CALIFORNIA STATE SCIENCE FAIR
2012 PROJECT SUMMARY

Name(s)
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Project Number
J1123

Project Title
Too Salty for Seeds! An Experiment Examining the Effect Salinity Has on the Germination of Pea Seeds

Abstract

Objectives/Goals
The objective of this experiment was to measure the effects the salinity of the water has on the germination rate of pea seeds. It was expected that as the salinity increased, the germination rate would decrease.

Methods/Materials
Five different solutions of salt water were made according to directions in the procedure. Then, 5 bags were gathered per solution and labeled according to directions in the procedure. 10 seeds were placed in each bag on a paper towel and labeled 1-10 on top of the bag. The bags were watered with 20mL of the correct solution and sealed. They were then placed in a box. Every day for 7 days, the lengths of the radicals of each seed were measured.

Results
As the salinity of the water increased, the radical lengths decreased, and therefore the germination rate decreased. Though there was a lot of variation of radical lengths within the different solutions, the overall average showed that the germination rate decreases as the salinity increases. Seeds watered with Solution A (0% salt) had an average radical length at the end of day 7 of 49mm. From there the average length of radicals decreased with Solution B (0.5% salt) at 30mm, Solution C (1% salt) at 19mm, Solution D (2% salt) at 4mm, and Solution E (3% salt) in which there was no growth of radicals.

Conclusions/Discussion
Salinity is a big problem in the world today in places such as Australia and even California. As the salinity of the soil increases, the germination rate decreases. This causes lower production of crops, loss of income, and loss of land to grow crops. The greater salinity of the water, the shorter the radicals of the seeds and the germination rate is decreased. This supports the hypothesis.

Summary Statement
The effects of salinity on pea seed germination.

Help Received
Parents helped buy materials