

**Title** Optimization of Ingredients Level in Low Calorie High Protein Papaya Fruit Bar Using Response Surface Methodology

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### **Abstract**

A low-calorie, high-protein papaya fruit bar was developed using defatted soy flour for protein enrichment, stevia as a sugar replacer and maltodextrin for giving body and texture. A central composite rotatable design was used for selecting the levels of ingredients in the experimental run. The product was evaluated for sensory characteristics namely colour, taste, body and texture, aroma and overall acceptability. A second order mathematical model was used for optimization and showing the effect of ingredients on sensory characteristics. Results indicated that the sensory scored ranged between 6.4-8.4, 6.5-8.1, 6.8-8.2, 8.0-8.4 and 6.3-8.2 for colour, taste, body and texture, aroma and overall acceptability, respectively. Mathematical models predicted all responses, except aroma, quite well with a coefficient of determination of more than 85%. Defatted soy flour affected all the responses, both at the linear and quadratic levels. Stevia and maltodextrin had significant effect on taste and body and texture. The optimum levels of ingredients were 24.47%, 1.98% and 2.68% of defatted soy flour, stevia and maltodextrin per 100 g papary pulp, respectively.