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**BHUTAN STANDARD**

**Large Cardamom-Specification**



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**BHUTAN STANDARDS BUREAU**

**The National Standards Body of Bhutan**

**Thimphu 11001**



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## Table of Contents

FOREWORD	iv
INTRODUCTION.....	v
1 Scope .....	1
2 Normative References .....	1
3 Terms and Definition .....	1
3.1 Extraneous Matter .....	1
4 Description .....	2
4.1 Large Cardamom Capsules.....	2
4.2 Large Cardamom Seeds .....	2
4.3 Large Cardamom Powder .....	2
5 Hygiene .....	2
6 General Quality Requirement.....	2
6.1 Odour and Taste .....	2
6.2 Insects and fungus.....	2
6.3 Extraneous Matter .....	2
6.4 Empty and deformed capsules .....	2
6.5 Immature capsules .....	2
6.7 Ground (Powdered) Large Cardamom Particle Size .....	3
6.7 Added Color.....	3
6.8 Chemical Requirement .....	3
6.8 Microbiological Requirements .....	3
7 Sampling .....	3
8 Test Methods.....	4
9 Grading of Large Cardamom Capsules .....	4
11 Packing.....	4
12 Labelling.....	4
13 Storage and Transport .....	4
Bibliography	5

# **BTS 370: 2022**

## **FOREWORD**

Bhutan Standards Bureau (BSB) is a National Standards Body (NSB) of Bhutan. This standard for Large Cardamom (*Amomum subulatum* Roxb.) was developed by Technical Committee TC02, Food and Agriculture, Subcommittee SC 13, Spices, Culinary herbs and Condiments under Bhutan Standards Bureau after the draft finalization by the Food and Agriculture Technical Committee, TC 02 and approved by the Bhutan Standards Bureau Board (BSB Board) on 15<sup>th</sup> August 2022.

This standard specifies requirements for grading, packaging and labelling for Large Cardamom capsules, seeds and powder. This standard is drafted in accordance with the BSB Rule for Structure and Drafting of Bhutan Standards, 2018. 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. Amendments are issued to standards as the need arises on the basis of comments.

## **INTRODUCTION**

This Bhutan standard for Large Cardamom (*Amomum subulatum Roxb.*) was proposed to BSB from Department of Trade (DoT) as part of the Enhanced Integrated Framework (EIF) project. This standard was developed by subcommittee on Spices, Culinary herbs and Condiments with members representing from Department of Agriculture (DoA), National Post Harvest Centre (NPHC), Bhutan Agriculture and Food Regulatory Authority (BAFRA) and Food Corporation of Bhutan Limited (FCBL).

Large Cardamom Popularly grown in India, Nepal and Bhutan which lies in the sub-Himalayan region. In Bhutan, Large cardamom is popularly produced in Samtse, Tsirang, Chukha, Dagana, Sarpang and Haa. It is one of the main export crops and mostly exported to India and Bangladesh. The trade of Large Cardamom has enhanced rural livelihood and employment.

Since there is no national standard on large cardamom, the need for standard was felt necessary to address emerging issues, maintain quality parameters and to facilitate trade.

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

### Large Cardamom-Specification

#### 1 Scope

This Bhutan Standard specifies requirements for dried Large Cardamom (*Amomum subulatum* Roxb.) Capsules, **Seeds and Powder**.

#### 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.

ISO 712: 1998 *Determination of Moisture content – Routine reference method*.

AOAC 920.100 *Ash in tea*

IS 13145: 2014 *Spices and Condiments – Methods of sampling*

IS 5887-3: 1999 *Methods for Detection of Bacteria Responsible for Food Poisoning - Part 3: General Guidance on Methods for the Detection of Salmonella*

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

BTS 139:2020 SARS 0014:2018, *Food hygiene- General principles – Code of practice*

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

#### 3 Terms and Definition

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

##### 3.1 Extraneous Matter

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

##### 3.2 Ribbed Capsules

Capsules marked with/or formed into ridges.

##### 3.3 Sound Seeds

Seeds with healthy appearance with characteristic color and aroma which are not damaged, injured or diseased.

##### 3.4 Immature and Shriveled Capsules

Capsules which are not fully developed.

##### 3.5 Abnormal Odour and Taste

Non-characteristics smell and taste that is not associated with healthy large cardamom.

# BTS 370: 2022

## 3.6 Decortication

The process of extracting seeds from the capsules.

## 4 Description

### 4.1 Large Cardamom Capsules

Large cardamom capsules are the dried, matured fruits of *Amomum subulatum* Roxb. The capsules have a colour ranging from brown to pink and are ovoid and more or less triangular shaped with a ribbed appearance. The capsules may be clipped and their pedicles removed. The capsules shall be well formed with sound seeds inside.

### 4.2 Large Cardamom Seeds

The seeds obtained from decortication of cardamom capsules.

### 4.3 Large Cardamom Powder

The powder obtained by the process of grinding of whole large cardamom capsules or seeds only.

## 5 Hygiene

The Large cardamom capsules shall be handled in accordance with the provision of in BTS 139: 2020 SARS 0014: 2020.

## 6 General Quality Requirement

### 6.1 Odour and Taste

The large cardamom capsules, seeds and powders shall have characteristics aroma, free from any abnormal odour and taste.

### 6.2 Insects and fungus

The large cardamom capsules, seeds and powders shall be free from live/dead insects, fungal growth and rodent contaminations visible to the naked eye.

