Measuring the Concentration of FD & C Blue No.1 (Brilliant Blue FCF) in Different Beverages Using Resistance

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The purpose of this investigation is to assess the concentration of FD&C Blue No.1 in different beverages. Also, this experiment investigates how bleach interacts with the blue dye solution. Two energy drinks, six juices and a soda were the beverages studied in this experiment. The researcher hypothesized that the energy drinks will be the beverages with the highest concentration of FD&C Blue No.1. To assess the concentration of the blue dye in the different beverages, a LED circuit was assembled using a multimeter and a photoresistor to measure the resistance of the solutions. The resistance for each solution was recorded three times and averaged. The actual resistance for each drink was calculated by subtracting the water resistance from each average resistance. For the assessment of the interaction between bleach and FD & C Blue No.1, the investigator recorded the resistance of a concentrated blue dye solution mixed with different quantities of bleach. The resistance was recorded three times in three different trials for each bleach solution recording the time lapse until the neutralization of the dye. After measuring the resistance for the different solutions, the beverages with the lowest concentration of blue dye were the energy drinks. Also, the analysis with bleach shows that the solution with the highest quantity of bleach neutralizes the blue dye, faster than the other solutions. These results do not support the alternative hypothesis, so the researcher concluded that the energy drinks had the least concentration of FD & C Blue No.1.

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