



Apollo Bacteria & Mold

Summary Report from Smart UV.

Smart UV's Photon-Based Purification Technology Successfully Killed Several Strains of Bacteria & Mold in a Scientifically-Controlled & Accredited Testing Facility

Purpose

To determine the antibacterial efficacy of The Apollo UVC Disinfection lamp against a wide range of bacteria and a fungus after 1 hour of contact time and three distances away from the lamp.

Set Up

The test bacteria were taken from pure stock cultures and grown separately on tryptic soy agar supplemented with 5% sheep blood (TSAB) and incubated at $35\pm 1^\circ\text{C}$ for 24 hours. The mycobacterium was taken from pure culture and grown on Middlebrook 7H10 agar for 14 days at $35\pm 1^\circ\text{C}$ with CO_2 . All cultures were used to harvest colonies which were suspended into 10 mL of 10% tryptic soy broth (TSB). These suspensions were used to inoculate the test surface. *Aspergillus niger* was plated from pure stock cultures onto Malt Extract Agar (MEA) and incubated for 6 days at $25\pm 1^\circ\text{C}$. A spore suspension was prepared by pouring 10 mL of DI water with 0.5 mL of surfactant (Tween 80) over the culture plate. The surface growth was gently scraped from the culture. The spore suspension was transferred into a centrifuge tube containing 25 mL of sterile DI water and 10 solid glass beads. The centrifuge tube was vortexed for one minute to break the spore clumps. The spore suspension was filtered through a thin layer of glass wool in order to remove mycelial fragments. Spore suspension was washed twice in DI water by centrifugation and suspended into phosphate buffer solution (PBS) as the final inoculum.

Result

The Apollo UVC Disinfection Lamp significantly reduced the bacterial and fungal contaminants after 1 hour of UV treatment at a distance of 1 meter with reduced efficacy at 4 meters and 5.65 meters.

Full Report

[Link to full report](#)

Bacteria & Mold Test Results

	Distance	Time Exposed	Percent Reduction	Log10 Reduction
P. Aeruginosa	1 Meter	60 Minutes	>99.98%	>Log3.66
	4 Meters	60 Minutes	99.96%	Log3.44
	5.65 Meters	60 Minutes	99.9%	Log3.19

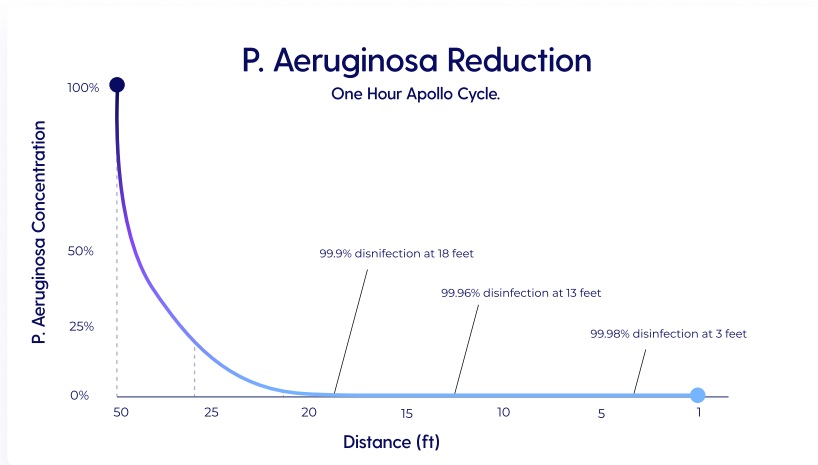
	Distance	Time Exposed	Percent Reduction	Log10 Reduction
M. Gordonae	1 Meter	60 Minutes	99.99%	Log4.5
	4 Meters	60 Minutes	77.8%	Log0.65
	5.65 Meters	60 Minutes	58.6%	Log0.38

	Distance	Time Exposed	Percent Reduction	Log10 Reduction
A. Niger	1 Meter	60 Minutes	99.0%	Log2.01
	4 Meters	60 Minutes	5.9%	Log0.03
	5.65 Meters	60 Minutes	31.6%	Log0.16

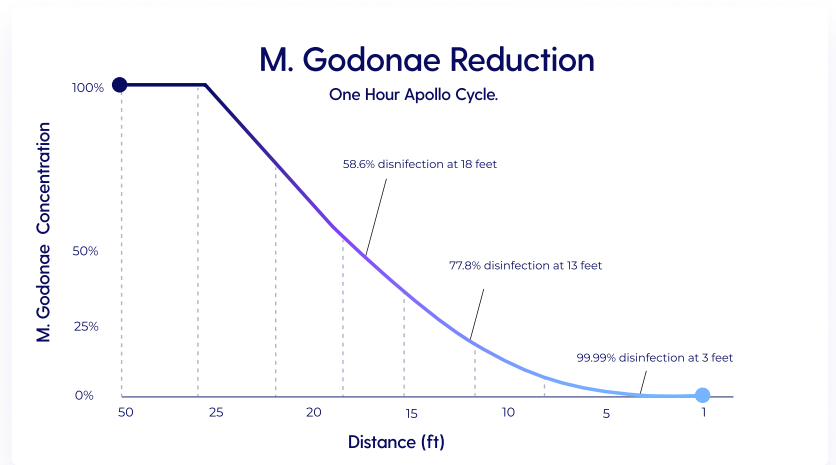
	Distance	Time Exposed	Percent Reduction	Log10 Reduction
E. Coli	1 Meter	60 Minutes	>99.99%	>Log3.91
	4 Meters	60 Minutes	99.8%	Log2.72
	5.65 Meters	60 Minutes	98.5%	Log1.81

