



**CALIFORNIA STATE SCIENCE FAIR  
2011 PROJECT SUMMARY**

<b>Name(s)</b> Connor J.K. Lyons	<b>Project Number</b> <b>J1606</b>
<b>Project Title</b> <b>Ability of Natural Remedies to Inhibit Growth of Lactobacillus casei Bacteria</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> The objective of this experiment was to determine which of the five natural substances (liquid vitamin C, goldenseal root, Echinacea, oil of oregano, and garlic) would most effectively prevent the growth of the bacteria.</p> <p><b>Methods/Materials</b> The materials used were oil of oregano, Echinacea, goldenseal root, garlic, liquid vitamin C, Lactobacillus casei Bacteria, agar, petri dishes, heat lamp, thermometer, syringe, swabs and view graphs with grid lines. Prepared the bacteria and agar. Took a swab and dipped it into the bacteria and swiped both the top and bottom areas of the target square in the center of the petri dish. Put the natural substance on the bottom portion of the target square. Waited 2-3 days for the results. Repeated this for all substances and one that was used as a control.</p> <p><b>Results</b> Goldenseal root prevented the growth of the bacteria the best and the Echinacea did the worst. The oil of oregano did the second best while the garlic was the most inconsistent. Surprisingly, the vitamin C performed the second worst. Trial 1- Goldenseal Root, Garlic, Oil of Oregano, Liquid Vitamin C, Echinacea Trial 2- Goldenseal Root, Oil of Oregano, Liquid Vitamin C, Garlic, Echinacea Trial 3- Goldenseal Root, Garlic, Oil of Oregano, Liquid Vitamin C, Echinacea</p> <p><b>Conclusions/Discussion</b> My Hypothesis was proven wrong. I predicted that the oil of oregano would inhibit the bacteria the best. The best inhibitor was the goldenseal root. It did not allow any of the bacteria into the target area. The oil of oregano did the second best, the Echinacea was the least effective, the vitamin C was the second worst and the garlic had the most inconsistent results. This project is relevant to the real world because many people are exposed to bacteria. No matter how harmful they are, people should know what to use to prevent bacteria growing in order to reduce chance of being exposed to it. They should be prepared to know which natural substance could help contain and fight off bacteria the best. People can use this knowledge to reduce the risk of getting sick or getting other health related issues. They can also use this information to become aware that some natural substances are not as effective as they were advertised.</p>	
<b>Summary Statement</b> The ability of natural remedies to inhibit the growth of Lactobacillus casei bacteria the best.	
<b>Help Received</b> Mother helped put board together; Father helped make graphs; Mr. Blair helped to create procedure; Kristina from Ward's Science helped with preparation of agar and bacteria	