

**EU ASIA COOPERATION**  
on (PHYTO-) SANITARY (SPS) and  
FOOD SAFETY REGULATION



**COMPARISON  
OF HYGIENE LEGISLATION  
AND FOOD SAFETY STANDARDS**

For bee products

*This publication was produced with the financial support of the European Union. It reflects an analysis undertaken by AETS which remains without prejudice to the interpretation or enforcement of applicable legislation of China by the competent authorities.*

---

## CONTENT

---

<b>INTRODUCTION</b> .....	<b>1</b>
<b>LIST OF CHINESE NATIONAL STANDARDS ASSESSED</b> .....	<b>1</b>
<b>RESULTS AND CONCLUSIONS</b> .....	<b>2</b>
<b>1 SUMMARY COMPARISON</b> .....	<b>3</b>
<b>2 DETAILED ANALYSIS</b> .....	<b>4</b>
2.1 Chinese food safety standard for honey .....	4
2.2 Additional Chinese Standards Covering Bee Products.....	8



---

## INTRODUCTION

---

The overall objective of the project is to contribute to the facilitation of trade in bee products between the European Union and the People's Republic of China by a systematic comparison of standards applicable to bee products.

Because in the EU there are no bee product standards other than honey the present document just compares the legal requirements for honey. For other bee products like royal jelly there is already an existing ISO standard 12824 whereas for bee pollen and propolis the ISO standards are still under discussion.

---

## LIST OF CHINESE NATIONAL STANDARDS ASSESSED

---

<b>GB 14963-2011</b>	Chinese National food safety standard for honey
<b>GB 3762-2022</b>	Chinese National Food Safety Standard Limits of Contaminants in Food
<b>GB 2763-2019</b>	Chinese National Food Safety Standard Maximum Residual Limits for Pesticides in Food
<b>GB 31650-2019</b>	Chinese National Food Safety Standard Maximum residual Limits for Veterinary Drugs in Food
<b>GB 9697-2008</b>	Chinese National Food Safety Standard Royal jelly
<b>GB/T 24283-2018</b>	Chinese National Food Safety Standard Propolis
<b>GB/T 21532-2008</b>	Chinese National Food Safety Standard Lyophilised royal jelly powder
<b>GB/T 35868-2018</b>	Chinese National Food Safety Standard Specification for producing technology of royal jelly

Council Directive 2001/110/EC relating to honey (Corrigendum),

Directive 2014/63/EU of the European Parliament and of the Council, of 15 May 2014, amending Council Directive 2001/110/EC relating to honey;

Regulation (EU) 2023/915 of 25 April 2023 on maximum levels for certain contaminants in food and repealing Regulation (EC) No 1881/2006;

Regulation (EC) No 149/2008 amending Regulation (EC) 396/2005 setting maximum residue levels for pesticides<sup>1</sup>; and

Regulation (EU) No 37/2010 on MRLs for veterinary medicines in food<sup>2</sup>.

---

<sup>1</sup> Title simplified for the purpose of facilitating the understanding of reader. Exact title is "Commission Regulation (EC) No 149/2008 of 29 January 2008 amending Regulation (EC) No 396/2005 of the European Parliament and of the Council by establishing Annexes II, III and IV setting maximum residue levels for products covered by Annex I thereto (Text with EEA relevance)"

<sup>2</sup> Idem. Exact title is "Commission Regulation (EU) No 37/2010 of 22 December 2009 on pharmacologically active substances and their classification regarding maximum residue limits in foodstuffs of animal origin (Text with EEA relevance)"



---

## RESULTS AND CONCLUSIONS

---

Bee products mean for China honey, royal jelly, pollen and propolis.

Regulatory approaches in the area of bee products in China and the European Union differ substantially. Therefore, the comparison of the respective rules is rather challenging.

In the EU only honey is regarded as food whereas the other bee products are not.

In the EU, the other bee products are more or less regarded as food supplements especially propolis which is applied e.g. in alcoholic solutions and marketed like a medicine, which it is of course not officially. Similar royal jelly marketed with “healthy” attributes. But officially EFSA has not accepted any health claims so far in bee products.

For honey, the main difference is that with Directive 2001/110 the EU sets a much higher quality standard especially in regard to authenticity, purity, maturity. Honey is regarded as a natural product nothing added to it or removed except where it is unavoidable during processing.

