



**CALIFORNIA STATE SCIENCE FAIR  
2010 PROJECT SUMMARY**

<b>Name(s)</b> <b>Zachary D. Blanks</b>	<b>Project Number</b> <b>S2004</b>
<b>Project Title</b> <b>To Soak or Not To Soak? An Impact Study of Liquids on Basil Seed Germination</b>	
<b>Abstract</b> <b>Objectives/Goals</b> If basil seeds are pre-soaked in isopropyl alcohol, hydrogen peroxide, orange juice, or water prior to planting, then there will be an impact on the germination rate. <b>Methods/Materials</b> 4 liquids were chosen for various chemical properties and known plant effects. Basil seeds were chosen due to quick germination time. Organic soil and peat pots were also selected to grow the basil seeds. Ten seeds were pre-soaked in ¼ cup of each liquid. Seeds were planted in the peat pots and exposed to 24 hours of daylight. Plants were watered with 1/8 cup of tap water each day. The peat pots were placed in a plastic container with a plastic sheet over the top to retain moisture and heat. <b>Results</b> During the control tests, the goal was to see how quickly and how many of the basil seeds would grow without pre-soaking the seeds. The first control test was a failure due to the fact that the seeds were only exposed to 8 hrs of light and had no terrarium. However, during the 2nd control test when the seeds had 24 hours of light per day and had the terrarium, all of the plants germinated on the 5th day; and at the end of the 8th day, the peat pot with the most had 8 of the 10 seeds germinating. 3 separate experimental trials were conducted with 10 seeds soaked in each of the 4 liquids. The 1st trial resulted in germination of all the peat pots except the isopropyl alcohol pot. The seeds that were soaked in the orange juice germinated on the fifth day. H <sub>2</sub> O <sub>2</sub> was the most successful with 100% of the seeds sprouting. H <sub>2</sub> O showed 9 of 10 seeds germinating and OJ had 60% growth success. The 2nd trial also resulted in germination, yet there was reason to believe the signs in the peat pots were mixed up as there was no germination noted in the pot labeled H <sub>2</sub> O. The other 3 peat pots germinated in rates and yields similar to the 1st trial. As a result, the data from the 2nd trial is believed to be corrupted and was not used. A 3rd trial was conducted, but germination did not occur prior to project timelines. <b>Conclusions/Discussion</b> In general, the data supports the hypothesis. The results show H <sub>2</sub> O <sub>2</sub> sped up the germination rate by 20% and germinated 2 more seeds than the control test data. All of the liquids impacted the germination rate of the plants. This data can be useful when trying to determine how to increase the germination rate of not only basil seeds, but possibly other seeds as well.	
<b>Summary Statement</b> To see if basil seed germination rate and yield could be increased by pre-soaking basil seeds in hydrogen peroxide, water, isopropyl alcohol, and orange juice.	
<b>Help Received</b> Mother helped glue board and edit report; Father helped glue board and edit report.	