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**Project Title**

Will Increased Levels of Acid Affect Bean Seed Germination?

**Abstract**

Objectives/Goals

The purpose of this project was to find out if acid rain affects seed germination. For this purpose I used different levels of acidic solution of white vinegar with water. I used the following amounts:

- 0% vinegar- 100% water
- 10% vinegar- 90% water
- 20% vinegar- 80% water
- 30% vinegar- 70% water
- 40% vinegar- 60% water
- 50% vinegar- 50% water
- 60% vinegar- 40% water
- 70% vinegar- 30% water
- 80% vinegar- 20% water
- 90% vinegar- 10% water
- 100% vinegar- 0% water

The vinegar used in this experiment is obviously not falling from our sky, but it is a good substitute for sulfuric acid that comes with rain. Vinegar is a good substitute because as acidic as the pollutants in acid rain.

Methods/Materials

I soaked ten bean seeds in each of the different acidic solutions for 24 hours before plant them in soil. I wanted to find out how acid rain affects a plant's seeds before they were planted for germination, even though they looked healthy. I placed the seeds and marked them according to % of vinegar and water. I observed them for two weeks.

Results

The results of this experiment confirmed my hypothesis that seeds with lower level of acid will germinate. Actually, the only bean seed that sprouted were the ones soaked in pure water (pH=7), the others didn't germinate.

Conclusions/Discussion

The experimental data shows that the seeds soaked in pure water sprouted and the seeds soaked in a solution with any amount of vinegar died. As I observed my experiment I noticed that something like fungus came out of some seeds. After the two weeks my experiment lasted, I tried to find the seeds and see what happened to them. I just found some of them, it looks like some decomposed and got melted.

Summary Statement

The purpose of this project was to find out if acid rain affects seed germination.

Help Received

Mom helped with the board, Dad bought materials needed