

## 23rd Meeting of the Codex Contact Points in the Arab Region

**ANALYSIS OF AGENDA ITEMS IN PREPARATION FOR THE 17th SESSION OF THE  
CODEX COMMITTEE ON CONTAMINANTS IN FOOD  
(CCCF17)**

***April 4, 2024***

# 5

## Agenda Item 5:

MAXIMUM LEVELS FOR LEAD IN CERTAIN  
FOOD CATEGORIES (At Step 4)

CX/CF 24/17/5

*Egypt*



# Introduction

Pb poisoning is currently among the most studied subjects internationally

A toxic metal whose excessive use has led to widespread contamination of the environment.



May be present in many food products

**There is no health threshold (safe level) according to JECFA73 (2011)**

# Pb

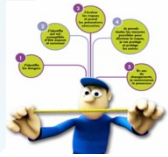
CODEX  
Since the 6<sup>th</sup> session

Revise MLs for important foodstuffs that are consumed in abundance and contribute to exposure.

Setting new limits for Pb in certain foods that contribute to exposure

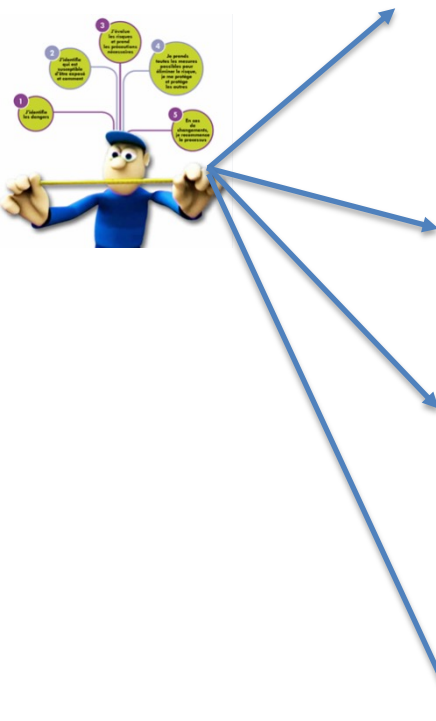
Establishment of MLs according to the ALARA methodology and the application of a maximum rejection threshold of 5%.

Development of a code of practice for the reduction of Pb contamination in food



Methodology applied to exposure data from the GEMS/FOOD database

## Main decisions taken at CCCF15

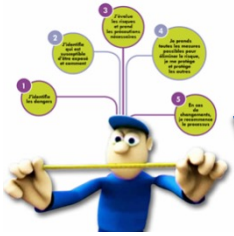
- 
- i. **Forward** MLs of 0.02 mg/kg for lead in **grain-based foods intended for infants and young children** , 0.1 mg/kg for **white and refined sugar, corn syrups and maple and honey** and 0.1 mg/kg for **sugar-based candies**, to the CAC for **adoption at step 5/8** ;
  - ii. **Forward** the ML of 0.02 mg/kg for **ready-to-eat meals for infants and young children** to the CAC for **adoption at Step 5** ;
  - iii. **Stop** working on **fresh eggs, dried garlic and molasses**.
  - iv. **Re-establish the EWG** , led by Brazil, to examine:
    - a. MLs for ready-to-eat meals intended for infants and young children (exclusion of certain foods) and brown and raw sugars based on data available on GEMS/Food for review by CCCF16 (2023)
    - b. **MLs for culinary herbs (fresh/dried) and spices (dried) following a JECFA data call in 2022 for review by CCCF17 (2024).**



# Background (2/2)

## Main decisions taken during CCCF16

The CCCF agreed to **forward** the following recommendations to CAC46:



- (i) An ML of 0.15 mg/kg for **brown sugar, raw and non-centrifuged sugars** for adoption at **step 5/8**.
- (i) An ML of 0.02 mg/kg for ready-to-eat meals for infants and young children, for adoption at **Step 8**; And
- (ii) **continue to establish MLs for lead in culinary herbs (fresh/dried) and spices (dried) for consideration by the 17th session of CCCF15 and a JECFA data call had already been launched for this purpose.**



