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**BHUTAN STANDARD**

Kombucha



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**BHUTAN STANDARDS BUREAU**

The National Standards Body of Bhutan

Thimphu 11001

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## **FOREWORD**

This Bhutan Standard for Kombucha was developed by Bhutan Standards Bureau after the draft finalized by the Food and Agriculture Technical Committee, TC 02 and approved by the Bhutan Standards Bureau Board (BSB Board) on Day Month 2021.

The standard specifies the essential compositional, quality, microbiological, contaminants and labelling requirements for Kombucha. The standard is drafted in accordance with the BSB Rule for Structure and Drafting of Bhutan Standards, 2017. Some of the elements of this standard may be the subject of copyrights.

This standard is subject to systematic review after five years to keep pace with the market trends, industrial and technological developments. Any suggestions and further information may be directed to the concerned Technical Committee.

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## **INTRODUCTION**

Fermented foods have been a staple of cultures internationally for thousands of years. Kombucha is reported to have originated in northeast China about 220 B.C, disseminated to Japan in 414 A.D as a medicine and spread through trade routes to Russia and Eastern Europe. Kombucha has only recently become popular in the other parts of the world. Lately Kombucha production has also picked up in Bhutan with more people getting aware of the product.

Kombucha is a beverage made by fermenting *Camilla sinensis* with Symbiotic Culture of Bacteria and Yeast (SCOBY). Kombucha contains trace amounts of alcohol, a natural by-product of the fermentation process that preserves the brew and protects it from harmful microorganisms.

The purpose of this Bhutan Standard for Kombucha are to define the quality of ingredients for manufacturing of the kombucha and to set the requirements such as physio-chemical properties, microbiological, hygiene, labelling and packaging. Therefore, there is need to have a standard that provides common understanding of Kombucha to guide the manufacturers on safety and quality during production. This will also enable local traders to venture into international trade of Kombucha.

The use of standards remains voluntary and when referenced by regulatory authorities as a basis for legislations, the standards becomes mandatory.

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## BHUTAN STANDARD FOR KOMBUCHA

### 1 Scope

This Bhutan Standard prescribes the requirements, sampling and test methods for fermented beverages bearing the name Kombucha prepared from *Camilla sinensis* intended for direct consumption.

### 2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

AOAC 942.15 *Acidity (Titratable) of fruit products*

BTS 337 ISO 6579-1 Part 1 *Microbiology of the food chain — Horizontal method for the detection, enumeration and serotyping of Salmonella — Part 1: Detection of Salmonella spp*

BTS 333 ISO 6888-1 *Microbiology of the food chain-Horizontal method for the enumeration of coagulase-positive staphylococci (staphylococcus aureus and other species)-part 1: Method using Baird-Parker agar medium*

BTS 328 ISO 1842 *Fruit and vegetable products — Determination of pH*

BTS 329 ISO 6634 *Fruits, vegetables and derived products — Determination of arsenic content — Silver diethyldithiocarbamate spectrophotometric method*

BTS 332 ISO 6633 *Fruits, vegetables and derived products — Determination of lead content — Flameless atomic absorption spectrometric method*

BTS 322 ISO 4833-1 *Microbiology of the food chain – Horizontal method for the enumeration of microorganisms – Part 1: Colony count at 30 degrees Celsius by the pour plate technique*

BTS 323 ISO 16649-2 *Microbiology of food and animal feeding stuffs -- Horizontal method for the enumeration of beta-glucuronidase-positive Escherichia coli -- Part 2: Colony-count technique at 44 degrees C using 5-bromo-4-chloro-3-indolyl beta-D-glucuronide*

BTS 324 ISO 21527-2 *Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of yeasts and moulds — Part 2: Colony count technique in products with water activity less than or equal to 0.95*

BTS 269 CXS 1 (Amended 2009) *General guidelines on claims*

BTS 268:2020 CODEX STAN 1-1985, *General Standards for the Labelling of Prepackaged Foods*

BTS 139:2019 SARS 0014:2018, *Food hygiene- General principles – Code of practice*

BTS 271:2020 CODEX STAN 192-1995 *General standard for food additives*

*Bhutan Drinking water quality standards, 2016*

### 3 Terms and definition

For the purposes of this document, the following terms and definitions apply;

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## 3.1 Adulteration

Food adulteration is an act of intentionally debasing the quality of food either by the admixture or substitution of inferior substances or by the removal of some valuable ingredients.

## 3.2 Contaminants

Contaminant means any biological/chemical/physical, or other substances not intentionally added to food, which may compromise food safety or suitability.

## 3.3 Extraneous matter

Any foreign substances in foods associated with objectionable condition or practices in production, storage and/or distribution of foods.

