37th Joint Arab Codex Contact Points and CCNE Coordination Meeting

PREPARATION FOR THE 18th SESSION OF THE CODEX COMMITTEE ON CONTAMINANTS IN FOODS

(CCCF18)

June 12, 2025

Agenda Item 5.1

MAXIMUM LEVELS FOR LEAD IN CERTAIN FOOD CATEGORIES

CX/CF 25/18/5

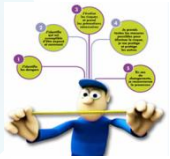
Dr. Yousef H. Tawalbeh, United Arab Emirates

Introduction

Lead 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



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

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

Pb

CODEX

Since the 6th session

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

Setting new lead limits for certain foods that contribute to exposure

Methodology applied to exposure data from the GEMS/FOOD database

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

Background (1/3)

CCCF11, (2017)	- Expanded lead work beyond food categories listed in CXS 193. - Initiated discussions on new MLs for various commodities.
CCCF12 & 13, (2018-2019)	- Developed criteria for selecting food categories. - Focus on foods for infants/young children, spices, herbs, eggs, and sugars.
CCCF14, (2020)	- Rejected using concentration factors or applying fresh vegetable MLs to herbs. Emphasis placed on dried forms due to their relevance in trade. - Discussion was postponed for one year to allow additional data submissions to GEMS/Food.
CCCF15, (2022)	- Adopted MLs at (**Step 5/8**): Cereal-based foods for infants and young children (0.02 mg/kg), White and Refined sugars, syrups, honey (**0.1 mg/kg**), Sugar-based candies (**0.1 mg/kg**); **at (Step 5):** ready-to-eat meals for infants and young children at (**0.02 mg/kg)** and to further consider by the EWG as per the possible exclusion of certain foods that may not be able to achieve this ML for consideration at CCCF16 (2023); - Discontinued: eggs, molasses, dried garlic. - Continued: brown/raw sugar, ready-to-eat infant meals.
CCCF16, (2023)	- Adopted MLs: Soft brown/raw/non-centrifuged sugar (including Panele and Mascavo): **0.15 mg/kg (Step 5/8)** and Ready-to-eat infant and young children meals: **0.02 mg/kg (Step 8)** - Continued work on spices and herbs. - Re-establish the EWG, led by Brazil, to consider MLs for ready-to-eat meals for infants and young children (exclusion of certain foods) and brown and raw cane sugars based on data currently available in GEMS/Food for consideration by CCCF16 (2023) and MLs for culinary herbs (fresh/dried) and spices (dried) following a JECFA call for data in 2022 for consideration by CCCF17 (2024).

Background (2/3)

Adopt MLs

- 9 MLs at Step 5/8 : Rhizomes, floral parts, seeds, berries, paprika, sumac, etc.
- 2 MLs at step 5: Dried herbs and bark,

Commodity	Proposed ML (mg/kg)	Step	Reservations Noted
Spices, dried aril	0.9	Step 5/8	India
Dried seeds (excluding celery seeds)	0.9	Step 5/8	India
Dried celery seeds	1.5	Step 5/8	European Union, India
Dried rhizomes and roots	2.0	Step 5/8	EU, Indonesia, Egypt, India
Dried floral parts	2.5	Step 5/8	EU, Egypt, Turkye, India
Spices, dried fruit and berries (excl. Sichuan pepper, star anise, paprika, sumac)	0.6	Step 5/8	India
Spices, dried paprika and sumac	0.8	Step 5/8	-
Dried Sichuan pepper and dried star anise	3.0	Step 5/8	European Union
Dried culinary herbs	2.5	Step 5	The EU suggested lowering the ML to **1.5 mg/kg** based on EFSA data. Concerns were raised that this data wasn't reflected in GEMS/Food, and a **call for data** may be needed. One Member also proposed using **"moisture content"** instead of "humidity."
Dried bark	2.5	Step 5	-ML of **2.0 mg/kg** would better to protect children. -One Member requested a delay in adoption to allow analysis of **new data**. -Concerns about **economic adulteration** affecting data quality, with a call to exclude such data and assign this task to the **EWG** rather than relying on the GEMS/Food database.

Background (3/3)

Discontinuing work on MLs for

- dried flowers spices, as camomile is mainly used in herbal infusions in most countries and
- Fresh culinary herbs, pending the development of an ML for dried herbs, and to reconsider the relevance of the note on using moisture content

Re-establishing EWG (chaired by Brazil)

- Continue work on MLs for lead in dried bark and dried culinary herbs

Request JECFA

- Issue a call for lead data in spices, dried bark (excluding data related to economic adulteration), and dried culinary herbs
- Analyze available data for spice mixtures (item 17)

Request the Secretariat to

- issue a CL for comments on the application of MLs to multi-ingredient products (item 16)

Submit the proposals to

CAC47

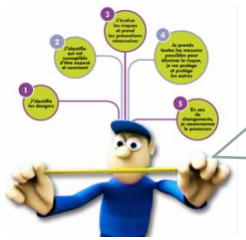
- Adopted MLs at Step 5/8 for 8 spice categories proposed by CCCF17.
- Adopted the ML at Step 5 for dried bark and culinary herbs and advanced it to Step 6 for comments and further consideration by CCCF18

Several new MLs were adopted (or discontinued), especially for spices and herbs, based on ongoing EWG work and new data.

Session	Commodity	ML (mg/kg)	Step	Notes
CCCF15 (2022)	Cereal-based foods for infants and young children	0.02	Step 5/8	Adopted
	White/refined sugar, corn & maple syrups, honey	0.1	Step 5/8	Adopted
	Sugar-based candies	0.1	Step 5/8	Adopted
CCCF16 (2023)	Brown/raw/non-centrifuged sugar (incl. panela, mascavo)	0.15	Step 5/8	Adopted
	Ready-to-eat infant foods	0.02	Step 8	Final adoption
CCCF17 (2024)	Dried aril spice	0.9	Step 5/8	India reservation
	Dried seeds (excl. celery)	0.9	Step 5/8	India reservation
	Dried celery seeds	1.5	Step 5/8	EU, India reservations
	Dried rhizomes and roots	2.0	Step 5/8	EU, Indonesia, Egypt, India reservations
	Dried floral parts	2.5	Step 5/8	EU, Egypt, Türkiye, India reservations
	Dried fruit & berries (excl. Sichuan pepper, star anise, etc.)	0.6	Step 5/8	India reservation
	Dried paprika and sumac	0.8	Step 5/8	No reservation
	Dried Sichuan pepper and star anise	3.0	Step 5/8	EU reservation
	Dried culinary herbs	2.5	Step 5	EU suggested 1.5 mg/kg
	Dried bark	2.5	Step 5	Proposals to lower ML to 2.0 mg/kg; data concerns noted
CAC47 (2024)	Adopted all above CCCF17 MLs		Step 5/8 and 5	Confirm adoption

Outcomes of the EWG: proposals to be discussed during the CCCF18

Delegates will discuss EWG's proposals within the establishment of MLs for culinary herbs (fresh/dried) and dried bark spices,



Review whether to discontinue previously adopted MLs (CCCF17/CAC47) (Step 7)

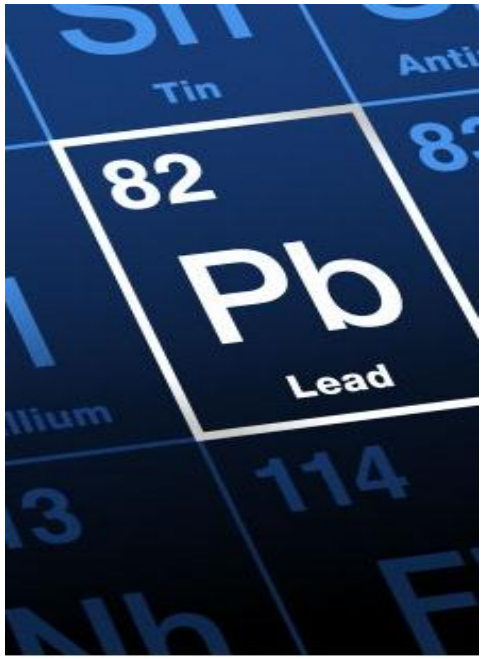
Consider advancing the new MLs proposed by the EWG for adoption by CAC48 (2025) (Step 4)

Commodity/Product Name	Maximum Level (ML) mg/kg (as adopted by CAC47 at Step 5) For comments at Step 6	Maximum Level (ML) mg/kg (new proposals by the EWG) For comments at Step 3	Portion of the Commodity/Product to which the ML applies	Notes/Remarks
Spices, dried bark	2.5	3.0	whole, ground, powder, crushed	-
Dried culinary herbs	2.5	2.0	whole, ground, powder, crushed	Relevant Codex commodity standards are CXS 328-2017, CXS 342-2021, CXS 345-2021.

Agenda item 5.1

MAXIMUM LEVELS FOR LEAD IN DRIED BARK AND CULINARY HERBS

CCCF18 (2025)



ANALYSIS OF THE METHODOLOGY APPLIED BY THE EWG

Used data collection

23 countries and 1 organization participated in the work

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

Apply the (ALARA) approach

" as low as reasonably practicable"

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%.

Data currently available on lead in spices and culinary herbs collected from 2014 to 2024

New call for data was conducted in 2024 to consider maximum levels (MLs) by CCCF18.

Data that did not meet basic criteria, and results from samples collected before 2014 were not considered.

To handle left-censored data, the EWG chose to present results using both LB and UB as CCCF guidance didn't give recommendation on specific method.

Regional comparisons and full statistical details were used in the work.

