

EVALUATION OF THE EROSION POTENTIAL OF FOURTEEN COMMERCIAL BEVERAGES BY MEASURING PH AND DETERMINING TITRATABLE ACIDITY

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Chemical factors that determine the erosive potential of food and beverages include pH value, mineral content, buffer properties (titratable acidity and buffer capacity), etc. The goal was to determine the pH and titratable acidity (TA) in fourteen commercially available beverages. Five carbonated soft drinks (among them two energy), two sports drinks, two fruit juices, two teas and three alcoholic drinks were evaluated. The initial pH was measured using a pH meter, and TA was determined by titration with NaOH. The pH and TA data were recorded as mean values of triplicate measurements \pm standard deviation. The pH values ranged from 2.51 (Guarana No Sleep) to 6.64 (green tea), and TA ranged from 0.54 ml (Coca-Cola) to 4.28 ml (orange juice) of NaOH to reach pH 5.5, and 1.08 ml (chokeberry juice) to 5.83 ml (orange juice) to reach pH 7.0. Literature data suggest that unsaturated substances with low pH and high TA have a high erosive potential. Drinks such as Guarana No sleep, Schweppes Bitter Lemon, Coca Cola and Sprite were found to have a pH below 3.0 and can be extremely erosive (Guarana have the highest TA) if consumed frequently, and with the habit of holding in the mouth. Also, regular and large consumption of drinks with a high TA (orange juice and Red Bull) could increase the risk of dental erosion, regardless of their pH above 3.0.

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