



**CALIFORNIA STATE SCIENCE FAIR  
2016 PROJECT SUMMARY**

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<b>Project Title</b> What Is the Effect of Using Bioplastic As a Packaging Alternative to Petroleum Based Packaging?	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> I wanted to find out if Bioplastic could be used in food preservation as an alternative to petroleum based packaging (polyethylene terephthalate). I tested for the biodegradability, compostability, water resistance, food preservation, and tensile strength.</p> <p><b>Methods/Materials</b> I tested and observed the Bioplastic against petroleum based packaging (polyethylene terephthalate - PET) in 4 areas: compostability, food preservation, tensile strength, and water resistance. The Bioplastic was produced using vegetable starch, water, glycerin, and vinegar. Three different varieties were produced with corn starch, tapioca starch, and potato starch.</p> <p><b>Results</b> After analyzing my results, I conclude that the Bioplastic food packaging is both biodegradable and compostable. Although it preserves food products up to 75% of the same time as the PET packaging (the control), it is not water resistant as my control. Bioplastic packaging has the ability to withstand forces when food items were placed and had a strain of 1% to 5% more than the control.</p> <p><b>Conclusions/Discussion</b> Bioplastic packaging is a reasonable alternative for storing dry food. It contributes to enriching the soil by replenishing the nutrients through composting. Bioplastics reduce the depletion of nonrenewable resources such as fossil fuels, thus preventing toxic emanations from landfills.</p>	
<b>Summary Statement</b> I created a Bioplastic bag that can effectively store dry food.	
<b>Help Received</b> My science teacher reviewed my use of dependent and independent variables in the context of my project. I built a vermicomposting bin and created Bioplastic for this project.	