



CALIFORNIA STATE SCIENCE FAIR

2013 PROJECT SUMMARY

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Project Title The Mysterious Benefits of Rice Solutions	
Objectives/Goals Determine the effect of rice solutions on a seed's germination phase.	Abstract The project aims to determine the effect of rice solutions on seed germination. The experiment involves preparing various rice solutions (Whole Grain Rice, Sweet Rice, Basmati Rice, Golden Parboiled Rice) and testing their impact on Wisconsin seeds. The results show that sweet rice significantly slows down germination, while golden parboiled rice has the least impact.
Methods/Materials Materials: 100% Whole Grain Rice, Sweet Rice, Basmati Rice, Golden Parboiled Rice, 2 mL Pipette, 50 mL Beaker, Blender, Weighing Scale, 8 Test Tubes, Centrifuge, 100 Wisconsin Seeds, Distilled Water 50 mL, 4x5 Plastic Well Plate (5).	-Weight out 5.0 grams of rice grains and blend. -Place powdered rice in a plastic cup. -Place 2 mL of distilled water into each test tube. -Weight out 0.5 grams of rice-powder and place in test tube. -Centrifuge for five minutes. -Place one wisconsin seed in each well. -Use dropper to extract the supernatant layer from each of the rice solutions. -Place two drops of the rice-extractions into each well. -Next, obtain one drop of the solid rice from the solution that was centrifuged and place one drop into each of the 20 wells. -Using the dropper, place three drops of distilled water into each of the ten wells (control). -Cover each well plate with clear plastic wrap.
Results Sweet rice slows down the germination process drastically as 50% of the seeds tested under a sweet rice solution, did not germinate. 30% of wisconsin seeds germinated with golden parboiled rice solutions did not germinate, resulting in being the second best solution. Whole grain rice solution came in third and Basmati rice was least effective. For my control group, 40% germinated up to the E stage. Compared to the rice solutions, the amount of germination the wisconsin seeds went under controlled conditions, the percentages were a lot higher, showing that rice solutions slowed down the wisconsin seeds germination.	
Conclusions/Discussion Potential errors could have occurred when placing one drop of rice into each well; a potential difference in concentration. The results could be due to the composition of the rice. White rice has undergone milling, however, it does not contain much of its germ layer which holds the basic nutrients, while brown rice does. Basmati rice showed the least amount of decrease in the germination phase which could be due to a lack of fiber or nutrients.	
Summary Statement I conducted this experiment to determine the effect rice solutions had on seed germination and use these results to determine whether or not similar solutions can provide similar results on cancer cells.	
Help Received	