PROPOSED ASEAN STANDARD FOR BLACK, WHITE, AND GREEN PEPPERS (ASEAN Stan 73:XXX)

1. SCOPE

This Standard applies to Black, White, and Green peppers (abbreviated as BWG) offered for direct consumption, as an ingredient in food processing or for repackaging, if required. It excludes BWG peppers intended for industrial processing.

2. DESCRIPTION

2.1 **PRODUCT DEFINITION**

- **2.1.1** BWG peppers are the berries of *Piper nigrum* L. of the Piperaceae family shall reach an appropriate degree of development and/or maturity for the intended product purpose.
 - a) Black pepper obtained from dried berries having unbroken pericarp.
 - b) White pepper obtained from dried berries after removal of the pericarp.
 - c) Green pepper obtained from dried immature berries under controlled conditions
- **2.1.2** Berries are treated in an appropriate manner to obtain the above products, by undergoing operations such as blanching, soaking, washing, threshing, decorticating, drying or dehydrating, sieving and sifting, grading, crushing and grinding.

2.2 Styles

BWG peppers may be offered in one of the following styles:

- a) whole;
- b) cracked/crushed broken into two or more pieces; and
- c) ground processed into powders.

2.3 Varietal Types

Any commercially cultivated variety of *Piper nigrum* L. suitable for processing.

3. ESSENTIAL COMPOSITION AND QUALITY FACTORS

3.1 Composition

Product shall conform to the requirements as defined in Section 2.

3.2 Quality Factors

The quality factors for BWG peppers are determined based on the physical and chemical characteristics, as given below:

3.2.1 Odor, flavor, and color

Basic	Black pepper	White pepper	Green pepper
Parameter			
Color for all	Brownish to dark	Matt grey to brownish	Characteristic
IOMIS	color.	to pale ivory white.	dark greenish
		Free from added	
	Free from added coloring.	coloring.	Free from added coloring.
Sensory	The flavor shall have	The odor and flavor	Pungent odor and
property for	a penetrating odor	shall be characteristic	TIAVOI abore stariatic of
airíonns	and not, billing	of white pepper,	groop poppor froo
	characteristics of	aromatic excluding	from rancidity
	black pepper	moldy and rancid	mustiness hitter
	excluding moldy and	odors	taste and
	rancid odors.		extraneous flavor.
		The product shall be	
	The product shall be	free from foreign	The product shall
	free from foreign	odors, flavors and free	be free from
	odors, flavors and	from any other harmful	foreign odors,
	free from any other	substances.	flavors and free
	harmful substances.		from any other
			harmful
			substances.

Table 1. Basic characteristics of odor, flavor, and color of BWG peppers.

3.2.2 Physical characteristics

Table 2. Basic characteristics of BWG peppers.

Parameter	Black pepper	White pepper	Green pepper
General size for whole BWG	Diameter 2.5 – 7.0 mm (approx.)	Diameter 2.0 - 6.0 mm (approx.)	Diameter 2.0-6.0 mm (approx.)
peppers			
Shape for whole BWG peppers	Whole with globular shape and wrinkled pericarp.	Whole with globular shape with smooth surface, slightly flattened at one pole and a small protuberance at the other.	Whole with globular shape with or without wrinkled pericarp.

3.2.3 Classifications

The following three classes/grades are applicable to BWG peppers:

- a) Class I /Grade I;
- b) Class II/Grade II; and
- c) Class III/Grade III.

Table 3. Physical characteristics for BWG whole peppers

·	Requirements									
	Black			White			Green			
Physical characteristics	Class I / Grade I	Class II / Grade II	Class III / Grade III	Class I / Grade I	Class II / Grade II	Class III / Grade III	Class I / Grade I	Class II / Grade II	Class III / Grade III	
Bulk density, (g/l), min.	550	500	400	600	600	550	NA	NA	NA	
Light berries ¹ , % (m/m) max.	2.0	5.0	10.0	1.0	2.0	2.0	NA	NA	NA	
Extraneous vegetable matter ² , % (m/m), max.	1.0	2.0	2.0	1.0	1.5	2.0	0.5	1.0	1.2	
Foreign matter ³ , % (m/m), max.	0.1	0.5	0.5	0.1	0.5	0.5	0.1	0.5	0.5	
Black berries/corns % (m/m), max.	NA	NA	NA	5.0	7.5	10.0	Nil	Nil	5.0	
Broken berries, % (m/m), max.	NA	NA	NA	2.0	3.0	3.0	1.0	3.0	10.0	

