National Standards of the People's Republic of China

GB 14963-2011

National Food Safety Standard

Honey

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Ministry of Health of the People's Republic of China

Preface

This Standard replaces GB 14963-2003 *Hygienic Standard of Honey* and the relative parameters in GB 18796- 2005 *Honey*.

Compared to GB 14963-2003, the major changes are as follows:

---The scope was modified

-- The definition of honey was added.

---The requirements on raw material were modified to requirements on honey source and the names of the varieties of the toxic nectar plants are defined.

---The sensory requirements was modified

-- The physical and chemical requirements were modified.

-- The requirements on contaminants limit, veterinary residues limit and agricultural chemicals residues limit were added.

-- The requirements on osmophilic yeast count were added.

National Food Safety Standards
Honey

1. Scope

This Standard applies to honey, not to honey products.

2. Terminology and Definition

Honey

Bees collect nectar, secretion or honeydew, combined with their own secretion and then make it into natural sweet matter after full brewage.

3. Technical requirements

3.1 Honey source requirements

The nectar, secretion or honeydew got from the plant by bees must be safe and non-poisonous and cannot be originated from a toxic honey plants such as *Tripterygium wilfordii Hook. F.,Macleaya cordata (willd.) R. Br, Stellera chamaejasme L.,* etc.

3.2 Sensory requirements

Shall meet the conditions in Table 1.

Table 1 Sensory requirements

Item	Requirements	Test methods
Colour	From water white (nearly transparent) to dark amber based on different honey source	According to the relative methods in SN/T 0852.
Taste, odour	Has its special taste, odour and no peculiar smell	
Status	Viscous fluid, or partly and totally crystalized under normal room temperature	Observe under natural lights to check the presence of foreign matters.
Foreign matters	Should not contain bees limbs, larva, wax crumbs and impurity that can be seen by eyes (except nest honey with wax crumbs)	

3.3 Physical and Chemical Requirements

Shall meet the conditions in Table 2.

Table 2 Physical and chemical requirements

Item	Requirements	Test methods
Fructose and glucose/ (g/100g) ≥	60	GB/T 18932.22
Cane sugar/ (g/100g) Eucalyptus honey, Citrus honey, Medicago Sativa honey, Litchi honey and wild osmanthus honey ≤ Other honey ≤	 10 5	
Zinc (Zn)/ (mg/kg) ≤	25	GB/T 5009.14

3.4 Contaminant Limit

Contaminant limit should meet GB 2762 criteria.

3.5 Veterinary drugs residues limits and agricultural chemicals residues limits

3.5.1 Veterinary drugs residues limits

Veterinary drugs residues limits should meet the relevant criteria and standards.

3.5.2 Agricultural chemicals residues limits

Agricultural chemicals residues limits shall meet GB 2763 and other relevant criteria.

3.6 Microbial limit

Shall meet the requirements in Table 3.

Table 3

Item	Requirements	Test methods[a]
Colony count/ (CFU/g) ≤	1 000	GB 4789.2
Coliform/ (MPN/g) ≤	0.3	GB 4789.3
Mold count/ (CFU/g) ≤	200	GB 4789.15
Osmophilic yeast count/ (CFU/g) ≤	200	Annex A
Salmonella	0/25g	GB 4789.4
Shigella	0/25g	GB 4789.5
Staphylococcus aureus	0/25g	GB 4789.10

[a]the analysis and dealing should be performed according to GB 4789.1

Appendix A

Osmophilic Yeast Count

A.1 Equipment and materials

In addition to the normal sterilization and culturing equipment of a microbiology laboratory, the other equipment and materials are as follows:

A.1.1 Incubator thermostatic: 25°C ±1 °C.

A.1.2 Refrigerator: 2 °C- 5 °C

A.1.3 Homogenizer, aseptic homogenization bags, homogeneous cup or sterile mortar.

A.1.4 Balance: Sensitivity of 0.1g.

A.1.5 Aseptique burette: 18mm x 180mm.

A.1.6 Aseptic pipette: 1mL (with calibration of 0.01 mL). 10mL (with calibration of 0.01 mL) or micropipette and the tip.

A.1.7 Aseptic Erlenmeyer flask: 500mL, 250mL.

A.1.8 Aseptic culture dish: diameter of 90mm.

A.1.9 Aseptic L coating stick: made of glass, plastic or stainless steel and the diameter of the stick shall not be more than 2mm.

A.1.10 Microscope: 10x~~~100x

A.2 Media and reagents

A.2.1 30% glucose solution

A.2.1.1 Components

Anhydrous glucose	30.0g
Distilled water	100mL

A.2.1.2 Method of preparation

Weigh adequate amount of glucose and dissolve it in distilled water adjusting the pH to 6.4 when necessary. After the division, sterilize it for 20 minutes at 115°C and high pressure.

