

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

CRD02

April 2024

ORIGINAL LANGUAGE ONLY

JOINT FAO/WHO FOOD STANDARDS PROGRAMME

CODEX COMMITTEE ON CONTAMINANTS IN FOODS

**17th Session
15-19 April 2024**

REPORT OF THE PRE-SESSION WORKING GROUP ON MAXIMUM LEVELS FOR LEAD IN CERTAIN FOOD CATEGORIES

(Prepared by the Chair of the WG on Maximum Levels for Lead In certain food categories, Brazil)

INTRODUCTION

The virtual working group (VWG) was held on 10 April 2024 to consider recommendations and issues to the proposed maximum levels for lead in a) dried spices; and b) dried and fresh culinary herbs.

The Chair of the EWG from Brazil provided an overview of the work done. A call for data was issued opened for a larger period of time so countries would have time to submit data. Data of lead on the category herbs, spices and culinary herbs from 2011 to 2022 were extracted by the WHO administrator of GEMS/Food. Spices were grouped considering the discussions on the Codex Committee on Spices and Culinary Herbs (CCSH). Proposals of Maximum Levels (MLs) were done considering the whole categories, with exclusion of specific categories if a different contamination profile was observed and if there were enough sample size to evaluate contamination profile. The EWG used the approach "As Low As Reasonably Achievable" (ALARA) to propose MLs, with rejection rates of less than 5%. Two drafts were circulated in the EWG.

a) Recommendation: To establish a ML of 0.9 mg/kg for dried spices, aril

The VWG discussed the ML of 0.9 mg/kg, what would result in a rejection of 3.1%, and no objections to adopt this ML was raised.

b) Recommendation: To establish a ML of 2.5 mg/kg for dried spices, bark

A ML of 2.5 mg/kg for bark was discussed, with support of adoption by some countries of a higher ML of 3.0 mg/kg or 3.5 mg/kg, while others were of the view that a lower ML of 2.0 or 2.5 mg/kg should be adopted. One country was of the view that a single ML for spices and culinary herbs should be adopted.

One country raised concerns about the ML of 2.5 mg/kg as cinnamon is consumed by children. In response to that, one country expressed the view that natural lead contamination in cinnamon based on data from a variety of countries is higher and thus the establishment of ML may not be the sole management measure need. Risk communication actions at national levels could be undertaken in order to reduce lead contamination in children.

c) Recommendation: To establish a ML of 2.5 mg/kg for dried spices, floral parts

The chair of the EWG informed that different views were expressed in response to CL 2024/CF-2 with support of MLs of 1.0, 2.0, 2.5 or 3.0 mg/kg. Also, it was pointed out that caper and saffron could have a different contamination profile, but there were only few data available on the database and this analysis is impaired. One country supported a ML of 1.0 mg/kg based on their data and that they considered that the higher results could be considered as outliers. This statement was supported by one country. One country supported a ML of 3.0 mg/kg, while other supported a ML of 2.0 or 2.5 mg/kg. One country informed that they are high producer and exporter of saffron and that a ML of 1.0 mg/kg would not be acceptable and thus suggest that either a higher ML is approved, or no ML is agreed upon.

A second recommendation was put forward to establish a ML of 2.5 mg/kg for cloves only, discontinuing data on caper and saffron. One country emphasized that every effort should be made to establish ML for the group and only exclude commodities in specific cases for which a specific ML is discussed.

One country asked that this report should include rejection rates for the MLs being supported by other countries. Table 1 show the effect of the implementation of hypothetical MLs for lead on dried spices, floral parts and Table 2 shows the effect if only clove was to be considered for establishing ML. For saffron (n=15) and caper (n=3), only few samples results are available.

Table 1: Effect of the implementation of hypothetical MLs for lead on dried spices, floral parts, based on UB approach.

