

# C O D E X   A L I M E N T A R I U S

INTERNATIONAL FOOD STANDARDS



Food and Agriculture  
Organization of  
the United Nations



World Health  
Organization

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## STANDARD FOR HONEY

CXS 12-1981<sup>1</sup>

**Adopted in 1981. Revised in 1987, 2001. Amended in 2019.**

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<sup>1</sup> Secretariat's note: At the time of the adoption the Commission agreed that further work would be undertaken on certain technical issues, particularly the provisions concerning Moisture Content.

The Annex to this Standard is intended for voluntary application by commercial partners and not for application by Governments.

## 1. SCOPE

- 1.1 Part One of this Standard applies to all honeys produced by honey bees and covers all styles of honey presentations which are processed and ultimately intended for direct consumption. Part Two covers honey for industrial uses or as an ingredient in other foods.
- 1.2 Parts Two of this Standard also covers honey which is packed for sale in bulk containers, which may be repacked into retail packs.

## PART ONE

## 2. DESCRIPTION

### 2.1 Definition

Honey is the natural sweet substance produced by honey bees from the nectar of plants or from secretions of living parts of plants or excretions of plant sucking insects on the living parts of plants, which the bees collect, transform by combining with specific substances of their own, deposit, dehydrate, store and leave in the honey comb to ripen and mature.

- 2.1.1 Blossom Honey or Nectar Honey is the honey which comes from nectars of plants.
- 2.1.2 Honeydew Honey is the honey which comes mainly from excretions of plant sucking insects (*Hemiptera*) on the living parts of plants or secretions of living parts of plants.

### 2.2 Description

Honey consists essentially of different sugars, predominantly fructose and glucose as well as other substances such as organic acids, enzymes and solid particles derived from honey collection. The colour of honey varies from nearly colourless to dark brown. The consistency can be fluid, viscous or partly to entirely crystallised. The flavour and aroma vary, but are derived from the plant origin.

## 3. ESSENTIAL COMPOSITION AND QUALITY FACTORS

- 3.1 Honey sold as such shall not have added to it any food ingredient, including food additives, nor shall any other additions be made other than honey. Honey shall not have any objectionable matter, flavour, aroma, or taint absorbed from foreign matter during its processing and storage. The honey shall not have begun to ferment or effervesce. No pollen or constituent particular to honey may be removed except where this is unavoidable in the removal of foreign inorganic or organic matter.
- 3.2 Honey shall not be heated or processed to such an extent that its essential composition is changed and/ or its quality is impaired.
- 3.3 Chemical or biochemical treatments shall not be used to influence honey crystallisation.

### 3.4 Moisture Content

- |                                      |                     |
|--------------------------------------|---------------------|
| (a) Honeys not listed below          | - not more than 20% |
| (b) Heather honey ( <i>Calluna</i> ) | - not more than 23% |

### 3.5 Sugars Content

#### 3.5.1 Fructose and Glucose Content (sum of both)

- |  |                           |
|--|---------------------------|
| (a) Honey not listed below   | - not less than 60 g/100g |
| (b) Honeydew honey,<br>blends of honeydew honey with blossom honey | - not less than 45 g/100g |

### 3.5.2 **Sucrose Content**

- |   |                           |
|---|---------------------------|
| (a) Honey not listed below  | - not more than 5 g/100g  |
| (b) Alfalfa ( <i>Medicago sativa</i> ), Citrus spp., False Acacia ( <i>Robinia pseudoacacia</i> ), French Honeysuckle ( <i>Hedysarum</i> ), Menzies Banksia ( <i>Banksia menziesii</i> ), Red Gum ( <i>Eucalyptus camaldulensis</i> ), Leatherwood ( <i>Eucryphia lucida</i> ), Eucryphia milligani | - not more than 10 g/100g |
| (c) Lavender ( <i>Lavandula spp</i> ), Borage ( <i>Borago officinalis</i> )   | - not more than 15 g/100g |

### 3.6 **Water Insoluble Solids Content**

- |                                     |                            |
|-------------------------------------|----------------------------|
| (a) Honeys other than pressed honey | - not more than 0.1 g/100g |
| (b) Pressed honey                   | - not more than 0.5 g/100g |

## 4. **FOOD ADDITIVES**

No additives are permitted in this product.

