



**CALIFORNIA STATE SCIENCE FAIR  
2009 PROJECT SUMMARY**

<b>Name(s)</b> <b>Aamna J. Abbasi</b>	<b>Project Number</b> <b>J1201</b>
<b>Project Title</b> <b>Biodegradation of a Sugarcane-based Disposable Plate and a Tree-based Disposable Plate in a Landfill</b>	
<b>Objectives/Goals</b> When placed in a landfill, I hypothesize that a sugarcane-based paper plate will biodegrade faster than the traditional tree-based paper plate. Eco-Products has made statements on their website about their products being 100% compostable. I understand that a product that is compostable may act differently in a landfill because the conditions are very different, but I do think that being 100% compostable would help the product biodegrade faster.	
<b>Abstract</b> <b>Methods/Materials</b> My basic design was to try and build a bunch of landfill cells, and make them as close to a real landfill as possible. I tried my best to have all the major layers of a landfill; drainage, geotextile membrane, leachate collections system, and of course trash. Trash in landfills can never be the same. I was afraid that if I had different trash in each landfill, the biodegradation could be because of the differences in the trash, and not because of the plate samples. So I weighed all the different kinds of trash that I put in my landfills.  I set the landfills up in December of 2008, and placed half a weighed Eco-Products sugarcane-based plate and half a Dixie tree-based plate side by side in a single landfill. Whole plates would not fit. At the end of January, February, March and April 2009, I removed the samples and weighed them again and made some calculations to figure out how much degraded.  Calculations 1. The percentage left of each plate at the end of each month is calculated: # Divide the weight of the biodegraded plate by the weight of the original plate # Calculate percentage by multiplying it by 100	
<b>Results</b> The Eco-Products sugarcane-based plates do biodegrade faster than the tree-based plates. The Eco-Products plates are marketed as 100% compostable in 45 days# they did not entirely biodegrade in my landfills, but they did biodegrade much faster than the Dixie plates.	
<b>Conclusions/Discussion</b> Any kind of disposable plate will take up space in a landfill; however, a sugarcane-based plate, uses the leftovers from the sugar making process and will biodegrade faster than a tree-based plate. A single Eco-Products plate is only about 1 penny and a half more than a Dixie plate# a small price to pay to save trees and use a product that will biodegrade faster.	
<b>Summary Statement</b> A comparison of the biodegradation of a tree-based disposable plate and a sugarcane-based disposable plate in a landfill environment.	
<b>Help Received</b> Mother helped with typing and setting up the landfill, and also registering my project for the County and State Fairs.	