



**Food and Agriculture
Organization of
the United Nations**



**World Health
Organization**

Viale delle Terme di Caracalla, 00153 Rome, Italy - Tel: (+39) 06 57051 - Fax: (+39) 06 5705 4593 - E-mail: codex@fao.org - www.codexalimentarius.org

Agenda Item 16

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**JOINT FAO/WHO FOOD STANDARDS PROGRAMME
CODEX COMMITTEE ON CONTAMINANTS IN FOODS**

9th Session

New Delhi, India, 16 – 20 March 2015

**DISCUSSION PAPER ON MYCOTOXIN CONTAMINATION IN SPICES
(prioritisation for potential work on maximum levels for mycotoxins in spices)**

**(Prepared by the Electronic Working Group led by India and
Co-chaired by Indonesia and the European Union)**

BACKGROUND

1. During the 8th Session of the Committee on Contaminants in Foods (April 2014), India and Indonesia had submitted new work proposals for the establishment of maximum levels of aflatoxins in spices and nutmeg respectively. Based on this, the Committee agreed to establish an electronic working group (eWG), chaired by India and co-chaired by Indonesia and the European Union, to prepare a discussion paper for its next session (CCCF9) that will review mycotoxins in spices.¹

2. The discussion paper providing data and information in support of the conclusions and recommendations is contained in Appendix I. Codex members and observers are invited to consider the conclusions and recommendations presented in paragraphs 2 and 3 in light of the data and information provided in Appendix I. The list of participants is attached as Appendix II.

CONCLUSION

3. To effectively strategize the work on mycotoxins in spices, the above mentioned method of prioritization, which is based on the analysis of production data, rejection data, concentration of mycotoxins and consumption data has been followed. The Annex VI of this document outlines the priority list of spices which could be addressed by the Committee for the establishment of MLs. The priority list summarizes the frequently rejected spices with the details of the mycotoxins due to which they are often contaminated. Based on the data obtained, it was found that the spices such as Chillies, Ginger, Nutmeg, Turmeric, Pepper and Paprika have high level of mycotoxins and these spices are also traded predominantly in the international market. Among the various mycotoxins, Aflatoxin B₁ and Ochratoxin A are present at high concentration in these spices. This discussion paper on review of mycotoxins in spices could enable the Committee to determine a possible prioritisation of the work on spices.

RECOMMENDATIONS

4. The following recommendations are therefore presented:

1. In accordance with the conclusion outlined in this document, the following table shows the priority list of spices which could be addressed by the Committee for the establishment of MLs for mycotoxins.
2. The establishment of harmonized standards (MLs) for mycotoxins in spices has mainly focused on the protection of the health of the consumers and to ensure fair practices in the food trade.
3. Taking into consideration the available information gathered and analyzed, the eWG would like to recommend that the Committee may establish MLs for Aflatoxins (for Total Aflatoxins & Aflatoxin B₁) and for Ochratoxins (Ochratoxin A) in spices (dried or dehydrated form).
4. Based on the foregoing, it is concluded that to establish MLs for mycotoxins in spices may consider not only the effect on health but also the consequences on trade and its effects on developing economies.

¹ REP14/CF, paras 131-137

PRIORITY LIST OF SPICES	
Sl. No.	Spice
1.	Chilli
2.	Paprika
3.	Nutmeg
4.	Ginger
5.	Turmeric
6.	Pepper
7.	Clove
8.	Garlic
9.	Sesame seed
10.	Mustard seed

DISCUSSION PAPER ON MYCOTOXIN CONTAMINATION IN SPICES
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BACKGROUND

During the 8th Session of the Committee on Contaminants in Foods, India and Indonesia had submitted new work proposals for the establishment of maximum levels of aflatoxins in spices and nutmeg respectively. Based on this, the Committee agreed to establish an electronic Working Group (eWG), chaired by India and co-chaired by Indonesia and the European Union, to prepare a discussion paper for its next session (CCC9) that will review mycotoxins in spices.

OBJECTIVE

The specific objective of this eWG is to review mycotoxins in spices, which will allow the Committee to understand which mycotoxins need to be addressed and the spices in which they occur. Thus the study would allow prioritization of the work on the spices for the Committee. This review would also help to develop guidelines for risk assessment of mycotoxins in spices. Ultimately, this work aims to harmonize maximum levels (MLs) for mycotoxins in spices to facilitate fair trade and to protect consumer health. The maximum levels for various mycotoxins in spices, vary widely across the World [Table 1] and the resulting lack of harmonization affects global trade of spices.

