FOOD CRISES & NEW POPS: CHALLENGES IN ANALYSIS

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Risks for human health from PCBs and dioxins are mainly related to consumption of food from animal origin. During the last decade, repeated cases of contamination of feedingstuffs highlighted the importance of feed as the potential contamination media. Reducing the dioxin uptake by human is thus highly dependent of actions taken to minimize the contamination of all feed materials such as, not only, raw materials, but also recycled products and ingredients (e.g. citrus pulp pellets, recycled fats, mineral clays, choline chloride component, hydrochloric acid related to gelatin production, guar gum thickener, biodiesel-related fatty acids, …).

Despite those actions, isolated cases of contamination might still arise. The implementation of continuous monitoring strategies, the enforcement of the maximum-action-target level strategy, as well as the availability of a Rapid Alert System for Food and Feed (RASFF), nowadays allows actions to be taken more rapidly and in a coordinated manner in order to reduce the potential human exposure to a minimum in case a contamination event is reported. This normally translates in so called 'food crises', which now often have much larger impact on our economies than on our health.

In order to be able to timely respond to health threats caused by contaminated food or feed, laboratories have to be endowed with large and efficient analytical capacities. The entire screening-confirmatory approach of the EU relies on the responsiveness of such expert laboratories. They have to be able to handle continuous flows of samples to be screened (and potentially confirmed) for regular monitoring programs, but also to quickly go on alert and accommodate large numbers of suspected samples in case of a contamination event is reported.

Such expert laboratories have to use state-of-the-art technologies, which includes both sample preparation and measurement aspects. One of the major challenges is to combine high level of QA/QC with fast turnover and large sample throughput. Depending on the fact that a method is used for screening or for confirmation, analytical instructions and guidelines are somewhat different but, in each case, requirements are very stringent and specific to the highest level.

Because of all efforts provided by the EU on both analytical and food-feed continuous control aspects, one often says that Europe has one of the highest levels of food safety in the world… So far, however, only a very limited set of analytes is included in those monitoring programs. What about all the other potential harmful molecules present in our food but that we do not look for? What about potential synergic effects of mixture of untargeted toxicants?

Next to the continuous discussions regarding the potential use of such or such alternative tools for specific PCB and dioxin monitoring, it would perhaps be more fruitful for our health to concentrate efforts on the development of analytical approaches that would allow to enlarge the list of target compounds to more 'exotic' (un)suspected persistent molecules… A more proactive and exhaustive approach is probably needed to more appropriately ensure high level of food quality.

Keywords: Dioxins, food crisis, emerging contaminants, analytical procedure