

# CCLAC 23<sup>rd</sup> Meeting : Keynote

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Quito-Ecuador

“  
Prevention and Reduction of  
Contaminants in Food  
”



# Prevention and Reduction of Contaminants in Food

1.

## Prevention

In order to prevent, it is necessary to know the contaminants that could be present in food and their risk.

2.

## Reduction

In order to reduce it is essential to have suitable process guidelines and to know the appropriate methods to reduce/remove contaminants in food.

3.

## Stakeholder Coordination and Synergy

To establish a Plan for Surveillance and Control of Contaminants in Food and to strengthen the relationship between Control Agencies, Producers/Industry, Consumers, and the Academy.

**Contaminant:** "Any substance not intentionally added to food, which is present in that food as a result of production.

This term does not include insect fragments, rodent hair and other foreign matter" (FAO, WHO, 2018). However, it is important to consider that the definition of contaminant may vary in its specifications depending on the scope of the Codex committee that defines it.

Codex Alimentarius Committee on Contaminants (CCCCF).

# 1. Prevention

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★ Identify contaminants and their risk



Implement appropriate analytical methods



Contribute to the baseline from research.

# Prevention and Reduction of Contaminants in Food

1.

## Prevention

★ Identify contaminants and their risk.

Microplastics  
Nanoplastics

NPs

SCCP

BFR  
NBFR

PFAS

MOSH  
MOAH

Toxins  
Naturals



Pesticides

Lead

Chromium

Medicines

PCBs

Arsenic

Mercury

Mycotoxins

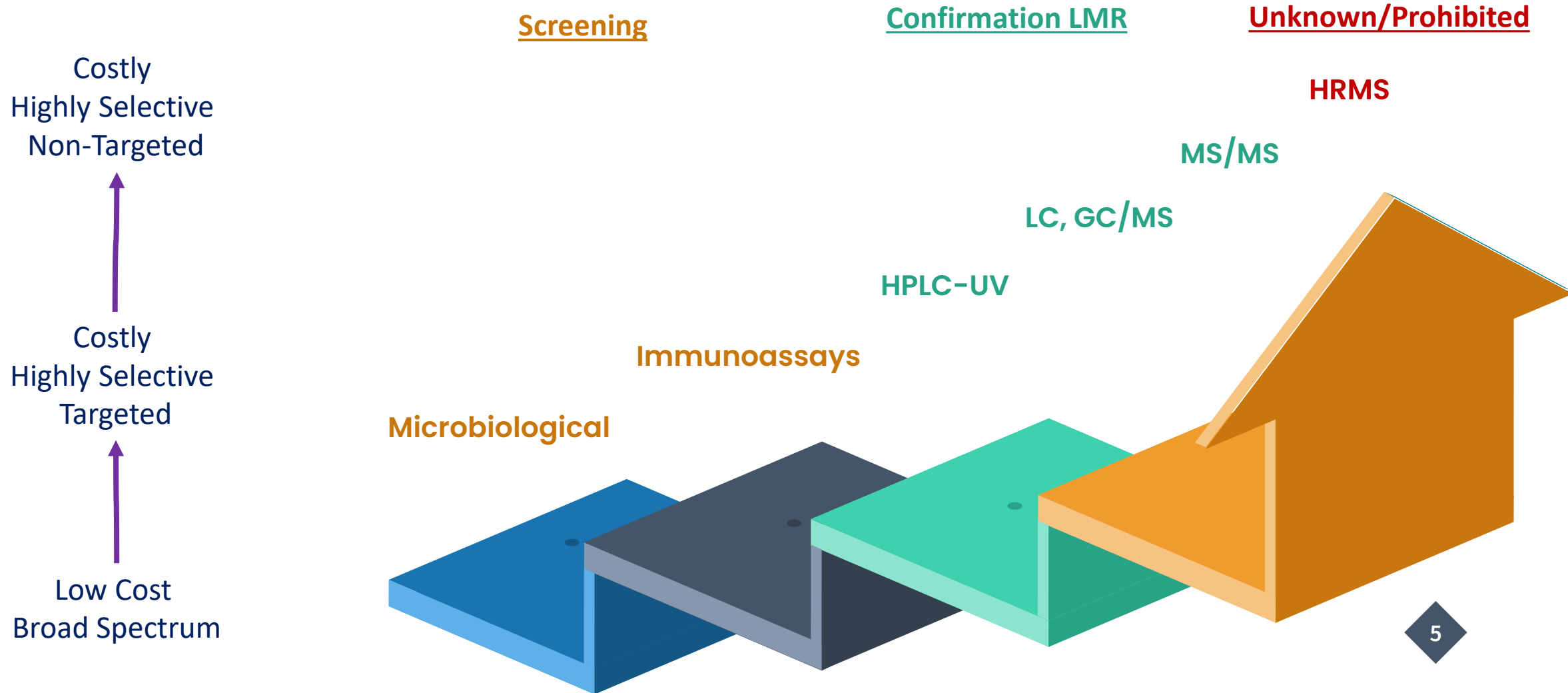
Dioxins

# Prevention and Reduction of Contaminants in Food

1.

