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Furan in food including homemade and ready-to-eat food products

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Furan is formed in canned, jarred or browned food items. As furan is carcinogenic in animal experiments, attention has been drawn to the presence in commercial and home-cooked foods.

The formation of furan in home cooked foods were studied as well as the stability of furan during cooking, saving and reheating of meals. In addition the occurrence of furan in some commercially dried and browned food products were determined.

Several recipes of European homemade food were prepared but in most cases fortunately furan was not found. I few exceptions were e.g. apple pie (133 ng/g furan in the rasp) and tea buns with raisins (83 ng/g furan in the raisins).

The influence on heating and reheating of ready to eat foods like different soups, baked beans and vegetable meals known to contain furan, showed that heating roughly reduced the furan level to half the initial level and reheating reduced the level a bit further, hence furan is relatively stable in food products.

Of the food items surveyed relatively many sundried fruit and vegetable products like raisins, tomatoes, and dried bananas contained furan, for example a sample of raisins contained 83 ng/g and banana crisps 11ng/g furan. Furthermore one sample of breakfast cereals contained 387 ng/g furan while the others were below 87 ng/g (n=11). The Maillard browning reactions of carbohydrate rich foods are responsible for furan formation in heat treated foods as breakfast cereals, toasted bread, cookies and crisps/snacks. When preparing potato crisps (diameter 40 mm x width 2 mm) by deep frying in oil at 150°, 170° and 190°C to the same water content (crispiness) of ~ 2% simulating industrial conditions, the furan content increased from 12-15 ng/g up to 31-52 ng/g. A similar study on French fries (0.8 x 0.8 x 5 cm) showed furan contents of 11-21 ng/g.

Keywords: furan occurrence, foods, ready to eat, homemade, browned