



February 15, 2019

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Antimicrobial Assessment of Four Granite Samples

3502415

Four granite sink samples, treated with Ultra-Fresh CA-16, were received from Prima Gran Sp. z o. o. on February 15, 2019. At Thomson Research Associates Inc., the samples were tested for antimicrobial activity using a quantitative test method.

PROCEDURE

Quantitative Antibacterial Assessment:

ISO 22196:2011 was used to quantitatively test the specimen for antibacterial activity. In brief:

1. The sample was placed into a container with a lid.
2. A 0.3 mL inoculum of *Escherichia coli* (ATCC #8739), *Staphylococcus aureus* (ATCC #6538), or *Salmonella choleraesuis* (ATCC #10708) was placed, in microdroplets, on the surface of the samples. Sterile films were placed over the inoculum to encourage good contact.
3. The specimen was incubated 24 hours at 37C.
4. 20 mL of Lethen broth was added to the container and shook. The liquid was plated using dilution techniques.
5. The “Value of Antimicrobial Activity” was carried out using the formula

$$R = [\log (B/C)]$$

Where:

R= value of antimicrobial activity

B = Average of the number of viable cells of bacteria on the untreated test piece after 24 hours

C = Average of the number of viable cells of bacteria on the antimicrobial test piece after 24 hours.

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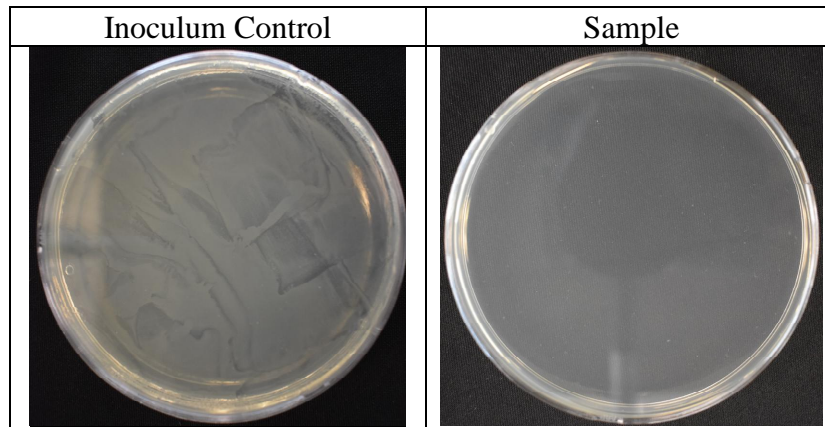
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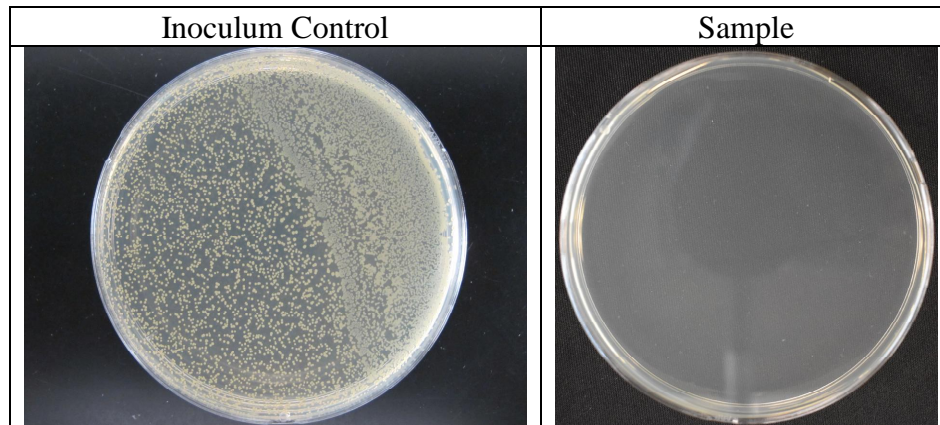
RESULTS

Quantitative Assessment of Activity - ISO 22196:2011					
<i>E. coli</i>					
Concentration of starting inoculum			2.04 x 10 ⁵		
Sample Description		No. Bacteria Recovered	Log Value	R = [log(B/C)]	% Reduction
1	1 Sample treated with Ultra-Fresh	<2.00 x 10 ¹	<1.3	>6.0	>99.9%
2	2 Sample treated with Ultra-Fresh	<2.00 x 10 ¹	<1.3	>6.0	>99.9%
3	3 Sample treated with Ultra-Fresh	<2.00 x 10 ¹	<1.3	>6.0	>99.9%
4	4 Sample treated with Ultra-Fresh	<2.00 x 10 ¹	<1.3	>6.0	>99.9%
Inoculum Control		1.87 x 10 ⁷	7.3	----	----



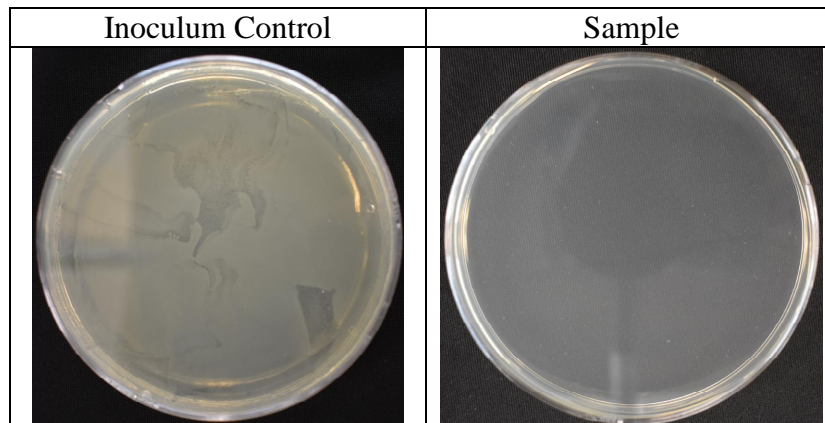
RESULTS

Quantitative Assessment of Activity - ISO 22196:2011					
<i>S. aureus</i>					
Concentration of starting inoculum			3.31 x 10 ⁵		
Sample Description		No. Bacteria Recovered	Log Value	R = [log(B/C)]	% Reduction
1	1 Sample treated with Ultra-Fresh	<2.00 x 10 ¹	<1.3	>3.6	>99.9%
2	2 Sample treated with Ultra-Fresh	<2.00 x 10 ¹	<1.3	>3.6	>99.9%
3	3 Sample treated with Ultra-Fresh	<2.00 x 10 ¹	<1.3	>3.6	>99.9%
4	4 Sample treated with Ultra-Fresh	<2.00 x 10 ¹	<1.3	>3.6	>99.9%
Inoculum Control		7.34 x 10 ⁴	4.9	----	----



RESULTS

Quantitative Assessment of Activity - ISO 22196:2011					
<i>S. choleraesuis</i>					
Concentration of starting inoculum			3.38 x 10 ⁵		
Sample Description		No. Bacteria Recovered	Log Value	R = [log(B/C)]	% Reduction
1	1 Sample treated with Ultra-Fresh	<2.00 x 10 ¹	<1.3	>5.2	>99.9%
2	2 Sample treated with Ultra-Fresh	<2.00 x 10 ¹	<1.3	>5.2	>99.9%
3	3 Sample treated with Ultra-Fresh	<2.00 x 10 ¹	<1.3	>5.2	>99.9%
4	4 Sample treated with Ultra-Fresh	<2.00 x 10 ¹	<1.3	>5.2	>99.9%
Inoculum Control		3.09 x 10 ⁶	6.5	----	----



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CLin

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