

codex alimentarius commission



FOOD AND AGRICULTURE
ORGANIZATION
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Agenda Item 12

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JOINT FAO/WHO FOOD STANDARDS PROGRAMME

CODEX COMMITTEE ON PESTICIDE RESIDUES

Thirty-sixth Session

New Delhi, India, 19 - 24 April 2004

DISCUSSION PAPER ON THE ELABORATION OF MRLS FOR SPICES

Prepared by the Delegation of South Africa, India the Netherlands and the International Organization of Spice Trade Associations

BACKGROUND AND SCOPE

1. The 35th Session of the CCPR discussed a paper prepared by the Delegation of South Africa and its drafting partners (Egypt, India, Indonesia, and IOSTA), providing further information on the definition of spices based on the Codex Classification (Group 028), and proposals for criteria to be applied for the use of monitoring data to establish MRLs on spices.
2. The Committee confirmed its earlier decision to elaborate MRLs on spices on the basis of monitoring data. The Committee also stressed that the approach would be limited only to spices in Group 028 as defined by the Codex Classification. However, during the deliberations, there were divergent opinions on whether some spices currently in Group 028 should be included or removed. Others wanted the list expanded to include common spices that are in international trade. Therefore, the Committee invited the Delegation of South Africa and its drafting partners (India, Netherlands, and IOSTA) to revise the paper on the basis of the discussions and specifically address the following:
 - Clarification of the definition of spices and providing list of spices of interest, irrespective of whether they are classified as spices in the Codex Classification system
 - Proposals for grouping of similar spices for purposes of elaboration of group MRLs
 - Consideration of existing MRLs on fresh vegetables, which when dried, are also used as spices
 - Consideration of the criteria for use of monitoring data to set MRLs for pesticides on spices
3. The FAO Secretary to the JMPR also reported that in response to the request of CCPR in its 34th Session, the JMPR developed guidance for the submission of monitoring data for setting MRLs or EMRLs for spices (ALINORM 03/24 par 209). The Report confirmed that JMPR has already recognized that it is not possible to carry out supervised trials on all varieties and cultivars of crops, or even on all crop species on

which a pesticide may be used and pointed out that the 1978 JMPR concluded that comprehensive selective surveys, which included many of the essential features of supervised trials, could be of great value in estimating maximum residue levels, and submission of such data for consideration was encouraged. The JMPR requested CCPR to invite both exporting and importing Member Governments to submit their monitoring data on pesticide residues and provided the format in which these data should be submitted. Therefore, the Committee also asked that the revised paper also incorporate the guidelines prepared by the JMPR in relation to the elaboration of MRLs on spices.

4. In response to the recommendations of the 35th Session of the Committee, the Delegation of South Africa, together with its current drafting partners (India, Netherlands, and IOSTA) prepared this document for consideration by the 36th Session of CCPR.

DEFINITION OF SPICES

5. Spices (Group 028) are dried aromatic seeds, buds, roots, bark, pods, berries or other fruits from a variety of plants, which are used in relatively small quantities as seasoning, flavoring, or imparting aroma in foods. They are consumed in the dried form after being added to or sprinkled on foods. The portion of the commodity to which the MRL applies (and which is analyzed) is only the dried commodity as it moves in international trade.”

SPICES OF INTEREST AND PROPOSED SUB-GROUPS

6. The Committee agreed that there was a need to group spices in smaller groups to facilitate the elaboration of group MRLs. Based on the above definition and after consultation with the spice trade industry, the spices of interest, grouped on the basis of parts of plants from which they are obtained, are:

