GERMAGIC Thyme (MAP-1) 已通過世界各大權威測試認證 – 美國 (1)

美國 MICROBAC
美國 A2LA、香港 ILAC-MRA HOKLAS互相認可及 ISO 17025 認可測試機構

利用 ASTM E1053-20 測試方法
及直接使用 2019新冠肺炎病毒 (SARS-CoV-2)
證明對 2019新冠肺炎病毒 有效

MICROBAC®

CONFIDENTIAL FINAL REPORT

SPONSOR:	Chiaphua Industries Limited
SPONSOR'S REPRESENTATIVE:	Ian Van Trump
STUDY TITLE:	VIRUCIDAL HARD-SURFACE EFFICACY TEST – Severe Acute Respiratory Syndrome-related Coronavirus 2 (SARS-CoV-2) (COVID-19 Virus)
STUDY IDENTIFICATION:	Microbac Project No. 1025-101 (refer to signed Protocol No. CHIA.1.05.29.20)

TEST AGENT NAME	LOT NO.	ACTIVE INGREDIENTS	DATE RECEIVED	DS NO.
Germagic Thyme	GMTP-HKUST2020060201	Thyme Essential Oil, Polyethylenimine, Polyhexanide	06/18/20	K858
	GMTP-HKUST2020060901		06/18/20	K859

CHALLENGE ORGANISM:	SARS-CoV-2 (COVID-19 Virus), Strain: USA-WA1/2020, Source: BEI Resources, NR-52281
HOST CELL LINE:	Vero E6 cells, ATCC CRL-1586
DILUTION MEDIUM:	Minimum Essential Medium (MEM) + 2% Newborn Calf Serum (NCS)
NEUTRALIZER:	MEM + 10% NCS + 0.5% Lecithin + 1 mM EDTA
CONTACT TIME:	9 minutes 55 seconds
CONTACT TEMPERATURE:	Room Temperature (20±1°C, Actual: 21°C)
RELATIVE HUMIDITY:	48-49% RH
NUMBER OF REPLICATES:	1 replicate (four wells per dilution)

Microbac Laboratories, Inc.
105 Carpenter Drive | Sterling, VA 20164 | 703.925.0100 p | 703.925.9366 f | www.microbac.com

RESULTS (continued):

Table 6
Virus Stock Titer Control (VST)

Dilution*	VST
10^{-4}	4/4
10^{-5}	4/4
10^{-6}	4/4
10^{-7}	3/4
10^{-8}	0/4
10^{-9}	0/4
Titer (Log_{10} $TCID_{50}$/mL)	7.25

*Dilution refers to the fold of dilution from the virus inoculum.

CONCLUSION:

According to the US Environmental Protection Agency, the test agent passes the Virucidal Hard-Surface Efficacy Test if the product demonstrates a ≥ 3 log_{10} reduction on each surface in the presence or absence of cytotoxicity. When cytotoxicity is present, the virus control titer should be increased, if necessary, to demonstrate a ≥ 3 log_{10} reduction in viral titer on each surface beyond the cytotoxic level.

- Germagic Thyme, Lot No. GMTP-HKUST2020060201: **passed**
- Germagic Thyme, Lot No. GMTP-HKUST2020060901: **passed**

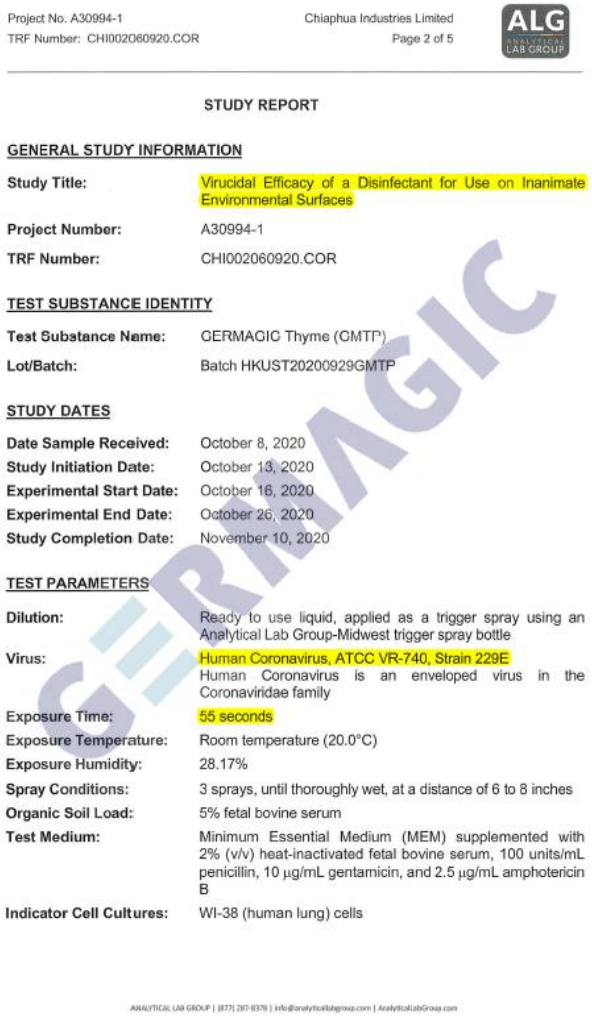
The viral reductions for the test agent are presented in Table 2. All controls met the criteria for a valid test. These conclusions are based on observed data.

