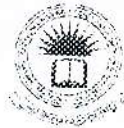


**STUDY ON THE PHYSICO – CHEMICAL PROPERTIES,
SENSORY ATTRIBUTES AND SHELF LIFE OF
BREADFRUIT FLOUR INCORPORATED COOKIES
WITH LOW FAT CONTENT**

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2019

ABSTRACT

The bakery industry is growing very fast and the products are becoming increasingly popular among consumers world-wide. Biscuits possess several attractive features including wider consumption base, relatively long shelf-life and preferred eating quality. Breadfruit constitute important natural and valuable material in producing functional foods due to the presence of high mineral and fiber content. But the breadfruit production faced several problems, which are production cost and wastage due to short shelf life. Therefore, a research study was conducted to improve utilization of breadfruit and reduce the production cost by reducing wastage through the development of value added products such as breadfruit flour, bread fruit flour incorporated cookies and to assess the quality of cookies during storage. The good quality breadfruits were washed, peeled and cut into thin slices, dried in oven at 105°C for 3 hours, milled, sieved, and packed in air tight container and store refrigeration condition until further use.

The breadfruit flour was nutritionally analyzed that contains moisture content of 6.11%, protein 3.45%, rich in dietary fiber 3.67% and mineral content of 2.667% while total carbohydrate content 79.50%. Different composite blends of wheat flour and breadfruit flour were mixed in the ratios of 100:00, 80:20, 60:40, 40:60, 20:80 and 00:100, were then developed. These cookies were packed in sealed laminate aluminum foil and cookies were stored under ambient conditions of average temperature of 30°C and relative humidity 75 - 80 % for evaluation of the shelf life. Cookies were subjected to the physico - chemical analysis and sensory evaluation to know the acceptability and shelf life for the entire storage period of 12 weeks. The physical parameters of breadfruit flour cookies such as diameter, thickness, spread ratio, density and volume

decreased from 7.07 to 6.64cm, 0.981 to 0.968cm, 7.24 to 6.86, 0.624 to 0.469gcm⁻³ and 42.01 to 32.66cm³ with increasing percentage of breadfruit flour. Breadfruit flour cookie were analyzed for nutritional composition which ranged in values with moisture from 3.37 to 4.34%, ash 2.73 to 3.76%, fiber 0.97 to 3.02% and total carbohydrate 59.92 to 64.93% increase respectively, while protein and fat content decreased from 12.46 to 9.04% and 20.41 to 14.71% with increase in the proportion of breadfruit flour level from 0 to 100% for the freshly made wheat – breadfruit flour cookies. These were evaluated for sensory analysis. The results of sensory evaluation revealed that there was a significance difference among the treatments at 5% significant level.

Based on the quality and functional characters, the most preferred wheat – breadfruit cookies selected and subjected to storage studies. The 40% breadfruit flour contained cookie was analyzed for nutritional composition during the storage period. The ash, fiber, fat and protein content decreased from 3.04 to 2.62%, 1.71 to 1.51%, and 18.03 to 16.46% and 10.88 to 9.46% respectively with storage period, while moisture content increased from 3.66 to 4.97% with storage period. The finding of the study revealed that, the declining trend was observed in ash, fiber, protein and fat content with storage period, while an increasing trend was observed in moisture content with storage period for all the treatments.

According to quality characteristic of composite cookies, 40% breadfruit flour added cookies has the good score in organoleptic point of view and acceptable nutritional quality compare to other combinations. There is no remarkable changes in organoleptic characters were observed up to 12 weeks of storage in ambient condition of average temperature 30°C and relative humidity of 75 - 80% breadfruit flour added cookie could be stored up to 12 months.

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