

codex alimentarius commission



FOOD AND AGRICULTURE
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JOINT OFFICE: Viale delle Terme di Caracalla 00100 ROME Tel: 39 06 57051 www.codexalimentarius.net Email: codex@fao.org Facsimile: 39 06 5705 4593

Agenda Item 14 (h)

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

Thirty-eighth Session

The Hague, the Netherlands, 24 – 28 April 2006

**DISCUSSION PAPER ON POLYCYCLIC AROMATIC HYDROCARBONS (PAH)
CONTAMINATION**

Comments submitted by Australia, Canada and United States

AUSTRALIA

At the thirty-sixth session of the Codex Committee on Food Additives and Contaminants (CCFAC), the Delegation of Denmark proposed to develop a Code of Practice for the reduction of contamination of food with polycyclic aromatic hydrocarbons (PAH) during food processing. In noting that these substances would be evaluated by JECFA in 2005, the Committee considered it premature to start elaboration of a Code of Practice and agreed to develop a discussion paper to set out the issues concerning PAH in foods for the 37th session of the CCFAC (ALINORM 04/27/12, para. 217).

This discussion paper was discussed at the thirty-seventh CCFAC, and the Committee agreed to revise the discussion paper in a working group led by Denmark, with the assistance of the European Community, Finland, Iceland, India, Japan, Korea, United Kingdom, the United States and IADSA. It was agreed that the discussion paper should include an outline of a Code of Practice, mainly focusing on general advice addressing practices that may lead to high levels of PAH in foods, and it should include a project document for starting new work on the elaboration of the Code of Practice.

Australia appreciates the opportunity to provide the following comments for consideration at the 38th CCFAC as follows:

- Australia notes that JECFA reviewed PAH in February 2005. Australia notes JECFA compared mean and high-level intakes of PAH with the calculated benchmark dose lower confidence limit for PAH and calculated margins of exposure (MOEs) of 25,000 and 10,000 respectively. Based on these MOEs, JECFA concluded that the estimated intakes of PAHs were of low concern for human health.
- In relation to the “Draft Measures to Reduce PAH Contamination of Foods and Some Risk Management Options” section of the Discussion Paper, Australia agrees that it is desirable to reduce levels of PAHs in all foods to as low as is reasonable achievable. However, in relation to the section on “Barbecuing and Grilling” Australia believes that it is not appropriate for CCFAC to include the management option for reduction of the content of PAH in barbecued food via public health advice such as “Use vertical barbecues instead of horizontal barbecues” and “Don’t eat barbecued food too often” etc. This type of public health advice seems to be directed at the general public and as such is the responsibility of health systems within individual Member Countries and would seem to be outside the purview of the CCFAC.

- Australia recommends that Option A is the best viable option for CCFAC to consider and suggests that this option be reworded as “CCFAC develop a Code of Practice for the Prevention and Reduction of PAHs in Food and Food Products” in line with other codes of practice for contaminants in food. The Code of Practice should focus on advice concerning food manufacturing and processing to Governments of respective Member Countries on ways to prevent and/or reduce PAHs in food and food products and should not address public health advice to the general public.
- Australia is not supportive of Options B-F as elaborated in the Discussion Paper.

CANADA

Canada wishes to express its appreciation to the working group, led by Denmark, for the preparation and revision of this discussion paper. The Canadian delegation would like to offer the following comments on the discussion paper.

Paragraph 5:

We would suggest that paragraph 5 more clearly convey the fact that grilled/ smoked/ barbecued fish and meat can contribute significantly to the intake of PAHs in certain diets. In addition, perhaps it should be noted that a more recent study (COT, 2002) suggests that oils and fats may contribute far less to PAH intake than shown in the survey of Dennis *et al.* (1983): 6% versus 59% for benzo(a)pyrene, and 3% versus 34% for total PAH. A suggested rewording is as follows:

“From the data reviewed by the SCF, cereals and vegetables, and fats and oils were the major contributors to PAH in the certain diets. However, grilled/smoked/barbecued fish and meat can contribute significantly to the intake of PAH where such foods are the usual part of the diet. For example, grilled/barbecued meat was the second highest contributor, after the “bread, cereal and grain” group, in a study in the U.S. With respect to the relative contribution of fats and oils, one recent study (COT, 2002) showed that these foods contribute far less to PAH intake in the UK diet than previously shown (Dennis *et al.*, 1983): 6% versus 59% for benzo(a)pyrene, and 3% vs 34% for total PAH.”

