Where Does Energy Come from in Energy Drinks?

DeLoach, Matthew

An energy drink is a type of beverage containing the stimulant drug, caffeine, sugar (glucose and sucrose), and electrolytes. With the aim to determine the amounts of caffeine, total sugars, and electrolytes conductance in 6 popular energy drinks, an experiment was conducted. This study is useful to understand how to safely use energy drinks for young adults or developing teens (aged 13-18). Developing teens should have no more than 100 mg of caffeine daily. Caffeine in tested energy drinks of this work is ranged between 77 and 223 mg. Except for Red Bull (77mg of caffeine), caffeine in other 5 products (>150 mg of caffeine) are above the limits of suggested dosage. All tested energy drinks provided a good amount of electrolytes that are important for cells to maintain voltages across their cell membranes and to carry electrical impulses across themselves and to other cells. As found in this study, invertase enzyme could only convert a maximum 38% of 10% (w/v) sucrose into glucose in 20-50 minutes. Therefore, actual found sugars in these drinks should be higher than 46 grams in Rockstar, Full Throttle, NOS, and Monster. Red Bull contained 24 grams of sugars, and 5-Hour Energy did not contain sugars. In conclusion, this study proved my hypothesis that 6 popular energy drinks contain large amounts of caffeine, sugars, and electrolytes. According to this research, developing teens should not consume energy drinks because high dosages of caffeine and sugars were found from 5 out of 6 drinks.

Awards Won: