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 Author:  [ADVANCED](#) | Volume  Page   
 Keyword:   |   

[TOP](#) > [Available Issues](#) > [Table of Contents](#) > Abstract

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[\[PDF \(1399K\)\]](#) [\[References\]](#)

## Development of Specified Protocols and Methodology in the Application of Food Kansei Model for the Optimal Design of Danish Pastry

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Significant physicochemical properties of Danish pastry samples have been identified to establish a methodology for optimally designing product with maximized palatability, using the food kansei model (Ikeda *et al.*, 2004). A series of procedures for textural measurements and analyses has been proposed for the samples, as follows: 1) fixing linear ranges in which force is proportional to strain, and 2) identifying the intrinsic textural attributes from viscoelastic moduli obtained by creep tests. Analysis of variance was used to select food kansei variables at the level of 5% among the instrumental and sensory data. Multiple regression analysis was employed to correlate palatability with the rotated principal component scores of perception. The optimal values of ingredients and physicochemical properties were consequently determined by multivariate-spline and regret function. The results of validation by cluster analysis indicated that the maximum height, density, water and oil contents, instant elasticity  $E_0$ , and permanent viscosity  $\eta_N$  were the optimal combination for describing physicochemical properties of Danish pastry samples.

**Keywords:** [Danish pastry](#), [food kansei model](#), [texture properties](#), [creep test](#), [sensory evaluation](#), [multivariate-spline](#), [cluster analysis](#)

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