Concentration of Red Dye in Sports Drinks

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This project was an analysis of how much Red Dye 40 various sports drinks contain. The negative effects of Red Dye 40, as well as the increasing popularity of sports drinks, were the motivation in conducting this project. Concentration was determined by creating a set of standards with a known stock solution. The concentration of the stock solution was calculated using Beer's Law. Using a spectrophotometer the absorbances of each standard were measured and a graph was formed of concentration versus absorbance. The absorbance of each sports drink was found and then the concentration was calculated using the standards curve. The hypothesis was disproved, as darker drinks didn't consistently correlate with a greater concentration. Powerade and Gatorade Fruit Punch both contained the same amount of Red Dye 40. In the future this could be used to help the FDA set limits on how much Red Dye 40 food and drink products can contain.