Study Director: Cameron Wilde 10/08/2020
Date

GERMAGIC Thyme (MAP-1) 已通過世界各大權威測試認證 – 美國 (2)

美國 ALG
US EPA 及 US FDA 認可實驗室

利用 ASTM E1053-20 測試方法
證明最快 55秒 便對 冠狀病毒 有效



STUDY REPORT

GENERAL STUDY INFORMATION

Study Title:	Virucidal Efficacy of a Disinfectant for Use on Inanimate Environmental Surfaces
Project Number:	A30994-1
TRF Number:	CHI002060920.COR

TEST SUBSTANCE IDENTITY

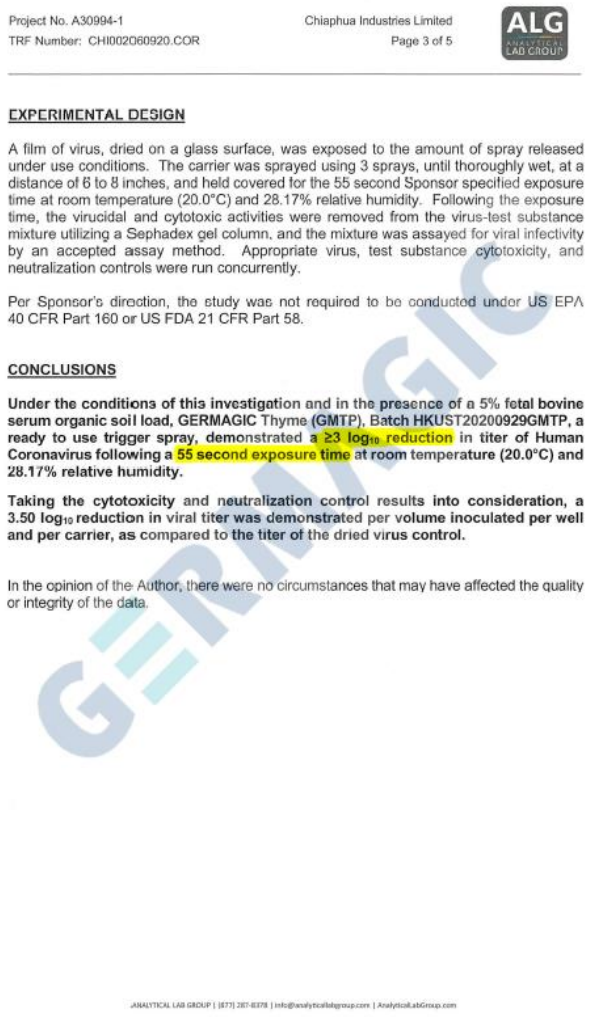
Test Substance Name:	GERMAGIC Thyme (GMTP)
Lot/Batch:	Batch HKUST20200929GMTP

STUDY DATES

Date Sample Received:	October 8, 2020
Study Initiation Date:	October 13, 2020
Experimental Start Date:	October 16, 2020
Experimental End Date:	October 26, 2020
Study Completion Date:	November 10, 2020

TEST PARAMETERS

Dilution:	Ready to use liquid, applied as a trigger spray using an Analytical Lab Group-Midwest trigger spray bottle
Virus:	Human Coronavirus, ATCC VR-740, Strain 229E Human Coronavirus is an enveloped virus in the Coronaviridae family
Exposure Time:	55 seconds
Exposure Temperature:	Room temperature (20.0°C)
Exposure Humidity:	28.17%
Spray Conditions:	3 sprays, until thoroughly wet, at a distance of 6 to 8 inches
Organic Soil Load:	5% fetal bovine serum
Test Medium:	Minimum Essential Medium (MEM) supplemented with 2% (v/v) heat-inactivated fetal bovine serum, 100 units/mL penicillin, 10 µg/mL gentamicin, and 2.5 µg/mL amphotericin B
Indicator Cell Cultures:	WI-38 (human lung) cells



EXPERIMENTAL DESIGN

A film of virus, dried on a glass surface, was exposed to the amount of spray released under use conditions. The carrier was sprayed using 3 sprays, until thoroughly wet, at a distance of 6 to 8 inches, and held covered for the 55 second Sponsor specified exposure time at room temperature (20.0°C) and 28.17% relative humidity. Following the exposure time, the virucidal and cytotoxic activities were removed from the virus-test substance mixture utilizing a Sephadex gel column, and the mixture was assayed for viral infectivity by an accepted assay method. Appropriate virus, test substance cytotoxicity, and neutralization controls were run concurrently.

