

PHILIPPINE NATIONAL STANDARD

**PNS/BAFS 409:2025
ICS 67.080.20**

Oyster Mushrooms — Product Standard — Grading and Classification



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Foreword

In 2023, the Department of Agriculture (DA)-Bureau of Agriculture and Fisheries Standards (BAFS), through Standards Development Division (SDD), conducted an inventory of ASEAN Standards with equivalent Philippine National Standards (PNS). This initiative aligns with the Philippines' commitment under the Task Force on ASEAN Standards for Horticultural Products and Other Food Crops (TF-MASHP). Among the ASEAN Standards reviewed, the ASEAN Standard for Oyster Mushroom (ASEAN Stan 34:2014) was identified as not having an equivalent PNS. In response, the development of a national standard for oyster mushroom was prioritized and included in the DA-BAFS SDD Priority List for Standardization for CY 2025. The development of PNS for Oyster Mushrooms aims to establish a system of grading and classification that promotes food safety, enhance product quality, and support the development of the local mushroom industry through science-based and internationally aligned standards.

Furthermore, a research study entitled “Comparative Evaluation of Fresh Oyster Mushrooms (*Pleurotus* spp.) Grading and Classification Systems in Agusan Del Sur, Nueva Vizcaya, and La Union Against ASEAN Standard” was conducted by the DA-BAFS-Standards Research Division (SRD) to support the development of PNS for Oyster Mushroom in April 2024. The study aimed to provide technical information particularly on minimum quality requirements by conducting a comparative evaluation of the grading and classification systems used by local producers. This comparative evaluation focused on three major oyster mushroom-producing provinces: Agusan del Sur, Nueva Vizcaya, and La Union. As a result of the study, it was recommended to adopt the provisions in the ASEAN Standard for Oyster Mushroom (ASEAN Stan 35:2014) to establish a systematic grading and classification that will harmonize framework to guide product quality, safety, and trade of oyster mushroom in the Philippines.

A Technical Working Group (TWG) was established through the Special Order No. 745, series of 2025 (Composition of the Technical Working Groups [TWG] and Project Management Team [PMT] for the Development of the PNS for Agricultural and Fishery Products and Machinery). The TWG was composed of relevant stakeholders from the government sector, academe/research institutions, private sector organizations, and Civil Society Organizations (CSO). The draft PNS underwent a series of TWG meetings and stakeholder consultations conducted via an online platform before its endorsement to the DA Secretary for approval.

This document was drafted in accordance with the editorial rules of the DA-BAFS-SDD Standardization Guide No. 1: Writing the PNS.

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1 Scope

This Standard applies to commercial varieties of oyster mushrooms grown from *Pleurotus* species of the Pleurotaceae family, to be supplied fresh to the consumer, after preparation and packaging. Oyster mushrooms for industrial processing are excluded.

2 Normative References

The following documents are referred to in the text in such a way that some or all their contents constitute the requirements of this document. The latest edition of the referenced documents (including any amendments) applies:

Association of Southeast Asian Nations (ASEAN). (2014a). ASEAN guidelines for food import control systems (CAC/GL 47-2003 guidelines for food import control systems, MOD).

<https://asean.org/wp-content/uploads/2021/01/ASEAN-Principles-for-Food-Import-and-Export-Inspection-and-Certification-CACGL-20-MOD.pdf>

Bureau of Agriculture and Fisheries Standards (BAFS)-Department of Agriculture (DA). (2018). Code of Hygienic Practice (COHP) for fresh fruits and vegetables (PNS-BAFS 233:2018).

<https://bafs.da.gov.ph/index.php/approved-philippine-national-standards/>

BAFS-DA. (2020a). Establishment of microbiological criteria for food (PNS/BAFS 307:2020).

<https://bafs.da.gov.ph/index.php/approved-philippine-national-standards/>

BAFS-DA. (2020b). Principles and guidelines for national food control system (PNS/BAFS 293:2020).

<https://bafs.da.gov.ph/index.php/approved-philippine-national-standards/>

BAFS-DA. (2021). Fruits and vegetable farming — Code of practice — Good Agricultural Practices (GAP) (PNS 49:2021).

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BAFS-DA. (2022). General standard for contaminants and toxins in food and feed (GSCTFF) — Product standard (PNS/BAFS 194:2022).

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BAFS-DA. (2023b). Primary and postharvest food and feed — Product standard — Microbiological criteria (PNS/BAFS 372:2023).

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Codex Alimentarius Commission (CAC). (1997). Principles for the establishment and application of microbiological criteria for foods (CAC/GL 21-1997).

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CAC. (2003). Guidelines for food import control systems (CAC/GL 47-2003).

