EFSA FCM Network Meeting

24 November 2022

EFSA's Scientific Colloquium 25 on Micro-nanoplastics in food

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FIP – Food Ingredients and Packaging

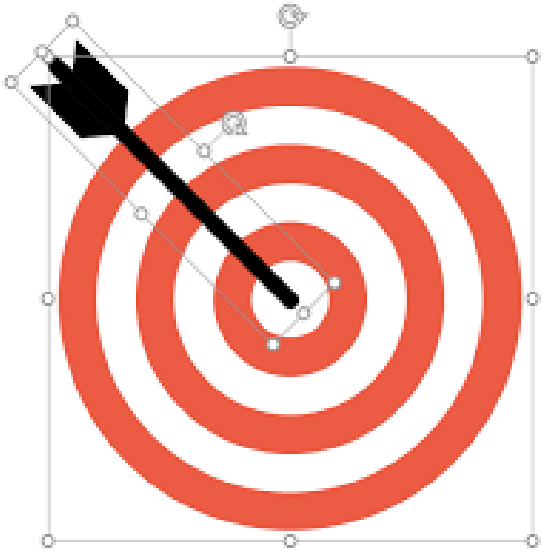
KNOW - Knowledge, Innovation and Partnership management

Trusted science for safe food

efsa
European Food Safety Authority

Objectives of this presentation

- Background
- The EFSA colloquium
- Follow-up



Background (1)

- 2013: Emerging Risks Identification at the EREN
  - Potential emerging food safety issue
  - Because of lack of data, no decision on food safety risk
  - Recommendation: EFSA to monitor the issue, consult other bodies and collect information
- 2015: BfR asked EFSA to issue a scientific opinion on the presence of plastic microparticles and nanoparticles in food, with particular focus on seafood.
- 2016: EFSA CONTAM Panel Statement

Background (2)
Statement of the EFSA CONTAM Panel

- Analytical methods should be (further) developed and standardised. Quality assurance should be in place and demonstrated.
- Occurrence data, in particular for the smaller sized particles (<150 µm), should be generated.
- Research on the toxicokinetics and toxicity, including studies on local effects in the GI tract, is needed in particular for the smaller sized particles.
- Research on the degradation of microplastics and potential formation of nanoplastics in the human GI tract is needed.

The EFSA colloquium 6-7 May 2021

- EFSA
- ECHA (Peter Simpson)
- JRC (Birgit Sokull-Klüttgen)
- DG-SANTE (Veerle Vanheusden)
- DG-RTRD (Uta Faure)
- WHO (Lisa Scheuermann)

bring researchers, risk assessors, risk managers, industry, social scientists and risk communicators together

understand the current state of play and ongoing research in micro and nanoplastics

