



CALIFORNIA STATE SCIENCE FAIR
2012 PROJECT SUMMARY

Name(s) Haley H. Shim	Project Number J1608
Project Title Which Food Can Inhibit Bacteria that Cause Food Poisoning?	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals My goal was to find out which food can inhibit Escherichia coli and Staphylococcus aureus. 4 food materials were mugwort, garlic, coffee, and green tea.</p> <p>Methods/Materials I had to prepare mugwort, garlic, coffee, and green tea. Then, I grinded coffee, and blended other food materials by using handmill and blender and measured the weight of food materials, then mix them with water. The Wonkwang University Hospital(Iksan, South Korea) gave me S. aureus and E. coli, then I had to Gram Stain the bacteria. Then the professor(works in that hospital) helped me to insert the bacteria into the nutrient broth and adjusted turbidity by using McFarland Standard. Then I learned how to inoculate the bacteria into the Muller Hinter agar, and I performed it under supervision. Then, I treated the food materials on the agar by using pipette. And I put the S. aureus and E. coli into the incubator (16hours). Next morning, I came to the hospital and checked the inhibition circle by using Vernier Callipers. All the methods were under supervision of my father, and the professor (Ji Hyun Cho). They are both doctors and professors in Wonkwang University Hospital in Iksan, South Korea.</p> <p>Results Garlic inhibits S. aureus and E. coli the significantly. Garlic inhibits S. aureus more than E. coli. Coffee and green tea inhibits S. aureus only. Mugwort cannot inhibit both of them.</p> <p>Conclusions/Discussion My discussion during the project was that agar plate number 3 of S. aureus seemed like E. coli so I had to Gram stain S. aureus and E. coli and the agar plate number 3 of S. aureus then I found out that the agar plate number 3 of S. aureus was E. coli. And I also found out that garlic helps the lactic acid bacteria to grow, and during the Orange County Science Fair judging, one of the judges explained that garlic, coffee, and green tea is little acidic but mugwort is not so maybe that's why the mugwort didn't work on both bacteria.</p>	
Summary Statement I wanted to see if mugwort, garlic, coffee and green tea inhibits Staphylococcus aureus and Escherichia coli .	
Help Received Dad helped me with the charts, and providing the materials; learned from Ji Hyun Cho M.D.; Supervision of my dad, and Ji Hyun Cho M.D.	