# EWG proposals CCCF17 (1/2)

1

To consider the following MLs

Commodity/ Product Name	ML (mg/kg)	Portion of the Commodity
<b>Spices, dried bark</b> <i>(Cinnamon, canella, cassia)</i>	<b>2.5</b>	Whole, ground, powder, crushed
<b>Spices, dried flowers</b> <i>(Chamomile flower)</i>	<b>0.4</b>	
<b>Spices, dried flower parts</b> <i>(Saffron, Cloves, Capers)</i>	<b>2.5</b>	
<b>Spices, dried fruits and berries</b> <i>(Star Anise, Cardamom, Cayenne, Black pepper, Green pepper, White pepper, Pink pepper, Red pepper, Paprika, Peppers chilli, Pimento, Tamarind, Sumac, Vanilla)</i>	<b>0.6</b>	
<b>Sichuan pepper</b>	<b>3.0</b>	
<b>Spices, dried rhizomes, bulbs and roots</b> <i>(Ginger, Turmeric)</i>	<b>2.0</b>	
<b>Spices, dried seeds</b> <i>(Anise seed, Coriander seed, Cumin seed, Dill seed, Fenugreek seed, Fennel seeds, Mustard, Nutmeg)</i>	<b>0.8</b>	
<b>Spices, dried aril (Mace)</b>	<b>0.9</b>	

**Spices**

**CODEX ALIMENTARIUS COMMISSION**

Food and Agriculture Organization of the United Nations | World Health Organization

Viale delle Terme di Caracalla, 00153 Rome, Italy - Tel: (+39) 06 57051 - E-mail: codex@fao.org - www.codexalimentarius.org

Agenda Item 5 | CX/CF 24/17/5 | January 2024

JOINT FAO/WHO FOOD STANDARDS PROGRAMME  
CODEX COMMITTEE ON CONTAMINANTS IN FOODS  
17<sup>th</sup> Session  
15-19 April 2024  
Panama City, Panama

**MAXIMUM LEVELS FOR LEAD IN CERTAIN FOOD CATEGORIES**  
(At Step 4)  
(Prepared by the Electronic Working Group chaired by Brazil)

Codex members and observers wishing to submit comments at Step 3 on MLs for lead in certain food categories should do so as instructed in CL 2024/02-CF available on the Codex webpage<sup>1</sup>

**BACKGROUND**

- Working document CX/CF 24/17/5
- between the 6<sup>th</sup> and 13<sup>th</sup> Sessions of the Codex Committee on Contaminants in Foods (CCCF06, 2012 to CCCF13, 2019).
- CCCF11 (2017)<sup>2</sup> noted that the revision of MLs of lead was limited to those food categories listed in CXS 193 and there was wide support to continue working on new MLs for lead in other food categories. Since then, an Electronic Working Group (EWG) led by Brazil has been working on proposals for new MLs for lead in selected food commodities.
- CCCF12 (2018)<sup>3</sup> and CCCF13 (2019)<sup>4</sup> discussed the criteria to select new food categories for ML elaboration, considering international trade and potential exposure. CCCF13 agreed to focus on MLs proposals for lead in food for infants and young children (except those for which MLs have already been established in CXS 193, spices and aromatic herbs; eggs and sugars and confectionery, excluding cocoa. The EWG established at CCCF13 worked on lead data extracted from the Global Environment Monitoring System (GEMS/Food) from 2008 – 2019. MLs were proposed for several food categories including culinary herbs (fresh and dried) and spices (fruits and berries; fresh and dried rhizomes, bulbs, and roots; bark; floral parts; seed).

2

Evaluate if the MLs should consider the whole category or only the specific spices for which there are data available on GEMS/Food database be considered.

# EWG proposals CCCF17 (2/2)



To consider the following MLs

Commodity/ Product Name	ML (mg/kg)	Portion of the Commodity/Product to which the ML applies
Fresh culinary herbs	0.2	Whole commodity
Dried culinary herbs	2.5	Whole commodity



CODEX ALIMENTARIUS COMMISSION

Food and Agriculture Organization of the United Nations

World Health Organization

Viale delle Terme di Caracalla, 00153 Rome, Italy - Tel: (+39) 06 57051 - E-mail: codex@fao.org - www.codexalimentarius.org

Agenda Item 5

CX/CF 24/17/5  
January 2024

JOINT FAO/WHO FOOD STANDARDS PROGRAMME  
CODEX COMMITTEE ON CONTAMINANTS IN FOODS  
17<sup>th</sup> Session  
15-19 April 2024  
Panama City, Panama

