CODEX ALIMENTARIUS COMMISSION E

Food and Agriculture Organization of the United Nations

World Health Organization

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Agenda Item 15 **CX/FFP 11/31/15**

JOINT FAO/WHO FOOD STANDARDS PROGRAMME

CODEX COMMITTEE ON FISH AND FISHERY PRODUCTS

Thirty-First Session

Tromsø, Norway

11 – 16 April 2011

DISCUSSION PAPER ON THE DEVELOPMENT OF A WORLDWIDE STANDARD FOR LAVER

Background

The new work on the development of a regional standard for laver products was proposed at the 17th session of FAO/WHO Coordinating Committee for Asia.

Many delegations supported the proposal; then, it was suggested that the development of an international standard could be more appropriate for these products since laver products were traded outside the Asian region. It was also noted that according to the *Guideline on the Application of the Criteria for the Establishment of Work Priorities*, in case there was substantial production and trade of a regional commodity in countries outside the region, the Executive Committee would recommend to the concerned commodity committee to consider elaborating a global standard, taking into account its work program (ALINORM REP11/ASIA, *para.* 132-134).

The Coordinating Committee for Asia agreed that a standard for laver products be developed as a global standard in view of the significant amount of products exported outside the region and recommended the Republic of Korea to submit the proposal for a new work to the 31st session of the Committee on Fish and Fishery Products (CCFFP) for consideration. It was noted, however, that although seaweed products were not specifically covered in the Terms of Reference of the Committee, which only referred to fish and fish products, CCFFP was most likely to have the technical competence for these types of products (ALINORM REP11/ASIA, *para.* 144).

Introduction

Seaweeds are used extensively as ingredients of food, cosmetics and fertilizers and for industrial applications around the world. They may belong to one of several groups of muticellular algae: the red, green and brown algae. Edible seaweed is algae that can be eaten or used in the preparation of food. It is called as 'sea vegetable' with its high contents of minerals and vitamins including other functional nutrients such as plant sterols, amino acids, omega-3 & 6, anti-oxidants, growth hormones, polyphenols and flavonoids, etc. According to FAO Statistics, the world products of seaweed in 2008 is 15.5 million tons.

Laver is one of the most consumed edible seaweeds which belongs to the red algae in *Porphyra* genus (*P. tenera, p. yezoensis, P. seriata, P. haitanensis, P. pseudolinearis, P. dentate,* etc). It is mostly cultivated by growing on floating nets in deep sea waters. It is recognized as a health food since it contains a diverse and high content of essential amino acids and minerals that have various bio-active functions.

Laver products are generally produced and consumed as dried, roasted or seasoned laver. The common manufacturing of laver products is through application of the paper-making process. To get dried laver, raw laver (wet *Porphyra)* is washed, chopped, poured onto a thin rectangular frame, dehydrated and dried. Then, this dried laver is processed into roasted laver or seasoned laver either by roasting or by seasoning with/without edible oils, seasonings, various sauces, etc. Dried laver's colour is purplish-black, but it changes to dark-green when roasted.

Necessity to develop the standard

Laver is produced in many regions such as Asia and the major producers include China, Japan and Korea.. The global production in 2008 was 1, 376, 820 tons and more than 99% of this produce is from the major countries. The global trade volume for laver products has been increasing progressively; it rose from 130 million USD in 2005 to 173 million USD in 2009. Also, the products are traded in more than 70 countries globally.

However, laver products are called in various terms such as edible seaweeds, edible red algae, etc, and the types of the products are different in each country. Aside from this, there are many significant quality factors, which directly affect the quality and safety of the products, such as size, moisture, pore tolerance[1], foreign matter, acid value, peroxide value, etc. Besides, most countries do not have relevant standards for the products yet; and even if they do, the standards vary between countries. These cause much confusion and impediment to international trade.

Therefore, an international consensus is needed to elaborate an international standard for laver products with a view to providing consumers with high quality laver products while protecting consumers' health and ensuring fair trade practices.

