



**JOINT FAO/WHO FOOD STANDARDS PROGRAMME
FAO/WHO COORDINATING COMMITTEE FOR ASIA
Twenty-second Session
Virtual
12, 13, 14, 17, 18 and 21 October 2022**

**REPORT OF THE VIRTUAL WORKING GROUP ON THE REGIONAL STANDARD
FOR SOYBEAN PRODUCTS FERMENTED WITH BACILLUS SPECIES**

(Prepared by the Virtual Working Group chaired by Japan)

BACKGROUND

- 1 The virtual working group (VWG) to discuss the proposed draft regional standard for soybean products fermented with *Bacillus* species, chaired by Japan, was held on 6 October 2022.
- 2 The VWG agreed to use CRD 7 Rev as the basis of discussion and considered the text section by section. After the discussion at the VWG, there was no square brackets left in the text (Appendix I). The list of participants is included in Appendix II.

SUMMARY OF DISCUSSION

1 Scope

- 3 There was a proposal to amend some parts of text in this section. The VWG, however, agreed to retain the current text in view of consistency with other regional standards.

2.2 Classification

- 4 The VWG agreed to remove subheading “stickiness” through 2.2.1 to 2.2.4 for simplification.

2.2.1 Natto

- 5 The VWG agreed to delete “Optional ingredients described in Section 3.1.2.1 may be added” to be in line with other regional standards, noting that the text did not add any information.
- 6 A word “ingredients” was added to read “No material or ingredients shall be added after fermentation” to clarify that addition of optional ingredients was allowed only before fermentation.
- 7 In the explanation on filamentous substance, “produced” was replaced with “visible” for correction.

2.2.2 Cheonggukjang

- 8 Since addition of optional ingredients was allowed only after fermentation, text was amended accordingly.
- 9 To clarify that various forms of product which had been processed from fermented soybeans that comply with the component requirements in this standard were within the scope of this standard, text was amended as follows: “The final product, Cheonggukjang which comply with the component requirement may be presented in the forms of powder, paste and spherical pellet.” The similar text in Section 2.2.4 was amended accordingly. Subsequently, requirement for moisture content for powder type of Cheonggukjang in Section 3.3 was deleted.
- 10 In response to a question whether paste form of Cheonggukjang could be covered by the *Regional Standard for Fermented Soybean Paste* (CXS 298R-2009), the Republic of Korea clarified that since the microorganism used for Cheonggukjang is different from that for fermented soybean paste, Cheonggukjang is not covered by the Regional Standard.

2.2.3 Kinema

- 11 The VWG agreed to remove this section because no information on essential composition and quality factors was available.

2.2.4 Thua Nao

- 12 A word “present” was added to read “optional ingredients described in Section 3.1.2.3 may be present/added” because some of optional ingredients were not intentionally added but just present in the product.
- 13 Explanation for stickiness was deleted as it is not an essential factor for this product.

3.3 Component Requirement

- 14 The title of table 1 was removed for consistency with other regional standards.
- 15 Requirement for moisture content for dried form of Thua Nao ($\leq 15.0\%$ w/w) was added.
- 16 Regarding a question why lipid content was not specified in Thua Nao, Thailand clarified that it is not necessary to include lipid content as an essential composition because lipid content of Thua Nao, generally used for further cooking, does not affect the taste of the cooked food.

3.5 Lot Acceptance

- 17 The VWG agreed to the proposed text and tables described in Appendix I.

7 Weights and measures

- 18 For consistency with other regional standards, the VWG agreed to retain this section and to remove “7.1 fill of container”.

7.1.1 Net weight

- 19 It was agreed to the second option in the CRD 7 for consistency with other regional standards under development (quick frozen dumpling and cooked rice wrapped in plant leaves).

7.1.2 Classification of “defectives”

7.1.3 Lot Acceptance

- 20 The VWG agreed that Section 7.1.3 should read “The requirements for net weight should be deemed to comply with when the average net weight of all containers examined is not less than the declared weight, provided that there is no unreasonable shortage in individual containers” and subsequently to delete section 7.1.2 for consistency with another proposed draft standard which is being developed by CCASIA.

New section on packaging

- 21 There was a proposal to include a new section “packaging” for consistency with other standards, e.g. regional standard for quick frozen dumpling. The VWG, however, agreed not to include the section because the description in packaging section in these standards referred to the *Code of Practice for the Processing and Handling of Quick Frozen Foods* (CXC 8-1976), which is not relevant to this product.

RECOMMENDATION

- 22 CCASIA22 is invited to consider the proposed draft regional standard for soybean products fermented with *Bacillus* species (Appendix I), in view of forwarding it to the Codex Alimentarius Commission for final adoption at Step 5/8.

PROPOSED DRAFT REGIONAL STANDARD FOR SOYBEAN PRODUCTS FERMENTED WITH *BACILLUS* SPECIES

(Step 4 of the procedure)

1. SCOPE

This standard applies to products, as defined in Section 2, for direct consumption, including for catering purposes, repacking or further processing if required. This standard does not apply to the product covered by the *Regional Standard for Fermented Soybean Paste* (CXS 298R-2009).

