



**CALIFORNIA STATE SCIENCE FAIR
2017 PROJECT SUMMARY**

Name(s) Vivian Kong	Project Number S0618
Project Title The Quest to Reducing Petroleum Based Pollution: Bioplastic	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals Creation of bioplastics based from banana peels and potato starch to combat plastic buildup and pollution. Test the bioplastics for similar qualities to petroleum based plastic.</p> <p>Methods/Materials Tested the durability, biodegradability, and elasticity of each bioplastic. The potato starch produced two different trials, one with glycerin and one without. The banana peels were dipped into sodium metabisulfite as a preservative agent. One trial used HCl and NaOH in a molarity of .1 and the other in .5 with varying concentrations of sodium metabisulfite.</p> <p>Results The bioplastics were successful in forming. The potato starch created superior plastic to the banana peel plastic as it was stronger, did not decompose, and had a more applicable structure for consumer usage. Both plastics held similar qualities to petroleum based plastic, particularly the potato based plastic with a higher weight tolerance and no decomposing.</p> <p>Conclusions/Discussion The objective to create bioplastic and test its qualities was attained as well as obtaining results to which bioplastic has superior qualities. In the potato starch plastic, the trial containing glycerin proved to be stronger. In the banana peel plastic, a higher concentration of sodium metabisulfite decreased the decomposability rate. Through the testing of several trials, potato starch plastic was concluded to have produced superior results to the banana peel plastic. These bioplastics can further enhance the environment as an alternative to petroleum based plastic.</p>	
Summary Statement I created bioplastics made out of banana peels and potato starch as an effective alternative to petroleum based plastic.	
Help Received	