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BELIZE NATIONAL STANDARD  
SPECIFICATION FOR HONEY

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The preparation of this standard for the Standards Advisory Council established under the Standards Act of 1992, was carried out under the supervision of the Bureau's Technical Committee for Food and Food Related Products, which at the time comprised the following members:

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## 0 FOREWORD

- 0.1 In the preparation of this standard considerable assistance was derived from
- (i) CODEX STAN 12 – 1981 (Rev. 1-19870, Codex Alimentarius Volume 11);
  - (ii) EU Honey Directive 74/409, amendments 96/0114 (CNS), 19 May 2000; and
  - (iii) AOAC method number 920.180.
- 0.2 The Annex to this Standard is intended for voluntary application by commercial partners and not for application by the Government.

## 1 SCOPE

- 1.1 This standard applies to all honeys produced by honey bees and covers all styles of packaged honey which has been processed and is ultimately intended for direct consumption. It does not cover industrial honey or honey used as an ingredient in other foods.
- 1.2 The standard also covers honey, which is packed in non-retail (bulk) containers and is intended for re-packing into retail packs.

## 2 DESCRIPTION

### 2.1 Definition of Honey

*Honey* is the natural sweet substance produced by honey bees *Apis mellifera* 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 honey bees collect, transform by combining with specific substances of their own, deposit, dehydrate, store and leave in the honey comb to ripen and mature.

### 2.2 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 color of honey varies from nearly colorless to dark brown. The consistency can be fluid, viscous or partly to entirely crystallized. The flavor and aroma vary, but are derived from the plant origin.

2.3 **Subsidiary Definitions and Designations**

- 2.3.1 **Blossom honey or Nectar honey** is the honey, which comes from nectars of plants.
- 2.3.2 **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.
- 2.3.3 **Cut comb in honey or chunk honey** which is honey containing one or more pieces of comb honey.
- 2.3.4 **Drained honey** is honey obtained by draining uncapped broodless combs.
- 2.3.5 **Extracted honey** is honey obtained by centrifuging uncapped brood free combs.
- 2.3.6 **Filtered honey**, obtained by removing foreign inorganic or organic matter in such a way as to result in the significant removal of pollen.
- 2.3.7 **Honeydew honey** is the honey, which comes mainly from secretions of plant sucking insects (*Hemiptera*) feeding off the living parts of plants or from secretions of living parts of plants.
- 2.3.8 **Pressed honey** is honey obtained by pressing broodless combs.

3 **ESSENTIAL COMPOSITION AND QUALITY FACTORS**

- 3.1 Honey sold as such shall not have added to it any food ingredient, including food additives, or any other addition other than honey. Honey shall not have any objectionable matter, flavor, 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 ensuring freedom from foreign inorganic or organic matter.
- 3.2 Honey shall not be heated or processed to such an extent that its essential composition and / or quality are impaired.
- 3.3 Chemical or biochemical treatments shall not be used to influence honey crystallization.
- 3.4 **Moisture Content**  

Honey	not more than 20%
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### 3.5 *Sugar Content*

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

- (a) Honeys not listed below not less than 60g/100g
- (b) Honeydew honey or blends of honeydew honey with blossoms honey not less than 45g/100g

#### 3.5.2 *Sucrose Content*

- (a) Honeys not listed below not more than 5g/100g
- (b) False Acacia (*Robinia psuedoacacia*), Citrus (*Citrus spp.*), Alfalfa (*Medicago sativa*), Red Gum (*Eucalyptus Camaldulensis/Eucalyptus calophylla*), Leatherwood (*Cyrilla racemiflora/ Direa palusiris*), Menzies Banksia (*Bankia Menziesii*) and Dwarf Leatherwood (*Eucryphtha milligani*) not more than 10g/100g
- (c) Borage (*Borago officinalis*) not more than 15g/100g

### 3.6 *Water Insoluble Solids Content*

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

### 3.7 *Electrical Conductivity*

- (a) Honeys not listed below not more than 0.8mg/cm
- (b) Honeydew and chestnut honey and blends of these. not less than 0.8mg/cm
- (c) Exceptions: Strawberry tree (*Arbutus unedo*); Bell Heather (*Caluna vulgaris*); Eucalyptus (*Eucalyptus cinera*); Lime (*Citrus uaurantifolia*); Ling Heather (*Calluna vulgaris*); Manuka or Jelly bush (*Leptospermum scoparium*); and Tea Tree (*Carmellia sinensis*).

