Response Surface Methodology Study on the effects of

yellow konjac:kappa-carrageenan gels and red koji rice

on restructured meat

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ABSTRACT

Response surface methodology (RSM) has been used widely for the simultaneously analysis in food research (Sin *et al*., 2008; Hassan and Ramaswamy, 2011). This mathematical and statististical technique is used to investigate the effect of two independent variables, namely yellow konjac (*Amorphophallus muelleri* Blume):kappa-carrageenan (1:3) gels (5-15%) and red koji rice powder (5-7%) on three dependent variables, namely hardness, water holding capacity (WHC) and color score of restructured meat. The second order regression models with high R2 (≥ 0.80) value were significantly (p < 0.05) fitted to predict the changes in hardness, WHC and color score. Predicted optimal formula of producing restructured meat were the addition of yellow konjac:kappa-carrageenan (1:3) gels at 10.21% and 6.11% red koji rice powder into restructured meat dough made from lower grade of meat cuts, mocaf flour, salt, spices and water. The different responses between the predicted optimization result and the verification experiment were less than 5%. Rechecking experiment conducted in three replicates, confirmed the optimal formulation process. The response surface methodology was successfully employed to optimize the formula of restructured meat. This study could be useful to the development of new products to start the initiation of a start-up bussiness within our pilot plan facilities.

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