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EVALUATION OF VIRUCIDE ACTIVITY OF A UV DEVICE

Aim of the Study

The aim of this study is to determine the virucidal activity of the device VAIRUS Air Purifier, produced by Bertronic S.r.l., against SARS-CoV2.
The aforementioned device consists of a system with porous filter separated by a support with 4 UV lights.
Virus was positioned on the filter in three position irradiated with UV light.

Method

On the three positions are 100µL of a viral suspension and positioned in correspondence with UV light.

After a contact time of 5', 1h, 4h we tested the residual virus activity by evaluating by Tissue Culture Infective Dose 50% ($TCDI_{50}$).

Name of product	VAIRUS Air Purifier
Period of analysis	14/01/21 – 17/01/21
Temperature of incubation	37°C
Identification of Viral strain	**SARS-CoV-2_COV2019 ITALY/INMI1**
Contact time	See protocol

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Contact Time Protocol

	5 min	3 repetitions
	1 hour	3 repetitions
	4 hour	3 repetitions

All repetitions were tested for SARS-CoV-2 concentration by $TCDI_{50}$ using VERO E6 C1008 (ATCC CRL-1586) cell line.

Results

Suspension virus used $10^{6.25}$ $TCID_{50}$ /mL (6.25 expressed by Log)

Value of Log $TCDI_{50}$ = 1.50 (Note that this value means total viral inactivation)

	Results
Cytotoxicity	No Cytotoxicity observed

	Time	Media Log $TCDI_{50}$	% reduction against control
T0		4.75	
TEST	5 min	1.50	99.94
	1 hour	1.50	99.94
	4 hour	1.50	99.94

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Conclusions

The purpose of the study was to determine the virucidal efficacy of the device VAIRUS Air Purifier, produced by Bertronic S.r.l., against **SARS-CoV-2_COV2019 ITALY/INMI1** *at a contact time of 5 minutes, 1 hour and 4 hours at room temperature.*

The evaluated test device demonstrated an average of 3.25 Log10 reduction in viral titer (99.94% reduction) after exposition of 5 minutes of exposure.

The Plate Recovery Control (T0) demonstrated a viral titer of 4.75 log10 TCID50 per 1 ml.

No test substance cytotoxicity was detected.

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