Paragraph 6:

It is indicated that storage and drying procedures can have a major impact on PAH intake from food. The former (i.e., storage) probably is debatable and should be deleted or at least qualified with an example.

Paragraphs 18 to 20:

In the section “Direct drying”, it is noted that combustion products from the source of hot air used to dry the food can be transferred directly into the food. The example provided in paragraph 19 implies that vegetable oils are directly dried. It is our understanding that direct drying is used to dry the solid matter (e.g. oil seeds or pomace) from which the oil is subsequently extracted and that during this drying process, combustion products could be transferred to the solid matter and to its constituent oil. If this is the case, then we would suggest that this be clearly indicated.

Paragraph 21:

It might be even more informative to insert another phrase “and the distance from the heat source” at the end of the last sentence.

Paragraph 25:

It might be helpful to provide some examples of products in which high PAH levels were found by the National Food Agency in Finland to allow the reader to compare the concentrations with the levels described in paragraph 24.

Paragraph 28:

We suggest that the last sentence be slightly amended to qualify that it refers to toxicological data derived from exposure in humans. In the JECFA report, this sentence appears under the heading “Observations in humans” and so a qualifier was not necessary in that case. A suggested amendment is as follows:

“The available evidence regarding the effects of PAHs from oral exposure in humans was indirect and did not include data on quantitative exposure, and thus was not suitable for use in the risk assessment for PAHs.”

Paragraph 29:

It would be useful to change “The present JECFA evaluation...” to “The 2005 JECFA evaluation...”

Also, we would suggest that the phrase “(based on studies in experimental animals)” be inserted immediately after the word “carcinogenic.”

Paragraph 30:

In the first sentence, “the calculated benchmark dose lower confidence limit for PAH” is calculated from tumor data of animals receiving a coal tar mixture. Since this value is not derived from exposure to conventional sources of PAH in the food (feed), it is possible that the calculated PAH benchmark dose (BMD) currently used to estimate the MOEs may or may not fully represent the toxic characterization of PAH in the human (animal) diet, due to possible differences in PAH composition between these two different sources. We believe that qualification is needed so that the reader is made aware of this possible drawback to the results of the JECFA evaluation. Therefore, it is recommended that some qualification be provided with respect to this PAH BMD.

Paragraph 32:

The last sentence, “In addition, analysis of beno(c)fluorene in food may help to inform future evaluations”, seems to single out this particular PAH as important for future evaluations. Perhaps this could either be explained or deleted.

Paragraph 39:

It is important to note, as has been done in paragraph 46, that smoke flavourings may not be an appropriate replacement for smoking when preservative/anti-microbial effects are required.

Paragraph 49:

We would like to offer the following suggested rewording of this paragraph:

“CCFAC should *consider taking* initiatives to provide information and guidance on how PAH contamination of food during food processing can be reduced, taking into account that more information on food processing, PAH formation and levels as a result of various food processing techniques (e.g. smoking, drying, barbecuing/grilling) *needs to be gathered* before elaborating on a Code of Practice or a Code of Good Manufacturing Practice for reducing PAH contamination in food.”

Paragraph 51:

We would suggest that option (a), the development of a Code of Practice for reducing contamination of foods with PAH, would be an appropriate option to pursue.

Annex III, Section 2:

In this section, it is noted that the Code of Practice does not cover PAH in food “in relation to...cooking in private homes or the catering sector.” Perhaps it could be clarified that although the Code of Practice is intended primarily for governments in developing advice for the food industry, certain components of the Code of Practice could find applicability in private homes or in the catering sector.

