

Hand swabbing and survey to analyze microbe density on Cleveland State University campus compared to research standard.

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INTRODUCTION

Due to the heavy emphasis on hygiene, wellness, and vaccinations on college campuses, a question arises regarding the foundation of such emphasis. Common culture notes that many students get sick when first coming to university due to the new environment and bacteria. We are interested in comparing the levels of bacteria found on the hands of Cleveland State students and compare it to the levels found on the average person. How do Cleveland State students, staff, and faculty compare to standard levels present in research, in terms of hand cleanliness?

OBJECTIVES

- Determine bacteria presence on students, staff, and faculty on Cleveland State University campus .
- Compare gathered data to a standard, representing the general population: Right hand at 1,000 cfu/cm² and Left hand at 100 cfu/cm² (Michael Wilson, 2008).
- Determine if there is statistically significant differences between standard and gathered data or statistically significant influences from external variables on bacteria levels on campus.

METHODS

Swabbing:

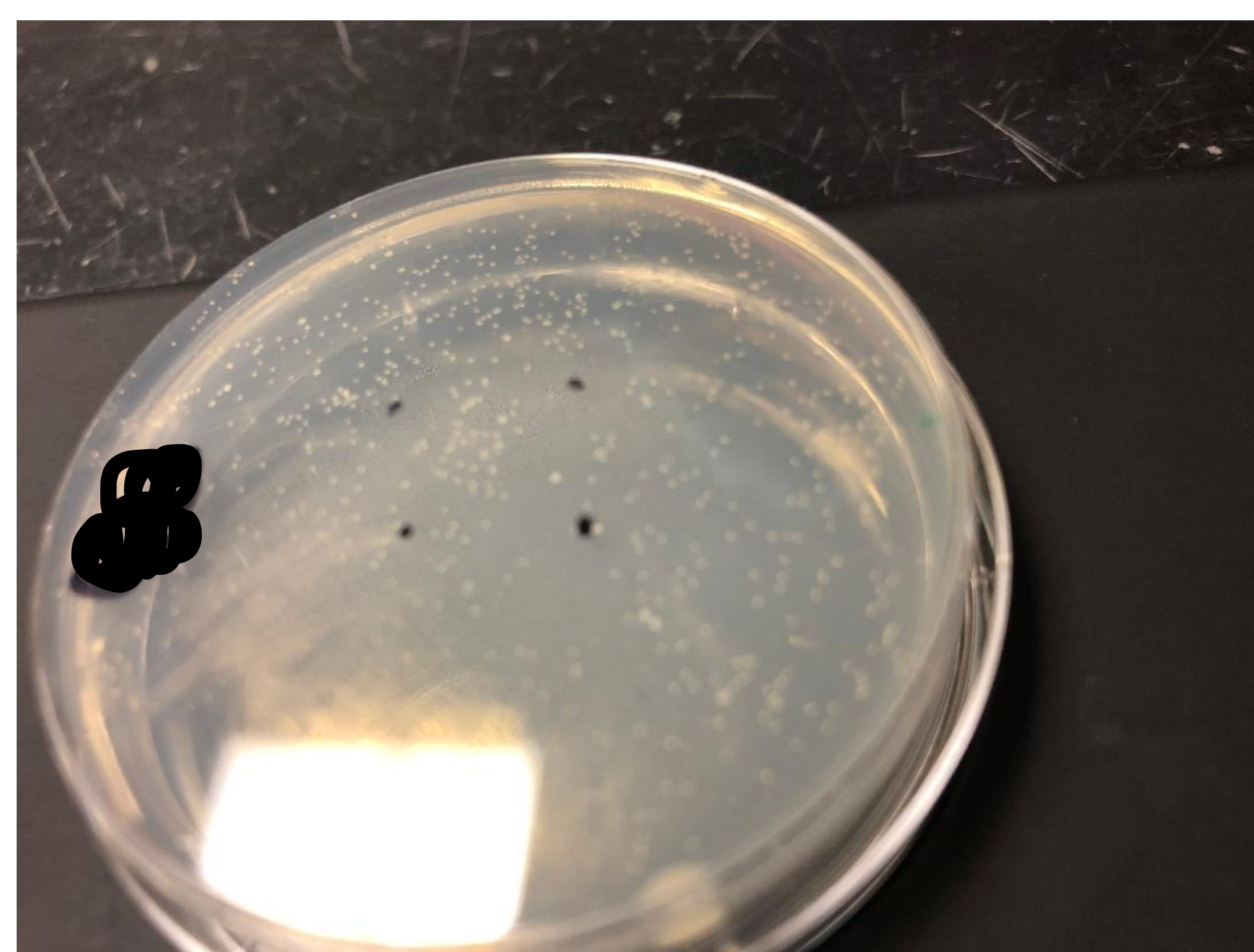
Both right and left hands were swabbed, with the swabs being stored independently from each other. Individual dishes were used for right and left swabs.