Recommendation

The Republic of Korea invites CCFFP to support the proposal for new work to develop a worldwide standard for Laver Products and to consider the attached project document (Annex). The Committee is also encouraged to provide some additional information on the production, consumption and trade volumes so as to complete the project document before submitting to the Executive Committee for critical review.

[1] Pore tolerance refers to the acceptable size and number of pores in each sheet of laver, which are different depending upon the species of the raw material or the usage of the products.

ANNEX

PROJECT DOCUMENT

Proposal for the Development of a Worldwide Standard

for Laver Products

1. The purpose and the scope of the standard

The purpose of the standard is to provide necessary information for safe and high quality laver products. The products are intended for direct consumption or further processing in accordance with the Codex's aim to protect consumers' health and ensure fair trade practices. The standard shall apply to these laver products: dried laver, roasted laver and seasoned laver.

2. Its relevance and timeliness

Laver products are called in various terms such as edible seaweeds, edible red algae, etc. The types of the products are different in each country and there are many significant quality factors, which directly affect the quality and safety of the products. Besides, most countries do not have relevant standards for the products yet; and even if they do, the standards vary between countries. These cause much confusion and impediment to international trade. Therefore, an international consensus is needed to elaborate an international standard for laver products.

The size of paper-shaped dried laver is one of significant quality factors to be considered because this directly affects the size of roasted and seasoned lavers, taking into account the complete manufacturing processes for laver products. Thus, establishing an international criterion for the size of dried laver will provide producers with greater productivity by ensuring product uniformity and help consumers purchase credible laver products in a more convenient way.

The moisture content of laver products is another vital quality factor. In general, most laver products tend to absorb moisture in the air, and this is a major cause for deterioration of the product quality. In addition, other quality factors like pore-tolerance, foreign matters, acid value and peroxide value also determine the products' quality and safety.

An appropriate international standard should therefore be established to deal with several aspects such as correct definition, name and quality factors with a view to providing consumers with high quality laver products while protecting consumers' health and ensuring fair trade practices.

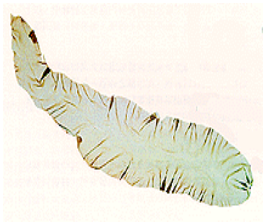
Porphyra tenera	*Porphyra yezoensis*	*Porphyra haitanensis*
		
Porphyra seriata	*Porphyra pseudolinearis*	*Porphyra dentata*
		

Figure 1 *Porphyra* genus of red algae

Item	Product types	Various types of consumption
Dried laver		
Roasted laver		
Seasoned laver		

Figure 2 Types of products and consumption

3. Main aspects to be covered

This standard deals with aspects related to quality and safety depending upon the characteristics of the products in order to facilitate international trade in the following manner:

The main aspects to be covered would be:

- name, definition and classification of the product types;

- essential composition and quality factors including their criteria;

- packaging, preserving and labeling, and

- analysis methods for each of the quality factors.

4. An assessment against the *Criteria for the Establishment of Work Priorities*

a) Volume of production and consumption in individual countries and volume and pattern of trade between countries

Total global production of raw laver in 2008 was 1,376,820 tons, with China, Japan and Korea accounting for 59%, 25%, and 16% of the total, respectively (see Table 1 and Figure 3). When the figure is converted into that for dried laver[2], it will be approximately 142,764 tons.

The global trade volume for laver products was valued at US$173 million in 2009, which implies an increase by 22.4% and 38.3% for dried laver and seasoned laver, respectively, since 2005. The volume has steadily grown for the last five years in all major producers like China, Japan and the Republic of Korea (see Table 2).

Korea exports dried laver to about 50 countries and seasoned laver to more than 70 countries and imports each type of the product from about 10 countries. Major trading partners are China, Japan, Singapore and Thailand in Asia; USA and Canada in North America; Brazil and Paraguay in Latin America; UK, Germany, France, Netherlands and Russia in Europe; and New Zealand and Australia in Oceania (see Table 3).

