New contaminants, emerging contaminants

Several food contaminants of environmental origin should be considered “emerging” due to the increasing attention towards their effects; they should be considered “new” as well because they are not included in official food control programs. Here we have three relevant examples, not widely known by the general public: organotin biocides, brominated flame retardants and perfluorinated organic compounds used as additives in films, etc. But “new” does not necessarily mean unknown: pointed out since years by the scientific community, these three groups of contaminants have been also evaluated by the European Food Safety Authority (EFSA) (1-3).

Is the Italian consumer exposed to such contaminants?

Although specific data for Italy are scarce, studies in other European Countries suggest that Italian consumer’s exposure is fully plausible. In Europe industrial use of organotin biocides, brominated flame retardants and perfluorinated organic compounds is undergoing drastic containment; however, all such compounds have the potential to persist in the environment and to bioaccumulate in a way not different from “traditional” contaminants such as PCBs or cadmium. Moreover they are still used in third Countries, that may import foodstuffs and food ingredients in Europe.

Is there a health risk?

EFSA assessments indicate that each group of contaminants, although with different mechanisms, are endocrine disrupters able to alter hormones homeostasis mainly in sensitive organisms such as foetuses and children, as well as capable to cause long term effects for reproductive, neurological and immune development. Furthermore, data on contamination levels show a possible risk for consumers with high intake levels.

Is all food at risk?

All available data show that for each contaminant group the overall intake risk is determined by a limited set of foods, among which seafood, such as fish and shellfish, stand out, as well as milk and dairy products for brominated flame retardants. Therefore, it would be necessary to focus prevention and control actions toward specific food chains and environmental compartments.

A simple work proposal.

A remarkable amount of scientific literature is now available on organotins, brominated flame retardants and perfluorinated organic compounds and, above all, there are documents elaborated by EFSA. This may be the right time to develop a translational prevention approach that, starting from research can lead to a more updated and efficient evaluation and prevention of possible health risk. Current scientific data allow to:

- define, even if provisionally, maximum tolerable limits in foodstufs and feedingstuffs more vulnerable to contamination.
- provide the network of reference laboratories with validated analytical methods
- planning, at European and national level, the inclusion of such contaminants in control plans, focusing on the protection of more exposed food production chains.
- evaluate the control outcomes as indications towards possible interventions to guarantee and promote food chain’s quality and wholesomeness.
References