Per Sponsor's direction, the study was not required to be conducted under US EPA 40 CFR Part 160 or US FDA 21 CFR Part 58.

CONCLUSIONS

Under the conditions of this investigation and in the presence of a 5% fetal bovine serum organic soil load, GERMAGIC Thyme (GMTP), Batch HKUST20200929GMTP, a ready to use trigger spray, demonstrated a ≥3 log_{10} reduction in titer of Human Coronavirus following a 55 second exposure time at room temperature (20.0°C) and 28.17% relative humidity.

Taking the cytotoxicity and neutralization control results into consideration, a 3.50 log_{10} reduction in viral titer was demonstrated per volume inoculated per well and per carrier, as compared to the titer of the dried virus control.

In the opinion of the Author, there were no circumstances that may have affected the quality or integrity of the data.

GERMAGIC Thyme (MAP-1) 已通過世界各大權威測試認證 – 澳洲 (1)

澳洲 Eurofins
澳洲 NATA、香港 ILAC-MRA HOKLAS互相認可
及 ISO 17025 認可測試機構

證明 通過 澳洲 TGA 嚴苛醫療級消毒劑 要求

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Certificate of Analysis

Page 1 of 2
Analytical Report: AAL32516
Eurofins Sample Number: NJ20AB4408-1
Version: 1

Client Account Number: A00930613B94
Eurofins Quote Number: XC8UPH20022702

Chiaphua Industries Limited
Unit A, 2/F, Chiaphua Industries Building
Nos 8-10 Siu Lek Yuen Road
Shatin, New Territories,
HK

Eurofins Sample Number NJ20AB4408-1	
Original Received Date:	06-Nov-2020
Description:	GERMAGIC Thyme; 200mL
Lot Number:	HKUST2020102301GMTP
Containers Submitted:	1 Bottle(s)

Analysis	Result
Disinfectant Test- TGA Option B	See Attached Report for Result
Refer to Attachment # 1	----
Method: TMD 122 Analysis Date: 11-Nov-2020	

Supplemental Information

Samples were tested as received. Specifications (if) reported are as provided by the client.

Contracted Company: Eurofins ams Laboratories Sydney

8, Rachael Close, Silverwater, NSW 2128 Australia
amslabs@eurofins.com

TGA Licence No: MI-15112007-LI-002191-11 APVMA Licence No: 6139
Questions about this report should be directed to your project manager or the general email listed above.

Reviewed and electronically signed for Data Reviewer Approval by
Teresa Susanto, Laboratory Manager- Sterility
for Eurofins ams Laboratories Pty Ltd, on 03-Dec-2020 16:22:04 UTC+11:00

Examination	TGA Disinfectant Test, Option B
Product Concentration	Neat
Contact Time	8 Minutes

RESULTS:

Test Date	Organisms	Subculture No.	Inoculum CFU/mL	1st Challenge	2nd Challenge	Controls
17/11/2020	*S. aureus*	7	6.20×10^8	-----	-----	C1 –
	E.coli	5	1.33×10^9	-----	-----	C2 –
	P. aeruginosa	5	4.10×10^8	-----	-----	C3 + + + +
	P.vulgaris	10	8.40×10^8	-----	-----	C4 + + + +
18/11/2020	*S. aureus*	8	6.80×10^8	-----	-----	C1 –
	E.coli	6	1.02×10^9	-----	-----	C2 –
	P. aeruginosa	6	3.95×10^8	-----	-----	C3 + + + +
	P.vulgaris	11	9.65×10^8	-----	-----	C4 + + + +
19/11/2020	*S. aureus*	9	6.90×10^8	-----	-----	C1 –
	E.coli	7	8.50×10^8	-----	-----	C2 –
	P. aeruginosa	7	4.30×10^8	-----	-----	C3 + + + +
	P.vulgaris	12	7.05×10^8	-----	-----	C4 + + + +

Where
"–" Denotes No Growth
"+" Denotes Growth
"C1" Denotes media sterility check. Must be negative for a valid result
"C2" Denotes sample sterility check. Must be negative for a valid result
"C3" Denotes organism viability check. Must be positive for a valid result
"C4" Denotes neutralizer toxicity check. Must be positive for a valid result

