



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

**Tenth Session
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**PROPOSED DRAFT CODE OF PRACTICE FOR THE PREVENTION AND REDUCTION OF
MYCOTOXIN CONTAMINATION IN SPICES**

*Comments at Step 3 submitted by Costa Rica, Ecuador, India, Indonesia, Kenya, Sudan,
Republic of Korea and AU*

COSTA RICA

Costa Rica welcomes the opportunity to submit our comments. In this sense, we support the EWG proposal to add different annexes for each group of species. Furthermore, we support the approach of adding annexes for each group of species, associating the mycotoxin that may occur in each group.

ECUADOR

(i) General Comments:

Ecuador appreciates the opportunity to provide comments to the proposed draft Code of Practice for the prevention and reduction of micotoxin contamination in spices, chaired by Spain, and co-chaired by India and the Netherlands; in this regard, Ecuador wishes to express the following:

The country has been working in the generation of national standards on good agricultural practices and good manufacturing practices, as basic tools for assurance of the safety of various products throughout the agro production chain.

Once this COP has been analyzed, and after comparing it with the Ecuadorian national regulations it turned out that the recommended practices in this document are similar among themselves; therefore Ecuador would support the advancement of this document for spices and herbs including the progress in the elaboration of its annexes.

(ii) Specific comments:

- Within the definitions section, “spice blends”, it is indicated that spice blends are obtained by mixing and grinding, cleaned, dried and **sound** selected **spices**.
 - What is meant by the term **sound**?
 - Is there any characterization for this term?
- **Paragraph 29:** “Harvested commodities that have not been dried to a **safe storage moisture level** should not be stored or transported in closed bins...”.
 - Could the EWG provide the value of moisture and water activity, to be referred to as “safe storage moisture level”?
- **Paragraph 31:** “Control of insect and rodent activity and maintenance of **appropriate moisture levels and temperature in the storage room** is essential”
 - Could the EWG provide ranges to maintain correct appropriate moisture levels and temperature in the store room?
- **Paragraph 66:** “Transit times should be made as short as possible. Avoid long stops and do not load container too early ahead...”.
 - In this regard, Ecuador would like to know if the eWG could provide technical specifications for storage during transport by spice and aromatic herb.

INDIA

Specific Comments: India proposes the following underlined changes in section “Use” in Appendix I, para 6.

“This Code is a recommendation to which producers in different countries should adhere as far as possible taking into account the local conditions and difficulties in implementation of all the measures specified therein while ensuring the safety of their products in all circumstances

Rationale:

It should be recognised that the implementation of the management measures described in this Code of Practice may be difficult in a number of countries. This may be due to geographical, environmental, practical limitations etc.

INDONESIA

The followings are Indonesia comments:

Proposals	Indonesia comments
<p>44. Drying methods:</p> <p>1. Sun drying</p> <p>a. Drying should not occur on bare soil. Use trays, tarpaulins, bamboo mats or drying yards and make sure that these are clean as it is known that mould spores from previous use could re-contaminate product during drying. Techniques for cleaning all of the above should be taught to farmers. Never use cow dung paste in bamboo mats to fill the holes.</p> <p>b. The availability of additional tarpaulins should be ensured to cover the crop in case of any unexpected rain.</p> <p>c. The layer of drying fruits or leaves should not be more than 4 cm thick.</p> <p>d. Drying fruits or leaves must be regularly raked (5-10 times per day).</p> <p>e. Fruits should be protected during drying from rain and night dew. Fruits should not be allowed to get re-wet during storage or any other time.</p> <p>f. Drying areas should be raised from the ground to prevent water or pests from entering.</p> <p>g. Pathways should be made in the drying area to prevent anyone walking on the crop, as this can damage the crops and allow mould growth to occur.</p>	<p>Indonesia proposes to add sentences in para 44 poin 1 sun drying as follows:</p> <p>f. Drying areas should be raised from the ground to prevent water or pests from entering. <u>At several area, sun drying by using trays put on racks at a sufficient distance from soil may be applied. This practice allowed air circulation to accelerate the drying.</u></p>

KENYA**SPECIFIC COMMENT**

6. We would like to comment on clause 6, recommendation of the EWG below as follows:

a) Regarding the scope of the COP:

COMMENT: *There is need to revise other definitions that could affect the scope of this COP so that it is in line with other Codex texts.*

b) Regarding maintenance of Moisture:

