



**CALIFORNIA STATE SCIENCE FAIR
2004 PROJECT SUMMARY**

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| Name(s) Lauren E. Christensen | Project Number J0404 |
| Project Title Your Kitchen Is Your Lab: Extracting Onion DNA | |
| Objectives/Goals My project objective was to extract a DNA sample from an onion in my kitchen using materials commonly found at home. The goal of my project was to perform the experiment, extract the sample and then to get confirmation that I had been successful. | |
| Abstract Methods/Materials an onion, 1tsp salt, 1/4c of liquid dish-washing soap, 1/8tsp of meat tenderizer (available at supermarkets), 1 16oz bottle of chilled rubbing alcohol, 1/4c warm water, 1 coffee filter paper, wooden toothpicks, knife and chopping board, mesh strainer, handheld blender, small container, glass measuring cup, basic microscope (I used a Meade model 9260), glass slides, kitchen timer, measuring spoons and cups, rubber spatula. Method: Peel and cut 1/2 of the onion into small pieces. In glass measuring cup dissolve measured salt into measured tap water. Add chopped onion. Using hand blender, blend for 3 seconds. Put bottle of alcohol into refrigerator. Transfer onion mixture into small container. Add measured amount of dish soap. Using a toothpick, stir this mixture for 5 minutes (set timer or have someone help you). Line mesh strainer with the coffee filter and set over glass container. Pour onion mixture into filter to strain. This will take about 30 minutes. Remove filter with remaining onion, discard. Add meat tenderizer to the strained/filtered onion goop in a clean glass measuring cup. Set timer and stir with clean toothpick for 5 minutes. Note the amount of goop in the measuring cup. Remove chilled alcohol from refrigerator and slowly, without stirring, pour in an amount equal to onion goop. DNA will float up through alcohol. Swirl DNA onto clean toothpick. It will look like clear snot. Smear sample on clean glass slide. Look at sample with microscope or high powered magnifying glass. | |
| Results Using the procedure set forth on the web site, I was able to remove what seemed to be a DNA sample. | |
| Conclusions/Discussion I sent out several emails to various professionals asking for help in determining if my experiment really worked. Dr Linda Walling, Associate Dean of Biological Science from UCR-Riverside responded and agreed to look at what I had. During our meeting I explained my experiment and showed her pictures I took through my microscope of my slides. She confirmed that my sample really was DNA. My conclusion and what I learned from this experiment is that you can extract DNA from an onion using common items found at home in your own kitchen. | |
| Summary Statement How to extract DNA from an onion in your kitchen. | |
| Help Received Mother helped type and photograph me while I did experiment, Professional opinion Dr. Linda Walling, Professor UCR Riverside | |