

Physical and Chemical Attributes of a Defatted Soy Flour Meat Analog

Matthew James
Dr. Fu-Hung Hsieh, Thesis Supervisor

ABSTRACT

The objective of this study was to observe how the replacement of soy protein isolate in a meat analog with defatted soy flour would affect the physical and chemical characteristics of the product. A $4 \times 3 \times 3$ (four mixes, three moisture contents, and three cooking temperatures) factorial experiment with 2 replications was conducted. The first set of information acquired was the extruder responses. To observe any differences in texture, a texture profile analysis (TPA) was conducted. Color tests were performed to determine if the addition of defatted soy flour, moisture content, or cooking temperatures had an effect on the appearance of the final product. Finally, protein solubility was performed to interpret the changes in chemical bonds that would cause the differences in the textures of the samples. Statistical methods, such as generalized linear models (GLM) and analysis of variance (ANOVA) were used to determine the significance of the variables and the relationships among results.