

ABSTRACT

The Manufacture of Canned Barbadine Pie Filling by Emma Sookhoo

The main objectives of this research project were (i) to determine the conditions under which canned Barbadine (*Passiflora quadrangularis*) pie filling can be ideally stored for a minimum period of 3 months without any significant organoleptic and microbial changes; and (ii) to investigate the time temperature relationship that will ensure commercial sterility of the canned barbadine pie filling. The minor objective was to determine if canned barbadine pie filling can be a viable substitute for other commercial types of canned pie fillings in the baking industry.

The processing conditions used were 121°C (constant temperature) for holding times of 15, 30, 45, 55 and 75 minutes. The quality attributes evaluated were; colour, flavour (aroma and taste), consistency and appearance.

There were no significant changes in the microbial quality of canned barbadine pie fillings processed at 121°C for times beyond or equal to 30 minutes and stored at room temperature (28°C - 32°C). However, there were changes in the organoleptic quality such as, consistency, appearance, odour and taste of the various formulations processed for 30 minutes and beyond. Cans processed for 30 minutes and more at a temperature of 121°C, but stored at elevated temperatures $\geq 35^\circ\text{C}$, showed blowing (a sign of microbial contamination) after only ten days. The ideal time/ temperature relationship which gave the most acceptable product was, 121°C

for a holding time of 45 minutes. The product was both organoleptically sound and commercially sterile, safe for human consumption.

The ideal storage temperature of canned barbadine pie filling that obtains a shelf-life of 3 months, would be room or ambient temperature (28°C - 32°C). There were no significant changes in the organoleptic attributes under storage at room temperature.

Barbadine pie filling made from pulp containing barbadine skin showed no significant difference statistically in quality from barbadine pie filling made from pulp alone. Barbadine was considered by bakers to be a viable substitute for other commercially available pie fillings in the baking industry.