Utilization of Pomegranate Dips to Improve the Nutritional Properties, Antioxidant Activity, and Shelf Life of Processed Cheese

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Abstract:

This study evaluated the impact of varying pomegranate dips (Po. Dips) concentrations (0%, 1%, 3%, and 5%) on the physicochemical, functional, and sensory properties of processed cheese over a 30-day storage period. Results showed that increasing Po. Dip levels led to a decrease in pH and moisture content while acidity and ash content increased. The highest acidity (1.17) and mineral content were observed in the 5% Po. dips sample. Protein and fat content showed minor reductions due to dilution effects, while soluble nitrogen levels increased, indicating enhanced proteolysis during storage. Functionally, Po. dip improved reliability (peaking at 434.30% in the 5% Po. Dip sample, enhanced flowability, and initially increased oil separation before stabilizing over storage. Rheological analysis confirmed shear-thinning behavior, with Po. Dips -enriched samples exhibited higher viscosities, suggesting a stronger structural network. Sensory analysis favored the 1% Po. Dip sample, which maintained the best scores for flavor (8.4), texture (8.4), and overall acceptability (8.6), while higher Po. Dips levels negatively affected appearance, taste, and texture due to excessive acidity and darker coloration. Overall, moderate Po. Dip levels (1–3%) optimized both technological and sensory properties, making Po. Dip is a promising functional ingredient for processed cheese formulations.