

Validation Report: ELISA

SRA 38900 • *Tomato leaf curl New Delhi virus-Cucurbit* (ToLCNDV-Cucurbit)



Test Characteristics

| | | | |
|-----------------------|---|---------------------------|---------------------|
| Test Name | Tomato leaf curl New Delhi virus-Cucurbit | Capture Antibody | Polyclonal (Rabbit) |
| Catalog Number | 38900 | Detection Antibody | Polyclonal (Rabbit) |
| Acronym | ToLCNDV-Cucurbit | Format | DAS-ELISA |
| Genus | Begomovirus | Diluents | GEB/ECI |
| | | Sample Dilution | 1:10 |

Summary

This ELISA test is a qualitative serological assay for the detection of Tomato leaf curl New Delhi virus (ToLCNDV) in cucurbit leaves. ToLCNDV is a member of the Begomovirus genus known for their transmission by whiteflies. ToLCNDV has been reported in European and Asian growing regions and is on the EPPO Alert list.

Diagnostic Sensitivity

| | |
|--------------------------|-------|
| True Positives | 15 |
| Correct Diagnoses | 14 |
| Percent | 93.3% |

Analytical Sensitivity

Limit of Detection: 1:2,430 dilution of infected tissue (pathogen titer unknown)

Analytical Specificity

Inclusivity:

This assay was designed to detect all strains and isolates of ToLCNDV-cucurbit. Twelve distinct samples of ToLCNDV-cucurbit have been experimentally proven to be detected including samples of PV-1109 (Spain) and PV-1111 (Spain).

Exclusivity:

Cross-reacts With:

| | |
|-------------------------------------|--|
| African cassava mosaic virus (ACMV) | Bean golden mosaic virus (BGMV) |
| Squash leaf curl virus (SLCV) | Tomato yellow leaf curl virus (TYLCV) ¹ |

¹One out of four samples gave a low level positive reaction. High titer samples may cross react.

Does Not Cross-react With:

| | |
|--|---|
| Cucumber green mottle mosaic virus (CGMMV) | Cucumber mosaic virus (CMV) |
| Cucumber mosaic virus - subgroup I (CMV-I) | Kyuri green mottle mosaic virus (KGMMV) |
| Impatiens necrotic spot virus (INSV) | Melon necrotic spot virus (MNSV) |
| Papaya ringspot virus (PRSV) | Squash mosaic virus (SqMV) |
| Tobacco mosaic virus (TMV) | Tobacco ringspot virus (TRSV) |
| Tobacco streak virus (TSV) | Tomato mosaic virus (ToMV) |
| Tomato ringspot virus (ToRSV) | Tomato spotted wilt virus (TSWV) |
| Tomato yellow leaf curl virus (TYLCV) ¹ | |

¹Three out of four samples did not cross-react. High titer samples may cross react.



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Diagnostic Specificity

True Negatives 49
Correct Diagnoses 49
Percent 100%

Selectivity:

| No Matrix Effect Observed With: | | | |
|---------------------------------|-------------------|-----------------------|--------------|
| Cantaloupe leaves | Cucumber leaves | Honeydew melon leaves | Melon leaves |
| Squash leaves | Watermelon leaves | Zucchini leaves | |

| Matrix Effect Observed With: | | | |
|--|----------------------------|--|--|
| Pepper leaves ¹ | Tomato leaves ² | | |
| ¹ Pepper tissue has been shown to consistently give high background and/or false positives. | | | |
| ² Tomato tissue has been shown to consistently give high background and/or false positives. | | | |

Repeatability

Number of Samples 10
Replicates per Sample 1
Average Percent Agreement
Between Replicates 100%

Reproducibility

Number of Samples 10
Replicates per Sample 1
Number of Operators 3
Average Percent Agreement Between
Replicates Between Operators 100%



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