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CAC. (2022). General principles of food hygiene (CXS 1-1969, rev. 2022).

https://www.fao.org/fao-who-codexalimentarius/sh-proxy/it/?lnk=1&url=https%253A%252F%252Fworkspace.fao.org%252Fsites%252Fcodex%252FStandards%252FCXC%2B1-1969%252FCXC_001e.pdf

CAC. (2023). General standard for contaminants and toxins in food and feed (CXS 193-1995, rev. 2023).

https://www.fao.org/fao-who-codexalimentarius/sh-proxy/fr/?lnk=1&url=https%253A%252F%252Fworkspace.fao.org%252Fsites%252Fcodex%252FStandards%252FCXS%2B193-1995%252FCXS_193e.pdf

3 Terms and Definitions

For the purpose of this Standard, the following definitions below apply. The preferred terms are written in bold type after the Clause number, while admitted terms are listed in italicized type after the definition, which could be interchangeably used in interpreting the provisions of this Standard.

3.1

contaminants

any physical, chemical, and microbial composition that is not inherently present in mushroom (BAFS-DA, 2017)

3.2

damaged mushroom

physically injured, with discoloration caused by insects, other pests, and microbial contaminants (BAFS-DA, 2017)

3.3

cap

top portion of the mushroom, sitting (attached) on top of the stipe (stem) (Beyer, n.d.)

3.4

edible mushroom

fruiting bodies of a specific group of macrofungi, which either grow wild or are cultivated, and which, after necessary processing, are suitable for use as a food and nutraceutical benefits (CAC, 1981, *modified*)

admitted term: edible fungi

3.5

gill

long ridges and furrows underneath the cap that bear the spores (Chaudry & John, 2017, *modified*)

admitted term: lamella

3.6

mushroom

visible fruiting body of an edible fungi which either grow wild or are cultivated (CAC, 1981, *modified*)

3.7

oyster mushroom

fruit bodies that are distinctively shell or spatula-shaped and come in various colors, such as white, cream, grey, yellow, pink, light brown, and blue, depending on the specific species (Aditya et. Al., 2024, *modified*)

3.8

species

biological species and closely related species, e.g., strains of gray, white, yellow, and pink *Pleurotus ostreatus*, *P. sajor-caju*, *P. djamor*, *P. florida*, and *P. citrinopileatus* shall be regarded as being of the same species (CAC, 1981, *modified*)

3.9

stalk

short or long lateral or central stem (Chaudry & John, 2017, *modified*)

4 Provisions Concerning Quality

4.1 In all classes, subject to the special provisions for each class and the tolerances allowed, oyster mushrooms shall meet the following minimum requirements:

- a. whole;
- b. cluster or single;

- c. fresh;
 - d. characteristic of the species;
 - e. sound, produce affected by rotting or deterioration, such as to make it unfit for consumption, is excluded;
 - f. clean, practically free of any visible foreign matter and pests, with the exception of the cultivation substrate adhered to the mushroom base;
 - g. free of mechanical and/or physiological damage caused by physical factors such as temperature, illumination, relative humidity, and aeration;
 - h. free of abnormal external moisture, excluding condensation following removal from cold storage;
 - i. free of any foreign smell and/or taste; and
 - j. practically free of bruises and blemishes.
- 4.2** Oyster mushrooms shall be carefully harvested and have reached an appropriate stage of development in accordance with the criteria proper to the species, substrate and to the area in which they are grown.
- 4.3** The development and condition of oyster mushrooms shall be such as to enable them:
- a. to withstand transport and handling; and
 - b. to arrive in satisfactory condition at the place of destination.

5 Classification

Oyster mushrooms shall be classified in three classes defined below:

5.1 Extra Class

Oyster mushrooms in this class shall be of superior quality. It shall be free of defects in the color and shape, with the exception of very slight superficial defects, provided these do not affect the general appearance of the produce, the quality, the shelf-life, and presentation in the package. For oyster mushrooms presented as clusters, only 5% shall be allowed for cap.

5.2 Class I

Oyster mushrooms in this class shall be of good quality. The following defects, however, may be allowed, provided these do not affect the general appearance of the produce, the quality, the shelf-life, and presentation in the package:

- a. slight defects of color and shape; and
- b. slight defects on the cap and stalk due to rubbing and other superficial defects such as breakage and blemish not exceeding 5% of the total surface area.

The defects shall not, in any case, affect the gill. For oyster mushrooms presented as clusters, 15% shall be allowed for cap.

5.3 Class II

Oyster mushrooms in this class, which do not qualify for inclusion in the higher classes, but satisfy the minimum requirements specified in Clause 4.1 above. The following, however, may be allowed, provided the oyster mushrooms retain their essential characteristics as regards the quality, the shelf-life, and presentation:

- a. defects in shape and color; and
- b. slight defects on the cap and stalk due to rubbing and other superficial defects, such as breakage and blemish, not exceeding 10% of the total surface area.

