THAI AGRICULTURAL STANDARD

TAS 1517-2015

NEEDLE MUSHROOM

National Bureau of Agricultural Commodity and Food Standards
Ministry of Agriculture and Cooperatives

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Technical Committee on the Elaboration of Thai Agricultural Standard on Mushroom

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   Member and Secretary
Needle mushroom is a kind of mushroom produced by industrial processes. It is a popular produce widely consumed domestically and internationally. Thailand has potential in needle mushroom production by developing its own technology; thus it is likely to encourage the increase of production of needle mushroom. The Agricultural Standards Committee deems it necessary to establish a standard for needle mushroom to ensure the quality and safety of produce and to increase confidence and acceptance of domestic and international markets.

This standard is based on the following document:

UNECE STANDARD FFV-24-2010. UNECE standard concerning the marketing and commercial quality control of cultivated mushrooms.
NOTIFICATION OF THE MINISTRY OF AGRICULTURE AND COOPERATIVES
ON THE ESTABLISHMENT OF THAI AGRICULTURAL STANDARD:
NEEDLE MUSHROOM
UNDER THE AGRICULTURAL STANDARDS ACT B.E. 2551 (2008)

Whereas the Agricultural Standards Committee deems it necessary to establish
a Thai agricultural standard on Needle Mushroom as a voluntary standard under the
Agricultural Standards Act B.E. 2551 (2008) to promote such agricultural commodity to meet
its standard on quality and safety.

By virtue of Sections 5, 15 and 16 of the Agricultural Standards Act B.E. 2551
(2008) and the decision of the First Session of the Agricultural Standards Committee Meeting
on 24 April B.E. 2558 (2015), the Minister of Agriculture and Cooperatives hereby issues
this Notification on the Establishment of Thai Agricultural Standard: Needle Mushrooms
(TAS 1517-2015), as a voluntary standard, details of which are attached herewith.

This Notification shall come into force after the date of publication in the
Royal Gazette.

Notified on 16 June B.E. 2558 (2015)

(Mr. Petipong Pungbun Na Ayudhya)
Minister of Agriculture and Cooperatives
THAI AGRICULTURAL STANDARD
NEEDLE MUSHROOM

1. SCOPE

This Thai agricultural standard applies to commercial varieties of needle mushroom or enoki mushroom with the scientific name of Flammulina velutipes (Curtis ex Fries) Singer from the Tricholomataceae family to be supplied fresh to consumer after preparation and packaging.

2. DEFINITION

For the purpose of this standard:

2.1 Pest means virus, microbe, mite, insect, and other animals that damage mushrooms.

2.2 Closed cap means mushroom with a cap completely closed, i.e. edge of the cap is still curved downward. (Figure A.3)

2.3 Open cap means mushroom with unfolded cap, i.e. edge of the cap is slight downturn. (Figure A.3)

2.4 Defect means unusual trace on mushroom caused by pests or unsuitable surroundings. (Figure A.4)

3. QUALITY

3.1 Minimum requirements

3.1.1 In all classes, subject to the specific provisions for each class and the tolerances allowed, the needle mushroom shall be as follows:

(1) whole cluster intact;
(2) fresh;
(3) sound, no sign of bruises, produce affected by rotting or deterioration such as to make it unfit for consumption is excluded;
(4) clean, practically free of any visible foreign matter, except debris of growing material adhered to the mushroom ;
(5) practically free of pests affecting the general appearance;
(6) practically free of damage caused by pests affecting the quality;
(7) free of abnormal external moisture, excluding condensation following removal from cold storage;
(8) free of damage caused by low and/or high temperature;
(9) free of any foreign smell and/or abnormal colour.
3.1.2 Mushroom shall be picked at the appropriate harvesting period depending on varieties and market demand. Mushroom shall be carefully managed during post-harvesting, packaging and transportation in order to be in an acceptable condition at the place of destination.

3.2 Classification
Mushroom is classified into three classes as follows:

3.2.1 “Extra” Class
Mushrooms in this class shall be of superior quality in the form of closed caps. The cap size and stalk length shall be uniform. They shall be free of defects in colour with the exception of very slightly superficial defects provided that these do not affect the general appearance, the quality, the keeping quality and presentation in the package.

3.2.2 Class I
Mushrooms in this class shall be of good quality. Mushrooms shall be in the form of closed caps with the open caps of not more than 5% of the total number of mushrooms in the package allowed. In addition, they may have visible defect in colour of not more than 5% of the total number of mushrooms in the package with the exception of slightly superficial defects provided that these do not affect the general appearance, the quality, the keeping quality and presentation in the package.

3.2.3 Class II
This class includes mushrooms which are not qualified to be grouped in any of the higher classes, but satisfy the minimum requirements specified in Section 3.1. They in the form of closed caps with the open caps of not more than 10% of the total number of mushrooms in the package allowed. In addition, they may have visible defect in colour of not more than 10% of the total number of mushrooms in the package with the exception of slightly superficial defects provided that these do not affect the general appearance, the quality, the keeping quality and presentation in the package.

4. SIZING
Mushroom sizing is determined by the size of the whole cluster by measuring the widest part of the cap, not to be wider than 1.5 cm. and the length of the whole cluster is between 10 and 17 cm.