Prevention

★ Implement appropriate analytical methods.



# Prevention and Reduction of Contaminants in Food

## 1. Prevention ★ Implement appropriate analytical methods.

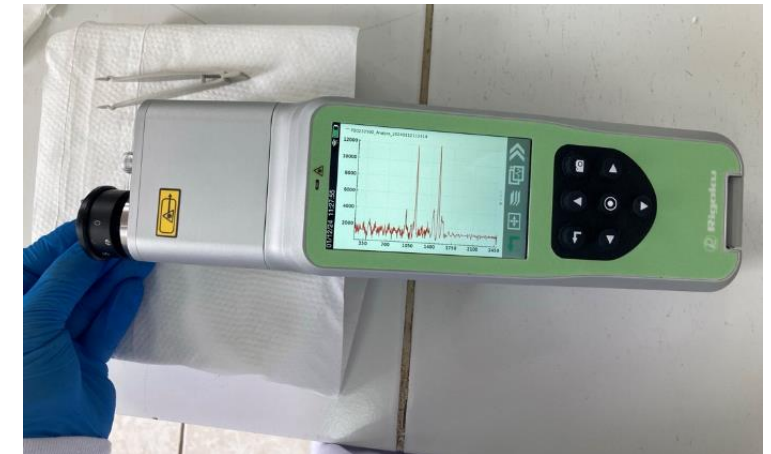
### Targeted



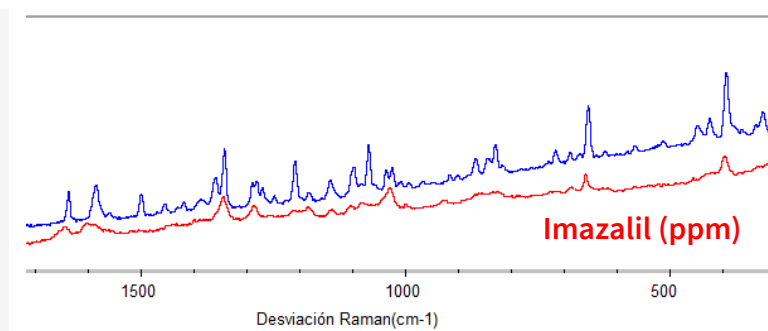
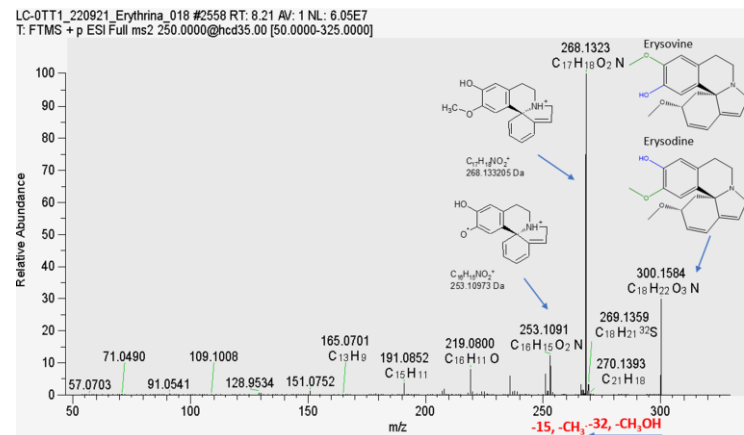
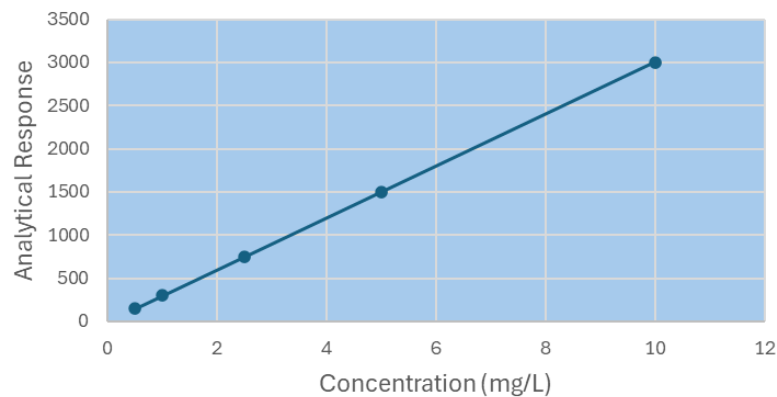
### Non-Targeted