Annex III, Section 6:

In this section, “consumer perception” is listed as an “other legitimate factor.” We recommend that this either be removed from the list or be qualified, e.g. “risks to which consumers voluntarily expose themselves”, in order to ensure that the list of “other legitimate factors” is consistent with the “Criteria for the Consideration of the Other Factors Referred to in the Second Statement of Principle” in the Codex Procedural Manual (p. 159 of the 15th Edition).

Annex III, Section 6.2:

The titles of sub-sections 6.2.1 and 6.2.2 are not consistent with the title of section 6.2. It appears that these sub-sections should be on “sources of PAHs from drying” and “from smoking” and that information on “ways to reduce PAHs” should appear in section 7.

Minor editorial corrections or suggestions:

Paragraph 4, lines 4-5: We would suggest that the phrase “some of the PAH are carcinogenic and mutagenic substances...” might be better worded “carcinogenic and *genotoxic* substances...”

Paragraph 26: By the use of the words “well-estimated”, is it actually intended to mean “valued” or “highly valued”?

UNITED STATES

This responds to CX/FAC 06/38/36, which requests comments on the Discussion Paper on Polycyclic Aromatic Hydrocarbons (PAHs) contamination. The United States of America appreciates the opportunity to provide the following comments for consideration at the forthcoming 38th Session of the Codex Committee on Food Additives and Contaminants (CCFAC).

We appreciate the improvements that have been made in the Discussion Paper. We note, however, that there are still a number of points in the text that are not referenced. We recommend that references be provided uniformly. Any cited PAH levels should be referenced.

We believe that the Discussion Paper needs to establish a scope and priorities for a future Code of Practice. For example, depending on the relative exposure from various sources, it may be appropriate to develop a Code of Practice with guidelines on drying oils/oilseeds and direct smoking, but not one for vertical barbecuing. In order to determine the appropriate scope and priorities for a Code of Practice, the Discussion Paper should include the following items:

- a. A table of PAH levels in various foods (or exposures from various foods), including information on PAH levels/exposures from different processing procedures, such as direct and indirect smoking, barbecuing, direct drying, etc.
- b. A summary of available information on the relative risk from different potential sources of PAHs.

The Discussion Paper includes information from the 64th JECFA’s review of PAHs. However, the fact that JECFA concluded that PAHs are of low concern to human health is presented as an aside, rather than an important JECFA conclusion. In keeping with the recommendation of the 37th CCFAC that the discussion paper be revised with particular attention to the 64th JECFA evaluation (ALINORM 05/28/12, paragraph 199), we recommend that the paper include more substantive discussion of:

- a. Whether the risk from PAHs is sufficient to justify development of a Codex standard establishing measures to reduce PAHs in food.
- b. The balance between the toxicological safety concerns of PAHs with safety concerns from microbial contamination.

We suggest revising paragraph 51 to include the following option:

- a. Prior to proposing new work on a Code of Practice, CCFAC can develop a more extensive discussion paper, including more information on PAH levels in foods, the relative risk from different sources of PAH exposure, information on microbiological hazards versus PAH hazards, and information on the costs and benefits of reducing PAHs. This paper could potentially provide stronger justification for development of a Code of Practice.
- b. Consistent with this change in paragraph 51, we suggest revising paragraph 49 to include the word “consider” instead of “take.”

The Outline Code of Practice follows a general form for all contaminants and contains little material related to PAHs. The next version of the outline should explain more specifically what material on PAHs the proposed Code of Practice would include. This material would help establish the need for the Code of Practice.

Although there is merit to the idea of developing a Code of Practice for important sources of PAH exposure, the U.S. does not support the proposal for new work on a Code of Practice for PAHs based on the information currently available in the Discussion Paper. We believe that the Committee would be better served by further work on the Discussion Paper before making a final decision on whether to start new work on a Code of Practice for PAHs. We believe if new work is to be started, the scope of the Code of Practice needs to be based on risk and clearly defined prior to starting the work.