

ABSTRACT

During the training period, various analytical tests and experiments were conducted on raw materials, finished products, packaging methods, packaging temperature and time in order to improve the final product in quality, appearance and durability. Ingredients and finished products were checked for quality parameters. Packaging materials were checked for width, length, height, permeability, and sealing.

Experiments were also conducted to examine how and under what conditions the microbial contamination take place in Madeira cakes and to find out the steps that should be taken to minimize the contamination.

According to microbial tests; *Mucor*, *Aspergillus*, *Rhizopus* and Yeast were the major contaminating agents. Optimum range of temperature for packaging was 36⁰C -39⁰C. When the packaging temperature was below 34⁰C or above 40⁰C the microbial growth increased.

Post baking contamination was the major reason for fungal growth. Time taken for cooling the cake (between de-ovenning and packaging) was a critical period. Optimum time of keeping the cake in cooling chamber was 20 minutes and in the de-panning section was 35minutes to 40minutes.

Comparatively low numbers of microorganisms were observed with the flushing of CO₂ at the rate of 30 l/min. It was observed that one of the major causes for microbial contamination as improper sealing of the film. Averagely 12.30 % of packets were with side sealing defects, and 9.0 % of packets were with center sealing defects. Sealing of the packets were not uniform even within the same brand. Further studies should be carried out to check the permeability of the packaging materials.