### Rapid Diagnostics



Calibration Curve/Analytical Quantification



# Prevention and Reduction of Contaminants in Food

## 1. Prevention Contribute to the baseline from research.

### Scientific Articles: Global

Search within Article title, Abstract, Keywords Search documents \* "Food Safety"

+ Add search field

Reset Search

Documents Beta Preprints Patents Secondary documents Research data

41,103 documents found

### Scientific articles: CCLAC

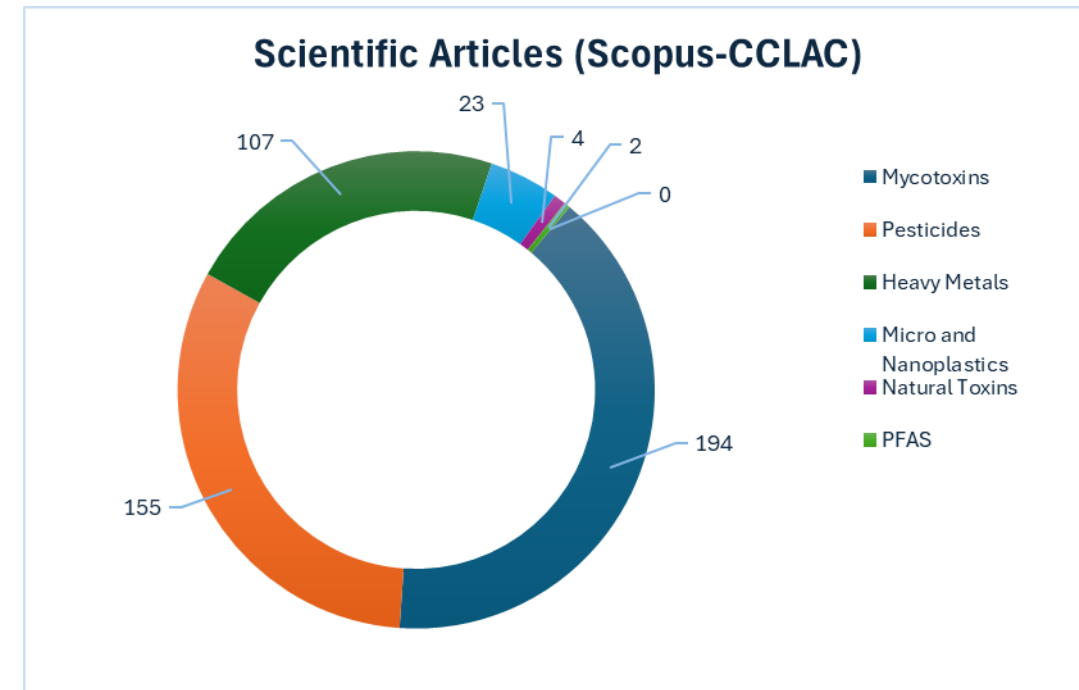
Search within Article title, Abstract, Keywords Search documents \* "Food Safety"

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Reset Search

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2,804 documents found



# Prevention and Reduction of Contaminants in Food

1.

Prevention

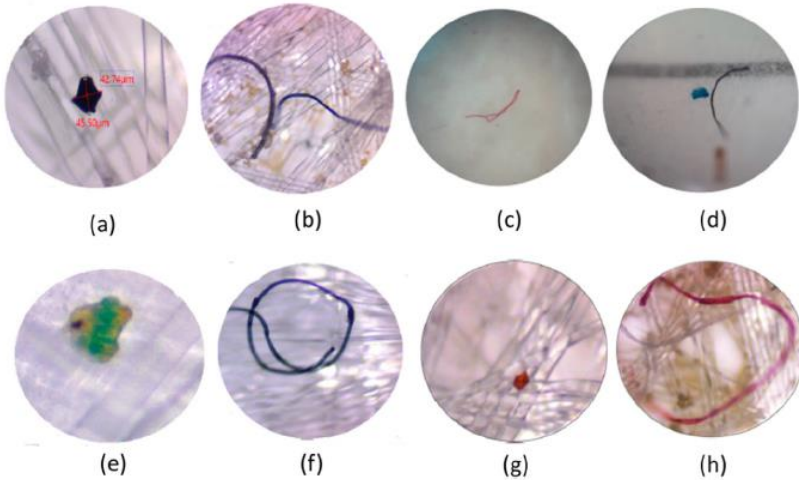


Contribute to the baseline from research.

