EVALUATION OF SENSORY PROPERTIES OF SORBET WITH ADDED ALFALFA PROTEINS

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Introduction. Sorbet, due to its low caloric content and fat, represents a suitable matrix for enrichment with plant-based proteins. Alfalfa is a sustainable source of proteins and bioactive compounds, while alfalfa protein concentrate (APC) may contribute to the development of a functional apple sorbet with improved nutritional value and technological potential [1].

Materials and Methods. The aim of the study was to evaluate the influence of APC incorporation on the sensory characteristics and overall acceptability of apple sorbet. Five formulations containing 0%, 2.5%, 5%, 7.5%, and 10% APC were evaluated based on taste and odor, appearance, consistency, color, sensory profile, and total average score.

Results and Discussion. The sensory evaluation demonstrated a generally high level of acceptability for all analyzed samples. The total average score, calculated considering the importance factors, ranged from 18.67±0.31 points for the sample containing 10% APC to 20.00±0.0 points for the samples containing 2.5%, 5%, 7.5% APC. The control sample (CS) obtained 19.55±0.13 points, being statistically lower than the samples containing 2.5–7.5% APC, but higher than the 10% APC formulation. The average sensory profile score followed a similar pattern, reaching 5.00±0.0 points for the samples containing 2.5–7.5% APC, compared with 4.88±0.07 points for CS and 4.66±0.04 points for the 10% APC sample. These results indicate that moderate APC incorporation did not impair sensory quality and, improved the overall sensory perception of the product. Taste and odor were highly appreciated in CS and in the samples containing 2.5–7.5% APC, all receiving 5.00±0.0 points. At 10% APC, however, the score decreased significantly to 4.50±0.03 points, suggesting that the higher concentration of APC may introduce sensory characteristics that negatively affect flavor and aroma perception. Appearance was not influenced by APC addition, all samples receiving the maximum score of 5.00±0.0 points, indicating that APC incorporation did not cause undesirable changes in the visual characteristics of the sorbet. Consistency was also evaluated most favorably in the samples containing 2.5–7.5% APC, which received 5.00±0.0 points, compared with 4.55±0.04 points for CS and 4.50±0.02 points for the 10% APC formulation. This suggests that moderate APC levels may provide a favorable consistency, whereas excessive incorporation may negatively affect the perceived texture of the product. Similarly, the color of samples containing up to 7.5% APC was rated at 5.00±0.0 points, while the 10% APC sample received 4.65±0.04 points, indicating a less favorable color perception at the highest concentration.

Conclusions. Overall, the results demonstrate that APC addition at levels of 2.5–7.5% enabled the production of apple sorbet with very good sensory characteristics and high consumer acceptability, representing the most favorable range for achieving a balance between protein enrichment and sensory quality.

Keywords: *alfalfa protein concentrate, apple sorbet, protein enrichment, sensory evaluation*

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