Acrylamide in the home: the effects of home-cooking on acrylamide generation

Area of research interest: Chemical hazards in food and feed
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Background

There is a knowledge gap around the extent to which consumers are exposed to acrylamide, a potential carcinogen found in food, and the cooking practices and behaviours consumers engage in which influence their level of exposure. Previous studies to estimate consumer intake of acrylamide have relied on using manufacturer specifications as a proxy of consumer behaviour. Whilst these studies have provided a reliable baseline estimate they have not taken into account any variation in actual consumer behaviour. This is important, as if it is not known exactly how consumers tend to prepare their food, then it is difficult to be certain about its acrylamide content.

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Research Approach

The overall purpose of this project is to identify what domestic cooking/preparation practices consumers are engaging in that have the potential to influence acrylamide generation.

An additional aim of this research is to provide an indication as to how much acrylamide consumers are exposed to from domestically prepared food and whether this amount differs from the amount expected if food were cooked to manufacturer instructions.

The project itself consists of the following strands:

- Initial desktop review with the following aims; to identify existing consumer facing acrylamide research and to use any information gathered at this stage to inform the subsequent fieldwork methodology and sample (ie what food products to focus on and whether any demographic groups were of particular interest).
- Observational research in the homes of 50 participants. Researchers will visit participants and observe the preparation of a meal with foods that can potentially contain acrylamide. The focus of the observations are on the domestic cooking/preparation behaviours they engage in which have the potential to influence the acrylamide content of food. Samples from these meals were analysed for acrylamide.
- Follow up telephone interviews with about 15 participants to explore the rationale behind their behaviours in more depth.

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Results

Key findings related to domestic practices include:

- Consumer awareness of acrylamide exposure appears to be low.
- Use of manufacturers' instructions as a proxy will misrepresent the realities of domestic cooking practices.
- Lack of attention to preheating may result in lower cooking temperatures
- Initial cooking times are primarily used as estimates or guidelines.
- Domestic storage practices do not appear to significantly increase risk of acrylamide exposure.
- Homemade potato items tend not to be finely chopped, avoiding the risk of additional acrylamide exposure through greater surface area to volume ratios.

Research report

England, Northern Ireland and Wales

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