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[\[PDF \(221K\)\]](#) [\[References\]](#)**Effect of Carbohydrates on Formation of Acrylamide in Cooked Food Models**Kaname Tsutsumiuchi¹⁾, Mariko Hibino¹⁾, Mariko Kambe¹⁾, Naoko Okajima¹⁾, Masahiko Okada¹⁾, Johji Miwa¹⁾ and Hajime Taniguchi¹⁾

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Many sugars such as mono- and disaccharides, sugar alcohols and starch were heated at 180°C with asparagines (Asn) in a model food formula to investigate their effect on the formation of acrylamide (AA) in foods. The typical profile of AA formation from mono- and disaccharides was that the AA level increased after 5 min and reached the maximum value around 15 min and then decreased to a third value at 30 min. This profile was independent of pH and the kind of mono- or disaccharide. The amounts of AA from ketoses were much higher than those from aldoses and the contribution of their reducing character was not so great. Although the AA levels from sugar alcohols were quite low, the production of AA was obvious. In use of starch and α -cyclodextrin, the maximum of AA contents was comparable to that from glucose; however, their AA formations were relatively slow. Though the Maillard reaction between reducing sugars and Asn was widely accepted as a pathway to produce AA in processed foods, some of our results could not be explained by the theory. Consequently, it was suspected that some unknown compounds from decomposition of carbohydrates reacted with Asn to produce AA.

Key words: acrylamide, carbohydrate, Maillard reaction, LC/MS/MS, CE/MS/MS[\[PDF \(221K\)\]](#) [\[References\]](#)Download Meta of Article [\[Help\]](#)[RIS](#)[BibTeX](#)

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