

CODEX ALIMENTARIUS COMMISSION



Food and Agriculture
Organization of the
United Nations



World Health
Organization

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Agenda Items 2 and 13

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

Tenth Session
Rotterdam, The Netherlands, 4-8 April 2016

(Comments submitted by India)

Agenda item 2

Background

- Referring Para 8 and 9 in Agenda item 2, CCSCCH has requested the Committee to consider whether existing maximum levels of contaminants for leafy vegetables could apply to spices and culinary herbs or whether specific maximum levels should be drafted.

Consumption data from GEMS

- Consumption data of Leafy vegetables, Herbs, Spices and Condiments from GEMS Cluster diet WHO (2012) were obtained.

Table 1: Consumption data of Leafy vegetables, Herbs, Spices and Condiments

| NAME | G01 | G02 | G03 | G04 | G05 | G06 | G07 | G08 | G09 | G10 | G11 | G12 | G13 | G14 | G15 | G16 | G17 |
|--|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| | g/da y | g/da y | g/da y | g/da y | g/da y | g/da y | g/da y | g/da y | g/da y | g/da y | g/da y | g/da y | g/da y | g/da y | g/da y | g/da y | g/da y |
| Leafy vegetables (including Brassica leafy vegetables and seaweed) | 1.33 | 0.63 | 0.84 | 7.88 | 2.05 | 9.71 | 18.42 | 15.39 | 33.35 | 26.37 | 13.13 | 2.52 | 0.49 | 0.03 | 7.54 | 0.003 | 0.00 |
| Herbs | 0.50 | 0.001 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Spices & condiments | 2.13 | 1.35 | 2.00 | 6.55 | 4.45 | 1.97 | 1.31 | 1.30 | 1.80 | 1.87 | 3.32 | 2.50 | 2.17 | 7.03 | 3.32 | 0.47 | 1.36 |

Source: GEMS Cluster diet WHO (2012)

Table 2: Median and Average Consumption data of Leafy vegetables, Herbs, Spices and Condiments

| NAME | Consumption data (g/day) | |
|--|--------------------------|---------|
| | MEDIAN | AVERAGE |
| Leafy vegetables (including Brassica leafy vegetables and seaweed) | 2.52 | 8.22 |
| Herbs | 0 | 0.03 |
| Spices & condiments | 2.001 | 2.64 |

Table 3: Ratio of consumption data of leafy vegetables to herbs

| NAME | G01 | G02 |
|--|-------|-------|
| | g/day | g/day |
| Leafy vegetables (including Brassica leafy vegetables and seaweed) | 1.33 | 0.63 |
| Herbs | 0.50 | 0.001 |
| Ratio of consumption of leafy vegetables to herbs* | 2.661 | 653 |

* - Finding ratio not possible in other Groups as it leads to division by zero

Table 4: Ratio of consumption of leafy vegetables to spices and condiments

| NAME | G01 | G02 | G03 | G04 | G05 | G06 | G07 | G08 | G09 | G10 | G11 | G12 | G13 | G14 | G15 | G16 | G17 |
|--|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------------|-------|
| | g/day | g/day | g/day | g/day | g/day | g/day | g/day | g/day | g/day | g/day | g/day | g/day | g/day | g/day | g/day | g/day | g/day |
| Leafy vegetables (including Brassica leafy vegetables and seaweed) | 1.33 | 0.63 | 0.84 | 7.88 | 2.05 | 9.71 | 18.42 | 15.39 | 33.35 | 26.37 | 13.13 | 2.52 | 0.49 | 0.03 | 7.54 | 0.003 | 0.00 |
| Spices & condiments | 2.13 | 1.35 | 2.00 | 6.55 | 4.45 | 1.97 | 1.31 | 1.30 | 1.80 | 1.87 | 3.32 | 2.50 | 2.17 | 7.03 | 3.32 | 0.47 | 1.36 |
| Ratio of consumption of leafy vegetables to spices | 0.62 | 0.47 | 0.42 | 1.20 | 0.46 | 4.93 | 14.08 | 11.83 | 18.56 | 14.11 | 3.96 | 1.01 | 0.23 | 0.00 | 2.27 | 0.01 | 0.00 |
| Average Ratio of consumption of leafy vegetables to spices | | | | | | | | | | | | | | | | 4.36 | |

