Akesowan, A.
Effect of konjac/gellan blend and fat content on physical and textural properties of low-fat pork burgers: A response surface analysis

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Abstract
A central composite rotatable design was employed to investigate the effects of independent variables on physical and textural properties of low-fat pork burgers and to optimize the process condition of the product. The independent variables were konjac/gellan blend (0-1%) and pork fat content (0-100%). The analysis of variance and regression analysis showed that cooking yield (%), reduction in diameter (%), redness (a*value), hardness (N), springiness (mm) and chewiness (mJ) ranged from 70.05 to 81.35, 9.56 to 16.62, 2.52 to 4.07, 4.06 to 6.16, 6.43 to 10.02 and 14.77 to 38.94, respectively. The coefficients of determination or R²-values of the responses were within the range from 0.8509 to 0.9928. A second-order polynomial was used for predicting the responses. Response surface analysis revealed the relationship between independent variables and most physical and textural properties of low-fat burgers were strongly influenced by konjac/gellan blend. The optimum predicted condition for the production of the products was 1% konjac/gellan blend and 66.43% pork fat, which was confirmed by the agreement between the experimental and predicted values for physical and textural properties.

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Document Type: Article
Source: Scopus