Survey:

After swabbing the participants' hands, participants were requested to fill out a sixteen question survey.

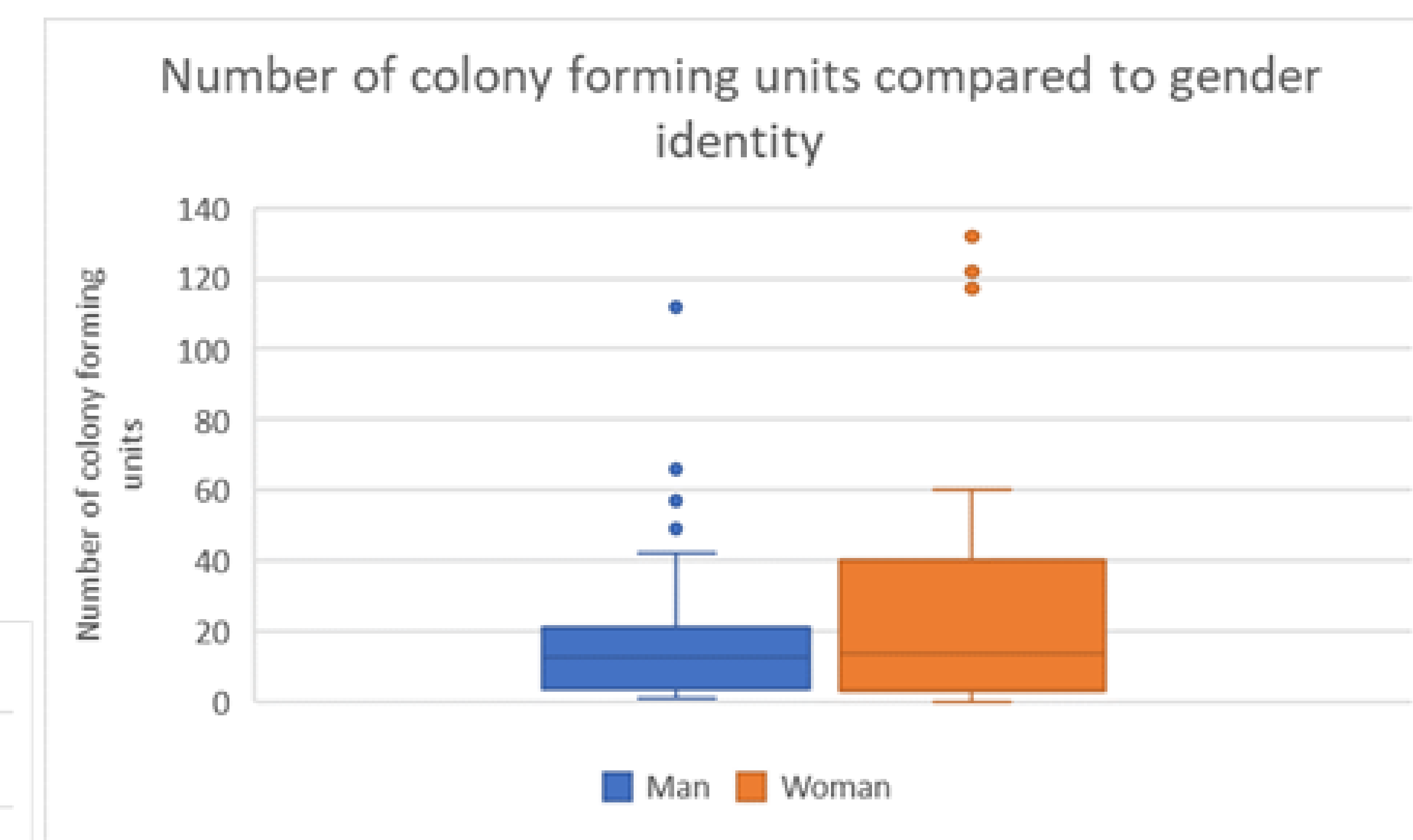
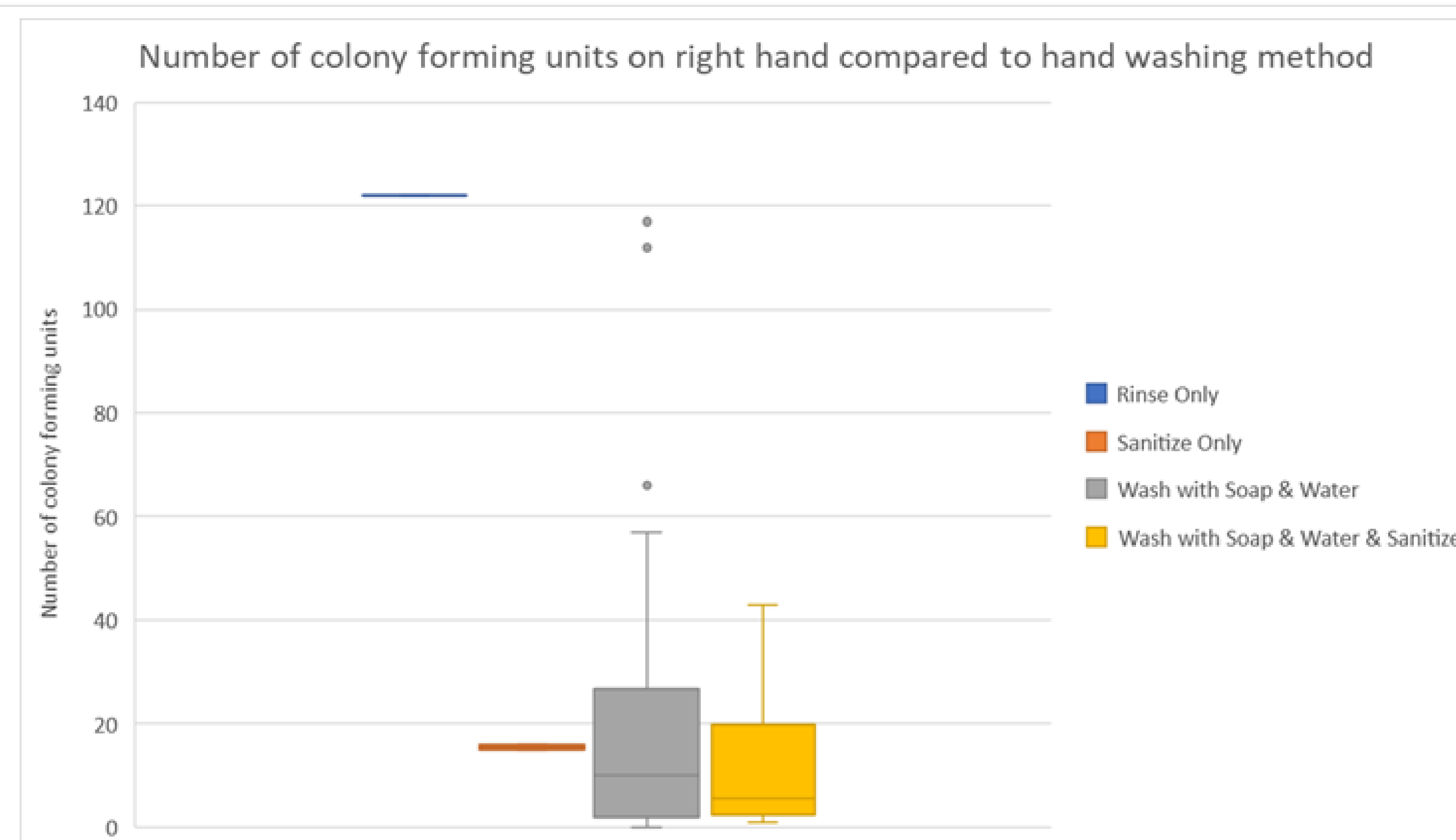