## Micro and Nanoplastics

Soft drinks

Beer

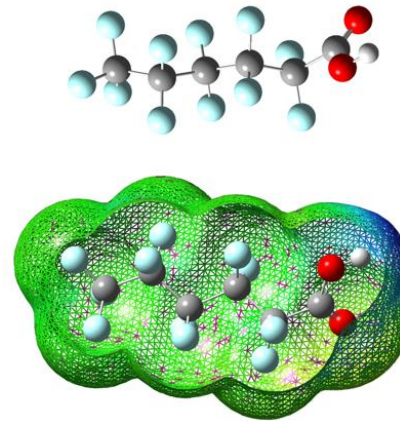


Leche

Miel

Figure: Microplastics in food from Ecuador.  
Milene F. Diaz-Basantes et al., 2020a, 2020b

## PFAS



scientific reports

OPEN

Differential scanning fluorimetry to assess PFAS binding to bovine serum albumin protein

Jessica Alesio & Geoffrey D. Bothun

Check for updates

## MOSH/MOAH

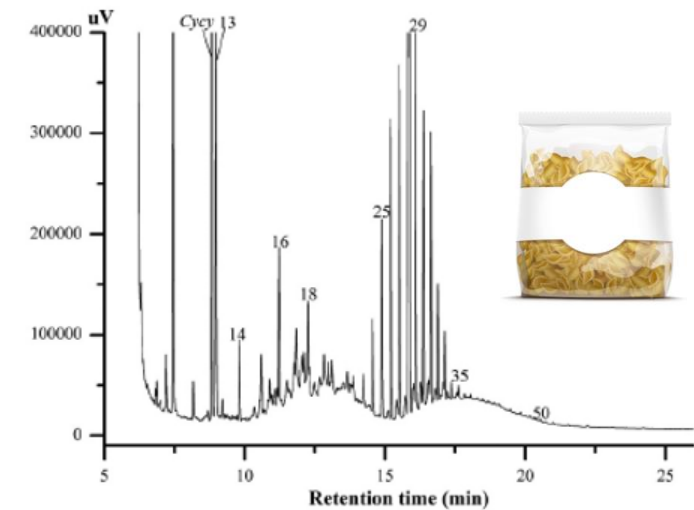


Figure: MOSH and MOAH in paste.



## 2. Reduction

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Codex and Control  
Organization Standards.



Research in Pollutant  
Reduction/Elimination  
Methods



Surveillance and Control of  
Adulterated Products

# Prevention and Reduction of Contaminants in Food

## 2. Reduction ★ Codex and Control Organization Standards.



### Comité del Codex sobre Contaminantes de los Alimentos (CCCF)

Referencia	Título	Comité	Última modificación	EN	FR	ES	AR	ZH	RU
CXC 45-1997	Código de prácticas para reducir la Aflatoxina B1 presente en las materias primas y los piensos suplementarios para animales productores de leche	CCCF	1997	✓	✓	✓	✓	✓	✓
CXS 193-1995	Norma general para los contaminantes y las toxinas presentes en los alimentos y piensos	CCCF	2023	✓	⊘	⊘	⊘	⊘	⊘
CXC 77-2017	Código de prácticas para la prevención y reducción de la contaminación por arsénico en el arroz	CCCF	2017	✓	✓	✓	⊘	✓	✓
CXC 56-2004	Código de prácticas para la prevención y reducción de la presencia de plomo en los alimentos	CCCF	2021	✓	✓	✓	⊘	⊘	⊘



# Prevention and Reduction of Contaminants in Food

## 2. Reduction ★ Research in Pollutant Reduction/Elimination Methods.

### Scientific articles: Global

Search within ▼  
Article title, Abstract, Keywords

Search documents \*  
food AND contaminants AND treatment

+ Add search field

Beta

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### Scientific articles: CCLAC

Search within ▼  
Article title, Abstract, Keywords

Search documents \*  
food AND contaminants AND treatment

+ Add search field

Beta

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- Chemicals
- Time
- Temperature
- Drying

