

BACTERIA EXPERIMENT

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INTRODUCTION

In this experiment bacteria samples were tested on agar plates. Sample bacteria was taken from one high traffic area, the hall, one medium traffic area, the lab, and one taken from a low traffic area in between the lockers in the lab to serve as the control. The experiment will take place at Longwood University in Chichester hall in room G08. The experiment was tested to see how much bacteria comes into contact with students on a daily basis. If samples are taken from three different areas of the floor, the area with the most traffic will yield the greatest amount of concentrated bacteria.

METHODS

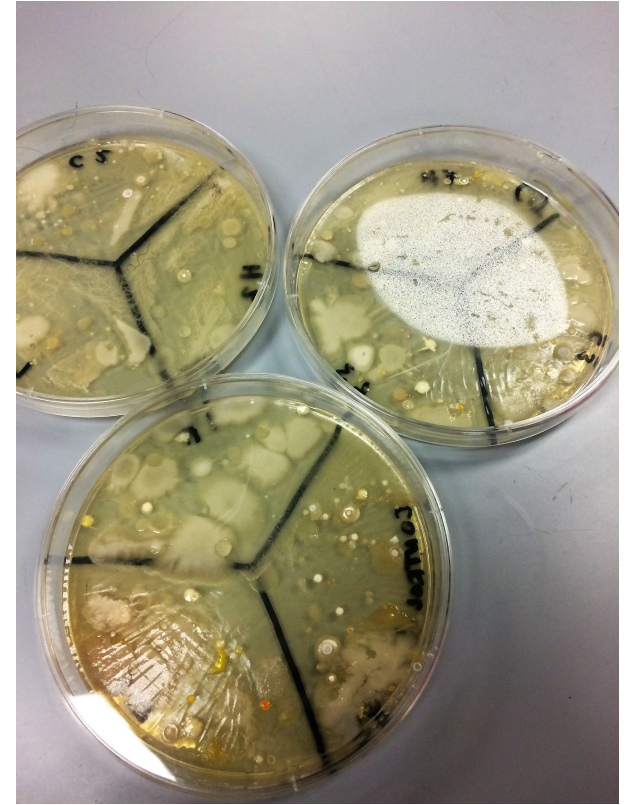
Our experiment started by marking the agar plates with a sharpie, separating each one into three equal sections and marking it either hall, lab, or control and following it with a 1, 2, or 3 to signify which trial it was for. Nine sterile swabs were used to collect each of the samples, using a new one each time. Samples were collected by rubbing the swabs along the floor in each specific area and then directly placed onto the designated area for each agar plate. The samples were then left to sit for a week so the bacteria could grow.

Materials used:

- Sharpie
- Three nutrient rich agar plates
- Nine sterile swabs

RESULTS

In this experiment, we tested samples of bacteria found on different sections of the floor ranging from no traffic (Control section), to medium traffic (Lab section), to high traffic (Hall section) on agar plates. These sections were tested to find which one had the highest average of bacterial growth, large number of colonies and what type of colors each sample produced. Observations of the agar plates showed that for average percentage covered by bacteria, the high traffic section (Hall section) had the greatest amount covered by bacteria with an average of 93%. The no traffic area (Control section) had the second highest average with 70%, and the medium traffic area (Lab section) had the lowest average covered by bacteria with an average of 63% (Figure 1). A second observation of the agar plates revealed that each section had several large colonies of bacteria on them, each large colony was counted per section. This information was then averaged and graphed, resulting in the high traffic area (Hall section) having the highest average of 2.66 large colonies. The medium traffic area had the second highest average of 2.33 large colonies. The no traffic area (Control section) had the lowest average of large colonies with an average of 2 large colonies (Figure 2).



RESULTS CONTINUED

A more thorough look at the agar plates reveals that each section had different colors of bacteria growing. The Lab section was the most colorful with white & orange bacteria growing on the first section and white & yellow bacteria growing on the other two sections. The Control section was the second most colorful with white bacteria growing on the first section, white & brown bacteria growing on the second section, and white & yellow bacteria growing on the third section. The Hall section had the least amount of color with white bacteria growing on the first two sections and white & yellow bacteria growing on the third section (Figure 3).

