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Value added fruit processing with EZ water: A holistic cellular healthy diet

Consumption of sugar-sweetened, artificially sweetened beverages with different synthetic chemical additives is likely to contribute to an increased risk of dehydration which is a root cause of several illnesses. These negative health effects have received considerable attention to our present research to formulate isosmotic cellular health diet by using Exclusion Zone (EZ) water in the form of isotonic fruit-based beverage with natural ingredients containing significant amounts of bioactive compounds and natural preservative to make organoleptically acceptable product to improve health with hydration and well-being. The study was conducted with integral exploitation of red banana (*Musa acuminata* Colla cv. Red) fruit pulp and peel to develop isotonic formulations with deionized and EZ water with natural water in order to identify best proportion of eight ingredients on weight percentage combination of numeric factors of all respective proportions in any particular mixer. The D-optimal mixture design was developed, and study responses revealed that EZ water (90.353%), pulp (4.941%), peel (0.688%), coconut (3.353%), isabgol (0.136%), propolis (0.024%), okra mucilage (0.029%), almond gum (0.477%), is optimized formulation mixture to attain osmolality (285.593). Human blood serum has similar osmolality and as a common hydration marker. In another experiment, observations on serum, urine and saliva samples of 30 healthy Indian male subjects aged 19-45 years with BMI 18 and 24 Kg/m² data analyzed by paired t-test revealed that there is significant increase (1141.59 0.22 mmol/L) in serum [Na⁺] and osmolality (288.56 0.61 mmol/kg H₂O) and salivary flow rate from 0.56 0.05 g/min to 0.66 0.04 g/min and lower urine volume (1766.45 80.80 ml) in formulated isotonic beverage compared to isotonic beverage prepared using deionized water. Based on the results it is concluded that it is a novel rehydration beverage as it had the same osmolality as serum which is useful for the restoration of normal body fluid volume to maintain intercellular and extracellular body fluid.

Biography

Aatish Kumar Sahu has his expertise in experimental design, statistical analysis and interpretation of agricultural experiments and other economics and social science research. His interest in food and nutritional security for tribal and indigenous people is overarching and thorough.

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