



**CALIFORNIA STATE SCIENCE FAIR
2004 PROJECT SUMMARY**

Name(s) Laila M. Nikaien	Project Number S1316
Project Title The Effect of Ultraviolet Light on Yeast Colonies	
Abstract Objectives/Goals The initial purpose of this experiment was to develop a strain of yeast immune to ultraviolet (UV) light, by means of continuous exposure of the yeast to UV light. This objective couldn't be fulfilled because the period of time in which 99.9% of the yeast would be killed under the UV light couldn't be determined. As a result, the objective altered to determine the length of time in which 100% of the yeast would be killed under the UV light. Methods/Materials Active Dry Baker's yeast was waken up from its dormant stage by adding it to three ounces of warm water containing two tablespoons of sugar. A cotton swab was dipped into this solution and used to make a smear onto an agar plate. This plate was placed into a 33.6°C incubator for 36 hrs. A sample of this yeast culture was taken and diluted using 50 ml of distilled water. A cotton swab was dipped into this dilution and used to make a single smear onto each agar plate being put under the UV light for the different lengths of time, ranging from 20 mins. to 10 hrs. Similarly, a control plate was prepared that wasn't exposed to UV light. Each agar plate was placed under the UV light for its specified period of time. Then, all the agar plates including the control were placed into the 33.6°C incubator for an average of 16 hrs. Results Based on the experiments conducted, the number of yeast colonies was noticeably reduced due to exposure to UV light. The correlation between the lengths of time the yeast was under the UV light and the resulting colony growth was shown by numerically ranking the agar plates. The highest rank is the plate with the greatest number of yeast colonies and therefore, the lowest rank is the plate with the least number of yeast colonies. The control has a ranking of 8, and the agar plate exposed to UV light for 10 hrs. has a ranking of 1. This indicates that as the number of hrs. in which the yeast was under the UV light increases, the number of the yeast colonies decreases. Conclusions/Discussion Overall, this experiment has revealed that yeast cells can endure the abusing effects of UV light for up to 10 hrs. Since 100% of the yeast cells couldn't be destroyed, a strain of UV-immune yeast couldn't be formed. During this experiment, it became apparent that UV light has a significant effect in decreasing the yeast colonies.	
Summary Statement The initial purpose of this experiment was to develop a strain of yeast immune to ultraviolet light; therefore, the objective altered to determine the length of time in which 100% of the yeast would be killed under the UV light.	
Help Received	