

DEVELOPMENT OF VALUE-ADDED NUTRI FLAKE INCORPORATING PLANT-BASED FOODS IN SRI LANKA

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Introducing nutritionally rich ready-to-eat foods is crucial for reducing unhealthy eating habits prevalent in modern society. This study aimed to develop a new value-added Nutri flakes diet using plant-based food ingredients mainly to provide complex carbohydrates, proteins, and dietary fiber for human consumption. Initially, three prototypes were prepared by mixing ingredients: powdered soy, corn, dehydrated moringa leaves, roasted pumpkin seeds, and pressed cake of virgin coconut oil processing, wheat flour, sugar, and salt in different proportions. Only corn powder and soy powder ratios were changed in three prototypes while other ingredients were kept constant. A sensory evaluation was conducted, and the prototype with the best organoleptic properties was selected for further physiochemical, and shelf-life analysis under the ambient storage conditions ($25\pm 2^{\circ}\text{C}$, 75% of relative humidity). Data were statistically analyzed using the Friedman test, considering $p < 0.05$ as significant in SPSS, version 22 software. Proximate analysis conducted using AOAC methods and the moisture, ash, carbohydrate, crude fat, protein, and fiber content were found as $3.35\pm 0.41\%$, $4.16\pm 0.06\%$, $24.04\pm 1.86\%$, $18.06\pm 0.39\%$, $24.33\pm 0.003\%$ and $26.06\pm 2.21\%$, respectively. Thus, on average, the developed product fulfilled 13.01%, 20.57% and 7.41% of the daily protein, fiber and total fat requirements of a healthy adult, respectively. Microbial stability analyzed by total plate count and yeast and mold count at two-week intervals over a month did not show a significant difference ($p < 0.05$), and the counts were detected within the accepted range ($< 10^5$, $< 2 \times 10^5$ CFU g^{-1}). Sensory attributes, pH (6.26 ± 0.09), total soluble solid (7.58 ± 0.27), and color [L^* (38.38 ± 0.36), a^* (6.33 ± 0.40), and b^* (11.43 ± 0.30)] analyzed after a month of storage were not significantly different to the initial results. In conclusion, the developed plant-based Nutri flakes have the potential to be used as a healthier ready-to-eat alternative to fulfill the nutritional needs of the population.

Keywords: Nutrient-dense, Pressed cake, Pumpkin seeds, Ready-to-eat