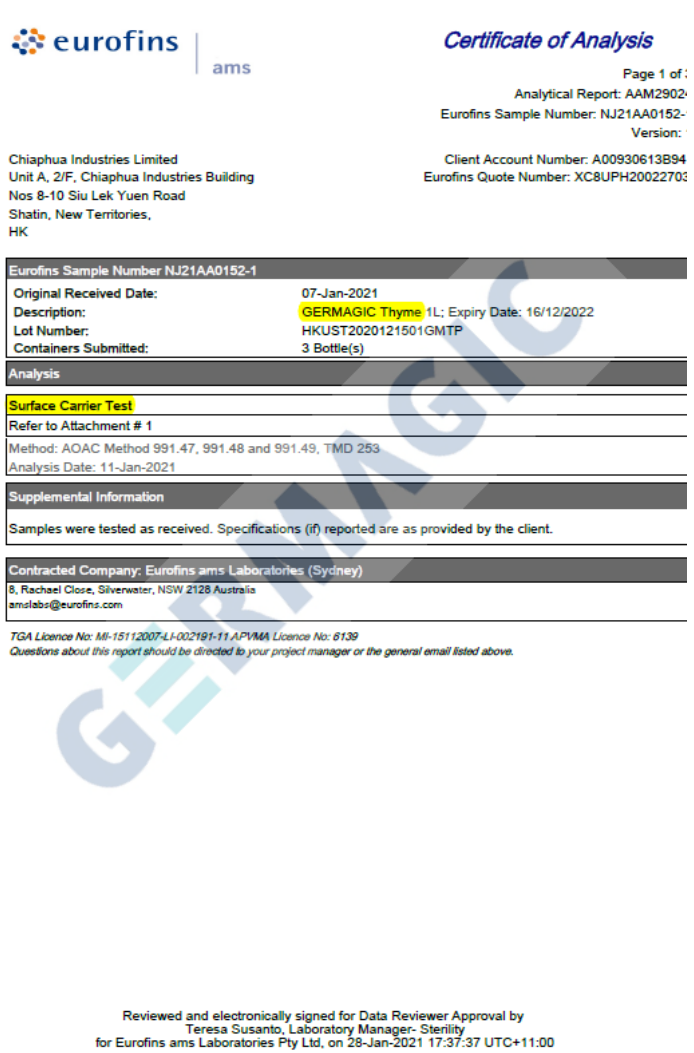
FINAL RESULTS:

The sample has passed the TGA Disinfectant Test, Option B when tested under the conditions described above.

GERMAGIC Thyme (MAP-1) 已通過世界各大權威測試認證 – 澳洲 (2)

澳洲 Eurofins
澳洲 NATA、香港 ILAC-MRA HOKLAS互相認可及 ISO 17025 認可測試機構

證明 通過
國際 AOAC 991.47, AOAC 991.48 和 AOAC 991.49 要求



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Certificate of Analysis

Page 1 of
Analytical Report: AAM2902
Eurofins Sample Number: NJ21AA0152-
Version:

Client Account Number: A00930613B94
Eurofins Quote Number: XC8UPH20022703

Chiaphua Industries Limited
Unit A, 2/F, Chiaphua Industries Building
Nos 8-10 Siu Lek Yuen Road
Shatin, New Territories,
HK

Eurofins Sample Number NJ21AA0152-1

Original Received Date:	07-Jan-2021
Description:	GERMAGIC Thyme 1L; Expiry Date: 16/12/2022
Lot Number:	HKUST20201215O1GMTP
Containers Submitted:	3 Bottle(s)

Analysis

Surface Carrier Test

Refer to Attachment # 1

Method: AOAC Method 991.47, 991.48 and 991.49, TMD 253
Analysis Date: 11-Jan-2021

Supplemental Information

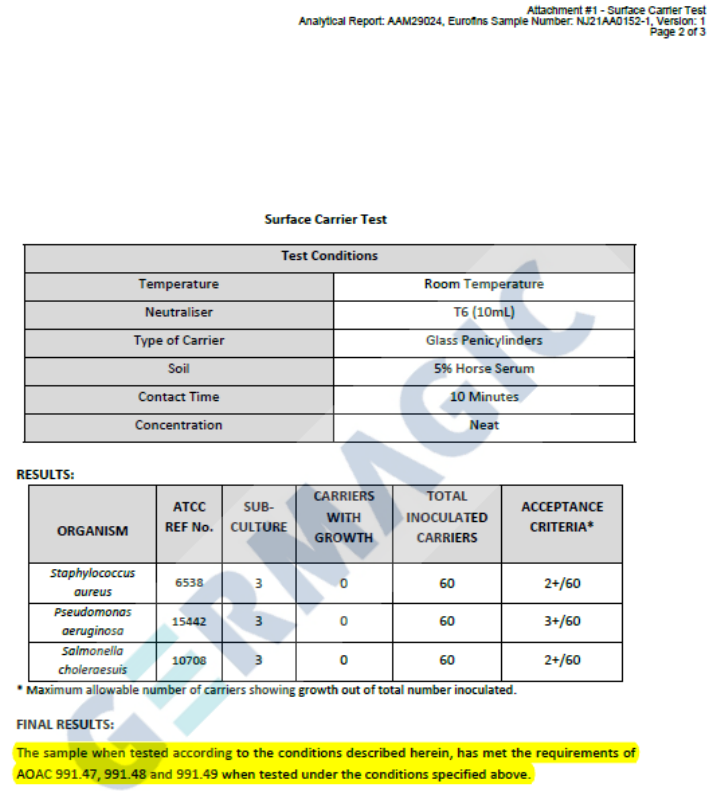
Samples were tested as received. Specifications (if) reported are as provided by the client.