foster collaboration and build synergies

Content

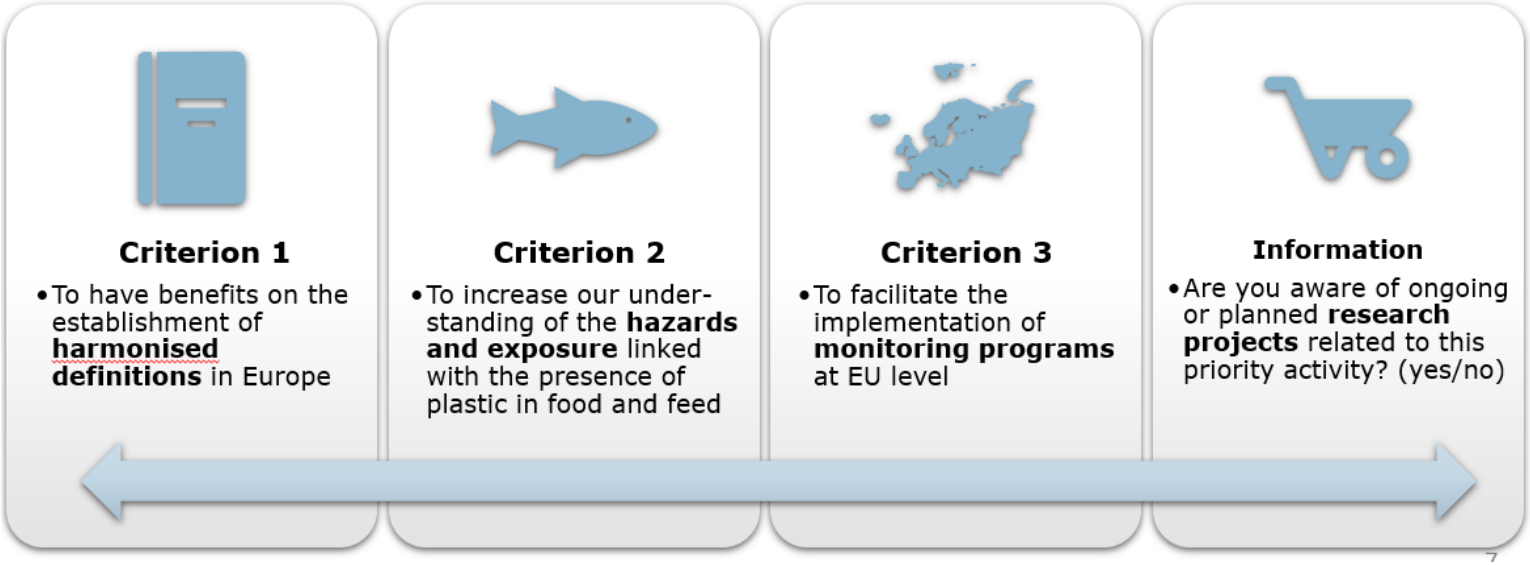
Developments in analytical methods for micro- and nanoplastics

Developments in exposure of humans to micro- and nanoplastics

Developments in hazard identification and characterisation for micro- and nanoplastics

Outcome

- Knowledge gaps
- Actions to overcome knowledge gaps
- Priority actions



Analytical methods

Poll results: list of prioritised research activities
Development of nomenclature, protocols, guidelines, reference material and standards (including units)
Rapid methods of detection based on parameters relevant for hazard characterisation
Analytical method comparison to select techniques for the developed standards
Applying techniques for the evaluation of both mass and particle number

Exposure

Poll results: list of prioritised research activities
Generating exposure data through the whole diet (including food packaging)
Identification of the food items contributing to exposure and accumulation
Identifying the contribution of different food processing technologies on the occurrence of MPs and NPs in food
Localisation and following fate of MPs/NPs in environment to foresee where exposure is likely to occur
Characterise the bioavailability of the chemicals in MPs/NPs

Hazard

Poll results: list of prioritised research activities
Standardise toxicological tests by establishing reference materials, grouping representative characteristics of materials to be tested, using relevant doses, relevant controls and adequate models
Produce experimental data to identify adverse effects (including effects on microbiome), modes of action and dose-response relationships
Produce experimental data to characterise the bioavailability and bioaccumulation potentials of different MPs and NPs and their potential to carry and release plastic additives and contaminants in the organism
Use of expertise in other fields of knowledge

Conclusions

Scientific evidence on human health effects is still scarce, and the evidence quality is variable.

Developing and validating standardised analytical tools is essential.

Produce good quality exposure data through the whole diet and data to identify adverse effects, modes of action and dose-response relationships

The problem has a clear global nature, requiring international collaboration, engagement with a wide range of stakeholders and coordination of existing research efforts and knowledge.

