



**CALIFORNIA STATE SCIENCE FAIR  
2013 PROJECT SUMMARY**

<b>Name(s)</b> Gennevieve F. Springer	<b>Project Number</b> <b>J1725</b>
<b>Project Title</b> <b>It's Not Easy Being Green: LC-50 Determination and Comparison of Biological Based vs. Traditional Cleaning Solutions</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> The objective is to determine if #eco# cleaners are less harmful to plant germination than traditional cleansers.</p> <p><b>Methods/Materials</b> Radish seeds were placed on paper towel moistened with different concentrations of both #eco# cleaners and traditional cleansers. The number of seeds not germinated was counted daily for 5 days. The data was graphed and an LC50 was generated for each cleanser.</p> <p><b>Results</b> #Eco# cleaners as a group did not have significantly higher LC50 numbers. One traditional cleaner, Fabuloso, was the least toxic to seed germination while one of the #eco# cleaners, Parsley Plus, had an LC50 similar to bleach.</p> <p><b>Conclusions/Discussion</b> Cleansers advertised as #eco# are not necessarily better for the environment, as demonstrated by seed germination. Cleansers advertised as #eco# or green do not have to provide any data to support their claims. They rely on marketing to convince consumers that their products are earth friendly, when in fact they might not be. These data suggest that consumers should be skeptical of marketing claims and not just assume that the #eco# products are better for the earth. Pressure by consumers may also be needed to force companies to prove their #eco# claims.</p>	
<b>Summary Statement</b> This project was designed to determine if "eco" cleansers are less toxic to seed germination than traditional cleansers.	
<b>Help Received</b> My mother drove me to buy materials and pick up photos. My science teacher helped focus my ideas and focus my experiment	