Contracted Company: Eurofins ams Laboratories (Sydney)

8, Rachael Close, Silverwater, NSW 2128 Australia
amslabs@eurofins.com

TGA Licence No: MI-1511207-LI-002191-11 APVMA Licence No: 6139
Questions about this report should be directed to your project manager or the general email listed above.

Reviewed and electronically signed for Data Reviewer Approval by
Teresa Susanto, Laboratory Manager- Sterility
for Eurofins ams Laboratories Pty Ltd, on 28-Jan-2021 17:37:37 UTC+11:00



Attachment #1 - Surface Carrier Test
Analytical Report: AAM29024, Eurofins Sample Number: NJ21AA0152-1, Version: 1
Page 2 of 3

Surface Carrier Test

Test Conditions	
Temperature	Room Temperature
Neutraliser	T6 (10mL)
Type of Carrier	Glass Penicylinders
Soil	5% Horse Serum
Contact Time	10 Minutes
Concentration	Neat

RESULTS:

ORGANISM	ATCC REF No.	SUB-CULTURE	CARRIERS WITH GROWTH	TOTAL INOCULATED CARRIERS	ACCEPTANCE CRITERIA*
Staphylococcus aureus	6538	3	0	60	2+/60
Pseudomonas aeruginosa	15442	3	0	60	3+/60
Salmonella choleraesuis	10708	3	0	60	2+/60

* Maximum allowable number of carriers showing growth out of total number inoculated.

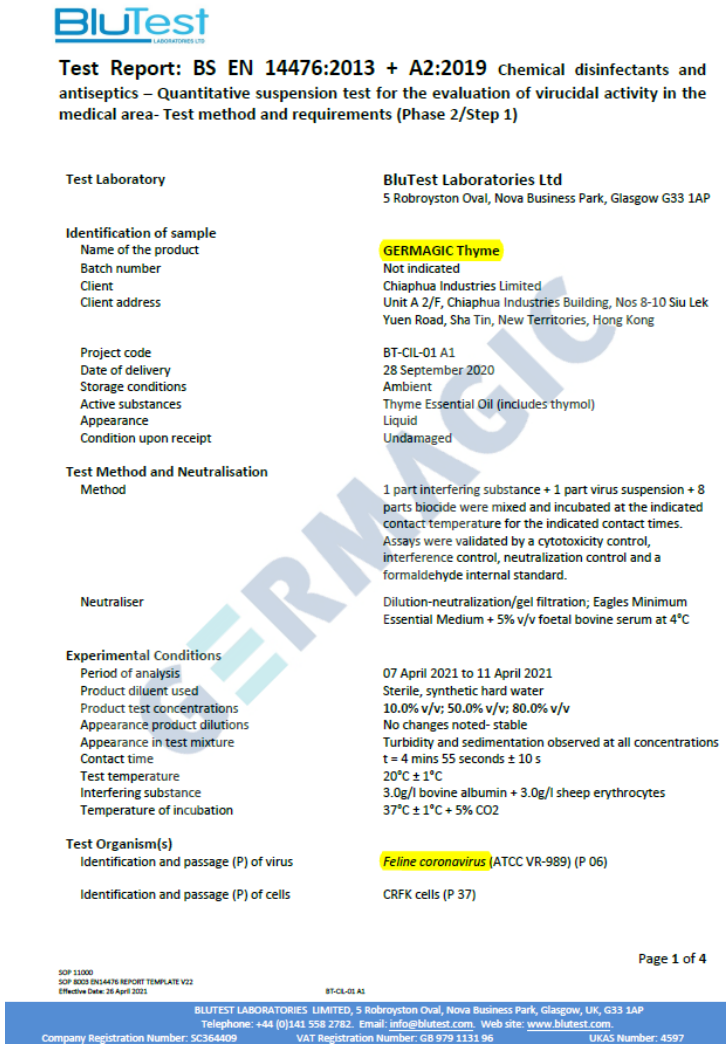
FINAL RESULTS:

The sample when tested according to the conditions described herein, has met the requirements of AOAC 991.47, 991.48 and 991.49 when tested under the conditions specified above.

GERMAGIC Thyme (MAP-1) 已通過世界各大權威測試認證 – 歐盟 (1)