Spice, dried, floral parts (n=105)			
ML (mg/kg)	Mean levels (mg/kg)	Sample rejection (%)	Intake reduction (%)
No ML	0.38	0.0	0.0
3.0	0.26	2.8	31.8
2.5	0.21	4.8	45.2
2.0	0.17	6.7	55.7
1.0	0.17	6.7	55.7

Table 2: Effect of the implementation of hypothetical MLs for lead on dried cloves based on UB approach.

Spice, dried, clove (n=87)			
ML (mg/kg)	Mean levels (mg/kg)	Sample rejection (%)	Intake reduction (%)
No ML	0.43	0.0	0.0
3.0	0.29	3.5	33.7
2.5	0.23	5.8	48.1
2.0	0.18	8.1	59.4
1.5	0.18	8.1	59.4
1.0	0.18	8.1	59.4

d) Recommendation: To establish a ML of 0.4 mg/kg for dried spices, flowers

The EWG chair explained that while some countries could support a ML of 0.4 or 0.5 for dried spices, flowers, others raised the issue that chamomile is used for tea and not as spices. She explained that this categorization was based on the Codex Committee on Culinary Herbs and Spices that classifies as one type of spices flowers such as chamomile and lavender. Additionally, only data that was submitted to GEMS FOOD/Database in the food category “herbs, spices and condiments” were analysed. The VWG did not support the establishment of a ML of 0.4 mg/kg for dried spices, flowers considering that the main use of chamomile is as herbal tea in many parts of the world and that the categorization of flowers and floral parts were not clear. A proposal to discontinue work was put forward and no objections were raised.

e) Recommendation: To establish a ML of 0.8 mg/kg for dried fruits and berries, excluding Sichuan pepper and Star anise

The VWG discussed the recommendation to establish a ML of 0.8 mg/kg for dried fruits and berries, excluding Sichuan pepper and Star anise based on the comments received that star anise shows a higher contamination profile with enough samples that could justify establishing a separate ML. Additionally, comments in response to CL 2024/2-CF raised concerns about the rejection rates of sumac (n=12) and paprika (n=315) as P95 values are close to 0.8 mg/kg (Appendix III - CX/CF 24/17/5).

Some countries supported the recommendation, while other raised concerns that increasing the ML from 0.6 to 0.8 mg/kg would not be ALARA and that a ML of 0.8 mg/kg for star anise, paprika and sumac would have to be considered internally before supporting.

During the VWG, it was requested to show the data of fruits and berries excluding Sichuan pepper and star anise and with the rejection rate for the proposed ML. Table 3 shows the effect of the implementation of hypothetical MLs for lead on dried spices, fruits and berries, excluding Sichuan pepper and star anise, while Table 4 paprika and sumac are additionally excluded from data. Tables 5 and 6 shows the impact of the implementation of hypothetical MLs for paprika and sumac (Table 5) and paprika (Table 6) and sumac was not analysed individually due to the low sample size available.

Table 3: Effect of the implementation of hypothetical MLs for lead on dried spices, fruits and berries excluding Sichuan pepper and star anise, based on UB approach.

Spice, dried, fruits & berries excluding Sichuan pepper and star anise (n=2,315)

ML (mg/kg)	Mean levels (mg/kg)	Sample rejection (%)	Intake reduction (%)
No ML	0.19	0.0	0.0
2.0	0.16	0.7	16.5
1.0	0.15	1.6	20.7
0.6	0.14	3.0	26.2
0.5	0.13	5.5	31.8

Table 4: Effect of the implementation of hypothetical MLs for lead on dried spices, fruits and berries excluding Sichuan pepper, star anise, paprika and sumac, based on UB approach.

Spice, dried, fruits & berries excluding Sichuan pepper, star anise, paprika and sumac (n=1,973)

ML (mg/kg)	Mean levels (mg/kg)	Sample rejection (%)	Intake reduction (%)
No ML	0.17	0.0	0.0
2.0	0.14	0.6	18.5
1.0	0.13	1.1	22.5
0.6	0.12	2.5	27.8
0.5	0.12	3.8	31.2
0.4	0.11	6.2	36.4

Table 5: Effect of the implementation of hypothetical MLs for lead on dried spices, paprika and sumac, based on UB approach.