- *One draft was circulated to the EWG's members;*
- *comments were received from Canada, Japan, Mexico, Thailand, Uruguay, and the United States of America (USA).*

Methodology applied by the EWG

Dried bark

Section	Details
1. Data Overview	- **Full dataset** to broader geographic coverage - **Timeframe:** 2016–2024 - **4 Regions :** • **EURO** – European Union • **PAHO** – Brazil, Canada, Uruguay, USA • **SEARO** – India, Indonesia, Sri Lanka, Thailand • **WPRO** – China, Malaysia, New Zealand, Singapore, Vietnam
2. 2024 Data Call	- **Excluded** economically adulterated samples - **Goal:** Reflect natural lead occurrence - **Result:** Slightly higher mean levels indicate natural variability -
3. Sample Analysis	- **Total samples: 768** - **Positive samples:** 717 • **Concentration range:** 0.001 – 5.71 mg/kg • **Overall mean (UB):** 0.68 mg/kg - **P95:** 2.32 mg/kg - **Sample subset (2024–2025): 284** • Mean (UB): 0.86 mg/kg - P95/P97.5: Similar to total dataset
4. Impact of Hypothetical MLs	**Assumptions:** - Intake: 0.4 g/day (GEMS/Food Cluster Diet G12) - Body weight: 70 kg **Total Dataset (n = 768):** - ML = 2.5 mg/kg → 4.0% rejection, 16% intake reduction - ML = 1.0 mg/kg → 23.7% rejection, 55% intake reduction - ML =3.0 → 2.6% rejection, 12% intake reduction
5. PAHO Region Analysis (Brazil, Canada, Peru, Uruguay, USA)	- **Samples:** 301 - **P95:** 2.88 mg/kg (above ML of 2.5 mg/kg) - **At ML = 2.5 mg/kg:** • Rejection rate: 6,98% • Intake reduction: 23%

Methodology applied by the EWG

Dried bark

ML of 3.0 mg/kg is considered more appropriate, balancing safety and sample rejection.

	2.5 mg/kg	3 mg/kg
Total Dataset (n = 768)	Rejection rate: 4.0% Intake reduction: 16%	Rejection rate: 2.6% Intake reduction: 12%
PAHO Region Analysis (301) (Brazil, Canada, Peru, Uruguay, USA)	Rejection rate: 6,98% Intake reduction: 23%	Rejection rate: 4.98 % Intake reduction: 15%

Methodology applied by the EWG

Dried culinary herbs

Section	Details
1. Data Background	- Concern at CCCF17 over exclusion of 1,500+ EU samples - EWG used raw data directly from the EU due to missing entries in GEMS/Food - Final dataset: **2,222 samples** of dried and non-identified culinary herbs - The data concern **five regions**: EMRO (Egypt, Morocco, Saudi Arabia), EURO (Albania, European Union, Switzerland, Turkey, United Kingdom), PAHO (Brazil, Canada, Peru, Uruguay, USA), SEARO (India, Indonesia, Thailand), and WPRO (New Zealand, Singapore).
2. Data Exclusions	- 75 samples reported only on dry weight basis - 23 samples with high LOQs (3.0–4.0 mg/kg) - 1 outlier sample (28.3 mg/kg) - 14 Stevia samples (not culinary herbs in many countries) - These exclusions **did not affect** mean or P95 values
3. Overall Statistics	- Mean lead level: **0.40–0.41 mg/kg (LB–UB)** - P95: **1.20 mg/kg (LB and UB)** - Range: **0.005 to 7.7 mg/kg** - LOQs: **0.003 to 0.395 mg/kg**
4. Regional Summary	- **PAHO region** (Brazil, Canada, Peru, Uruguay, USA): • Mean: **0.58 mg/kg** • P95: **1.83 mg/kg** (highest) - **EMRO and WPRO** had the lowest mean lead levels
7. Risk Assessment	- Scenario: GEMS/Food Cluster Diet **G09** (worst-case: **8.89 g/person/day**) - MLs tested: **3.0 to 1.0 mg/kg**
8. Proposed ML Outcome	➢ **Revised ML: 2.0 mg/kg (instead of 2.5 mg/kg)**

Methodology applied by the EWG

Culinary herbs

ML of 2 mg/kg is considered more appropriate, balancing safety and sample rejection.

	2.5 mg/kg	2 mg/kg
Total Dataset (n = 768)	Rejection rate: 0.9% Intake reduction: 8%	Rejection rate: 1.7% Intake reduction: 12%
PAHO Region Analysis (301) (Brazil, Canada, Peru, Uruguay, USA)	Rejection rate: 2,5% Intake reduction: 16%	Rejection rate: 4.7% Intake reduction: 23%

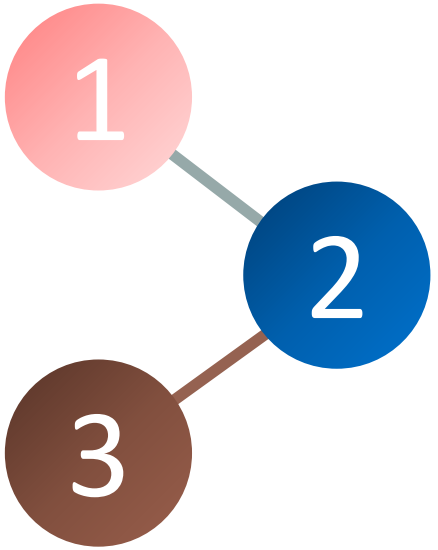
RATIONALE

The proposals for new MLs for lead in dried bark and dried culinary herbs appear well-founded scientifically and practically balanced, aiming to protect public health while minimizing trade impact.

Category	Details
1. Scientific Basis and Data Robustness	✓ Based on the ALARA principle balancing health protection and trade feasibility. ✓ Uses comprehensive GEMS/Food database and new data from 2024 JECFA call. ✓ Excludes outliers and compares datasets to reduce influence of adulterated or erroneous data.
2. Public Health Protection	✓ Aims to reduce lead exposure from dried bark and culinary herbs, common in foods. ✓ Limits set with rejection rate <5%, protecting consumers while being feasible for industry.
3. Trade and Practicality Considerations	✓ Limits maintain low rejection rates to avoid trade disruption and economic impact. ✓ Updated data ensures limits reflect current contamination and market realities.
4. Alignment with Previous Work and Flexibility	✓ Builds on CCCF previous discussions, addressing missing data and adulteration.
5. Potential Challenges and Considerations	✓ Geographic data coverage may still be uneven, limiting global applicability. ✓ Continuous monitoring and data calls needed for emerging risks. ✓ Smaller producers may need support to comply, especially in high-lead regions.

Recommended Arabic Position (s)

Support the establishment of MLs for Lead in Spices and Culinary Herbs given their important consumption in several diets, including the African diets and the potential detrimental health impact of Lead.



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%).

Support efforts aiming to promote consensus at CCCF18, to reach MLs for Lead in these categories of food, to prevent the discontinuation of work.

المبادرة العربية للدستور الغذائي
ARAB CODEX INITIATIVE

CCCF

Agenda Item 7

Sampling plans for total aflatoxins and ochratoxin A in certain spices (at Step 7)

Reference document: CX/CF 25/18/7

Presented by
Fatema Ahmed ,Bahrain

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Background

Entity	Year	Key Actions and Decisions
CCCF16	2023	-Noted the need for further work on sampling plans for **total aflatoxins and ochratoxin A** in certain spices. - Agreed to continue work via **the Electronic Working Group (EWG)** for presentation at CCCF17. - Used the **EU sampling plan** as the discussion **starting point**. - Decided to reconvene the **EWG, chaired by India**, to develop sampling plans considering all written comments.
CCCF17	2024	-Recognized the **need for specific sampling plans and method performance criteria** for total aflatoxins and ochratoxin A in **nutmeg, dried chilli, and paprika**. -Re-established the EWG to finalize the sampling plan. -Mandated the EWG to ensure alignment with Codex guidance and the General Standard for Contaminants in Food and Feed (CXS 193-1995). -Agreed to forward the sampling plans to CAC47 for adoption at Step 5.
EWG, chaired by India	2023–2025	- Developed and refined sampling plans for the agreed MLs. - Reviewed comments and aligned plans with commodity value, practicality, and performance criteria. - Circulated revised drafts for comments and CCCF consideration.
CAC47	2024	- Adopted the sampling plans at Step 5 as proposed by CCCF17.

At CCCF18, (2025), delegates will consider the **EWG's proposals**, notably the following elements to advance the development of the sampling plan

Sampling Plans

Sampling Plans

- Finalize the sampling plan structure, subdivision logic, and sample size criteria as outlined in Appendix I, including unresolved items noted in square brackets, aiming for completion by CCCF18.
- **Reject** the proposed change to ≤20% precision and mandatory 200 g incremental sample size due to lack of scientific and operational feasibility.
- Correct table notation errors (e.g., change ">10–≤15" to ">10–<15") to prevent misinterpretation.

Numeric Performance Criteria for Methods of Analysis

Retain current method performance criteria:

- Precision at ≤44%.
- Recovery between 60–115%.

Other Matters

- Consider adopting a separate maximum level (ML) of 15 µg/kg for AFB1 in future discussions, reflecting its toxicological

Analysis

- Seventeen countries participated in the Electronic Working Group (EWG), which conducted two rounds of virtual consultations from October 2024 to February 2025. Key contributors included Indonesia, Thailand, the USA, and Brazil. The group reviewed aflatoxin research, compared sampling methods, and evaluated analytical standards, emphasizing practicality for developing countries. The revised draft clarified sublot structures, aligned sample weights by particle size, and updated performance criteria according to Codex guidelines.

- The EWG has developed a harmonized sampling plan for spices across different forms (whole, crushed, powdered), improving the structure, clarity, and scientific robustness of the text.

Key features of the updated draft include:

- Differentiated sampling approaches based on particle size.
- Clear guidance via detailed tables for incremental and aggregate sampling.
- Method performance criteria aligned with international standards.

KEY POINTS OF DISCUSSION

- **Sample Weight**: Proposal to increase incremental sample weight to 200 g was rejected; 100 g retained due to spice value.
- **Editorial Fixes**: Table notations corrected for clarity (e.g., “>10–≤15” to “>10–<15”).
- **Powdered Spices**: Sampling values ([40 g], [80 g]; [0.1–4 kg]) remain unresolved.
- **Method Criteria**: Stricter limits (≤20% precision, 70–120% recovery) not accepted. Current criteria (≤44% precision, 60–115% recovery) maintained.
- **Table Format**: Headers improved; sublot columns kept for completeness.
- **AFB1 ML**: Separate ML of 15 µg/kg for AFB1 added, aligned with international norms.
- Maintain **100 g** incremental sample weight.
- Retain **precision at ≤44%** and **recovery at 60–115%** for analytical methods.
- Consider establishing a separate ML for **aflatoxin B1 (AFB1)**, pending broader CCCF agreement.

