

PHILIPPINE NATIONAL STANDARD

**PNS/BAFS 195:2017
ICS 67.040**

Mushroom - Specifications



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Foreword

This Philippine National Standard (PNS) for Mushroom, PNS/BAFS 195:2017, intends to provide specification on the requirements of all cultivated fresh and dried mushroom for local consumption and international trade.

A Technical Working Group (TWG) for the crafting of the said standard was created through Special Order No. 194 Series of 2016 spearheaded by the Department of Agriculture through the Bureau of Agriculture and Fisheries Standards (BAFS) with representation from government agencies namely Bureau of Plant Industry (BPI) and Regional Field Office II, III and V, academe specifically Central Luzon State University (CLSU) and private sectors such as 3G Country Farms and Perfect Mushrooms.

This document was drafted in accordance with the editorial rules of the BPS Directives, Part 3.

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1 Scope

This standard establishes the general requirements applicable to all cultivated fresh and dried mushrooms.

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.

CODEX STAN 38-1981 - *Codex General Standard for Edible Fungi and Fungus Products*

3 Terms and definitions

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

3.1 contaminants

substances that include physical, chemical and microbial that are not inherently present in mushroom

3.2 damaged mushroom

mushroom that is physically injured, discolored caused by insects and contaminated by microorganisms

3.3 dried mushroom

unadulterated mushroom without fortification and preservatives obtained by sun-drying, convection or hot air drying and/or freeze drying, whether whole or sliced

3.4 fresh mushroom

edible mushroom sorted and packed, delivered to the consumer immediately before the liberation of its spores

3.5 mold

threadlike microorganism with beneficial or harmful effects to humans, animals, plants and environment

3.6 mushroom

visible fruiting body of an edible mold which either grow wild or are cultivated

3.7

mushroom grits

coarsely ground dried mushroom of one species

3.8

mushroom powder

dried mushroom of one species ground finely as to allow the powder to pass through a sieve having a 200 microns mesh

3.9

pileus

part of the mushroom which serves as the cap

3.10

species

biological species and closely related species, e.g. strains of gray, white, yellow and pink *Pleurotus ostreatus*, *P. sajor-caju*, *P. djamor*, and *P. florida*, should be regarded as being of the same species

3.11

vacuum frozen

fresh mushroom of one species which, after cleaning, washing and blanching, are subjected to a freezing process in appropriate equipment and comply with the conditions laid down hereafter in this section and in sub-section 7.3 of this standard. This freezing operation should be carried out in such a way that the range of temperature of maximum crystallization is passed quickly. The quick-freezing process is completed unless and until the product temperature has reached -18°C (0°F) at the thermal center after thermal stabilization.

4 Essential composition and quality factors

4.1 Fresh and dried mushroom

4.1.1 Condition

Fresh and dried mushroom should be healthy, i.e. not spoiled, practically clean, firm, undamaged, free as far as possible, from insect damage and other microbes and shall possess the distinct aroma appropriate for the species.

4.1.2 Composition

In case the mushroom has stalk, the number should not exceed the number of pileus.

4.1.3 Tolerances for physical defects

The allowed tolerances expressed as mass per mass or m/m for cultivated mushroom is given on Table 1.

Table 1 – Allowed tolerances for cultivated mushroom

Cultivated mushroom	Tolerance (m/m)
Physical contaminants (e.g. compost material) A. For uncut mushroom B. For cut mushroom	not more than 8% not more than 1%
Content of insect-damaged mushroom	not more than 1% damage

5 Hygiene

- 5.1** It is recommended that the product covered by the provisions of this standard be prepared and handled in accordance with the appropriate sections of the Recommended International Code of Practice - General Principles of Food Hygiene (CAC/RCP 1-1969, Rev. 4 (2004) Codex Alimentarius Volume 1), and other Codes of Practice recommended by the Codex Alimentarius Commission which are relevant to this product.
- 5.2** To the extent possible, the product should be compliant in accordance with the Philippine National Standard (PNS) for the Good Cultivation Practices for Mushroom.
- 5.3** When tested by appropriate methods of sampling and examination, the product:
- 5.3.1** should be free from undesirable microorganisms and parasites (e.g. insects, mites and nematodes) in amounts which may represent a hazard to health; and
 - 5.3.2** should not contain heavy metals and other toxic substances beyond the allowable limit
- 5.4** Products covered by this standard which are in the dried or dehydrated form should be prepared in accordance with the provisions of the Code of Hygienic Practice for Dehydrated Fruits and Vegetables, including Edible Fungi recommended by the Codex Alimentarius Commission (CAC/RCP 5-1971).
- 5.5** Products covered by this standard which are in the vacuum frozen state should be prepared in accordance with the Code of Hygienic Practice for the Processing and Handling of Quick Frozen Foods (CAC/RCP 8-1976, Rev. 3 (2008))
- 5.6** Products covered by this standard which do not fall within one of the categories at 5.4, and 5.5 above, for example, fresh mushroom, should be prepared in accordance with the relevant sections of the General Principles of Food Hygiene (CAC/RCP 1-1969, Rev. 4 (2004) Codex Alimentarius Volume 1).