Table 1 Production of raw laver by major producers (tons, 1000 US$)

Country	2005		2006		2007		2008	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
China	703,093	316,392	805,261	362,368	904,170	397,835	814,660	399,183
Japan	386,574	869,792	367,678	827,276	395,777	890,498	337,900	760,275
Korea	197,610	187,461	217,559	177,724	210,956	208,870	224,242	179,811
Others	6	168	5	129	8	146	18	154
Total	**1,287,283**	**1,373,813**	**1,390,503**	**1,367,497**	**1,510,911**	**1,497,349**	**1,376,820**	**1,339,423**

Source: FAO Fisheries and Aquaculture Department - Aquaculture Production 1950-2008 (data released in March 2010)

[2] Usually, dry laver is produced in '1 bundle' comprising 100 sheets, 210mm 190mm in size. The mean weight of 1 bundle is 250g and 2.411kg of raw laver is needed to produce 1 bundle of dried laver. The formula for converting the weight of raw laver (RL) into that of dry laver (DR) is: "raw laver (RL, kg)/2.411 0.25 = dry laver (DR, kg)."

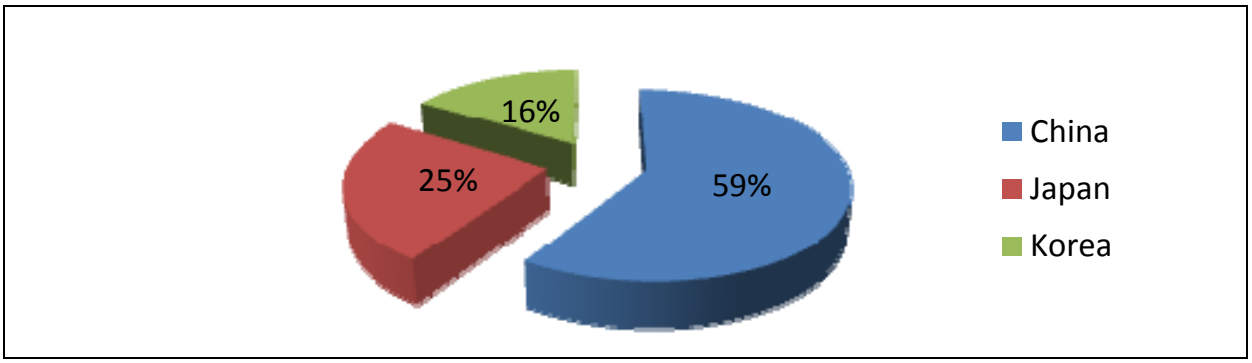


Figure 3 Production quantity of raw laver (2008)

Table 2 Export volume by major producers (1,000 US$)

Item	Country	2005	2006	2007	2008	2009
Dried laver*	China	23,702	19,593	28,774	23,534	25,446
	Japan	3,158	1,990	2,509	6,040	3,424
	Korea	16,021	24,803	20,569	26,334	23,605
	Subtotal	**42,881**	**46,386**	**51,852**	**55,908**	**52,475**
Seasoned Laver	China	42,088	41,924	51,071	53,856	52,426
	Japan	9,087	9,767	13,033	12,528	10,998
	Korea	35,900	34,429	37,351	47,619	56,970
	Subtotal	**87,075**	**86,120**	**101,455**	**114,003**	**120,394**
Total		**129,956**	**132,506**	**153,307**	**169,911**	**172,869**

* The volume of dried laver includes that of roasted laver.

