



NATIONAL INSTITUTE OF HYGIENE AND EPIDEMIOLOGY

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EVALUATING RESULTS OF THE ABILITY TO INHIBIT SARS-COV-2 VIRUS OF EXMICROR PLUS SOLUTION

1. PRODUCT NAME

Sample Name : EXMICROR PLUS solution

Ingredients : Active ingredients extracted from citrus seeds (Acid Citric 0,1%; Ascorbic Acid 0,1%; Glycerin 0,1%; pure distilled water 99,7%)

Manufacturer : Biorgánico Robech — Mexico

Manufacturing Date : 15/06/2021

Production Batch : 08

Expiry date : 2 years from date of manufacture

Test sample concentration : original concentration, 1:5; 1:12 and 1:15 dilution

Number of samples to be tested: 2 bottles of 120 ml

Number of samples stored: : 2 bottles of 120 ml

2. TESTING PURPOSES

- To evaluate SARS-CoV-2 virus inhibitory activation of EXMICROR PLUS solution
- To evaluate the safety of EXMICROR PLUS solution

3. REQUESTING UNIT FOR TESTING

Vietnam International Cooperation Joint Stock Company Inteco
Address: Lot 3, C6 Dinh Công New Urban Area, Dinh Cong Ward, Hoàng Mai District, Ha Noi

4. TESTING UNIT

National Institute of Hygiene and Epidemiology
Address: No.1 Yersin, Pham Dinh Ho Ward, Hai Bà Trung Dist., Ha Noi

5. EVALUATION PERIOD: From 01/07/2021 to 20/07/2021

6. EVALUATION PROCESS

6.1. Evaluation Method

6.1.1. Evaluation of the toxicity of the product on Vero 6 cell culture

- EXMICROR PLUS is evaluated at original concentration, 1:5; 1:12 and 1:15 dilution. Observation of cythopathic effect (CPE) of Vero 6 cell daily for 120 hours by inverted microscope.

6.1.2. Evaluate the ability of inhibiting SARS-CoV-2 virus development of EXMICROR PLUS solution

- As SOP “*Plaque Reduction Neutralization -PRNT₅₀*” – Virology Department – National Institute of Hygiene and Epidemiology.

Principle: SARS-CoV-2 virus with concentration 5 PFU, 20 PFU, 50 PFU and 100 PFU (plaque-forming units - PFU) was interacted with EXMICROR PLUS at a diluted concentration at room temperature within 30 seconds, 5 minutes, 30 minutes and 60 minutes. After incubation period, the product-virus mixture was inoculated on the Vero 6 cell monolayers. The active ingredient in EXMICROR PLUS has the ability to inhibit the infection of the SARS-CoV-2 virus on the cells, the remaining viruses that are not inhibited by EXMICROR PLUS will infect cells and plaque-forming. After 120-hour infection, the number of plaque was reduced by 50% compared to the virus control (PRNT₅₀) as a product in capable of inhibiting SARS-CoV-2 virus.

PRNT₅₀ was performed in a Biosafety level 3 facility (BSL3) in the National Institute of Hygiene and Epidemiology (NIHE), Hanoi, Vietnam

6.2. Narrow field

- Tested at National Influenza Center, Department of Virology, National Institute of Hygiene and Epidemiology.

-Implementation Method: Direct interview with subjects who have used the EXMICROR PLUS (Interview table by Decision 120:2000/QD-BYT)

6.3. Wide field

Not be performed

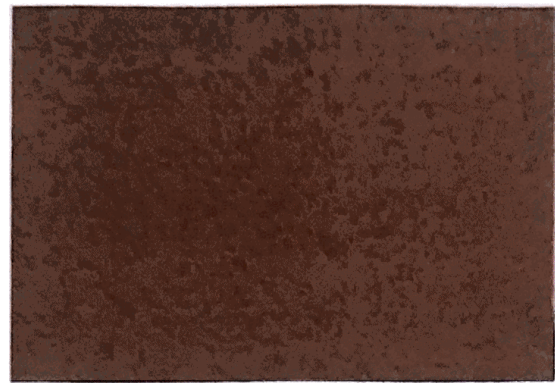
7. RESULT

7.1. Efficiency

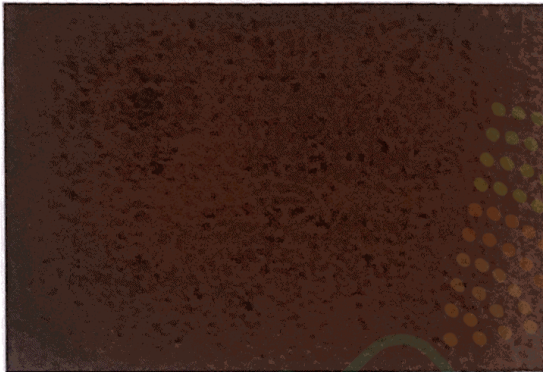
7.1.1. Toxicity evaluation of the product on Vero 6 cell culture



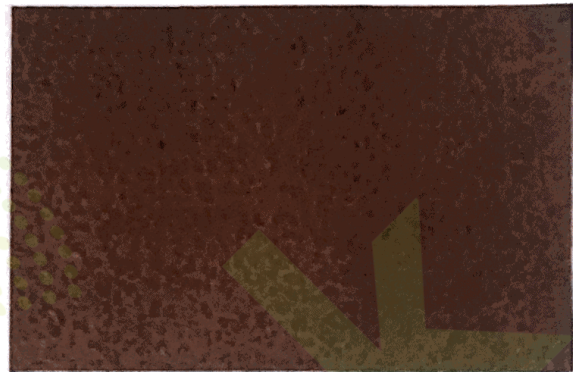
Original EXMICROR PLUS



1:5 diluted EXMICROR PLUS



1:12 diluted EXMICROR PLUS



1:15 diluted EXMICROR PLUS



Vero E6 cell disease

Figure 1. EXMICROR PLUS adaptation on Vero E6 cell at different concentration after 120 hours

Diluted EXMICROR PLUS at 1:12 and 1:15 concentration have normal cell morphology, no effect on Vero E6 cell after 120 hours of exposure.

7.1.2. Evaluation of the ability to inhibit of SARS-CoV-2 viruses of the solution EXMICROR PLUS

NO.	Product concentration	Exposure time	Inhibiton			
			5 PFU	20 PFU	50 PFU	100 PFU
1	Diluted EXMICROR PLUS 1:15	30 Seconds	+	+	+	-
		5 Minutes	+	+	+	+
		30 Minutes	+	+	+	+
		60 Minutes	+	+	+	+

At the 1: 15 dilution from the original solution, EXMICROR PLUS is capable of inhibiting SARS-CoV-2 virus from 5 PFU to 50 PFU after the exposure of 30 seconds; from 5 PFU to 100 PFU after the exposure of 5 minutes, 30 minutes and 60 minutes.

7.2. Safety

Meet the requirments according to the interview table on side effects of chemicals, preparations (no side effects occurred on 05 testers)

8. SUMMARY

EXMICROR PLUS 1:15 dilution is capable of inhibiting SARS-CoV-2 virus from 5 PFU to 50 PFU within 30 seconds, 5 PFU to 100 PFU within 5 minutes, 30 minutes and 60 minutes

EXMICROR PLUS at the original concentration, 1:15 diluted concentration exposure of 30 seconds, 5 minutes did not cause side effects to participants

The result is valid on the testing sample

Ha Noi, 21st July, 2021

Department of Virology

National Institute of Hygiene and Epidemiology



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