## 5. **CONTAMINANTS**

### 5.1 **Heavy Metals<sup>2</sup>**

Honey shall be free from heavy metals in amounts which may represent a hazard to human health. The products covered by this Standard shall comply with those maximum levels for heavy metals established by the Codex Alimentarius Commission.

### 5.2 **Residues of Pesticides and Veterinary Drugs**

The products covered by this standard shall comply with those maximum residue limits for honey established by the Codex Alimentarius Commission.

## 6. **HYGIENE**

6.1 It is recommended that the products covered by the provisions of this standard be prepared and handled in accordance with the appropriate sections of the *General Principles of Food Hygiene* (CXC 1-1969) recommended by the Codex Alimentarius Commission, and other relevant Codex texts such as Codes of Hygienic Practice and Codes of Practice.

6.2 The products should comply with any microbiological criteria established in accordance with the *Principles and Guidelines for the Establishment and Application of Microbiological Criteria Related to Foods* (CXG 21-1997).

## 7. **LABELLING**

In addition to the provisions of the *General Standard for the Labelling of Prepackaged Foods* (CXS 1-1985), the following specific provisions apply:

### 7.1 **The Name of the Food**

7.1.1 Products conforming to Part One of the Standard shall be designated 'honey'.

7.1.2 For products described in 2.1.1 the name of the food may be supplemented by the term "blossom" or "nectar".

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<sup>2</sup> These levels will be established in consultation between the Codex Committee on Sugars and the Codex Committee on Food Additives and Contaminants as soon as possible.

- 7.1.3** For products described in 2.1.2 the word “honeydew” may be placed in close proximity to the name of the food.
- 7.1.4** For mixtures of the products described in 2.1.1 and 2.1.2 the name of the food may be supplemented with the words “a blend of honeydew honey with blossom honey”.
- 7.1.5** Honey may be designated by the name of the geographical or topographical region if the honey was produced exclusively within the area referred to in the designation.
- 7.1.6** Honey may be designated according to floral or plant source if it comes wholly or mainly from that particular source and has the organoleptic, physicochemical and microscopic properties corresponding with that origin.
- 7.1.7** Where honey has been designated according to floral or plant source (6.1.6) then the common name or the botanical name of the floral source shall be in close proximity to the word “honey”.
- 7.1.8** Where honey has been designated according to floral, plant source, or by the name of a geographical or topographical region, then the name of the country where the honey has been produced shall be declared.
- 7.1.9** The subsidiary designations listed in 6.1.10 may not be used unless the honey conforms to the appropriate description contained therein. The styles in 6.1.11 (b) and (c) shall be declared.
- 7.1.10** Honey may be designated according to the method of removal from the comb.
- (a) Extracted Honey is honey obtained by centrifuging decapped broodless combs.
  - (b) Pressed Honey is honey obtained by pressing broodless combs.
  - (c) Drained Honey is honey obtained by draining decapped broodless combs.
- 7.1.11** Honey may be designated according to the following styles:
- (a) Honey which is honey in liquid or crystalline state or a mixture of the two;
  - (b) Comb Honey which is honey stored by bees in the cells of freshly built broodless combs and which is sold in sealed whole combs or sections of such combs;
  - (c) Cut comb in honey or chunk honey which is honey containing one or more pieces of comb honey.
- 7.1.12** Honey which has been filtered in such a way as to result in the significant removal of pollen shall be designated filtered honey.

