Icky Fountains

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Background

The myths of Longwood have come full circle with this experiment, as some fountains are charmed with good luck and some not so much.

Justification of this experiment considers the amount of the people that “swim” in the fountains in correlation with the amount of bacteria found within the water.

Objective

In this experiment, 3 fountains were sampled across the campus of Longwood university to test the **hypothesis** that if people are *allowed* to wade/swim in a fountain, that fountain is likely to have more bacteria.

Background

Ruffner fountain was hypothesised to have the most bacteria as people and animals alike are allowed to wade or swim in the fountain, and are often seen in this fountain.

Chi fountain was the control since people rarely, if ever, get in it partly because they are not allowed in and also because it is considered to be “bad luck” if you do wade in the water.

Bedford fountain served as a good middle ground as there was a sign stating “no wading” however this isn't really enforced and people are *sometimes* spotted wading in this fountain.

Materials & Methods

3 samples were taken from Longwood's fountains using a water swab from a sterile sealed bag that was dipped under the water's surface.

The water swab was then streaked plated on the nutrient enriched agar on marked sections to isolate the different colonies of the locations (5).

The samples were taken to be incubated at room temperature for 1 week.

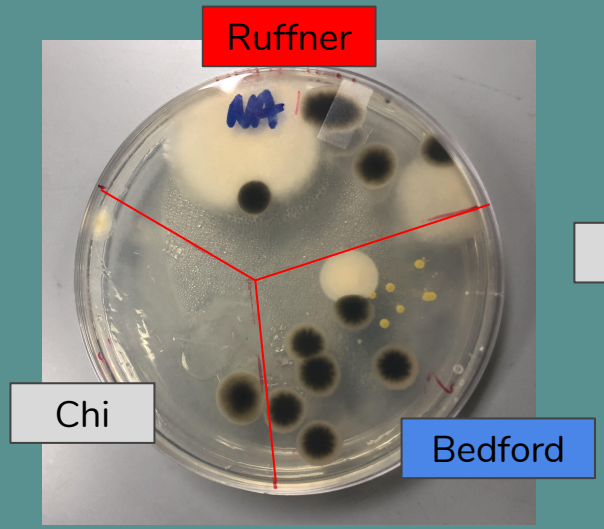
Materials and Methods (Cont.)

After the incubation period the bacteria were examined for the number, color, and size of the colonies.

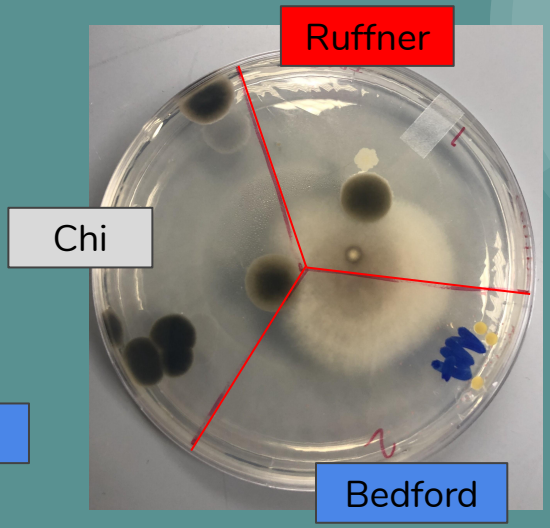
The samples were then safely and properly disposed of.

The data from the number of bacteria colonies was graphed and the size/color data was put into tables.