## 3.4 Kombucha

Kombucha is fermented beverage made with an aqueous extract of tea leaves utilizing symbiotic culture of bacteria and yeast.

**3.4.1** Kombucha typically has a pH range of 2.5 to 4.5. The fermentation produces a beverage with some natural carbonation, organic acids, nutrients in natural form and trace amounts of alcohol. Variations in the base solution and optional ingredients, as well as further possible fermentation processes provide a variety of related similar products with different flavour profiles.

## 3.5 Kombucha base

An intermediary product that is produced through long-term fermentation process which cannot be consumed directly without dilution but is used as a sub ingredients for manufacturing Kombucha.

## 3.6 Nutritive carbohydrate sweetener:

Any sugar source that facilitates the fermentation process including but not limited to sucrose, fructose, glucose, galactose, dextrose, lactose, maltose, as well as other nutritive carbohydrate sweeteners that support fermentation such as honey, agave, molasses, brown sugar, maple syrup and certain fruit juices. Must be a type that will ferment to provide the characteristics of Kombucha.

## 3.7 SCOBY

Acronym for Symbiotic culture of Bacteria and Yeast used in the production of Kombucha herein referred as culture.

## 3.8 Starter liquid

Already fermented kombucha used to inoculate a new batch of kombucha.

# 4 Essential composition

## 4.1 Composition

### 4.1.1 Mandatory ingredients

#### 4.1.1.1 *Camellia sinensis* leaves

#### 4.1.1.2 Potable Water

#### 4.1.1.3 Nutritive carbohydrate sweeteners

**4.1.1.4** Starter Liquid and/or Symbiotic Culture of Bacteria and Yeast (SCOBY). When the starter liquid is used, the amount of starter liquid to be used should be no less than 10% of the total volume to ensure product safety especially if no SCOBY is employed.

**4.2 Optional ingredients** (not to exceed 20% of the finished product by volume formulation solely or in combination) must be listed in the ingredients list on the label – See Labeling Requirements.

**4.2.1** Flavorings ingredients including various juices

**4.2.2** Aroma and flavour-producing microbial cultures

**4.2.3** Vitamins and minerals

**4.2.4** Characterizing food ingredients (such as chia seeds)

**4.2.5** Probiotic bacteria

**4.2.6** Carbon dioxide

**4.2.7** Citric and other acids

**4.2.8** Color additives

**4.2.9** Stabilizers – used only in flavored, colored or vitamin and mineral fortified Kombucha.

**4.2.10** other permissible food additives and preservatives may be added within the permissible level as specified in BTS 271:2020 CODEX STAN 192-1995.

## **5 Quality factors**

### **5.1 General quality requirement**

**5.1.1** The raw materials shall be suitable for the production of kombucha

**5.1.2** The product shall be clear filtered or turbid.

**5.1.3** The product shall have the characteristic colour, aroma and flavour.

**5.1.4** The culture must be true to its nature, healthy and free from any contaminants.

**5.1.5** The product shall be free from extraneous matter and adulterants.

### **5.2 Specific quality requirements**

#### **5.2.1 Chemical specification**

The chemical requirements for Kombucha is specified in the Table A.1.

#### **5.2.2 Potable water**

Potable water when used as ingredients or used as processing aid shall conform specification as established in *Bhutan Drinking water quality standards, 2016*.

#### **5.2.3 Contaminants**

##### **5.2.3.1 Pesticide residue**

The product shall conform to the limits as defined in FAO/WHO Codex Alimentarius.

##### **5.2.3.2 Heavy metals**

The product shall conform to Heavy Metals contaminants requirements specified in the Table A.2. Specific method for determination of listed heavy metals for Kombucha is recommended but not prescribed. Laboratories may use the test methods, which meet the specific performance criteria and are validated.

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## 5.2.3.3 Microbiological

The product shall conform to microbial acceptable limits specified in Table A.3. Specific methods for determination of listed microbes for Kombucha are not prescribed but recommended. The Laboratories may use the test methods, which meet the specific performance criteria and are validated.

## 6 Packaging and labelling

### 6.1 Packaging

The product shall be packed in suitable food grade materials that will safeguard the hygienic, nutritional and organoleptic qualities of the product.

### 6.2 Labelling

In addition to the provision of the labelling in BTS 268:2020 CODEX STAN 1-1985, the following specific provision shall apply;

**6.2.1** The name of the beverage that meets all of the above requirements in this standard is either “Kombucha Tea” or “Kombucha” or any other products that conforms to the specifications established in this standard.

**6.2.2** The term “Pasteurized” shall be clearly mentioned on the label if the product is pasteurized otherwise shall be labelled as “Raw kombucha”.