A.2.2 Dichloran-Glycerol (DG18) Agar

A.2.2.1 Components

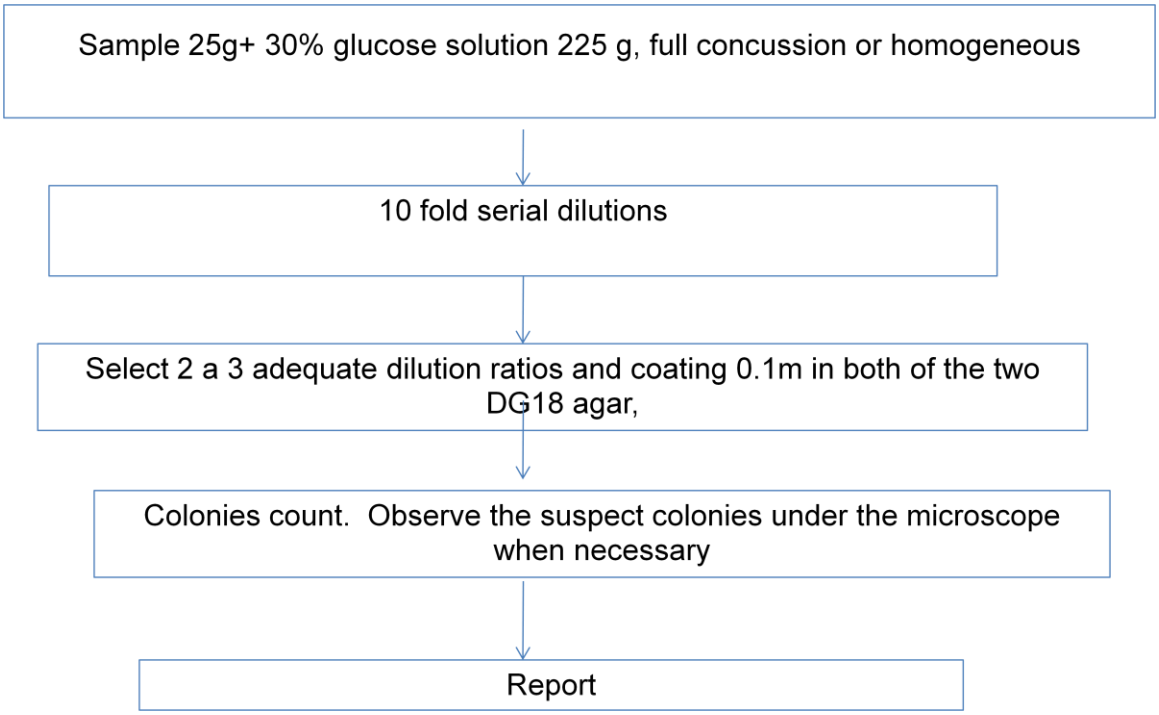
Casein peptone	5.0g
Anhydrous glucose	1 0.0g
Potassium dihydrogen phosphate	1.0g
Magnesium ($MgSO_4$ H_2O)	0.5g
Dicloran	0.002g
Anhydrous Glycerin	200g
Agar	15g
Chloromycetin	0.1g
Distilled water	1000mL

A.2.2.2 Preparation method

Heat all ingredients except chloromycetin to boil until they are completely dissolved, adjusting pH to 6.4 when necessary. Add antibiotics, sterilize it at high pressure at 121°C for 15 minutes and the pH final shall be 5.6±0.2. After the sterilization, leave it in water bath at 44 °C a 47°C until that it reaches less than 50°C. Add culture medium of 15 a 20 mL in a sterilized plane plate which will be placed in a horizontal table for cooling and solidification. When necessary, it can be placed overnight in an incubator until that the surface of the agar is dry and free of water droplets. Keep in dark places.

A.3 Test procedure

The test procedure of osmophilic yeast is in the Graph A.1.



Graph A.1 Test procedure of osmophilic yeast

A.4 Operation procedure

A.4.1 Collection and preservation of samples

The test sample shall be tested as promptly as possible after collection. If they can't be tested timely, the normal samples shall be preserved in refrigerator at 2°C a 5°C and be tested in 24 hours. The frozen samples shall be unfrozen at 45°C for less than 15 minutes or at 2°C a 5°C for less than 18 hours.

A.4.2 Samples dilution

A.4.2.1 Sampling

Weight a solid or a liquid sample of 25g in the balance in a aseptic manner, add 225g of 30% glucose diluents and homogenizing it with a rotating blade homogenizer at 8000r/min for 1 minute, or slap it with a slap homogenizer for 2 minutes to obtain a uniform dilution of 1:10.
If there is no homogenizer, the sample can be put in a sterilized Erlenmeyer flask with glass beads and be oscillated fully.

A.4.2.2 Gradient dilution

Draw dilution 1:10 of 1mL with a sterile pipette and put it in a burette with 9mL of 30% glucose diluents. Put the burette in a vortex mixer to prepare the dilution of 1:100. Take another sterilized pipette of 1mL and prepare successively 10-fold increments dilutions in according to the above operation and in each incremental dilution, the sterilized pipette of 1mL shall be changed.

A.4.3 Coating and culturing

A.4.3.1 According to the estimates of the test samples' contamination, select 2 a 3 consecutive and adequate dilution ratios and use each ratio to cultivate two DG18 agar plates. After de full mixing of the dilution, cultivate immediately 0.1mL in the surface of each plate and coat it fully in the surface of the agar with sterilized L coating stick. The lower end of the coating stick shall not touch the side edge of the culture dish. In the test of the samples, in both DG18 agar plates, 0.1mL of dilution shall be cultivated at the same time for the blank control.

A.4.3.2 After the cultivation, all the plates shall be put as soon as possible in a incubator thermostatic of 25^{o}C±1 ^{o}C for the culture in a dark place. In the culture, the culturing dish shall not be turned.

In order to prevent the target colonies be covered by the mildew excessively grown and spread, 48 hours after the culturing, the growth of the fungi in the plates shall be observed daily. The culturing ends in seven days.

A.4.4 Colony counts

A.4.4.1 Select the plates with colonies between 15 and 150 to count the colonies.

A.4.4.2 The typical osmophilic yeast presents as colonies round, uplift in the centre, opaque, with neat edges and diameter of 1 a 2 mm. When necessary, the low magnification microscope can be used to observe directly if the colonies grown in the plates are bacterial colonies. If fungal colonies interference occurs, the filamentous colonies shall not be counted.

A.4.5 Report

In according to the reporting mode established in GB 4789.2, the amount of osmophilic yeast in the samples shall be reported in CFU/g.