英國 Blutest
英國 UKAS、香港 ILAC-MRA HOKLAS互相認可
及 ISO 17025 認可測試機構

利用 EN 14476 測試方法
證明對 冠狀病毒、
2019新冠肺炎病毒 及其 變異株 有效

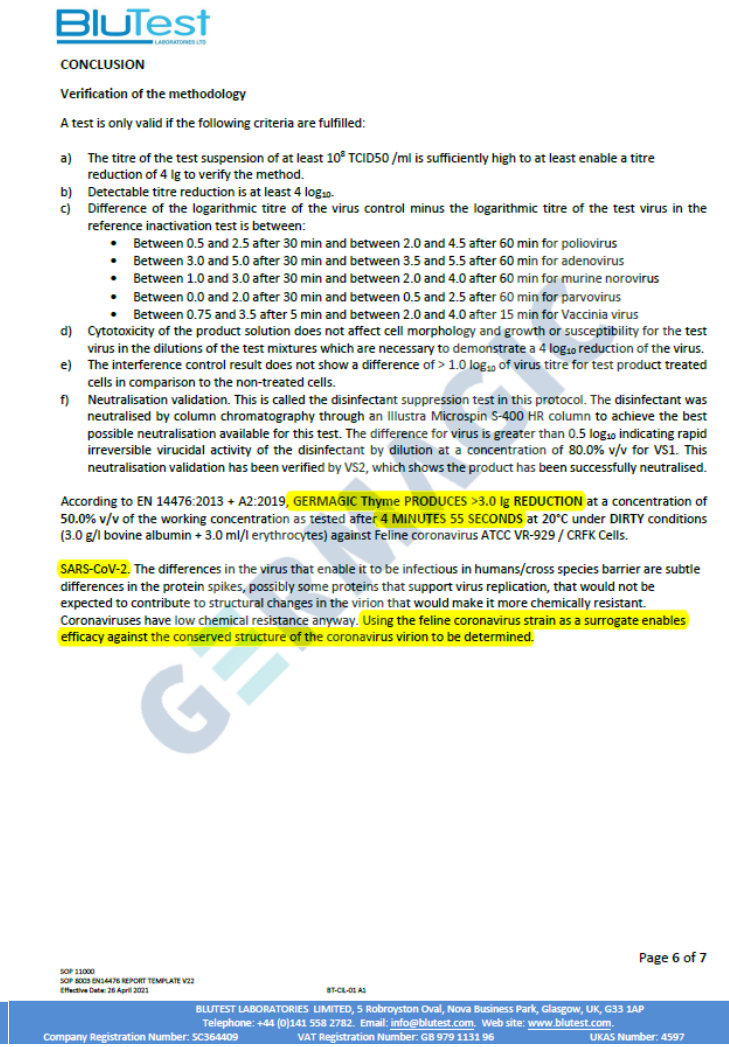


BluTest

Test Report: BS EN 14476:2013 + A2:2019 Chemical disinfectants and antiseptics – Quantitative suspension test for the evaluation of virucidal activity in the medical area- Test method and requirements (Phase 2/Step 1)

Test Laboratory	**BluTest Laboratories Ltd** 5 Robroyston Oval, Nova Business Park, Glasgow G33 1AP
Identification of sample	
Name of the product	GERMAGIC Thyme
Batch number	Not indicated
Client	Chiaphua Industries Limited
Client address	Unit A 2/F, Chiaphua Industries Building, Nos 8-10 Siu Lek Yuen Road, Sha Tin, New Territories, Hong Kong
Project code	BT-CIL-01 A1
Date of delivery	28 September 2020
Storage conditions	Ambient
Active substances	Thyme Essential Oil (includes thymol)
Appearance	Liquid
Condition upon receipt	Undamaged
Test Method and Neutralisation	
Method	1 part interfering substance + 1 part virus suspension + 8 parts biocide were mixed and incubated at the indicated contact temperature for the indicated contact times. Assays were validated by a cytotoxicity control, interference control, neutralization control and a formaldehyde internal standard.
Neutraliser	Dilution-neutralization/gel filtration; Eagles Minimum Essential Medium + 5% v/v foetal bovine serum at 4°C
Experimental Conditions	
Period of analysis	07 April 2021 to 11 April 2021
Product diluent used	Sterile, synthetic hard water
Product test concentrations	10.0% v/v; 50.0% v/v; 80.0% v/v
Appearance product dilutions	No changes noted- stable
Appearance in test mixture	Turbidity and sedimentation observed at all concentrations
Contact time	t = 4 mins 55 seconds ± 10 s
Test temperature	20°C ± 1°C
Interfering substance	3.0g/l bovine albumin + 3.0g/l sheep erythrocytes
Temperature of incubation	37°C ± 1°C + 5% CO2
Test Organism(s)	
Identification and passage (P) of virus	*Feline coronavirus* (ATCC VR-989) (P 06)
Identification and passage (P) of cells	CRFK cells (P 37)

BLUTEST LABORATORIES LIMITED, 5 Robroyston Oval, Nova Business Park, Glasgow, UK, G33 1AP
Telephone: +44 (0)141 558 2782. Email: info@blutest.com. Web site: www.blutest.com.
Company Registration Number: SC364409 VAT Registration Number: GB 979 1131 96 UKAS Number: 4597