Source: The Korea International Trade Association

Table 3 Korea's trade volume of laver products in 2009 (tons, 1000 US$)

	Dried laver*			Seasoned laver		
	Country	**Quantity**	**Value**	**Country**	**Quantity**	**Value**
EXPORTS	Thailand	726	9,532	Japan	776	19,825
	Japan	261	5,050	USA	3,522	16,255
	USA	528	3,002	China	312	6,423
	(Taiwan)	221	2,572	Canada	630	2,695
	China	106	846	Russia	97	1,653
	Indonesia	79	417	(Hong Kong)	125	1,627
	Canada	89	343	Australia	281	1,586
	Russia	11	258	(Taiwan)	101	1,262
	Australia	33	198	France	177	779
	Singapore	11	188	Singapore	192	717
	France	15	79	Brazil	65	513
	Paraguay	9	75	New Zealand	171	432
	Brazil	3	66	UK	124	406

	UK	28	53	Germany	31	199
	Netherlands	24	51	UAE	37	160
	Others	127	875	Others	296	2,437
	Total	**2,271**	**23,605**	**Total**	**6,937**	**56,969**
IMPORTS	China	54	446	Japan	3	78
	Japan	-	3	China	-	8
	Others	1	4	Others	-	-
	Total	**55**	**453**	**Total**	**4**	**87**

* The volume of dried laver includes that of roasted laver.

Source: The Korea agro-fisheries trade corporation

b) Diversification of national legislations and apparent resultant or potential impediments to international trade

Laver is one of the most consumed edible seaweed products. It is manufactured in various forms and is distributed across the world.

While the international trade volume of laver products is rising, most countries do not have relevant legislations for the products. Although some countries have standards relevant to seaweeds, they are roughly set in a single standard without giving information on specific characteristics of individual seaweed products.

A number of laver products are in the international market under the name of seaweeds. However, the term seaweed includes all kinds of seaweeds like green, brown and red algae. Thus, when laver products are distributed under the name of seaweed, the product could easily be confused with other seaweed products than laver. In fact, there are some other products distributed as ‘laver products’ occasionally in market which are manufactured from different seaweeds or added with such seaweeds. Hence, it is difficult to distinguish the laver products from the other seaweed products which are distributed under the same name ‘seaweed’.

In addition, the quality factors such as size, pore tolerance, foreign matters, moisture content, acid value and peroxide value directly affect quality and safety of laver products. Yet, most countries do not have relevant criterion for the products, which will be most probably the erection of technical barrier to trade of the products.

In this regard, the absence of international criteria for a correct definition, name, and quality factors might be a big impediment to the growth of laver trade.

c) International or regional market potential

Laver products are one of main side dishes in Asian countries where rice is the staple food. The dried or roasted laver is consumed as a main ingredient of *gimbap* (*sushi* in Japanese) - steamed rice rolled with various ingredients and the laver product- as well as a snack.

Laver is rich in essential amino acids such as methionine, threonine and tryptophan and contains abundant minerals like phosphorus, magnesium, sodium and calcium. The protein in laver is easily digested in a human body so that it is good for all age groups to consume. In addition, porphyran, a component unique to laver, helps fat break down and the level of cholesterol lower.

Hence, laver is traditionally considered a health food, which is an opinion increasingly acknowledged by more people living in other continents than Asia, like America and Europe.

Figure 4 shows steady growth in the international trade of dried and seasoned lavers for the past 5 years. Moreover, trading partners of Korea and Japan have expanded increasingly from Asian countries to North America, Middle and South Americas, Europe, Oceania and Africa; and the products’ exporting volume has increased year by year (see Figure 5 and 6).

