



**CALIFORNIA STATE SCIENCE FAIR  
2004 PROJECT SUMMARY**

<b>Name(s)</b> Nicholas Jon David; Brendan Eggen	<b>Project Number</b> <b>J1109</b>
<b>Project Title</b> <b>Mouthwash and Halitosis: Do Mouthwashes Really Work as Advertised?</b>	
<b>Abstract</b> <b>Objectives/Goals</b> Our objective for this experiment is to find out if antiseptic mouthwash kills germs that cause bad breath. We also want to find out which mouthwash will kill the most germs. <b>Methods/Materials</b> Five types of mouthwash: Scope Mouthwash, Listerine Mouthwash, Cepacol Mouthwash, Rite Aid Mouthwash, and Albertsons Mouthwash. We had seven sterile dishes, five of them corresponding to each mouthwash, one control, and one that we would not apply mouthwash to. Five sterile cotton swabs for inoculating the dishes, five medicine droppers for dropping the correct amount of mouthwash to the sterile dishes, and a subject or person to provide samples from the mouth. <b>Results</b> Results show that out of the five mouthwashes, the Albertson#s brand and Listerine showed some bacteriocidal properties. The two brands exhibit bacteriostatic effect, because colonies of bacteria seemed to stop growing for a day; but continued to grow after. The other three brands did not kill any bacteria. The colonies in the three dishes continued to grow. <b>Conclusions/Discussion</b> The five brands we used in this experiment all had #antiseptic# or #kills germs# on their labels. Initially, we thought maybe 30 seconds of gargling as recommended directions by all five brands was too short. Maybe it takes longer gargling times to kill the bacteria. Then we looked at the ingredients. Listerine and Albertson#s which seemed to have worked have the same active ingredients. These ingredients are Methyl Salicylate, Thymol, Eucalyptol and alcohol. Eucalyptol comes from the Eucalyptus plant. This plant is a cockroach repellent. This plant is bad for our mouth because it is toxic. In our research we found that Thymol has some antibacterial quality. Cepacol, Scope and Rite Aid contain Cetylpyridinium which is suppose to have antibacterial quality did not kill the germs. Many of the ingredients as we discovered are acids which may not be good for your mouth in the long run.	
<b>Summary Statement</b> An experiment that tests the effectiveness of mouthwash in killing bacteria that causes bad breath (halitosis).	
<b>Help Received</b> Mother helped with the board layout; Father helped in refining the procedure, and edited the report.	