	Distance	Time Exposed	Percent Reduction	Log10 Reduction
S. Aureus	1 Meter	60 Minutes	>99.998%	>Log4.71
	4 Meters	60 Minutes	99.96%	Log3.74
	5.65 Meters	60 Minutes	99.96%	Log3.60

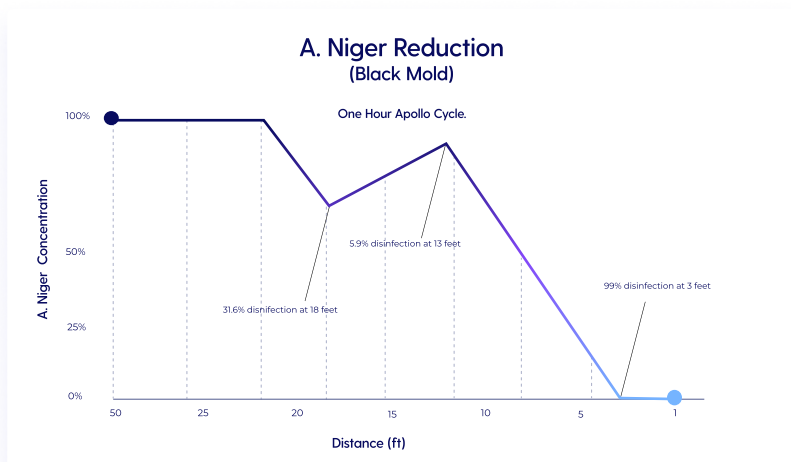
Bacteria & Mold Results Graphed



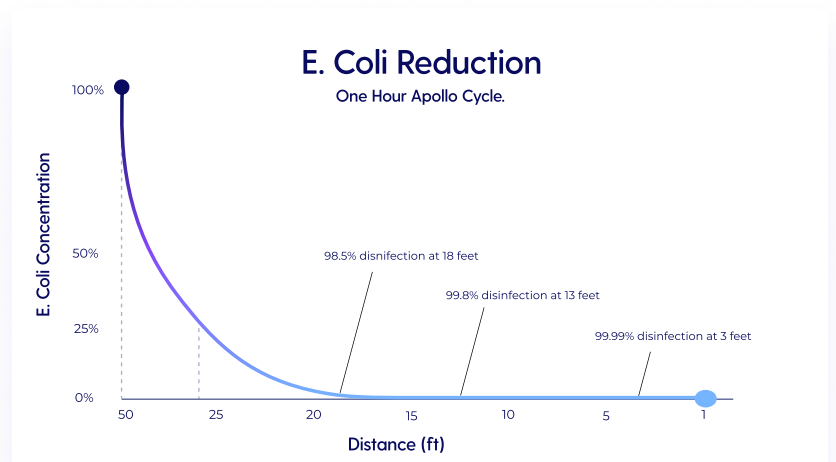
P. Aeruginosa



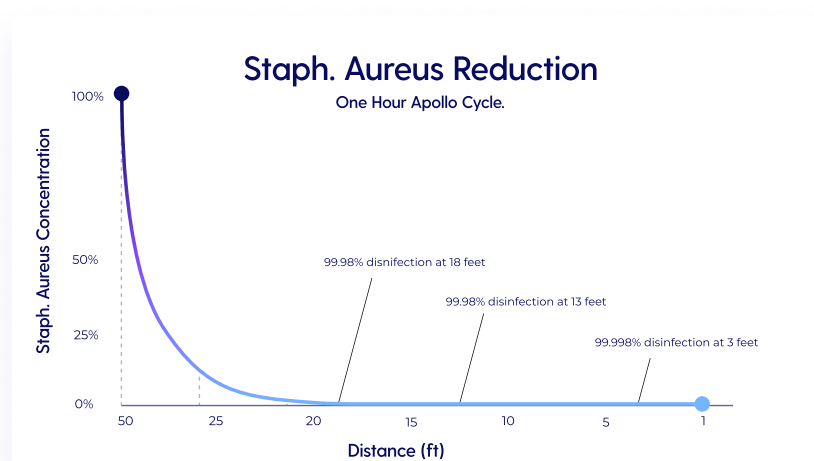
M. Gordonae



A. Niger



E. Coli



S. Aureus