- MP Foods
- Water and ice
- Packages

- Methods
- Conditions
- MP Foods

- Air Flow
- Aw
- Temperature

- Design Barriers
- Temperature

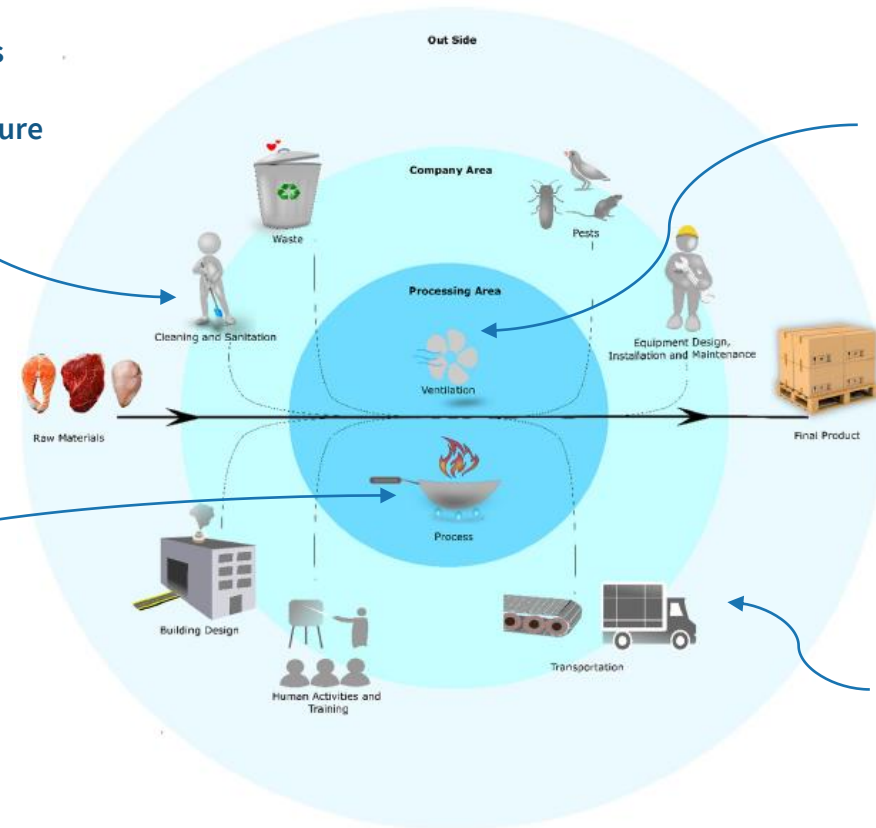


Figure: Some food contamination pathways  
 .Journal of Food Protection 86 (2023) 100184