MAXIMUM LEVELS FOR LEAD IN CERTAIN FOOD CATEGORIES  
(At Step 4)  
(Prepared by the Electronic Working Group chaired by Brazil)

Codex members and observers wishing to submit comments at Step 3 on MLs for lead in certain food categories should do so as instructed in CL 2024/02-CF available on the Codex webpage<sup>1</sup>

BACKGROUND

1. Lead in certain food categories should do so as instructed in CL 2024/02-CF available on the Codex webpage<sup>1</sup>

2. Base ( ) for lead established in the *General Standard for Contaminants in Food and Feed* (CXS 193-1995) was undertaken between the 6<sup>th</sup> and 13<sup>th</sup> Sessions of the Codex Committee on Contaminants in Foods (CCCF06, 2012 to CCCF13, 2019).

3. CCCF11 (2017)<sup>2</sup> noted that the revision of MLs of lead was limited to those food categories listed in CXS 193 and there was wide support to continue working on new MLs for lead in other food categories. Since then, an Electronic Working Group (EWG) led by Brazil has been working on proposals for new MLs for lead in selected food commodities.

4. CCCF12 (2018)<sup>3</sup> and CCCF13 (2019)<sup>4</sup> discussed the criteria to select new food categories for ML elaboration, considering international trade and potential exposure. CCCF13 agreed to focus on MLs proposals for lead in food for infants and young children (except those for which MLs have already been established in CXS 193, spices and aromatic herbs; eggs and sugars and confectionery, excluding cocoa). The EWG established at CCCF13 worked on lead data extracted from the Global Environment Monitoring System (GEMS/Food) from 2008 – 2019. MLs were proposed for several food categories including culinary herbs (fresh and dried) and spices (fruits and berries; fresh and dried rhizomes, bulbs, and roots; bark; floral parts; seed).

Working document CX/CF 24/17/5

# Methodology applied by the EWG

**33 countries and 3 organizations participated in the work of the Brazilian-led EWG**

The EWG made recommendations for lead MLs taking into account the following parameters

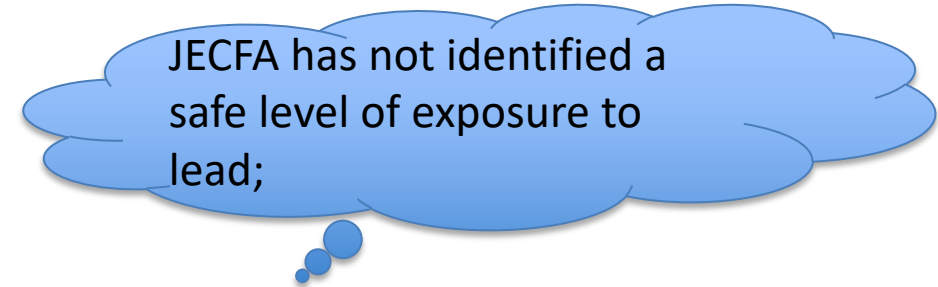
(3) Analysis of sample rejection rates and resulting lead exposure.



*the objective being to reduce exposure as much as possible while maintaining a rejection rate below 5%.*

(1) Data on lead in spices and culinary herbs collected from 2011 to 2022 were extracted by the WHO administrator of GEMS/Food database and were analyzed by the EWG

***7,519 data were used as appropriated using the "Guidance on data analysis for development of maximum levels and for improved data collection".***



(2) Apply the (ALARA) approach "as low as reasonably practicable"

*4,063 new data were submitted in 2022 from **Canada, China, European Union, United Kingdom, New Zealand, United States** and 3,097 were sampled after 2011 year.*

*Only samples submitted as being Herbs (considered as culinary herbs and not for infusion), spices and condiments, meeting basic criteria, were considered.*



# Analysis - Work process

- ➡ To do the reclassification of subcategories proposed for spices and culinary herbs, by food similarity, based on the classification established by the Committee on Spices and Culinary Herbs (CCSCH) in REP22/SCH06;
- ➡ To analyse the Datasets with and without samples with limit of quantification (LOQs) higher than the initial proposed ML;
- ➡ To handle left-censored data according to the substitution methodologies presented in the document “Guidance on data analysis for the development of maximum levels and improved data collection” (under discussion by CCCF);