### 6.3 Extraneous Matter

Cardamom capsules, seeds and powders shall be free from visible dirt or dust. The proportion of calyx and stalk pieces and other extraneous matter in capsules, seeds and powder shall not be more than 5 % (m/m), 2%(m/m) and absent respectively when determined by the method specified in clause 4 of IS 1797.

### 6.4 Empty and deformed capsules

The proportion of the empty (i.e. Without any seeds) or deformed capsules, shall not be more than 5 % by counting. For this purpose, 100 capsules from a sample taken at random shall be examined for number of empty and deformed capsules.

### 6.5 Immature capsules

The proportion of immature capsules shall not be more than 7 % (m/m) and shall should be determined after separating them in accordance with the method given in clause 4 of IS 1797.

### 6.6 Immature seeds

Immature seeds include seeds that are white and brown in color. The proportion of immature seeds shall not be more than 5 % (m/m) and shall should be determined after separating them in accordance with the method given in clause 4 of IS 1797.

**6.7 Ground (Powdered) Large Cardamom Particle Size**

98% of the Ground(powder) large cardamom shall pass through a 0.6mm sieve. ~~sieve of aperture size 0.6mm.~~

**6.7 Added Color**

Large cardamom capsules, **seeds and powder** shall be free from added coloring matter.

**6.8 Chemical Requirement**

The samples of large cardamoms capsules, seeds and powders shall be tested to ensure conformity with the chemical requirements of this standard by following the methods specified in Table\_1, however laboratories may use the test methods, which meet the specific performance criteria and are validated.

Table 1- Chemical requirements for Large Cardamom Capsules

Characteristics	Requirements			Test Method
	Capsules	Seed	Powder	
Moisture Content, % (m/m) max.	12	12	11	ISO 712: 1998
Total Ash, % (m/m) on a dry basis, max.	8	8	8	AOAC 920.100
Acid Insoluble ash, % (m/m), on a dry basis, max.	2	2	2	AOAC 13857
Volatile oil Content, %(ml/100g), on a dry basis, min.	1	1	1	ISO 6571

**NOTE:** For capsules, the determination of moisture content, total ash and acid-insoluble made on the whole capsules. The determination of volatile oil shall be made on the seeds obtained by decortication.

**6.8 Microbiological Requirements**

The samples of large cardamoms capsules, seeds and powder shall be tested to ensure conformity with the microbiological requirements of this standard by following the methods specified in Table\_2, however laboratories may use the test methods, which meet the specific performance criteria and are validated.

Table 2-Microbiological requirement of Large Cardamom Capsules

Characteristics	Requirements	Test Method
Salmonella (in 25 g)	Absent	IS 5887-3: 1999

**7 Sampling**

Sampling shall be carried out as specified in IS 13145: 2014, however laboratory may use other international accepted sampling methods.

# BTS 370: 2022

## 8 Test Methods

The samples of large cardamoms as capsules, seeds and powder shall be tested to ensure conformity with the requirements of this Bhutan standard by following the methods specified, however laboratories may use the test methods, which meet the specific performance criteria and are validated.

## 9 Grading of Large Cardamom Capsules

The large cardamom capsules may be graded as per the requirements in Table\_3.

**Table 3- Grading of Large Cardamom Capsules**

Grade	Specification (Width in mm)	General Quality Requirements
Premium(A)	>13	BTS 370: 2022
Sub premium(B)	10-13	
Ordinary(C)	<10	

## 11 Packing

11.1 Large cardamom capsules, seeds and powders shall be packed in clean and sound packaging material/container which does not affect the product and protects it from the ingress of moisture and loss of volatile matter.

## 12 Labelling

12.1 Large cardamom capsules, seeds and powder shall be labeled as per provision of the labelling in BTS 268:2020 CODEX STAN 1-1985.

12.2 Any declaration should be in accordance with BTS 269:2020 CXG 1-1979.

## 13 Storage and Transport

13.1 The packages of large cardamom capsules, seeds and powder should be stored in covered premises, well protected from the sun, rain and excessive heat.

13.2 The store should be dry, well ventilated, free from objectionable odours and insects/ rodents proof.

13.3 The packages should be handled and transported in such a way that they are protected from rain, from the sun or other sources of excessive heat, from objectionable odours and from any other contamination.

**Bibliography**

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- [6] Grade Speciation of Large Cardamom (*Amomum subulatum* Roxb.) Capsules in Sikkim and Darjeeling District of West Bengal, India
- [7] Current practices on Inspection and Certification of Cardamom (*Amomum subulatum*), BAFRA, DoA

**Annex**

(informative)

Table 3- varieties of Large Cardamom as per FAO

<b>Variety</b>	<b>Capsule character</b>
Ramse	Long shaped, medium sized and medium quality. Dry weight of 20 capsules is 15.4 g
Golse	Big and round, plump and weighty Dry weight of 20 capsule 14.5 g
Jirmale	Big and round
Sawane	Big grey colored triangular in tip and round at base but smaller than Bharlange. Dry weight 20 capsules is 12.1 g
Chibese	Small capsule.
Zongu-Golse	Big and bold capsules Dry weight of 20 capsule is 17.2 g
Seremna	Medium sized weighty capsules
Ramala	Round medium sized, dark pinkish in color. Dry weight
Damberse	Big sized and tasty
Bharlange	Big sized long capsule
Madhuse	Dry weight of 20 capsule is 18.3 g

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