



**CALIFORNIA STATE SCIENCE FAIR
2008 PROJECT SUMMARY**

Name(s) Michelle Chan; Viviane Nguyen	Project Number J1405
Project Title Trust Your Gut When It Comes to Chocolate	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals When it comes to chocolate, we are all torn between love for this luscious treat and fear of its supposed unhealthy hazards. However, there may be an incentive for consuming this indulgence: an intake of antioxidants which prevents heart disease and stimulates cells to become more resistant to forms of cancer. The purpose of this experiment is to compare the growth of the probiotic bacteria Lactobacillus Casei which can be found in our intestines with the application of red wine and dark chocolate. After conducting research, which revealed high antioxidant content in cocoa, a main component in chocolate, we hypothesized that dark chocolate would cause the greatest growth in Lactobacillus Casei, therefore indicating a greater antioxidant, content.</p> <p>Methods/Materials In order to test this claim, we grew replicas of the probiotic bacteria found in our stomach and intestines on Petri Dishes, incorporating either red wine or dark chocolate with the agar solution, and observed their colony growth and the size of their colonies in terms of diameter periodically for forty-eight hours.</p> <p>Results At the end of two day incubation, we discovered that chocolate showed the greatest growth of bacteria colonies. The control dishes followed in second place and the Red Wine Petri Dishes lagged behind with a significantly lower count of colonies. These results were reciprocated in the diameters of the colonies, as chocolate consistently produced colonies of the greatest diameter.</p> <p>Conclusions/Discussion Overall, our hypothesis proved to be correct, with the Petri Dishes containing chocolate displaying the most growth with colonies with the greatest diameter. However, the red wine Petri Dishes showed little to no growth, contesting our hypothesis of closely following chocolate in bacteria growth. Our speculation to this outcome is the alcohol present in the red wine may have killed the bacteria and can be followed up in a future experiment.</p> <p>The results of this project highlights the sufficient health benefits of the nutrients in chocolate and red wine and promotes dark chocolate, which has an overall enhancement towards your health. Although these results are not necessarily life changing, these findings ought to assuage any guilty chocoholics (such as ourselves) for indulging in this heavenly treat.</p>	
Summary Statement This project essentially explores the health benefits of red wine and chocolate through the growth of probiotic bacteria to determine which is more beneficial to the human body.	
Help Received Completed trials under the supervision of teacher and mentor Vivian Flora.	