



**CALIFORNIA STATE SCIENCE FAIR
2017 PROJECT SUMMARY**

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Project Title Comparing Effects of Biodegradable vs. Biobased Laundry Greywater on Impatiens Flowers	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The objective of the study was to investigate which environmentally safe laundry detergent would be less detrimental towards plants in the effort to conserve household water by recycling laundry water in daily life.</p> <p>Methods/Materials Each trial of the experiment consisted of three Arabidopsis thaliana plants grown from the seed. One receiving a biobased laundry detergent greywater, the second one a biodegradable laundry detergent greywater, the final plant only tap water. Plant height and number of leaves were recorded over 3 replicates.</p> <p>Results The plant nourished with biodegradable laundry detergent greywater responded the most adversely to its solution. This plant displayed lower growth rates as well as decreased leaf counts. Contrarily, the plant nourished with biobased laundry detergent and the control plant grew at comparable rates with the control plant ending the experiment with a higher count of leaves.</p> <p>Conclusions/Discussion In conclusion, a system that might utilize household greywater to water vegetation and plants should consider using biobased laundry detergent greywater. The plant nourished by biobased laundry detergent greywater performed much better than the biodegradable laundry detergent greywater because of the organic and inorganic chemicals found in each detergent respectively. Ultimately, this will result in decreased consumption of clean household water for watering plants in an environmentally safe way.</p>	
Summary Statement Three Arabidopsis thaliana plants were nourished with biobased and biodegradable laundry detergent greywater. By comparing the height and number of leaves of each plant, I am able to demonstrate that use of biobased laundry detergent grey w	
Help Received My mentor and teacher, Dr. Gregory Lampard, helped me obtain the Arabidopsis thaliana seeds necessary for the project. He also provided a protected environment in his classroom to grow the plants. My parents helped me prepare greywater solutions and purchased the necessary material for this experiment. I	