Outstanding Issues

Sampling parameters for **powdered spices** (incremental and aggregate sample sizes) remain in square brackets for further discussion and resolution at CCCF18.

CONCLUSION AND RECOMMENDATION

- Arab countries may support the ongoing Codex work to develop harmonized sampling plans for total aflatoxins and ochratoxin A in spices, commodities of relevance to the region's trade and food safety systems.
- Progress was made at CCCF, including agreed definitions for particle sizes, a 10 kg aggregate sample weight, and alignment of the decision rule with other Codex sampling plans. However, key issues remain, particularly regarding sampling of powdered spices and numeric performance criteria for analysis.

Recommendations :

- Participate in the EWG chaired by India to help address outstanding technical issues.
- Submit regional data on spice handling and sampling, especially for powdered spices.
- Coordinate regionally to present a unified position through Arab Codex structures.
- Align national standards with Codex and ISO definitions for consistency.
- Engage in upcoming sessions (CAC47, CCCF18) to ensure regional interests are reflected.

Agenda Item 8

Maximum level and associated sampling plan for total aflatoxins in ready-to-eat peanuts (at Step 4)
CX/CF 25/18/8

Dr. Noha Mohamed Atia, Egypt

Background

2013 (CCCF07)	- India proposed new work to establish an ML for AFT in RTE peanuts. - EWG led by India was established. - Recommendations: Prepare discussion paper for CCCF 08.
2014 (CCCF08)	- Discussion paper considered. - Work formally initiated. - EWG re-established. - CAC37 approved the new work. - Recommendations: Develop proposal for CCCF 09
2015 (CCCF09)	- EWG proposed ML of 10 µg/kg. - Requested JECFA exposure assessment for MLs of 4, 8, 10, and 15 µg/kg.. - Await JECFA results before advancing ML.
2016 (CCCF10)	- Work held at Step 4 pending JECFA results. - JECFA83 : Concluded little additional health benefit at ML <15 µg/kg; rejection rates at 4 µg/kg were ~20% vs ~10% at 15.

Background

2017 (CCCF11)	- ML of 15 µg/kg proposed; faced opposition due to ALARA principle and inconsistency with MLs for other nuts. - Recommendations: Seek comments on MLs of 10 and 15 µg/kg (Step 3).
2018 (CCCF12)	- No consensus on 10, 12, or 15 µg/kg. - Recommendations: Hold ML of 10 µg/kg at Step 4; - JECFA to issue data call in 3 years.
2019 (CCCF13)	- Item not discussed; held at Step 4. - Reminder status only.
2021 (CCCF14)	- Secretariat recalled suspension in 2018 to allow COP implementation; reconsider in 3 years.
2022 (CCCF15)	- New data reviewed; still no consensus. Concerns over ALARA, rejection rates, and lack of RTE-specific data. - Return ML and sampling plan to Step 2/3.

Background

2023 (CCCF16)	- Data analysis improved; ~11,500 data points identified as likely RTE peanuts. Need to define "RTE peanuts.« - Recommendations: Prepare RTE definition and categorize data for CCCF17; - develop ML and sampling plan for CCCF18.
2024 (CCCF17)	- Applied existing RTE tree nut definition (CXS 193) to RTE peanuts - Established EWG (India chair, USA co-chair) - Requested JECFA to issue data call distinguishing RTE and FFP - Requested GEMS/Food to verify "unknown" data origin - Recommendations: EWG to develop ML and sampling plan for CCCF18; data clarification and call initiated.

Outcomes of the EWG: proposals to be discussed during the CCCF18

The EWG will present their proposal related to Maximum level and associated sampling plan for total aflatoxins in ready-to-eat peanuts considering the comments at Step 3 in reply to CL2024/12-CF.

Agenda Item 9

REVISION OF THE CODE OF PRACTICE FOR THE PREVENTION AND REDUCTION OF AFLATOXIN CONTAMINATION IN PEANUTS

CX/CF 25/18/9

Dr. Yosra Rafat Dyab, Egypt

ANALYSIS OF CODEX DOCUMENTS AND STANDARDS FOR THE ARAB REGION

Analysis of the document

UNDERSTANDING OF THE CODEX DOCUMENT
SUMMARY OF THE BACGROUND

JECFA49 (1998)	Aflatoxins are human liver carcinogens with AFB1 as the most potent one. No tolerable daily intake was proposed since aflatoxins were considered genotoxic carcinogens. Adoption of ALARA (as low as reasonably achievable) principle was recommended to reduce the potential risk.
JECFA83 (2017)	Re-evaluation of toxicological data and dietary exposure to AFs and reaffirmed the conclusions of the JECFA49 meeting.
CCCF16 (2023)	The COP was identified was identified as a high priority for review; establishment of an Electronic Working Group (EWG) chaired by Brazil.
CCCF17 CAC47 (2024)	- Forward the project document to CAC47 for approval - Establishment of an EWG to prepare a proposed revision of the Code for comments and consideration by CCCF18. - CAC47(2024) approved the new work proposal.
CCCF18 (2025)	To consider the revised Code prepared by the EWG and to advance the COP in the Step Procedure for adoption by CAC48.

The updated, discussion and key element of the proposal

Topic	Details
Modification of Existing Practices	No changes to practices from CXC 55-2004 unless supported by new literature. Editorial changes made.
New Sections Added	- **Introduction and General Recommendations**: Summarizes aflatoxin formation and related practices. - **Related Codex Texts**
Revised Definitions	Definitions aligned with Codex texts and additional relevant definitions included.
Feed Included in Scope	Peanut by-products considered for feed, addressing aflatoxin contamination concerns.
Literature-Based Measures	**Measures identified by Codex members to prevent/reduce aflatoxin contamination were included.**
Removal of Irrelevant Information	Removed content unrelated to aflatoxin production, such as soil erosion and irrigation water quality.
Separation of Post-Harvest and Pre-Harvest Practices	Post-harvesting subsections were placed under Good Manufacturing Practices (GMP), while Good Agricultural Practices (GAP) focused on pre-harvesting and harvesting.
Peanut Growth Stages Table	**A table added to clarify peanut reproductive growth stages and optimal harvesting maturity to minimize aflatoxin risk.**
Moisture Content Disagreement	Debate occurred regarding the appropriate moisture content for peanuts after drying; the revised CoP recognizes divergent views on acceptable moisture content in peanuts post-drying. One member proposed aligning with CXS 200-1995's moisture levels of 10% for in-pod peanuts and 9% for kernels. However, the Standard acknowledges that lower limits may be necessary in relation to climatic conditions, transport duration, and storage environments—especially in tropical and hot regions where aflatoxin formation remains a risk even below 9% moisture.
Roasting as Aflatoxin Control	**A new section added on the effect of roasting in reducing aflatoxin contamination.**
Revised Risk Management Section	Replaced "Complementary Management System" with "Risk Management for Aflatoxin Control in Peanut Chain," with clearer text and examples.

key factors Arab countries should consider in adopting the revised CoP principles

Topic	Context for Arab Countries	Recommendation
Existing Practices	Arab countries (MENA) are involved in peanut production and trade, particularly Egypt, Sudan.	Ensure that the new version of the CoP is clearly communicated and adapted for local contexts, considering varying peanut production levels and aflatoxin management practices in different Arab countries.
Inclusion of New Sections	The **Introduction** and **General Recommendations** sections may need to be tailored to reflect local knowledge and challenges, such as peanut cultivation practices.	Arab countries may benefit from more specific examples of aflatoxin-producing species and stages in peanut production that are prevalent in the region. These details help tailor best practices to regional needs.
Related Codex Texts	Codex guidelines are referenced, but Arab countries should ensure they align with local regulatory measures.	Arab countries should ensure Codex texts align with local regulatory dispositions. Adapt recommendations to regional standards where necessary.
Revised Definitions	Revised definitions are essential, but Arab countries may have variations in agricultural terminology and aflatoxin-related standards.	Conduct a review of the revised definitions to ensure compatibility with regional agricultural definitions and ensure alignment with updated CoP.
Feed Included in Scope	Peanut by-products are used for livestock feed, and aflatoxin contamination in feed is a growing concern.	Emphasize aflatoxin control in feed products. Launch awareness campaigns about aflatoxin risks in peanut-based animal feeds.
Literature-Based Measures	Some Arab countries may lack resources to apply all literature-based measures identified.	Tailor the document to include practical, region-specific measures that can be implemented with limited resources. Focus on low-cost, effective practices suitable for small-scale farmers.
Post-Harvest and Pre-Harvest Practices	Many Arab countries may lack post-harvest infrastructure.	Prioritize **GAP** (Good Agricultural Practices) in Arab countries, focusing on pre-harvest stages like drying and moisture control. Provide simplified guidance for regions with limited post-harvest infrastructure and more detailed guidance for advanced processing facilities.

key factors Arab countries should consider in adopting the revised CoP principles

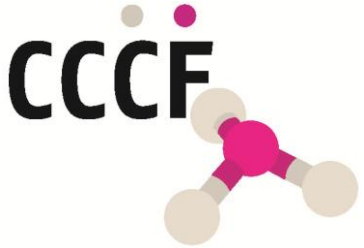
Topic	Context for Arab Countries	Recommendation
Moisture Content *Moisture content is a key issue linked to aflatoxin development, especially in hot, dry climates where drying can be challenging.*	Arab countries characterized by **High ambient temperatures, extended dry seasons, limited access to climate-controlled storage and varying humidity levels** (coastal vs. desert areas). **Favorable environment for aflatoxin production**, even when peanuts are dried to the Codex-recommended 9.0% moisture level.	Given the regional climate and infrastructure limitations, a stricter **moisture limit (8.0%) is justified** and recommended to effectively reduce the risk of aflatoxin contamination in peanuts. This adjustment would support food safety, enhance marketability (especially for export), and protect public health across the region. To consider practical drying solutions, such as drying facilities or low-tech methods suitable for small farmers.
Roasting as Aflatoxin Control	Roasting peanuts is widely practiced in Arab countries, especially for local snack production.	Highlight roasting as an effective aflatoxin reduction method. Provide clear guidelines on roasting temperatures and times for small and medium-scale processors in the region.
Revised Risk Management Section	Risk management in the peanut supply chain may not be as formalized in many Arab countries.	Provide clear examples of risk management practices in the peanut supply chain. Focus on practical steps for smaller farmers and processors. Offer examples of how Arab countries can implement these practices within their own regulatory frameworks.

