



**CALIFORNIA STATE SCIENCE FAIR
2013 PROJECT SUMMARY**

Name(s) Helena R. Washburn	Project Number J1729
Project Title The Effects of Homeopathic Therapy on the Regeneration Rate of Planaria	
Objectives/Goals The purpose of my investigation is to determine if different homeopathic medicinal treatments and dosages will effect the regeneration rate of planaria.	
Abstract Methods/Materials I used brown planaria for testing because they are easily seen and capable of bi-directional regeneration. I used 3 top selling homeopathic wound therapy medicines; Aloe Vera, Gotu Kola, and Arnica. Using a scapel I removed the head of the planaria and placed it in a dish of fresh water for regrowth (the head portion of the planaria was not used in testing) I put the body in a petri dish with 15ml of test solution. I did this 9 more times for 10 tests per test group. I have 10 test groups: control of clean water, .15%, .25%, .5% aloe vera solution, .15%, .25%, .5% gotu kola solution, and .15%, .25%, .5% arnica solution. Solutions were created by mixing 3, 5, or 10 drops of homeopathic medicine with 200ml of water. Solution was refreshed daily and planaria were monitored under a microscope for 7 days. Regeneration was considered complete with the development of 2 eyes and triangular head.	
Results The control group had an average regeneration rate of 5.7 days with no planaria death. The .15% Aloe Vera had the best averaged regeneration rate of 5.5 days with no planaria death, the .25% AV solution averaged 6.5 days with a 50% death rate. The .15% Gotu Kola solution had an averaged regeneration rate of 6.5 days with no planaria death, the .25 GK solution averaged 6.5 days with a 60% death rate. The .15% Arnica solution had an averaged regeneration rate of 6 days with no planaria death, the .25% Arnica solution averaged 7+ days with a 40% death rate. All .5% test solution had 100% planaria death after just 1 day.	
Conclusions/Discussion After testing I determined that the homeopathic therapy did affect the regeneration rate of planaria. The .15% solution of Aloe Vera proved to Slightly speed up the rate of regeneration, but the other .15% solutions slowed the process down and as the dosage was increased the planarians ability to regenerate decreased and resulted in death. These are extremely important findings because while they prove that a .15% Aloe Vera solution helps with regeneration; dosage is vitally important, and the other 2 homeopathic therapies were actually harmful to the planaria.	
Summary Statement Homeopathic medicines are becoming very popular so to determine if they really work I chose the 3 top selling wound care medicines and investigated how they effected the regeneration rate of planaria.	
Help Received My mom took pictures of my procedures	