The defects shall not, in any case, affect the gill. For oyster mushrooms presented as clusters, 20% shall be allowed for cap.

6 Provisions Concerning Sizing

6.1 Oyster mushrooms may be sized by the diameter of the cap in accordance with existing trade practices. When sized in accordance with existing trade practices, the package shall be labelled with the size and method used. Table 1 is a guide for size classification of single oyster mushrooms and may be used on an optional basis.

Table 1. Size classification for single oyster mushrooms (ASEAN, 2014)

Size code	Diameter of the cap (mm)
Extra large	>70.0
Large	>50.0 - 70.0
Medium	>30.0 - 50.0
Small	<30.0

7 Provisions Concerning Tolerances

At all marketing stages, tolerances with respect to quality and size shall be allowed in each lot for produce not satisfying the requirements of the class indicated. Conformity assessment for the produce shall be conducted in accordance with the relevant provisions in the PNS/BAFS 293:2020 (Principles and guidelines for national food control systems), (ASEAN Principles for food import and export inspection and certification, MOD), the CXG 47-2003 (Guidelines for food import control systems), and/or their latest issuances.

7.1 Quality tolerances

7.1.1 Extra Class

Five percent (5%) by number or weight of oyster mushrooms not satisfying the requirements of the class, but meeting those of Class I or, exceptionally, coming within the tolerances of that class.

7.1.2 Class I

Ten percent (10%) by number or weight of oyster mushrooms not satisfying the requirements of the class, but meeting those of Class II or, exceptionally, coming within the tolerances of that class.

7.1.3 Class II

Fifteen percent (15%) by number or weight of oyster mushrooms satisfying neither the requirements of the class nor the minimum requirements, with the exception of produce affected by rotting or any other deterioration rendering it unfit for consumption.

7.2 Size Tolerances

For all classes, 10% by number or weight of oyster mushrooms corresponding to the size immediately above or below that indicated on the package.

8 Provisions Concerning Presentation

8.1 Uniformity

The contents of each package shall be uniform and contain only oyster mushrooms of the same origin, species, and/or commercial type, color, quality, and size. The visible part of the contents of the package shall be representative of the entire contents.

8.2 Packaging

8.2.1 Oyster mushrooms shall be packed in such a way as to protect the produce properly. The materials used inside the package shall be of food-grade quality, clean, and of a quality such as to avoid causing any external or internal damage to the produce. The use of materials, particularly of paper or stamps bearing trade specifications, is allowed, provided the printing or labelling has been done with non-toxic ink or glue.

8.2.2 Description of containers

The containers shall meet the quality, hygiene, and resistance characteristics to ensure suitable handling, shipping, and preserving of the oyster mushrooms.

8.3 Presentation

Oyster mushrooms may be presented under one of the following forms:

- a) Cluster;
- b) Single; and
- c) Combination (cluster and single).

9 Provisions Concerning Marking or Labelling

- 9.1** Labelling of oyster mushrooms for retail and non-retail containers shall conform with the relevant provisions of Clause 6 (Mandatory information requirements on the label) of the PNS/BAFS 384:2024 (General standard for labeling of primary and postharvest foods — Product standard) and/or its latest issuances.

10 Food Additives

- 10.1** The use of food additives shall not be allowed in oyster mushrooms intended to be supplied fresh to consumers.

11 Contaminants

- 11.1** Oyster mushrooms shall comply with the Maximum Residue Limits (MRL) of pesticides established by the relevant competent authority, CAC, ASEAN, and/or their latest issuances.
- 11.2** Oyster mushrooms shall comply with the Maximum Levels (ML) of the CXS 193-1995 (General standard for contaminants and toxins in food and feed) and PNS/BAFS 194:2022 (GSCTFF — Product standard) and/or their latest issuances.

12 Hygiene

- 12.1** It is recommended that the produce covered by the provisions of this Standard shall be prepared and handled in accordance with the appropriate sections of the ASEAN GAP, ASEAN General principles for food hygiene, CXS 1-1969 (RICP — General principles of food hygiene), PNS/BAFS 49:2021 (GAP for

fresh fruits and vegetable farming), PNS/BAFS 233:2018 (COHP for fresh fruits and vegetables), and/or other relevant codes of practice.

- 12.2** Oyster mushrooms shall comply with microbiological criteria established in accordance with the CAC/GL 21-1997 (Principles for the establishment and application of microbiological criteria for foods), PNS/BAFS 307:2020 (Establishment of microbiological criteria for food), PNS/BAFS 372:2023 (Primary and postharvest food and feed — Product standard — Microbiological criteria), and/or their latest issuances.

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Bureau of Agriculture and Fisheries Standards (BAFS)**

**Philippine National Standard (PNS) on Oyster Mushrooms —
Product Standard — Grading and Classification**

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