**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.

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| **Laboratory contact details** | Fera<br>Sand Hutton, YO41 1LZ York, United Kingdom |
| **Short description of the test** | Identification of Bemisia tabaci using crude DNA extraction and Loop-mediated isothermal amplification (LAMP) |
| **Date, reference of the validation report** | 2024-03-08 - Val/065 Identification of Bemisia tabaci using crude DNA extraction and Loop-mediated isothermal amplification (LAMP) |
| **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?** | no |
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| **Description of the test** | |
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| **Organism(s)** | Bemisia tabaci (BEMITA) |
| **Detection / identification** | identification |
| **Method(s)** | Molecular Extraction DNA RNA<br>Molecular LAMP |
| **Method: Molecular Extraction DNA RNA** | |
| ***Reference of the test description*** | |
| **As or adapted from an EPPO diagnostic protocol** | no |
| **New test being considered for inclusion in the next version of the EPPO diagnostic protocol?** | no |
| **As or adapted from an IPPC diagnostic protocol** | no |
| **Reference of the test** | Alkaline (KOH) lysis method (Blaser et al., 2018). |
| **Is the test modified compared to the reference test** | no |
| ***Kit*** | |
| **Is a kit used** | no |
| ***Other information*** | |
| **Method: Molecular LAMP** | |

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| ***Reference of the test description*** | |
| **As or adapted from an EPPO diagnostic protocol** | no |
| **New test being considered for inclusion in the next version of the EPPO diagnostic protocol?** | no |
| **As or adapted from an IPPC diagnostic protocol** | no |
| **Reference of the test** | Blaser et al., 2018. |
| **Is the test modified compared to the reference test** | yes The LAMP assay for the identification of B. tabaci was developed by Blaser et al. (2018). At FERA, this assay was further validated to use crude extraction methods like Chelex and KOH, followed by targeted gene amplification using duplex and triplex LAMP kits provided by Optigene Ltd. |
| ***Kit*** | |
| **Is a kit used** | yes |
| **Manufacturer name** | OptiGene |
| **Specify the kit used** | Bemisia tabaci LAMP kit |
| Kit used following the manufacturer's instructions? | yes |
| ***Other information*** | |
| **Reaction type** | Duplex - Triplex |
| **Performance Criteria :** | |
| **Organism 1.:** | **Bemisia tabaci(BEMITA)** |
| **Analytical sensitivity** | |
| **What is smallest amount of target that can be detected reliably?** | Single insect sample |
| **Diagnostic sensitivity** | |
| **Proportion of infected/infested samples tested positive compared to results from the standard test, see appendix 2 of PM 7/98** | 100% |
| **Standard test(s)** | Fera lab taxonomy identification |
| **Analytical specificity - inclusivity** | |
| **Number of strains/populations of target organisms tested** | 3 species of B. tabaci were tested- MEAM1, MED and Asia1 |
| **Specificity value** | 100% |
| **Analytical specificity - exclusivity** | |
| **Number of non-target organisms tested** | 6 non-target species were tested |
| **Specificity value** | 100% |
| **Diagnostic Specificity** | |
| **Proportion of uninfected/uninfested samples (true negatives) testing negative compared to results from a standard test** | 100% (Fera lab validation) |

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| **Specify the test(s)** | Fera lab Entomological identification |
| **Reproducibility** | |
| **Provide the calculated % of agreement for a given level of the pest (see PM 7/98)** | 100% (Fera lab validation) |
| **Repeatability** | |
| **Provide the calculated % of agreement for a given level of the pest (see PM 7/98)** | 100% (Fera lab validation) |
| **Test performance study** | |
| **Test performance study?** | no |
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| The following complementary files are available online: | • Identification of Bemisia tabaci using crude DNA extraction and Loop-mediated isothermal amplification (LAMP) |

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