*the EWG decided to present the results using LB and UB methods after converting all data to the same units (mg/kg) and decided*

- ➡ To derive a second dataset resulting from data treatment based on the steps described below:

***Lower Bound (LB) scenario**, results below the limit of quantification (LOQ) and limit of detection (LOD) were replaced by zero.*

***Upper Bound (UB) scenario**, results below the LOD were replaced by the numerical value of the LOD and those below the LOQ were replaced by the value reported as LOQ.*

*the EWG excluded results obtained with methods with a LOQ higher than the initial proposed ML and no relevant impact were observed (it was observed that 20% of results of lead were non-detectable (ND)).*

**Summary statistics including total number of samples, mean, and 95th percentile (P95) concentrations were determined for this second dataset for each category.**

# Main decisions made BY the EWG

## Spices

Data submitted from 35 countries and 6 regions:

**AFRO (Comoros, Zambia, South Africa, Nigeria, Kenya), EMRO (Syrian, Iran, Egypt, Afghanistan) EURO (Ukraine, Spain, European Union, Turkey, Yugoslavia), PAHO (Brazil, Canada, Ecuador, Guatemala, Honduras, Jamaica, Mexico, Peru, Uruguay, USA), SEARO (India, Indonesia, Sri Lanka, Thailand), WPRO (China, Japan, Malesia, New Zealand Singapore, Vietnam).**

- **To exclude the samples identified clearly as being fresh** considering the fact that spices are in general traded dried;
- **To retain the samples of spices that were not identified as “fresh” or “dried”;**
- **To consider only Anise seed as being Spices, dried seeds;**
- **To analyze separately turmeric and ginger samples** *due to the views expressed for the group dried rhizomes, bulbs, and roots in CCCF15.*
- **To exclude Sichuan pepper DATA from the category fruit and berries spices,** as data were from only one country and the levels were higher than the remaining commodities in the category;
- **To set ML for the whole category** without adding the list of spices that were included.



*However, some countries reported it could be important to keep this information in notes/remarks for understanding the range of each category.*

# Main decisions made BY the EWG

## Culinary herbs



Data submitted from 5 regions

*EMRO (Morocco, Egypt), EURO (Albania, Poland, Spain, United Kingdom, Turkey, EU), PAHO (Brazil, Canada, Mexico, Peru, Uruguay, USA), (SEARO (India, Thailand), WPRO (New Zealand, Singapore).*

- 978 data samples in dried (dried, ground, powder) and fresh culinary herbs were considered;
- Only samples clearly identified as dried and fresh were considered.



# Analysis of the decisions made BY EWG



## Proposed MLs with corresponding sample rejection rates and intake reductions

	ML (mg/kg)	Mean level (mg/kg)	Sample rejection (%)	Intake reduction
Spice, dried, aril	0.9	0.21	3.1	12.5
Spice, dried, bark	2.5	0.41	4.2	30.9
Spice, dried, floral parts	2.5	0.21	4.8	45.2
Spice, dried, flowers	0.4	0.03	4.8	51.8
Spice, dried, Sichuan pepper	3	0.75	3.8	20.5
Spice, dried, fruits & berries excluding Sichuan pepper	0.6	0.14	3.8	30.6
Spice, rhizomes, bulbs and roots, only reported as dried, excluding galangal, asafoetida, ganthoda and haldi	2.0	0.37	4.9	66.5
Spice, dried, seeds	0.8	0.15	4.5	28.7
Dried culinary herbs	2.5	0.588	3.1	18.6
Fresh culinary herbs	0.2	0.037	2.2	12.8

# Analysis of the new ML proposals at CCCF17 compared to those proposed at CCCF15.

Products	ML (mg/kg) CCCF15	ML (mg/kg) CCCF17 New proposals	Remarks
Culinary herbs (fresh)	0.25 ( except rosemary )	0.2 The whole	<p>The first MLs proposed by the CCCF15 were revised downwards, <b>except for dried culinary herbs</b>.</p> <p>At CCCF17, the EWG suggests evaluating whether MLs should consider the entire category or only specific spices for which data is available in the GEMS/Food database.</p>
Rosemary (fresh)	0.5	-	
Culinary herbs (dried)	2.0	<b>2.5</b> The whole	
Dried spices Flower parts (cloves, except saffron)	2.5	2.5	
Fruits and berries spices	0.8 (Excluding star anise and sumac)	0.6 (excluding Sichuan pepper)	
Rhizomes, bulbs and spice roots	3.5 ( excluding garlic)	2 (excluding galangal and garlic)	
Sichuan pepper	-	3	<p>New specific MLs for certain products have been proposed,</p>
Dried spices, bark	-	2.5	
Dried spices, aril	-	0.8	
Spices, dried seeds	-	0.9	

