CODEX ALIMENTARIUS COMMISSION E

Food and Agriculture Organization of the United Nations

World Health Organization

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Agenda Item 13 **CX/ASIA 10/17/15**
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JOINT FAO/WHO FOOD STANDARDS PROGRAMME

FAO/WHO COORDINATING COMMITTEE FOR ASIA

Seventeenth Session

Yogyakarta, Indonesia, 22 – 26 November 2010

DISCUSSION PAPER ON DEVELOPMENT OF A REGIONAL STANDARD FOR LAVER PRODUCTS

New proposal prepared by the Republic of Korea

Introduction

Laver is edible red algae which belong to the *Porphyra* genus (*P. tenera, P. yezonensis, P. seriata, P. haitanensis, P. pseudolinearis and P. dentate* etc.). It is mostly cultivated by growing on floating nets in deep sea water. It is recognized as a healthy food since it contains a diverse and a 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 manufacturing of laver products is an adaptation of the paper-making process. For 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 seasoning with/without edible oils, seasonings, various sauces, etc. Dried laver's color is purplish-black, but it changes to dark-green color when roasted.

Necessity to develop the standard

Laver is producible in many regions, especially in Asia, and the major producers are China (where it is called *Zicai*), Japan (where it is called *Nori*) and Korea (where it is called *Gim*). The global trade volume for laver products has been increasing progressively; it rose from 130milion USD in 2005 to 173million USD in 2009. They are also traded in more than 70 countries globally.

However, laver products are called in various terms such as edible seaweed, edible red algae, etc, and the classification and the name of the product types are different in each country. Also, most countries do not have relevant standards for laver products yet; and even if they do, the standards vary from country to country. These cause much confusion and impediment in international trade. Therefore, an international consensus is needed which will accurately name and describe laver and the classification and the names of its various derivative products.

Aside from this, there are many significant quality factors like size, moisture, pore tolerance[1], foreign matters, acid value and peroxide value, which directly affect to quality and safety of the products. Thus, establishing an international criterion for the quality factors will provide consumers with high quality laver products while ensuring consumers' health and fair trade practices.

Recommendation

Republic of Korea invites the Coordinating Committee to support the proposal to develop the Codex Regional Standard for Laver Products and to consider the attached project document (Annex).

[1] Pore tolerance refers to the acceptable pore size and number of pores for each sheet of laver, differentiated according to the species or product usage.

Republic of Korea also invites the Coordinating Committee to provide some additional information such as volume of production and consumption, and trade volume to complete the project document before submitting to Executive Committee for critical review.

PROJECT DOCUMENT

PROPOSAL FOR THE DEVELOPMENT OF A CODEX REGIONAL STANDARD FOR LAVER PRODUCTS

1. The purpose and scope of the Standard

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

2. Its Relevance and timeliness

Laver products are called in various terms such as edible seaweed, edible red algae, etc, and the classification and the name of the product types are different in each country. Also, most countries do not have relevant standards for laver products yet; and even if they do, the standards vary from country to country. These cause much confusion and impediment in international trade. Therefore, an international consensus is needed which will accurately name and describe laver and the classification and the names of its various derivative products.

The size of dried laver is one of significant quality factors to be considered, because this directly affects the sizes of roasted and seasoned lavers, taking into account the complete manufactures for laver products. Thus, establishing an international criterion for the size of dried laver will provide producers with better productivity through product uniformity and also help consumers purchase laver products with more credibility and convenience.

The moisture content of laver products is another vital quality factor. In general, laver tends to absorb moisture in the air, and this is the major cause for deterioration of the product quality. Aside from this, other quality factors like pore tolerance[2], foreign matters, acid value and peroxide value, also determine the product's quality and safety.

An appropriate international standard should therefore be established to meet several aspects; the correct definition and name, quality factors, etc in order to provide consumers with high quality laver products while ensuring consumers' health and fair trade practices.

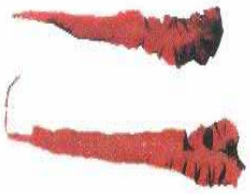
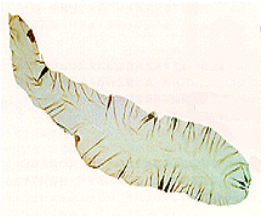
Porphyra tenera	*Porphyra yezonensis*	*Porphyra haitanensis*
		
Porphyra seriata	*Porphyra pseudolinearis*	*Porphyra dentata*
		

Figure 1 *Porphyra* genus of red algae

[2] Pore tolerance refers to the acceptable pore size and number of pores for each sheet of laver, differentiated according to the species or product usage.

Item	Laver Products	Various Consumption
Dried laver		
Roasted laver		
Seasoned laver		

Figure 2 Various types and consumption of laver products

3. Main aspects to be covered

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

The main aspects to be covered would be:

- product definition and types of the product;
- 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 Criteria for 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 2007 was 1,510,626 tons, with China, Japan and Korea, accounting for 59.9%, 26.1%, and 14.0% of the total respectively (see Table 1 and Figure 3). When this is converted into dried laver[3], it becomes approximately 156,639 tons.

