FOOD STANDARDS
Australia New Zealand
Te Mana Kounga Kai – Ahitereiria me Aotearoa

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Supporting document 1

International approaches to irradiation of herbs and spices and definitions in Codex texts – Application A1163

Food Irradiation definition of herbs and spices

Executive summary

This supporting document has been prepared to provide more detailed information on section 1.4 of the Call for Submissions document. This is in relation to the international approaches to the irradiation of herbs and spices, and the definitions for herbs and spices contained in Codex texts.

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1 International

1.1 European Union, Canada and the United States

1.1.1 European Union

Irradiation of herbs and spices is regulated under Directive 1999/3/EC (EC 1999). Dried aromatic herbs, spices and vegetable seasonings are permitted to be irradiated. Herbs and spices are not defined or cross referenced in the European Directive.

1.1.2 Canada

The Food and Drug Regulations Division 26 Food Irradiation permits irradiation of whole and ground spices, and dehydrated seasoning preparations. Spices and seasonings are not defined (CFDR 2019).

1.1.2 United States

The United States Food and Drug Administration (FDA) Code of Federal Regulations (CFR) Title 21CRF179 permits the use of ionizing radiation for the treatment of food, including culinary herbs, seeds and spices (USFDA 2018). The use and limitations of irradiation to treat herbs and spices is contained in part 5 of section 179.26 as follows:

5. For microbial disinfection of the following dry or dehydrated aromatic vegetable substances when used as ingredients in small amounts solely for flavoring or aroma: culinary herbs, seeds, spices, vegetable seasonings that are used to impart flavor but that are not either represented as, or appear to be, a vegetable that is eaten for its own sake, and blends of these aromatic vegetable substances. Turmeric and paprika may also be irradiated when they are to be used as color additives. The blends may contain sodium chloride and minor amounts of dry food ingredients ordinarily used in such blends	Not to exceed 30 kGy (3 Mrad).

Spices are defined in the FDA Compliance Policy Guide section 525.750[1], and while a number of herbs are described, there is not a general definition of herbs. The definition for spices is as follows:

> SPICES - General Definition - Aromatic vegetable substances, in the whole, broken, or ground form, whose significant function in food is seasoning rather than nutrition. They are true to name and from them no portion of any volatile oil or other flavoring principle has been removed.

1.2 Codex Standards

Three Codex Alimentarius (Codex) committees have standards, guidelines or Codes of Practice applicable to the definitions of herbs and spices. These are the Codex Committee on Pesticide Residues (CCPR), the Codex Committee on Food Hygiene (CCFH), and the Codex Committee on Spices and Culinary Herbs (CCSCH).

Sections 1.4.1 and 2.2.2.1 in the Call for Submissions Report explain the regard FSANZ had to the definitions contained in Codex texts. As noted in section 1.4.1 of the Call for Submissions document, the descriptions and commodity lists in Schedule 22 were based on

[1] https://www.fda.gov/ICECI/ComplianceManuals/CompliancePolicyGuidanceManual/ucm074468.htm

the CCPR guidelines in place at the time the schedule was originally developed.

1.2.1 Codex Committee on Pesticide Residues

The CCPR has definitions for herbs and spices in three Codex guideline publications:

- Codex Classification of Foods and Animal Feeds publication CXM 4/1989 (CCPR 1989)
- Codex Classification of Foods and Animal Feeds online version (CCPR 2018)
- Codex Guideline CAC/GL 41-1993 (Rev 2010) Portion of Commodities to which Maximum Residues Limits Apply and which is Analysed (CCPR 1993)

Codex Classification of Foods and Animal Feeds publication CXM 4/1989 and Codex Classification of Foods and Animal Feeds online version

Under these publications, herbs and spices come under the heading *Primary food commodities of plant origin* (Herbs and Spices). Individual herbs and spices are listed.

The CCPR is updating the commodities listed for food types, and the work on Classification of Food and Feed, including Type 5: Herbs and Spices was completed at CCPR50 in 2018. The revisions were adopted by the Codex Alimentarius Commission in July 2018.

The 2018 revisions for herbs are as follows:

> Herbs consist of leaves, flowers, stems and roots from a variety of (herbaceous) plants, used in relatively small amounts to flavour foods or beverages. They are used either in fresh or naturally dried form.
>
> Herbs are fully exposed to pesticides applied during the growing season. Post-harvest treatments are often carried out on dried herbs.
>
> Herbs are consumed as components of other foods in succulent and dried forms or as extracts of the succulent products.

The group Herbs is divided into three subgroups:

027A Herbs (herbaceous plants)
027B Leaves of woody plants (leaves of shrubs and trees)
027C Edible flowers

The 2018 revisions for spices are as follows:

> Spices consist of aromatic seeds, buds, roots, rhizomes, bark, pods, flowers or parts thereof, berries or other fruits from a variety of plants, which are used in relatively small quantities to flavour foods.
>
> Spices are exposed to varying degrees to pesticides applied during the growing season. Also post harvest treatment may be applied to spices in the dried from.
>
> They are consumed primarily in the dried form as condiments.

The group Spices is divided into nine subgroups:

028A	Spices, seeds
028B	Spices, fruit or berry
028C	Spices, bark
028D	Spices, root or rhizome
028E	Spices, buds
028F	Flower or stigma
028G	Spices, aril
028H	Spices, Citrus peel
028I	Dried chilli peppers

Codex Guideline CAC/GL 41-1993 (Rev 2010) Portion of Commodities to which Maximum Residues Limits Apply and which is Analysed

Under this guideline, the definitions for herbs and spices are as follows:

> Herbs consist of leaves, stems and roots from a variety of herbaceous plants used in relatively small amounts to flavour other foods. They are consumed in succulent or dried forms as components of other foods.

