

(158)

**Development and Characterization of Ready-To-Use Supplementary Food for Underweight Young Adults in Sri Lanka**

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**Abstract**

Nutritional problems, especially being underweight, is a serious concern that impacts people of all ages and are made worse by contemporary economic unrest in Sri Lanka. Among every age, underweight young adults pose a critical concern and necessitate targeted intervention. Instant food items called "ready-to-use supplementary foods" (RUSF) are designed to treat mild malnutrition. This study aimed to develop a novel RUSF product specifically designed for underweight young adults in Sri Lanka. This research was conducted with preliminary sensory analysis, which included both hedonic rating test and a preference-ranking test, on a panel of 30 undergraduates. The optimal formulation was found to have a proximate composition of moisture, protein, crude fat, ash, and crude fiber content of  $2.64 \pm 0.06\%$ ,  $12.69 \pm 0.62\%$ ,  $20.83 \pm 0.03\%$ ,  $2.31 \pm 0.10\%$ , and  $2.07 \pm 0.10\%$ , respectively, on a wet basis. The mineral content of calcium, iron, zinc, magnesium, and potassium was also assessed, with the results indicating levels of  $1628.0 \pm 22.7$ , 2.3,  $3.58 \pm 0.11$ , 413.62, and 527.30 mg per 100g of the product, respectively. The product's antioxidant activity was determined through ABTS and DPPH radical scavenging activity tests, yielding values of 12.13% and 13.94%, respectively. Furthermore, the peroxide level was negligible (0.667 mEq/Kg of fat) for the RUSF. Overall, the product boasts excellent acceptability, feasibility, nutritional value, and accessibility for the Sri Lankan young adults.

**Keywords:** *Underweight, RUSF, Proximate analysis, Antioxidant activity, Peroxide level*