The global trade volume for laver products was a $173 million in 2009, which represents an increase of 22.4% and 38.3% for dried laver and seasoned laver respectively, since 2005. It has been steadily growing for the last five years for all major producers China, Japan and Korea (see Table 2).

[3] In general, dry laver is produced in '1 bundle', 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 conversion formula of the weight of raw laver (RL) into that of dry laver (DR) is as follows; "dry laver (DR, kg) = raw laver (RL)/2.411×0.25."

Korea exports dried laver to about 50 countries and seasoned laver to around 70 countries and imports each type of products from about 10 countries. Major trading partners are China, Japan, Singapore and Thailand in Asia; USA and Canada in North America; UK, France and Italy in Europe; and New Zealand and Australia in Oceania (see Tables 3 and 4).

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

Country	2004		2005		2006		2007	
	Quantity (tons)	Value (1000 US$)	Quantity (tons)	Value (1000 US$)	Quantity (tons)	Value (1000 US$)	Quantity (tons)	Value (1000 US$)
China	708,863	318,988	703,093	316,392	805,261	362,368	904,170	443,043
Japan	358,929	807,590	386,574	869,792	367,678	827,276	395,500	889,875
Korea	228,554	166,630	197,610	187,461	217,559	177,724	210,956	208,870
Total	**1,296,346**	**1,293,208**	**1,287,277**	**1,373,645**	**1,390,498**	**1,367,368**	**1,510,626**	**1,541,788**

Source: FAO Aquaculture Production: Quantities & Value, 1950-2007, Feb. 2009

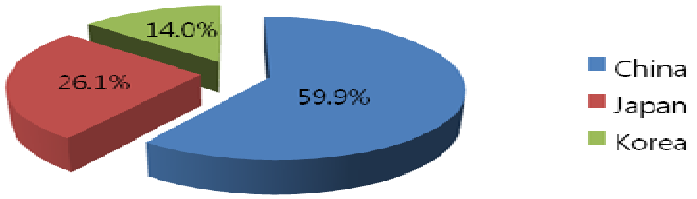


Figure 3 Production of raw laver (2007)

Table 2 Export value by major producer (1000 US$)

Item	Country	2005 (1000 US$)	2006 (1000 US$)	2007 (1000 US$)	2008 (1000 US$)	2009 (1000 US$)
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 exports and imports of dried laver* products (tons, 1000 US$)

Country	2007		2008		2009	
	Quantity (tons)	Value (1000 US$)	Quantity (tons)	Value (1000 US$)	Quantity (tons)	Value (1000 US$)
Total exports	**1,656**	**20,569**	**1,798**	**26,334**	**2,272**	**23,605**
Thailand	330	5,245	614	10,446	726	9,532
USA	437	3,171	437	4,481	528	3,002
Japan	233	5,067	247	5,159	261	5,050
Taiwan	254	3,710	193	2,918	221	2,572
China	201	1,987	160	1,845	106	846
Canada	68	311	19	98	89	343
Other(44 countries)	133	1,078	128	1,387	341	2,260
Total imports	**203**	**1,931**	**129**	**1,469**	**55**	**452**
China	188	1,801	69	737	54	446
Japan	15	130	54	636	0	3
Other(8 countries)	0	0	6	96	1	3

* The volume of dried laver includes that of roasted laver

Source: The Korea agro-fisheries trade corporation

Table 4 Korea's exports and imports of seasoned laver products (tons, 1000 US$)

Country	2007		2008		2009	
	Quantity (tons)	Value (1000 US$)	Quantity (tons)	Value (1000 US$)	Quantity (tons)	Value (1000 US$)
Total exports	**4,873**	**37,351**	**6,012**	**47,619**	**6,938**	**56,970**
USA	2,701	13,851	3,091	16,001	3,522	16,255
Japan	387	10,175	461	12,375	776	19,825
Canada	304	1,349	536	2,314	630	2,695
China	147	2,201	274	3,798	312	6,423
Singapore	176	714	158	545	192	717
France	118	674	208	877	177	780
New Zealand	110	424	105	344	171	432
Taiwan	230	2,397	204	2,875	101	1,261
Other(61 counties)	700	5,566	975	8490	1057	8582
Total imports	**7**	**112**	**6**	**108**	**4**	**87**
Japan	3	82	3	58	3	78
China	4	24	3	15	1	8
Other(8 countries)	0	6	0	35	0	1

Source: The Korea agro-fisheries trade corporation

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

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 seaweed, they are roughly set in a single standard without giving information on specific characteristics of individual commodities.

Laver is the highest consumed edible marine product amongst seaweed. It is manufactured in various forms and is distributed across the world, and not only in the Asian region. However, the absence of an accurate definition and name for laver and its product has become a bigger impediment to the growth of laver trade.

Also, the quality factors which directly affect quality and safety of laver products; size, pore tolerance, foreign matters, moisture content, acid value, peroxide value should be set up to prevent friction in international trade.

c) International or regional market potential

Laver is one of main side dishes in Asian countries where rice is the staple food. It is consumed as a sub-ingredient to main dishes such as gimbap (sushi in Japanese) - steamed rice and various other ingredients, rolled in dried or roasted laver - as well as a side dish and snack.

