



**CALIFORNIA STATE SCIENCE FAIR
2002 PROJECT SUMMARY**

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Project Title The Effect of Different Substances on How Many Bacteria Colonies They Create in Your Saliva	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The purpose of our experiment was to find out which substance created the most bacteria in your saliva. We used sugars, salts, and fats.</p> <p>Methods/Materials There were only two test subjects in this experiment, as we didn't have enough money or equipment to expand our test pool. Both my self and Alice were the test subjects. The following is a condensed version of how we completed our tests. After our agar media was made, we put the dishes in the autoclave to ensure that no contamination was on the media to make sure the agar was pure. Next we cleaned our mouths with toothpaste and inoculated six petri dishes with just saliva, no substance (three tests per subject per substance). This was repeated with the different substances. Once all 24 plates were inoculated, we incubated them at 30 degrees Celsius for 48 hours. We then compared (by counting bacteria colonies in random squares if the colonies were too numerous to count for the entire dish) bacteria colonies, in the petri dish, and averaged the bacteria counts for each substance per person. We also compared all six of the substances tested against each other to come to our final result.</p> <p>Results In our results, the substance salt produced the most bacteria for Alice, for Denali, sugar created the most bacteria. Combined together, butter produced the most bacteria.</p> <p>Conclusions/Discussion We concluded that just like all animals, bacteria adapt to their surroundings. So the bacteria in one person's mouth is different from bacteria in another person's mouth, just like fingerprints. Bacteria might differ in other's mouth because of different dietary habits, the temperature in your mouth might be slightly higher than in another person's mouth, and brushing habits might be different. Another thing we determined from this project was that there is one "bad" bacteria in your mouth called Streptococcus mutants or S. mutants which thrives on refined sugar. Most of the other bacteria in your mouth receive calories and sugar from the food that goes into your mouth. That is why we got butter (our fat) with the highest counts because it not only contains a lot of calories, it also contains milk which is not a base or acid and being neutral we believe that's why butter had the highest average of colonies and no other counts were very close to the butter tests. We determined that butter most likely does not negatively or positively affect the growth of bacteria cells.</p>	
Summary Statement The purpose of our experiment was to find out which substance out of sugar, salt, and butter creates the most bacteria in your saliva.	
Help Received Mother helped get board, David Perez at Monterey health dept. helped make agar, Granite Canyon lab. used to incubate petri dishes.	