

Formulation of Nutritionally Superior Energy Drink Using Locally Available Fruits and Vegetables

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Energy drinks provide electrolytes, readily available carbohydrates and B vitamins to enhance energy metabolism. Subsequently, energy beverages are supplemented with stimulants such as caffeine and other additives. Though energy drinks are very important to athletes, students and elderly people, long-term exposure to various components of energy beverages may cause adverse health effects. The present study aimed to develop a nutritionally rich natural energy drink using locally available fruits and vegetables. Products were prepared using different combinations of beet root, dragon fruit, watermelon, pomegranate and orange juices and king coconut water. These products were subjected to several sensory evaluations employing 9-points hedonic scaling by 40 untrained panelists. Data were analyzed by performing Friedman test ($P < 0.05$) and best formula was selected. Initial mixture of juice was prepared using the selected formula and it was clarified by centrifuging with clarifying agents. Using this clarified juice, three sets of drinks were prepared by adding sodium benzoate and sodium metabisulfite separately as preservatives and without adding preservatives. Storage stability was evaluated by analyzing the physicochemical and microbiological properties of these samples during the storage under refrigerated condition (4°C) and at room temperature (25°C). Data were subjected to analysis of variance and mean separation ($P < 0.05$). The selected best formula contained beet root (40%), watermelon (20%), pomegranate (30%) and orange (5%) juices and king coconut water (5%) by volume. It contained 54.74 kcal.g⁻¹ energy and 12.37 g of carbohydrate per 100 mL. Shelf stable energy drink with good sensory properties can be formulated using beet root, watermelon, pomegranate, orange juices and king coconut water in proportions (percent by volume) of 40, 20, 30, 5, and 5 respectively and with 50 ppm of sodium benzoate as a preservative.

Keywords: Energy drink, Nutrition, Formulation, Fruits, Vegetables