It is rich in essential amino acids such as methionine, threonine, tryptophan and contains abundant minerals like phosphorus, magnesium, sodium and calcium. The protein in laver is easily digested in bodies so that it is suitable for all age groups. Additionally, porphyran, a component particular to laver, helps fat breakdown and lower cholesterol.

Hence, laver is traditionally considered a healthy food; an opinion which is becoming increasingly acknowledged by more and more people living in other continents, including America and Europe as well as the Asian region.

Figure 4 shows steady growth in international trade of dried and seasoned lavers for the past 5 years. Also, in case of Korean laver products, its trading partners have expanded increasingly from Asian countries to North America, Middle and South America, Europe, Oceania and Africa; and it's exporting volume has increased every year (see Table 5).

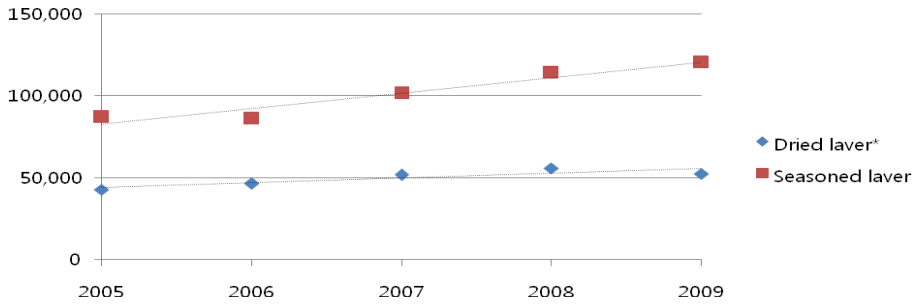


Figure 4 International trade of laver products (1000 US$)

* The volume of dried laver includes that of roasted laver

Source: The Korea International Trade Association

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

Continent	Type	2007		2008		2009	
		Quantity (tons)	Value (1000 US$)	Quantity (tons)	Value (1000 US$)	Quantity (tons)	Value (1000 US$)
Asia	**Dried laver***	1,062	16,413	1,303	21,010	1,470	19,276
	Seasoned laver	1,254	18,566	1,743	31,820	1,497	23,314
North America	**Dried laver***	504	3,483	456	4,579	617	3,346
	Seasoned laver	3,005	15,201	4,153	18,950	3,627	18,316
Europe	**Dried laver***	91	701	46	1,065	117	785
	Seasoned laver	322	2,419	566	5,080	545	4,769
Latin America	**Dried laver***	11	140	12	89	18	178
	Seasoned laver	90	671	84	662	81	694
Oceania	**Dried laver***	11	117	14	128	66	306
	Seasoned laver	290	1,417	489	2,135	361	1,969
Africa	**Dried laver***	1	12	-	-	-	1
	Seasoned laver	-	2	4	19	-	2

* The volume of dried laver includes that of roasted laver

Source: The Korea International Trade Association

d) Amenability of the commodity to standardisation

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

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

To be precise, dried laver is considered as semi-processed product for roasted and seasoned lavers as well as a processed product for direct consumption. Hence, it is expected that the development of a standard for laver products would include stipulations for semi processed product (dried laver) and processed product (roasted and seasoned lavers), and raw material (wet Porphyra).

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

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 to be covered in this proposal, in particular non-safety provisions such as product identity, essential composition and quality factors, packaging, storage and labeling, are not covered by horizontal Codex texts.

f) Number of commodities which would need separate standards indicating whether raw, semiprocessed or processed

This proposal would meet a single standard for the processed product for direct consumption or further processing, including catering purposes or for repacking purposes if required.

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

None identified.

5. Relevance to 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 requirement for and availability of expert scientific advice

This proposal will mainly focus on non-safety matters; therefore, no provision for scientific advice is foreseen at this time. Safety provisions, e.g., food additives and method of analysis, specific to the product, which may not be covered by horizontal Codex texts, will be developed subject to endorsement by the relevant general 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 time-line for completion of the new work

If the 17th session of CCASIA agrees to develop a regional standard for laver product, 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 CCASIA in 2012. Preliminary adoption by the Commission is foreseen in

2013 and subsequent circulation of the draft standard for comments and consideration by the Committee in 2014 with a view to its final adoption by the Commission in 2015. The application of an accelerated step of procedure might be taken into account.

Date	**Advance and Procedures**
Nov. 2010	Consideration of the proposal by CCASIA
Jul. 2011	Critical review by CCEXEC and approval by the Commission
Jul. 2011 ~ Oct. 2012	Preparation of the Proposed Draft Standard and circulation for comments
Nov. 2012	Consideration of the Proposed Draft Standard by CCASIA
Jul. 2013	Adoption by the Commission as a Draft Standard
Jul. 2013 ~ Oct. 2014	Circulation for comments on the Draft Standard
Nov. 2014	Consideration of the Draft Standard by CCASIA
Jul. 2015	Final Adoption by the Commission as a Regional Standard