Table 1: Maximum Levels of Mycotoxins fixed by some countries for spices/all food products

Sl. No.	Country/ Organisation	Product	Aflatoxin B ₁ (µg/kg)	Aflatoxin Total (µg/kg)	Zearalenone (µg/kg)	T-2 Toxin (µg/kg)	Ochratoxin A (µg/kg)	Patulin (µg/kg)
1)	Armenia	All foods	5		1000	100	10	
2)	Barbados	All foods		20				
3)	Brazil	Spices*		20			30	
4)	Bulgaria **	Spices	2	5				
5)	Chile	All foods		5	200			
6)	Colombia	All foods		10				
7)	Croatia	Spices	30					
8)	Cuba	All foods		5				
9)	Czech Republic **	Spices	20					
10)	European Union	Spices*	5	10			15	
11)	Finland**	All Spices		10				
12)	Honduras	All foodstuffs		1				
13)	Hong Kong	All foodstuffs	15	15				
14)	Iceland	Spices*	5	10				
15)	India	All Foods		30				
16)	Indonesia	Spices powder	15	20				
17)	Jamaica	Foods and Grains		20				
18)	Japan	All foods	10					
19)	Latvia	Food products of plant & animal origin	5					

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20)	Liechtenstein	Spices*	5	10				
21)	Malaysia	All foods		35				
22)	Mauritius	All foods	5	10				
23)	Morocco	All foods	10					
24)	Nigeria	All foods	20					
25)	Norway	Spices*	5	10				
26)	Oman	Complete food stuffs	10					
27)	Pakistan	Chilli		30				
28)	Salvador	All Foods		20				
29)	Serbia and Montenegro	Spices	30					
30)	Singapore	All foods except food for infants or young children	5	5				
		Food for infants or young children	0.1	NA				
31)	South Africa	All food stuffs	5	10				50
32)	Sri Lanka	All foods		30				
33)	Switzerland	Spices excluding Nutmeg	5	10			20	
		Nutmeg	10	20				
34)	Thailand	All foods		20				
35)	Tunisia	All foods	2					
36)	Turkey	Spices*	5	10				
37)	USA	All food except milk		20				
38)	Uruguay	All foods and spices	5	20				
39)	Vietnam	All Foods		10				
40)	Zimbabwe	All Foods	5					

Spices*: *Capsicum spp.* (dried fruits EU8 thereof, whole or ground, including chillies, chilli powder, cayenne and paprika); *Piper spp.* (fruits thereof, including white and black pepper); *Myristica fragrans* (nutmeg); *Zingiber officinale* (ginger); *Curcuma longa*

** - Countries which comes under EU with MLs for mycotoxins

Source: Worldwide regulations for mycotoxins in food and feed in 2003 (FAO); Pakistan Standard and Quality Control Authority (PSQCA) standard # PS: 1742- 2010; www.ava.gov.sg, Agri-Food and Veterinary Authority of Singapore; Commission Regulation (EU) No 105/2010 of 5 February 2010 amending Regulation (EC) No 1881/2006 setting maximum levels for certain contaminants in foodstuffs as regards Ochratoxin A: www.anvisa.gov.br; The National Agency on Drugs and Food Control, Republic of Indonesia: <http://www.pom.go.id>.

Note: Antigua, Bahamas, Bahrain, Barbuda, Benin, Bolivia, Burkina, Cameroon, Ecuador, Ethiopia, Faso, Ghana, Iraq, Myanmar, Nicaragua, Panama, Qatar, Tobago, Trinidad, Uganda and UAE have no regulations on mycotoxins.

INTRODUCTION

Spices are exclusive dried/dehydrated commodities and each one is a stand-alone item. These are marketed in whole, ground, cracked/crushed forms and as spice mixes/blends. These products are used as ingredients for the purposes of providing the desired seasoning, flavour or aroma to the food and are distinguished from products that are used as food additives. According to Code of Hygienic Practice for Spices and Dried Aromatic Plants (CAC/RCP 42-1995), the definition for Spices and Dried Aromatic Plants is given as “dried components or mixtures of dried plants used in foods for flavouring, colouring, and imparting aroma. This term equally applies to whole, broken, ground and blended forms”. According to ESA, ISO and ASTA there are more than 50 commodities categorized as spices, among which most of them are susceptible to mycotoxins.

The word mycotoxin is derived from two words; “*mukes*” referring to “fungi” (Greek) and “*toxicum*” referring to “poison” (Latin). Mycotoxins are secondary metabolites of moulds, contaminating a wide range of commodities before and after harvesting. Mycotoxins are relatively large molecules that are not significantly volatile (WHO 1978; Schiefer 1990). Commodities contaminated with mycotoxins may be considered toxic to humans and animals depending upon factors such as extent of contamination, exposure and absorption into the host etc, and therefore, it will be a major health issue for the consumer. The presence of mycotoxins to a certain extent is unavoidable as their synthesis by contaminating fungi are environmentally induced. The main classes of fungi producing mycotoxins are listed in Table 2.

