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Effect of food matrixes on *in vitro* phenolic availability from some beverages and composite diets

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Background: Beverages such as wine, fruit juice and convenient drinks were known to be rich sources of phenolic compounds whose availability could depend on other food materials present in the gastrointestinal tracts.

Objectives: The purpose of this study is to evaluate the impact of food matrixes and phenolic interaction on *in vitro* availability of phenolics from beverage and composite diets.

Methods: Four brands of wine, four types of fruit juice, cola drink were purchased and 'Zobo' drink (Roselle Calyx infusion) is prepared as consumed. The composite diets were prepared from the beverages with either rice or cowpea. The composite diets were subjected to *in vitro* multi-enzyme simulated digestion and the dialyzates were collected. The samples and dialysates were analyzed for total phenol, ascorbic acid, antioxidant activity and available phenolics using spectrophotometric methods.

Results: The results showed that pH, titratable acidity, ascorbic acid and total phenol ranged from 3.3 to 4.3, 0.13 to 0.91% (citric acid equivalents), 0.15 to 8.53 and 143 to 253 mg GAE/L (gallic acid equivalent), respectively. Ferric Reducing Power (FRP) and free radical scavenging antioxidant activity (DPPH) ranged from 7.97 to 56.4 mg GAE/L and 0.9 to 90.3%. Fruits and wines (CHA and HAV) enhanced phenolic availability from rice (25-166.2%) and cowpea (6-94.5%) but GLA and HAV wines, Cola and 'Zobo' drinks inhibited phenolics availability from composite diets.

Conclusion: The study showed that availability of phenolic compounds as well as antioxidant capacity of beverages were affected by food matrices, hence for therapeutic purposes, phenolics enhancing beverages should be consumed along with food otherwise there should be time interval between the intake.

Biography

Israel O Otemuyiwa is working as a Professor at the Department of Chemistry in Obafemi Awolowo University, Nigeria. His research area of interest includes food chemistry, nutraceuticals, nutrition and health and food science.

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