# Prevention and Reduction of Contaminants in Food

## 2.

### Reduction



### Research in Pollutant Reduction/Elimination Methods.

#### Antibiotic removal treatment

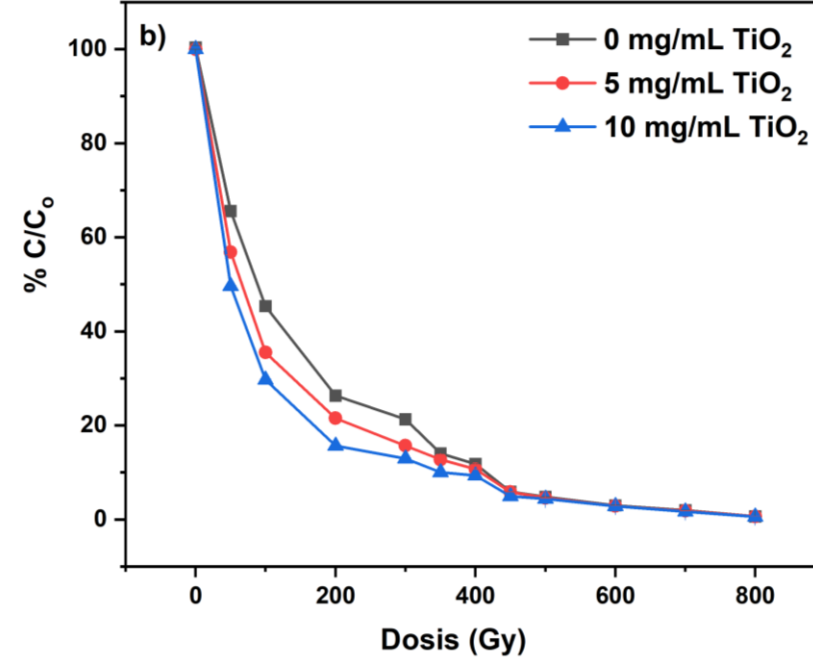
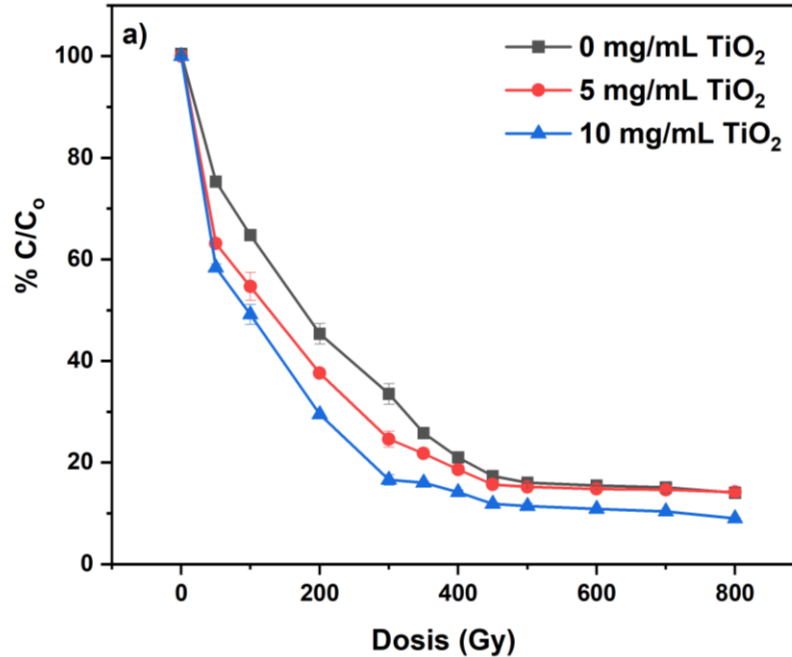
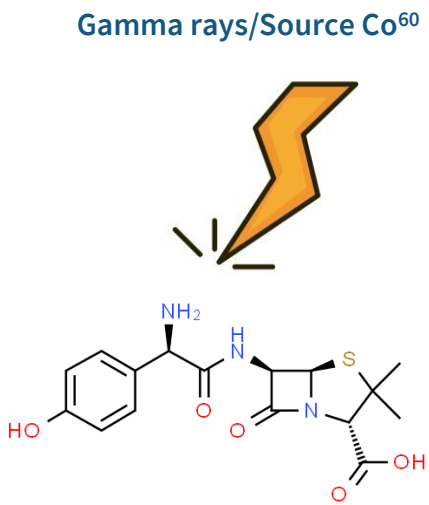


Fig. Removal of a) Amoxicillin and b) Penicillin G from water by gamma ray and TiO<sub>2</sub> treatment.

Autores: William Villacis, Paúl Vargas-Jentzsch, Roque Santos, María Natalia Piol y Cristina Vázquez, EPN (ECU) y UBA (ARG), 2024.

# Prevention and Reduction of Contaminants in Food

## 2. Reduction ★ Surveillance and Control of Adulterated Products.



[Home](#) / [Food](#) / [Recalls, Outbreaks & Emergencies](#) / [Outbreaks of Foodborne Illness](#) / [Investigation of Elevated Lead & Chromium Levels: Cinnamon Applesauce Pouches \(November 2023\)](#)

