



**CALIFORNIA STATE SCIENCE FAIR  
2013 PROJECT SUMMARY**

<b>Name(s)</b> <b>Kaitlyn A. Arst</b>	<b>Project Number</b> <b>J1001</b>
<b>Project Title</b> <b>The Effect of Yeast as a Biodegradable Solution in Decomposing Plastic and Bio Plastic Cups: Year 2</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> The objective is to find out whether the materials in plastic, cornstarch, sugar cane or home made potato starch cups will deteriorate when a home made yeast solution is applied on them. My research shows that plastic and bio plastic materials take decades to decompose and this can create a problem for the health of people and animals. I hope to find a more eco-friendly solution to degrade plastic materials.</p> <p><b>Methods/Materials</b> A yeast solution was spread onto the plastic, cornstarch, sugar cane and potato starch cups. These 4 different types of cups were then buried into containers filled with mulch to see if they would disintegrate.</p> <p><b>Results</b> The results showed the homemade yeast solution degraded the plastic and bio plastic cups. The plastic cup with no yeast solution did not degrade. After a month all the cups with the yeast solution had some sort of degradation. The plastic cup degraded from a weight of .2 ounces to .1 ounce. The Bioplastic cups degraded from a weight of .5 ounces to .3 ounces. There were visible signs of deterioration on the biodegradable cups but not the regular plastic cups. The homemade potato starch cups deteriorated but had water added to them as they melted. The water increased the weight from 2.7 ounces to 3 ounces.</p> <p><b>Conclusions/Discussion</b> My conclusion is that the homemade yeast solution did work to degrade the cups. My hypothesis that the sugar cane cup with the yeast solution worked the best was proven to be correct since it showed more signs of decomposition. The homemade potato starch cups need more strength for it to be an alternative to plastics. In the future I will like to use eggshell powder to strengthen the potato starch cup and use a different household ingredient like vinegar to see if it can degrade both Styrofoam and plastics.</p>	
<b>Summary Statement</b> My objective was to determine whether plastic and Bioplastic materials could be decomposed using a yeast solution.	
<b>Help Received</b> My mother took photos and checked over my work.	