Recommendations for the Arab Codex delegations on the selected item

The Arab codex delegations might support the recommendations of the EWG to update the CoP with new scientific data and effective measures for aflatoxin management in peanuts, reflecting advancements in research and current applications across regions.

General recommendations for the adoption of the revised CoP

- ✓ **Encourage the adoption of the COP**: adopt the revised CoP as a foundational framework for managing aflatoxin contamination in peanuts. This adoption will help align national standards with international Codex recommendations, ensuring consistent food safety and quality practices across the region.
- ✓ **Develop National Aflatoxin Control Programs**: establish or update national aflatoxin control programs based on the revised CoP. This includes introducing specific regulations for aflatoxin monitoring, early detection, and contamination control, particularly in high-risk production areas.
- ✓ **Develop and adopt risk management practices** within the peanut supply chain, with a focus on actionable steps for small-scale farmers and processors. Highlight how these practices can be adapted and applied within the regulatory frameworks of Arab countries;
- ✓ **Capacity Building and Training**: by organizing training programs, workshops, and seminars for farmers, food processors, and regulatory bodies. These programs should focus on the principles of the revised CoP, aflatoxin risks, control measures, and how to implement best practices in local contexts.
- ✓ **Regional Collaboration and Knowledge Sharing**: Encourage collaboration between Arab countries to share knowledge, experiences, and best practices related to aflatoxin control. Regional forums or working groups could be established to facilitate discussions and create a unified Arab version of the CoP approach for managing aflatoxin contamination.
- ✓ **Provide Support for Infrastructure Development**: Invest in the necessary infrastructure, such as improved drying and storage facilities, to ensure proper aflatoxin management in peanuts. This is particularly important for regions with high humidity or temperature fluctuations that make it difficult to control moisture levels during harvest and storage.



Agenda Item 11

REVIEW OF THE CODE OF PRACTICE FOR THE REDUCTION OF ACRYLAMIDE IN FOODS (CXC 67-2009)

CX/CF 25/18/12

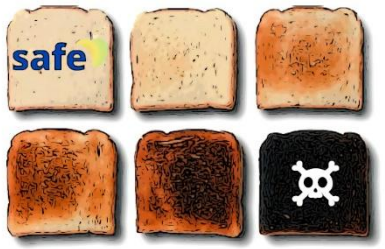
Dr. GHADA KHEDIWY, EGYPT

Table of Contents

Introduction

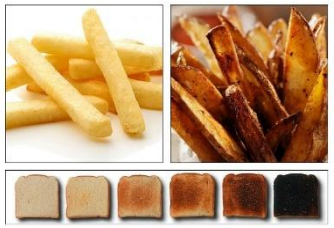
Acrylamide is a chemical compound that typically forms in starchy foods when they are baked, fried or roasted at high-temperatures (120-150°C)

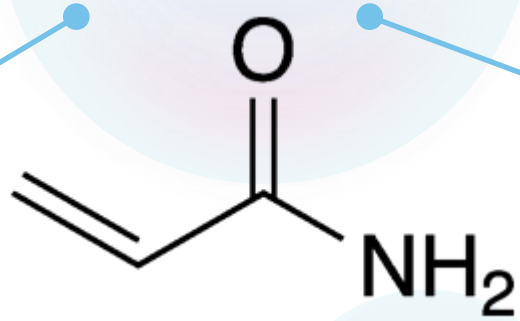
A potentially carcinogenic compound found in various foods, poses health concerns, especially for infants and children, who have higher exposure levels than adults.



(CCCF) has initiated work to address concerns about acrylamide, a potential carcinogen found in foods.

Acrylamide





(EWG) was established to develop a Code of Practice (CoP) for reducing acrylamide in food

Building on scientific assessments from bodies like JECFA and EFSA, the CCCF aims to harmonize risk management strategies to protect consumer health and facilitate global trade.

BACKGROUND

- ✓ Acrylamide, a potentially carcinogenic compound found in various foods, poses health concerns, especially for infants and children, who have higher exposure levels than adults.
- ✓ The Codex Committee on Contaminants in Foods (CCCF) has initiated work to address concerns about acrylamide, a potential carcinogen found in foods.
- ✓ An Electronic Working Group (EWG) was established to develop a Code of Practice (CoP) for reducing acrylamide in food.
- ✓ Building on scientific assessments from bodies like JECFA and EFSA, the CCCF aims to harmonize risk management strategies to protect consumer health and facilitate global trade.

UNDERSTANDING OF THE CODEX DOCUMENT
SUMMARY OF THE BACKGROUND

CCCF16 (2023)	Established EWG chaired by India and co-chaired by Saudi Arabia to prepare a discussion paper on acrylamide in foods for CCCF17.
CCCF17 (2024)	CCCF expressed general support for revising the Code of Practice (CXC 67), contingent on further assessment of new mitigation measures. It was agreed that issuing a Codex Circular Letter (CL) to collect information on risk management practices would better support the Electronic Working Group (EWG) than requesting occurrence data at this stage. CCCF decided to: - Re-established the EWG (India/Saudi Arabia) to develop a discussion paper including a proposal for a revised Code of Practice. - To issue a Circular Letter (CL) to collect information on new risk management measures for acrylamide reduction.
CCCF18 (2025)	**The EWG will present their proposal related to the develop of a discussion paper including a proposal for a revised Code of Practice.**

ANALYSIS OF CODEX DOCUMENTS

Analysis of the document

UNDERSTANDING OF THE CODEX DOCUMENT

Acrylamide is considered genotoxic and carcinogenic, with health risks dependent on exposure levels. The 2004 JIFSAN Workshop found that existing epidemiological studies lacked sufficient statistical power to confirm cancer risks at dietary exposure levels.

Both the European Commission and JECFA have emphasized the need for more systematic and comprehensive studies on acrylamide exposure and its risks. Reported average exposure levels vary by country, with infants and children identified as the most vulnerable group, at least twice those of adults.

According to JECFA, average dietary intakes result in margins of exposure (MOEs) that are generally of low concern, but MOEs for high consumers, especially related to neurotoxicity and carcinogenicity, are significantly lower, indicating potential health risks.

JECFA and other bodies (e.g., WHO, EU) recommend continued efforts to reduce acrylamide in food and water, highlight the need for updated toxicological data, and emphasize the importance of improved exposure assessment, particularly in developing countries.

ANALYSIS OF CODEX DOCUMENTS

In its final report (CX/CF 24/17/12, 2024), based on the scientific documentation studied, the EWG summarized the following key information related to Acrylamide (AA) in Foods:

TOPIC	MAIN FINDINGS
TOXICOLOGY & TOXICOKINETICS	AA rapidly absorbed and metabolized mainly to glycidamide via CYP2E1; distributed widely including fetus; neurotoxicity, reproductive toxicity, genotoxicity reported in animals; human variability in metabolism exists.
TOXICO-DYNAMICS	Neurotoxicity (peripheral and central nervous system), developmental and reproductive toxicity in rodents; morphological nerve changes at dietary levels.
ANALYTICAL METHODS	LC-MS/MS and GC-MS are most reliable; methods provide sensitive, reproducible detection; emerging tools include immunoassays, NIR, image analysis for process control.
OCCURRENCE DATA	Acrylamide levels vary with food type and processing; highest in fried/baked potato products and coffee; low/none in fruits, chicken meat, herbal tea.
DIETARY EXPOSURE	Average human exposure low (~0.2–0.5 µg/kg bw/day); infants and children more exposed; epidemiological studies inconclusive on cancer risk. Despite existing studies, both international organizations (e.g., EFSA, JECFA, European Commission) and researchers agree that current data are insufficient to fully assess the risks, highlighting the need for more robust and comprehensive research on acrylamide exposure and its health effects.
RISK ASSESSMENT	MOEs suggest low risk at average intake; nerve effects possible in high consumers; ongoing need for long-term studies and pharmacologically based pharmacokinetic (PBPK) modelling recommended.
RISK MANAGEMENT	Complete elimination impossible; mitigation includes process changes (storage, enzyme use, fermentation); monitoring ongoing in EU, Canada, USA; continuous risk management recommended.
CONCLUSION & RECOMMENDATIONS	Continue efforts on occurrence and exposure data collection; update toxicity data; promote mitigation strategies; encourage data sharing among countries.

Recommendations for the Arab Codex delegations on the selected item

Arab countries are encouraged to actively support and contribute to the EWG's work on revising the Code of Practice for acrylamide reduction.

RECOMMENDATIONS

Provide region-specific data on acrylamide occurrence and dietary exposure, reflecting local food consumption patterns and processing methods.

Lead or collaborate on regional research to better understand acrylamide levels in traditional and staple foods unique to Arab diets.

Develop culturally appropriate mitigation strategies, such as adapting cooking methods or ingredient substitutions that align with local culinary practices.

RECOMMENDATIONS

Establish national or regional monitoring programs to track acrylamide levels in food products and assess the effectiveness of mitigation measures.

Organize capacity-building initiatives and training workshops to strengthen expertise in acrylamide risk assessment, monitoring, and control.

Engage in international collaboration to share data, experiences, and benefit from best practices with other countries.

