PHILIPPINE NATIONAL STANDARD

PNS/BAFPS 94:2010
ICS 67.080.01

Fresh vegetables – Mustard greens – Classification and grading

BUREAU OF PRODUCT STANDARDS

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Foreword

The development of the Philippine National Standard for Mustard greens, PNS/BAFPS 94:2010 was undertaken by the Bureau of Agriculture and Fisheries Product Standards (BAFPS) in order to reflect the recent technology developments in the industry and the need for harmonization with Codex requirements in Heavy Metals, Pesticide Residues and Hygiene.

PNS/BAFPS 94:2010 was based on the review of recent researches conducted in the country and also, by other countries.

A Technical Committee (TC) and Sub-Committee (SC) were organized by the Bureau of Agriculture and Fisheries Product Standards (BAFPS) through Special Orders No. 411, series of 2001 and 169, series of 2007 to generate the data and formulate the PNS for Mustard Greens. The draft standard was presented for technical reviews and public consultations in the three major islands of the country prior to finalization of the standard.

The PNS for Mustard greens aims to provide common understanding on the scope, definition, minimum requirements, nutritive values, classification, sampling, packaging, and marking and labeling.

Fresh vegetables – Mustard greens – Classification and grading

1 Scope

This standard applies to mustard greens grown from ***Brassica juncea*** (**L**.) Czern. to be supplied fresh to the consumers.

2 Reference

The titles of the standard publications and other references of this standard are listed on the inside back cover.

3 Definitions

For the purpose of this standard the following definitions apply.

3.1
fresh
the leaves are not wilted, crisp and young

3.2
fairly tender
not full-grown, tough or excessively fibrous

3.3
fairly clean
not materially affected by the presence of soil, dirt or other foreign materials

3.4
damage
any defect which materially affects the appearance, or safe to eat or shipping quality of the individual plant

3.5
firm
compact, rigid and not dried-up

3.6
seedstems
heads which have seed stalks showing or in which the formation of seed stalks has just started

4 Minimum requirements

In all classes, subject to the special provisions for each class and the tolerances allowed, Mustard greens must be:

- intact;
- clean, practically free of any visible foreign matter;

- fresh in appearance;
- practically free from pests;
- practically free from damage caused by pests;
- free of suckers and flower stems;
- free of excessive external moisture, i.e. adequately “dried”, if washed; and
- free of any foreign smell and/or taste.

The development and condition of the mustard greens must enable them to:

- withstand transport and handling, and
- arrive in satisfactory condition at the place of destination.

5 Classification

Mustard greens are classified into three classes as defined below:

5.1 Class I – This class is consists of superior quality mustard greens; have similar varietal characteristics; fresh; tender; clean; free from decay, seed stems, foreign material, disease, insects and mechanical or other means. Very slight (2 %) superficial defects are allowed provided these defects will not affect the general appearance of the produce, the quality, keeping quality and presentation in the package.

5.2 Class II – Mustard greens in this class are consist of good quality; have similar varietal characteristics; fresh; fairly tender; fairly clean; free from decay, seed stems, foreign material, disease, insects and mechanical or other means. The following defects may be allowed provided the general appearance of mustard greens retain their essential characteristics as regards the quality, the keeping quality and presentation in the package:

- slight discoloration,
- slight deformation,
- slight bruises,
- seedstems when more than one-fourth the length of the longest leaf, and
- mechanical damage when the individual unit is badly crushed, torn, or broken.

5.3 Class III – This class includes mustard greens which do not qualify for inclusion in Class II but satisfy the minimum requirements specified in Clause 4.

6 Tolerance

6.1 Quality tolerance

6.1.1 Class I – Ten percent (10 %) by weight of mustard greens not satisfying the requirements of the class, but meeting those of Class II.

6.1.2 Class II – Ten percent (10 %) by weight of mustard greens not satisfying the requirements of the class II but meeting the requirements of Class III.

6.1.3 Class III – Ten percent (10 %) by weight of mustard greens not satisfying the minimum requirements, with the exception of produce affected by rotting or any other deterioration rendering it unfit for consumption.

7 Packaging

Mustard greens must be packed in suitable containers that will protect the produce properly. The materials used inside the package must be new, clean and of a quality such as to avoid 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 labeling has been done with non-toxic ink or glue. Packages must be free of all foreign matter.