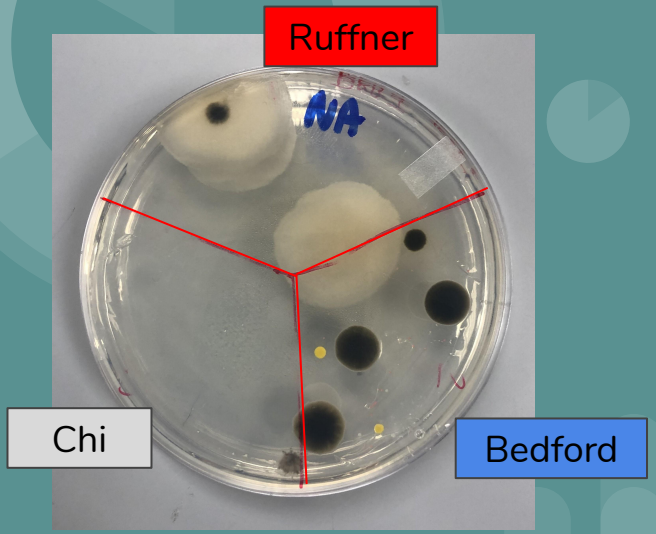
Trials


Ruffner
Chi
Bedford

1


Ruffner
Chi
Bedford

2


Ruffner
Chi
Bedford

3

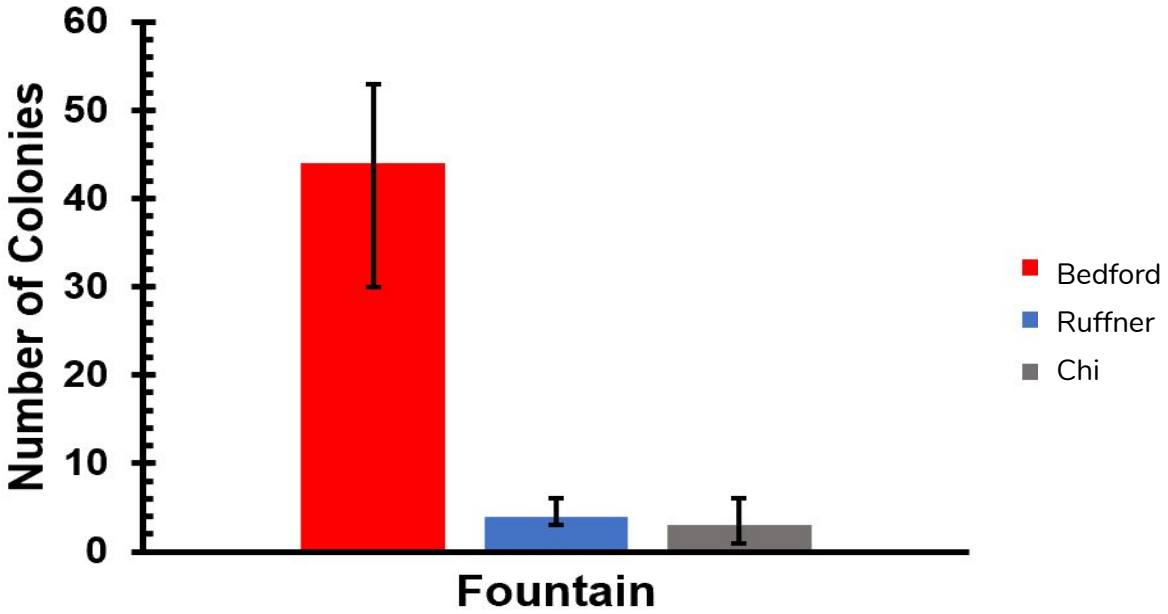


Figure 1. The average number of colonies of bacteria found in the fountains. Data was collected from Bedford, Ruffner, and Chi fountain, then analyzed from number of colonies that were produced after a week of incubation at room temperature in nutrient enriched agar. Three different trials were conducted from the three fountains then averaged to find out which fountain had more bacteria, which concluded that Bedford fountain contained the highest number of colonies (bacteria).

Table 1. Numbers of individual colors of bacteria. Data was collected from Chi, Ruffner, and Bedford and then averaged out in the five observed colors. Chi was shown to have a majority of red colonies, Bedford had a majority of brown colonies, and Ruffner was more spread out.

Color of Colonies	Bedford	Ruffner	Chi
Brown	4	2	3
Yellow	4	2	1
Red	37	0	0
Tan	1	0	1
White	0	1	0

Table 2. Sizes of colonies found in each fountain. The sizes of the bacteria colony in each trial were counted and then categorized into four different sizes to differentiate the different colonies of bacteria.

Size of Colonies	Bedford	Ruffner	Chi
Tiny	37	0	0
Small	4	1	1
Medium	6	2	1
Large	1	2	0

Key: tiny: less than a millimeter across, small: a millimeter across, medium: a centimeter across, and large: about two or more centimeters across.

Discussion

- The purpose of this experiment was to determine the bacterial size, color, and quantity in the three fountains of Longwood: Chi, Ruffner, Bedford,
- Ruffner was concluded to have the largest sized colonies due to the amount of people swimming in the fountain as part of Longwoods tradition.
    - Along with this, it gets sun. This allows UV Radiation to “Sterilize” some smaller colonies (6).

Discussion (Cont.)

- Chi fountain contained the least amount of diversity, size, and color of colonies due to not only sunlight, but no one swimming within it.
- Bedford fountain had the most diversity in size and color in bacterial colonies.
    - This is due to shade allowing more bacteria to flourish (4) and barely getting sun throughout the day (6)
- The time of year plays a factor in bacterial growth as well. During the summer, bacterial growth is higher than it is in fall (3) as well as temperature affecting the prime time for bacterial growth (2)
- However, due to the populations of stray cats and other animals, these outside factors could have skewed our results (1).
    - In a future experiment, factors such as these will be considered into the results.

Citations

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