## **4 CONTAMINANTS**

### **4.1 Heavy Metals**

Honey shall be free from heavy metals in amounts, which may represent a hazard to human health. Honey covered by this Standard shall comply with those Maximum Residues Limits (MRL) for heavy metals established by the Codex Alimentarius Commission.

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

The products covered by this standard shall comply with those Maximum Residue Limits for honey established by the Codex Alimentarius Commission.

## **5 HYGIENE**

5.1 It is recommended that the product covered by the provisions of this standard be prepared and handled in accordance with the appropriate sections of the Belize Agricultural Health Authority (Food Safety) Regulations 2001 – General Principles of Food Hygiene.

5.2 In addition to the requirements of the Belize Agricultural Health Authority (Food Safety) Regulations 2001 - General Principles of Food Hygiene, the honey extractor shall be made of stainless steel.

5.3 In addition to any microbiological criteria established in accordance with the Principles for the Establishment and Application of Microbiological Criteria for Foods (CAC/GL 21-1997), honey when sampled shall not contain the following:

- (1) *Clostridium botulinum*;
- (2) coliform bacteria;
- (3) yeast and moulds;
- (4) *Salmonella*;
- (5) more than 1000 aerobic bacteria per millilitre at 72°F (22 °C) in 72 hours;
- (6) more than 1-10 cells *Staphylococcus aureus* bacteria per millilitre; and
- (7) more than 1-10 cells *Bacillus cereus* bacteria per millilitre.

## **6 LABELLING**

In addition to General Standard for the Labelling of Pre-packaged Foods (BZS 1: Part 3: 1998), the following specific provisions apply:

**6.1 The Name of the Food**

- 6.1.1 The name of the food may be supplemented by additional terms given in Section 2.3 if the product conforms to the descriptions within this section.
- 6.1.2 If the product consists of a mixture of the descriptions given in Section 2.3 the terms referenced above may be supplemented with the words 'a blend of ' for example. 'a blend of honeydew honey with blossom honey'.
- 6.1.3 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.
- 6.1.4 Where honey has been designated according to floral or plant source (6.1.3) then the common name or the botanical name of the floral source shall be in close proximity to the word 'honey'.

**6.2 Labelling of Non-Retail Containers**

- 6.2.1 Information on labelling as specified 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 manufacturer or packer shall appear on the container.

**7 METHODS OF ANALYSIS AND SAMPLING**

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

**7.1 Sample Preparation**

**7.1.1 *Liquid or Strained Honey***

- 7.1.1.1 If the sample is free from granulation, mix thoroughly by stirring or shaking; if granulated, place closed container in water-bath without submerging, and heat for 30 minutes at 140°F; (60°C) then if necessary heat at 149°F (65°C) until liquefied. Occasional shaking is essential. Mix thoroughly and cool rapidly as soon as the sample liquefies. If foreign matter such as wax sticks, bees, particles of comb etc, is present, heat sample to 104°F (40°C) in a water-bath and strain through cheesecloth in a hot water funnel before sampling.



**7.1.2 Comb Honey**

7.1.2.1 Cut across the top of the comb, if sealed, and separate it completely from the comb by straining it through a sieve, with mesh woven to form square openings of 0.50mm by 0.500mm (Reference: ISO 565-1993) or by using a US sieve with No. 40 standard screen (size of opening – 0.420mm). When portions of comb or wax pass through the sieve, heat the sample as in Section 8.1.2 and strain through cheesecloth. If honey is granulated in the comb, heat until the wax is liquefied; stir, cool and remove wax.

