

Does glycidamide in food constitute a health risk?

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In the summer of 2008 scientists from the Technical University of Munich detected glycidamide in addition to acrylamide in crisps. The experiments showed that, when exposed to high temperatures, not only acrylamide but also lower levels of glycidamide, a substance formed from acrylamide, can form in foods like potatoes and cereals.

Glycidamide has long been known as a metabolite of acrylamide. Since its discovery in food in 2002 acrylamide has repeatedly attracted attention. During baking, roasting and frying acrylamide is a product of the so-called browning reaction. Up to now it was not known that glycidamide can be formed from acrylamide when foods are heated. It is thought to be the substance behind the toxic and carcinogenic effects of acrylamide. After consumption of acrylamide-containing food, some of the absorbed acrylamide is converted in the organism into glycidamide. Glycidamide can alter the genotype of body cells and germ cells. It is therefore mutagenic. Studies with the pure substance, glycidamide, have shown that the substance is fully absorbed by the body.

Against this backdrop BfR examined whether glycidamide in food may constitute a health risk. Relatively low levels of glycidamide are formed when potato products are heated. Larger amounts of glycidamide are formed in the organism after the consumption of foods containing high levels of acrylamide by endogenous conversion. Hence the levels of glycidamide detected by the Munich research scientists in heated foods constitute a comparatively low risk. In the opinion of BfR it should be clarified whether the glycidamide formed during the heating of food is stable. As the exposure of human beings to glycidamide can mainly be attributed to the endogenous conversion of acrylamide into glycidamide, BfR believes it is necessary to further reduce acrylamide levels in food. Industry should continue its efforts in conjunction with the reduction measures already taken. At the same time, awareness should be raised amongst consumers about how to handle foods during roasting, baking and frying. After all, acrylamide is formed in every home for instance when baking cakes and frying potatoes. The simple rule "golden instead of charred" continues to apply to toast, chips, roast potatoes and homemade biscuits.

The full version of the Opinion in German is available on

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