**6.2.3** If carbon dioxide or nitrogen is infused just prior to or during bottling, it must be noted on the label. This must be listed in the ingredient statement.

**6.2.4** The phrase “Added cultures” if additional bacteria or yeast are added prior to bottling. These must be listed in the ingredient statement.

**6.2.5** The phrase “Added probiotics” if probiotics are added. These must be listed in the ingredient statement.

**6.2.6** The phrase “Added acids” if additional organic acids are added. These must be listed in the ingredient statement.

**6.2.7** The phrase “Flavored with XX” and/or “Colored with XX” with the “XX” identified as specific favoring or coloring agent. These must be listed in the ingredient statement.

**6.2.8** The term “filtered” must be included on any products that are passed through any size filter.

**6.2.9** The statement “Keep Refrigerated Before and After Opening” displayed prominently on the label.

**6.2.10** The statement “Kombucha naturally contains trace amounts of-alcohol due to the fermentation process.”

**6.2.11** The phrase “Wild Culture” if using a starter liquid and/or SCOBY that has been cultivated from wild strains and has not been designed nor bioengineered.

**6.2.12** When Kombucha meeting the specifications of this standard is mixed with another type of beverage or food, the result is a compound food and the percentage of Kombucha in the finished beverage or food must be specified.

**6.2.13** Any added essential nutrients declaration should be in accordance with BTS 269:2020 CXG 1-1979.

## 7 Hygiene

The product should be prepared and handled in accordance with BTS 139:2019 SARS 0014:2018.

## 8 Sampling

### 8.1 Scale of sampling

All containers in a consignment belonging to the same batch of manufacture shall constitute a lot. If the consignment is declared to consist of different batches of manufacture, containers of the same batch shall be grouped together and each group so formed shall constitute a separate lot. Sample shall be tested from each lot for ascertaining conformity to the requirements of this standard.

### 8.2 Sample size

The number of containers to be selected from a lot for testing for microbiological and other requirements shall depend on the size of the lot and shall be in accordance with *Table 4*.

**Table 4– Sample size determination**

Number of containers to be selected for sampling Number of containers in the lot, N	Number of containers to be selected (n)	
	Microbiological	Other test
≥1300	12	18
1301 to 3200	18	24
≥3201	24	30

### 8.3 Sampling method

The containers to be selected for testing shall be chosen at random from the lot by the following procedure. Starting from any container, count them as 1, 2, 3..... up to r. Every r<sup>th</sup> containers thus counted shall be withdrawn, r being the integral part of N/n, where N is the total number of containers in the lot and n is the total number of container to be chosen (see Table 4).

### 8.4 Test samples and reference samples

#### 8.4.1 Samples for microbiological tests

The sample containers selected for microbiological tests shall be divided at random into three equal sets and labelled with all particulars of sampling. One of these sets of sample containers shall be for the buyer; another for the supplier and the third set is the reference.

#### 8.4.2 Samples for other tests

The sample containers selected for other tests shall be divided at random into three equal sets and labelled with all the particulars of the sample. One of these sets of sample containers shall be for the buyer, another for the supplier and third is the reference.

#### 8.4.3 Reference samples

Reference samples shall consist of a set of sample containers for microbiological tests and a set of sample containers for other tests and shall bear the seals of the buyer and supplier or as agreed to between the two.

## Annex A

## Normative

Table A. 1– Chemical requirement

Substance	Requirement	Test method
Alcohol(Ethanol),%, (v/v), max	<1.15	-
Titrateable Acidity Acetic Acid, g/L max	0.27-2.03	AOAC 942.15
pH	2.5-4.5	BTS 328 ISO 1842

Table A. 2 – Maximum heavy metal limits

Characteristics	Limit (mg/kg)	Test method
Lead ( <i>Pb</i> )	0.05	BTS 332 ISO 6633
Cadmium ( <i>Cd</i> )	0.003	-
Mercury ( <i>Hg</i> )	0.001	-
Arsenic ( <i>As</i> )	0.05	BTS 329 ISO 6634

Table A. 3 –Maximum microbial contaminants limits

Characteristics	Limit (cfu/ml)	Test method
Total Plate Count	10 <sup>7</sup>	BTS 322 ISO 4833–1
Yeast and Moulds	10 <sup>5</sup>	BTS 324 ISO 21527-2
<i>Escherichia coli</i>	10 <sup>4</sup>	BTS 323 ISO 16649-2
<i>Salmonellae</i>	Absent	BTS 337 ISO 6579-1
<i>Staphylococcus aureus</i>	Absent	BTS 333 ISO 6888-1

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