8 Marking and labeling

Each container shall have a label using an indelible ink to provide the following information:

8.1 Name of produce, variety or commercial type;

8.2 Class and size;

8.3 Net weight (kg);

8.4 Date of harvest;

8.5 Name and address of producer, trader and exporter;

8.6 Origin of Produce; and

8.7 Product of the Philippines.

9 Contaminants

9.1 Heavy metals

Mustard greens shall comply with the maximum limits for heavy metals established by the Codex Alimentarius Commission and/or authority for this commodity.

9.2 Pesticide residues

Mustard greens shall comply with the maximum residue limits established by the Codex Alimentarius Commission and/or authority for this commodity.

10 Hygiene

10.1 It is recommended that the produce covered by the provisions of this standard be prepared and handled in accordance with appropriate sections of the Recommended International Code of Practice – General Principles of Food Hygiene (CAC/RCP 1 – 1969, Rev. 4 – 2003), Code of Hygienic Practice for Fresh Fruits and

Vegetables (CAC/RCP 53-2003), and other relevant Codex texts such as Codes of Hygienic Practice and Codes of Practice.

10.2 The produce should comply with any microbiological criteria established in accordance with the Principles for the Establishment and Application of Microbiological Criteria for Foods (CAC/GL 21-1997).

Annex A

Nutritional value of mustard greens

1 cup	Quantity
Weight (g)	140
Energy (calories)	20
Carbohydrates (g)	3
Protein (g)	3
Cholesterol (mg)	0
Fat (g)	0

Annex B

Varieties of mustard greens

- Some varieties are leafy like kale or spinach, while others form a head, more like a cabbage.
- Colors range from reddish to purple to the more common green.
- Baby leaf mustards are making quite an inroad into Western cuisine, particularly in salads, where they add an appetizing flavor and texture.
- The delicately spiced greens are striking in appearance, particularly the varieties with lacey or frilly leaves.
- Their colors, which range from bright light green to garnet red, also add appeal to salads or alongside a gourmet dish.
- Chinese Mustard (*Brassica juncea* var *foliosa, Brassica juncea* var *multiceps*) - Gai-Choi , Serifon
- Japanese Mustard - Hatakena, Mizuna Early
- Mizuna (*Brassica juncea* var. *japonica*) also known as Xiu Cai, Kyona, Japanese Mustard, Potherb Mustard, Japanese Greens and California Peppergrass.
- Broad Leaved Mustard (*Brassica juncea* var *rugosa*) - Red Giant, Chirimen Hakarashi
- Baby green mustard - Garnet Giant, Golden Frill

Figure 1 – Mustard greens

Chinese mustard (*Brassica juncea* var *foliosa, Brassica juncea* var *multiceps*)

Figure 2 – Gai-Choi

Chinese mustard

Figure 3 – Serifon

Japanese mustard

Figure 4 – Hatakena

Broad leaf mustard (*Brassica juncea* var *rugosa*)

Figure 5 – Red giant

Broad leaf mustard

Figure 6 – Chirimen hakarashi

Baby green mustard

Figure 7 – Garnet giant

Baby green mustard

Figure 8 – Golden frill

Baby green mustard

Figure 9 – Ruby streak

Baby green mustard

Figure 10 – Mizuna green streak

Figure 11 – Mustasa sa Pilipinas

Figure 12 – Mustard harvest

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.

Code of Hygienic Practice for Fresh Fruits and Vegetables. CAC/RCP 53-2003.

http://www.answers.com/topic/mustard-1

General Principles of Food Hygiene. CAC/RCP 1 – 1969, Rev. 4 - 2003.

Maghirang, Rodel G. Overview of Mustard Greens. Presented at the Public Consultation held at De Luxe Hotel, Cagayan de Oro City on May 19, 2010.

Principles for the Establishment and Application of Microbiological Criteria for Foods. CAC/GL 21-1997.

Siemosma, J.S. and Piluek, K. (Editors). 1994. PROSEA Handbook No.8 Vegetables. Pudoc. Wageningen.

US Standards for Grades of Mustard Greens and Turnip Greens. 1997. USDA, 3pp.

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