



**CALIFORNIA STATE SCIENCE FAIR  
2004 PROJECT SUMMARY**

<b>Name(s)</b> <b>Alexander N. Zere</b>	<b>Project Number</b> <b>S1328</b>
<b>Project Title</b> <b>The Effectiveness of Antibacterial Agents on Different Types of Bacteria</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> The effect an antibacterial agent will have on limiting the reproduction of bacteria, will differ heavily, depending on what bacteria it is being introduced to. Of the three antibacterial agents used, Lysol disinfectant and spray was the most effective in limiting the reproduction of bacteria, with the exception of Escherichia coli, which proved to be immune to all antibacterial agents. Also Windex window cleaner seemed to be the least effective in limiting the reproduction of bacteria, and Listerine mouth wash fell in between the other two antibacterial agents. E. coli proved to be the strongest of the bacteria, having no zone of inhibition for Windex, Listerine, and Lysol.</p> <p><b>Methods/Materials</b> Bacteria. The bacteria used were; Escherichia coli, Pseudomonas fluorescens, and Staphylococcus epidermidis. Escherichia coli was packaged in a broth solution, while Pseudomonas fluorescens and Staphylococcus epidermidis were both packaged in an agar treatment. All three were incubated at 37 degrees Celsius. Antibacterial Agents. Lysol disinfectant and spray, Windex window cleaner, and Listerine mouthwash. To begin experiment one liter of broth is prepared and 3 ways, using a sterile loop, then the incubated bacteria is introduced to broth. These are also to remain at the recommended temperature (above), for 24 hours. After agar has been prepared and cooled, all of the four broth solutions are ready to be plated in agar. Each will be plated twelve times (The bacteria will have four plates for each antibacterial agent, while the control will not be treated). Every plate will be introduced to (.5 ml) of bacteria, and the control plates will be introduced to (.5ml) of a broth solution. After plating you introduce micropore disks (approximately 1 inch in diameter), that have been presoaked in antibacterial agents. Every bacteria will have four plated that are introduced to all three antibacterial agents. All plates are to be sealed shut, and incubated at recommended temp (above) for 24 hours. Observation. The plates are recorded on a grid system in which (1sq. unit) is equivalent to (.25sq. cm.)</p> <p><b>Results</b> Some antibacterials were not as effective as they had claimed. E. coli, was untreatable.</p> <p><b>Conclusions/Discussion</b> Many problems can arise with this experiment some of which, and the biggest one as well, is sterility. Key in a thorough experiment.</p>	
<b>Summary Statement</b> Contrasting several antibacterial agents, on different types of bacteria.	
<b>Help Received</b>	