

A REVIEW OF POSSIBLE METHODS TO PREVENT ACRYLAMIDE FORMATION OR REDUCE IT IN FOODS

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Acrylamide is one of harmful compounds that not naturally present in foods but it may develop during heating processes such as frying, baking, roasting and toasting mostly occurs in carbohydrate-rich foods such as potato chips, coffee, bread and bakery products. It has a high toxicological potential such as neurotoxic and carcinogenic effects. Acrylamide has been shown to originate from the Maillard reaction of the free amino acids mainly asparagine with reducing sugars such as glucose and fructose. Acrylamide formation has been reported in both processed and home cooked foods and this has led to the increased study of variation in processing conditions to minimize formation. The magnitude of this hazardous by-product formation in various foods depends on several factors mainly type of process, processing conditions such as temperature and time, design of equipment and raw material quality. Therefore some strategies appears possible to control acrylamide presence in foods such as prevention of precursors to react and form acrylamide by removal one of amino acid or reducing sugar, the addition of compounds that able to compete with asparagine e.g. the other amino acids, control of processing conditions such as temperature by vacuum pressure, use of active compounds to interrupt the reaction and finally removal of the formed acrylamide.

Keywords: Acrylamide, food safety, heating processing

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