Evaluation of the Capability of Using Jackfruit (*Artocarpus integer*) Peel as a Low-cost Raw Material in Waffle Cone Production

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Jackfruit (*Artocarpus integer*) is one of the commonly consumed staples in Sri Lanka. However, more than 50% of the fruit is discarded as waste, primarily as the peel. Therefore, this study was aimed at evaluating the capability of using the mature jackfruit peel as a low-cost raw material in waffle cone production. Three different formulations were prepared by, replacing 60%, 50% and 40% of wheat flour in the standard formulation with Jackfruit peel flour (JFPF), to develop the best formulation for waffle cone production. The control sample contained 0% JFPF. The best formulation for the waffle cone was selected by a sensory evaluation using 30 untrained panelists, and also by evaluating the color, water activity, baking time and holding time. The 50% JFPF incorporated waffle cone was selected as the best formulation, since it showed significantly high sensory scores at $P<0.05$. The baking times of 60%, 50%, 40% and 0% JFPF incorporated samples were 120.50±4.20, 123.75±6.02, 128.00±3.16 and 201.5±52.70 seconds, respectively. Only the 50% JFPF sample (20.667±1.52 min) gave the nearest value for the standard holding time of 18 minutes. However, the 0% JFPF sample gave the nearest values for the standard color values (L^*=51.72±0.72, a^*=12.95±0.35, b^*=28.48±0.12). The proximate analysis was carried out for best formulation (1.24% ash, 3.25% crude fat, 3.42% crude fiber, and 0.07% crude protein) and the shelf life of the selected waffle cone was evaluated using the moisture increment (2.25% to 4.32%) and the total plate count method. The moisture increment was only about 2% and the total plate count ($5x10^3$ CFU/g) was also under the permissible limit after four weeks. Based on the above results, the 50% JFPF incorporated waffle cone showed the feasibility of using JFPF as a low-cost raw material for waffle cone production and the reduction of nutritional value of JFPF during cone processing should be studied further.

Keywords: Jackfruit Peel Flour, Low-Cost Raw Material, Waffle Cones