COMMENT: *We recommend inclusion of vacuum and modified atmosphere to these types of packaging materials in the COP*

c) Regarding the smoke-drying process: Comment:

We are in agreement with inclusion of “c” as is

SUDAN**APPENDIX I: PROPOSED DRAFT CODE OF PRACTICE FOR THE PREVENTION AND REDUCTION OF MYCOTOXINS IN SPICES AND DRIED AROMATIC HERBS**

- 13 Reduction of plant stress ~~and keep them healthy, using through proper~~ irrigation, fertilization, pruning and pest and disease control.
- 17 The use of recommended soil fungicides in the process of farm soil preparation may be beneficial to reduce the ~~spore inoculum~~ load of mycotoxin-producing fungi. At sowing, use disinfected seeds to prevent mold and insects ~~infestation~~ and carefully choose the planting season so that the collection of fruits takes place in the driest season. This ~~good~~ practice is essential in areas with warm and humid climate.
- 18 The use of chemical compounds is a very effective ~~strategy practice~~ to prevent mycotoxin production. However, fungicides must be applied with special care since some of them, such as carbendazim, have been found to reduce fungal flora but also to stimulate Ochratoxin A production.
24. ~~Chances of Mechanical damage, a type of stress that occurs during the post-harvest manipulation of crops and which is accompanied by physiological and morphological changes that increase the exposure to subsequent contamination affect the commodity, may be avoided so that subsequent contamination can be significantly reduced.~~
- 56 It is important that the operator select reliable transport service-providers that adopt this code of practice and ensure appropriate transport conditions.

2.3.4.1 Preventing moisture contamination Avoid commodity wetting

- 58 During transportation, due attention should be given to avoid ~~re-entering of water/moisture into the commodity and to ensure that pests or debris cannot penetrate to the commodity. commodity wetting and re-infestation~~
- 67 Containers should be shaded or covered to help ~~to~~ minimise the temperature increase within the container. The roof of an unprotected container can reach temperatures of over 80°C. The subsequent cooling off during the night results in condensation on the internal walls.
- 69 Kraft paper has also been used successfully to line containers. Ensure that the lining is properly fastened, particularly in the ceiling so that the ~~lining will does~~ not fall down and settle on the top bags.
- 82 The manufacturer should indicate the ~~expiration expiry~~ date of the commodity. This date will be justified by completing appropriate studies that take into account the characteristics of the packaging, examining unfavorable conditions that may promote mould growth and verifying the quality of the final product in order to ~~give assurance assure~~ that no mycotoxins contamination ~~will occurs~~ until the end of the ~~viability validity~~ indicated for consumption of that commodity.

PART II: Proposals for an Annex to the general COPTS AND BERRIES”**1. INTRODUCTION**

~~Good hygiene practices~~ Good agricultural practices (GAP) and good manufacturing practices (GMP) may help prevent and reduce the OTA and aflatoxins contamination of spices during the stages of production, drying, transport, processing and storage.

~~Following good agricultural practices during both pre-harvest and post-harvest stages should result in a minimization of the problem of contamination by mycotoxins such as aflatoxins and ochratoxin A.~~

2.3.2. Drying

Refer to paragraphs XXX of the general Code of Practice.

In the case of paprika, the drying process produces a dried product ~~whose with a~~ composition on a dry base is approximately 33% of seed, 8% of stalk and 58.5% of pod.

The fruits can be dried either using direct sun (taking 3 or 4 days during periods of high temperatures and 7 or 8 in ~~elder cooler~~ seasons) or in hot-air mechanical driers using air of low relative humidity (RH) and temperature of 45-65 °C (from 10-12 hours). In areas with climatic conditions of high humidity and mild temperatures, it is preferable to use hot air dryers, since the sun drying process can be extended up to 20-25 days, which favors the growth of OTA producing fungi. Smoke drying is also used in some parts of the world, reducing the possibility of mycotoxin formation.

~~The OTA-producing fungi require favorable conditions to grow and produce the toxin. The level of available water content is the most important factor to be considered.~~ At high water activity ($a_w > 0.95$) OTA-producing fungi is unlikely to grow as the fast-growing hydrophilic fungi and yeasts grow first. At lower water activity ($a_w < 0.60$) the OTA-producing fungi ~~can be present but~~ do not produce the toxin, and at a_w below 0.76-0.78 they ~~cannot~~ do not grow.