Spice, dried, paprika and sumac (n=327)

ML (mg/kg)	Mean levels (mg/kg)	Sample rejection (%)	Intake reduction (%)
No ML	0.33	0.0	0.0
2.0	0.30	1.5	11.8
1.0	0.28	3.2	17.2
0.8	0.27	4.7	19.9
0.6	0.26	6.4	22.1

Table 6: Effect of the implementation of hypothetical MLs for lead on dried spices, paprika, based on UB approach.

Spice, dried, paprika (n=315)			
ML (mg/kg)	Mean levels (mg/kg)	Sample rejection (%)	Intake reduction (%)
No ML	0.33	0.0	0.0
2.0	0.29	1.5	12.3
1.0	0.27	3.3	17.9
0.8	0.27	4.6	20.1
0.6	0.26	5.45	21.3

f) Recommendation: To establish a ML of 3.0 mg/kg for Sichuan pepper and Star anise

The EWG chair explained that during the discussions in the EWG, one country requested that Sichuan pepper would be excluded from the ML for dried spices, fruits and berries given that they have a significant amount of data showing a higher contamination profile. Also, it was requested that a separated ML be considered. In response to CL 2024/02-CF, some countries pointed out that a ML would be acceptable if the country of origin of the data is the main producer of the spice. Additionally, it was considered that star anise may be considered in the same ML based on the P95 as in Appendix III of CX/CF 24/17/5. There was general support on the VWG of a ML of 3.0 mg/kg for Sichuan pepper and star anise, with reservations for one region that could not agree that the ML would be appropriate also for star anise.

Tables 7 and 8 show the effect of the implementation of hypothetical MLs for lead on dried Sichuan pepper and star anise.

Table 7: Effect of the implementation of hypothetical MLs for lead on dried Sichuan pepper and star anise, based on UB approach.

Spice, dried, Sichuan pepper and star anise (n=893)			
ML (mg/kg)	Mean levels (mg/kg)	Sample rejection (%)	Intake reduction (%)
No ML	0.94	0.0	0.0
3.5	0.75	3.4	19.8
3.0	0.73	4.1	22.0
2.5	0.68	6.4	27.3
2.0	0.62	10.1	34.0
0.6	0.28	49.9	70.4

Table 8: Effect of the implementation of hypothetical MLs for lead on dried star anise, based on UB approach.

Spice, dried, star anise (n=68)			
ML (mg/kg)	Mean levels (mg/kg)	Sample rejection (%)	Intake reduction (%)
No ML	0.79	0.0	0.0
3.5	0.61	3.0	23.5
3.0	0.43	9.1	45.4
2.5	0.43	9.1	45.4
2.0	0.43	9.1	45.4
0.6	0.31	31.8	61.2

g) Recommendation: To establish a ML of 1.5 mg/kg for dried rhizomes and roots

The VWG discussed the recommendation to establish a ML of 1.5 mg/kg for dried rhizomes and roots, excluding “bulbs” in the name, based on the previous discussions of CCCF to not consider ML for dried garlic as the General Standard for Contaminants and Toxins in Food and Feed (GSCTFF) - CXS 193-1995 has already a ML for lead in fresh garlic and concentrations factor could be used. The recommendation discussed would not be applied also for galangal. One country supported the inclusion of galangal in the ML as there are few results available what would not be enough to discuss a separate ML and so a ML of 2.0 - 2.5 mg/kg could be adopted for dried rhizomes and roots.

One country pointed that the data based only on dried samples shows that ginger could have a higher rejection rate if a ML of 1.5 mg/kg for the category be adopted and thus support a ML of 2.0 - 2.5 mg/kg.

