Determination of the anti-SARS-CoV-2 efficacy of PER OXY Activated solution

Experiments conducted under the supervision of

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INTRODUCTION.

SARS-CoV-2 is a Coronavirus responsible for the 2020 pandemic. As of October 2020, the virus has infected more that 40 million people and killed more than 1.1 million individuals. Stringent measures are needed to minimize the virus' propagations. Bio-Expert mandated Dr Flamand to test whether a 30 second or a one-minute exposure of SARS-CoV-2 virus to PER OXY Activated solution would destroy SARS-CoV-2 infectivity.

MATERIALS AND METHODS

Experiments were conducted in the BSL-3 facility at the Centre de Recherche du CHU de Quebec. Isabelle Dubuc performed the experiments under the supervision of Dr Louis Flamand.

SARS-CoV-2 was obtained from the Laboratoire Santé Public du Quebec. The virus was propagated on Vero cells. The viral stock had an infectious titer of 1,2 x 10^6 $TCID_{50}$/mL.

The PER OXY Activated solution was provided by Bio-Expert.

Vero cells were plated in the wells of flat bottom 96-well plates ($2x10^4$ cells/well) in 200 ul of culture medium the prior of the test.

To assess the cellular toxicity of the solutions, 100 µl of medium was added to 900 µl of undiluted solutions followed by serial dilutions in medium. The culture medium of the wells of the 96 well plates was removed and replaced with 200µl of serially diluted (in eight wells) solutions.

To assess the antiviral activity, 100 µl of virus stock were added to 900 µl of undiluted PER OXY activated solution for 30 seconds or one minute followed by immediate serial dilutions in medium. The culture medium of the wells of the 96 well plates was removed and replaced with 200µl (in eight wells) of serially diluted virus preparations.

The plates were incubated for three days at 37˚C, 5% CO_2. Each well was observed under the microscope to assess toxicity and infectivity.

Results

Assessment of compounds cellular toxicity. PER OXY Activated solution was serially diluted in culture medium and added to Vero cells to assess toxicity. Concentrations of

PER OXY Activated solution above or equal to (1:100) (equivalent to 0.9% of the stock solution) were toxic to cells (Table 1).

Table 1: Toxicity assay of PER OXY Activated solution.

1 :100	1 :300	1 :1000	1 :3000	1 :10000	1 :30000	1 :100000	medium
T	-	-	-	-	-	-	-
T	-	-	-	-	-	-	-
T	-	-	-	-	-	-	-
T	-	-	-	-	-	-	-

T= toxic
Non-toxic (-)

Assessment of compounds anti-SARS-CoV-2 activity

Dilutions of PER OXY Activated solution less than 1:100 were toxic to the cells. As a result, it was not possible to assess infectivity in solutions carrying> 0.9% of the solution. Below this concentration no toxicity was observed. Results indicate (Table 2) that at the first testable dilution (1:300), no residual signs of SARS-CoV-2 infectivity were recorded.

Table 2. Infectivity of SARS-CoV-2 after a one-minute incubation with PER OXY Activated solution.

	dilutions										
	100	300	1000	3000	10000	30000	100000	300000	1000000	3000000	No virus
A	T										
B	T										
C	T										
D	T										
E	T										
F	T										
G	T										
H	T										

T=toxic

no infection

Infection

Table 3. Infectivity of SARS-CoV-2 after a 30 second incubation with PER OXY Activated solution.

	dilutions										
	100	300	1000	3000	10000	30000	100000	300000	1000000	3000000	No virus
A	T										
B	T										
C	T										
D	T										
E	T										
F	T										
G	T										
H	T										

T=toxic

no infection

Infection

Table 4. Infectivity of SARS CoV-2 viral stock.

	dilutions										
	100	300	1000	3000	10000	30000	100000	300000	1000000	3000000	No virus
A	T										
B	T										
C	T										
D	T										
E	T										
F	T										
G	T										
H	T										

T=toxic

no infection

Infection

Conclusion.

A 30 second incubation of SARS-CoV-2 with PER OXY Activated was sufficient to destroy SARS-CoV-2 infectivity. We can conclude that a 30 second exposure of SARS-CoV-2 to the PER OXY Activated solution reduces infectivity by 99%.