Table 2: Main classes of fungi producing mycotoxins

Mycotoxins	Fungi	Spices affected by mycotoxins
Aflatoxin (B ₁ , B ₂ , G ₁ , G ₂)	Aspergillus	Chilli, Clove, Ginger, Mustard, Nutmeg, Paprika, Pepper, Sesame seed, Turmeric
Ochratoxin (Ochratoxin A)	Aspergillus, Penicillium	Cayenne pepper, Celery seed, Chilli, Garlic, Mace, Nutmeg, Paprika, Pepper, Poppy seed, Sesame seed, Turmeric
Patulin	Aspergillus, Penicillium	
Cyclopiazonic acid (CPA)	Aspergillus	
Fumonisin (B ₁ , B ₂ , B ₃)	Fusarium	
Fusaric acid		
Type A Trichothecenes (T-2 toxin, HT-2 toxin, diacetoxyscirpenol)		
Type B Trichothecenes (Nivalenol, deoxynivalenol, fusarenon-X)		
Zearalenone		
Penitrem A	Claviceps	
Ergot alkaloids: Clavines (Argoclavine)		
Lysergic acid, Lysergic acid amids (Ergin)		
Ergopeptines (Ergotamine, Ergovaline)		
Citrinin	Penicillium	
Roquefortine		
PR toxin		
Penitrem A		
Cyclopiazonic acid (CPA)		

APPROACH:

As decided in the eight Session of CCCF, the eWG will review mycotoxin contamination in spices and based on this it will prepare a priority list, to determine which mycotoxins to be addressed and in which spices.

Among the commodities which are categorized as spices by various international organizations mentioned above, the Committee may fix MLs for mycotoxins in susceptible spices if found necessary. There is a need to prioritize the work taking into consideration factors such as trade pattern; consumer protection etc. The main purpose of this document is to define criteria for prioritising the work on spices for setting up MLs.

The criteria are summarized as:

- i) Volume of production and trade of the spices,
- ii) Worldwide rejection data due to mycotoxins,
- iii) Relative consumption of each spice,
- iv) Susceptibility of a given spice to mycotoxins, and
- v) The concentration and type of mycotoxins produced in that spice.

Nowadays there is an increasing tendency to use spices as food supplements (cinnamon, chili peppers, cumin, garlic, ginger, fenugreek, turmeric etc), but still the spices are consumed in minor quantities when compared to other commodities. Therefore, the spices could be prioritized primarily based on the international trade and the volume of production. Those spices which have the highest priority with respect to these parameters could be further ranked depending on the susceptibility towards mycotoxins which is determined by summarizing the worldwide occurrence and rejection data of spices due to mycotoxins. The spices which have more importance with respect to the volume of production are listed in Annex I whereas the international trade data of spices are given in Annex II.

According to the data received from the various eWG members, those spices in which the presence of mycotoxins are most frequently notified are listed in the Table A of Annex III whereas the Annex IV summarizes the rejection data. In the Annex V, per capita daily availability of individual spices are listed (Submitted by the United States).

Based on the assessment of the information provided in the Annexes I to V, the priority list of spices is prepared (Annex VI). The list contains the spices which have been frequently rejected with the details of the mycotoxins present. The spices enlisted in Annex VI may be considered by the committee for the establishment of MLs for mycotoxins.

CONCLUSION AND RECOMMENDATIONS

See paragraphs 3 and 4.

Annex I

Worldwide Production of Spices – 2008 to 2012						
Spice	Production quantity (in Tonnes)					Total
	2008	2009	2010	2011	2012	
Garlic	22790482.80	22033858.50	22541421.14	23710768.21	24836877.00	115913407.65
Sesame seed	3830181.00	3966852.00	4390293.00	4744195.00	4441620.00	21373141.00
Chillies and peppers, dry*	3123443.07	3035148.07	3053544.87	3244251.00	3352163.00	15808550.01
Ginger	1596625.00	1643678.25	1692234.62	2034429.00	2095056.00	9062022.87
Anise, Badian, Fennel, Coriander	698435.00	691738.00	777774.00	936588.00	923600.00	4028135.00
Mustard seed	528572.00	704565.00	626695.00	600158.00	515531.00	2975521.00
Pepper	444206.50	457972.00	448551.00	449828.00	461452.00	2262009.50
Cinnamon	193314.00	201045.00	189236.00	196274.00	200342.00	980211.00
Clove	98332.00	109588.00	126015.00	111332.00	112956.00	558223.00
Nutmeg, Mace and Cardamoms	89207.00	72485.00	68393.00	73222.00	75318.00	378625.00
Vanilla	9712.00	9674.00	8529.00	9454.00	9864.00	47233.00

* Red and cayenne pepper, paprika, chillies (*Capsicum frutescens*; *C. annuum*); allspice, Jamaica pepper (*Pimenta officinalis*)