6 Weights and measures

- 6.1** The maximum weight recommended for fresh mushroom is 250 grams per pack.
- 6.2** The maximum weight recommended for dried mushroom is 1 kilogram per pack.

7 Packing, storing and transportation

- 7.1** The packaging used for fresh mushroom should be perforated to allow the free passage of air, if needed. Other materials like paper bags, fruit trays, and cling wrap may also be used for packaging of fresh mushroom.
- 7.2** Fresh mushrooms other than fleshy and low temperature sensitive species (e.g. *Volvariella* and *Coprinopsis*) should be maintained at a low temperature to maintain the quality during transportation, storage and distribution up to and including the time of final sale. The recognized practice of thawing and repacking products under controlled conditions followed by the application of the quick-freezing process as defined in sub-section 3.11 of this standard is permitted.
- 7.3** In the case of (a) dried mushroom, and (b) mushroom grits and mushroom powder, attention is directed to the need to prevent these products from absorbing moisture and being damaged by insects and other microbes, particularly moths and mites.

8 Labelling

In addition to the requirements of the General Standard for the Labeling of Prepackaged Foods (CODEX STAN 1-1985 Amended 2010), the following specific provisions apply:

8.1 The name of the food

- 8.1.1** Products complying with the definitions and other requirements of this standard should be appropriately designated to indicate their true nature.
- 8.1.2** The common name of the species of the mushroom should be stated in addition to the word "mushroom". The scientific name of the species should also be stated in parenthesis.

8.2 Origin of the product (Name and address of grower and/ or distributor)

8.3 Other styles

The label should contain relevant information in close proximity to the name of the product such as additional words or phrases.

9 Methods of analysis and sampling

This standard should conform with the Codex Alimentarius Volume 13 Methods of Sampling and Analysis.

ANNEX A
(informative)
Classification of various mushroom

Table A.1- Moisture content (MC) after drying, expressed in percentage (%), of various mushroom

Scientific Name	Common name		Moisture Content (MC) after drying (%)
	English	Filipino	
<i>Lentinula edodes</i>	Shiitake mushroom	-	15
<i>Auricularia sp.</i>	Wood ear mushroom	Tengang daga	15
<i>Pleurotus ostreatus</i>	Oyster mushroom	Kabuteng pamaypay Kurakding (Bicol)	9
<i>Pleurotus florida</i>	Florida mushroom	Kabuteng pamaypay Kulat (Iloco)	9
<i>Volvariella volvaceae</i>	Straw mushroom Paddy mushroom Banana mushroom	Kabuteng paying Kabuteng saging Kabuteng dayami	10 - 12
<i>Calocybe indica</i>	Milky mushroom	Kabuteng bumbay	10

ANNEX B
(informative)
Examples of species of mushroom



Figure B.1- *Ganoderma*



Figure B.2- *Pleurotus florida*

ANNEX C
(informative)
Common damages of mushroom species



Figure C.1- *Ganoderma* infested with insects



Figure C.2- *Pleurotus florida* severely infected with bacteria



Figure C.3- *Pleurotus florida* infested with sciarid flies

ANNEX D
(informative)
List of testing laboratories for mushroom

1. Bureau of Plant Industry (BPI)
2. Food and Nutrition and Research Institute (FNRI)
3. Department of Science and Technology (DOST)
4. Other private companies

Bibliography

Code of Hygienic Practice for Canned Fruit and Vegetable Products recommended by the Codex Alimentarius Commission (CAC/RCP 2-1969 Editorial Amendment 2011).

Code of Hygienic Practice for Dehydrated Fruits and Vegetables, including Edible Fungi (CAC/RCP 5-1971).

Code of Hygienic Practice for the Processing and Handling of Quick Frozen Foods (CAC/RCP 8-1976 Rev. 3 (2008))

General Principles of Food Hygiene (CAC/RCP 1-1969, Rev. 4 (2004) Code Alimentarius Volume 1).

General Standard for the Labeling of Prepackaged Foods (CODEX STAN 1-1985 Amended 2010).

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