

DEVELOPMENT AND QUALITY ASSESSMENT OF HEALTHY BISCUIT ENRICHED WITH *THEBU* (*Costus speciosus*) LEAF POWDER

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Intake of antioxidants has been related to the maintenance of health and protection from degenerative diseases like diabetes. *Costus speciosus* (*Thebu*) leaves contain a considerable number of antioxidants. The study was conducted to develop *Thebu* leaf powder (TLP) incorporated healthy biscuits. In a preliminary test, biscuits were prepared using 10%, 7%, 5% and 2% TLP levels and based on the sensory acceptability 2% TLP incorporated biscuit was selected. However, due to the slight bitter taste, another trial was undertaken by further reducing the 2% TLP level to 0%, 0.5%, 1% and 1.5% w/w. One percent (1%) TLP level was selected as the best from another sensory evaluation. Selected 1% TLP biscuits were compared with the control biscuits for physical properties, proximate composition and antioxidant content, one week after preparation. Shelf life evaluation was done up to two months of storage. Thickness and width of 1% TLP biscuits has increased significantly ($p < 0.05$) and spread ratio has decreased significantly ($p < 0.05$) when compared to the control. The proximate analysis of TLP biscuit showed a significantly higher ($p < 0.05$) crude protein, ether extract, ash, acid insoluble ash and energy content when compared to the control. But, TLP biscuit resulted significantly lower ($p < 0.05$) moisture content and significantly higher ($p < 0.05$) antioxidant level than the control. Microbial study depicted that total plate count, yeast and mould count and *Escherichia coli* count were far below the permissible limits of the Sri Lankan standards (SLS) after two months of storage in metalized wrapper (50 μ m) at 30°C and 60% relative humidity. Moisture, pH and free fatty acid contents of TLP biscuits were measured weekly and they were at the safe level of the SLS specifications during two months of storage. In conclusion, *Thebu* leaf powder can be used as an ingredient to prepare a healthy biscuit by considering its antioxidant content and nutritional value.

Keywords: Antioxidant properties of *Costus speciosus* leaves, Proximate composition, Shelf life evaluation, TLP biscuits