

Impact of Ash Plantain (*Musa paradisiaca*) Corm Flour Incorporation on the Physicochemical, Biochemical and Organoleptic Properties of Low-Fat Set Yoghurt

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Worldwide, consumer demand is shifting towards foods that promote health besides their nutritional benefits. Thus, food fortification and enrichment with various functional ingredients have been introduced by the modification of processing steps. This study aimed to determine the physicochemical, biochemical and organoleptic properties of ash plantain corm flour incorporated low-fat set yoghurt produced without incorporating gelatin. The yoghurt incorporated with 10% ash plantains corm flour gave the highest preference score for set yoghurt. The percentage moisture, crude protein, crude fat, crude fiber, and ash of the set yoghurt were found to be 71.67, 2.50, 0.70, 5.43, and 4.85, respectively. It was found that the Na, K, and Mg content of 10% ash plantains corm flour incorporated yoghurt were 62, 148, and 24 mg/100g, respectively. The total phenolic content was 0.0513 GAE mg/ml. The oleic acid, palmitic acid, stearic acid, cis- vaccenic acid and myristic acid are the predominant methyl esters found in the set yoghurt (22.98%, 18.97%, 14.07%, 9.22% and 6.83%, respectively), as revealed by GC-MS analysis. The monosaccharides, polysaccharides, phosphorylated carbohydrates, and protein derivatives are the distinctive functional groups identified through the FTIR analysis. Coliforms were not detected in the set yoghurt, while the total plate count was also within the acceptable limit during the storage period. The physicochemical, microbiological, and organoleptic properties of yoghurt are in compliance with the SLS standards and reported a shelf-life period of 14 days without adding any preservatives. In conclusion, 10% of ash plantain corm flour can be effectively incorporated into the set yoghurt formulation by improving its functional properties and proven higher gelation properties, being a better alternative for animal-origin gelatin.

Keywords: Ash Plantain Corm Flour, Functional Properties, Phytochemicals, Probiotic, Yoghurt