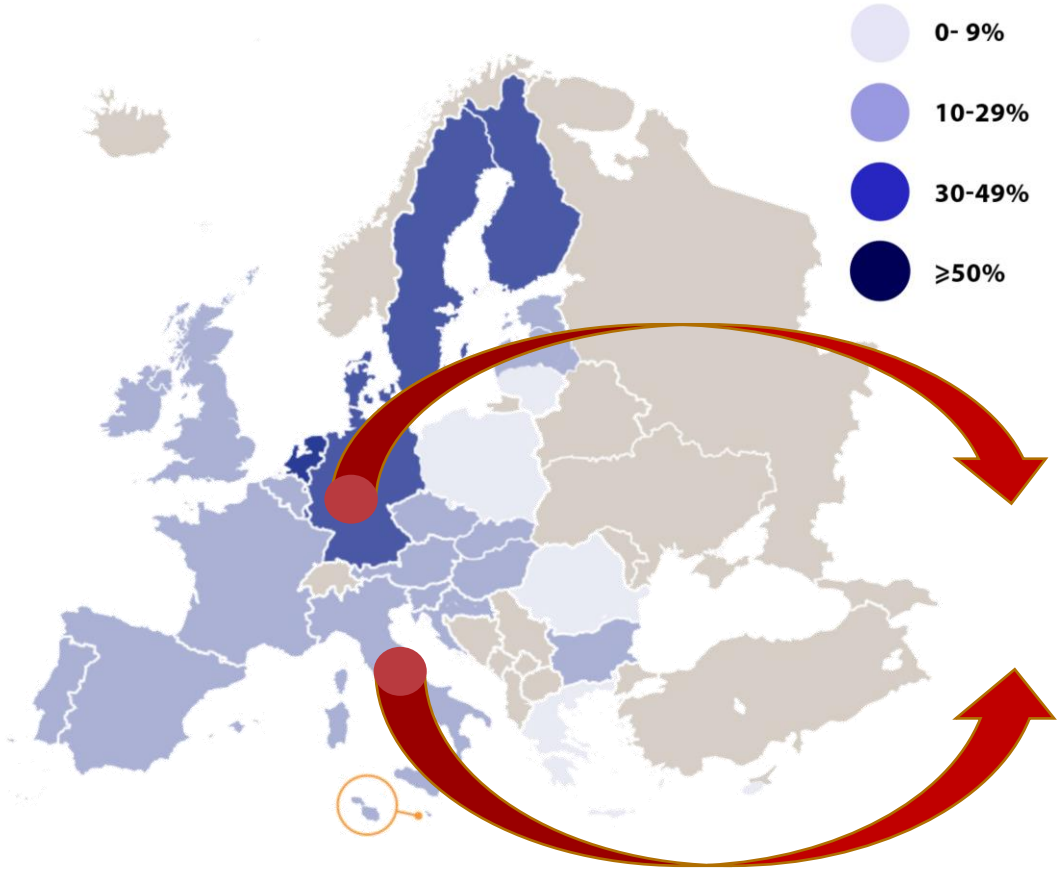
Ensure Transparent communication.

Research the factors underlying citizens' concerns in absence of scientific evidence on human health risks.

Follow-up

- Project on the international comparison of risk perception of microplastic in cooperation with BfR,
- Monitoring ongoing scientific projects

Aim of the project | Understanding perceptions



Joint BfR-EFSA research project on understanding perceptions of microplastics and improvement of risk communications

(under Framework Partnership Agreement)

Phase 1

Phase 2

Methodological framework
Mental Models Approach

Interviews
Germany: *n* = 15
Italy: *n* = 15

- High levels of **uncertainty**
- **Negative perception** of microplastics without understanding underlying mechanisms
- Transfer of **plastics knowledge** to microplastics to make sense of the phenomenon
- Concept of of **accumulation and dose-response relationship**
- Feeling of **helplessness**
- Need for solutions to consider both **human health and environment**

Survey
Germany: n = 1,135
Italy: n = 1,124

- High levels of **concern** about the harmfulness of microplastics to human health and the environment
- Various levels of **knowledge**
- Perception of being **exposed to microplastics** through consumption behaviours (e.g., using cosmetics, eating food)
- **Reducing plastics** seen as effective measure to counter microplastics
- Attribution of **responsibility to industry** in particular, but also EU and MSs
- **Own actions** perceived as less significant

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