



**CALIFORNIA STATE SCIENCE FAIR  
2007 PROJECT SUMMARY**

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| <b>Name(s)</b><br>Sienna M. Silberkleit  | <b>Project Number</b><br><b>J1835</b> |
| <b>Project Title</b><br><b>Should Whitening Toothpastes Be Given the Brush Off?</b>  |                                       |
| <b>Abstract</b><br><b>Objectives/Goals</b><br>The objective is to determine if whitening toothpastes are effective and if so, are they equally effective on stains of coffee, tea, and grape juice? My hypothesis is that whitening toothpastes are effective, but not all equally effective on stains.<br><b>Methods/Materials</b><br>Ceramic tiles were stained in 64 oz. solutions. One group was stained with coffee, one with grape juice, and one with tea. Five whitening toothpastes were tested: Mentadent Advance Whitening, Simply White, Crest Whitening Expressions Cinnamon, Aquafresh Extreme Clean, and Arm and Hammer Advance White. Each toothpaste was tested with a new toothbrush, applying 1/4t. of toothpaste to the brush, and then brushing the tile for 60 seconds, then rinsing and drying. The brushed tiles were then taken to Home Depot for a pigment match. Home Depot's reading told how many ounces or fractions of ounces of pigment would be required to match the brushed tile. The pigment ounces and fractions were added, then converted to decimal form, and then compared to the control sample in each category to determine the percentage of change in pigment.<br><b>Results</b><br>The whitening toothpastes were effective in reducing pigment. Colgate Simply White reduced tea staining by an average of 64%. Arm and Hammer Advance White and Crest Whitening Expressions reduced coffee stains by 67%, and Mentadent lifted the pigment base to white from a secondary shade on grape juice stains. Colgate Simply White reduced grape juice stain by 71%.<br><b>Conclusions/Discussion</b><br>My hypothesis was correct. Whitening toothpastes are effective though the user should consider the nature of the staining as not all whitening toothpastes were equally effective on removal of different stains. |                                       |
| <b>Summary Statement</b><br>Whitening toothpastes work, but may not all be equally effective on coffee, tea, and grape juice stains.   |                                       |
| <b>Help Received</b><br>My mother helped type the report and Home Depot helped in the paint center with pigment readings.  |                                       |