Source: FAOSTAT

Annex II

Worldwide Export & Import data of Spices										
Spice	Import (In Tonnes)					Export (In Tonnes)				
	2007	2008	2009	2010	2011	2007	2008	2009	2010	2011
Garlic	1714183.0	1924913.0	1769325.0	1656908.0	1850917.0	1758982.0	1829001.0	1910071.0	1681948.0	1975108.0
Sesame seed	1045901.0	1080934.0	1186085.0	1335409.0	1403490.0	1030590.0	957479.0	1224133.0	1302946.0	1377131.0
Chillies and Peppers, dry *	523102.0	521479.0	556037.0	548420.0	546853.0	503182.0	510566.0	532418.0	533970.0	536163.0
Ginger	424012.0	454510.0	461475.0	451065.0	537350.0	454827.0	308150.0	271504.0	244668.0	295018.0
Anise, Badian, Fennel, Coriander	305370.0	293810.0	281696.0	290812.0	305412.0	418205.0	420862.0	497465.0	461251.0	547984.0
Mustard seed	310952.0	273828.0	222976.0	249146.0	263040.0	240701.0	250299.0	215303.0	249089.0	277063.0
Pepper	292133.0	295355.0	308996.0	315287.0	314240.0	309983.0	322688.0	342403.0	343075.0	330857.0
Cinnamon	119586.0	113189.0	125142.0	125621.0	141583.0	126796.0	111551.0	128596.0	123952.0	133350.0
Nutmeg, Mace and Cardamom	72312.0	54711.0	63342.0	60627.0	66578.0	67140.0	67582.0	72953.0	66812.0	69875.0
Clove	50745.0	37574.0	53810.0	33549.0	66121.0	55461.0	41333.0	54701.0	43609.0	55268

* Red and cayenne pepper, paprika, chillies (*Capsicum frutescens*; *C. annum*); allspice, Jamaica pepper (*Pimenta officinalis*)

Source: FAOSTAT

Annex III

Table A: Worldwide Occurrence and Rejection data of spices due to mycotoxins – 2009 to 2013

Spice	Mycotoxins Type	Range of the mycotoxins present (min to max) µg/kg	Number of entries					Total number of entries
			2009	2010	2011	2012	2013	
Chilli (whole & ground)	Aflatoxin B ₁	0.0169 – 114	11	112	224	202	143	692
	Ochratoxin A	0.05 – 120	1	60	213	190	133	587
	Aflatoxin B ₂	0.0051 – 2.6465	1	61	198	188	127	575
	Aflatoxin G ₁	3.04	0	1	0	0	0	1
	Aflatoxin G ₂	0.6	0	1	0	0	0	1
Turmeric (whole & ground)	Aflatoxin B ₁	0.22 – 78	1	29	86	72	36	224
	Ochratoxin A	0.01 – 38	8	23	83	67	43	224
	Aflatoxin B ₂	0.0012 – 1	0	23	83	67	36	209
	Aflatoxin G ₁	0.0061 - 1.2702						
Aflatoxin G ₂	0.25 – 1							
Ginger	Aflatoxin B ₁	0.029 – 32.8	4	21	32	49	25	131
	Ochratoxin A	0.013 – 4.985	6	13	27	47	23	116
	Aflatoxin B ₂	0.03 – 3.12	4	13	26	47	23	113
	Aflatoxin G ₁	0.02 – 6.4821						
	Aflatoxin G ₂	0.02 – 2.71						
Nutmeg	Aflatoxin B ₁	0.0203 – 700	18	36	16	11	16	97
	Ochratoxin A	0.37 – 120	6	0	2	1	9	18
	Aflatoxin B ₂	0.33 – 12.35	0	1	1	0	0	2
	Aflatoxin G ₁	0.08	0	0	1	0	0	1
Pepper	Ochratoxin A	0.3 – 200	16	14	16	12	21	79
	Aflatoxin B ₁	0.023 - 26	4	15	14	14	23	70
	Aflatoxin G ₁	0.0744 – 2.33	3	13	13	12	23	64
	Aflatoxin B ₂	0.04 – 1	4	13	12	12	21	62
	Aflatoxin G ₂	0.08 – 1.0417	3	13	12	12	21	61
Black pepper (ground)	Ochratoxin A	0.3521 - 0.81	0	0	0	0	6	6
Paprika (whole & ground)	Ochratoxin A	0.2 – 122	33	7	6	1	5	52
	Aflatoxin B ₁	0.1 – 216	9	13	0	2	5	29
	Aflatoxin B ₂	0.0525 – 0.17	3	5	0	0	2	10
	Aflatoxin G ₁	0.05 – 0.39	3	0	0	0	5	8
	Aflatoxin G ₂	0.06 – 0.15	2	0	0	1	1	4
Mustard seed	Ochratoxin A	0.4 – 8.17	0	1	0	3	1	5
	Aflatoxin B ₁	0.77 – 1	0	2	0	0	1	3
	Aflatoxin B ₂	1	0	2	0	0	0	2
	Aflatoxin G ₁	1	0	2	0	0	0	2
	Aflatoxin G ₂	1	0	2	0	0	0	2
Garlic (ground)	Ochratoxin A	0.0480 - 0.467	0	0	0	0	4	4