This fact is reflected by a number of minimum or maximum limits preventing e.g. overheating, fermentation, off flavours.

In China it is usual to vacuum dry the “honey” in factories as the standard does not consider a max. moisture content. Extracting “honey” with 30-40% moisture is common thus leading to a quick fermentation. The Chinese standard does not consider this whereas in the EU Directive strict quality parameters like moisture are laid down.

Overheating honey as another important quality parameter is also not considered in the Chinese standard. By setting a maximum HMF as indicator for overheating it is not allowed to bottle an overheated honey in the EU as fit for human consumption. It is just considered as industrial/bakers honey which can be used as food ingredient. The same with fermented honey or honey with off-flavour.

Chinese standard GB 14963-2011 does not consider labelling of geographical or botanical origin as it is laid down in Directive 2001/110.

Chinese standard includes requirements for contaminants, pesticides, microbiological limits, parameters which are in the EU separately regulated under vertical legislation for all animal products.

As Directive the MS of the EU must implement the Honey Directive in national legislation leading to little differences between the member states, e.g. adding further requirements e.g. in labelling detailed geographical origins in blends.



# 1 SUMMARY COMPARISON

Chinese National Food Safety Standard Honey GB 14963-2011	Directive 2001/110, Directive 2014/63
<p>Terms and definitions very basic, as a product of bees collecting nectar and honeydew but not considering key words like “ripen, mature”</p> <p>The standard does not define/distinguish blossom or honeydew honey.</p> <p>The standard does not consider fermented honey or overheated honey</p>	<p>Definition of honey as a product produced by <i>Apis mellifera</i>. Definition makes clear that honey must be stored in the honey comb until ripened and mature. The bees dehydrate the nectar or honeydew.</p> <p>Types of honey are defined according to their origin or the mode of production</p> <p>Bakers honey is defined for overheated, fermented or honey with off-flavour.</p>
<p>No composition criteria</p> <p>Some toxic nectar plants are listed as forbidden</p> <p>Impurities are defined as those visible to normal eyesight</p> <p>Colour is described</p> <p>Taste, odour characteristic (for what?)</p> <p>Off flavour forbidden</p> <p>Limits only for Fructose + Glucose, Sucrose</p> <p>Limit for Zinc is set</p>	<p>Composition criteria are described in detail pointing out that nothing shall be added to honey neither removed</p> <p>Limits are set for Fructose + Glucose, Sucrose, moisture, water insoluble content, electrical conductivity, free acid, Diastase, HMF</p> <p>Contaminants are covered by a separate Regulation</p>
<p>Residues for contaminants, pesticides, veterinary drugs are mentioned</p>	<p>Residues are not a part of the Honey Directive, they are subject in the EU for all animal products as separate Regulations</p>
<p>Microbiological limits are set</p>	<p>In the EU there are no legal limits for microorganism in honey.</p> <p>Hygiene Regulations cover all animal products.</p> <p>Since <i>Clostridium botulinum</i> spores might occur in raw honey, labelling in some MS considers that honey is not suitable as baby food.</p>
<p>No rules in the standard how to declare the origin of honey</p>	<p>Labelling rules for geographical or botanical origin are laid down, also what criteria e.g. monofloral honey should fulfil. (Article 2)</p>



