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Temporal aspects of cream cheese texture perception using Temporal Dominance of Sensations (TDS) tool

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Temporal Dominance of Sensations (TDS) is a sensory descriptive tool that provides information about the sequence of the dominant attributes in a product when processed in the oral cavity and their subsequent changes over time. In humans, texture perception of any food is a dynamic process that plays a major role in acceptance of the food. The TDS tool allows understanding the dynamic textural sensation in the mouth. In this work, this tool was applied to study the creaminess, smoothness, cohesiveness, thickness and mouthfeel of cream cheese added with β -glucan and phytosterol (esterified and native). A trained sensory panel perceived the dynamic textural sensations introduced by cream cheese with and without these functional ingredients. The TDS data obtained showed that the first dominant attribute depends on the ingredient that make-up the cream cheese. The textural attributes of cohesiveness, thickness and smoothness were the first dominant attributes while mouth coating significantly dominated at the end of mastication for all cream cheese added with functional ingredients. However, in reduced fat cream cheese without functional ingredients mouth coating was the only significant dominant attribute (dominance rate of 40%) throughout the oral processing. The TDS results complemented the instrumental characterisation of the cream cheese where the addition of these ingredients significantly increased the firmness (from 0.85 to 1.99 N) and made them less spreadable (from 6.6 to 14.8 N/s). Rheology/tribology data also related well with the thickness/creaminess sensations. The use of phytosterol in native form tended to increase the viscosity of cream cheese, while the esterified form contributed to the lubrication properties similar to fat, lowering the coefficient of friction. The TDS profile of high-fat cream cheese, characterised by the highest dominance rate (70%) of creaminess also represented the least coefficient of friction.