2. DESCRIPTION

2.1. Product Definition

Soybeans fermented with *Bacillus* spp. (solely or together with other microorganisms), that normally retain the shape of soybeans and are not a type of paste, although some of the soybeans may be crushed during the manufacturing process. ~~[-The final products may be sticky and can be further processed into various forms of products. could display various forms of products.]~~

2.2. Classification

2.2.1. Natto

Soybeans (including crushed soybeans, hereinafter referred to as soybeans) are soaked in water or dilute salty water, then steamed and fermented with *Bacillus subtilis* var. *natto*. ~~[-Optional ingredients described in Section 3.1.2.1 may be added.]~~ No ~~[-material] or [-ingredients]~~ shall be added after fermentation.

[Stickiness]

Natto shall be sticky and ~~[-visible]~~ filamentous substance must be visible ~~[-produced]~~ when a bean in *Natto* is picked up.

2.2.2. Cheonggukjang

Soybeans soaked in water are boiled, steamed or baked and then fermented with naturally occurring or cultivated microorganisms (i.e. *Bacillus* spp. including *Bacillus subtilis*) for a few days. ~~[-Optional ingredients described in Section 3.1.2.2, may be added only after fermentation.]~~ The final product, Cheonggukjang, which complies with the component requirement may be presented in the forms of powder, paste and spherical pellet. ~~[-The powder, paste and spherical pellet type of the products shall be additionally permitted provided that it meets all requirements of this standard.]~~ ~~[-Final products may be processed to powder, paste and spherical pellet.]~~

[Stickiness]

~~[-Various viscous (i.e. filamentous) substance may be visible when Cheonggukjang is lifted.]~~

~~2.2.3. Kinema~~

~~Soybeans are crushed lightly, after steamed, wrapped in broad leaves such as banana leave and fermented without spraying inoculums. After that, it may be dried in the sun. Furthermore, other microorganisms i.e. Enterococcus, Candida, Geotrichum may be [contained]/[naturally present].~~

~~-(NB: Information on essential quality factors has not been provided. If it is not available to the meeting, it is impossible to include a class "Kinema" in this regional standard.)~~

[Stickiness]

~~[-Thin filamentous substance may be visible when Kinema is lifted.]]~~

2.2.43. Thua Nao

Soybeans are ~~[-soaked in water,]~~ steamed or boiled, ~~[-and]~~ wrapped in broad leaves such as banana leave. They are fermented with *Bacillus* spp. (solely or may contain other microorganisms). ~~[-Optional ingredients described in Section 3.1.2.3, may be presented/added.]~~ The final product, Thua Nao, which complies with the component requirement may be presented in paste or dried forms, e.g. powder, sheet and pellet. ~~[-Products may be processed to powder, paste and spherical pellet.]~~

[Stickiness]

~~[Thin filamentous substance may be produced.]~~

3. ESSENTIAL COMPOSITION AND QUALITY FACTORS

3.1. Composition

3.1.1. Basic Ingredients

- (a) Soybeans
- (b) Potable water
- (c) *Bacillus* spp. (Naturally occurring or cultivated microorganisms). These are not pathogenic and do not produce toxins.

3.1.2. Optional Ingredients

3.1.2.1. Natto

- (a) Grains and/or flour (wheat, rice, barley, etc.)
- (b) Salt
- (c) Seaweed and/or seaweed powder
- (d) Other ingredients as appropriate

3.1.2.2. Cheonggukjang

- (a) Naturally occurring or cultivated microorganisms (other than *Bacillus* spp.). These are not pathogenic and do not produce toxins.
- (b) Salt
- (c) Garlic
- (d) Red pepper powder
- (e) Other ingredients as appropriate

3.1.2.3. Thua Nao

- (a) Other naturally occurring or cultivated microorganisms (other than *Bacillus* spp.). These are not pathogenic and do not produce toxins
- (b) Salt
- (c) Other ingredients as appropriate

3.2. Quality Criteria

The soybean products fermented with *Bacillus* spp. shall have the characteristic flavour, odour, colour, and texture of the product. There should be no visible foreign matters in the products.

3.3. Component Requirement

The soybean products fermented with *Bacillus* spp. should comply with the composition requirements listed in Table 1.

Table 1 Composition (wet weight basis)

Product name	Moisture content (% w/w)	Protein (% w/w)	Lipid (% w/w)
<i>Natto</i>	≥53.0	≥10.0	≥5.0
<i>Cheonggukjang</i>	≤58.0 (in case of powder type ≤15.0)	≥12.5	≥4.0
<i>Thua Nao</i>	≥53.0 {(in case of <u>dried form</u> powder type ≤15.0)}	≥10.0	—
[kinema]			

(wet weight basis)

3.4. Classification of “Defectives”

Any products that fails– to meet the applicable quality requirements, as set out in Section 3.2 and 3.3 ~~and 3.4~~, should be considered a "defective".