1. From Table 1, it is found that consumption levels of herbs are comparatively less than the consumption of leafy vegetables. Median and Average Consumption data of Leafy vegetables, Herbs, Spices and Condiments (Table 2) and Ratio of consumption data of leafy vegetables to herbs (Table 3) and the similar ratio of leafy vegetables to spices and condiments were also calculated (Table 4). Median values were calculated by using Microsoft Excel 7.
2. From the data and calculations from above Tables 1 to 4, consumption of herbs and spices are very less than that of leafy vegetables.
3. As leafy vegetables refer the fresh produce and spices and herbs refer to dried products, Maximum Levels for leafy vegetables could not be applied to spices and herbs. Further, drying process also affects the concentration of contaminants in the product. Some herbs are dried in shade to minimize the loss of aroma and other essential features of the product. In some cases, herbs are undergone machine drying where treatment temperature is upto 100° or 120° C. Therefore, Maximum Levels could also be set for the products which are undergone different drying processes.

Based on the above study, it is proposed to set exclusive Maximum Levels for contaminants in spices and herbs different from those set for leafy vegetables

AGENDA 13

Codex MLs for peanuts (intended for further processing) has been fixed as 15 µg/kg for Total Aflatoxins.

Table 1: Consumption (g/day) of treenuts, peanut, total spices in each GEMS/Food Cluster Diet (2006)

| Cluster Diet (g/day) | A | B | C | D | E (EU) | F | G | H | I | J | K | L | M (USA) |
|-----------------------------|-----|------|-----|-----|--------|------|------|------|-----|------|------|-----|---------|
| Tree nuts | 4.2 | 21.5 | 3.9 | 3 | 5.5 | 10.2 | 16.3 | 15.7 | 9.7 | 1.9 | 19.1 | 29 | 5.6 |
| Peanuts in shell | 7.6 | 4.3 | 3 | 1 | 5.6 | 2 | 10.6 | 2.9 | 6.6 | 30.5 | 1.3 | 1 | 9.7 |
| Peanuts shelled | 5.2 | 3.1 | 2.1 | 0.7 | 4 | 1.4 | 7.6 | 2.1 | 4.7 | 21.8 | 0.9 | 0.7 | 6.9 |
| Total Spices | 2.7 | 1.1 | 2.4 | 0.9 | 1.8 | 1.1 | 2.3 | 1.9 | 1.4 | 1.3 | 0.4 | 0.6 | 1.7 |

Table 2: Average Consumption (g/day) of treenuts, peanut, total spices in each GEMS/Food Cluster Diet (2006)

| Commodity | Average Consumption (g/day) in different cluster groups |
|------------------|--|
| Peanuts in shell | 6.6 |
| Peanuts shelled | 4.7 |
| Total Spices | 1.5 |

Based on the study done by National Institute of Nutrition in India which is published in Nutrition journal (2015), "Assessing intake of spices by pattern of spice use, frequency of consumption and portion size of spices consumed from routinely prepared dishes in southern India", consumption of some spices are mentioned below in Table 3.

Table 3: Consumption data of Chilli, nutmeg, pepper and turmeric in South India

| Spice | Intake mean ± S.D (Median) per capita basis |
|---------------------|--|
| Chilli | 2.1 ± 1.3 (1.8) g/day |
| Nutmeg | 0.22 ± 0.19 (0.14) g (Monthly intake) |
| Pepper (Piper spp.) | 0.69 ± 0.87 (0.5) g/day |
| Turmeric | 0.6 ± 0.46 (0.66) g/day |

Table 4: Availability data submitted by USA mentioned in the discussion paper (Agenda item 13)

| Spice | Availability (g/day per capita) |
|---|---|
| Pepper, Chilli dried | 0.32 |
| Pepper, capsicum dried | 0.79 |
| Nutmeg | 0.02 |
| Pepper (Black & White) | 0.54 |
| Turmeric | 0.04 |
| Total (if a person take all the spices in this table frequently) | 1.71 |

In Table 2, average consumption of total spices is comparatively less the average consumption of peanuts. In Table 3 also, consumption of spices mentioned ranges upto 2.1 ± 1.3 g/day which is less than consumption of peanuts in different clusters mentioned in Table 1. In Table 4, if a person in USA consumes all spices mentioned, the total consumption is 1.71 g/day which is less than intake of peanuts.

Based on the above consumption data, the following MLs are proposed for spices in Group 1 mentioned in the discussion paper:

| Contaminant | ML ($\mu\text{g}/\text{kg}$) |
|--------------------------|--|
| Total Aflatoxins | 30 |
| Aflatoxin B ₁ | 15 |
| Ochratoxin A | 20 |