**7.2 Analysis Methods**

Honey sampled and prepared as in 7.1.1 and 7.1.2 shall be tested by the methods in Table 1, 2, 3 and 4.

**TABLE 1****ANALYSIS METHODS FOR HONEY**

<b>ANALYSIS</b>	<b>RECOMMENDED TEST METHODS</b>
Determination of Moisture Content	AOAC 969.38B 7 or J. Association. Public Analysts (1992) 28 (4) 183-187 or MAFF Validated method V21 for moisture in honey
Determination of Sucrose Content	Determination of sugars by HPLC
Fructose and Glucose Content (sum of both)	Determination of sugars by HPLC
Determination of sugars added to honey (Determination of Sugars Content)	AOAC 977.20 for sugar profile Or AOAC 991.41 internal standard for SCIRA (stable Carbon Isotope ratio Analysis)
Determination of Water insoluble Solids Content	J. Assoc. Public Analysts (1992) 28 (4) 189-193 or MAFF validated method V22 for water insoluble solids in honey
Determination of Electrical Conductivity	Determination of electrical conductivity- Harmonized Methods of the European honey Commission, Apidologie – Special Issue 28, 1997, chapter 1.2

**TABLE 2****ANALYSIS METHODS FOR HONEY**

<b>ANALYSIS</b>	<b>RECOMMENDED TEST METHODS</b>
Determination of Acidity	J. Assoc. Public Analysts (1992) 28 (4) 171-175 / MAFF validated method V19 for acidity in honey
Determination of Diastase Activity	AOAC 958.09 Or Determination of diastase activity with Phadebas – Harmonized Methods of the European Honey Commission, Apidologie – Special Issue 28, 1997, Chapter 1.6.2
Determination of Hydroxymethylfurfural (HMF) content	AOAC 980.23 Or Determination of Hydroxymethylfurfural by HPLC – Harmonized Methods of the European Honey Commission Apidologie – Special Issue 28, 1997, Chapter 1.5.1

**TABLE 3****MICROBIOLOGICAL ANALYSIS METHODS FOR HONEY**

<b>ORGANISM (S)</b>	<b>RECOMMENDED TEST METHODS</b>
Clostridium botulinum	FDA BAM
Aerobic bacteria	FDA BAM
Total coliforms	FDA BAM
Salmonella Spp	FDA BAM
Staphylococcus Aureus	FDA BAM
Bacillus Cereus	FDA BAM
Yeast and Moulds	FDA BAM

**TABLE 4****PESTICIDES, VETERINARY DRUG RESIDUES & HEAVY METALS  
ANALYSIS METHODS FOR HONEY**

<b>Substances/Heavy Metals</b>	<b>RECOMMENDED TEST METHODS</b>
Pesticides, Veterinary Drug Residues	HPLC
Pesticides	GC
Heavy Metals	AA

## ANNEX

1. **Additional Composition and Quality Factors**

- 1.1 ***Free Acidity*** not more than  
50 milliequivalents  
of acid per 100g.
- 1.2 ***Diastase Activity***
- Determined after processing and/or possibly blending not less than 8 Schade units
- Honeys with a low natural enzyme content (e.g. citrus honey) and an HMF content of not more than 15 mg/kg not less than 3 Schade Units.
- 1.3 ***Hydroxymethylfurfural Content***
- Determined after processing and/or blending not more than 40mg/kg
- Honey from countries or regions with tropical ambient temperatures, and blends of these honeys not more than 80mg/kg.

2 **Methods of sampling and Analysis**2.1 ***Preparation***

2.1.1 The methods of sample preparation are described in Section 7.1 of the standard. In the determination of diastase activity (Annex 1.2) and Hydroxymethylfurfural content (Annex 1.3), samples are prepared without heating.

2.2 **Methods of Analysis**

Honey sampled and prepared as in paragraph 7.1.1 and 7.1.2 and paragraph

2.1.1 of the Annex shall be tested by the methods in Table 1, 2,3 and 4.

