FORMULATION AND EVALUATION OF FINGER MILLET-BASED SMOOTHIE POWDER WITH AROMATIC SPICES

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ABSTRACT

Finger millet (*Eleusine coracana*), commonly known as "Kurakkan" in Sri Lanka, is one of the most ancient and nutritious cereal grains, rich in calcium, iron, dietary fiber, and essential amino acids. This study was carried out to formulate and evaluate a finger millet-based smoothie powder incorporated with aromatic spices such as cinnamon and cardamom along with milk powder, to improve its sensory and nutritional properties. Five different treatments (T_1-T_5) were prepared by varying the proportions of finger millet flour and milk powder. All treatments contained constant levels of other ingredients. The formulated smoothie powders were subjected to sensory evaluation using a seven-point Hedonic scale to assess texture, colour, flavour, taste, and overall acceptability. Based on the sensory scores, Treatment 2 (T_2), which contained 20 g of finger millet flour and 100 g of milk powder, was selected as the best formulation. Physico-chemical results showed that T_2 had a pH of 6.45, bulk density of 0.58 g/cm^3, water absorption capacity of 1.45 g/g, and total soluble solids of 17.63°Brix. Proximate analysis revealed 4.43% moisture, 23.01% protein, 17.50% fat, 0.54% fiber, and 5.55% ash. Microbial results were within acceptable limits, confirming product safety. The inclusion of finger millet flour improved the fiber and carbohydrate content, while milk powder contributed to protein and energy value. The aromatic spices enhanced the antioxidant properties, natural flavour, and consumer appeal of the product. The findings indicated that the combination of finger millet with milk powder and aromatic spices produced a nutritious, convenient, and sensory-acceptable smoothie powder. This product can be introduced as a healthy functional beverage while promoting the utilization of traditional grains and locally available spices in Sri Lanka.

Key words: Aromatic spices, Finger millet, Proximate analysis, Sensory evaluation, Smoothie powder

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