Table A: Worldwide Occurrence and Rejection data of spices due to mycotoxins – 2009 to 2013								
Spice	Mycotoxins Type	Range of the mycotoxins present (min to max) µg/kg	Number of entries					Total number of entries
			2009	2010	2011	2012	2013	
Sesame seed	Aflatoxin B ₁	0.0605 – 0.18	0	0	0	3	0	3
	Ochratoxin A	0.32	0	0	0	1	0	1
Clove	Total Aflatoxins	29	1	0	0	0	0	1
Poppy seed	Ochratoxin A	0.36	0	0	0	1	0	1
Celery Seed	Ochratoxin A	0.215	0	0	0	0	1	1

Source: INRASFF, RASFF, EFSA

Table B: Range of Total aflatoxins present in spices from Worldwide Occurrence and Rejection data – 2009 to 2013	
Spice	Range of Total aflatoxins present (min to max) µg/kg
Chilli (whole & ground)	0.0169 - 120
Clove	29
Ginger	0.029 - 36.5
Mustard seed	0.3 - 1
Nutmeg	0.0241 - 1200
Paprika (whole & ground)	0.1 - 221
Pepper	0.02 - 40.1
Turmeric	0.02 - 79

Source: INRASFF, RASFF, EFSA

Annex IV

Worldwide Rejection Data of Spices due to Mycotoxins – 2009 to 2013									
Spice	Mycotoxins Type	Range of the mycotoxins present (min to max) µg/kg	Range of Total aflatoxins (min to max) µg/kg	Number of Rejections					Total number of Rejections
				2009	2010	2011	2012	2013	
Chilli (whole & ground)	Aflatoxin B ₁	5.07 – 114	9 - 120	6	61	51	28	24	170
	Ochratoxin A	9.84 – 120	---	1	4	13	9	14	41
Nutmeg	Aflatoxin B ₁	6.4 – 700	10.1 - 1200	9	35	21	12	13	90
	Ochratoxin A	64 – 120	---	1	0	2	0	1	4
Paprika (whole & ground)	Ochratoxin A	15.3 – 102	---	15	7	3	0	2	27
	Aflatoxin B ₁	8.2 – 216	8.2 - 221	2	8	0	0	1	11
Ginger	Aflatoxin B ₁	5.074 – 32.8	13.6 – 36.5	0	9	8	2	3	22
	Ochratoxin A	19.26 – 30.67	---	0	0	1	1	1	3
Turmeric	Aflatoxin B ₁	5.35 – 78	6.2 - 79	1	6	5	5	0	17
	Ochratoxin A	15.41	---	0	1	0	0	0	1
Pepper	Ochratoxin A	15.8 – 200	---	2	3	1	2	1	9
	Aflatoxin B ₁	33.7	40.1	1	0	0	0	0	1
Clove	Total aflatoxins	----	29	1	0	0	0	0	1

Source: INRASFF, RASFF, EFSA

Annex V

Estimated per capita daily consumption of spices and herbs, using data on daily amounts of spices and herbs available per resident, as a proxy^{a, b}

Spice/ Herb	Imports (In Tonnes)*	Production (In Tonnes)*	Total (In Tonnes)*	Availability ^b (gram per capita/day)
Anise seed, caraway seed, and Fennel seed	10315	0	10315	0.09
Cassia (includes cinnamon)	23743.58	0	23743.58	0.21
Celery seed	1265.788	0	1265.788	0.01
Clove	1743.056	0	1743.056	0.02
Coriander seed	4253.313	0	4253.313	0.04
Cumin seed	11899.3	0	11899.3	0.1
Ginger root	56068.26	0	56068.26	0.49
Mace	531.426	0	531.426	0
Mustard seed	80618.64	13575.95	94194.59	0.82
Nutmeg	2101.44	0	2101.44	0.02
Paprika	28861.98	0	28861.98	0.25
Pepper, black and white	62445.51	0	62445.51	0.54
Pepper, capsicum, dried	89987.67	0	89987.67	0.79
Pepper, chili, dried	0	36616.05	36616.05	0.32
Pimento (allspice)	302.68	0	302.68	0
Poppy seed	3941.24	0	3941.24	0.03
Sage	2789.03	0	2789.03	0.02
Sesame seed	35203.44	0	35203.44	0.31
Turmeric	4035.14	0	4035.14	0.04
Vanilla beans	2037.57	0	2037.57	0.02
Other spices ^c	142462.5	0	142462.5	1.24

* The source data obtained in 1000 pounds was converted to tonnes with the conversion factor of 0.453592.

^a **Source:** USDA, Economic Research Service. **Spices: Supply and Disappearance.** Downloaded from [http://ers.usda.gov/data-products/food-availability-\(per-capita\)-data-system.aspx#2794](http://ers.usda.gov/data-products/food-availability-(per-capita)-data-system.aspx#2794); per capita daily availability calculations are based on a 2012 U.S. population of 314,267,867, as provided in ERS documentation.