## **7.2 Labelling of Non-Retail Containers**

- 7.2.1** Information on labelling as specified in the *General Standard for the Labelling of Prepackaged Foods* and in Section 6.1 shall be given either on the container or in accompanying documents, except that the name of the product, lot identification and the name and address of the producer, processor or packer shall appear on the container.

## **8. METHODS OF SAMPLING AND ANALYSIS**

The methods of sampling and analysis to be employed for the determination of the compositional and quality factors are detailed below:

### **8.1 Sample Preparation**

Samples should be prepared in accordance with AOAC 920.180.

### **8.2 Determination of Moisture Content<sup>3</sup>**

AOAC 969.38B / J. Assoc. Public Analysts (1992) **28** (4) 183-187 / MAFF Validated method V21 for moisture in honey.

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<sup>3</sup> These methods are identical.

### **8.3 Determination of Sugars Content<sup>4</sup>**

#### **8.3.1 *Fructose and Glucose Content (sum of both)***

#### **8.3.2 *Sucrose content***

### **8.4 Determination of Water-insoluble Solids Content**

J. Assoc. Public Analysts (1992) **28** (4) 189-193/ MAFF Validated method V22 for water insoluble solids in honey

### **8.5 Determination of Electrical Conductivity<sup>4</sup>**

### **8.6 Determination of sugars added to honey (authenticity)<sup>5</sup>**

AOAC 977.20 for sugar profile,

AOAC 991.41 internal standard for SCIRA (stable carbon isotope ratio analysis).

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<sup>4</sup> To be finalized.

<sup>5</sup> CCS noted that a screening method for the detection of cane sugar adulteration of honey was available.

**ANNEX**

This text is intended for voluntary application by commercial partners and not for application by governments.

**1. ADDITIONAL COMPOSITION AND QUALITY FACTORS**

Honey may have the following compositional and quality factors:

**1.1 Free Acidity**

The free acidity of honey may be not more than 50 milliequivalents acid per 1000g.

**1.2 Diastase Activity**

The diastase activity of honey, determined after processing and/or blending, in general not less than 8 Schade units and in the case of honeys with a low natural enzyme content not less than 3 Schade Units.

**1.3 Hydroxymethylfurfural Content**

The hydroxymethylfurfural content of honey after processing and/or blending shall not be more than 40 mg/kg. However, in the case of honey of declared origin from countries or regions with tropical ambient temperatures, and blends of these honeys, the HMF content shall not be more than 80 mg/kg.

**1.4 Electrical Conductivity**

- (a) honey not listed under (b) or (c), and blends of these honeys - not more than 0.8 mS/cm
- (b) Honeydew and chestnut honey and blends of these except with those listed under (c) - not less than 0.8 mS/cm
- (c) Exceptions: Strawberry tree (*Arbutus unedo*), Bell Heather (*Erica*), Eucalyptus, Lime (*Tilia spp*), Ling Heather (*Calluna vulgaris*) Manuka or Jelly bush (*Leptospermum*), Tea tree (*Melaleuca spp*).

**2. METHODS OF SAMPLING AND ANALYSIS**

The methods of sampling and analysis to be employed for the determination of the additional compositional and quality factors set out in Section 1 of this Annex are detailed below:

**2.1 Sample Preparation**

The method of sample preparation is described in section 7.1 of the Standard. In the determination of diastase activity (2.2.2) and hydroxymethylfurfural content (2.2.3), samples are prepared without heating.

**2.2 Methods of Analysis****2.2.1 Determination of Acidity**

J. Assoc. Public Analysts (1992) **28** (4) 171-175 / MAFF validated method V19 for acidity in honey

**2.2.2 Determination of Diastase Activity**

AOAC 958.09

**2.2.3 Determination of hydroxymethylfurfural (HMF) content**

AOAC 980.23

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**NOTE:** CCS asked CCMAS to consider retaining only those essential references.

**PART TWO**

**[Honey for Industrial Uses or as an Ingredient in other Foods]**

This part is subject to further consideration.