2.3.4. Packaging

Refer to paragraphs XXX of the general Code of Practice.

After removing the stalk (optional), and in case the peppers that are not processed immediately, the product is eventually compacted into bales.

The ~~presses~~ ~~pressers~~ used must be clean and in good condition. Breathable and suitable for food contact raffia bags must be used and should be tightly closed to prevent insects or other pests infestation. The dry pepper packed into bales should be stored in a closed, clean and ventilated warehouse, and always protected from moisture.

2.4. TRANSPORTATION

Refer to paragraphs XXX of the general Code of Practice.

Bags of dried peppers should be well stacked and crossed over for mutual support in order to avoid the formation of empty vertical columns (chimneys). The top layer and sides of bags should be covered with materials that can absorb condensed water, such as silica gel or cardboard for protection against condition that favors ~~fungi~~ ~~fungal~~ growth that could result in OTA production.

During transportation, containers that are resistant to insect and rodent, or authorized chemical repellent treatments in order to prevent infestation. As an effective option, the pepper can be fumigated with magnesium or aluminum phosphide for transportation in containers.

2.5. PROCESSING

Refer to paragraphs XXX of the general Code of Practice.

Because pepper is hygroscopic, it must be packaged quickly after processing using a material that serves as a barrier to moisture.

The modified atmosphere packaging conditions may be used to inhibit ~~A. flavus~~ growth and reduce aflatoxin production ~~of A. flavus~~. Sealed or vacuum conditions can prevent mycotoxin occurrence of red chili pepper during storage.

The moisture content of the final product should range between 5% and 12% to prevent the proliferation of fungi.

REPUBLIC OF KOREA

Paragraph 32

The Republic of Korea proposes the first sentence in paragraph 32 to be revised to clarify whether “less than 10% moisture” should be maintained for the storage place. This sentence should revise to avoid confusion.

Paragraph 44 and 81

The moisture level of 12% stated in paragraph 44. 2. v and 81. A) should be revised to be consistent with the standards for spices which are being discussed in CCSC. For example, standards for the moisture levels of black, white and green pepper are being discussed at 12%~14%.

Paragraph 44

“Mycotoxin growth” in paragraph 44. 2. i should be revised to “mycotoxin increase.”

AFRICAN UNION (AU)

Position: AU supports having a Code of practice for the prevention and reduction of mycotoxin contamination in spices and support the recommendations made by the EWG. African countries with local effective prevention measures should make these available to the committee and the EWG.

Issue & Rationale: The quest for COP for control of mycotoxins in spices started in the 8th CCCF where an EWG led by Spain and co-chaired by The Netherlands was established to prepare a discussion paper on the feasibility of a code of practice for mycotoxins in spices with specific annexes for consideration at CCCF 9. The discussion paper gave draft COPs to minimize mycotoxins, identified aflatoxin and ochratoxin A as the toxins to target and proposed a general outline for the draft COP. The EWG came to the conclusion that based on the available information, it is now feasible to develop the COP.

At CCCF 9, the Committee agreed that in view of the above there was enough information to proceed with the development of a COP to prevent and reduce mycotoxin contamination in the prioritized spices (chili, paprika, nutmeg, ginger, turmeric, pepper, clove, garlic, sesame seed and mustard seed). An EWG chaired by Spain and co-chaired by India and The Netherlands prepared a discussion paper on the COP for consideration at step 3.

The EWG concluded and recommended that the scope of the COP should include “spices and dried aromatic herbs” (with due consideration of the definitions used elsewhere in Codex) and the COP should also consider packaging technologies and smoke-drying processes. Furthermore, the EWG recommended the development of specific annexes categorized by the origin of the spice (dried fruits and berries, dried roots, rhizomes and bulbs, dried seeds, dried floral parts, dried leaves, dried bark and others) covering both aflatoxins and ochratoxin A together in each annex.

The proposed work which will cover GAP, GMP and GSP will consider protection of consumer health, enhancement of international trade and harmonize limits for sound regulatory framework, thus providing guidance towards management of food safety risks associated with mycotoxin contamination in spices. The practices recommended in the COP are achievable in Africa. For this reason, Africa should support the continuance of this work.