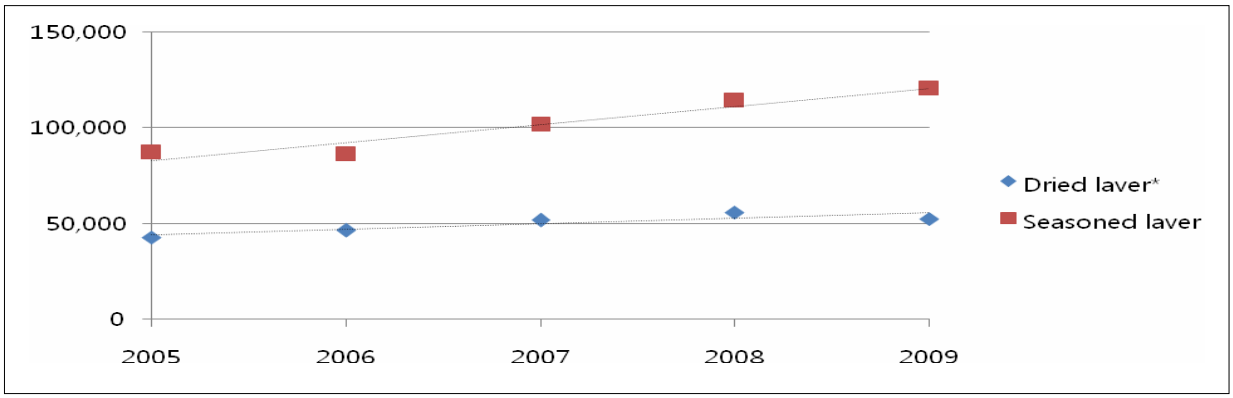


Figure 4 International trade volume of laver products (1000 US$)

* The volume of dried laver includes that of roasted laver.

Source: The Korea International Trade Association

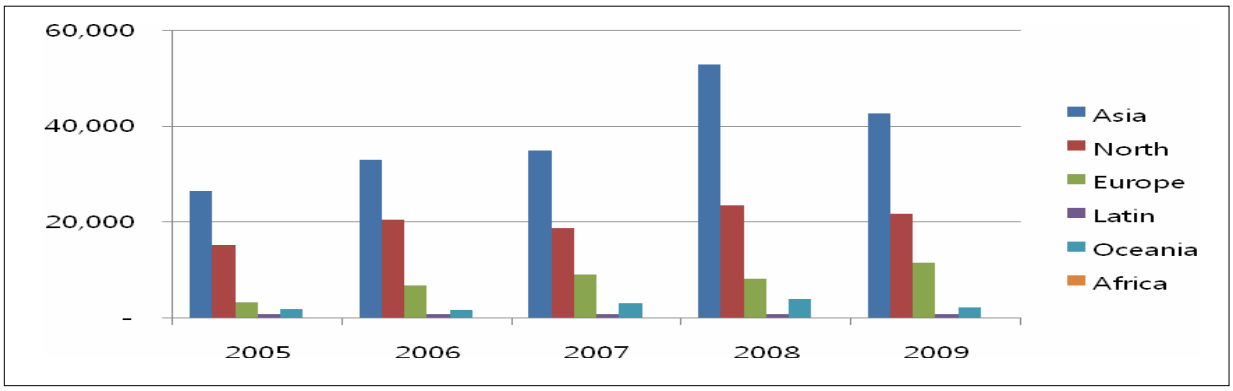
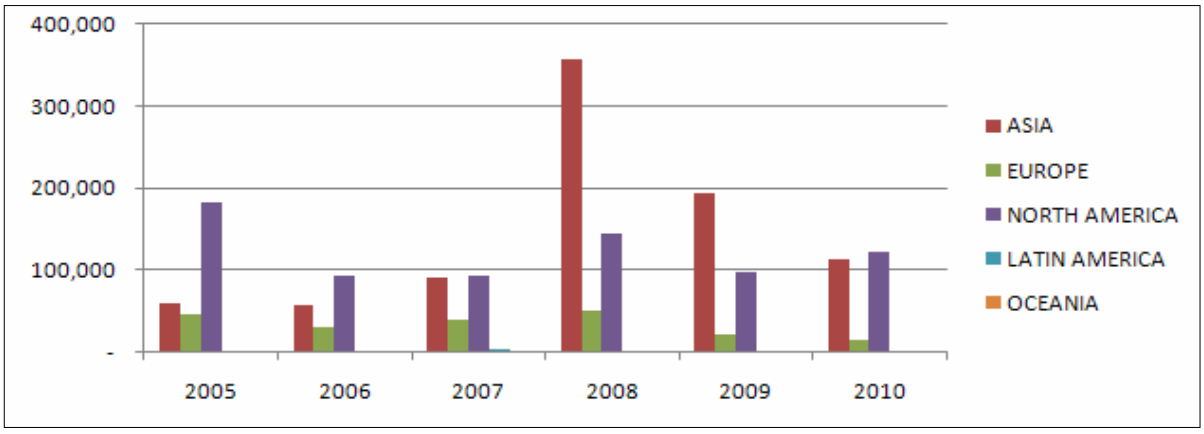


