REALTIME LABORATORIES INC.

Vital Oxide

EFFICACY STUDY

FOR

VITAL SOLUTIONS

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VITAL OXIDE EFFICACY STUDY

Client Contact: James Burnett
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Project Aims: To evaluate the efficacy of **VITAL OXIDE** to eradicate and/or neutralize mycotoxins in environmental situations for 10 minute and 24 hour exposure times.

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Date of Report: JANUARY 9, 2020

GENERAL STUDIES DESCRIPTION:

The aim of the study was to test the hypothesis that the undiluted product Vital Oxide (VO) can negate the presence a of four (4) groups of mycotoxins against concentrations of mycotoxins (100 ppb) which are placed in test tubes with an undiluted portion of the product by spraying the VO on the mycotoxins which are present on sterile gauze.

Aim of Project: The aim of this project is to be able to market an alternative to 5% bleach for cleaning/disinfecting food processing facilities that pack dry goods like cereals and nuts.

Samples tested and procedural setup: A known environmental dust sample (EN230366) from RealTime Laboratories Inc. (RTL) was emulsified in Phosphate Buffered Saline (PBS) and tested for the presence of mycotoxins in previous studies at RTL. Results demonstrated that 15 mycotoxins were present in the given specimen. The emulsified dust sample was then sprayed onto sterile gauzes and placed in biohazard bags. Immediately, an undiluted Vital Oxide solution (VO) was sprayed on the inoculated gauze and timed for exposure limits. The gauze were22 January 2020 removed from the biohazard bags and immediately placed in a sterile tube with1ml of PBS.

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CAP #7210193 CLIA #: 45D1051736

Times of tests were as follows:

Gauze with known mycotoxin concentration and no VO exposure; (EN502007)

Gauze with known mycotoxin concentration and VO exposure for 10 minutes; (EN502006)

Gauze with known mycotoxin concentration and no VO exposure;(EN502008)

Gauze with known mycotoxin concentration and VO exposure for 24 hours. (EN502009)

Gauze from each of the above 4 samples were placed in 1.5 ml PBS in a sterile tube and vortexed to remove all mycotoxins and chemicals from the gauze.

The 4 samples were then tested for the presence/no presence of mycotoxins.

METHODS:

1. **Sample Preparation and Storage during testing:** All specimens were handled in the same way throughout the study. Sterile gauze was inoculated with 100 ul of extracted environmental solution and placed in 4 sterile biohazard bags. The bags were placed in a clean polystyrene container. Samples were removed and dated with identification numbers. Only samples from the polystyrene container were tested.
2. **Inoculation of solutions:** specimens were taken from previous positive environmental solutions which were previous environmental home samples with requests for testing positive for 15 mycotoxins by ELISA testing. Controls for ELISA were conducted and the test further consisted of sterile gauze, phosphate buffered saline (extraction fluid), and **Vital Oxide (VO) or No VO.** (See Vital Oxide MSDS, **Exhibit #1**).

   Dates of testing: The samples were labeled in the following way: Date of inoculation, Date of Testing, Sample Number, and technologist initials preparing samples. Testing Standard Operating Procedures (SOPs) are present in the following Exhibits:

   Exhibit #2 - Ochratoxin SOP
   Exhibit #3 - Aflatoxin SOP
   Exhibit #4 - Trichothecene (Macrocyclic) SOP
   Exhibit #5 - Gliotoxin Derivative SOP

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Date of Inoculation of Environmental Samples:

Samples EN502008 and EN502009 were inoculated on 12/18/2019 onto sterile gauze and left in a biohazard bag for 24 hours.

Samples EN502006 and EN502007 were inoculated on 12/192019 onto sterile gauze and left in a biohazard bag for 10 minutes.

All gauze were removed from the biohazard bags and placed in tubes with 1.5 ml PBS. Samples were then transferred to the laboratory to have mycotoxin tests conducted. Results were evaluated as prescribed by the SOPs for each mycotoxin **(Exhibits #2-5).** Final results were printed and presented in this report as **Exhibits #6-9.** All graphs and interpretive forms are presented in **Exhibit #10.**

RESULTS: ALL METHODS AND RAW DATA RESULTS ARE LOCATED IN THE APPENDICES OF THIS DOCUMENT.

MYCOTOXIN TESTING

Results demonstrated that 15 mycotoxins were present in the environmental samples taken prior to any exposure to Vital Oxide. Mycotoxin testing performed at the date described above, provided the following mycotoxins (See **Table1** below). Summary of results are shown below. A more thorough explanation of interpretation of mycotoxin results and PCR results with their respective graphs and charts are provided in the Exhibits of the study.

Table 1. Results of Mycotoxin Testing for 10 minute exposure to VO.

Mycotoxins*		Ochratoxin	Aflatoxins	Trichothecenes	Gliotoxins
EN502007	No TX	4.014	1.229	0.049	0.67300
EN502006	Treatment	0.015	0.053	0.000	0.000

Table 2. Results of Mycotoxin Testing for 24 hours exposure to VO.

EN502008	No TX	3.004	0.982	0.049	0.846
EN502009	Treatment	0.001	0.035	0.000	0.000

*ppb= parts per billion

All control samples showed no mycotoxins.

Chain of custody requisitions are presented in **Exhibit #10.**

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SUMMARY AND DISCUSSION:

Results of a study of **Vital Oxide** and the interactions against 15 mycotoxins demonstrated no mycotoxin presence in the samples after treatment of Vital Oxide for 10 minutes and 24 hours.

Results show that this product, Vital Oxide is efficacious against the major groups of mycotoxins tested for periods of 10 minutes and 24 hours.

Respectfully submitted:

Dennis G. Hooper, M.D., Ph.D.

Disclaimer:

It is RTL position to report results and summarize such results for the client. This is not to be taken that RTL endorses this product.

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