ARAB CODEX INITIATIVE
المبادرة العربيـة للـدستور الغذائي

CCCF

Agenda Item12

REVIEW OF THE CODE OF PRACTICE FOR THE REDUCTION OF AFLATOXIN B1 IN RAW MATERIALS AND SUPPLEMENTAL FEEDING STUFFS FOR MILK-PRODUCING ANIMALS
CX/CF 25/18/13

Dr. Yosra Rafat Dyab, Egypt

UNDERSTANDING OF THE CODEX DOCUMENT
SUMMARY OF THE BACKGROUND

CCCF13, (2019) chaired by Canada and co-chaired by Japan and USA	Establish (EWG), with a view to determining an approach for the revision of existing Codex standards developed by the CCCF, for consideration at the 14th session of the CCCF.
CCCF14, (2021)	Establish Codex standards monitoring lists, an approach and prioritization criteria for recommending the revision of existing Codex standards on contaminants, and implement this approach for a three-year trial period (2022-2024).
CCCF15, (2022) No new work to revise an existing Codex standard	-Maintain, without establishing new priorities, monitoring lists A and B and create a global list of the highest priority Codex standards and related texts relating to contaminants in foods intended for human and animal consumption (the "OHPL"), -Proposals for inclusion in this list must be based on prioritization criteria or other clear and reasonable criteria.
CCCF16, (2023) Chaired by Canada	Create a (EWG) to develop a working document on the revision of the Code of Practice for the Reduction of Aflatoxin B1 in Raw Materials and Feeds for Dairy Livestock (CXC 45-1997).
CCCF17, (2024) ↓ CCCF18, (2025)	agreed to re-establish the EWG, chaired by Canada and co-chaired by Saudi Arabia to: (i) revise the discussion paper; (ii) propose revisions to CXC 45-1997; (iii) consider how other related Codex CoPs of practice could be integrated or merged to avoid overlap, inconsistencies, and redundancies; and (iv) prepare a project document for new work.

At the CCCF18, (2025)

The EWG will invite CCCF to consider initiating a revision of the *Code of Practice for the Reduction of Aflatoxin B1 (CXC 45-1997)*. If agreed, CCCF should:

- ✓ Review and adjust the project document for submission to CAC48 (2025).
- ✓ Assess the proposed outline, especially:

  Integration with related Codex Codes to avoid overlaps.
  Appropriateness of revisions and availability of supporting data.
- ✓ Consider issuing a ***circular letter*** to gather relevant risk management practices and data.
- ✓ Re-establish the EWG ***to further develop the Code for review at CCCF19*** (2026).

Several documents support this proposal for new work and are presented in the proposal as an annex:

Appendix	Content
Appendix I	Project document proposing new work to revise CXC 45-1997
Appendix II	Proposed revisions to the CoP: new text is underlined; deletions shown in strikethrough. Yellow highlights show integrated text from CXC 51-2003.
Appendix III	Key references used in drafting the updated CoP
Appendix IV	Voluntarily submitted national control strategies
Appendix V	National regulations for aflatoxin B1 in animal feed

ANALYSIS OF CODEX DOCUMENTS AND STANDARDS FOR THE ARAB REGION

Point	Details
General Consensus	There was overall agreement among EWG members on the technical content, structure, and integration approach for the proposed revisions.
Support for Revision	The EWG supports revising CXC 45-1997 due to the significant amount of new and updated information available since its drafting 28 years ago.
Improved Practical Guidance	An updated CoP would more accurately and comprehensively provide practical aflatoxin B1 control measures in feed for milk-producing animals.
Alignment with Other Codex Texts	The revised CoP aims to align with recently updated Codex CoPs on aflatoxins in cereals and other feed ingredients, avoiding overlap, inconsistencies, and redundancy.
Integration of Relevant Measures	Measures from CXC 51-2003 applicable to non-cereal crops (e.g., legumes, oilseeds) have been incorporated, along with a new 'Related Guidance' section listing relevant Codex texts.
Concerns About Document Length	Some members commented on the lengthiness of the revised CoP and recommended internal streamlining where possible.
Streamlining and Redundancy	Efforts will continue to reduce redundancy within and between Codex texts if the revision is approved as new work.
Need for More Data and Participation	Broader input, especially from tropical regions, is needed to enhance the CoP. ***A circular letter (CL) requesting additional aflatoxin management information may be necessary.***

Key considerations for Arab countries

Arab countries have strong reason to engage in the proposed revision of Codex CXC 45-1997 due to their climatic, agricultural, and food safety realities:

The region is characterized by semi-arid to humid climates, which make crops and feed more susceptible to aflatoxin B1 contamination, a major concern for public health and trade. Additionally, many Arab countries have growing dairy and livestock sectors, where contaminated feed can directly affect milk safety and consumer health.

Arab countries might give their support to the EWG's proposal. The revised CoP presents an opportunity to shape international guidance that reflects regional conditions and supports harmonized food safety standards:

By contributing local data, Arab countries can ensure the updated Code of Practice is both **effective and relevant** for their context. Participation also strengthens the region's voice within Codex, helping ensure **fair and applicable global standards**.

RECOMMENDATIONS FOR CCCF18

Delegates may agree to EWG's proposal for the review and update of the code of practice (CXC 45-1997)

Continue to explore the different possibilities for updating document CXC 45-1997 with a view to limiting redundancies in Codex texts.

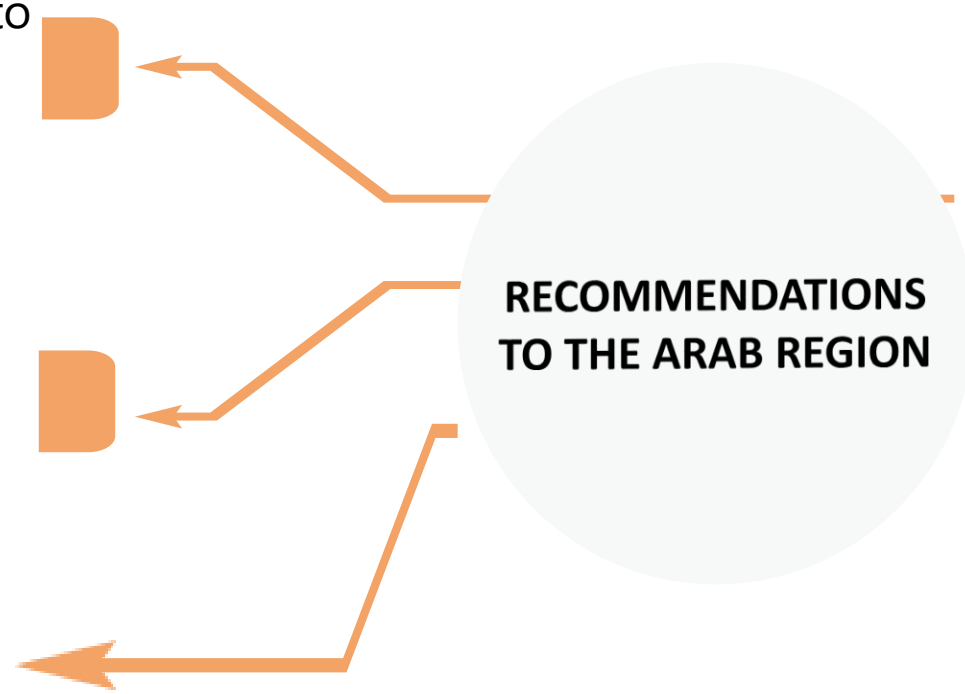
OTHER CONSIDERATIONS

Participate in the Electronic Working Group (EWG) and to respond to the upcoming **Circular Letter (CL)**

Promote Regional Coordination and to develop a joint Arab Codex position to strengthen impact and foster regional policy alignment;

Support Implementation of the CoP locally: Invest in capacity-building and training for feed producers, especially small and medium-scale operations.

Strengthen national surveillance and regulatory systems for aflatoxin control.



Agenda Item13

DEVELOPMENT OF A CODE OF PRACTICE FOR THE PREVENTION AND REDUCTION OF TROPANE ALKALOIDS IN FOOD AND FEED
CX/CF 25/18/14

Prepared by the Electronic Working Group, chaired by China, co-chaired by Saudi Arabia

Presented by Amal Elhumaima

BACKGROUND

Year	Committee/ Organization	Action / Outcome
2020	FAO/WHO Expert Meeting	▪ Provided scientific advice on the risks of Tropane Alkaloids (TAs) in foods.
2022	(CCCF15)	▪ Noted the need for follow-up actions based on the FAO/WHO Expert Meeting's advice.
2023	(CCCF16)	▪ Established an Electronic Working Group (EWG), chaired by China and co-chaired by Saudi Arabia, to prepare a discussion paper on the need and feasibility of actions on TAs.
2024	(CCCF17)	▪ Reviewed the first discussion paper (CX/CF 24/17/11) prepared by the EWG. ▪ Re-established the EWG (same chairs) to develop a revised discussion paper including: ○ A proposed Code of Practice ○ A project document for CCCF18. ▪ Requested JECFA to issue a call for data on TA contamination in food and feed, with guidance on sampling stages.

CCCF18 (2025)

CCCF is invited to decide whether the current data and information provided are sufficient to support **new work** on a **Code of Practice (CoP)** for preventing and reducing TA contamination in food and feed.

If yes, CCCF should:

1. Review and adjust the **project document** and forward it to **CAC48 (2025)** for approval as new work.

2. Assess the draft CoP outline for structure, content, and areas needing improvement following approval of new work by CAC48,

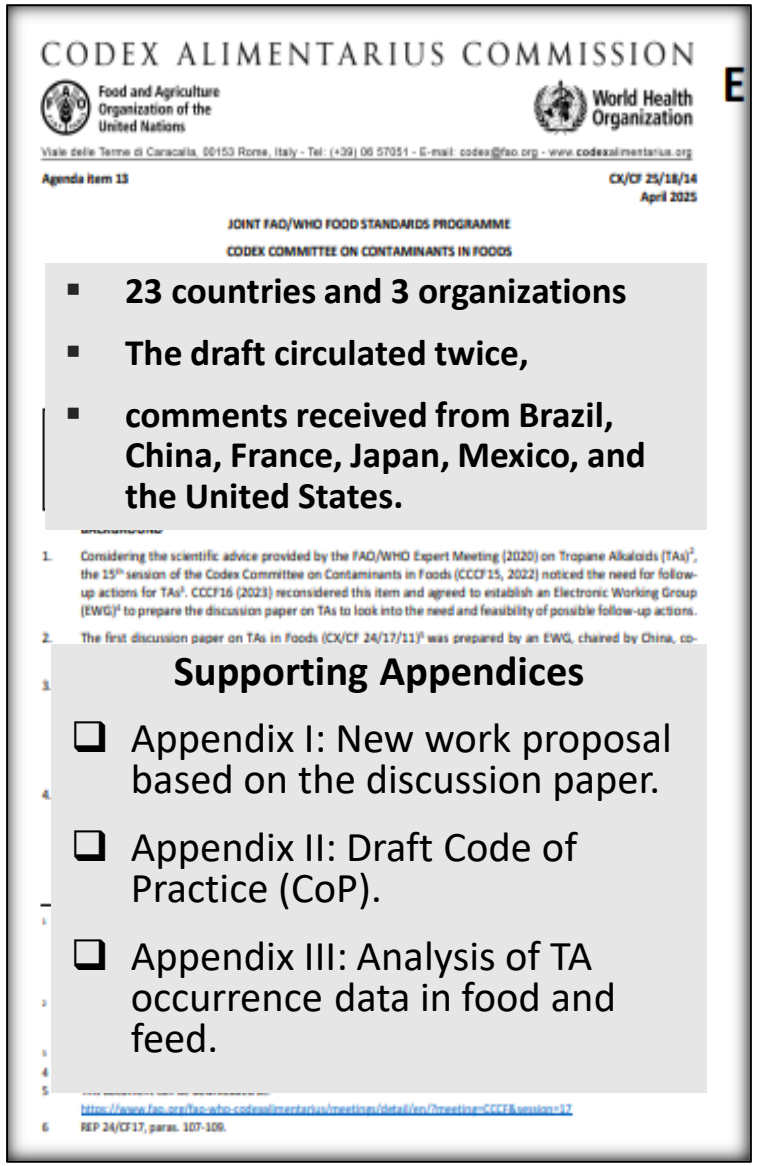
3. Re-establish the EWG to further develop the CoP for **CCCF19 (2026), based on the guidance provided by CCCF** .

