



**CALIFORNIA STATE SCIENCE FAIR
2009 PROJECT SUMMARY**

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| Name(s) Elizabeth A. Bellingham; Hannah J. Gordon | Project Number J1702 |
| Project Title Drinking Bugs: Are Opened Water Bottles Safe? | |
| <p style="text-align: center;">Abstract</p> <p>Objectives/Goals Our Object was to determine the amount of microbial growth in an opened water bottle over a period of time. After testing a number of water bottles, we believed that the microbial growth would continuously increase in a water bottle starting at our control bottle to our E- 8 or experiment 8.</p> <p>Methods/Materials We gathered nine water bottles and labeled them C(for Control) and E- 1 through E- 8. We intentionally did not open the C bottle. On the first day we opened E- 1 and did not take a sip. On the second day we took a sip out of E- 2. On day three we took a sip out of E- 3. On day four we took a sip from E- 4 and so on to E- 8. Also on day eight we took a swab with a sterilized cotton tip from the inside lip of every water bottle and streaked each swab on separate agar- filled Petri dishes. We allowed the microbial growth to develop in an incubator for five days. At that time we collected samples and stained them for morphological identification (size, shape and color staining characteristics). Additionally, we also collected culture swaps for laboratory submission and identification.</p> <p>Results Our data indicates that our hypothesis was incorrect. It is not safe to drink from a used water bottle. Even after one day, we found colonies within the Agar filled Petri dishes. We grew the following bacteria from the water bottles: Staphylococcus spp., Streptococcus spp., Corynebacterium spp., and Moraxella spp.</p> <p>Conclusions/Discussion We grew four types of bacteria from the opened water bottles. These bacteria can be found in the mouth or on skin and may cause clinical disease. By drinking an opened water bottle over a period of time humans become susceptible to food poisoning with symptoms of vomiting and diarrhea. These bacteria are known to cause heart disease, whooping cough, and bronchitis. Our conclusion is that bacteria grow in water bottles over a period of time, and that the bacteria can be harmful.</p> | |
| Summary Statement Our Experiment is determining if bacteria grow in opened water bottles over a span of time. | |
| Help Received Our parents bought materials, drove us to locations such as a pharmacy for experimenting, the supermarket for water bottles, and oversaw our experimenting. We were instructed on techniques with plating, swabbing, staining, and looking through a microscope. We then accomplished the experimenting | |