negatives) | >100 |
| Detected isolates / geographic regions (Inclusivity) | PepMV 7061 AZ-2 (US, Tobacco) PepMV 1297 AZ-2 (US, Tomato) PepMV 1338 TX-1 (US, Tomato) PepMV TX-1 (US, Tobacco) PepMV Ch1/Ch2 (US, Tomato) PepMV Ch1/Ch2 (US, Tobacco) PepMV 1279 (Switzerland, Tomato) PepMV various seed lots mildly or heavily infected (Europe, Tomato) |
| Cross reaction with (Exclusivity) | None known |
| No cross reaction tested with (Exclusivity) | CMV (Cucumber mosaic virus) GLRaV-7 (Grapevine leafroll-associated virus 7) LMV (Lettuce mosaic virus) TMV (Tobacco mosaic virus) |

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| | ToMV (Tomato mosaic virus) PVX (Potato virus X) |
| No matrix effect observed with (Selectivity) | <i>Nicotiana occidentalis</i> (Tobacco) <i>Solanum lycopersicum</i> (Tomato, leaf & seed) <i>Solanum muricatum</i> (Pepino) |

Sensitivity:

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| Diagnostic Sensitivity | 100% |
| Analytical Sensitivity / LoD | 10 ⁻⁴ -10 ⁻⁵ dilution of infected tissue (pathogen titer unknown) |
| Sensitivity on host matrix | PepMV on leaves of tomato: 1: 781'250 dilution PepMV on tomato seeds: 1:31'250 dilution Pathogen titer unknown |
| Other sensitivity characteristics | Mild inf. seed samples: 100% (Ø OD ^{15min} = 1.1) Heavy inf. seed samples: 100% (Ø OD ^{15min} = 2.3) |

Validation:

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| Internal validation | 2010 and 2021 (last internal validation) |
| External validation | Interlaboratory comparisons in 2021 (The Netherlands) and 1 proficiency test (PT) in 2022 (ongoing, France) |
| Reproducibility | 100% (BIOREBA) |
| Repeatability | 100% (BIOREBA) |
| Validation information | Internally, the reagents have been validated with the BIOREBA isolate collection (2010). An interlaboratory comparison was conducted on healthy and mild/heavily PepMV-infected tomato seed lots between BIOREBA and two other laboratories (The Netherlands) in 2021. Currently (November 2022) a PepMV proficiency test on seeds is running (France) where BIOREBA is participating. Results of the PT to be expected in January 2023. |

Validation release Date:
November, 04th, 2022

QC manager:



Version: 3 – 28.04.2025 – Additional validation information on analytical sensitivity and sensitivity on host matrix.