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Product Validation

MIC-GUARD Concentration Effectiveness

Project Details

Test Facility:	West Texas A&M University Microbiological Laboratory 2401 Russell Long Blvd. Canyon, TX 79015 (806) 651-0000
Testing Performed By:	C. Bouma
Study Complete:	May 21st, 2018
Test Method:	ASTM F895 Standard Test Method for Agar Diffusion Cell Culture Screening for Cytotoxicity

General Information:

This test method is useful for assessing the cytotoxic potential of new materials and formulations and as part of a quality control program for established medical devices and components. WTAMU's Biology Department utilized this testing method to give qualitative results of the potency of antimicrobial powders. Antimicrobial and control powders are poured into several wells that have been punched into the inoculated agar. The testing wells can be compared to one another based on the zone of inhibition of cell or spore growth each has created.

Background:

Escherichia coli: *Facultative anaerobic proteobacteria* found in the environment, foods, and intestines of people and animals. These organisms are a large and diverse group of bacteria and the most prevalent infecting organism in the family of gram-negative bacteria known as enterobacteriaceae.

Sample Procedure:

- MG and a blend of proprietary ingredients were mixed together at varying percentages to compare the efficacy 12 MG blends were created

MIC-GUARD Blends

1: 11% MG	**5:** 33% MG	**9:** 66% MG
2: 17% MG	**6:** 35% MG	**10:** 77% MG
3: 22% MG	**7:** 44% MG	**11:** 88% MG
4: 29% MG	**8:** 55% MG	**12:** 100% MG

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Microbiological Procedure:

- *E. Coli* cells were spread evenly about the entire surface of the agar
- Wells were created in the agar using the base of a sterile pipet tip
- Each well was punched from the surface of the agar to the bottom of the petri dish
- Each MG Blend was poured into its own well. The wells were filled when the powder became even with the surface of the agar.
- The petri dishes were place in an incubator at 78 degrees Fahrenheit for three days
- The zones of inhibition each well had around itself were then compared.

Results:

As the concentration of MIC-Guard increased the zones of inhibition were improved. Higher percentages of MIC-GUARD should be used in harsh environments with copious levels of bacteria. With lower percentages of MIC-Guard there are still zones of no growth making these ones suitable for more realistic bacteria environments.