CCN ¹	Common Name	Botanical Name	Remarks ²
SEED			
	Ajowan	<i>Carum ajowan</i> ; <i>Trachospermum ammi</i>	ESA, ISO , India
HS 771	Anise	<i>Pimpinella anisum</i>	ESA, ASTA (Fruit in ISO, India)
	Black caraway	<i>Nigella satia</i>	ASTA
HS 624	Celery seed	<i>Apium graveolens</i>	ASTA, ESA, (Fruit in India, ISO)
HS 779	Coriander	CORIANDRUM SATIVUM	ASTA, India, (Fruit in ESA)
HS 780	Cumin	CUMINUM CYMINUM	ESA, ASTA, (Fruit in ISO, India)
HS 730	Dill	ANETHUM GRAVEOLENS	ESA, ASTA, India, (Fruit in ISO)
HS 731	Fennel	<i>Foeniculum vulgare</i> <i>Trigonella foenum graecum</i>	ESA, ASTA, (fruit in India) ESA, ASTA, India, ISO
HS 782	FENUGREEK		
HS 789	Nutmeg	<i>Myristica fragrans</i>	ESA, ASTA , India, (Kernel in ISO)
FRUIT OR BERRY			
HS 4769	Allspice	<i>Pimenta dioica</i>	ESA, ASTA, ISO, India
	Anise pepper;	<i>Zanthoxylum piperitum</i> DC	ESA
	Japan pepper		
HS 774	Caraway	<i>Carum carvi</i>	ESA, India, ISO, (Seed in ASTA)
HS 775	Cardamom seed	<i>Elettaria cardamomum</i>	ESA, ASTA, India, ISO
HS 786	Juniper	<i>Juniperus communis</i>	ASTA, ESA, India, ISO
HS 735	Lovage	<i>Levisticum officinale</i> Koch	ISO, India, (Root in ESA)

HS 790	Pepper (black, white, green)	<i>Piper nigrum</i>	ESA, ASTA, India, ISO
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CCN ¹	Common Name	Botanical Name	Remarks ²
HS 791	Pepper, long	<i>Piper longum</i>	India, ISO
HS 792	Pimento	<i>Pimenta officinalis</i>	ESA, ASTA
	Pink pepper	<i>Schinus terebinthifolius</i> ; <i>Schinus molle</i>	ASTA, ESA
	Sichuan pepper	<i>Zanthoxylum bungei</i> Planch	ESA
	Star anise	<i>Illicium verum</i>	ASTA, ESA, ISO, India
HS 795	Vanilla bean	<i>Vanilla planifolia</i> ; <i>Vanilla tahitensis</i>	ESA, ASTA, ISO, India

BARK

HS 4775	Cassia bark	CINNAMOMUM AROMATICUM	ASTA, ESA, India, ISO
HS 777	Cinnamon	<i>Cinnamomum zeylanicum</i> ; <i>Cinnamomum verum</i>	ESA, ASTA, India
	Tejpat	<i>Cinnamomum tamala</i>	India

ROOT OR RHIZOME

	Asafoetida	FERULA ASSA-FOETIDA	ESA, India, ISO
HS 781	Elecampane	INULA HELENIUM	ESA
HS 784	Ginger	ZINGIBER OFFICINALE	ESA, ASTA, India, ISO
	Greater galangal; Siamese ginger	<i>Apinia galanga</i> Willd	ESA, India, ISO
	Lesser galangal	<i>Apinia officinarum</i> Hance	ESA, ISO
	Galangal	<i>Kaempferia galanga</i>	ESA, ISO
HS 772	Sweet flag	<i>Acorus calamus</i>	India, ISO
HS 794	Turmeric	<i>Curcuma longa</i>	ESA, ASTA, India, ISO

BUDS

HS 7743	Capers	<i>Capparis spinosa</i>	ESA, India, ISO
HS 778	Cloves	SYZZGIUM AROMATICUM; CARYOPHYLLUS AROMATICUS	ESA; ASTA, India, ISO

FLOWER STIGMA

	Saffron	<i>Crocus sativus</i>	ESA, India, ISO, ASTA
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ARIL

HS 788	Mace	<i>Myristica fragrans</i> .	(Aril in ISO, India, ASTA, ESA)
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¹ Those with Codex Code are currently in the list of spices; others are additions to the list.

² Industry associations consulted: ESA (European Spice Association); ASTA (American Spice Trade Association); India (Indian Spices Board); ISO (International Standards Organization, specifically, ISO 676 Standard for Spices and Condiments).