Figure 5 Korea' s exports of laver products - by continent (1000 US$)



Source: The Korea International Trade Association

Figure 6 Japan' s exports of laver products – by continent (1000 ¥)

Source: Japan Customs, Ministry of Finance Japan

d) Amenability of the commodity to standardization

Laver products are distributed primarily in the form of dried, roasted and seasoned products.

Dried laver is manufactured with raw laver through various processes while roasted laver and seasoned laver are manufactured by roasting and seasoning dried laver, respectively.

To be precise, dried laver is considered a semi-processed product for roasted and/or seasoned lavers as well

as a processed product for direct consumption. Hence, it is deemed that the development of a standard for laver products should include provisions on a raw material (*wet Porphyra*), a semi-processed product (dried laver) and processed products (roasted and seasoned lavers).

Furthermore, from manufacturing to distribution, the quality factors which directly affect the quality and safety of the products such as size, foreign matters, pore tolerance, moisture content, acid value, peroxide value and packaging or storage method shall all serve as adequate parameters for the standardization of the products.

For all the reasons stated above, laver products are highly amenable to standardization.

e) Main coverage of the consumer protection and trade issues by existing or proposed general standards

Specific provisions in this proposal, particularly non-safety provisions on product identity, essential composition & quality factors, packaging, storage and labeling, are not covered by existing horizontal Codex texts.

f) Number of commodities which would meet separate standards indicating whether raw, semi-processed or processed

This proposal addresses a single standard for processed products for direct consumption or further processing, including catering purposes or repacking purposes if required.

g) Work already undertaken by other international organizations in this field

None identified.

5. Relevance to the Codex strategic objectives

This proposal meets with *the Goal 1.2 of Part 2 – Review and develop Codex standards and related texts for food quality* of the Strategic Plan 2008-2013 of the Codex Alimentarius Commission, to ensure that they are generic in nature and, while maintaining inclusiveness, reflect global variations and focus on essential characteristics to avoid being overly prescriptive and not more trade restrictive than necessary.

6. Information on the relation between the proposal and other existing Codex documents

None identified.

7. Identification of any need for any requirements for and availability of expert scientific advice

This proposal focuses on non-safety matters; therefore, no provision on scientific advice is foreseen at this time. Safety provisions, e.g., ones on food additives and method of analysis, specific to the products, which are not covered by horizontal Codex texts, will be developed subject to endorsement by the relevant general subject committees (See also Section 3).

8. Identification of any need for technical input to the standard from external bodies so that this can be planned for

Not applicable.

9. Proposed timeline for completion of the new work

If the 31st session of CCFFP agrees to develop an international standard for laver products, the project document for the proposal will be submitted to the Executive Committee for critical review. Subject to approval as a new work by the Codex Alimentarius Commission in 2011, a proposed draft standard will be circulated for comments and consideration by the 32nd session of CCFFP to be slated for 2013. As a result, initial adoption by the Commission is to be foreseen in 2013 and subsequent circulation of the draft standard for comments and consideration by CCFFP in 2014 with a view to its final adoption by the Commission in 2015. The application of an accelerated elaboration procedure may be taken into account.

Date	Advance and Procedures
Apr. 2011	Consideration of the proposal by CCFFP
Jul. 2011	Critical review by CCEXEC and approval by the Commission
Jul. 2011~Apr. 2013	Preparation of the Proposed Draft Standard and circulation for comments
Apr. 2013	Consideration of the Proposed Draft Standard by CCFFP
Jul. 2013	Adoption by the Commission as a Draft Standard
Jul. 2013~Apr. 2014	Circulation for comments on the Draft Standard
Apr. 2014	Consideration of the Draft Standard by CCFFP
Jul. 2015	Final Adoption by the Commission as an international standard