^b Availability data may be over-estimates, since they are not corrected for small amounts exported to Puerto Rico and to other countries.

^c Includes basil, cardamom seeds, capers, curry and curry powder products, dill, fenugreek seeds, oregano, parsley, rosemary, savory, thyme, mixed spices, and other spices and spice seeds (ground and unground) not individually reported.

Annex VI

Priority list of spices		
S.No	Spice	Mycotoxins Type
1	Chilli	Aflatoxin B ₁
		Ochratoxin A
		Aflatoxin B ₂
2	Paprika	Ochratoxin A
		Aflatoxin B ₁
		Aflatoxin B ₂
3	Nutmeg	Aflatoxin B ₁
		Ochratoxin A
4	Ginger	Aflatoxin B ₁
		Ochratoxin A
		Aflatoxin B ₂
		Aflatoxin G ₁
5	Turmeric	Aflatoxin B ₁
		Ochratoxin A
		Aflatoxin B ₂
		Aflatoxin G ₁
6	Pepper	Aflatoxin G ₂
		Ochratoxin A
		Aflatoxin B ₁
		Aflatoxin G ₁
7	Clove	Aflatoxin B ₂
		Aflatoxin G ₂
		Total Aflatoxins
8	Garlic	Ochratoxin A
9	Sesame seed	Ochratoxin A
		Aflatoxins B ₁
10	Mustard seed	Ochratoxin A
		Aflatoxins B ₁ , B ₂ , G ₁ & G ₂

Note: The commodities considered in the discussion paper are in dried or dehydrated states.

Appendix II

LIST OF PARTICIPANTS	
CHAIR - INDIA	
<p>Dr. Dinesh Singh Bisht Scientist Quality Evaluation Laboratory, Spices Board India Ministry of Commerce & Industry, Government of India, New Delhi, INDIA - 110040 Tel: 011-27785379, E-mail: ccsch.bisht@gmail.com</p>	
CO-CHAIRS	
EUROPEAN UNION	INDONESIA
<p>Mr. Frans Verstraete Administrator/European Commission DG Health and Consumers Directorate-General Rue Froissart 101 1040 Brussels BELGIUM Tel: +32 22956359 E-mail: frans.verstraete@ec.europa.eu</p>	<p>Dr. Joni Munarso Principal Researcher Ministry of Agriculture Jl. Tentara Pelajar 12, Cimanggu 16114 BOGOR INDONESIA Tel: +62 251 8321762, Fax: +62 251 8350920 E-mail: jomunarso@gmail.com</p>
<p>AUSTRIA Ms. Elke Rauscher – Gabernig Austrian Agency for Health and Food Safety Risk Assessment, Data and Statistics Spargelfeldstr. 191 A-1220 Vienna, AUSTRIA Tel, +43 (0) 50 555 25706 Email: elke.rauscher-gabernig@ages.at</p>	<p>CANADA Mr. Ian Richard Scientific Evaluator, Bureau of Chemical Safety, Health Products and Food Branch, Health CANADA Email: ian.richard@hc-sc.gc.ca</p>
<p>BRAZIL Mr. Fabio Ribeiro Campos da Silva, Specialist National Health Surveillance Agency- Anvisa, BRAZIL. Email: Fabio.Silva@anvisa.gov.br</p>	<p>CANADA Ms. Jennifer Eastwood Senior Toxicology Evaluator Bureau of Chemical Safety, Health Products and Food Branch, Health CANADA. Email: jennifer.eastwood@hc-sc.gc.ca</p>
<p>BRAZIL Mrs. Ligia Lindner Schreiner Regulation National Health Surveillance Specialist National Health Surveillance Agency – Anvisa BRAZIL. Email: ligia.schreiner@anvisa.gov.br</p>	<p>CHINA Mr. Yongning WU Professor, Chief Scientist, China National Center of Food Safety Risk Assessment (CFSA) Director of Key Lab of Food Safety Risk Assessment, National Health and Family Planning Commission 7 PanjiayuanNanli, Beijing, CHINA – 100021 Tel: 86-10-67779118 or 52165589 Fax: 86-10-67791253 or 52165489 E-mail: china_cdc@aliyun.com</p>
<p>CHINA Ms. Shuan ZHOU Associate Professor China National Center for Food Safety Risk Assessment (CFSA) 7 Panjiayuan Nanli, Beijing 100021, CHINA Tel: 86-10-67791259 E-mail: zhoush@cfsa.net.cn</p>	<p>GHANA The Codex Contact Point, Ghana Standards Authority Email: codex@gsa.gov.gh / codexghana@gmail.com</p>

