MINISTRY OF HEALTH OF THE RUSSIAN FEDERATION

Federal State Budgetary Institution "National Research Center for Epidemiology and Microbiology named after Honorary Academician N.F. Gamalei"
Ministry of Health of the Russian Federation
(FSBI N.F. Gamalei Research Center for Epidemiology and Microbiology, Ministry of Health of Russia)
(legal address: 123098, Moscow, Gamalei st., 18, tel.: 8(499)193-54-93)
Testing Center "N.F. Gamaleya" of the Ministry of Health of Russia
Address of the laboratory complex: 123098, Moscow, st. Gamalei, d. 16, copr. 1, tel.: 8(499)193-54-93

"APPROVED"
Director
FSBI "NRCEM N. F. Gamalei" of the Ministry of Health of Russia
A.L. Gunzburg
2022

STUDY REPORT: No. 0022/22

Study of the virucidal activity of samples of paint and varnish coatings with the addition of a concentrate of nanoparticles based on metal oxides in vitro against the coronavirus SARS - CoV -2

Customer: NI TSU
Address: 634050, Tomsk, Lenin Ave., 36
Tel: (3822) 529-585
e-mail: rector@tsu.ru

Head of IC
Corresponding Member, Doctor of Biological Sciences
E-mail: t_grebennikova@mail.ru
Tel: +7(499)193-54-93
T.V. Grebennikova "10" October 2022

Research Director
Leading Researcher, Ph.D.
I.T. Fedyakhina "10" October 2022

Moscow 2022

RESULTS OF THE STUDY

Determination of virucidal activity of TO

Vero - E 6 cell culture according to the CPE. The results obtained are presented in Table 9.

Table No. 9 – Virucidal properties of TO and KO against the SARS - CoV -2 virus in Vero - E 6 cell culture

Maintenance identification number	ZnO - Ag NPs in TO	$TCID_{50}$, Ig	Virus control, Ig	DIg_{max} is the maximum reduction in the infectious viral dose in the experiment compared to the control, expressed in decimal logarithms
TE	5.0 g/t (0.5%)	0	7.0	7.0
CO	-	5.25	7.0	1.75

The results of studies carried out when incubating a virus-containing suspension with TO and CO for 2 hours at a temperature of (20±2) °C, with a relative air humidity of 50-60% showed that TO, which contains a concentrate of ZnO-Ag nanoparticles with biocidal properties in a concentration of 5.0 g/t (0.5% wt.) completely inactivates the SARS-CoV-2 virus, while CO without concentrate reduces the amount of virus by 1.75 Ig .

CONCLUSION

Investigation of the virucidal properties of the tested sample "Coating Premia (Sputnik) washable with antibacterial effect" - a paintwork material with the addition of a concentrate based on ZnO-Ag nanoparticles with biocidal properties in a concentration (0.5% wt.) against the SARS - CoV -2 virus in experiments in vitro showed high virucidal efficacy. A similar coating without the addition of a concentrate was used as a control. When the SARS-CoV-2 virus was exposed to the samples for 2 hours, a complete inactivation of the infectious activity of the virus (7.0 Ig) in the test sample was observed, while the control sample reduced the amount of virus by 1.75 Ig.

When conducting these studies, it was established that the “Premia (Sputnik) washable coating with an antibacterial effect” - a paint and varnish material with the addition of a concentrate based on ZnO - Ag nanoparticles with biocidal properties, meets the criteria for virucidal activity against the coronavirus SARS-CoV-2 in accordance with MU 3.5.2431-08 "Study and evaluation of the virucidal activity of disinfectants."