Introduction

- This project consists of studying the growth of oral bacteria between cats, dogs and humans.
- This test will be on 4 humans, 2 cats and 2 dogs.
- Oral bacteria are microorganisms that live inside of the mouth of humans and animals.
- Cats, dogs and humans have oral bacteria, but the growth differs on how much the oral hygiene is practiced.
- Having the research of oral bacterial growth helps us understand oral health and how we can improve the bacteria orally.

What we know

- Scientists have discovered that there are many bacterias that live in the mouth such as dental plaque, which forms from sugars and starches.
- Bacterial growth occurs in our oral cavity because it provides a warm and moist environment.
- Cats and dogs have different diets and oral construction. This gives animals bad breath and cause tooth loss, instead of cavities.
- Cats and dogs have a diverse oral bacteria such as tartar and plaque (biofilms).
- Common bacterial groups in cats are Pasteurella and Treponema. In dogs, Acrinomyces and Fusobacterium are common bacteria groups.
- Both cats and dogs share Porphyromonas in their oral bacteria.

Question, Problem and Predictions

Question

- How does the quantity of oral bacterial growth compare among cats, dogs and humans?

Prediction

- Dogs will have the highest amount of oral bacteria, cats will have less than the dogs, and humans will have the least.

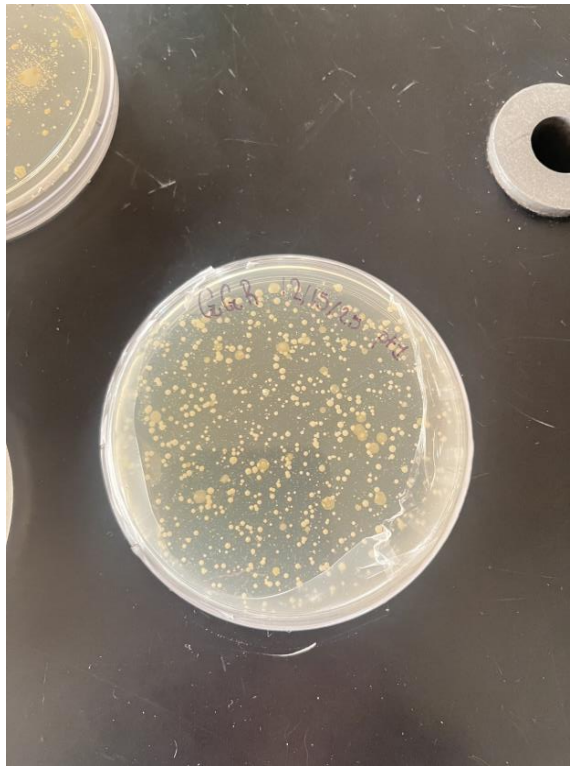
Hypotheses

- When the amount of bacteria in cats, dogs and humans is compared, the dogs will have the most bacteria and the humans will have the least because of regular practice of oral hygine.

Procedures

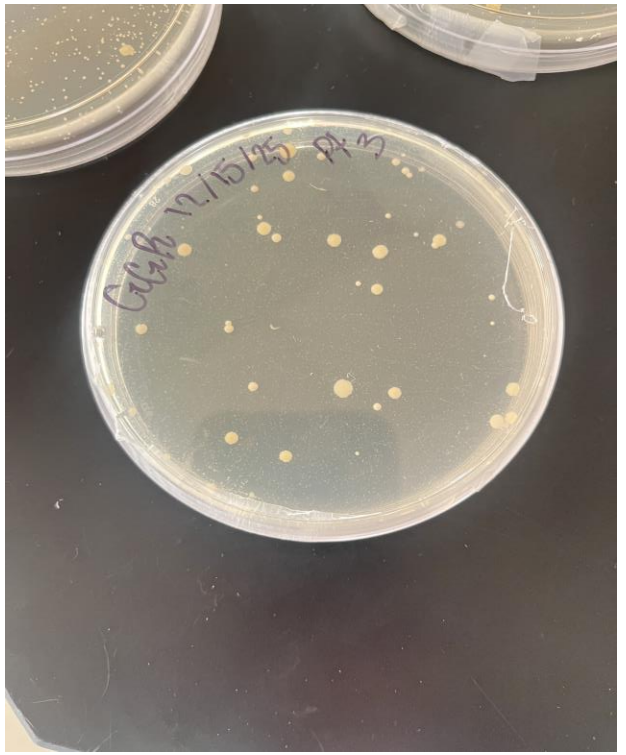
- The items used for this procedure were a sterile swab, a tube, an agar plate, gloves and an incubator.
- The steps to this procedure consist of taking a sterile swab and swabbing the inside of the cheek for 30 seconds. After, the swab with the samples will be swabbed around the entire agar plate making sure to not leave any blank spaces. These plates later were placed into the incubator. The incubator will show the bacterial growth of the samples.

