Sample collection Date	Sample received Date	Completed Date	Requisition
Not Provided	12-22-2022	05-01-2023	M47271

[redacted]

Laboratory Report

Assessing the Efficacy of Microfiber Cloths and Mops at Removing Surface Microorganisms

INTRODUCTION

This study was aimed at assessing the cleaning performance (in terms of microbial removal) of microfiber articles under controlled laboratory conditions. The study investigated the manual cleaning of a vinyl coated tile commonly found in hospital settings contaminated with organisms associated with healthcare-associated infections.

OBJECTIVE

On the day of testing suspensions of the indicated microorganisms were prepared in 2% serum solution, inoculated onto the surface, incubated for 24 hours, then cleaned with the microfiber test article, and allowed to air dry for 5 minutes. Following cleaning, each surface was tested to determine the number of viable yeasts remaining, utilizing a sponge extraction method. Each test article was tested by cleaning each of the inoculated surfaces with a separate test article.

The endpoint of interest is the $\log_{10}$ reduction changes in the number of recovered organisms post cleaning as compared to the number of organisms originally inoculated onto the tile surface.

Successful cleaning may be defined as a 2 $\log_{10}$ reduction or greater in the yeast recovery count as compared to the $\log_{10}$ number of organisms originally inoculated on to the surface.

MATERIALS

The test articles provided by the sponsor were identified and handled as follows:

Test Article (s):
Sample- 1814594[redacted]MF Cloth Blue

Storage Condition(s): Room temperature

Challenge Microorganism(s):
Candida auris ATCC B11903

Challenge surface(s): 6 x 6 Vinyl Coated Tile

TEST METHOD

Test article preparation:
Test article preparation included resizing the article to a 8" x 8" square, folded to 4" x 4"; dampening with sterile deionized water and wrung out. Samples were utilized as received. Washing of test article was not required by client.

Preparation of Test System:
The test organism suspensions were prepared by adding *Candida auris* ATCC B11903 to a 2% serum solution.

Application of Test Substances for Testing:

The vinyl surface was inoculated with 2.5 mL of the prepared inoculum and then spread using a sterile T-spreader to evenly distribute throughout the surface and allowed to air dry for 24 hours at room temperature. Following the drying period, the test surface was wiped along two planes: horizontal, vertical, with a 4"x 4" damp piece of individual test article. Then utilizing 2.5 pounds of pressure the surfaces were wiped manually. Each surface was then allowed to air dry for 5 minutes prior to surface extraction. The vinyl surfaces were then extracted utilizing a sterile sponge in a solution of phosphate buffered solution. Serial dilutions were prepared, and aerobic plate counts were set up utilizing blood agar spread plate method for *Candida auris* ATCC B11903 organism recovery.

Exposure Conditions:
The inoculated plates were inverted and incubated under conditions favorable for growth: 30- 35°C for 2-4 days in aerobic conditions.

RESULTS

Sample: 1814594 Cintas MF Cloth Blue						
Rep	Test surface	Test organism	Initial Inoculum Count (CFU/surface*)	Post Cleaning Tile Bioburden Count (CFU/surface*)	Percent Reduction from initial inoculum	Log_{10} Reduction
1	Vinyl Coated Tile	*Candida auris*	1.9×10^6	<10	>99.99	>5.28
2		*Candida auris*	1.9×10^6	<10	>99.99	>5.28
3		*Candida auris*	1.9×10^6	20	99.99	4.98

*colony forming units per test surface

STUDY CONCLUSION

Under conditions of this investigation:

Test data *Candida auris* ATCC B11903 showed that 1814594 [redacted] MF Cloth Blue, when used to clean a vinyl coated tile, did result in at least a 2 log_{10} reduction as compared to the number of colony forming units of *C. auris* originally inoculated on to the surface.

Results and conclusions apply only to the test articles listed in this report. No further evaluation of these results is made by Nova. Any extrapolation of these data to other samples is the responsibility of the sponsor.

QUALITY ASSURANCE

All the samples tested met the following quality control parameters and testing conditions:

- The media control was free from growth.
- All purity plates exhibited growth of only the indicated organism.
- Negative uninoculated background tile control showed no growth of the indicated organism.
- Challenge microorganisms were not more than 5 passages removed from the original master seed-lot.
- All Raw data pertaining to this study and a copy of the final report are retained in designated NOVA archive files for a period of 5 years.

CALCULATIONS

The percent reduction of each challenge strain attributable to treatment with each test material was calculated as follows:

Percent reduction = (a-b x 100) ÷ a

Log Reduction = $Log_{10}(a/b)$

Where:

a = initial number of organisms originally inoculated onto the surface of the tile
b = viable organisms recovered from the contaminated tiles after cleaning with the microfiber test article.

REFERENCES

Journal of Hospital Infection. 78 (2011) 182-186.

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Jennifer Hollingsworth
Laboratory Analyst III