

Effects from Maillard Reactions on the Allergenicity of Peanuts

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Abstract : Food allergy is a serious public health problem, especially in developed countries. As one of the most significant allergies, peanut allergy was investigated in this research. Peanut was mixed with treacle under different heating conditions. The results of glycation analyses revealed that proteins from peanuts interacted with the carbohydrates. Further studies also indicated that Maillard reactions were determined by different heating treatment. It is noted that denatured peanut proteins accelerated the first stage of Maillard reactions but prevented the third one. From the ELISA results, it was found that Maillard reactions between proteins with sugars had no effects on the allergenicity of peanuts. Besides, there was no significant difference in allergenicity between digested and non-digested peanut proteins. However, pre-boiled peanut with denatured proteins displayed lower allergenicity after mixing with sugars. Such results indicated that denaturation is the key factor to reduce the allergenicity of the peanut proteins and it seemed that the second-staged Maillard products had less allergenicity.

Keywords : allergenicity, heating treatment, peanut, Maillard reaction

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