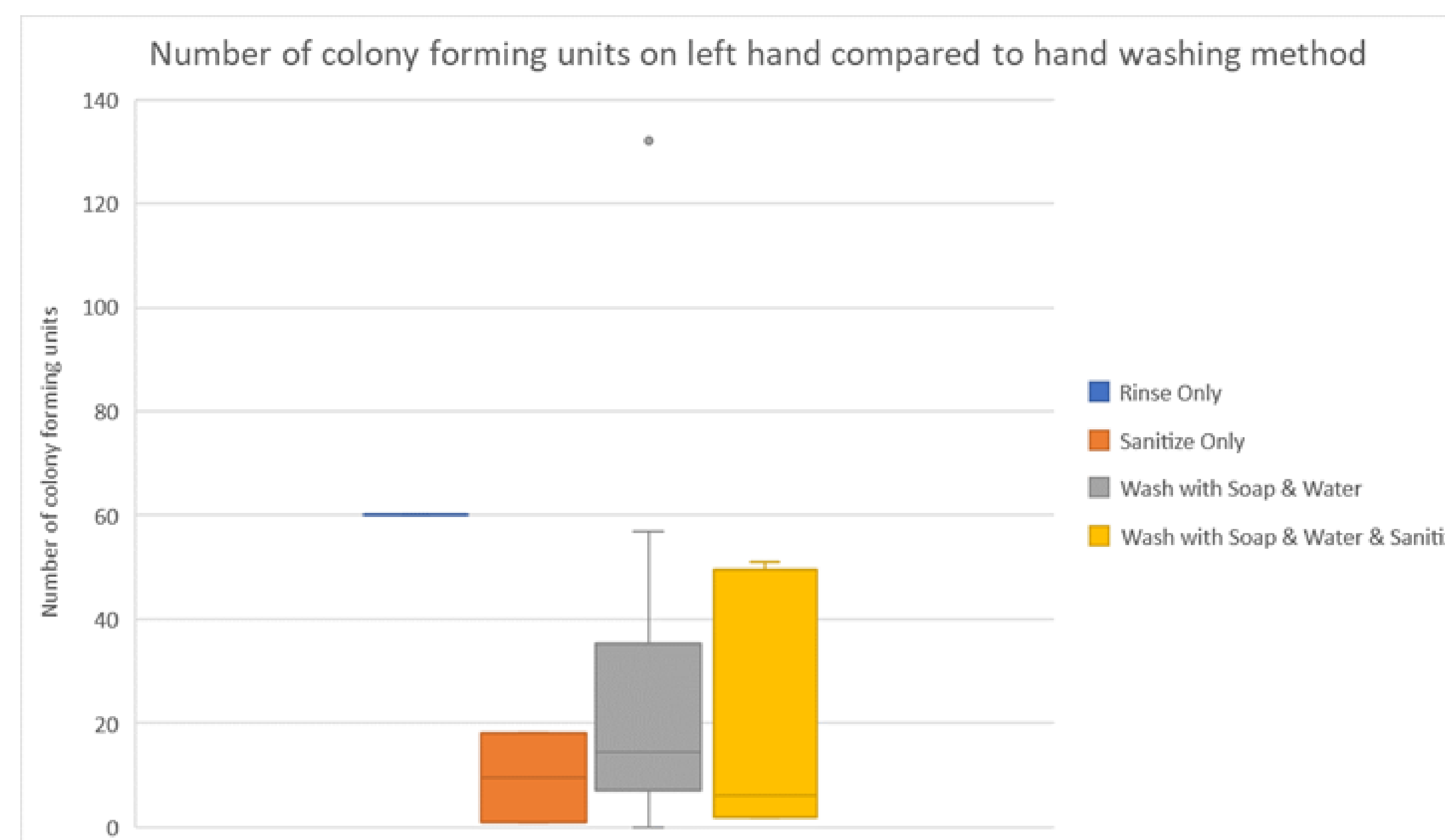
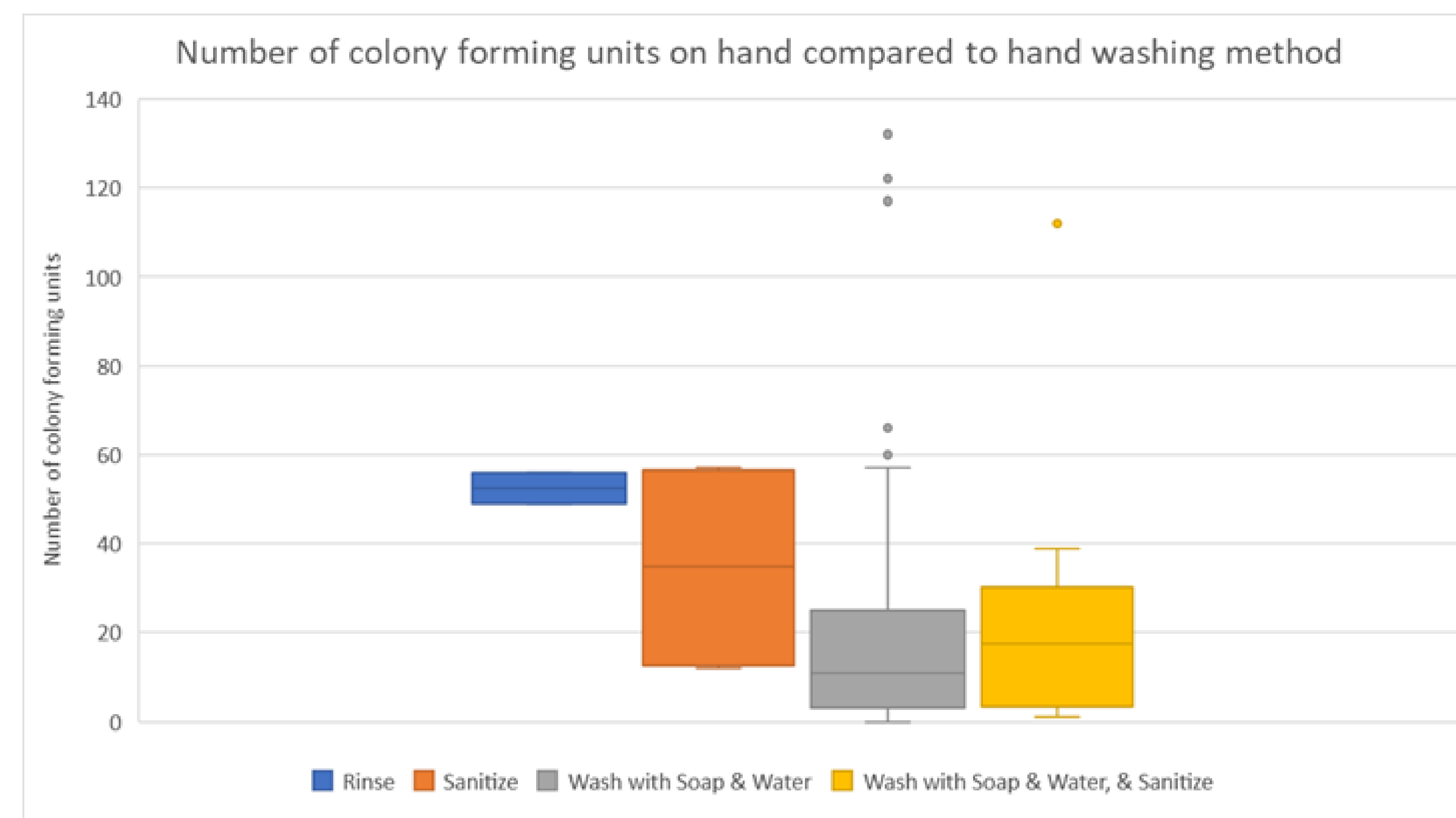
Analysis:

