ABSTRACT

The purpose of this in vitro study was to evaluate the effects of carbonated drink, sports drink and fruit juice on enamel specimens, using mean percentage weight loss and mean percentage reduction in surface micro-hardness.

Test beverages in this study included: Coca-Cola, Pocari Sweat, Minute Maid Pulpy Orange, and distilled water (control). The teeth samples are sectioned into uniform segments (approximately 1mm x 3mm x 3mm). Each drink was evaluated for its pH, titratable acidity which was determined by adding 0.1N NaOH to a pH of 5.5 and 7.0. The specimens were immersed in each beverage and percentage weight loss and surface micro-hardness reduction of the enamel samples was calculated after intervals of 6 and 25 hours. The data was subjected to statistical analysis at $p<0.05$ level of significance.

The pH of all the test beverages ranged from 2.34 to 3.65. Pocari Sweat has the greatest titratable acidity whereas Coca-Cola has the weakest titratable acidity. The findings show that there was a significant difference between the test beverages for mean percent weight loss and mean percent surface micro-hardness reduction after 6 and 25 hours of immersion. Enamel specimens immersed in Pocari Sweat showed the greatest mean percent weight loss and also greatest mean percent surface micro-hardness reduction.

Conclusion that can be made from this study is that the consumption of carbonated drink, sports drink and fruit juice cause enamel dissolution which may further leads to enamel erosion. Sports drink has greater erosive potential on enamel compared to carbonated drink and fruit juice.

Keywords: *carbonated drink, enamel erosion, fruit juice, pH, sports drink, titratable acidity*