	Requirements									
	Black			White			Green			
Physical characteristics	Class I / Grade I	Class II / Grade II	Class III / Grade III	Class I / Grade I	Class II / Grade II	Class III / Grade III	Class I / Grade I	Class II / Grade II	Class III / Grade III	
Moldy berries % (m/m), max.	1.0	2.0	3.0	1.0	2.0	3.0	Nil	1.0	2.0	
Insect defiled berries/corns, % (m/m), max.	1.0	1.0	2.0	1.0	1.0	2.0	0.5	1.0	2.0	
Mammalian or/and other excreta, (mg/kg), max.	1.0	1.0	2.0	1.0	1.0	2.0	1.0	1.0	2.0	
Pinheads ⁴ for black pepper, % (m/m), max.	1.0	2.0	4.0	NA	NA	NA	NA	NA	NA	

NA – NOT APPLICABLE

¹ Light berries (in Black and White peppers only) - Generally immature berries without kernel with an apparent density lower than 0.30g/mL or 300 g/L

² Extraneous vegetative matter - Vegetative matter associated with the plant from which the product originates - but is not accepted as part of the final product". Light berries, pinheads or broken berries are not considered as extraneous matter.

³ Foreign matter - Any visible objectionable foreign detectable matter or material not usually associated with the natural components of the spice plant; such as sticks, stones, burlap bagging, metal

⁴ *Pinheads* – Developed from unfertilized flowers, berries with a diameter of less than 2 mm with more angularity than normal berries, they have soft texture (collapse under heavy pressure) and have less odor and flavor than pepper berries.

3.2.4 Chemical characteristics

	Requirements							
Chemical	Black				Green			
characteristics	Class I / Grade I	Class II / Grade II	Class III / Grade III	Class I / Grade I	Class II / Grade II	Class III / Grade III		
Moisture content, % (m/m), max.	12.0	12.0	13.0	12.0	12.0	13.0	12.0	
Total ash, % (m/m), max., on dry basis.	6.0	7.0	7.0	3.5	4.0	4.0	5.0	
Nonvolatile ether extract,% (m/m) min., on dry basis.	7.0	7.0	6.0	6.0	6.0	6.0	0.3	
Volatile oils ¹ , % (ml/100g) min., on dry basis.	2.0	1.5	1.0	1.5	1.5	1.0	1.0	
Piperine content, % (m/m), min., on dry basis.	3.5	3.0	2.0	4.0	3.5	3.0	NA	
Acid-insoluble ash, % (m/m) max., on dry basis.	1.5	1.5	1.5	0.3	0.3	0.3	0.3	
NA – NOT APPLICABLE ¹ The volatile oil content should be determined immediately after grinding and have less odor and flavor than Pepper berries.								

 Table 4. Chemical characteristics for BWG whole peppers

	<u> </u>				
	Requirements				
Chemical characteristics	Ground black pepper ¹	Ground white pepper ¹			
Moisture content, % (m/m), max.	12.0	13.0			
Total ash by mass, % (m/m), on dry basis, max.	6.0	3.5			
Non-volatile ether extract, % (m/m),on dry basis, min.	6.0	6.0			
Volatile oil ² , % (ml/100g), on dry basis, min.	1.0	0.7			
Crude fiber, insoluble index, % (m/m) on dry basis, max.	17.5	6.5			
Piperine, % (m/m), on dry basis, min.	3.5	4.0			
Acid insoluble ash, % (m/m) on dry basis, max.	1.2	0.3			
¹ Ground peppers include all its forms as	per 2.2 Styles.				

Table 5. Chemical characteristics for BWG ground peppers.

² The volatile oil content should be determined immediately after grinding and have less odor and flavor than Pepper berries.

3.3 Classification of "defectives"

A container sample that fails to meet one or more of the applicable quality requirements, as set out in 3.2 Quality Factors (except those based on sample averages) should be considered as a "defective".

3.4 Lot acceptance

A lot should be considered as meeting the applicable quality requirements referred to in 3.2 Quality Factors when the number of "defectives", as defined in 3.3 Classification of "defectives", does not exceed the acceptance number (c) of the appropriate sampling plan. For factors evaluated on a sample average, a lot will be considered acceptable if the average meets the specified tolerance, and no individual sample is excessively out of tolerance.

4 FOOD ADDITIVES

Preservatives used in accordance with Tables 1 and 2 of the *General Standard for Food Additives* (CXS 192-1995) in food category 12.2.1 (Herbs and spices) are acceptable for use in green peppers only conforming to this Standard.

5 CONTAMINANTS

5.1 BWG peppers shall comply with the maximum levels of the General Standard for Contaminants and Toxins in Food and Feed (CXS 193-1995).

5.2 BWG peppers shall comply with maximum residue limits for pesticides established by the ASEAN Harmonized MRLs of Pesticides and/or Codex Alimentarius Commission. In cases where the MRLs of pesticide are not included in the databases of ASEAN and Codex Alimentarius Commission, the commodity shall conform with the established MRL of the national competent authority.