3.5. Lot Acceptance

~~A lot should be considered as meeting the applicable quality requirements referred to in Section 3.2 and 3.3, when the number of "defectives", as defined in Section 3.4, does not exceed the acceptance number (c) of the appropriate sampling plans.~~~~(TBD)~~(Appendix I)

4. FOOD ADDITIVES

None permitted.

5. CONTAMINANTS

5.1. The products covered by this standard shall comply with the Maximum Levels of the *General Standard for Contaminants and Toxins in Food and Feed* (CXS 193-1995).

5.2. The products covered by this standard shall comply with the maximum residue limits (MRLs) for pesticides established by the Codex Alimentarius Commission.

6. HYGIENE

It is recommended that the products covered by the provisions of this standard be prepared and handled in accordance with the appropriate sections of the *General Principles of Food Hygiene* (CXC 1-1969), and other relevant Codex texts, such as Codes of Hygienic Practice and Codes of Practice.

The products 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~~

~~7.1. Fill of Container~~

~~7.1.1 Net weight~~

~~The container should be filled with product without impairment of quality and shall be consistent with a proper declaration of contents for the product.~~ The weight of the products covered by the provisions of this Standard shall be indicated in accordance with the *General Standard for the Labelling of Prepackaged Foods* (CXS 1-1985).

~~7.1.2 Classification of “Defectives”~~

~~A product that fails to meet the requirement of Section 7.1.1 should be considered as a “defective”.~~

~~7.2.1.3 Lot Acceptance~~

~~A lot should be considered as meeting the requirements of Section 7.1.1 when the number of “defectives”, as defined in Section 7.1.2 does not exceed the number (c) of the appropriate sampling plan.~~ The requirements for net weight should be deemed to be complied with when the average net weight of all containers examined is not less than the declared weight, provided that there is no unreasonable shortage in individual containers.

8. LABELLING

8.1. The products covered by the provisions of this standard shall be labelled in accordance with the *General Standard for the Labelling of Prepackaged Foods* (CXS 1-1985).

8.2. The Name of the Product

The products are soybean products fermented with *Bacillus* spp. The product should be designated with the appropriate term in Section 2.2. Other names may be used in accordance with the law and custom of the country of retail sale in the manner not to mislead consumers.

8.3. Labelling of Non-Retail Containers

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).

9. METHODS OF ANALYSIS AND SAMPLING¹

For checking the compliance with this standard, the methods of analysis and sampling contained in the

¹ The analytical methods will be removed when the standard is adopted by CAC and included in CXS 234-1999.

Recommended Methods of Analysis and Sampling (CXS 234-1999) relevant to the provisions in this standard, shall be used.

9.1. Determination of Moisture Content

Natto: According to AOAC 925.09.(Type I [Gravimetry (vacuum oven)])

Cheonggukjang: According to AOAC 934.01. (Type I [Gravimetry])

Thua Nao: According to AOAC 925.09. (Type I [Gravimetry (vacuum oven)])

9.2. Determination of Protein Content

Natto: According to AOAC 988.05. (Type I [Titrimetry, Kjeldahl digestion])

(Nitrogen factor 5.71)

Cheonggukjang: According to AOAC 988.05. (Type I [Titrimetry, Kjeldahl digestion])

(Nitrogen factor 5.71)

Thua Nao: According to AOAC 988.05. (Type I [Titrimetry, Kjeldahl digestion])

(Nitrogen factor 5.71)

9.3. Determination of Lipid Content

Natto: According to AOAC 963.15. (Type I [Gravimetry (Soxhlet Extraction)])

(Quantity of sample:4g)

Cheonggukjang: According to AOAC 963.15. (Type I [Gravimetry (Soxhlet Extraction)])

(Quantity of sample:5g)

Sampling plans (AQL=6.5)

Sampling plan 1 – Normal sampling

Lot size (N)	Sample size (n)	Acceptance number (c)
4,800 or less	6	1
4,801-24,000	13	2
24,001-48,000	21	3
48,001-84,000	29	4
84,001-144,000	38	5
144,001-240,000	48	6
More than 240,000	60	7

Sampling plan 2 – Dispute, enforcement or need for better lot estimate

Lot size (N)	Sample size (n)	Acceptance number (c)
4,800 or less	13	2
4,801-24,000	21	3
24,001-48,000	29	4
48,001-84,000	38	5
84,001-144,000	48	6
144,001-240,000	60	7
More than 240,000	72	8

VWG ON PROPOSED DRAFT REGIONAL STANDARD FOR SOYBEAN PRODUCTS FERMENTED WITH
BACILLUS SPECIES

LIST OF PARTICIPATING MEMBER COUNTRIES

China

India

Indonesia

Japan

Philippines

Republic of Korea

Thailand

United States of America