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## Acrylamide: The Carcinogen in Your Plate

### Chiara Manzi

*Art joins Nutrition Academy, Italy*

Potatoes, cereals, bread: correlation between acrylamide content and color changes. Chiara Manzi, the president of Art joins Nutrition Academy, EUROPEAN ANTIAGING CULINARY NUTRITION ACADEMY, together with ASSIC (The Italian Association for Nutritional Safety) reviewed the available scientific literature and data to analyze the best cooking and processing method to reduce the exposure to acrylamide in foods. Since potatoes is one of the food that contribute most to overall dietary human exposure of acrylamide, Chiara Manzi, together with Parma University and Art joins Nutrition Academy, investigated the correlation between acrylamide content and color of cooked potatoes.

#### The purpose of the present study was:

- To develop a PHOTOGRAPHIC TOOL to help consumers recognize acrylamide in foods.
- Results showed that the darker the color of the potatoes, the more acrylamide is present.
- To Develop a method of cooking potatoes very low in acrylamide. Potatoes were cooked in oven (140°C – 180°C) for 10 to 60 minutes (steam/hot air and no steam).
- To develop a special cereal mix for cooking PIZZA very low in acrylamide.

Acrylamide is a potentially cancer-causing substance that naturally forms in starchy food products during high-temperature cooking, above about 120°C and low moisture. It mainly forms from sugars and the amino acid asparagines that are naturally present in many foods. In June 2015, EFSA confirmed that acrylamide in food potentially increases the risk of developing cancer and causes neuronal changes for consumers in all age groups. Since acrylamide is present in a wide range of everyday foods, EFSA concluded that acrylamide is a public health concern which applies to all consumers but children are the most exposed age group on a body weight basis. Certain foods are more likely to contain acrylamide than others. These include potato products (especially French fries and potato chips), coffee, and foods made from grains (such as breakfast cereals, cookies, bread, crisp bread). The wholemeal products have been shown to contain more acrylamide. Acrylamide content can be related to color: cooking starchy food to a golden yellow color, rather than a dark brown color, lowers the amount of acrylamide. Very brown areas contain more acrylamide. Since any level of exposure to a genotoxic substance could potentially damage DNA and lead to cancer, EFSA's scientists conclude that they cannot set a tolerable daily intake (TDI) of acrylamide in food. Instead, EFSA's experts estimated the dose range within which acrylamide is not a concern for public health: 1 mcg of acrylamide a day. This dose may be found in 1 g of potato chips, 3 g of French Fries, 4 g of biscuits e 3 g of first born biscuits.

#### The conclusion of the present study was:

- A PHOTOGRAPHIC TOOL has been developed to help consumers recognize acrylamide in foods. Results showed that the darker the color of the potatoes, the more acrylamide is present.
- A method of cooking potatoes very low in acrylamide has been developed: potatoes were cooked in oven (140°C – 180°C) for 10 to 60 minutes (steam/hot air).
- A special cereal mix for cooking PIZZA very low in acrylamide has been developed and produced.

### Biography:

Chiara Manzi holds a Master of Science in Human Nutrition and Dietetics (University of Navarra - Spain) and a specialization in Antiaging Nutrition (Tufts University of Boston). She is the founder of the **Art joins Nutrition Academy**, the first and only one Academy of Antiaging Culinary Nutrition in Europe. Partners of The Academy are the University of Parma and Milan. The Academy is sponsored by the Italian Ministry of Health. She is the president of The Italian Association for Nutritional Safety.