BluTest

CONCLUSION

Verification of the methodology

A test is only valid if the following criteria are fulfilled:

a) The titre of the test suspension of at least 10^8 TCID50 /ml is sufficiently high to at least enable a titre reduction of 4 lg to verify the method.
b) Detectable titre reduction is at least 4 $\log_{10}$.
c) Difference of the logarithmic titre of the virus control minus the logarithmic titre of the test virus in the reference inactivation test is between:
   - Between 0.5 and 2.5 after 30 min and between 2.0 and 4.5 after 60 min for poliovirus
   - Between 3.0 and 5.0 after 30 min and between 3.5 and 5.5 after 60 min for adenovirus
   - Between 1.0 and 3.0 after 30 min and between 2.0 and 4.0 after 60 min for murine norovirus
   - Between 0.0 and 2.0 after 30 min and between 0.5 and 2.5 after 60 min for parvovirus
   - Between 0.75 and 3.5 after 5 min and between 2.0 and 4.0 after 15 min for Vaccinia virus
d) Cytotoxicity of the product solution does not affect cell morphology and growth or susceptibility for the test virus in the dilutions of the test mixtures which are necessary to demonstrate a 4 $\log_{10}$ reduction of the virus.
e) The interference control result does not show a difference of > 1.0 $\log_{10}$ of virus titre for test product treated cells in comparison to the non-treated cells.
f) Neutralisation validation. This is called the disinfectant suppression test in this protocol. The disinfectant was neutralised by column chromatography through an Illustra Microspin S-400 HR column to achieve the best possible neutralisation available for this test. The difference for virus is greater than 0.5 $\log_{10}$ indicating rapid irreversible virucidal activity of the disinfectant by dilution at a concentration of 80.0% v/v for VS1. This neutralisation validation has been verified by VS2, which shows the product has been successfully neutralised.

According to EN 14476:2013 + A2:2019, GERMAGIC Thyme PRODUCES >3.0 lg REDUCTION at a concentration of 50.0% v/v of the working concentration as tested after 4 MINUTES 55 SECONDS at 20°C under DIRTY conditions (3.0 g/l bovine albumin + 3.0 ml/l erythrocytes) against Feline coronavirus ATCC VR-929 / CRFK Cells.

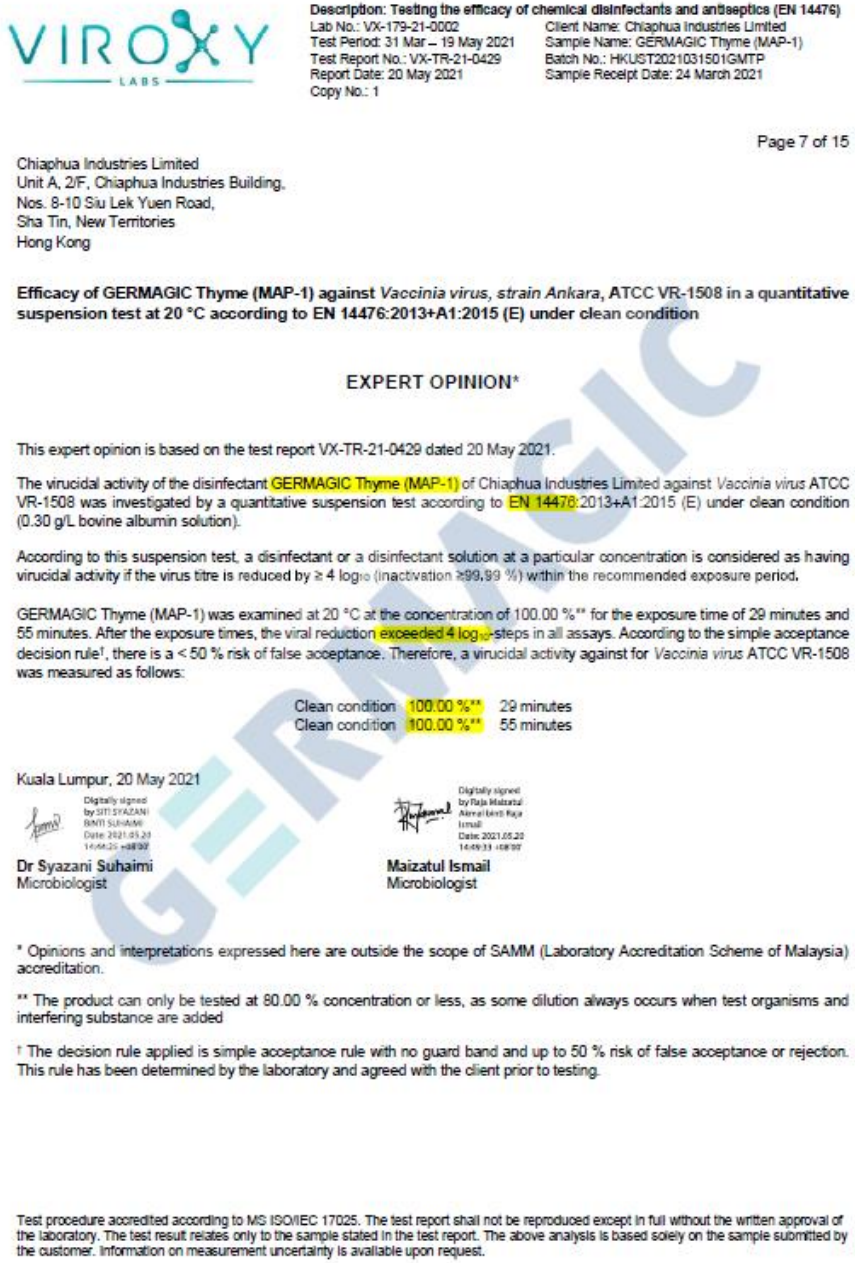
SARS-CoV-2. The differences in the virus that enable it to be infectious in humans/cross species barrier are subtle differences in the protein spikes, possibly some proteins that support virus replication, that would not be expected to contribute to structural changes in the virion that would make it more chemically resistant. Coronaviruses have low chemical resistance anyway. Using the feline coronavirus strain as a surrogate enables efficacy against the conserved structure of the coronavirus virion to be determined.