> Spices consist of aromatic seeds, roots, fruits and berries from a variety of plants used in relatively small amount to flavour other foods. They are consumed primarily in the dried form as components of other foods.

1.2.2 Codex Committee on Food Hygiene

The General Standard for Irradiated Foods (Codex Stan 106-1983, Rev.1-2003) does not apply to specific foods (CCFH 1983).

Under the *Code of Hygienic Practice for Low-moisture Foods (Annex III on Spices and Dried Aromatic Herbs* (CAC/RCP 75-2015, Rev. 2018, the following definition is contained in Annex III (Annex on Spices and Dried Aromatic Herbs) (CCFH 2015):

> **2.3 Definitions Spices and Dried Culinary Herbs –** dried plants or parts of plants (roots, rhizomes, bulbs, leaves, bark, flowers, fruits, and seeds) used in foods for flavouring, colouring, and imparting aroma. This term equally applies to whole, broken, ground and blended forms.

Annex III (Annex on Spices and Culinary Herbs) contains the following text on scope and microbial reduction treatments (including irradiation), respectively:

> *2.1 Scope*
> This Annex applies to spices and dried culinary herbs - whole, broken, ground or blended. Spices and dried culinary herbs may include the dried aril (e.g. the mace of nutmeg), bark (e.g. cinnamon), berries (e.g. black pepper), buds (e.g. clove), bulbs (e.g. dried garlic), leaves (e.g. dried basil), rhizomes (e.g. ginger, turmeric), seeds (e.g. mustard), stigmas (e.g. saffron), pods (e.g. vanilla), resins (e.g. asafoetida), fruits (e.g. dried chilli) or plant tops (e.g. dried chives).
>
> It covers the minimum requirements of hygiene for growing, harvesting and post-harvest practices (e.g. curing, bleaching, blanching, cutting, drying, cleaning, grading, packing, transportation and storage, including disinfestation and fumigation) processing establishment, processing technology and practices (e.g. grinding, blending, freezing and

freeze-drying, treatments to reduce the microbial load) packaging and storage of processed products. For spices and culinary herbs collected from the wild, only the measures for handling and post-harvest activities (i.e. from section 3.3.2 onward) apply.

5.2.2.3 Microbial Reduction Treatments
In order to control microbiological contamination, appropriate methods of treatment may be used in accordance with the regulations set by the competent authority. When necessary to reduce risk, spices and dried culinary herbs should be treated with a validated microbial reduction treatment prior to reaching the consumer in order to inactivate pathogens such as *Salmonella*. For additional information on validation, refer to the *Guidelines for the Validation of Food Safety Control Measures* (CXG 69-2008). Commonly used methods involve the application of steam, fumigation or radiation. Where spices and dried culinary herbs are irradiated, refer to the *Code of Practice for Radiation Processing of Food* (CXC 19-1979) and the *General Standard for Irradiated Foods* (CXS 106-1983).

Factors that should be controlled when using steam include exposure time and temperature. The process should ensure that all of the product achieves the desired temperature for the full length of time required. A drying step may be necessary to remove added moisture. Factors that should be controlled when using irradiation include radiation dose and the size and shape of the package, as well as the penetrability of the packaging material to the type of radiation used. The process should ensure that all of the product is exposed to the minimum dose of radiation needed to provide the intended effect.

1.2.3 Codex Committee on Spices and Culinary Herbs

The CCSCH held its first session in 2014. The terms of reference include elaborating standards for spices and culinary herbs, in their dried and dehydrated state. Fresh herbs and spices are not within the mandate of CCSCH, but come within the remit of the Codex Committee on Fresh Fruit and Vegetables.

The CCSCH has a programme of work developing group standards encompassing the named herbs or spices within a group, rather than individual standards. The CCSCH has not developed new definitions for spices and culinary herbs. CCSCH papers refer to the definitions that apply elsewhere in Codex (i.e. in CCPR and CCFH texts).

1.2.4 Summary

There is no single Codex definition for herbs and spices that is used across all Codex texts, as the purpose of each Codex committee differs.

The definitions applying in CCPR texts are not confined to the dried forms, and separate definitions apply for herbs and spices. The definition applying in the *Code of Hygienic Practice for Low-moisture Foods* only applies to herbs and spices in their dried form, and combines the definition for herbs and spices.

2 References

CFDR 2019 Government of Canada Food and Drug Regulations C.R.C.,c 870 Division 26 Food Irradiation. Accessed 9 April 2019.

CCFH (1983) Codex Standard for Irradiated Food. Codex STAN 106-1983. Codex Alimentarius Commission, Rome. Accessed 9 April 2019.

CCFH (2015) Code of Hygienic Practice for Low-Moisture Foods CAC/RCP 75-2015. Codex Alimentarius Commission, Rome. Accessed 9 April 2019.

CCPR (1989) Classification of Foods and Animal Feeds CAC/MISC 4-1989. Codex Alimentarius Commission, Rome. Accessed 9 April 2019.

CCPR (1993) Portion of Commodities to which Maximum Residues Limits Apply and which is Analyzed. CAC/GL 41-1993.Codex Alimentarius Commission, Rome. Accessed 9 April 2019.

CCPR (2018) Pesticide Residues in Food online pesticide database, commodities. Codex Alimentarius Commission, Rome. Accessed 9 April 2019.

EC (1999) Commission Implementing Directive (EC) 1999/3/EC of 22 February 1999 on the establishment of a Community list of foods and food ingredients treated with ionising radiation. Accessed 9 April 2019.

USFDA 2018 United States Code of Federal Regulations Title 21 Part 179 Irradiation in the Production, Processing and Handling of Food. Accessed 9 April 2019.