# Analysis of the new ML proposals CCCF17 compared to occurrence data collected from Arab studies.

Products	ML (mg/kg) CCCF15	ML (mg/kg) CCCF17 New proposals
Culinary herbs (fresh)	<b>0.25</b> (except rosemary)	<b>0.2</b> The whole
Rosemary (fresh)	<b>0.5</b>	-
Culinary herbs (dried)	<b>2.0</b>	<b>2.5</b>
Dried spices Flower parts (cloves, except saffron)	<b>2.5</b>	<b>2.5</b>
Fruits and berries spices	<b>0.8</b> (Excluding star anise and sumac)	<b>0.6</b> (excluding Sichuan pepper)
Rhizomes, bulbs and spice roots	<b>3.5</b> (excluding garlic)	<b>2</b> (excluding galangal and garlic)
Sichuan pepper	-	<b>3</b>
Dried spices, bark	-	<b>2.5</b>
Dried spices, aril	-	<b>0.8</b>
Spices, dried seeds	-	<b>0.9</b>

The occurrence data collected in the Arab region shows average contamination values above the proposed MLs (66% of the studies considered).

The first MLs proposed by the CCCF15 were revised downwards, except for dried culinary herbs.

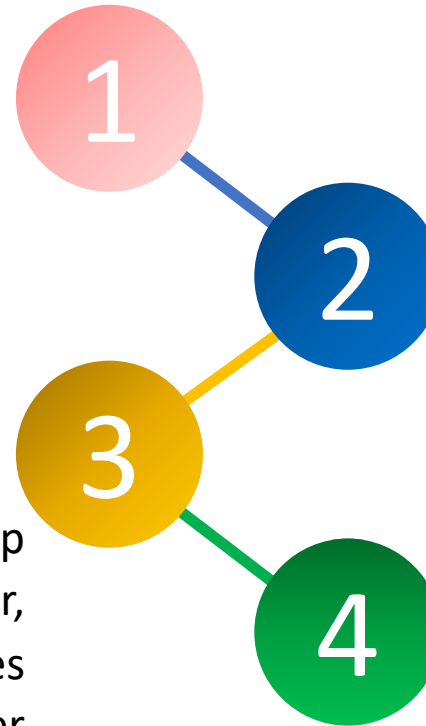
New specific MLs for certain products have been proposed,

# Recommendations for the Arab Codex Delegations

**May support the method applied to reach the proposed MLs based on the previously agreed-on systematic approach (the “as low as reasonably achievable” (ALARA) principle and on rejection rates of samples with a maximum cut-off at 5%).**

*Extracted data from the GEMS/Food database represented 6 regions (AFRO, EMRO, EURO, PAHO, SEARO, WPRO) and 35 countries, which can be considered as a high geographical representativeness.*

- ❖ May support efforts aiming to promote consensus at CCCF17, to reach MLs for Lead in these categories of food, to prevent the discontinuation of work.
- ❖ May support that the MLs in each spice group should be set for the whole category, however, recommends keeping the detailed list of spices that are included in the category for further information.



- ❖ May support the establishment of MLs for Lead in Spices and Culinary Herbs given their important consumption in several diets, including the Arab diets and the potential detrimental health impact of Lead.
- ❖ May support the fact that the majority of the proposed MLs are achievable.

# Recommendations for the Arab Codex Delegations

May support the fact that the majority of the proposed MLs are achievable.



However, Some deeper investigation may be needed for:



## Culinary herbs (especially fresh herbs)

*Considering the high occurrence of Pb in these commodities in the Arab Region and the possible impact for trade (Proposed ML may generate high sample rejection rate above 5% for Arab region).*



## Sichuan pepper

*Considering the fact that data provided were from only one country and the levels were higher than the remaining commodities in the category*