### Investigation of Elevated Lead & Chromium Levels: Cinnamon Applesauce Pouches (November 2023)

*FDA issues Warning Letter and leverages Import Alerts.*




# Prevention and Reduction of Contaminants in Food



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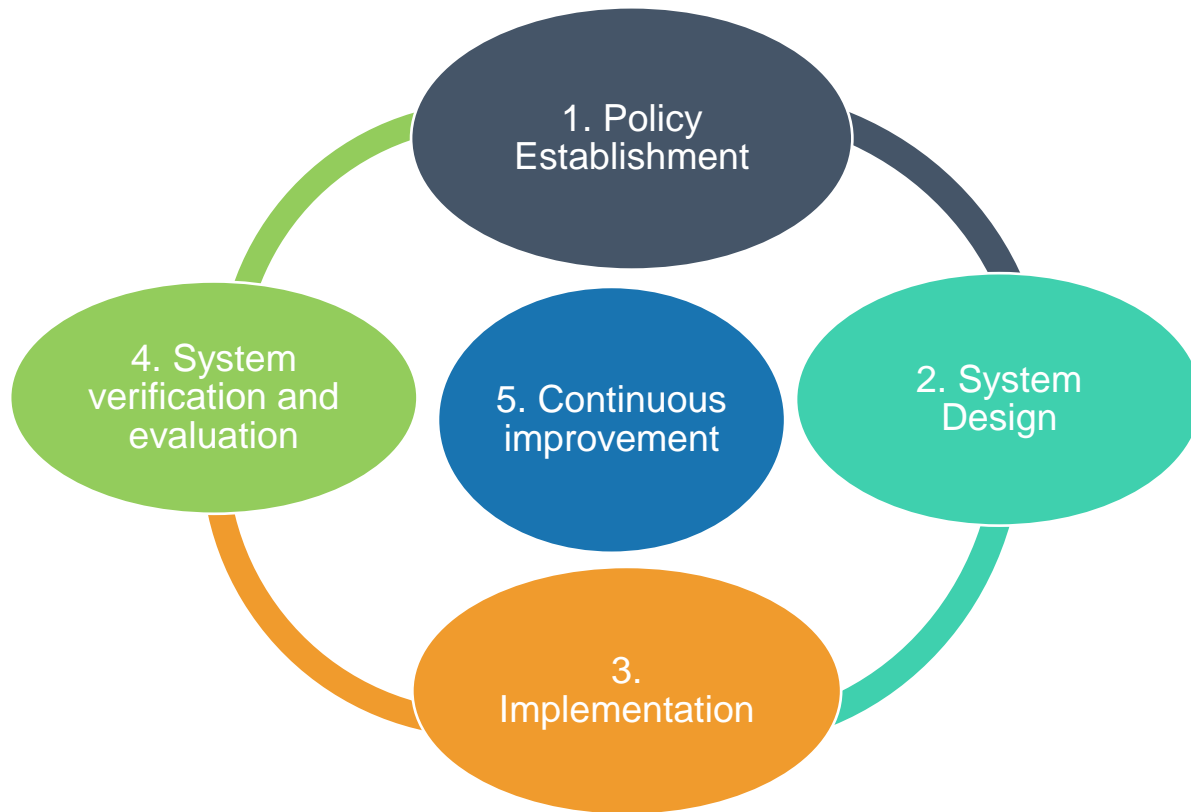
## Stakeholder Coordination and Synergy

To establish a Plan for Surveillance and Control of Contaminants in Food and to strengthen the relationship between Control Agencies, Producers/Industry, Consumers and the Academy.



# Prevention and Reduction of Contaminants in Food

## 3. Coordination and Synergy



- ★ Good Practices and Certifications
- ★ National Contaminant Surveillance and Control Plan
- ★ Socialization and Training

<sup>1</sup> Organic Statute for Agrocalidad process, Resolution No. 282, R.O. supplement 168 of September 18, 2014.

<sup>2</sup> Codex Alimentarius, CACL GL 82-2013, Principles and Guidelines for National Food Control Systems.

