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BHUTAN STANDARD

Tricholoma matsutake



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BHUTAN STANDARD

Tricholoma matsutake

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FOREWORD

Bhutan Standards Bureau (BSB) is a National Standards Body (NSB) of Bhutan. The work of developing national standards is normally carried out through BSB technical committees. This standard for Matsutake mushroom (*T. matsutake*) was developed by Technical Committee TC02, Food and Agriculture, Subcommittee SC 14, Mushroom 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 28 July 2022.

This standard specifies minimum requirements for collection, handling, grading, packaging and labelling for Matsutake mushroom. 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.

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INTRODUCTION

This Bhutan standard on Matsutake mushroom (*T. Matsutake*) was proposed to BSB from Department of Trade (DoT) as part of the Enhanced Integrated Framework (EIF) project. This Bhutan standard was developed by subcommittee on Mushroom with members representing from National Mushroom Centre (NMC), National Post Harvest Centre (NPHC), Department of Agriculture and Marketing Cooperatives (DAMC), Bhutan Agriculture and Food Regulatory Authority (BAFRA), Department of Forest and Park Services (DoFPS) and Matsutake exporters.

Matsutake mushroom grows in the wild in countries like Japan, Korea and China besides Bhutan. In the United States it reported to grow in the western part of British Columbia from where it is exported to Japan. In Bhutan too matsutake collected is largely exported to Japan, while a small portion is sent to Thailand or Singapore. The matsutake trade in Bhutan started in 1989 when a Japanese visitor found a lady from Geney Gewog selling it in the vegetable market. The trade with Japan has awakened up the interest in Bhutan and there is now demand in the Bhutanese people also. The trade of Matsutake mushroom has not just enhanced rural community livelihood by providing additional income and employment.

Ministry of Agriculture and Forest (MoAF) had developed and adopted the standard for mushroom collection and export. However the need for standard at national level was felt necessary to address emerging issues and facilitate trade. This standard will ensure food safety throughout the value chain and maintain quality parameters.

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

Tricholoma matsutake

1 Scope

This Bhutan standard specifies the minimum requirements for matsutake mushroom meant for consumption in fresh form and further processing.

This standard shall not include processed product from mushroom (dried, canned, pickled etc...).

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.

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

3 Terms and Definition

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

3.1 Contaminants

Any biological or chemical agent, foreign matter or other substances intentionally or unintentionally added to food which may compromise food safety or suitability

3.2 Extraneous Matter

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

3.3 Adulteration

The addition of any substance intentionally to/from food, so that the natural composition and quality of food substance is affected

3.4 Additives

Any substance not normally consumed as a food by itself and not normally used as a typical ingredient of the food, whether or not it has nutritive value, the intentional addition of which to food for a technological (including Organoleptic) purpose in the manufacture, processing, preparation, treatment, packing, packaging, transport or holding of such food results, or may be reasonably expected to result (directly or indirectly), in it or its by-products becoming a component of or otherwise affecting the characteristics of such foods

3.5 Farm Gate Market

Farm gate market is a market where farmers sell Matsutake mushroom to the buyers

4 Description of the Produce

Matsutake mushrooms or *Tricholoma matsutake* are ectomycorrhizal mushrooms associated with higher plants like brown oak and spruce in Bhutan. In the case of Japan, it is associated with the red pine and as such the name Matsutake has been derived; “Matsu” means pine tree and “take” means mushroom. In Bhutan it is called Sangay Shamong.

5 Hygiene

The produce shall be handled in accordance with the provision of BTS 139:2019 SARS 0014:2020.

6 Harvesting and Handling

6.1 Collection Method

6.1.1 Minimum Size

The collector shall not collect Matsutake mushroom below 7.5 cm in height.

6.1.2 Disturbance to Soil Substrate

The collector shall not cause excessive damage to the soil, leaf litter and moss during mushroom collection.

6.1.3 Damage to Host Plant

The collector shall not damage the host plant (brown oak and spruce) during mushroom collection.

6.1.4 Harvesting Condition

Rained soaked mushroom shall not be harvested.

6.1.4 Container for Mushroom Collection

The collector shall use hand gloves, rigid and perforated containers for mushroom collection.

6.2 Storage at Collectors Site

The collector shall store the mushroom collected in a refrigerator (4-5 degree Celsius) or in a cool place away from direct sunlight and rain.

7 Quality Factors

7.1 General Quality Requirement

The produce shall:

- 7.1.1 have the characteristic color, aroma and shall be free from foreign odors.
- 7.1.2 be fresh, clean and free from any contaminants.
- 7.1.3 be free from extraneous matter and adulterants.
- 7.1.4 be free from damage caused by pests.
- 7.1.5 be free from surface moisture.
- 7.1.6 not be slimy.

8 Farm Gate Market

8.1 Handling process

- 8.1.1 Hand gloves shall be used for handling mushroom during weighing and handling over process.
- 8.1.2 Clean and dirt free equipment shall be used.
- 8.1.3 Shall use calibrated equipment.
- 8.1.4 Appropriate shed/house shall be used during transaction. Open spaces shall be avoided and structures that can maintain cool condition shall be used.
- 8.1.5 The harvesting date of mushroom shall be recorded.
- 8.1.6 Mushroom shall be graded into different category at the farm gate market given in Table_1.
- 8.1.7 Mushroom procured from the collector/harvester should be transported in refrigerated convenes.

8.2 Grading

Matsutake mushroom being traded at the farm gate market shall be graded in the following category:

Table 1- Grading of Matsutake mushroom at farm gate market

Grade	Characteristics
Grade 1	- Completely intact veil. - good shape
Grade 2	- less than 50 % open veil - intact veil but thin stipe with minimum diameter of 2 cm(mid-section) - good shape
Grade 3	-Completely open cap, deformed shape but not infested with worms and dark gills -Mushroom with physical damage, provided it retains their essential characteristics

9 Packaging House

The packaging house shall be clean with hygienic environment.

9.1 Cleaning and Sorting

- 9.1.1 Head gears, masks, aprons, hand gloves shall be used.
- 9.1.2 Cleaning and sorting shall be conducted on raised platform and avoid working on the floor.
- 9.1.3 Sorting shall be done as per the general quality requirements given in clause 7.1.

9.2 Grading

The produce at packaging house shall be graded in the following category:

Table 2- Grading of Matsutake Mushroom at Packaging house

Grade	Description (Height)
1	15cm and above
2	12-15 cm
3	9-12 cm
4	7.5- 9 cm
5	Half open
6	Fully Open
7	Assorted size
8	Abnormal shape , broken and damaged

9.3 Packaging

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

9.4.1 Any essential item for the packaging of the produce to ensure the quality may be permitted in the packaging if it does not affect the produce in any way.

9.4.2 Electronic devices such as GPS sensors to monitor temperature and humidity inside the package may be included if required.

9.4 Labelling

The produce shall be labelled in accordance with the provision of BTS 268:2020 CODEX STAN 1-1985.

9.5 Storage

9.5.1 The store shall be clean, cool, and hygienic, well ventilated and not be exposed to direct sunlight and rain.

9.5.2 It shall be and to prevent contamination by hazardous substance and entry of insects and pests.

9.5.3 Organic material shall not be used for storing the mushroom.

9.5.4 Mushroom shall not be stored with other commodities.

9.6 Transport

9.6.1 Vehicle used for transporting the produce shall be kept clean and maintained in good hygienic condition inspected prior to loading.

9.6.2 Mixing of other commodities should be avoided during transport.

10 Additives

The use of food additives shall not be permitted.

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