

# codex alimentarius commission



FOOD AND AGRICULTURE  
ORGANIZATION  
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WORLD  
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Agenda Item 14 (f)

CX/FAC 04/36/23

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**JOINT FAO/WHO FOOD STANDARDS PROGRAMME**  
**CODEX COMMITTEE ON FOOD ADDITIVES AND CONTAMINANTS**

**Thirty-sixth Session**

**Rotterdam, The Netherlands, 22 -26 March 2004**

**DISCUSSION PAPER ON AFLATOXINS IN TREE NUTS (OTHER THAN ALMONDS,  
HAZELNUTS AND PISTACHIOS), INCLUDING INFORMATION SUBMITTED ON AFLATOXIN  
CONTAMINATION AND METHODS OF ANALYSIS FOR THE DETERMINATION OF  
AFLATOXINS IN TREE NUTS**

**PROPOSALS SUBMITTED**

The following comments have been received from: Argentina and Brazil  
in response to CL 2003/13-FAC:

**ARGENTINA:**

Argentina would like to point out in the first place that we are of the opinion that there is an error in paragraph 18 of the ALINORM, where as a tree nut it mentions the peanut, when in reality this should be the pistachio nut, since the peanut should not be regarded as a tree nut.

**BRAZIL:**

Brazilian comment : As requested by CCFAC, Brazil forwards the preliminary data on the contamination of Brazilian nuts by aflatoxin, to be included in the discussion paper "Aflatoxins in Tree Nuts".

TREE NUTS	Sample		Contaminated ( $\mu\text{g}/\text{kg}$ )				Method ( $\mu\text{g}/\text{kg}$ ) <sup>*</sup>				References <sup>a</sup>	Sampling ref <sup>c</sup>
	No.	Year	Mean	Min\máx	> LOQ <sup>b</sup>	< LOQ	TLC		HPLC			
							LOD <sup>c</sup>	LOQ <sub>d</sub>	LOD	LOQ		
<b>Brazil nuts<sup>b</sup></b>	120	2002 <sup>a</sup>	171.36	8/686	30	ND	2.0	2.0	-	-	Nutricon, Amazonas – Pacheco, A., 2003	Brasil, MAPA, In 09 (1998)
	48	2003 <sup>a</sup>	1150	50/3.369	30	ND	1.16	1.85	-	-	Nutricon, Amazonas – Pacheco, A., 2003	Usina CIEIX, 2000
	14	2000-2003	ND	ND	ND	ND	5	5	-	-	CIENTEC, RS -Nordin N., 2003	Supermarket
	50	2003	ND	ND	ND	ND	2	2	-	-	LABMICO, SC - Scussel V.M., 2003	Supermarket
	164	2001-2003	179.	1 \ 1.076	148	16	<1	≥1	-	-	ESALQ, SP – Gloria, E., 2003	Supermarket

**OTHER TREE NUTS**

	Sample		Contaminated ( $\mu\text{g}/\text{kg}$ )				Method ( $\mu\text{g}/\text{kg}$ ) <sup>*</sup>				References <sup>a</sup>	Sampling ref <sup>c</sup>
	No.	Year	Mean	Min\máx	> LOQ <sup>b</sup>	< LOQ	TLC		HPLC			
							LOD <sup>c</sup>	LOQ <sub>d</sub>	LOD	LOQ		
<b>Almond</b>	09	2001-2003	27.5	27.5/27.5	1	8	<1	≥1			ESALQ, SP – Gloria, E., 2003	
<b>Hazelnut</b>	04	2001-2002	ND	ND	ND	ND	5	5	-	-	LAMIC – Malmann C.A., 2003	
	4	2—2/2003	ND	ND	ND	ND	<1	≥1	-	-	ESALQ, SP – Gloria, E., 2003	
<b>Cashew nut</b>	23	2002-2003	4.4	2/8	11	12	<1	≥1	-	-	ESALQ, SP – Gloria, E., 2003	
<b>Walnuts</b>	14	1993-2003	0,8	3.	2	12	-	-	-	1	LAMIC, RS – Malmann C.A., 2003	
	9	2001-2003			0	9	<1	≥1			ESALQ, SP – Gloria, E., 2003	
<b>Pecan</b>	13	2000	ND	ND	ND	ND	5	5	-	-	CIENTEC, RS – Nordin N., 2003	
<b>Pistachio</b>	3	1993-003	9,2	26.1	1	2	-	-	-	1	LAMIC – Malmann C.A., 2003	

<sup>a</sup> laboratory data ND: not detected

<sup>b</sup> All Brazil nut samples were: without hull and peeled

:collected from supermarkets and commercialized in Brazil

packed in plastic containers

Exception: data from Manaus ( they were from the factory prior to export)

Other tree nuts: with hull and peel except for cashew nuts

Methodology: most TLC ( AOAC, 2000),

exception for Manaus (Brasil, MAPA, in 09, 2000)

Sampling: Nutricon used a Brazilian methodology of sampling

Others: randomly from supermarkets

Recommendations: Need more data for brazil nut (a) with and (b) without hull - for export Should be exported pee

\*Aflatoxin Brazil Nuts

Table 2

	<b>Samples</b>	<b>Period</b>	<b>LQM (<math>\mu\text{g}/\text{kg}</math>)</b>	<b>&lt; LQM</b>	<b>&gt; 30<math>\mu\text{g}/\text{kg}</math></b>
Brazil Nuts	164	1985 a 2001	2	160 (97,6%)	3 (1,8%)

Reference: Lacen-DF

Table 3

	<b>Sample</b>	<b>Period</b>	<b>AFB<sub>1</sub>, AFB<sub>2</sub>, AFG<sub>1</sub>, AFG<sub>2</sub> (mean em <math>\mu\text{g}/\text{kg}</math>)</b>
Brazil Nuts	24	1998-2001	27

Reference: Lacen-DF