<p>CHINA</p> <p>Mr. Yiping REN Professor, Director of Food safety reference laboratory (mycotoxins) Zhejiang Provincial Center for Disease Control and Prevention 3399 Bin Sheng Road Hangzhou Zhejiang 310051, CHINA Tel: 86-571-87115261 Fax: 86-571-87115261 E-mail: renyiping@263.net</p>	<p>GHANA</p> <p>Mr. Meinster Bonneford Kodjo Eduafo, Ghana Standards Authority P. O. Box MB 245, Accra Phone: +233 244 855742 Email: kedufo@yahoo.com / meinsterkodjoedufo@rocketmail.com</p>
<p>CHINA</p> <p>Prof. Peiwu Li General Director, Chief Scientist Key Lab of Quality & Safety Risk Assessment for Oilseeds Product, MOA,PRC; Key Lab of Detection for Mycotoxins, Ministry of Agriculture, MOA,PRC; Quality & Safety Inspection and Test Center of Oilseeds Products, MOA,PRC Oil Crops Research Institute, CAAS, PRC Xudong 2nd Rd NO.2 Wuchang, Wuhan, Hubei Province 430062, CHINA Tel: 86-27-86812943, Fax: 86-27-86812862 E-mail: peiwuli@oilcrops.cn</p>	<p>JAMAICA</p> <p>Ms. Linnette Peters DVM, MVSc, MPH Associate Professor, Policy and Programme Director Veterinary Public Health Email: Impeters2010@hotmail.com</p>
<p>CHINA</p> <p>Ms. Yi SHAO Research Associate China National Center of Food Safety Risk Assessment (CFSA) Building 2 No.37, Guangqulu, Chanoyang District, Beijing 100022, CHINA Tel: 86-10-52165421, E-mail: shaoyi@cfsa.net.cn</p>	<p>LUXEMBOURG</p> <p>Mr. Danny Zust Food Safety Department, Ministry of Health, Luxembourg. Email: danny.zust@ms.etat.lu</p>
<p>EGYPT</p> <p>Ms. Noha Mohamed Attia Food Standard Specialist, Phone: 00202 22845531 Fax: 00202 22845504 Email: nonaatia@yahoo.com</p>	<p>MICRONESIA (FEDERAL STATES OF)</p> <p>Mr. Moses E. Pretrick Environmental Health Coordinator FSM Department of Health and Social Affairs P.O. Box PS-70 Palikir, Pohnpei FM 96941 Tel: (691) 320-8300 E-mail: mpretrick@fsmhealth.fm</p>
<p>NETHERLANDS</p> <p>Mrs. Astrid Bulder, Senior Risk Assessor, Centre for Nutrition, Prevention and Health Services (VPZ) National Institute for Public Health and the Environment (RIVM) P.O. Box 1, 3720 BA, Bilthoven, THE NETHERLANDS Tel: +31 30 274 7048, Email: astrid.bulder@rivm.nl</p>	<p>REPUBLIC OF KOREA</p> <p>Ms. Ock-Jin Paek Scientific Officer, Food Contaminants Division, Ministry of Food and Drug Safety (MFDS) Email: ojpaek@naver.com</p>
<p>NETHERLANDS</p> <p>Mrs. Karin Beaumont Senior Policy Officer. Ministry of Health, Welfare and Sport Department for Nutrition, Health Protection and Prevention P.O. Box 20350, 2500 EJ The Hague THE NETHERLANDS Tel. +31 70 340 71 11, M: +31 6 150 35 120 Email: kg.beaumont@minvws.nl</p>	<p>REPUBLIC OF KOREA</p> <p>Ms. Min Yoo Codex Researcher, Food Standard Division, Ministry of Food and Drug Safety (MFDS) Email: minyoo83@korea.kr</p>