Results in Human Participants

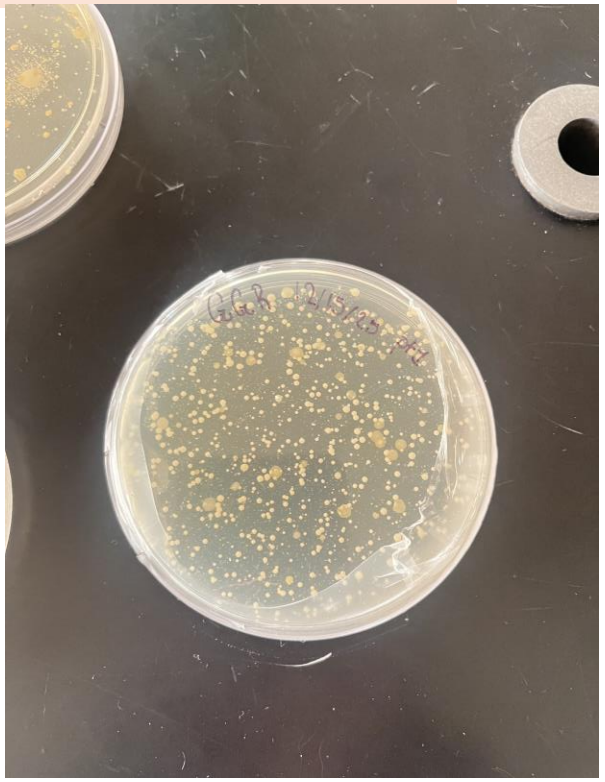


Participant 1

Participant 2

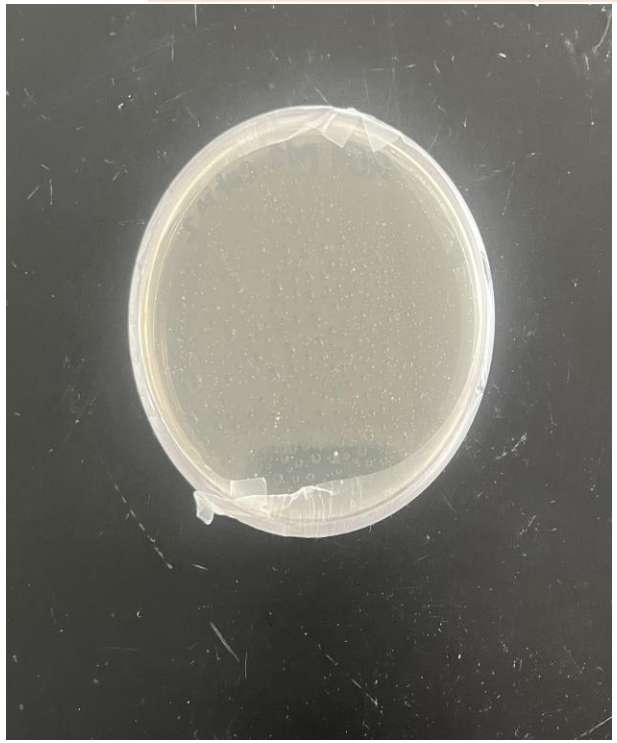


Participant 3

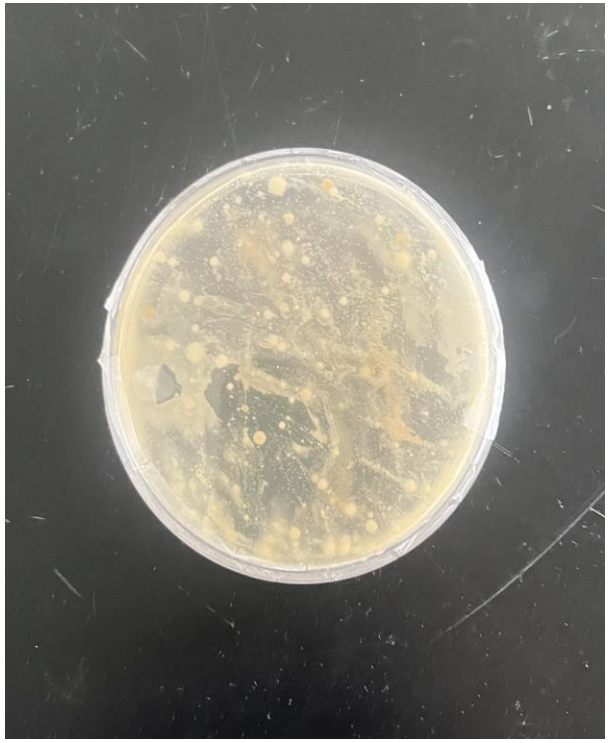


Participant 4

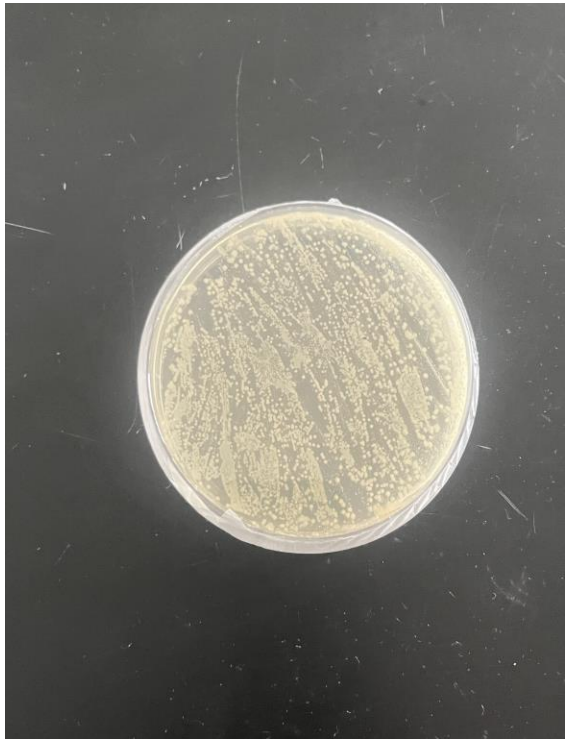
Results in Cats and Dogs



Cat 1



Cat 2



Dog 1

Dog 2

Discussion

- Overall, the results showed that humans had the least amount of oral bacterial growth, while both dogs showed a high level of bacterial growth.
- Out of the two cats, only one cat showed bacterial growth, while the other one showed no growth.
- These results show that humans oral bacteria growth is minimal compared to the cats and dogs. This shows that keeping up with animals oral hygiene is important.
- Oral hygiene and daily habits strongly influence the amount of oral bacteria present.

Implications and ideas for future Research

- Testing a large amount of cats, dogs and humans to see if the results are the same.
- Comparing how brushing teeth before and after affects dental care in cats and dogs.
- Comparing how oral bacteria growth in younger versus older cats, dogs and humans.
- Identifying types of bacteria rather than only the amount of growth.

References

- http://www.sciencefairadventure.com/ProjectDetail.aspx?ProjectID=127
- https://pmc.ncbi.nlm.nih.gov/articles/PMC11434369/