Resulting data was compiled to determine statistical significance of external variables and/or differences between bacteria amounts found on campus versus the standard.



RESULTS

The colonies of microbes were collected and allowed to grow for a two day period in an agar solution. As indicated in methods, the colonies were counted using two separate methods; total colonies and colonies per square cm. A 16 question survey allowed for the comparison of 16 different variables for correlation. Below are a selection of the total results.



CONCLUSIONS

The goal of this experiment was to gather demographic information regarding microbial population sizes on Cleveland State's Campus. After analysis of data, the goal was to observe if any unexpected correlations between any of the 16 variables screened and microbe colony size were obvious. Upon examining the data, it was determined that the sample obtained did not present a random enough population in order to make any real conclusions.

Figure 4. Caption in Calibri, 40 points, bold.

FUTURE WORK

Future work would entail attempting to reproduce the results found in this project or using a different type of bacteria collection, or grow the bacteria in different environments, or collecting bacteria from a different group of people, such as Cleveland residents to see how their bacteria levels compares to the statistics presently available.

References

- Michael Wilson. Bacteriology of Humans: An Ecological Perspective, John Wiley & Sons, Incorporated, 2008.
- Antiggonie Sabulsky, et al.,. Does the Hand Bacteria Level on College Campuses Differ from the General Public?. Poster, 2018.

Acknowledgments

Many thanks to Michele Zinner for her guidance and allowing for our use of lab space.