

ABSTRACT

Frozen French fries and other frozen products are generating billions of dollars in sales world-wide each year. In Sri Lanka, imported frozen potato French fries are available in supermarkets as a demanding commodity and they are served as a popular fast food in most of the restaurants and fast-food outlets. The main objective of this research is the development of a value-added as well as consumer demanded product like French fries from cassava (*Manihot esculenta*, var.MU-51), as an alternative to potato-based French fries.

First approach was to prepare the cassava fries, selecting the most appropriate partial cooking times at 90°C in hot water and under steam. The appropriate time with preparations in hot water and steam were used to select the most appropriate partial-cooking method. The cassava fries prepared with appropriate partial-cooking method were used to determine the effect of par-fried frozen conditions and the effect of selected packaging material (polythene 300 gauge) for the samples stored under frozen condition for 2 days and 38 days. Cassava fries samples were sensorily evaluated by 30 untrained panelists using a standard 9 point Hedonic scale in each step of production. Kruskal-Wallis and Mann-Whitney tests were performed for collected data under statistical analysis.

Based on the findings, the correct partial-cooking times were identified as 8 minutes and 10 minutes in hot water and under steam, respectively. There were significant differences between samples, not only treated in hot water and steam but also par-fried frozen sample and untreated sample. According to the median values, hot water treated sample and par-fried frozen sample were identified as the best in each occasion. But there was no significant difference between storage periods in the samples at frozen condition. Physico-chemical and proximate assessment of par-fried frozen cassava fries sample revealed 18.7% moisture, 13.2% free fat and 1.09% crude protein. Free HCN content in that sample was detected as 0.54mg/kg of fried cassava fries.

Due to the perishable nature of the cassava roots, it is difficult to store them in bulk. Therefore, one of the potential areas of growth for cassava as a food in Sri Lanka is in the form of a processed convenience food, such as frozen cassava fries. As such, it could well compete with other imported frozen ready-to-eat carbohydrate products, enjoying similar demand and income elasticities and subsequent positive future growth rates.