

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

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| Target Organism | Beet necrotic yellow vein virus | |
| Short description | Detection of BNYVV by ELISA in host plant material | |
| Laboratory contact details | Anses, Laboratoire de la Santé des Végétaux - Unité de bactériologie, virologie OGM 7 rue Jean Dixmèras, 49044 Angers, France | |
| Date and reference of the validation report | 2014-11 - Renaudin I., Loiseau M. (2014). Evaluation des méthodes de détection du Beet necrotic yellow vein virus (BNYVV). | |
| Validation process according to EPPO Standard PM 7/98: | Yes | |
| Reference of the test description | PM 7/030(2) | |
| 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) | Beta vulgaris subsp. vulgaris, Spinacia oleracea, Chenopodium quinoa, Nicotinia benthamiana | |
| Matrices tested (if relevant) | roots | |
| <i>List of methods used</i> | | |
| Method for extraction / isolation / baiting of target organism from matrix | | |
| Molecular methods, e.g. hybridization, PCR and real time PCR | | |
| Serological methods: IF, ELISA, Direct Tissue Blot Immuno Assay | X | DAS-ELISA |
| Plating methods: selective isolation | | |
| Bioassay methods: selective | | |

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| enrichment in host plants, baiting, plant test and grafting. | | |
| Pathogenicity test | | |
| Fingerprint methods: protein profiling, fatty acid profiling & DNA profiling | | |
| Morphological and morphometrical methods intended for identification | | |
| Biochemical methods: e.g. enzyme electrophoresis, protein profiling | | |
| Other | | |
| <u>Analytical sensitivity (= limit of detection)</u> | | |
| What is smallest amount of target that can be detected reliably? | in our condition and with our infected material, between a dilution of 1/100 and 1/250 of an infected material in an healthy material. Approximatly, 40 times less sensitive than real-time RT-PCR (Harju et al., 2005) | |
| <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 | 100% | |
| Specify the standard test | 20 samples agreement/20 (2 replicate for each sample) | |
| <u>Analytical specificity</u> | | |
| Specificity value | 89% | |
| Number of strains/populations of target organisms tested | 10 different samples infected by BNYVV isolated in France | |
| Number of non-target organisms tested | 4 healthy Beta vulgaris subsp. vulgaris Healthy Spinacia oleracea Tobacco rattle virus Beet black scotch virus Beet mosaïc virus Beet western yellows virus Beet yellows virus Beet soil-borne mosaïc virus Soil-borne wheat mosaïc virus Potato mop top virus | |
| Cross reacts with (specify the species) | Beet yellows virus Beet black scorch virus Potato mop top virus Soil borne wheat mosaïc virus | |

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| <u>Diagnostic Specificity</u> | |
| Proportion of uninfected/uninfested samples (true negatives) testing negative compared to results from a standard test | 75% |
| Specify the standard test | 72 samples agreement/96 |
| <u>Reproducibility</u> | |
| Provide the calculated % of agreement for a given level of the pest (see PM 7/98) | Not evaluated |
| <u>Repeatability</u> | |
| Provide the calculated % of agreement for a given level of the pest (see PM 7/98) | 100% in the range of dilution described for analytical sensitivity |
| <u>Test performance study</u> | |
| Test performance study? | No |
| Include brief details of the test performance study and its output. If available, provide a link to published article/report | |
| <u>Other information</u> | |
| Any other information considered useful e.g. robustness, ease of performing the test, etc. | |