6 HYGIENE

6.1 It is recommended that BWG peppers be prepared and handled in accordance with the appropriate sections of the ASEAN Good Agricultural Practices (GAP), ASEAN General Principle for Food Hygiene, Recommended International Code of Practice – General Principles of Food Hygiene (CXC 1-1969), Code of Hygienic Practice for Low Moisture Foods (CXC 75 - 2015, Annex III) and other relevant Codex texts, such as codes of hygienic practice and codes of practice.

6.2 BWG peppers should comply with any microbiological criteria established in accordance with the Principles and Guidelines for the Establishment and Application of Microbiological Criteria Related to Foods (CXG 21-1997).

7 WEIGHTS AND MEASURES

Containers shall be as full as practicable without impairment of quality and shall be consistent with a proper declaration of contents for the product.

8 LABELING

8.1 CONSUMER PACKAGES

BWG peppers shall be labeled in accordance with the *General Standard for the Labelling of Prepackaged Foods* (CXS 1-1985) In addition, the following specific provisions apply:

8.1.1 Name of Produce

The name of the product shall be "Black Pepper" (peppercorn), "White Pepper" or "Green Pepper".

8.1.2 Nature of the Produce

The nature of the product may include an indication of the style and grade as described in Section 2.2.

8.1.3 Origin of produce

Country of origin and, optionally, district where grown or national, regional or local place name.

8.1.4 Commercial identification

- a) Class/Grade
- b) Variety (optional)

8.1.5 Inspection mark (optional)

8.2 NON-RETAIL CONTAINERS

1.

The labelling of non-retail containers should be in accordance with the General Standard for the Labelling of Non-Retail Containers of Foods (CXS 346-2021). In addition, the following specific requirements shall apply:

Each package shall bear the following particulars, in letters grouped on the same side, legibly and indelibly marked, and visible from the outside.

8.2.1 Origin of Produce

Country of origin and, optionally, district where grown or national, regional or local place name.

8.2.2 Commercial Specifications

- Class/Grade;
- Varieties (optional)

8.2.3 Inspection mark (optional)

9 METHODS OF ANALYSIS AND SAMPLING

Analytical and sampling methods to be used for ascertaining conformance to the requirements of this specification shall be in accordance with Codex Recommended methods of analysis and sampling (CXS 234-1999) and/or other relevant sampling protocols established by national competent authorities or their latest issuances.

References:

ASEAN Harmonized MRLs of Pesticides.

ASEAN General Principle for Food Hygiene, Recommended International Code of Practice – General Principles of Food Hygiene (CXC 1-1969)

ASEAN Good Agricultural Practices (GAP).

CODEX STAN 326-2017 (Adopted in 2017, Amended 2021), Codex Standard for Black, White, Green Peppers

Codex General Standard for food additives (CODEX STAN 192:1995, Rev. 2021).

Codex General Standard for Contaminants and Toxins in Food and Feed (CXS 193-1995).

Code of Hygienic Practice for Low Moisture Foods (CXC 75 - 2015, Annex III)

Codex General Principles and Guidelines for the Establishment and Application of Microbiological Criteria Related to Foods (CXG 21-1997)

Codex Recommended Methods of Analysis and Sampling (CXS 234-1999)

Codex General Standard for the Labelling of Non-Retail Containers of Foods (CXS 346-2021).

Codex General Standard for the Labelling of Prepackaged Foods (CXS 1-1985).

International Pepper Community (IPC) Standard specifications for Black/White pepper (Whole and Ground) and Whole dehydrated Green pepper (Adopted at the 43rd Annual Session of the IPC held in Mysuru, Karnataka, Indian during 23rd -25rd Nov.2015.

ANNEX A

VERNACULAR NAMES OF BLACK, WHITE, AND GREEN (BWG) PEPPERS IN THE ASEAN REGION

Country	Vernacular Name
Brunei Darussalam	Lada Sulah Hitam
	Lada Sulah Putih
	Lada Sulah Hijau
Cambodia	Mrech Khmao
	Mrech Sor
	Mrech Baitong
Indonesia	Lada Hitam
	Lada Putih
	Lada Hijau
Lao PDR	Mark Phick Thai Dum for black pepper
	Mark Phick Thai Khao for white pepper
	Mark Phick Thai Khiew for green pepper
Malaysia	Lada Hitam
	Lada Putih
	Lada Hijau
Myanmar	Nga Yote Kaung
Philippines	Paminta
Singapore	Black pepper
	White pepper
	Green pepper
	Ground pepper
Thailand	Phrik-Thai Dum
	Phrik-Thai Khao
	Phrik-Thai Khiew
Vietnam	Hat tieu den
	Hat tieu trang
	Hat tieu xanh