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EFFECT OF PACKAGING MATERIALS AND MODIFIED ATMOSPHERE ON THE SHELF LIFE OF CAKE

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ABSTRACT

This study investigated the using of modified atmosphere packaging (MAP) and different packaging to extend the shelf life of Cake. Three atmospheres including Air, 100% CO₂ and 100%N₂ were used. The Cake samples were packaged in three types of plastic. Polyester coated with polyethylene (PET/PE), Metallized polypropylene (MTZ PP), Foam dishes covered with ceiling film and a non-packaged Cake as control .The packaged Cake samples were stored at room temperature for 60 days. Shelf life was determined by appearance undesirable indication on Cake samples during sensory evaluation of colour, odour, Taste, Texture and overall acceptable on different storage period. The microbiology analysis results revealed inhibition effect of CO₂ on growth of spoilage microorganisms and recorded the lowest load of Total bacterial count (TBC) yeast and Moulds. Also, the results showed that, the primary advantage for the utilization of a N₂ - modified atmosphere with (MTZ PP) packaging materials is due to its ability to minimize weight loss and given the lowest water activity (a_w)with extended shelf life because N₂ delays oxidative rancidity and decreases the peroxide value compared to other treatment. Texture Profile Analysis (TPA) showed an increase in firmness, gumminess and chewiness and a decrease in cohesiveness and springiness. Packaged Cake under modified atmosphere in barrier packaging reduced the phenomenon of staling especially in (MTZ PP) package, which is the lowest in permeability of gases and water vapour.

Key words: Cake, Microbiology analysis, modified atmosphere, Peroxide value, and Sensory evaluation, Staling, Textural properties, Packaging materials, Shelf life,.