Optimization of prebiotic sausage formulation: Effect of using β-glucan and resistant starch by D-optimal mixture design approach

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Abstract

The objective of this study was optimization of prebiotic sausage formulation by resistant starch (RS), β-glucan (BG) and starch (ST) according to D-optimal mixture design approach. Results demonstrated RS, BG and ST had noticeable effect on physical and sensory properties of sausage, RS had a negative effect on cooking yield, but it's interaction with BG and ST showed positive effect. Also a positive correlation was found between cooking yield and frying loss. RS increased hardness but RS/BG had antagonistic effect and produced a softer texture. The sensory evaluation of color and texture were correlated to instrumental color and texture analysis. Optimum formulation obtained according to overall acceptability, cooking yield, frying loss and hardness contained 2.216% RS, 1.328% BG and 2.456% ST with desirability equals to 0.878. The obtained results suggest that production of prebiotic sausage by using combination of RS and BG is possible.