



**CALIFORNIA STATE SCIENCE FAIR
2017 PROJECT SUMMARY**

Name(s) Mauricio Sosa	Project Number J1129
Project Title A Novel Solution to Pollution	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals I investigated wheatear microorganisms can biological convert carbon into oxygen. My thought was lake microbes can be fed plastics and use carbon from plastics as food source and produce gas. My idea was that microbes from lakes can use carbon from CO₂ and help reduce CO₂ pollution. The microbes that grew under and around the plastics were then transferred into Phenol Red Dextrose Broth. The result showed a color change from red to yellow and the formation of gas. I sent my colonies to GeneWiz for DNA sequencing. The results confirmed that my samples contained Streptomyces, Microbacterium, and Acinetobacter; all which are found in lake waters. These bacteria leave us with the possibilities that they can convert carbon into oxygen. These possibilities not only offer solution to eliminate pollution, but also help decompose plastics.</p> <p>Methods/Materials I made nutrient agar medium to grow my microbes. I performed aseptic plating method in which one inch by one inch plastics are sterilized, dipped into the collect lake water, then placed on the agar plates. All plates were then incubated for two days. In addition, aseptic microbes transfer into Phenol Red Dextrose was performed. Furthermore, I sent some of my colonies to GeneWiz for DNA sequencing. I blasted the sequence to find out what microbes I have.</p> <p>Results The results from my tables and graphs show that a large number of colonies grew around and under the plastics, suggesting microbes found used carbon from the plastics as a food source. Phenol Red Dextrose test confirmed the formation of gas. DNA sequencing further confirmed that the bacteria found are lake microbes that are aerobic. This experiment also suggests that while these microbes have high possibilities of breaking down CO₂ into cleaner gas, they can also help decompose plastics.</p> <p>Conclusions/Discussion My experiment showed that microbes found in lake water can be used to eliminate pollution. I noticed that the fermented tubes changed from bright red to cloudy yellow, and the inverted tube was clear. Large bubbles were formed inside the inverted tube. This means gas has been produced. Also, lake microbes might be an option for plastic waste degradation. I conclude that since Streptomyces, Microbacterium, and Acinetobacte offer novel solution for pollution.</p>	
Summary Statement My project is about offering a novel solution for pollution through the use of microbes to eliminate the effects of pollution on the environment.	
Help Received My science teacher Ms. Sharif is my mentor for this project.	