Validation report

DAS-ELISA CGMMV

Article No.: 160777 (CGMMV Complete kit 96) / 160775 (CGMMV Complete kit 480) / 160772 (CGMMV Complete kit 960)

General information:

Target Pathogen	CGMMV (Cucumber green mottle mosaic virus / Tobamovirus viridimaculae)
Genus	*Tobamovirus*
Method	DAS-ELISA

Technical information:

Antibodies	Polyclonal antibodies developed against a CGMMV isolate from cucumber (origin: Germany)
Sampling	Leaf samples: 1:20 (w/v) in extraction buffer "general" Seed samples: 1:10 (w/v) in extraction buffer "general"
Controls	Negative control (NC): lyophilized extracts from healthy plants Positive control (PC): lyophilized CGMMV infected plant extracts
Working volume	200 µl / well

Host matrix:

Tested plant material	Leaf, seed Seed transmittable / mechanical transmittable
Tested species infected	*Citrullus lanatus* (Watermelon) *Cucumis sativus* (Cucumber) *Cucumis metuliferus* (Cucumber) *Cucumis melo* (Melon) *Cucurbita maxima* (Pumpkin) *Cucurbita pepo* (Squash, Zucchini) *Lagenaria siceraria* (Bottle gourd)

Specificity:

Analytical Specificity	94.73%
Number of tested samples from target organism (True Positives)	96
Diagnostic Specificity	94.73%
Number of tested samples non-target organism (True Negatives)	>100
Detected isolates / geographic regions (Inclusivity)	CGMMV MH271407 / CG001 (USA, 2013) CGMMV MH271408 / CG002 (USA, 2014) CGMMV MH271409 / CG003 (USA, 2014) CGMMV MH271410 / CG004 (USA, 2014) CGMMV MH271412 / CG006 (Israel) CGMMV MH271413 / CG007 (Europe) CGMMV MH271414 / CG008 (Europe) CGMMV MH271415 / CG009 (Europe) CGMMV MH271416 / CG010 (Europe) CGMMV MH271417 / CG011 (Europe) CGMMV MH271418 / CG012 (Europe) CGMMV MH271419 / CG013 (Europe)

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	CGMMV MH271420 / CG014 (Europe) CGMMV MH271421 / CG015 (Europe) CGMMV MH271424 / CG019 (Asia) CGMMV MH271425 / CG020 (Europe) CGMMV MH271426 / CG021 (Europe) CGMMV MH271427 / CG022 (Europe) CGMMV MH271428 / CG023 (Europe) CGMMV MH271430 / CG025 (Latvia) CGMMV MH271431 / CG026 (France) CGMMV MH271432 / CG027 (France) CGMMV MH271433 / CG028 (Bulgaria) CGMMV MH271434 / CG029 (Greece) CGMMV MH271435 / CG030 (Greece) CGMMV MH271436 / CG031 (Netherlands) CGMMV MH271437 / CG032 (Russia) CGMMV MH271438 / CG033 (Netherlands) CGMMV MH271439 / CG034 (Netherlands) CGMMV MH271440 / CG035 (Kuwait) CGMMV MH271441 / CG036 (Canada) CGMMV MH271443 / CG038 (China) CGMMV MK070867 / WGMMV (Canada, 2018) CGMMV Melon seeds CG002 (USA, 2014) CGMMV Watermelon seeds CG002 (USA, 2014) CGMMV PV-1293 (Israel, Cucumber) CGMMV PV-1294 (Israel, Watermelon) CGMMV PV-0159 (Unknown) CGMMV PV-0375 (Germany, Cucumber) CGMMV Bottle gourd-01 (USA, 2015) CGMMV Cucumber-01-03 (Switzerland, 2021) CGMMV 041-22-2 (Switzerland, 2022) CGMMV 041-22-3 (Switzerland, 2022) CGMMV ZZB-697 (The Netherlands, 2024) CGMMV ZZB-545 (The Netherlands, 2024)
Cross reaction with (Exclusivity)	WGMMV (Watermelon green mottle mosaic virus) ZGMMV (Zucchini Green mottle mosaic virus)
No cross reaction tested with (Exclusivity)	CaMV (Cauliflower mosaic virus) CCYV (Cucurbit chlorotic yellows virus) CMV (Cucumber mosaic virus) CYSDV (Cucumber yellow stunting disorder virus) PMMoV (Pepper mild mottle virus) PRSV (Papaya ringspot virus) PVX (Potato virus X) RaMV (Radish mosaic virus) SqMV (Squash mosaic virus) TMV (Tobacco mosaic virus) ToBRFV (Tomato brown rugose fruit virus) ToMV (Tomato mosaic virus) ToRSV (Tomato ringspot virus) TYLCV (Tomato yellow leaf curl virus) TYMV (Turnip yellow mosaic virus) WmCSV (Watermelon chlorotic stunt virus) WMV-2 (Watermelon mosaic virus-2) ZYMV (Zucchini yellow mosaic virus)
No matrix effect observed with (Selectivity)	*Citrullus lanatus* (Watermelon) *Cucumis sativus* (Cucumber) *Cucumis metuliferus* (Cucumber)

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	Cucumis melo (Melon) *Cucurbita maxima* (Pumpkin) *Cucurbita pepo* (Squash, Zucchini) *Lagenaria siceraria* (Bottle gourd) *Momordica charantia* (Bitter melon) *Nicotiana occidentalis* (Tobacco) *Sinapis* spp. (Mustard) *Solanum lycopersicum* (Tomato)

Sensitivity:

Diagnostic Sensitivity	100%
Analytical Sensitivity / LoD	10^{-5} dilution of infected tissue (pathogen titer unknown).
Sensitivity on host matrix	CGMMV on leaves of cucumber: 1:781'250 dilution CGMMV on seeds of pumpkin: 1:6'250 dilution Pathogen titer unknown
Other sensitivity characteristics	PV-1293: detected up to 1:4.3*10^-6 dilution PV-1294: detected up to 1.5*10^-6 dilution PV-0159: detected up to 6.5*10^-7 dilution PV-0375: detected up to 6.5*10^-7 dilution

Validation:

Internal validation	2018/2019, 2021, 2025 (last internal validation)
External validation	Validation by external research partner in 2019 (US) and an interlaboratory comparison in 2021 (US). 1 proficiency test (PT) in 2024 (The Netherlands).
Reproducibility	100% (BIOREBA)
Repeatability	100% (BIOREBA)
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:
October, 13th, 2021

QC manager:

Version: 3 – 28.07.2026 - Adaptations from last version: New information for specificity, sensitivity and validation added.

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