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OCCURRENCE OF FURAN FROM FOODSTUFFS IN THE BELGIAN MARKET

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Food safety is a matter of a steadily increasing concern. To rely on a scientific assessment, the Authorities need an improved knowledge of the emerging contaminants [1]. Besides methods for their identification and quantification, their effect on human health should be evaluated. This requires extensive epidemiological studies including toxicokinetic and toxycodynamic data, dose-response, toxicological reference value, occurrence and exposure. To allow an estimation of the mean human exposure, a food occurrence assessment that cover as much as possible different matrices from basic food items to complex mixture is mandatory.

This assessment was carried out on furan, a food toxicant classified by IARC as possibly carcinogenic to human since 1995, and known as carcinogenic to rats [2,3]. Furan is a little heterocyclic molecule known to be found in foods that undergo heat treatment like canned and jarred food, but also in coffee and baby food [4]. The formations pathways are not yet well known and research about are going on.

We developed a sampling plan as exhaustive as possible with a limited number of items (n=500). This plan does not only take into account the matrices known to be contaminated, but also various matrices across the food chain. The items were distributed into 30 different groups of the food pyramid (e.g.: coffee, fats, meat, meat products and substitutes, fruits, vegetables, dairy based products, fish and fishery products). The distribution takes into account the geographic variation (different fabrication place and local product), the different supermarket companies and brands (different process and basic foodstuff), and also the consumption frequency (greater concern about the most consumed foodstuff).

The study reveals the presence of furan, from background to higher levels, in all the food chain. The ubiquitous contamination helps to estimate the ground level. Some specific food items exhibit high levels of furan: the coffee (the most contaminated item), the baby food, the breakfast cereals, and the ready to eat meals.

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