



CALIFORNIA STATE SCIENCE FAIR 2013 PROJECT SUMMARY

Name(s) Jack L. Shepard	Project Number J1920
Project Title The Amazing Chia Seed	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals This experiment was designed to determine if chia seeds have a measureable advantage over similar seeds in terms of water absorption. The chia seed is believed to absorb over nine times its weight in water, which makes it popular among distance runners and other types of athletes. I wondered if other seeds may share this same characteristic, or if the chia seed is unique in its absorptive ability.</p> <p>Methods/Materials Each seed type (chia, sesame, poppy, and flax) is carefully weighed to 5 grams and placed in a small, airtight container. This is repeated so that there are two containers of each seed, eight containers in total. Fifty milliliters of water is added to each container. Containers are sealed and then agitated every twenty minutes for two hours. They are then left undisturbed overnight. Twelve hours later, liquid remaining in the container is canted off, measured, and recorded. Each container is weighed. Comparison of absorbed fluid among seeds is made.</p> <p>Results Chia seeds did, in fact, absorb a significantly higher percentage of the water over a twelve-hour period. The chia seed actually absorbed all of the available water, which is equivalent to ten times their weight. The flax seed behaved closest to the chia seed, but only absorbed 30% of the available water. Poppy and sesame seeds were far behind at 15% and 12% respectively. In the end, it was calculated that the chia seed absorbed ten times their weight in water during the twelve hour period. Flax seeds absorbed 3.3 times, poppy seeds absorbed 1.5 times, and sesame seeds absorbed 1.2 times their weight in water over the twelve hour period.</p> <p>Conclusions/Discussion This experiment demonstrates that chia seeds did absorb an amazing amount of water compared to their weight. Ten times, in fact. This property seems unique to the chia seeds, although not all types of seed were tested. In this experiment, seeds most resembling chia seeds in size and shape were selected. The absorptive capability of the chia seed is likely one of the reasons that the seeds are favored by athletes who must sustain hydration over long periods of exertion. Future experiments could involve different fluids that more closely resemble saliva or gastric juice, or grinding the seeds to see if that helps other kinds of seeds absorb more fluid.</p>	
Summary Statement How the amazing chia seed absorbs water ten times its weight.	
Help Received My mom helped me measure water content and my dad helped with some typing.	