5. TOLERANCES
The following tolerances in respect of quality shall be allowed in each package of the mushroom not satisfying the requirements of the class indicated:

5.1 Quality tolerances
5.1.1 “Extra” Class
Five percent by number or weight of mushroom not satisfying the requirements of “Extra” class (Section 3.2.1), but meeting those of Class I (Section 3.2.2) or, exceptionally, coming within the tolerances of Class I (Section 5.1.2) is allowed.
5.1.2 Class I
Ten percent by number or weight of the mushroom not satisfying the requirements of Class I (Section 3.2.2), but meeting those of Class II (Section 3.2.3) or, exceptionally, coming within the tolerances of Class II (Section 5.1.3) is allowed.

5.1.3 Class II
Ten percent by number or weight of the mushroom not satisfying the requirements of Class II (Section 3.2.3) or the minimum requirements (Section 3.1), with the exception of produce affected by bruising, rotting or any other deteriorating rendering it unfit for consumption.

6. PACKAGING

6.1 Uniformity
The contents of each package shall be uniform and contain only the mushroom of the same variety, quality and size. The visible part of the content of the package shall represent the entire contents.

6.2 Package
The mushroom shall be packed in a proper package for storage. The materials used inside the package shall be clean and of quality so as to protect the mushroom from damage that otherwise affects its quality. The use of such materials, particularly of paper or stamps bearing trade specifications, is allowed, provided that printing or labeling has been done with non-toxic ink or glue.

The container shall be of good quality, hygienic, and able to withstand transportation and to be able to protect the mushroom from damage affecting its quality. It shall also be free of smell and foreign matter.

7. LABELLING AND MARKING

7.1 Consumer packages
The detailed information shall appear on the package, wrapping material, fastening material, tag or sticker on the produce in a manner that is legible, clear, and indelible, not false or deceptive. At least the following details shall be provided:

(1) Name of the produce
   “Needle Mushroom” or “Silver Needle Mushroom” or “Golden Needle Mushroom”

(2) Net weight in metric system

(3) Class (optional)

(4) Name and address of producer, packer, distributor, importer or exporter

(5) Origin of Produce
Country of origin, except for domestic market
(6) Date of production and/or packaging

(7) Language
For domestic market, label shall be in Thai but foreign language may also be added. For export, label can be in a foreign language.

7.2 Non-retail containers.
The following information shall be shown on the accompanying documents of the shipment, label, or the container in a manner that is readily legible, clear and indelible, not false or deceptive or misleading. At least the following details shall be provided:

(1) Name of the produce
“Needle mushroom” or “Silver needle mushroom” or “Golden Needle mushroom”

(2) Net weight in metric system

(3) Class (optional)

(4) Name and address of producer, packer, distributor, importer or exporter

(5) Origin of produce
Country of origin, except for domestic market

(6) Date of production and/or packaging

(7) Language
For domestic market, label shall be in Thai but foreign language may also be added. For export, label can be in a foreign language.

7.3 Certification mark

8. CONTAMINANTS
Types and maximum levels of contaminants shall be in compliance with the relevant laws and regulations.

9. PESTICIDE RESIDUES
Types and maximum residue limits of pesticide residues shall be in compliance with the relevant laws and regulations and the requirements under the Thai Agricultural Standards on Pesticide Residues: Maximum Residue Limits (TAS 9002) and Pesticide Residues: Extraneous Maximum Residue Limits (TAS 9003).
10. HYGIENE

The mushroom shall be produced under good hygienic practices in accordance with the related standards on Good Agricultural Practices (GAP) and Thai Agricultural Standard on Good Manufacturing Practices for the Packing House of Fresh Fruits and Vegetables (TAS 9035) or other equivalent standards.

11. METHODS OF ANALYSIS AND SAMPLING

11.1 Methods of analysis are shown in Table 1:

<table>
<thead>
<tr>
<th>Requirements</th>
<th>Analytical methods</th>
<th>Principle</th>
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<td>Visual inspection and sensory evaluation</td>
<td>-</td>
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<tr>
<td>2. Abnormality in color (Section 3.2)</td>
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<tr>
<td>3. Uniformity (Section 3.2)</td>
<td>Visual inspection and counting of the mushrooms to calculate a percentage.</td>
<td>-</td>
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<td>4. Sizing (Section 4)</td>
<td>1. Measuring of a diameter at the widest part of the cap</td>
<td>Length measurement</td>
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<td></td>
<td>2. Measuring of length of the whole cluster</td>
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</table>

11.2 Methods of sampling

Methods of sampling shall be in compliance with the relevant laws and regulations, and provisions of the Agricultural Standard on the method of sampling.
APPENDIX A

PHOTOS OF NEEDLE MUSHROOM
(Sections 2.2, 2.3, 2.4, 3.1, 7.1(1) and 7.2(1))

Figure A.1 Silver Needle Mushroom

Figure A.2 Golden Needle Mushroom
Figure A.3 Closed cap and open cap (Section 2.2 and 2.3)
a.: Damage caused by pest (Section 3.1.1 (6))

b.: Bruises (Section 3.1.1 (3))

c.: Spots on mushroom (Section 3.1.1 (8))

Figure A.4 Photos of defect needle mushroom not meeting minimum requirements (Sections 2.4 and 3.1)