

Press Release

Title: Ghent University makes healthier fries

Carcinogenic acrylamide in French fries

“In 2002, acrylamide, an undesired product that may cause cancer, was discovered in various foods, including French fries. In the recent years, several techniques were developed by the scientific community in order to reduce this contaminant during frying but a review of industry practices was still lacking”, says Raquel Medeiros Vinci, a PhD student at Ghent University in the lab of Prof. B. De Meulenaer and Dr. F. Mestdagh. Raquel investigated innovative techniques for the reduction of acrylamide in French fries. This study was done in collaboration with the potato processing industry (Belgapom and EUPPA, European Potato Processors' Association) and Flanders' Food.

Improved processes result in a reduction of acrylamide

During this research two strategies were tested to reduce acrylamide in French fries on an industrial scale. The first considers the raw material selection of potatoes upon arrival at the factory. Therefore the relationship between the sugar content of potato tuber, the formation of acrylamide and the color of the baked product was evaluated. Results revealed that it is possible to identify potato batches susceptible for acrylamide formation before these enter production. This gives the potato processing industry the possibility to refuse the batch for French fries production or to adjust their process parameters to lower the risk of acrylamide formation. Accordingly, the potato processing industry currently succeeds in lowering the risk of acrylamide formation in their final products.

Furthermore, potatoes were subjected to various pre-treatments during production on industrial scale of pre-frozen French fries in order to find measures to further reduce acrylamide formation upon final frying of the product. The pre-treatments tested were food acids, salts and the enzyme asparaginase. Although these components significantly reduced acrylamide during laboratory experiments, their application on industrial scale did not result in further acrylamide reductions in pre-frozen French fries.

On the other hand, tests performed on chilled French fries (not par-fried) pre-treated with the enzyme asparaginase were very successful! After No acrylamide was detected on French fries after final frying, without impacting the taste and shelf life of the product.

Since acrylamide is formed during the final frying and is related to the colour of the fries, it is therefore important that the consumer or caterer follow the baking/frying instructions provided on the product package. A more prolonged frying and/or too high frying temperature will result in a darker coloured product with higher acrylamide values. Golden-yellow fries are thus healthier than darker-coloured ones.

In 2008, the EU produced approximately 62 million tones of potatoes of which more than 20 % is processed for instance into French fries. French fries actually originated from Belgium, one of the top 5 potato producing countries in the EU. “On average, Belgians consume around 87 kg per person per year, quite often as fries, a dish that can be considered as a typical Belgian”, says prof. Benedikt Sas from Food2Know. “Good quality potatoes and improved processing techniques for fries are therefore important not only for a good taste, but also from a health perspective”.

The results of this study will be presented at the symposium 'Acrylamide reduction in the potato and food', on the 17th of March 2010 in Het Pand, Onderbergen 1, 9000 Gent, Belgium.

Raquel Medeiros Vinci carried out this research in the group of Food Chemistry and Human Nutrition, in collaboration with her promoter Prof. Bruno De Meulenaer and Dr. Frédéric Mestdagh. This group is member of Food2Know.

Food2Know

This Centre of Excellence from Ghent University groups more than 30 research labs, spread out over six faculties, the University Colleges and the National Institute for Agricultural & Fishery Research (ILVO). The full integrated chain "from farm to fork" is covered.

Info

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<http://www.nutrifoodchem.ugent.be> – events

<http://www.Food2Know.org>

