Method for Decontamination of MERS Virus Using the Sani Defenx VE

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ABSTRACT

References:

- ASTM E1053-97: Standard, Test Method for efficacy of virucidal agents intended for inanimate environmental surfaces.

- EN 14476: Chemical disinfectants and antiseptics-Quantitative test in virucidal suspension for chemical disinfectants and antiseptics used in human medicine test method and requirements (Step 1) April 2005.

The objective of the present study was to ascertain the Sani Defenx VE technology's effectiveness in the elimination of the MERS (Middle Eastern Respiratory Syndrome) Virus. The purpose of this study was to determine whether or not a room can be experimentally decontaminated from Middle East Respiratory Syndrome (MERS) human Corona Virus 229 E (AATCC VR-740), a common cause of respiratory tract infections.

RESULTS

All samples of indoor air and internal surfaces of experimental contaminated room showed that the virus was inactivated, ranging from at least 3 Log10 to undetectable.

These results confirm that the Sani Defenx VE eliminates the MERS virus in an experimental contaminated room.

Viability of the virus in experimental samples, taken from indoor air and internal surfaces of experimentally contaminated room after ozonification is shown in Fig 1.

Fig 1. Viability of the virus in control samples taken from indoor air and internal surfaces of experimental room after ozonification

Samples	**In indoor air**	***PFU:** On dry surfaces	**Log_{10} of Reduction**	**% reduction**
Ambient air	Non-detect		9	100
Floor				
- Sample 1		3.7 X 10	3.47	99.3
- Sample 2		2.8 X 10	3.56	99.5
- Sample 3		2.6 X 10	3.61	99.5
Ceiling				
- Sample 1		4.5 X 10	4.81	99.7
- Sample 2		5.0 X 10	4.70	99.7
- Sample 3		2.7 X 10	4.83	99.7
Wall				
- Sample 1		3.1 X 10	4.18	99.6
- Sample 2		4.3 X 10	4.09	99.6
- Sample 3		2.6 X 10	4.22	99.6
- Sample 4		4.2 X 10	4.12	99.6

*PFU = Plaque formation units

The virus showed decrease in infectivity up to 4.83 Log10 as a result of the ozonification process.

However, the virus was undetectable in the ambient air.

CONLUSIONS

The present study has shown that the Sani Defenx VE is capable of significantly reducing human Corona Virus 229 E on internal surfaces and ambient air. The viral reduction has been shown to be at least three 3 Log_{10} going to total reduction, under experimental conditions used.