# CALIFORNIA STATE SCIENCE FAIR
# 2009 PROJECT SUMMARY

**Name(s)**
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**Project Number**
**J0411**

**Project Title**
## Extraction of Strawberry DNA: How Does Processing of Strawberries Affect the Amount of DNA Extracted?

**Abstract**

**Objectives/Goals**
How does the processing of strawberries affect the amount of DNA extracted?

**Methods/Materials**
Four batches of strawberries were treated differently prior to extracting DNA: Control at room temperature, Freezing overnight, Boil with distilled water, and Baked at low temperature.

For each portion of strawberries I did same procedure to extract DNA: mash and blend strawberries in food processor. Heat the strawberry mixture. To the strawberry blend add detergent enzyme buffer mixture. Strain mixture of lysed cells through nylon filter. Take filtered solution and place into a test tube, add ice chilled rubbing alcohol. Sludge forms. This sludge layer is the extracted DNA. Add one drop of blue dye. Measure quantity of DNA.

The DNA was then placed in a agarose gel, and electrophoresis performed. This DNA was compared to a known sample of cut DNA ladder.

**Results**
There were slight differences in the amount of DNA extracted from each sample of strawberries. The Boiled and Frozen treated strawberries yielded more DNA than the non treated room temperature strawberries. The Baked strawberries had the least amount of DNA.

**Conclusions/Discussion**
Boiling and Freezing the strawberries may have improved the yield of DNA in solution by helping break down the cell membrane allowing more DNA into solution. With the Boiled sample having the most DNA possibly from the heating of cells to 212 F for only 5 minutes may have broken down the DNAse enzymes without harming the DNA.

The Baked Strawberries at 170 F may have stimulated the DNAse enzymes causing the DNA to be broken down, or the one hour time at this temperature may have been too much and DNA may have broken down as strawberries slowly cooked.

**Summary Statement**
DNA was extracted from strawberries that had been pre treated with different conditions: room temperature, freezing, boiling, and baking.

**Help Received**
My father helped with initial project planning.