



**CALIFORNIA STATE SCIENCE FAIR
2007 PROJECT SUMMARY**

Name(s) Varun K. Rau	Project Number J0417
Project Title How Vulnerable Is DNA?	
Objectives/Goals My project involves extracting DNA from onions, apples and bananas and to study the effects of various stimuli on the extracted DNA.	
Abstract Methods/Materials Procedures: 1. Pour 120 ml of bottled water into clean glass container and add 1.5 grams of table salt and 5 grams of baking soda. 2. Add 5 ml of laundry detergent with the baking soda, salt, and water. 3. Chill the buffer to slow DNA degradation. 4. Chop the plant matter into small pieces. 5. Pour 10 ml water into the blender with the plant matter and pulse. 6. Take out 1 tablespoon of the material and put it into a plastic container. 7. Put 2 tablespoons of the chilled buffer into the plastic container with the material and stir. 8. Place nylon stocking on another plastic container. 9. Pour all the fruit/vegetable mixture through the nylon-covered container. 10. Put 5 ml of the result into the test tube. 11. Put 5 ml of the Isopropyl Alcohol into the test tube very slowly. You will see DNA! 12. Place the test tube into a pot of water and depending on the test either boil the water or just keep the water at room temperature OR put the chemical into the test tube and observe. 13. Record results. Materials: 4,600 ml of bottled water; 45 grams of salt; 150 grams of Baking Soda; Crushed ice; 6 bananas, apples and onions; Isopropyl (rubbing) alcohol; A test tube; Knife; Blender; Stirrer; Detergent.	
Results The results showed that the vulnerability of the DNA to different stimuli varied based on the source of the DNA as well as the kind of stimuli used.	
Conclusions/Discussion After I finished my experimentation, I came up with some astonishing results. I have concluded that different stimuli have differing affects on DNA degradation that was as I had hypothesized. However, contrary to my hypothesis, banana DNA is the least vulnerable to household chemicals, Onion DNA is the second most vulnerable and apple DNA is the most vulnerable suffering significant degradation.	
Summary Statement My project is about the extraction of DNA from different plant sources and assessing its vulnerability to different stimuli.	
Help Received My mother allowed part of the kitchen counter to be converted to a lab for the duration of the project. My father provided continuous support and Mr. Fleck my coach advised and encouraged.	