



Efficacy of ecoVIOX Air Purifier in Removing Microbes

PACS ID#: 07204

Work Order#: 026808

Customer: Lucia Bonino

Dates of Testing: 03/20/2021

Date Completed: 03/24/2021

Date of Report: 03/25/2021

Environmental Diagnostics Laboratory

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The logo for Pure Air Control Services, Inc. features the company name in a blue serif font with a small orange sun icon above the "A" in "AIR". Below the name is the tagline "Healthy Buildings, Healthy People" in a smaller, italicized font. The logo is partially overlaid by three overlapping curved lines in blue, orange, and green.

PUREAIR™
CONTROL SERVICES, INC.
Healthy Buildings, Healthy People

March 25, 2021

To

Lucia Bonino
ecoVIOX LLC
1994 NE 147th Terrace
North Miami, FL 33181

Reference: PACS ID 07204 Work Order 026808
Efficacy Testing for ecoVIOX LLC

Dear Lucia Bonino,

We appreciate the opportunity to provide you with our professional environmental microbiology services. EDLab is pleased to submit this report that describes the efficacy testing for ecoVIOX.

This report summarizes the findings and other relevant data based on experiments set-up for efficacy evaluation of ecoVIOX.

Please call me at 1-800-422-7873, ext. 301 should you have any questions. We look forward in assisting you in future projects.

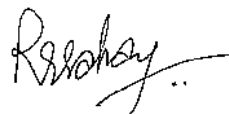
Respectfully submitted,



Kasandra Cuellar
Staff Microbiologist



Joiya Mendez
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PACS ID: 07204

Work Order: - 026808

Sample Numbers/Lab Numbers:001/193344

Product description: This system is equipped with a charcoal activated HEPA filter, UVC lamp, ionizer, along with an ozone generator.

Test Challenge Organisms:

Bacteria: *Staphylococcus aureus*

Fungi: *Aspergillus niger*

TEST: Microbial Removal Efficacy

Methodology: To determine the microbial removal efficacy of an air purification device. A known concentration of the selected challenge organisms *Staphylococcus aureus* and *Aspergillus niger* were aerosolized through the device. Air samples were collected both when the device was switched off (device not running) and switched-on (all components of the device were running) utilizing the settling plate method at two different time intervals (0 and 60 minutes) with Typic Soy Agar (TSA) and Malt Agar Extract (MEA) microbial culture media for *S. aureus* and *A. niger*, respectively. Samples for pretest sterility verification of the test chamber was collected in addition to the negative and positive control samples. The viability and concentration of the suspension utilized for the aerosolization of the test organisms (*S. aureus and A niger*) was determined by serial dilution technique.

Controls:

Negative Controls:

Reagent Water Lot:476425 Exp:06-26-2021

Positive Controls:

Staphylococcus aureus ATTC: 25923 Exp:06-30-2021

Aspergillus niger ATTC:6275 Exp:01-31-2022

Microbiological media used:

TSA= Lot #: 135372 Exp:06-07-2021

MEA= Lot #:47409 Exp:05-17-2021

Challenge concentration:

Staphylococcus aureus 50.8 x 10⁴

Aspergillus niger 25.0 x 10²

Observations:

All the experiments were conducted under standard laboratory conditions. *Table - 1* records the sterility verification of the environmental test chamber. *Table - 2* contains the results of the efficacy of the device tested.

Table – 1: Sterility Verification

Trial	Bacteria	Fungi
Sterility Verification	BDL	BDL

*BDL=Below Detection Limit

Table – 2: Microbiological Efficacy Results

Challenge Organisms	Pre-treatment		Post-treatment	
	Colonies (CFU/m ²) 0 min	Colonies (CFU/m ²) 60 min	Colonies (CFU/m ²) 0 min	Colonies (CFU/m ²) 60 min
<i>S. aureus</i>	899,422	373	2,986	BDL
<i>A. niger</i>	8,584	1,866	187	BDL