If not and the discussion paper needs further development:

CCCF is invited to identify gaps and needed data/information to guide the EWG's future work.

Work process and key point discussion

Modification	Rationale
1. Retention of Original Title	The broader title reflects the CoP's comprehensive scope, including field, processing, and consumer-level measures. It also allows future inclusion of other TA-producing plants (e.g., Atropa belladonna).
2. Inclusion of Animal Feed in Scope	Although initially excluded due to minimal human health risks (EFSA, 2008), it was reintroduced to address direct animal health impacts and protect farm productivity under the One Health approach.
3. Reference to Codex Feed Guidance (CXC 54-2004)	Ensures alignment with existing Codex standards for animal feed, supporting global consistency and ease of implementation.
4. Conditional Future Inclusion of Other TA Plants	Suggested expansion to include species like Atropa belladonna, especially due to equine sensitivity, was postponed pending further scientific evidence.
5. Emphasis on Processing Stage Data Needs	More data is needed on TA levels during post-harvest and processing to assess mitigation effectiveness; current data lack sampling context and traceability.
6. Field Management as Primary Control Strategy	Despite data gaps in processing, strong weed control at the field level remains the most effective and proven method to reduce TA contamination.



CODEX ALIMENTARIUS COMMISSION

Food and Agriculture Organization of the United Nations

World Health Organization

Agenda Item 13

CX/CF 25/18/14

April 2025

JOINT FAO/WHO FOOD STANDARDS PROGRAMME

CODEX COMMITTEE ON CONTAMINANTS IN FOODS

- **23 countries and 3 organizations**
- **The draft circulated twice,**
- **comments received from Brazil, China, France, Japan, Mexico, and the United States.**

1. Considering the scientific advice provided by the FAO/WHO Expert Meeting (2020) on Tropane Alkaloids (TAs)[2], the 15th session of the Codex Committee on Contaminants in Foods (CCCF15, 2022) noticed the need for follow-up actions for TAs[3]. CCCF16 (2023) reconsidered this item and agreed to establish an Electronic Working Group (EWG)[4] to prepare the discussion paper on TAs to look into the need and feasibility of possible follow-up actions.
2. The first discussion paper on TAs in Foods (CX/CF 24/17/11)[5] was prepared by an EWG, chaired by China, co-

Supporting Appendices

- ❑ Appendix I: New work proposal based on the discussion paper.
- ❑ Appendix II: Draft Code of Practice (CoP).
- ❑ Appendix III: Analysis of TA occurrence data in food and feed.

https://www.fao.org/fao-who-codexalimentarius/meetings/detail/en/?meeting=CCCF&session=17

6 REP 24/CF17, paras. 107-109.

ARAB CODEX INITIATIVE المبادرة العربية للدستور الغذائي

The main sections and information provided in the discussion paper

Section	Key Points / Content Summary
Introduction	**Presents updated data** from GEMS/Food and EWG input. Builds on previous work (CCCF17, CX/CF 24/17/11).
Information available to Develop CoP	Focus shifts from toxicology and risk (covered previously) to strategies for controlling TA contamination in food and feed.
Key TAs & Risk Focus	Atropine and scopolamine are primary toxins, causing acute health risks requiring proactive risk management to prevent spikes.
Exposure Sources	1) Unintentional contamination from Datura and other TA plants mixed with staple crops during processing/storage. 2) Misidentification by consumers ingesting toxic plant parts.
CoP Control Focus	1) Supply-chain interventions: phytosanitary monitoring, mechanical sorting to exclude contaminated material. 2) Public awareness via education, visual ID tools, and workshops.
TA-Containing Plants	Widespread in several plant families; main concern is Datura species causing sporadic high contamination events in food/feed.
Occurrence Data in food and feed	Extensive GEMS/Food data (2006-2023) analyzed; contamination mostly sporadic, highest in cereals, spices, herbs, feeds.
Processing Impact	**Lack of processing-stage data; current evidence shows limited effect of food processing on TA reduction; prevention critical.**
Feasible Mitigation Measures	**Effective control through:- Weed management (herbicides, integrated approaches)- Crop rotation, soil management, seed purity- Monitoring, removal, cleaning, traceability- Training and consumer awareness campaigns.**
Key Recommendations	**Emphasize field management and supply-chain controls, complemented by consumer education for effective TA contamination mitigation.**

Recommendations

01

Support the new work proposal and forward the revised project document and CoP draft to **CAC48 (2025)**.

02

Confirm that the structure and focus areas of the CoP (field control, supply chain, awareness) are sufficient and globally applicable. Suggest content refinements as needed.

03

Support continued data calls, specifically targeting post-harvest and processing-stage contamination data, to improve future CoP updates.

04

Agree to re-establish the EWG with an updated mandate to revise the CoP and integrate feedback from CCCF18.

Agenda item 15

Review of numeric performance criteria for methods of analysis for total aflatoxins utilizing the sum of components concept in relevant sampling plan

Ref. document CX/CF 25/18/16

Presented by
Fatema Ahmed ,Bahrain

Background

At the CCCF16 (2023), the Codex Committee considered a request from CCMAS42 (2023) to:

- ✓ **Revise** numeric performance criteria for aflatoxin methods **using the sum of components approach across all relevant commodities.**
- ✓ **Evaluate** all sampling plans in CXS 193-1995 to ensure alignment with the updated General Guidelines on Sampling (CXG 50-2004).

At the CCCF18 (2025), delegates will discuss **EWG's proposals** Brazil volunteered to review and propose revised numeric performance criteria for aflatoxins for CCCF18 (2025).

Background

CCCF is invited to consider the following actions:

Review the revised method performance criteria proposed in the Appendix for:

- **Peanuts intended for further processing**
- **Ready-to-eat tree nuts**
- **Tree nuts for further processing** (almonds, hazelnuts, pistachios, and shelled Brazil nuts)
- **Dried figs**

These revisions aim **to replace the current performance criteria** in the respective sampling plans under the General Standard for Contaminants in Food and Feed (CXS 193-1995).

Submit the revised criteria to CCMAS for endorsement and for subsequent adoption by CAC48.

Note: Once endorsed by CCMAS and adopted by CAC, **the numeric performance criteria** for the methods of analysis in these sampling plans **will be replaced** by a reference to the *Recommended Methods of Analysis and Sampling (CXS 234-1999)*, which will house the updated criteria.

METHODOLOGY FOLLOWED BY THE EWG

- The methodology adopted for establishing the method performance criteria for total aflatoxins in specified commodities is designed to ensure analytical methods intended to meet rigorous, harmonized standards for sensitivity, accuracy, and reliability.
- **Key elements and considerations** of this approach are summarized below:

Point element	Description
Scope	This work excludes the **broader review of sampling plans**, which remains pending.
New Approach	A new approach based on **AFB1:AFB2:AFG1:AFG2 = 1:1:1:1** is proposed for certain nuts and dried figs, differing from CAC46 (2023) criteria for cereals.
Focus of Methodology	Establishes clear, measurable criteria for methods to reliably detect and quantify total aflatoxins (AFB1, AFB2, AFG1, AFG2) in peanuts, tree nuts, and dried figs.
Maximum Level (ML)	The regulatory aflatoxin **concentration limit** (µg/kg) **allowed** in the commodity.
Limit of Detection (LOD)	**Lowest concentration** at which aflatoxins can be reliably **detected** (not necessarily quantified).
Limit of Quantification (LOQ)	**Lowest concentration** at which aflatoxins can be **quantitatively measured** with acceptable precision.
Precision (%)	**Acceptable** variability in **repeated measurements** to ensure consistent, reproducible results.
Minimal Applicable Range	The **validated concentration range** over which method performance is guaranteed.
Recovery (%)	Efficiency of aflatoxin extraction and detection from the commodity, expressed as a percentage of true value.
Tailored Methodology	Criteria differentiated for commodities intended for further processing vs. ready-to-eat, reflecting contamination risks and consumption patterns.
Objective	**Harmonize testing methods globally** to facilitate consistent enforcement, improve monitoring reliability, and protect public health.

ANALYSIS OF THE METHODOLOGY FOLLOWED BY THE EWG

The proposed methodology is :

Technically sound,

Internationally harmonized

Aligned with Codex updates.

It supports **reliable monitoring and enforcement of MLs** for aflatoxins, with appropriate **sensitivity and applicability** across different commodity types.