## 2 DETAILED ANALYSIS

### 2.1 CHINESE FOOD SAFETY STANDARD FOR HONEY

Chinese National Standard GB 14963	EU legislation	Implementing rules and comparative evaluation
<p><b>Chinese National Food Safety Standard GB 14963-2011</b></p> <p><b>2. Terms and Definitions defines honey as follows</b></p> <p>“naturally sweet substance produced by bees by collecting nectar, secretions or honeydew from plants, mixing it with their own secretions and brewing it fully.”</p>	<p><b>EU Honey Directive 2001/110</b></p> <p><b>Annex I defines honey as follows</b></p> <p>“honey is the natural sweet substance produced by Apis mellifera bees from the nectar of plants or from secretions of living parts of plants or excretions of plant-sucking insects in the living parts of plants, which the bees collect, transform by combining with specific substances of their own, deposit, dehydrate, store and leave in honeycombs to ripen and mature”</p>	<p><b>Differences are</b></p> <p>Product of all bees, species not defined Bees could theoretically collect secretions of rotten fruits as source for honey The term “brewing” is very misleading, most probably it is a translation problem, but it should be revised Indeed honey might ferment with too high moisture = brewing ?</p> <p>Does fully brewing mean fully fermented ? The big issue “when is honey ripen and mature” is thus not relevant</p>
No types of honey defined	Honey types defined e.g. blossom, honeydew or comb, extracted ...	
No definition of “bakers honey”	Baker’s or industrial honey defined as not fit for direct human consumption but only as ingredient	
<p><b>3.1 Honey source requirements</b> as “safe and non-toxic,” nectar from different plants are defined to be toxic (Tripterygium wilfordii, Macleaya cordata, Stelleria chamaejasme) Question: honey is rarely or nearly never a product of only one plants nectar but a blend.</p>	No such requirements	Not clear on the standard how on the how is the detection made in the end product
<p><b>3.2 Sensory requirements</b></p> <p>Colour water white to dark Taste and odour “characteristic” (for what?)</p> <p>no off flavour</p>	<p><b>Annex II Composition criteria for honey</b></p> <p>corresponds flavour and aroma derived from plant origin corresponds</p>	
<p>Condition viscous fluid, crystallized</p> <p>Impurities are defined, visible to normal eyesight</p> <p>Foreign matter is limited and does not consider micro contamination</p>	<p>= consistency, corresponds”</p> <p>Honey must, as far as possible, be free from organic or inorganic matters foreign to its composition</p>	



Chinese National Standard GB 14963	EU legislation	Implementing rules and comparative evaluation
<b>3.3 Physical and chemical indicators</b> Fructose and Glucose g/100g $\geq 60$	<b>Annex II 1./1.1</b> Not less than 60 for blossom honey corresponds Not less than 45 for honeydew honey or blends honeydew-nectar	In case of honeydew honey or blend the sum can be naturally lower This might lead to problems especially for the export of honeydew honey
Cane sugar max 5 g/100g	Sucrose in general not more than 5g/100g	
except Eucalyptus, Citrus, Alfalfa, Lychee, "wild osmanthus" max 10 g/100g	also some species listed with max 10g/100g like Robinia, Alfalfa, Eucalyptus, Citrus, Banksia, Hedysarum, Eucryphia	
No max moisture defined !	Moisture content max. 20%	This point is very questionable as fermentation risk is too high with moisture >20%
not mentioned not mentioned	Water-insoluble content Electrical conductivity	Especially important to distinguish nectar from honeydew honey Might cause problems for imports of such types of honey
not mentioned	Free acid max. set	This parameter is among others important for detecting fermentation
not mentioned	Diastase activity min. defined HMF max defined	Diastase and HMF are indicators for overheating or indirectly as well for adulteration
not mentioned	Not included in Honey Directive Separate EU legislation on Contaminants Regulation 2023/915	No EU limit for Zinc in honey
Zinc indicator = max 25 mg/kg		





Chinese National Standard GB 14963	EU legislation	Implementing rules and comparative evaluation						
<p><b>3.4. Contaminant limits</b> complying with GB 2762:</p> <table border="1" data-bbox="108 383 727 450"> <thead> <tr> <th>Contaminant</th> <th>maximum level</th> </tr> </thead> <tbody> <tr> <td>Lead</td> <td>0.5 mg/KG</td> </tr> </tbody> </table>	Contaminant	maximum level	Lead	0.5 mg/KG	<p><b>EU Regulation 2023/915</b> <b>repealing 1881/2006</b></p> <p>Lead max 0,1 mg/kg</p>	<p>Chinese limit higher than the EU limit for Lead</p>		
Contaminant	maximum level							
Lead	0.5 mg/KG							
<p><b>3.5.1. Residues of veterinary drugs</b> Shall comply with the relevant standards, <b>Assumed to be GB31650</b></p> <table border="1" data-bbox="108 658 727 846"> <tbody> <tr> <td>Amitraz</td> <td>200 (µg/kg)</td> </tr> <tr> <td>Fluvalinate</td> <td>50 (µg/kg)</td> </tr> <tr> <td>Flumethrin</td> <td>permissible for use in food-producing animals with no need of setting residue limits (honey bee)</td> </tr> </tbody> </table> <p>Coumafos has been remove from the standard</p> <p>EU Banned substances are not mentioned for honey</p>	Amitraz	200 (µg/kg)	Fluvalinate	50 (µg/kg)	Flumethrin	permissible for use in food-producing animals with no need of setting residue limits (honey bee)	<p><b>EU Regulation 470/2009</b> <b>EU Regulation 37/2010</b></p> <p>Amitraz 200 µg/kg Fluvalinate no MRL required Flumethrin no MRL required</p> <p>Coumafos 100µg/kg</p> <p>Banned substances, Table 2 relevant for honey e.g.</p> <p>Chloramphenicol</p> <p>Dapsone</p> <p>Metronidazole</p>	<p>Chloramphenicol not mentioned for Honey in the GB31650</p> <p>Dapsone not mentioned for Honey in the GB31650</p> <p>The Standard GB 31650-2019 specify as Veterinary drugs permissible for use in treatment but no residues shall be detected in animal derived foods (honey)</p>
Amitraz	200 (µg/kg)							
Fluvalinate	50 (µg/kg)							
Flumethrin	permissible for use in food-producing animals with no need of setting residue limits (honey bee)							
<p><b>3.5.2 Pesticide residue limits</b> Standard 14963 specify that honey shall comply with GB 2763</p> <p>However no mention of honey on the GB 2763</p>	<p><b>EU Regulation 149/2008</b> <b>amending 396/2005 on</b> <b>Maximum Limits for</b> <b>Pesticides in Food</b></p> <p>At least 22 MRLs for honey e.g. Glyphosate 0,05 mg/kg or Acetamiprid 0,05 mg/kg and a default MRL of 0,01 mg/kg for all pesticides</p>	<p>GB 2763-2019: honey is not mentioned</p>						