DEHYDRATED VEGETABLES USED AS SPICES

7. The paper prepared for the previous Session recommended that the list of spices under Group 028 be expanded to include dried chili peppers. After a lengthy discussion, there was no consensus reached and the Committee asked that the revised paper consider all approaches mentioned and suggest the most appropriate option for consideration by the 36th Session. Following this recommendation and after considering the modified definition as well as all suggested approaches, it is our view that there is no need to include dried chili peppers in the list of spices. MRLs already exist for a number of pesticides on fresh chili and other peppers and the MRLs for the dried chili peppers could be calculated by using a processing/ dehydration factor (Industry practice uses a default of “10” as dehydration factor for chili peppers).

8. In addition to chili peppers, a number of other vegetables when dehydrated can be used as spices (e.g. garlic, onion, other peppers (*Capsicum* spp.)). MRLs for these dehydrated vegetables when used as spices can be calculated from the fresh vegetable also by using a dehydration factor.

9. The following are the pesticides with existing MRLs for fresh peppers. By applying a dehydration factor, the MRLs for dried chili peppers can be calculated. The dehydration factor derived by the industry for chili peppers is 10.

Pesticide	Existing MRLs for Fresh Peppers (mg/kg)	Pesticide	Existing MRLs for Fresh Peppers (mg/kg)
Carbaryl	5	Malathion	0.1
Chlorpyrifos	0.5	Metalaxyl	1
Chlorpyrifos-methyl	0.5	Methamidophos	2
Cypermethrin	0.5	Methomyl	1
Cyromazine	1	Monochrotophos	0.2
Dichlofluanid	2	Permethrin	1
Dicofol	1	Phosphamidon	0.2
Dimethoate	1	Pirimicarb	2
Dinocap	0.2	Pirimiphos-methyl	1
Ethephon	5	Procymidone	5
Ethoprophos	0.02	Profenofos	5
Fenitrothion	0.1	Pyrethrins	0.05

Proposed Criteria for the Use of Monitoring Data to Set MRLs for Pesticides on Spices

10. These proposed criteria were presented during the previous Session of the Committee, but were not discussed in detail since the Committee felt it was important to first resolve questions on what are spices and which are the spices of interest in international trade. Having addressed those concerns in the previous sections, we hereby submit for consideration of the Committee, our proposed criteria for the use of available monitoring data for the elaboration of Codex MRLs on spices:

10.1 Minimum data requirements

a. Scope

Monitoring data should be limited only to spices in Codex Classification Group 028 as modified above. Only pesticides in the Codex system and with existing national registrations should be considered for MRLs for spices.

b. Number of observations

Just as the conventional method requires minimum number of trials, in the case of spices, an extensive database for each pesticide of concern is necessary. As a general rule, the MRL should cover at least 95% of the residue population with 99% confidence level¹. Therefore, it is proposed that a minimum of 100 observations from as many countries as possible should be available. In cases where sufficient monitoring data are not available, the JMPR guidelines for conducting selective surveys to generate pesticide residue data as presented in the JMPR 2003 Report should be followed.

c. Data source

Data from both exporting and importing countries should be considered, specifying in all cases, the producing country. Data collected by the spice trade associations, submitted through their respective Country Delegations, should also be considered.

d. Type of data required

All relevant and geographically representative data (raw data), including the non-detectable residues (residues at or below the limit of determination) are required to estimate levels that cover international trade. The monitoring data should be consistent with the definition for spices and should be reported on dry weight basis.

e. Timeframe of data collection

More recent data would be more meaningful in providing an indication of current residue situations relevant to spices moving in international trade. It is proposed that data should have been generated within the last 5 years. Data older than that would be useful as supplemental information.

f. Sampling information, analytical procedures used

A description of the sampling point and procedures, analytical method(s) used, including the limit of determination should be provided together with the monitoring data.

g. Dealing with data variations

In some cases, there may be considerable variations in residue levels in the database. Isolated high residue levels may be observed. These should not be excluded from the database submitted to JMPR. However, depending on the number of data points and the distribution of the data, the JMPR may decide to discard these values when recommending an MRL.

h. Submission of data

Data should be submitted to the JMPR using the format specified in Section 2.7 of the JMPR 2002 Report.

i. Other information

Since in many cases the residues on spices result from uses on neighbouring crops treated with the pesticide, to the extent possible, information on key crops growing in the area would be useful. Information on nationally approved or registered uses should also be provided.