BLUTEST LABORATORIES LIMITED, 5 Robroyston Oval, Nova Business Park, Glasgow, UK, G33 1AP
Telephone: +44 (0)141 558 2782. Email: info@blutest.com. Web site: www.blutest.com.
Company Registration Number: SC364409 VAT Registration Number: GB 979 1131 96 UKAS Number: 4597

GERMAGIC Thyme (MAP-1) 已通過世界各大權威測試認證 – 歐盟 (2)

馬來西亞 Viroxy
馬來西亞 SAMM、香港 ILAC-MRA HOKLAS互相認可
及 ISO 17025 認可測試機構

利用 EN 14476 測試方法
證明對 所有 有包膜病毒、
包括 2019新冠肺炎病毒 及其 變異株 有效



VIROXY LABS

Description: Testing the efficacy of chemical disinfectants and antiseptics (EN 14476)
Lab No.: VX-179-21-0002 | Client Name: Chiaphua Industries Limited
Test Period: 31 Mar – 19 May 2021 | Sample Name: GERMAGIC Thyme (MAP-1)
Test Report No.: VX-TR-21-0429 | Batch No.: HKUST2021031501GMTP
Report Date: 20 May 2021 | Sample Receipt Date: 24 March 2021
Copy No.: 1

Page 7 of 15

Chiaphua Industries Limited
Unit A, 2/F, Chiaphua Industries Building,
Nos. 8-10 Siu Lek Yuen Road,
Sha Tin, New Territories
Hong Kong

Efficacy of GERMAGIC Thyme (MAP-1) against *Vaccinia virus, strain Ankara*, ATCC VR-1508 in a quantitative suspension test at 20 °C according to EN 14476:2013+A1:2015 (E) under clean condition

EXPERT OPINION*

This expert opinion is based on the test report VX-TR-21-0429 dated 20 May 2021.

The virucidal activity of the disinfectant GERMAGIC Thyme (MAP-1) of Chiaphua Industries Limited against *Vaccinia virus* ATCC VR-1508 was investigated by a quantitative suspension test according to EN 14476:2013+A1:2015 (E) under clean condition (0.30 g/L bovine albumin solution).

According to this suspension test, a disinfectant or a disinfectant solution at a particular concentration is considered as having virucidal activity if the virus titre is reduced by ≥ 4 $\log_{10}$ (inactivation ≥99.99 %) within the recommended exposure period.

GERMAGIC Thyme (MAP-1) was examined at 20 °C at the concentration of 100.00 %** for the exposure time of 29 minutes and 55 minutes. After the exposure times, the viral reduction exceeded 4 $\log_{10}$-steps in all assays. According to the simple acceptance decision rule†, there is a < 50 % risk of false acceptance. Therefore, a virucidal activity against for *Vaccinia virus* ATCC VR-1508 was measured as follows:

Clean condition	100.00 %**	29 minutes
Clean condition	100.00 %**	55 minutes

Kuala Lumpur, 20 May 2021

Digitally signed by SITI SYAZANI BINTI SUHAIMI Date: 2021.05.20 14:44:26 +08'00'

Dr Syazani Suhaimi
Microbiologist

Digitally signed by Raja Maizatul Akmal binti Raja Ismail Date: 2021.05.20 14:49:33 +08'00'

Maizatul Ismail
Microbiologist

* Opinions and interpretations expressed here are outside the scope of SAMM (Laboratory Accreditation Scheme of Malaysia) accreditation.

** The product can only be tested at 80.00 % concentration or less, as some dilution always occurs when test organisms and interfering substance are added

† The decision rule applied is simple acceptance rule with no guard band and up to 50 % risk of false acceptance or rejection. This rule has been determined by the laboratory and agreed with the client prior to testing.

Test procedure accredited according to MS ISO/IEC 17025. The test report shall not be reproduced except in full without the written approval of the laboratory. The test result relates only to the sample stated in the test report. The above analysis is based solely on the sample submitted by the customer. Information on measurement uncertainty is available upon request.

GERMAGIC