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Evaluation of texture parameters of sorbet with added alfalfa proteins
Evaluarea parametrilor de textură a sorbetului cu adaos de proteine din lucernă

Sorbet, a low-calorie and fat-free dessert, constitutes an appropriate matrix for protein fortification. Alfalfa, recognized as a sustainable plant-based source rich

in proteins and bioactive compounds, is currently at the forefront of research on non-animal protein alternatives. The incorporation of alfalfa protein concentrate into apple sorbet is relevant both nutritionally, by generating a functional product with enhanced protein content, and technologically, by assessing the impact of proteins on texture properties. Furthermore, the use of alfalfa aligns with sustainability goals and the efficient valorization of plant-based resources.

Texture parameters were analyzed on the TA.HD PlusCT analyzer (Stable Micro Systems, Godalming, United Kingdom) for 5 sorbet samples in which apple puree was substituted by alfalfa protein in concentrations of 0%, 2.5%, 5%, 7.5%, 10%.

The analysis of sorbet texture showed that increasing alfalfa protein concentration significantly affects the product. Firmness and adhesiveness decreasd progressively, from 791.98 g and 887.53 g·s in the control to 234.90 g and 259.23 g·s at P10%, resulting in a softer, easier-to-chew sorbet. Elasticity remained stable (1.002–1.049%), while cohesiveness peaked at intermediate protein levels (5–7.5%), indicating improved structural integrity. Resilience was highest at P5% (0.124%), and masticability decreased with protein addition, reflecting reduced chewing effort.

Overall, intermediate protein concentrations (5–7.5%) provided an optimal balance between softness, structure, and sensory quality, whereas higher levels produce a softer but less compact sorbet.

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