

DEVELOPMENT AND EVALUATION OF MIXED PULSE RICE FLAKE AS A NOVEL EXTRUDED PRODUCT

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Rice is consumed as the staple food in Sri Lanka. Commercial products from rice are very limited. Rice flakes are not popular in Sri Lanka as a breakfast cereal. Therefore, present study was carried out to develop and evaluate a mixed pulse rice flake as a novel extruded product. The rice flakes were developed with different ratios of rice, green gram, red cowpea, ground nut and vegetable powder. All grains were crushed and mixed. The mixture was cooked and formed by an extruder under low moisture

and high temperature (157 °C) conditions to yield a light crispy product. Extruded product was conveyed to the cutting unit and transferred to the driers. The proximate analysis of the developed product was carried out to determine the total calories in 100g of product, percentages of moisture, crude fat, crude fiber, ash and starch. Microbial analysis was conducted at two week intervals during the storage period of two months. Repeated data were analyzed by ANOVA using SAS. Sensory evaluation was carried out to select the best treatment with the help of semi-trained sensory panel using a five-point-hedonic scale. Non-parametric data were analyzed using Friedman test in MINITAB. Sensory evaluation results showed that treatment 3 (rice 65%, pulse 25%, vegetable 8%) had the best quality product. There were significant differences ($p < 0.05$) in colour, taste and overall acceptability among treatments and there was no significant difference ($p > 0.05$) in smell. Treatment 4 had the best texture. Treatment 3 contained 7.41% fat, 30.62% protein, 2.9% moisture, 3.60% ash, 3.95% fiber, 51.52% starch 395.25 total calories per 100 g. Mixed pulse rice flakes had higher carbohydrate and protein content compared to other extruded snacks available in the local market. Hence, mixed pulse rice flakes could be effectively utilized as an energy rich product to fulfill the daily nutritional requirement of the children.

Key words: Extrusion, Pulses, Rice, Rice flakes