# Prevention and Reduction of Contaminants in Food

## 3. Coordination and Synergy





# Prevention and Reduction of Contaminants in Food

## 3. Coordination and Synergy

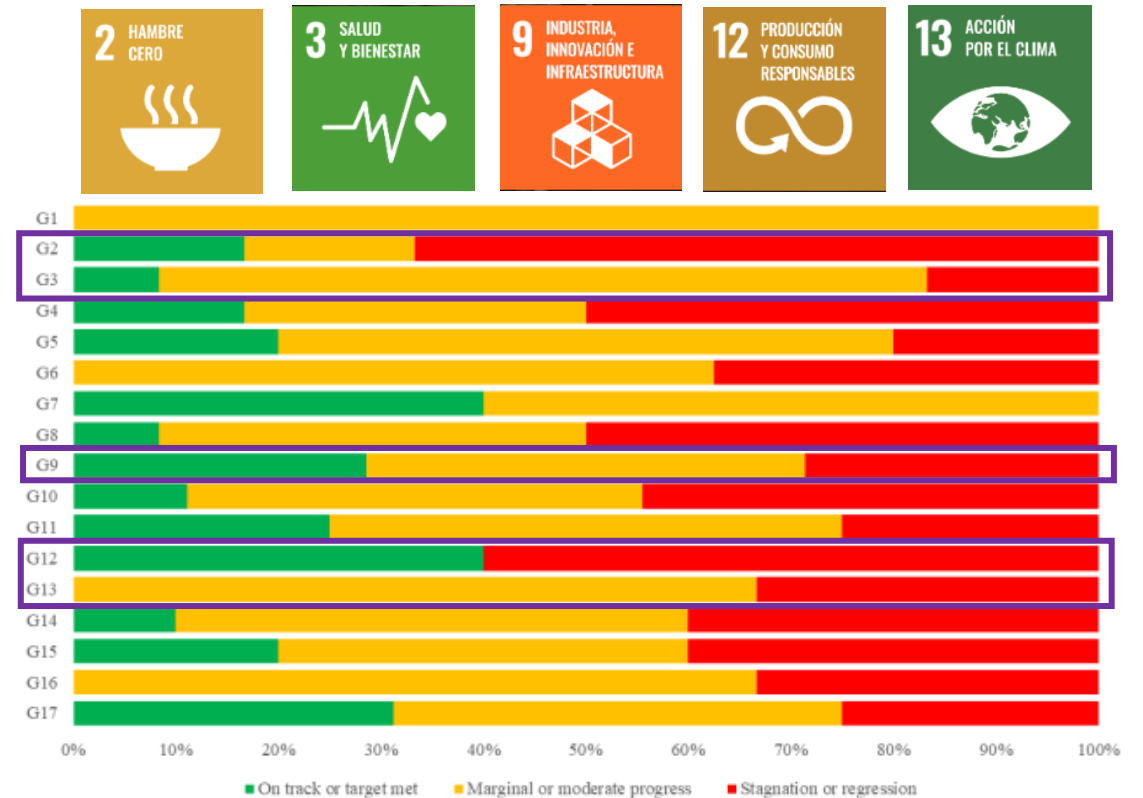
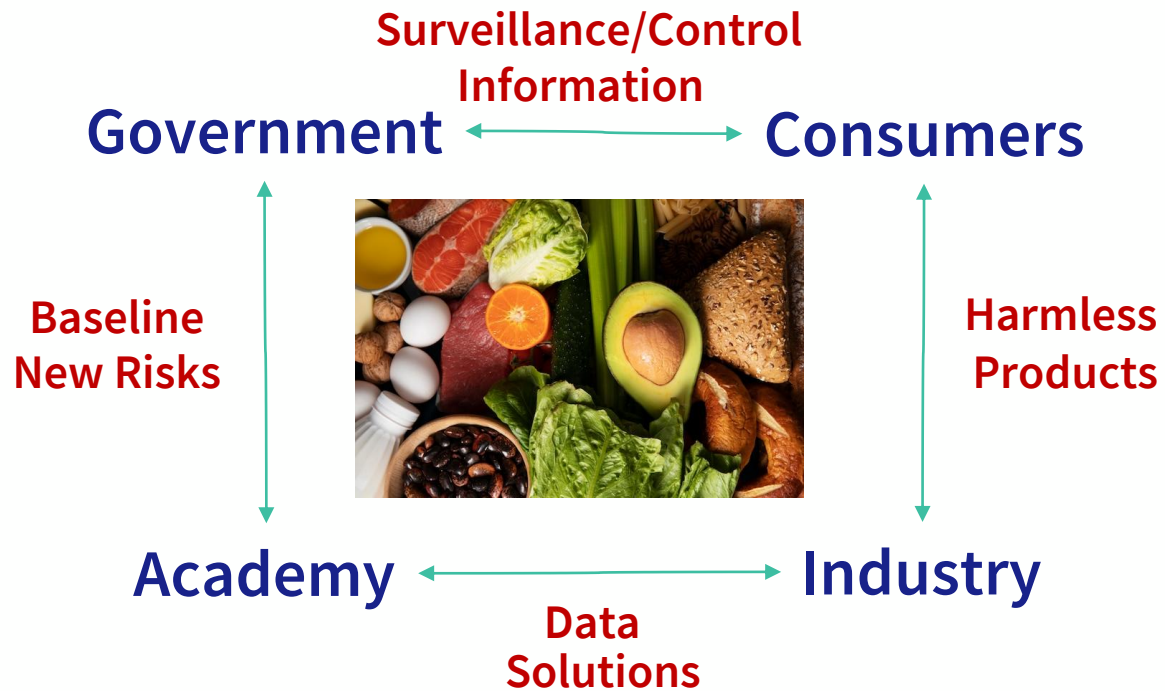


Figure: SDG 2024 Progress Report. UN, 2024

## Conclusions:

- ★ There is a need to expand the analytical capacity installed for the detection of emerging contaminants in the region.
- ★ Promote the guided participation of the Academy in food contaminant surveillance and control plans.
- ★ Information from Codex Standards and Scientific Papers are a valuable tool to prevent and reduce contaminants in food.
- ★ To keep food safe, Industry, Academia, Government and Consumers must share information and work together.



Thank you very much



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