ANALYSIS OF THE METHODOLOGY FOLLOWED BY THE EWG

The analysis of the proposed method performance criteria for total aflatoxins in various commodities is summarize in the table presenting the evaluation of each parameter:

Parameter	Description	Evaluation
Target Commodities	Peanuts (processing), Tree nuts (processing & ready-to-eat), Dried figs	Key high-risk foods for aflatoxin contamination
Analyte	Total aflatoxins (AFB1 + AFB2 + AFG1 + AFG2), and individual components	Aligned with Codex's 1:1:1:1 sum-of-components approach
Maximum Level (ML)	15 µg/kg (processing), 10 µg/kg (ready-to-eat and figs)	Reflects current Codex MLs
Limit of Detection (LOD)	≤3 µg/kg for ML = 15 µg/kg; ≤2 µg/kg for ML = 10 µg/kg	Enables detection well below ML thresholds
Limit of Quantification (LOQ)	≤6 µg/kg (ML = 15); ≤4 µg/kg (ML = 10)	Ensures quantifiable results at or below ML
Precision	Coefficient of variation < 44%	Acceptable for complex food matrices, but relatively high
Applicable Range	Total AFs: 8.4–21.6 µg/kg (ML = 15); 5.6–14.4 µg/kg (ML = 10)	Suitable dynamic range for accurate quantification near ML
Recovery (%)	Total AFs: 60–115%; Individual AFs: 40–120%	Meets Codex validation guidance; wide range could affect accuracy for individual components
Harmonization with Codex	Based on 2023 CCMAS/CAC decisions; reference to CXS 234 expected	Supports standardization and future referencing under Codex Methods (CXS 234-1999)
Implementation Considerations	May require high-end instrumentation; feasibility in some countries could be challenging	Implementation support or capacity building may be needed

IMPACT OF THE PROPOSED MLS “POTENTIALLY ADOPTED” IN THE ARAB REGION

Analysis and recommendation for Arab countries regarding the proposed method performance criteria for total aflatoxins in peanuts, tree nuts, and dried figs:

Aspect	Implication for Arab Countries
Relevance of Commodities	Peanuts, almonds, pistachios, and dried figs are widely produced, imported, or consumed in many Arab countries.
Analytical Sensitivity (LOD/LOQ)	The low LODs and LOQs (down to 0.5 µg/kg) require advanced analytical equipment, such as HPLC with fluorescence detection or LC-MS/MS.
Precision & Recovery Requirements	Achieving <44% precision and 60–115% recovery for total AFs may be challenging for under-equipped labs.
Regulatory Alignment	Adoption of these criteria would align national standards with Codex and support international recognition of results.
Laboratory Capacity Gaps	Not all Arab countries may have the infrastructure, trained personnel, or budget to implement the proposed methods fully.
Trade and Compliance	Harmonizing with Codex will facilitate exports and reduce rejection risks in international markets.

Conclusion and recommendations for the Arab Region

Arab countries are encouraged to **adopt the proposed method** performance criteria to align with codex standards, **ensuring consistency** in aflatoxin monitoring globally. To support this, member states should first assess their national laboratory capacities through a gap analysis to identify areas requiring improvement.

Where gaps exist, investment in **analytical equipment and training** is essential, potentially facilitated through regional cooperation or international support from organizations such as FAO, IAEA, and AOAD. **Implementation may be phased, focusing initially on high-risk commodities and key import/export sectors to optimize resources.**

Strengthening regional collaboration by establishing **reference laboratories** as centers of excellence will enhance method validation and training.

Active participation in codex forums like CCCF and CCMAS is vital to **represent Arab interests** and **share experiences** throughout the implementation process

Agenda Item 16

Application of maximum levels to multi-ingredient products
CX/CF 25/18/17

Dr. Noha Mohamed Atia, Egypt

Background

questions were raised about maximum levels (MLs) for mycotoxins in spice mixtures.

CCCF17 (2024)

A proposal was made by the Codex and host Secretariats (CRD37) to include a note in the General Standard for contaminants (CXS 193-1995) suggesting the application of individual MLs to the whole mixture based on the relative proportions of ingredients.

Several views were expressed on this proposal, noting that the issue extends beyond spices to other mixtures, and the General Standard already offers guidance for handling mixtures.

CCCF17 suggested that the Codex Secretariat issue a circular letter (CL) to request comments on the need for further guidance for multi-ingredient products.

Background

The circular letter invites Codex members and observers to comment on the following points:

(a) The necessity for further guidance on multi-ingredient products, and

(b) If such guidance is needed, to propose:

- An amendment to the current guidance in the General Standard (CXS 193-1995), particularly regarding the establishment of MLs for mixtures, or
- Adding a note to the MLs in question, or
- Any other suitable proposals.

ANALYSIS OF THE PROPOSAL

CURRENT CODEX PROVISION (CXS 193-1995, ANNEX 1)

- MLs are primarily established for raw agricultural products.
- For processed and multi-ingredient foods, MLs can be applied using concentration or dilution factors based on product composition and contaminant behavior during processing.
- Separate MLs may be established for processed products if contamination patterns differ consistently or if contamination occurs during processing.
- This approach relies on knowing the composition and contaminant behavior in processed or multi-ingredient foods.

LIMITATIONS IDENTIFIED

- In many cases, especially with products like spice mixtures, the relative proportions of ingredients are unknown or difficult to determine.
- This lack of compositional data challenges the practical application of MLs using the current standard's approach.
- Without ingredient proportion data, enforcement and compliance assessment become complex and inconsistent.

PROPOSED NEW WORK / PRACTICAL APPROACH

- As discussed at CCCF17, a pragmatic solution is to apply the lowest ML of any individual ingredient as a screening level to the entire multi-ingredient mixture when proportions are unknown.
  - If contaminant levels are below or equal to this lowest ML, the product is considered compliant with no further testing needed.
  - If levels exceed this threshold, further investigation into ingredient proportions is required to assess compliance accurately.
  - The Committee is considering adding this approach as additional guidance or a footnote to the existing standard for clarity and practical use.
  - This new work aims to balance enforceability, consumer protection, and feasibility in cases where compositional data are unavailable.

PROPOSED CALCULATION OF MLS

- When ingredient proportions are known, the ML for the mixture is calculated as a weighted average of the MLs of individual ingredients.

- when the proportions of ingredients in a mixture are unknown, the lowest ML is applied. If the contaminant concentration exceeds that ML, the relative proportions must be determined and the ML recalculated accordingly.

THE MOST IMPORTANT COMMENTS SUBMITTED BY COUNTRIES ON THE PROPOSAL

Theme	Key Points / Stakeholders
Need for Further Guidance	- Broad support for clearer rules from many members (Argentina, Brazil, Canada, Ghana, Kenya, Egypt, EU, Indonesia, Iran, Iraq, Japan, NZ, Philippines, Senegal, Thailand, Turkey). - Challenges include unknown ingredient proportions, lack of MLs for composites, and analytical/enforcement difficulties.
Proposed Approaches	- **Amend Annex I**: Weighted average if proportions are known; apply lowest ML if unknown (Brazil, EU, Egypt, Indonesia, Iran, Canada, Ghana, Kenya, NZ, Philippines). - **Use of Footnotes**: Clarifications attached to MLs (Canada, Singapore, Japan, EU, Ghana). - **Alternative options**: Use predominant ingredient's ML (Singapore); calculate mixture ML from typical spice ratios (Turkey); remove flawed example (i) (Thailand, EU, Canada); limit application to specific cases (Japan, USA). - **Industry concerns**: Applying lowest ML to full product may overestimate risk and create trade barriers (USA, FIA, ISDI). Suggest risk-based targeted MLs instead.
Other Recommendations	- Propose cooperation with CCMAS, use of case studies, and alignment with Codex precedents (Ghana, Kenya, EU). - Suggest waiting for more data (e.g. GEMS/Food) before adopting new MLs (USA, Philippines) - UAE emphasizes full ingredient disclosure. - Industry (FIA, ISDI) supports science-

RECOMMENDATIONS

Support Development of Clear, Harmonized Guidance
Arab countries are encouraged to align with the international trend toward establishing clear, harmonized guidance within Codex frameworks that address ML application for multi-ingredient foods.

Emphasize Practicality and Trade Facilitation

Collect and analyze data on typical ingredient proportions in common spice mixtures or multi-ingredient products within the region to support science-based ML application.

Agenda item 17

ANALYSIS OF THE OCCURRENCE DATA OF LEAD IN SPICE MIXTURES

(Prepared by the FAO/WHO JECFA Secretariat)

Ref. Document : CX/CF 25/18/18

Presented by :Hiba Abdul Ridha -Bahrain

BACKGROUND

Year	Entity	Decision/Action
2024	CCCF17	✓ Reviewed discussion paper on MLs for lead in spices, including spice mixtures. ✓ Concluded no MLs for spice mixtures in the general standard d for contaminants in food and feed (CXS 193-1995) (GSCFF) due to lack of guidance for multi-ingredient products. ✓ Recommended issuing Circular Letter 2024/03-CF to gather comments on applying MLs to multi-ingredient products (discussed in item 16). ✓ Requested JECFA to analyze GEMS/Food database for lead in spice mixtures for CCCF18 discussion.
2024	CAC47	Adopted maximum levels (MLs) for lead in spices, including dried seeds (excluding celery seeds), based on CCCF17 proposals.

SUMMARY OF THE WORK PRESENTED BY JECFA

In response to a request from the Codex Committee on Contaminants in Foods (CCCF) to support discussions on setting Codex maximum levels (MLs) for lead in multi-ingredient products, the Joint FAO/WHO Expert Committee on Food Additives (JECFA) presented a detailed analysis of lead contamination in spice mixtures using data retrieved from the GEMS/Food database.

- The analysis focused on over **14,000 sample results** collected between **2014 and 2024**, of which **5,250** were considered most relevant to spice mixtures.
- JECFA applied two approaches to characterize contamination levels: one based on GEMS/Food group names and another using keyword text searches (e.g., "mix", "masala", "seasoning") to better isolate likely spice mixtures.
- The findings indicated that these mixtures tend to have higher mean lead concentrations (up to 0.60 mg/kg) than individual spices (0.24 mg/kg), and that exposure was particularly significant for children.

SUMMARY OF THE WORK PRESENTED BY JECFA

JECFA's lead exposure assessment for spice mixtures used consumption data from the GEMS/Food cluster diet and the FAO/WHO CIFOCOss database.

- While GEMS/Food provided broad per capita spice availability (average 2.6 g/day), CIFOCOss offered more **detailed individual intake data from 14 countries**, with the Netherlands providing the most reliable figures.
- However, limitations include lack of specificity for spice mixtures, limited data from many regions including Arab countries, and small sample sizes, underscoring the need for better, targeted consumption data.