One region supported the recommendation.

h) Recommendation: To establish a ML of 0.9 mg/kg for dried seeds, excluding celery seeds

The VWG discussed the recommendation without objections. Based on the Appendix III (CX/CF 24/17/5), 60 samples are available for dried celery seeds with P95 of 1.45 mg/kg and CCCF might discuss if a ML of 1.5 mg/kg could be adopted.

i) Recommendation: To establish a ML of 2.0 mg/kg for culinary herbs dried, excluding bay leaves

The VWG discussed the recommendation to establish a ML of 2.0 mg/kg for culinary herbs, dried, excluding bay leaves due to a higher contamination profile. One country was of the view that a single ML of 2.5 mg/kg for culinary herbs should be adopted, expressed in a dried weight basis. Considering their data, a factor of 3 to 13% for fresh oregano, thyme, turmeric and ginger.

Some countries expressed that there are not enough data available of lead in bay leaves to discuss a separate ML and thus supports a ML of 2.5 mg/kg for culinary herbs, dried, without the exclusion of bay leaves. One region supported a ML of 1.5 mg/kg for the whole category, with a compromise solution at 2.0 mg/kg,

j) Recommendation: To discontinue the work on ML for lead in fresh culinary herbs

The chair of the EWG informed that the ML of 0.2 mg/kg for lead in fresh culinary herbs was proposed initially considering the data available on GEMS FOOD/Database and a rejection rate of less than 5%. Comments received in response to CL 2024/02-CF questioned if there was international trade of fresh herbs. Also, one region stated that specific MLs should be considered for herbs with higher humidity, such as rosemary, thyme, oregano and sage.

One country was not in the position to support the recommendation as the trade of fresh culinary herbs is increasing (e.g. basil, coriander) and a ML of 0.2 mg/kg could be adopted.

One region expressed that there are insufficient samples to discuss MLs for specific herbs, but raised concerns related to rejection rates for some species with higher humidity. They expressed the opinion that if a ML for dried culinary herbs is agreed upon, MLs for fresh herbs could be derived considering the humidity of the specific fresh herb (eg. Fresh oregano) and the dried herb (eg. Dried oregano).

Other issues

Some countries raised the question if CCCF would discuss MLs for mixtures of spices. The VWG expressed that MLs for mixtures could be derived from MLs for specific spices based on the percentage of each ingredient in the mixture. In response, it was explained that the proportion may vary and in many cases it is unknown as mixtures may be done without weighting the spices individually. One region showed the option to consider as screening the lowest ML established for one of the ingredients and if the level is exceeded, then the percentage of each ingredient is considered.

WORKING GROUP RECOMMENDATIONS TO CCCF17

The following recommendations are put forward to CCCF17 for consideration and adoption as compromise solutions based on the discussions on the VWG:

1. Adopt at step 5/8 the ML of 0.9 mg/kg for dried spice, aril;
2. Considering different views expressed and as a compromise solution, CCCF is invited to consider the ML of 3.0 mg/kg for dried spice, bark.
3. Adopt at step 5/8 the ML of 2.5 mg/kg for dried spice, floral parts.
4. Discontinue work on the ML of 0.4 mg/kg for dried spice, flowers.
5. Adopt at step 5/8 the ML of 0.6 mg/kg for dried fruits and berries, excluding Sichuan pepper, star anise, paprika and sumac;
6. Adopt at step 5/8 the ML of 0.8 mg/kg for dried paprika and sumac;
7. Adopt at 5/8 the ML of 3.0 mg/kg for Sichuan pepper and Star anise;
8. Adopt at 5/8 a ML of 1.5 mg/kg for dried rhizomes and roots;
9. Adopt at step 5/8 the ML of 0.9 mg/kg for dried seeds, excluding celery seeds;
10. Discuss the need to establish a ML of 1.5 mg/kg for dried celery seeds.
11. Adopt at step 5/8 a ML of 2.5 mg/kg for culinary herbs dried, including in the remarks column the information that MLs for fresh culinary herbs may be derived based on the humidity of the fresh herb in relation to the dry herb.
12. Discontinue the work on ML for lead in fresh culinary herb