¹ Formula used: $n = \ln(\alpha)/\ln(p)$, where $\alpha = (1 - \text{confidence level}/100)$ and (p) is the percentile of interest (Hahn G and Meeker W. Statistical Intervals, A Guide for Practitioners). Therefore, to cover the 95th percentile, with 99% confidence, $P = 0.95$ and α is $(1 - 0.99)$ or 0.01 ; hence $n = \ln(0.01)/\ln(0.95) = 90$.

10.2. Estimating the MRLs based on monitoring data

a. Group MRL for spices

MRL for spices in each sub-grouping should be established for each pesticide of concern, instead of setting MRLs for each of the pesticide/spice combinations.

b. MRL on dry weight basis

Since the spices in Group 028 are all marketed dried, the monitoring data provided should be on dry weight basis and the corresponding MRL should also be proposed on dry weight basis.

c. Setting the MRLs

The procedure for setting MRLs currently employed by JMPR should be followed, using the highest residue value from the monitoring data for each pesticide found on spices, and proposing the MRL based on an approximate geometric progression.

d. Acceptable dietary exposure estimates

The MRLs established for spices based on monitoring data should result in dietary exposures below the ADI and ARfD (if applicable), for each pesticide of concern. Although the WHO GEMs/Food Regional diets can be used for chronic intake calculations, WHO is requested to provide further guidance on consumption levels of spices for dietary calculations.

GUIDELINES PREPARED BY JMPR RELATED TO MRLS ON SPICES

11. The JMPR has prepared the following guidelines to aid in the elaboration of MRLs for spices:

- *Guidance for submission of pesticide residue monitoring data on spices (Section 2.7 of the 2002 JMPR Report)*
- *Guidance for the conduct of selective surveys to provide residue data for estimating maximum residue levels for spices in cases where there are insufficient monitoring data (Section 2.5 of the 2003 JMPR Report).*

Whenever applicable, these guidelines should be followed in the elaboration of mrls for spices.

Recommendations:

12. The Committee is invited to consider the modified definition of spices, the list and sub-grouping of spices, and the approach to elaboration of MRLs for dried vegetables used as spices, such as chili peppers. The Committee is also invited to consider the addition of above-mentioned important spices as well as the sub-grouping of spices in the proposed revision to the FAO Classification of Foods and Feeds. Further, the Committee is requested to deliberate on the proposed criteria for the use of monitoring data for elaboration of MRLs on spices.

13. The Committee is specifically requested to:

- Ask the JMPR to review existing MRLs on peppers with the view of setting MRLs for dried chili peppers by using processing/dehydration factors as appropriate. The industry is encouraged to submit to the JMPR any processing study that would support the derivation of such dehydration factor(s).
- Schedule for JMPR review, the elaboration of MRLs on spices in Group 028 as modified, for pesticides already in the Codex system, beginning in the 2004 meeting of JMPR;
- Ask governments, spice trade industry, and interested parties to organize the monitoring data on spices according to the format prescribed by the JMPR and to send the data to South

Africa who will then collate the information and submit the consolidated data to JMPR as soon as the schedule for evaluation has been set;

- Consider the inclusion of spices among the commodities for which MRLs should be established, whenever a pesticide is evaluated under the periodic review process, if the pesticide is one of those observed on spices in the monitoring process;

14. It is also recommended that governments and the spice trade industry continue to collect monitoring data for pesticides on spices on a regular basis, following agreed criteria and other JMPR guidelines on the conduct of selective surveys, in order to keep the database updated for future review.