Chinese National Standard GB 14963	EU legislation	Implementing rules and comparative evaluation																
<p><b>3.6. Microbiological limits</b></p> <p>Limits set for total count, Coliform, osmophilic yeast, Salmonella, Shigella, Staphylococcus aureus</p> <table border="1" data-bbox="108 443 858 750"> <thead> <tr> <th>Item</th> <th>Indicators</th> </tr> </thead> <tbody> <tr> <td>Total number of bacterial colonies/(CFU/g) ≤</td> <td>1000</td> </tr> <tr> <td>Coliform/(MPN/g) ≤</td> <td>0.3</td> </tr> <tr> <td>Mould Count/(CFU/g) ≤</td> <td>200</td> </tr> <tr> <td>Osmophilic yeast count/(CFU/g) ≤</td> <td>200</td> </tr> <tr> <td>Salmonella</td> <td>0/25g</td> </tr> <tr> <td>Shigella</td> <td>0/25g</td> </tr> <tr> <td>Staphylococcus aureus</td> <td>0/25g</td> </tr> </tbody> </table>	Item	Indicators	Total number of bacterial colonies/(CFU/g) ≤	1000	Coliform/(MPN/g) ≤	0.3	Mould Count/(CFU/g) ≤	200	Osmophilic yeast count/(CFU/g) ≤	200	Salmonella	0/25g	Shigella	0/25g	Staphylococcus aureus	0/25g	<p><b>Hygiene Regulations 852 and 853/2004</b></p> <p>setting general principles for food of animal origin</p> <p>For honey, no limits for any microorganism are set in the EU legislation</p> <p><b>Hygiene Regulations 852 and 853/2004</b></p> <p>setting general principles for food of animal origin</p> <p>For honey, no limits for any microorganism are set in the EU legislation</p>	<p>For honey, no limits for any microorganism are set in the EU legislation</p>
Item	Indicators																	
Total number of bacterial colonies/(CFU/g) ≤	1000																	
Coliform/(MPN/g) ≤	0.3																	
Mould Count/(CFU/g) ≤	200																	
Osmophilic yeast count/(CFU/g) ≤	200																	
Salmonella	0/25g																	
Shigella	0/25g																	
Staphylococcus aureus	0/25g																	



## 2.2 Additional Chinese Standards Covering Bee Products

The following Chinese standards cover other bee products, in the EU there is no current regulations that cover other bee products rather than honey, even if related ISO standards apply worldwide, including EU and China.

Due to the unfeasibility of comparison with EU counterpart legislation, each bee product standard will be summarised for information and reference in the table below.

### Chinese National Food Safety Standard GB 9697-2008 Royal jelly

This standard specifies the definition, grade, quality, test methods, packaging, marking, storage, and transport requirements of royal jelly. It starts specifying the terminology of “Royal jelly” which is “A creamy white, yellowish or light orange pulpy substance secreted by the subpharyngeal and palatine glands of worker bees and used primarily for feeding queen bees and bee larvae”.