Figure – 1 Efficacy on Microbes

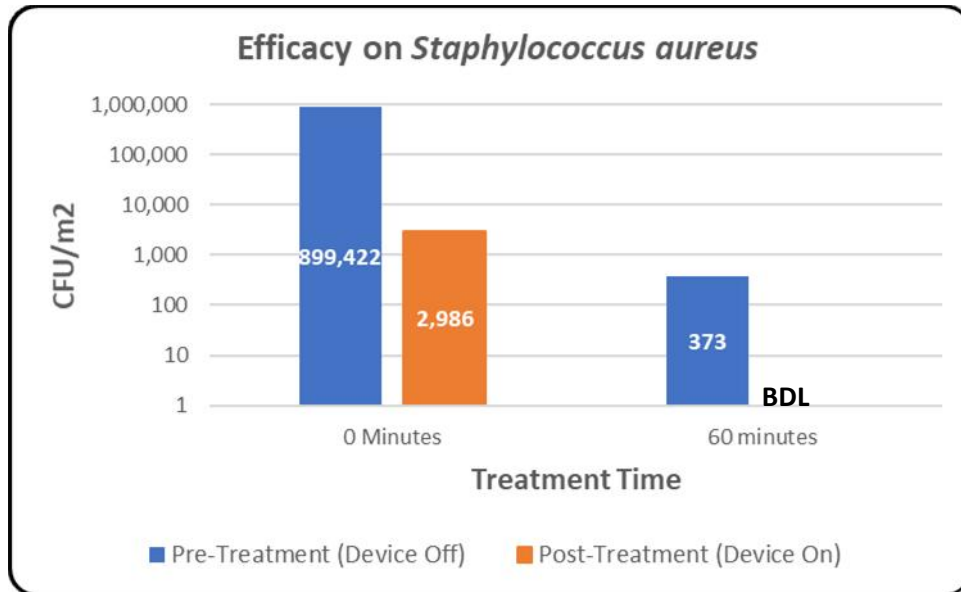


Figure – 1A

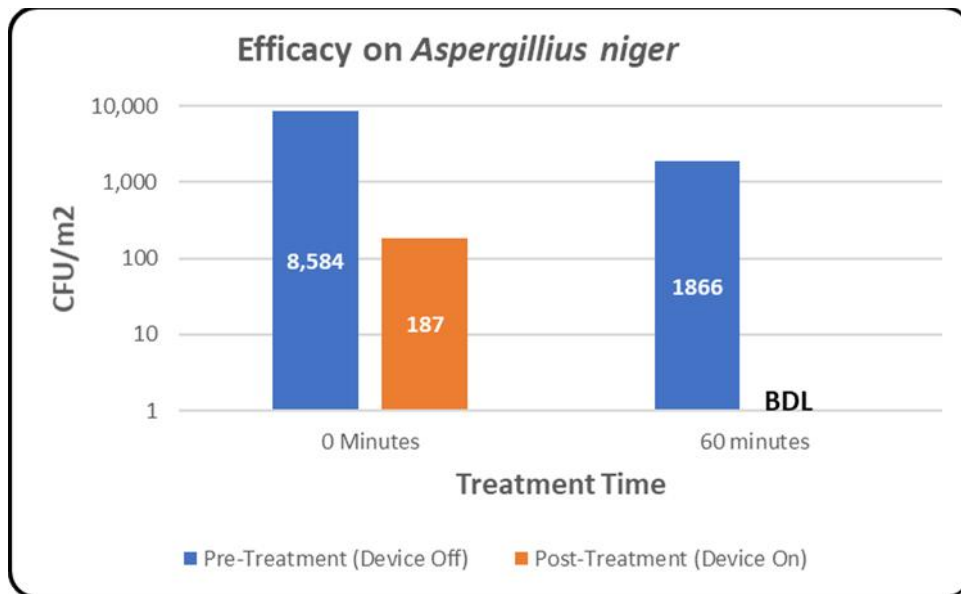


Figure – 1B

**BDL= Below Detection Limit*

Conclusion

This device is rated as effective against the microbes (*Staphylococcus aureus* and *Aspergillus niger*). A more comprehensive study is encouraged to understand the details on the reduction efficacy of this air purifying device.

Note: No other testing or evaluation has been performed, except for those mentioned above

Analyst:



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Quality controlled by:



Joiya Mendez
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