<p>NIGERIA Mr. Hussaini Anthony MAKUN Professor of Biochemistry Chairman of University Board of Research, Federal University of Technology, P.M.B 65, Minna, NIGERIA Tel: +2348035882233 Email: hussaini.makun@futminna.edu.ng</p>	<p>REPUBLIC OF KOREA Ministry of Food and Drug Safety (MFDS) Email: codexkorea@korea.kr</p>
<p>NIGERIA Mrs. F.T. Imefidon National agency for Food Drug Administration and Control, NIGERIA. Telephone: 08023704162 Email: tayorob2000@yahoo.co.uk</p>	<p>REPUBLIC OF KOREA Mr. Chon Ho Jo Scientific Officer, Food Standard Division, Ministry of Food and Drug Safety (MFDS) Email: jch77@korea.kr</p>
<p>PAKISTAN Dr Saqib Arif Senior Scientific Officer Food Quality & Safety Research Institute Southern-zone Agriculture Research Centre Pakistan Agricultural Research Council Karachi, PAKISTAN Office: +92-21-99261554 (ext 54) Cell: +92-21-3009217794 Email: saqiawan@yahoo.com</p>	<p>RUSSIAN FEDERATION Ms. Irina Sedova Senior Researcher Research Studies Institute on Nutrition, 2/14 Ustinsky proezd, Moscow, 109240, RUSSIA. Email: isedova1977@mail.ru</p>
<p>SINGAPORE Dr. Jeff Lim Chee Wei Senior Analytical Scientist, Health Sciences Authority Singapore 11 Outram Road, Singapore 169078 Phone: +65 6213 0756. Email: Jeff_Lim@HSA.gov.sg</p>	<p>UNITED KINGDOM Ms. Aatifah Teladia Agricultural Contaminants Policy Advisor Food Safety Policy Food Standards Agency Aviation House London WC2B 6NH Email: Aatifah.Teladia@foodstandards.gsi.gov.uk</p>
<p>SPAIN Ms. Ana Lopez-Santacruz Head of Service. Chemical Risks Area. Sub directorate-General for Food Safety Promotion. Ministry of Health, Social Services and Equality. Email: contaminantes@msssi.es</p>	<p>UNITED STATES OF AMERICA Ms. Kathy D'Ovidio U.S. Food and Drug Administration Center for Food Safety and Applied Nutrition 5100 Paint Branch Parkway College Park, MD 20740 Email: Kathleen.D'Ovidio@fda.hhs.gov</p>
<p>SPAIN Ms. Sara Lopez-Varela Celdran Senior technician. Head of Unit Confectionery Condiments and Additives, Spanish Agency for Consumer Affairs, Food Safety and Nutrition Email: sara.lopez@consumo-inc.es</p>	<p>UNITED STATES OF AMERICA Dr. Dorian LaFond International Issues Analyst U.S. Codex Office Room 4861-S 1400 Independence Avenue SW Washington DC 20250-3700 Tel: +1 202 690 4042. Email: Dorian.LaFond@ams.usda.gov</p>
<p>SPAIN Mr. Pedro A. Burdaspal Head of Area in the National Food Center (CNA). Ministry of Health, Social Services and Equality. Email: pburdaspal@msssi.es</p>	<p>UNITED STATES OF AMERICA Dr. George Ziobro U.S. Codex Office Room 4861-S 1400 Independence Avenue SW Washington DC 20250-3700 Tel: +1 202 690 4042. Email: George.Ziobro@fda.hhs.gov</p>

<p>THAILAND</p> <p>Mrs. Chutiwan Jatupornpong Standards officer, Office of Standards Development, National Bureau of Agricultural Commodity & Food Standards 50, Phaholyothin Road, Ladyao, Chatuchak, Bangkok, 1900 THAILAND Tel. (+662) 561 2277 Fax. (+662) 561 3357 E-mail: codex@acfs.go.th / chutiwan9@hotmail.com</p>	<p>UNITED STATES OF AMERICA</p> <p>Mr. Kenneth Lowery U.S. Codex Office Room 4861-S 1400 Independence Avenue SW Washington DC 20250-3700 Tel: +1 202 690 4042. Email: Kenneth.Lowery@fsis.usda.gov</p>
<p>UNITED KINGDOM</p> <p>Dr. Christina Baskaran, Agricultural Contaminants Policy Advisor, Food Safety Policy, Food Standards Agency Aviation House, London WC2B 6NH Email: Christina.Baskaran@foodstandards.gsi.gov.uk</p>	<p>UNITED STATES OF AMERICA</p> <p>Mr. Henry Kim U.S. Food and Drug Administration Center for Food Safety and Applied Nutrition 5100 Paint Branch Parkway College Park, MD 20740. Email: Henry.kim@fda.hhs.gov</p>
<p>FOOD AND AGRICULTURE ORGANIZATION</p> <p>Ms. Masami T. Takeuchi, Ph.D Food Safety Officer Food and Agriculture Organization of the United Nations (FAO) C-295 Viale delle Terme di Caracalla 00153 Rome, Italy Office: +39 06 570 53076 Fax: +39 06 570 54593 Email: Masami.Takeuchi@fao.org</p>	<p>INTERNATIONAL ORGANIZATION OF SPICE TRADE ASSOCIATIONS (IOSTA), USA Cheryl Deem Secretariat, IOSTA 1101 17th St. NW, Suite 700 Washington DC 20036 USA +1 202-331-2460 Email: cdeem@astaspice.org</p>
<p>FOOD DRINK EUROPE</p> <p>Mr. Patrick Fox Manager Food Policy, Science and R&D, Food drink Europe, Avenue des Nerviens 9-31- 1040 Bruxelles - Belgium - Tel. 32 25141111 - Fax 32 2 5112905 Email: p.fox@fooddrinkeurope.eu</p>	<p>WORLD HEALTH ORGANIZATION</p> <p>Dr Angelika Tritscher Coordinator, Risk Assessment and Management Department of Food Safety and Zoonoses. Tel. direct: +41 22 791 3569 Fax direct: +41 22 791 3111 Mobile: +41 79 6339995 Email: tritschera@who.int</p>
<p>INTERNATIONAL ALLIANCE OF DIETARY/FOOD SUPPLEMENT ASSOCIATIONS (IADSA) IADSA Secretariat, Belgium Ms. Yi Fan JIANG, IADSA Secretariat, Brussels, Belgium. Email: yifanjiang@iadsa.org</p>	