The standard specifies the sensory requirements of the product that as per **colour** should be creamy white, yellowish, or pale orange and shiny, both in the sticky and frozen state. In the frozen state there is also a lustre of ice crystals; **odour** in the mucilaginous state, it should have an aroma similar to that of nectar or pollen and a pungent flavour. The smell should be pure and should not have a fermented or sour smell; **Taste and texture** In the mucilaginous state, there is a distinct sour, astringent, pungent and sweet taste, and a sense of irritation on the palate and in the throat. The throat irritation remains for some time after swallowing or spitting out. In the chilled state, the initial taste is grainy and gradually disappears and the same taste as in the mucilaginous state appears.

Royal jelly is classified into two quality grades: superior and qualified.

The standard also clarifies the chemical requirements as per table below:

Indicator Standard	Superior	Qualified
Moisture/%. ≤	67.5	69.0
10-Hydroxy-2-decenoic acid/% ≥	1.8	1.4
Protein/%	11 ~ 16	
Total sugar (as glucose)/%	15	
Ash/%	1.5	
Acidity (1 mol/L NaOH)/(mL/100 g)	30~53	
Starch	Not detectable	

Royal jelly safety and health requirements shall comply with the relevant national laws, regulations, and governmental rules, and meet the safety and health requirements stipulated in the relevant national standards, however the standard do not specify the exact standards it is referring.

The standard specifies finally the laboratory testing methods, diluents, reagents, and samples preparation for the chemical parameter specified in the table above and specifically the testing for Moisture, Hydroxy-2-decenoic acid, Protein, Total sugars, Ash, Acidity and Starch.

The standard concluded with the requirements for Packaging, labelling, storage, transport.

For **packing** the container should meet the safety and hygiene requirements, for labelling the product packaging should be marked with the product name, origin, acquisition unit, inspector's name, acquisition date, net/gross weight, and tare weight. When used as pre-packaged food, the label should comply with the general requirements of the Chinese National Food Safety Standard GB7718 related to general requirements for labelling. The **storage** temperature should be below -18°C. Royal jelly of different origins and produced at different times should be stored separately (bottled and boxed) and it must not be stored together with odorous, toxic, corrosive or potentially polluting substances. It should be **transported** at low temperatures and should not be mixed with odorous, toxic, corrosive or potentially polluting substances.



### Chinese National Food Safety Standard GB/T 24283-2018 Propolis

This standard specifies the terms and definitions, requirements, test methods, packaging, labelling, storage, and transport requirements for propolis and propolis ethanol extracts and applies to the production, processing, and trade of propolis and ethanolic extract of propolis.

The **definition** of Propolis is a gummy substance formed by worker bees when they collect secretions such as resin from a propolis plant and mix it with secretions from their epiglottal glands, wax glands, etc. Depending on the source plant, propolis can be classified mainly into the genera Populus, Eucalyptus, Haematoxylum and Mediterranean types. The definition of Ethanol extracts of propolis is the substance obtained by extracting (leaching) propolis with ethanol. The standard clarifies the **sensory requirements** for **propolis** as per table below:

Item	Characteristic
Colour	Brownish yellow, brownish red, brown, yellowish brown, greyish brown, greenish green, greyish black, etc.
Condition	lumpy or crumbly, opaque, softening with increasing temperature above about 30°C, and viscous
Odour	Aromatic smell characteristic of propolis, resinous and creamy when burned, no odour
Taste	Slightly bitter, slightly astringent, slightly numb, and pungent

And for the organoleptic requirements of the **ethanolic extract of propolis**:

Item	Characteristic
Structure	Compact structure in section
Colour	brown, dark brown, lustrous
Condition	Solid, softening with increasing temperature above about 30°C, viscous
Odour	Aromatic smell characteristic of propolis, resinous and creamy when burned, no odour
Taste	Slightly bitter, slightly astringent, slightly numb, and pungent

Moreover, the standard specifies the **Physicochemical requirements** for propolis and propolis ethanolic extracts are defined as:

Item		Propolis ethanol extract			
		Grade I	Grade II	Grade I	Grade II
Ethanol extract content / (g/100g)	≥	60.0	30.0	98.0	95.0
Total Flavonoids / (g/100g)	≥	15.0	6.0	20.0	17.0
Oxidation time / s	≤	22			

According to the **Authenticity requirements**, no resins or other minerals, organisms or their extracts should be added. Any resinous gelatinous substance not collected by bees and processed artificially shall not be called "propolis" and **special restriction requirements** are set to not be collected using iron gauze or apparatus or cover cloths containing contaminated substances and It should not be heated at more than 60°C or exposed to the sun outdoors.

