

Sensory evaluation of starch-free low-fat dairy spread formulations

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The growing demand for healthier food products has stimulated the development of fat-reduced dairy spreads with improved nutritional profiles and sensory acceptance. This study aimed to evaluate the sensory properties of low-fat butter formulations without the use of modified corn starch. A total of 21 formulations were developed, varying the proportions of fat and replacer components (xanthan gum, milk protein, and emulsifier (mono- and diglycerides of fatty acids)). These components were selected due to their capacity to mimic the structural and sensory properties of fat, contributing to texture, mouthfeel, and stability of the final product. Preliminary screening identified three formulations as the most promising, which were further subjected to sensory evaluation. Attributes such as appearance, color, consistency, flavor, and overall acceptability were assessed. A total of 34 butter consumers participated in acceptance tests and check-purchase intention evaluations. Sensory analysis revealed high scores for color, flavor, appearance and consistency for the formulation flavored with oregano essential oil and oregano leaves (f22), where 54.5% of panelists agreed (score 4) with all parameters, and for the formulation with oregano essential oil, oregano leaves, and garlic (f23), where 45% of panelists strongly agreed (score 5) with all parameters. In order of preference, f23 stood out with 63.6% preference. This study highlights the potential of using natural hydrocolloids, dairy proteins, and emulsifiers as fat replacers and modified corn starch in the design of healthier dairy spreads. Further studies are underway to optimize shelf-life stability and explore consumer acceptance in broader markets.

Keywords: low-fat butter, starch-free formulation, fat replacer, healthier food.