



**CALIFORNIA STATE SCIENCE FAIR  
2006 PROJECT SUMMARY**

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**Project Title**  
**To H(2)O(2) or Not to H(2)O(2) for Better Seed Germination?**

**Abstract**

**Objectives/Goals**  
Does the concentration and soaking period of hydrogen peroxide effect the germination time for a seed?

**Methods/Materials**

1. Household Hydrogen Peroxide (H<sub>2</sub>O<sub>2</sub>) 3-5% concentration
2. Water (H<sub>2</sub>O)
3. Measuring cups
4. Strong cups to soak seeds in
5. Enough seeds with roughly same germination time and pick flowers or vegetables.

Following seed types were used:

- a. Sunflower large seed
- b. Gypsophila small seed
- c. Marigold large seed
- d. Morning Glory large seed
- e. Bachelor Button large seed
- f. Snapdragon small seed
- g. Aster small seed

6. Planter box

**Results**

My expectations were that the solution with 50% water and 50% hydrogen peroxide and soaking the seeds would be the most effective. From the data no clear pattern could be seen. Snapdragons seeds seemed to germinate better with minimum soaking and with lower or no H<sub>2</sub>O<sub>2</sub> in the soaking solution. Marigold seeds did better with longer soaking periods, and concentration of H<sub>2</sub>O<sub>2</sub> did not seem to matter. Sunflower seeds needed longer soaking, and lower H<sub>2</sub>O<sub>2</sub> concentrations. Morning glory much like Snapdragons preferred shorter soaking periods and lower concentrations of H<sub>2</sub>O<sub>2</sub>. Gypsophila seeds were very sensitive to both soaking time and H<sub>2</sub>O<sub>2</sub> concentrations. They germinated best with no H<sub>2</sub>O<sub>2</sub> in the solutions, and other seeds germinating did better with shorter germination times. Aster seeds, did better at 12 hour soaking periods. They seemed to best with the lower concentrations of hydrogen peroxide. Bachelor Button, did better at a 12 hour soaking period, and in the presence of hydrogen peroxide. Seed size did not seem to matter. Large seeds and small seeds all seemed to germinate at different rates, regardless of soaking time or % hydrogen peroxide.

**Summary Statement**

This project concerns the effects on seed germination, from being soaked in varying concentration of hydrogen peroxide.

**Help Received**

Father helped type and set up, mother helped set up