The standard outlines the specific the **sampling collection method and laboratory procedures** for the analysis of the sensory requirements and physical and chemical requirements for propolis and propolis ethanolic extracts.

For **packaging** of the products, the standard mentions that it shall be made of materials that meet national food safety and hygiene requirements (without specifying which specific hygiene standard to refer) . The ethanolic extract of propolis shall be packed in quantitative quantities. The packaging site shall comply with food safety and hygiene requirements.



### Chinese National Food Safety Standard GB/T 24283-2018 Propolis

The **labelling** of the packaging shall include the product name, grade, net content, date of production, shelf life and the name and address of the producer. **Storage** places should be clean, dry, cool, and ventilated, and should not be stored with toxic, harmful, odorous, corrosive, radioactive and potentially polluting items in the same place and products shall be stored separately according to species and specifications. Finally for **transport**, the means of transport should be clean and hygienic, transport should not be mixed with toxic, harmful, odorous, and easily contaminated articles and the products shall be protected from high temperature, exposure to sun and rain.

The standard concludes with an **Appendix A** specific to requirements for **Propolis of the genus Juglans**.

**Sensory requirements** as per table below:

Item	Characteristic
Colour	Yellowish green, greenish brown
Condition	lumpy, with bee holes on some of the strips, opaque, gradually softening with temperature above about 30°C, and sticky
Odour	Aromatic smell of resin and balsam secreted by the plant, when burned there is a creamy smell of the resin of the plant, no odour
Taste	Slightly bitter and astringent
Impurities	No mud, bee limbs and other debris

**Physical and chemical requirements:**

Item		Propolis of the genus Chrysanthemum
Ethanol extract content / (g/100g)	≥	50.0
Total flavonoids / (g/100g)	≥	4.0
Atipyrine C/(g/100g)	≥	1.4
Oxidation time/s	≤	22

**Authenticity requirements**, if the sample contains the characteristic peak of atepirin C and its content is greater than or equal to 0.8%, then the sample is judged to be propolis of the genus Juglans; if no atepirin C is detected in the sample to be tested or its content is less than 0.8%, then the sample is judged to be a non-Juglans propolis sample.



### Chinese National Food Safety Standard GB/T 21532-2008 Lyophilised royal jelly powder

This standard specifies the grade, requirements, test methods, packaging, marking, storage, and transport requirements for royal jelly lyophilized powder. This standard applies to the processing and sale of royal jelly freeze-dried powder and specifically: lyophilized royal jelly powder and dehydrated royal jelly powder processed by the Royal Jelly Method. The standard specifically defines the **sensory requirements** as:

Item	Requirement
Colour	Milky white or light yellow
Condition	Powdered, no black spots visible to the naked eye
Odour	Aromas of royal jelly, pure odour, no fermentation, odour, etc.
Taste	Sour, astringent and pungent with a slightly sweet aftertaste.

And the **Grading and physicochemical requirements** as per table below:

Item		Grade 1	Grade 2
10-Hydroxy-2-decenoic acid/%.	≥	5.0	4.0
Water content/%	≤	3.0	5.0
Protein/%	≥	33	
Acidity (1 mol/L NaOH)/(mL/100g)		90~159	
Ash/%	≤	4.0	
Total sugar (as glucose)/ %	≤	45	
Starch		Not detectable	

The standard also highlights the Safety and health requirements that shall comply with the requirements of national laws, regulations, and governmental rules, and meet the safety and health requirements stipulated in the relevant national standards, but do not mention any specific reference to any standard.

The standard give instruction on the **laboratory testing method for the royal jelly lyophilized powder** and specifically in relation to testing for sensory requirements, Physical and chemical tests.

The final requirements of the standard are related to **Packaging** that need to be the moisture-proof level of the packaging shall not be lower than the level 2 specified in GB/T 5048 (Moisture-proof packaging). Protective inner packaging materials should comply with the requirements of GB/T 12339 (Inner packaging materials in preservation). The airtightness of the packaging should be verified in accordance with GB/T17344 (Packaging. Packing containers. Air-tight test method). For protective flexible packaging, the sealing performance of the packaging should be verified according to GB/T 15171 (Test method for leaks in sealed flexible packages). Food **labelling** should comply with the requirements of GB7718 (National food safety standards -- General Principles of pre-packaged food labels).

