

Validation report

DAS-ELISA CTV

Article No.: 151577 (CTV Complete kit 96) / 151575 (CTV Complete kit 480) / 151572 (CTV Complete kit 960)

General information:

Target Pathogen	CTV (Citrus tristeza virus)
Genus	<i>Closterovirus</i>
Method	DAS-ELISA

Technical information:

Antibodies	Polyclonal antibody developed against a CTV recombinant coat protein.
Sampling	1:20 (w/v) in extraction buffer "General". Sampling during prolonged hot weather should be avoided. Samples from distinct locations on the tree should be pooled.
Controls	Negative control (NC): lyophilized extracts from healthy plants Positive control (PC): lyophilized CTV infected plant extracts
Working volume	200 µl / well

Host matrix:

Tested plant material	Leaf, midribs of growing flushes, pedicels Virus can be transmitted by vectors (aphids, <i>Aphis gossypii</i> , <i>Aphis citricola</i> or <i>Toxoptera citricida</i>).
Tested species infected	<i>Citrus clementina</i> (Clementine) <i>Citrus latifolia</i> (Tahitian lime) <i>Citrus limon</i> (Lemon) <i>Citrus sinensis</i> (Orange) <i>Citrus tangelo</i> (Tangelo)

Specificity:

Analytical Specificity	100% (Valitest: 52%)
Number of tested samples from target organism (True Positives)	76
Diagnostic Specificity	100% (Valitest: 98%)
Number of tested samples non-target organism (True Negatives)	38
Detected isolates / geographic regions (Inclusivity)	CTV CCTEA 08-09 (US, Lemon) CTV CCTEA 00440 (US, Lemon) CTV CCTEA 00442 (US, Lemon) CTV CCTEA 00450 (US, Lemon) CTV CCTEA 00451 (US, Lemon) CTV CCTEA 00466 (US, Lemon) CTV CCTEA 0059 (US, Lemon) CTV CCTEA 02001 (US, Lemon) CTV CCTEA 106/107 (US, Lemon) CTV CCTEA 193 (US, Lemon) CTV CCTEA 46 (US, Lemon) CTV CCTEA 76 (US, Lemon) CTV CCTEA 99416 (US, Lemon)

	<p>CTV CCTEA 1 (US, Lemon) CTV CCTEA 2 (US, Lemon) CTV CCTEA SY 558 (US, Lemon) CTV CCTEA SY 568 (US, Lemon) CTV CCTEA T 505 (US, Lemon) CTV CCTEA T 511 (US, Lemon) CTV CCTEA T 514 (US, Lemon) CTV CCTEA T 519 (US, Lemon) CTV 7251 (US, Lemon) CTV 3448 (US, Lemon) CTV 5061 (US, Lemon) CTV 5075 (US, Lemon) CTV 5069 (US, Lemon) CTV CCTEA 200557 (US, Lemon) CTV CCTEA 1100392 (US, Lemon) CTV CCTEA 200654 (US, Lemon) CTV CCTEA 1100365 (US, Lemon) CTV CCTEA 9906839 (US, Lemon) CTV CCTEA 300859 (US, Lemon) CTV CCTEA 1102379 (US, Lemon) CTV CCTEA 9907020 (US, Lemon) CTV CCTEA 9906868 (US, Lemon) CTV CCTEA 9906816 (US, Lemon) CTV CCTEA 1102384 (US, Lemon) CTV CCTEA 1102334 (US, Lemon) CTV CCTEA 200510 (US, Lemon) CTV CCTEA 200552 (US, Lemon) CTV CCTEA 3611 (US, Lemon) CTV C1 04-19 (Reunion, Tangelo) CTV C2 04-19 (Reunion, Clementine) CTV W C3 04-19 (Reunion, Orange) CTV C4 04-19 (Reunion) CTV X C5 04-19 (Reunion, Lime) CTV PV-0332 (Israel, Lemon) CTV U C6 04-19 (Italy, Orange) CTV F1 C1 04-19 (Reunion, Tangelo & Orange) CTV C10 (Spain, Orange)</p>
Cross reaction with (Exclusivity)	None known
No cross reaction tested with (Exclusivity)	<p>CCV (Citrus variegation virus) CPsVa (Citrus psorosis virus A) CPsVb (Citrus psorosis virus B) Las (<i>Candidatus Liberibacter asiaticus</i>)</p>
No matrix effect observed with (Selectivity)	<p><i>Citrus clementina</i> (Clementine) <i>Citrus hystrix</i> (Combava, Kaffir lime) <i>Citrus latifolia</i> (Tahitian lime) <i>Citrus limon</i> (Lemon) <i>Citrus maxima</i> (Pomelo) <i>Citrus macrocarpa</i> (Calamondin) <i>Citrus reticulata sinensis</i> (Tangor) <i>Citrus sinensis</i> (Orange) <i>Citrus tangelo</i> (Tangelo)</p>

Sensitivity:

Diagnostic Sensitivity	100% (Valitest: 40%)
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Analytical Sensitivity / LoD	10 ⁻³ dilution of infected tissue (pathogen titer unknown) Valitest: Prepared freeze-dried ground leave extracts from naturally CTV-infected Citrus sp. Could be detected up to 10 ^{-1.56} dilution.
Sensitivity on host matrix	CTV on leaves of lemon: 1:6'250 dilution CTV on pedicels of lemon: 1:6'250 dilution Pathogen titer unknown
Other sensitivity characteristics	Valitest probability of detection (POD 95%): -1.558

Validation:

Internal validation	2014-2015, 2018 (last internal validation)
External validation	Validation by 1 external research partner (US) in 2015. Participation on EU H2020 project «Valitest» (n°773139) with these reagents (8 labs).
Reproducibility	100% (Valitest: 92%)
Repeatability	100% (Valitest: 99%)
Validation information	Internally, the reagents have been validated with the BIOREBA isolate collection composed of various samples collected within the last 30 years.

Validation release Date:
March, 28th, 2024

QC manager:



Version: 1 – 28.03.2024