Figure 1

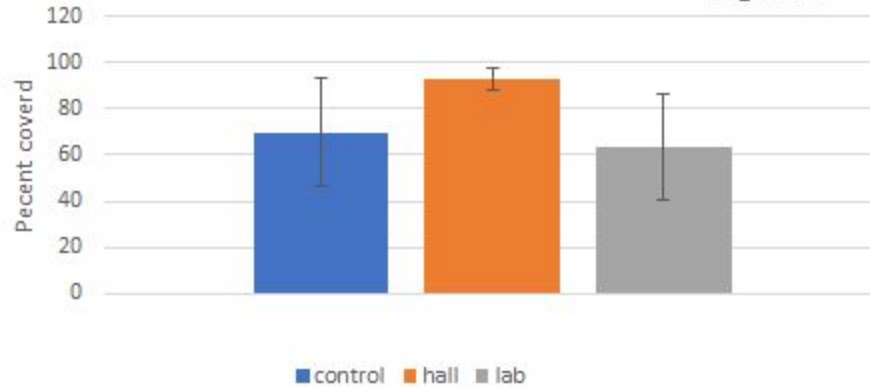


Figure 1. Percentage Covered by Bacteria. Percentage averages of designated areas in a petri dish covered by bacteria. Data shown for Control section, Hall section, and Lab section. The Hall section had the greatest average amount covered by bacteria on it, then the Control section and the Lab had the smallest average amount covered by bacteria. Bar heights are average amount covered by bacteria and error bars are the standard deviation of the three trials for each section.

Figure 2

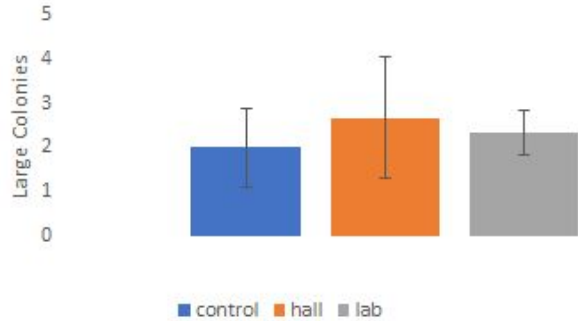


Figure 2. Number of Large Colonies. Average number of large colonies found on the different sections of the petri dishes. Data shown for Control section, Hall section, and Lab section. The Hall section had the greatest average number of large colonies on its sections, then the Lab section had the second greatest average number of large colonies on it, the Control section had the smallest average number of large colonies found on each section of the petri dishes and error bars are the standard deviation of the three trials for each section.

Colors of Bacteria per Section

Sample Sections	dish 1	dish 2	dish 3
control	white	white & brown	white & yellow
hall	white	white	white & yellow
lab	white & orange	white & yellow	white & yellow

Figure 3. Color of Bacteria per Section. Different colors of bacteria were found on different sections of the petri dishes. Data is shown for the Control section, Hall section, and Lab section. The Lab section was the most colorful because it had the most colored bacteria per section, the Control section was the second most colorful because it had less color per section when compared to the Lab section but more color per section when compared with the Hall section. The Hall section had the least amount of color per section when compared to the Lab and control sections.

DISCUSSION/CONCLUSION

Overall, the samples from the hall showed the most bacteria growth. On average they had both the largest number of colonies as well as the greatest percentage of coverage by the bacteria on the agar plates. However the difference between the lab and control were less clear. The lab showed a greater number of colonies than the control but the control had a greater percentage of overall bacteria coverage. With this we can conclude that the hall gathers the most bacteria of all the spots that we tested. This is not surprising because it typically receives the most foot traffic throughout the day. This conclusion supports the hypothesis we made in the beginning of the experiment. Limitations of our experiment could include a small number of trials and the fact that we only swabbed one small portion of the entire area.