It is appropriate to indicate the temperature and humidity conditions of storage and transport.

The means of **transportation** shall be clean and hygienic, dry, odourless, and pollution-free, and it is strictly forbidden to mix with toxic, harmful, odorous, and easily polluted articles. It shall be strictly prevented from sun and rain during transportation and shall be loaded and unloaded lightly during loading and unloading.

The products should be **stored** separately according to batch, grade, and specification, it should be stored in a cool ( $\leq 20^{\circ}\text{C}$ ) and dry place, and it shall not be stored in the same place as toxic, harmful or odorous substances.



## Chinese National Food Safety Standard GB/T 35868-2018 Specification for producing technology of royal jelly

This standard specifies the production conditions, control of the production process and transport of royal jelly and applies to the production of royal jelly in apiaries.

The standard defines the **terminology** of production of royal jelly as “the process of rearing honeybees and using the biological characteristics of worker bees to nurse queen larvae to induce nurse bees to secrete royal jelly and to obtain royal jelly.”

The **Beekeepers** needs to hold specific requisites such as:

- Hold a health certificate and a beekeeping certificate.
- Have knowledge of beekeeping production and royal jelly production techniques.
- Be trained in bee product safety and standardised production techniques and should regulate beekeeping production according to the requirements of GB 9697, GB/T 19168, and GB/T 21528.

In relation to the facilities for productions, apiaries, it is required to keep a beekeeping **production logbook** which should be established and recorded as required according to GB/T 21528; The apiary should number the bee colonies and make records; The beekeeping production log should be kept as a breeding file for 3 years.

**Marking and traceability;** Apiaries should mark the royal jelly produced each day.

The **labelling** should include apiary number (or name), royal jelly, honey source, harvest date, origin, and weight.

The **apiary** shall provide the other party with a Delivery Note at the same time as the delivery of royal jelly, well protected and managed by marking to provide evidence of traceability. The standard also highlights the type of bees that should be used for production which are defined as: high quality, high yielding, and disease resistant bee species. The swarm are defined as: strong colonies of 8 frames or more, with dense worker bee population, sufficient nurse bees and healthy and disease free. The colonies shall be well fed with nectar forage and is fed at the right time when there is a lack of outside sources of nectar.

The **Bee release site conditions** are defined as per:

- There should be abundant pollen source plants within 3km of the bee release site.
- The bee release site should be far away from chemical plants, pesticide factories and other polluting sources.
- The air and water quality around the bee release site should be good.
- Bee release sites should be high, dry, clean, sunny and windward, with good drainage and a suitable microclimate.

The **temperature and humidity** should be between 15°C and 30°C and the relative humidity should be between 50% and 80%.

The standard describes the different **equipment and facilities** used for the production:

- The **Syrup production frames** should be made of wood or food-grade plastic, in the form of single frames or double frames. The frames should be reasonably designed to facilitate the free loading and unloading of the foundation strips, and the Base made of beeswax and food-grade plastic, the table base is 11mm-12mm high, with an internal diameter of 9.35mm-10.10mm and is straight with a rounded bottom. Table base strip made of food-grade plastic and mounted on the pulp production frame.
- **Worm transfer needle** - tongue is made of cow horn, sheep horn or a non-toxic plastic sheet with a rounded, thin, soft and tough tongue, **Starch collection apparatus** as strainer made of non-toxic, non-contaminating royal jelly material,
- **Packaging containers** made Non-toxic, cleaned, disinfected and dried before use.
- **Operating rooms** as clean and tidy rooms or tent, which should be cleaned and disinfected before pulp collection,
- **Refrigerator**, freezer with good quick-freezing effect with refrigeration up to -18°C or below.

The standard define also the **techniques for the different stage of the productions** in relation to the raw herd organisation, multi-colony grouping method, management during the pulp production period, transferring spleen cultivation, management during the high temperature season, colony inspection and adjustment, resting of the bee production colony, cleaning and disinfection of bee equipment and personnel, transferring worms, lowering and collecting the frames, removal of larvae, extraction of royal jelly, packaging and storage and transport.

