

## Control of the Sustainability of Decorative Topping for Bakery in Order to Extend the Shelf-Life of the Product

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**Abstract :** In the modern bakery various supplements are used to attract more customers. Analyzed sample decorative toppings are consisted of flax seeds, corn grits, oatmeal, wheat flakes, sesame seeds, sunflower seeds, soybean sprouts are used as decoration for the bread. Our goal was to extend the product shelf life based on the analysis. According to the plan of sustainability it was defined that sample which already had expired shelf life had to be stored for 5 months at 25°C and analyzed every month from the day of reception until spoilage occurs. Samples were subjected to sensory analysis (appearance, odor, taste, color, and consistency), microbiological analysis (*Salmonella* spp., *Bacillus cereus*, Enterobacteriaceae and moulds) and chemistry analysis (free fatty acids (as oleic), peroxide number, water content and degree of acidity). All analyses were tested according: sensory analysis ISO 6658, *Salmonella* spp ISO 6579, *Bacillus cereus* ISO 7932, Enterobacteriaceae ISO 21528-2 and moulds ISO 21527-1, free fatty acids (as oleic) ISO 660, peroxide number ISO 3960, water content and degree of acidity Serbian ordinance on the methods of chemical analysis. After five months of storage, there had been the first changes concerning of sensory properties of the product. In the sample were visible worms and creations which look like spider nets linking seeds and cereal. The sample had smell on rancid and pungent. The results of microbiological analysis showed that *Salmonella* spp was not detected, Enterobacteriaceae were < 10 cfu/g during all 5 months but in fifth month *Bacillus cereus* and moulds occurred 700 cfu/g and 1500 cfu/g respectively. Chemical analyzes showed that the water content did not exceed a maximum of 14%. The content of free fatty acids ranged from 3.06 to 3.26%, degree of acidity from 3.69 to 4.9. With increasing degree of acidity the degradation of the sample and the activity of microorganisms was increased which led to the formation of acid reaction which is accompanied by the appearance of unpleasant odor and taste. Based on the obtained results it can be concluded that this product can have longer shelf life for four months than shelf life which is already defined because there are no changes that could have influence on decision of customers when purchase of this product is concerned.

**Keywords :** bakery products, extension of shelf life, sensory and chemical and microbiological analyses, sustainability

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