



Manufacture of cake using breadfruit flour (*Artocarpus altilis* Fosb.) and evaluation of its shelf-life, physicochemical and sensory properties

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Bakery industry is heavily dependent upon imported wheat flour, which can be substituted or replaced by flours from different food plants available in Sri Lanka. Breadfruit (cultivated seedless type) is one such species that is an underutilized crop in Sri Lanka. The objective of this study was to evaluate the possibility of using breadfruit flour in preparation of cakes. Breadfruits were peeled and cut into small pieces (1 cm³). They were dried at 50 °C for 6h, ground and sieved (0.05 mm) properly to prepare breadfruit flour. Four flour mixtures were prepared with different percentages of breadfruit and wheat flour (60:40%, 70:30, 80:20% and 90:10%). Moreover, two mixtures consisting of breadfruit flour (100%) and wheat flour (100%) were also prepared as controls. Cake mixture (egg, 25%; margarine, 25%; sugar, 25%; flavour w/w) and flour mixture (Breadfruit and wheat flour 25% w/w) were mixed together and the final mixture was used to produce cakes. Physicochemical and proximate parameters such as moisture, fat, protein, fiber and ash contents of the final product were determined. Moreover, sensory properties of cakes such as appearance, aroma, taste, body and texture, softness, overall acceptability were also determined using a 30-member sensory panel on a 5-point hedonic scale. Breadfruit (70%) and wheat flour (30%) cake was selected as the best product because of its significantly ($P<0.05$) higher sensory properties. Moisture, crude protein, crude fat, crude fiber and ash percentages of the selected cake were 22.01%, 29.98%, 22.96%, 1.08% and 0.82%, respectively and the shelf-life of the product was 7 days. Addition of breadfruit flour to cake mixtures did not significantly ($P<0.05$) change the sensory properties of the final product. Moreover, breadfruits are very rich in starch, protein, fat, fiber and breadfruit flour is much richer in lysine and other essential amino acids compared to wheat flour. Furthermore, it contains significant amounts of calcium, phosphorus and vitamin C. It can be concluded that breadfruit flour can successfully be used to replace more than 50% of wheat flour in manufacturing cakes with high nutritional and sensory properties.

Keywords: breadfruit, cakes, wheat flour, sensory properties, shelf-life