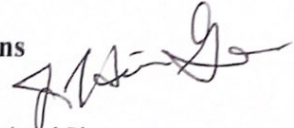


Identification and Removal of Allergens in Soybeans

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Abstract

Soybean is one of the most important sources of dietary protein and lipid; however, it is considered as a common food allergen. The allergenicity of soybean is attributed to its protein fraction. Therefore, precise and reliable approaches for detecting soybean allergens found in various food products must be used. Four research papers were reviewed to identify the allergenic site in soybean and their inactivation by using various food-processing methods. It has been reported that food processing lead to the modification of conformational structures of the protein that inhibit the binding of immunoglobulin E (IgE) to epitopes on food allergens. Sandwich enzyme-linked immunosorbent assay (ELISA) was used to detect trace amount of β -conglycinin in soybean and soybean products. Furthermore, soybean product treated with pulsed ultraviolet light at various times intervals removed soy allergens, while soybean allergens were incompletely degraded during the fermentation process. Additionally, soybean product was fermented with different strains of *Lactobacillus*, and hydrolyzed using Alcalase enzyme for the inactivation of allergens. The results showed that fermentation-assisted Alcalase hydrolysis effectively decrease the antigenicity of β -conglycinin and glycinin in soybean product. Therefore, the combination of processing methods such as fermentation process and enzymatic hydrolysis, or heat treatment and filtration is important to reduce the allergenicity of soybean and soybean products. Processing may influence, but does not remove, the allergenic potential of proteins. Thus, this study will help to determine the effective approach for detection and quantification of soybean allergens.

Keywords: Allergy, β -conglycinin, immunoglobulin E, *Lactobacillus*