SUMMARY OF THE WORK PRESENTED BY JECFA

Consumption Data used in JECFA assessment are presented in the table below:

Source	Type of Data	Key Findings	Limitations
GEMS/Food Cluster Diet Data	Per capita food availability	✓ Average: 2.6 g/day/person across clusters ✓ Range: 0.5 – 7.0 g/day	✓ Not specific to spice mixtures ✓ Includes condiments and individual spices
FAO/WHO Chronic Individual Food Consumption database (CIFOCOss) Database	Individual dietary intake data	✓ Data from 14 countries for "mixed herbs and spices" ✓ Most countries: <1 g/day consumption	✓ Limited countries and small sample sizes ✓ Most countries lacked reliable P95 data
Netherlands (CIFOCOss)	Reliable individual intake (P95)	- Children: Mean = 3.8 g/day, P95 = 10.4 g/day- Adults: Mean = 5.3 g/day, P95 = 11.0 g/day	Only country with >60 individuals, enabling statistically valid estimates
Other Data (FAOSTAT)	National supply/utilization	- Yemen and Saint Vincent: up to 18 g/day per capita for spices and aromatics (broad category)	Category includes other stimulants, not just spices or spice mixtures

SUMMARY OF THE WORK PRESENTED BY JECFA

JECFA proposed two potential MLs for lead in spice mixtures and evaluated their effectiveness in reducing dietary exposure and their enforcement implications, as summarized below:
Proposed Maximum Levels (MLs) for Lead in Spice Mixtures

JECFA's work provides a scientific foundation for CCCF discussions on the feasibility and public health benefit of adopting a Codex ML for lead in spice mixtures, while recognizing the need to manage both health risks and enforcement challenges.

PROPOSED MAXIMUM LEVELS (MLS) AND RISK CHARACTERIZATION METHODOLOGY

As part of its assessment, the **Joint FAO/WHO Expert Committee on Food Additives (JECFA)** evaluated the need for setting Codex Maximum Levels (MLs) for **lead in spice mixtures**, using an evidence-based, quantitative **risk assessment framework**. This framework involved:

1. Exposure Assessment

JECFA combined:

- **Occurrence data** from the **GEMS/Food database**, focusing on six food categories that may include spice mixtures.
- **Consumption data** from the **FAO/WHO Chronic Individual Food Consumption Database (CIFOCOss)**, especially for countries where data on **"mixed herbs and spices"** were available.

Two population groups were considered:

- **Adults** (average weight: 84 kg)
- **Children** (average weight: 20 kg)

Mean and **95th percentile (P95)** consumption levels were used to estimate daily lead intake from spice mixtures in µg/kg body weight/day.

PROPOSED MAXIMUM LEVELS (MLS) AND RISK CHARACTERIZATION METHODOLOGY

2. Endpoints for Risk Characterization

JECFA used **health-based guidance values** (Points of Departure (PoDs)) established in its **73rd meeting (JECFA73, 2011)** for lead toxicity:

Neurodevelopmental effects in children:

➤ PoD = **0.6 µg/kg bw/day** (associated with a 1 intelligence quotient IQ point loss)

Increased systolic blood pressure in adults:

➤ PoD = **1.3 µg/kg bw/day** (associated with a 1 mmHg increase in blood pressure)

These endpoints were selected because lead is a **non-threshold contaminant**, meaning **no safe exposure level** can be definitively established, particularly for children.

CONCLUSION AND RECOMMENDATION

JECFA applied an internationally accepted risk assessment framework, combining global occurrence data from the GEMS/Food database with individual consumption data (CIFOCOss), focusing on both average and high consumers (95th percentile) among adults and children. Risk characterization was based on JECFA's 2011 health-based guidance values:

- 0.6 µg/kg bw/day for **children** (linked to IQ loss) and
- 1.3 µg/kg bw/day for **adults** (linked to blood pressure).

Spice mixtures alone may contribute up to **52% of the PoD in children** at high intake levels, indicating a significant concern.

Two MLs were considered:

- 2 mg/kg → exposure **reduced to 18%** of PoD in children, with 1.9% sample rejection.
- 1 mg/kg → exposure **reduced to 15%,** but with 5.1% rejection.

3. Risk Characterization Results

Using the above methodology, JECFA estimated the contribution of **spice mixtures** to total lead exposure and evaluated the impact of different ML scenarios:

Scenario	Children (P95)	Adults (P95)	% of PoD Used(Children)	% of PoD Used (Adults)
No ML	0.31 µg/kg bw/day	0.08 µg/kg bw/day	52%	6%
ML = 2 mg/kg	0.11 µg/kg bw/day	0.04 µg/kg bw/day	18%	3%
ML = 1 mg/kg	0.09 µg/kg bw/day	0.04 µg/kg bw/day	15%	3%

Interpretation:

While both ML scenarios reduce exposure, **ML = 1 mg/kg** offers a **marginal additional benefit** over 2 mg/kg but results in higher product rejection.

The **greatest public health concern** is for **children**, where exposure to lead from spice mixtures alone could approach half of the neurotoxicity threshold without regulation.

CONCLUSION ON PROPOSED MLS

JECFA RECOMMENDATION

JECFA recommends that Codex consider adopting an **ML for lead in spice mixtures of 1or 2 mg/kg**, recognizing:

- The importance of protecting children from neurodevelopmental risks.
- The absence of a clear threshold for lead toxicity.
- The practicality of enforcement and trade implications, particularly for high-volume spice producers and importers.

JECFA recommends that CCCF18 consider the establishment of maximum levels (MLs) for spice mixtures within the broader context of setting MLs for multi-ingredient foods.

A consistent and coordinated approach is needed, aligning JECFA's technical risk assessments with Codex's procedural guidance.

This should include consideration of Agenda Item 16 and the feedback provided by member countries in response to Circular Letter CL 2024/03-CF. Such alignment would ensure clarity and coherence in how MLs are applied to complex food products.

ML Option	Rationale	Estimated Impact	Trade-Off
2 mg/kg	Balances protection and feasibility	- ~15% reduction in exposure- Rejection rate: 1.9%	Moderate stringency; widely implementable
1 mg/kg	Greater protection for children	- ~18% reduction in exposure- Rejection rate: 5.1%	Higher rejection rate; stricter control needed

Lead Content in Mix Spices (Bahrain)

The purpose of this analysis

(1) to evaluate whether the proposed ML, particularly the lower limit of 1 mg/kg suggested by JECFA, would have a significant impact on products marketed in the Arab region (Bahrain),

(2) to examine the **feasibility of implementing such a limit given** the specific composition and sourcing of **mix spices** commonly consumed in Arab countries.

Spice Type	No. of Samples	Mean Pb (mg/kg)	Max Pb (mg/kg)	Samples > 1 mg/kg	Samples > 2 mg/kg	% Non-compliant (>1 mg/kg)	% Non-compliant (>2 mg/kg)
Masala (all types)	27	0.24	1.80	2	0	7.4%	0%
Mix Spices	15	0.42	1.80	3	0	20%	0%
Curry Powders	9	0.13	0.66	0	0	0%	0%
Bahraini Bezar	4	0.56	1.80	2	0	50%	0%
Mixed Spices Bezar	3	0.31	0.62	0	0	0%	0%
Spicy Dry Mix	1	0.05	0.05	0	0	0%	0%
Total	**59**	**0.29**	**1.80**	**7**	**0**	**11.9%**	**0%**

Lead Content in Mix Spices (Bahrain)

Key Observations and Relevance to Arab Context

- All **59 spice samples** analyzed complied with for lead of 2 mg/kg, confirming no immediate health concern under existing international regulatory frameworks.
- **Seven samples** (11.9%) exceeded the proposed JECFA ML of 1 mg/kg, indicating a moderate level of non-compliance under this more stringent limit.
- Most Masala and Mix Spices samples, including traditional Bahraini masala blends, showed **low lead contamination**, suggesting that local production and control measures are generally effective at maintaining compliance.
- Higher lead levels and greater variability were observed primarily in certain mixed spice blends and Bahraini Bezar samples, which may reflect complexity in sourcing, the variety of raw materials used, or less controlled processing steps.
- Spices like curry powders and other simpler blends consistently showed low lead levels, reinforcing the possibility of maintaining safety margins across different spice categories.

Feasibility and Impact in Arab Settings

- The variability in certain mixed spice types and Bahraini Bezar points to a need for targeted measures: improved ingredient sourcing, enhanced quality assurance during drying and processing, and increased consumer and producer awareness about contamination risks.
- Adopting the JECFA ML would require **strengthening capacity for testing and enforcement,** especially for *small-scale producers and importers* who depend on bulk raw ingredients.
- Regional collaboration on standards, training, and laboratory capacity could facilitate compliance and enhance food safety in the Arab spice market.

CONCLUSION AND RECOMMENDATION

Methodology applied by JECFA include available international occurrence data and use of high-percentile exposure estimates. However, uncertainties remain, particularly due to:

- Limited and non-specific consumption data for spice mixtures,
- Inconsistent product naming in the GEMS/Food database,
- Sparse regional data from Arab and other underrepresented countries.

CONCLUSION AND RECOMMENDATION

These uncertainties suggest a need for improved data collection to refine future risk estimates and ensure regionally appropriate decisions.
Given the significant use of spice mixtures across the Arab region and the **limited regional data on consumption and contamination,** Arab countries should:

1. **Support the establishment of an ML** for lead in spice mixtures within the proposed range (1–2 mg/kg), recognizing the health protection benefits, especially for children.
2. **Advocate for a flexible, risk-based approach:**
    - Prefer an ML of 2 mg/kg as a pragmatic first step to allow compliance and trade continuity while reducing exposure.
3. **Encourage improved regional data collection:**
    - Invest in national dietary surveys and contamination testing specific to spice mixtures.
    - Collaborate regionally to fill current data gaps, which limit precise exposure estimates.
4. **Call for Codex guidance on multi-ingredient products:**
    - Request clearer criteria on applying MLs to mixed foods, to ensure consistency and enforceability.
5. **Balance public health protection with trade interests**, particularly for countries that are major importers or exporters of spices.


thank you
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