

Studies on the Nomenclature of Korean Fermented Foods

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한국 발효식품의 분류법에 관한 연구

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Abstract

A nomenclature method for Korean fermented foods was developed in order to apply this to the international nomenclature system for fermented foods. It is made by a four digit number; the first digit indicates the major ingredient used, the second for fermentation method, the third for major type of microorganism, and the last digit for the type of consumption. Following the nomenclature number, a detailed description of product is given. Examples of application of the nomenclature system to Korean fermented foods are shown.

Introduction

The necessity for a comprehensive nomenclature system of traditional fermented foods has long been recognized between Asian countries, where abundant varieties of fermented foods are traditionally made. There are many similar fermented products between Asian countries but different local names. It often causes misunderstanding and difficulties in exchanging research results as well as in commercial and social communications.

This matter was discussed during the technical seminar on Traditional Food Fermentation as Industrial Resources in ASCA Countries, held prior to the 8th conference of ASCA (Association for Science Cooperation in Asia). The recommendation made by the Technical Seminar to the 8th ASCA Conference was adopted, and a study on the method of nomenclature of traditional

fermented foods in ASCA countries was launched.⁽¹⁾ Korea, Japan, Indonesia, Thailand and Australia were selected as the task force countries for the study. The present paper reports a nomenclature method established for Korean traditional fermented foods. This method is not the final version of the study. It is rather an initial draft and needs suggestions from the concerned circles for the completion.

Method of nomenclature

The principle of the suggested method is to classify the fermented foods by number which characterize the type of products, followed by a detailed description.

The characteristics of fermented foods are divided into four classes; namely (1) major ingredient (2) fermentation method (3) major type of microorganism (4) usage of product. Number is given to the specific properties in

each category.

Thus, each fermented products can be nomenclatured by a four digit number.

Table 1 shows the sequence of classes and the number given to each property in the classes.

The first digit describes the major ingredient used, where 1 is for cereal, 2 for pulses (soybean), 3 for vegetables and fruits, 4 for fish and shell fish, 5 for milk, and 6 for others.

The second digit expresses the type of fermentation, in which 1 is for salt added fermentation, 2 for alcohol fermentation, 3 for acid fermentation, and 4 for other fermentations including sugar and amino acid fermentation. The third digit means the major type of microorganisms, where 1 is for bacteria, 2 for yeast, 3 for mold, and 4 for mixed organisms. The last digit describes the usage of product, in which 1 is for staple food, 2 for snack, 3 for condiments, 4 for beverage, 5 for starter and 6 for other types of food.

Table 2 shows examples of the nomenclature number applied to some of Korean fermented foods.

Detailed description

Following the nomenclature number, a detailed description on the product is given. Table 3 shows the properties of the product which are to be included and their order of description.

The detailed description starts with common English name and local name of the product. The local name is described by both English alphabet and the letter of native country.

Secondly, the physical and organoleptical property of the product is described in the order of consistency, color and flavor. Thirdly, the detailed description on the major and minor ingredients of the product is given with the percent content of each ingredients.

The fourth description is processing procedures, including preheating and cooking, fermentation method, ripening method and pasteurization need, and the flow sheet of the fermentation is added. Under the item number 5, the major and minor microorganisms involved in the fermentation are named. In number 6, chemical composition of the product is described.

The other comments of item number 7, includes the self-life of product, level of industrialization and quantity

of product produced each year. Lastly, a picture of product is added.

Examples

Table 4 shows the nomenclature and detailed description of Baechoo-Kimchi. The nomenclature number 3, 1, 1, 1, indicates that it is made by vegetables and fruits, salt fermented, with bacteria, and used for staple food. The detailed description supplements the characteristics of the product.⁽²⁾

Table 5 shows the nomenclature and detailed description of Kochujang. The nomenclature number 1, 1, 4, 3, indicates that it is made by cereals, salt fermented, with mixed microorganisms and used for condiment. The detailed description further explains the characteristic properties of the product.⁽²⁾

요 약

세계 각국에서 생산되는 재래식 발효식품의 체계적인 분류와 공통된 명명법에 대한 필요성은 오랜 동안 인식되고 있었으나 그 구체적인 계획이 수립된 것은 지난 1981년 2월 9일 부터 15일 사이에 인도네시아 Medan에서 열린 제 8차 ASCA (Association for Science Cooperation in Asia) 회의에서 이었다. 제 8차 ASCA회의는 ASCA회원국가 내의 발효식품에 대한 공통된 분류 명명법을 고안하는 일을 1981년도 ASCA사업으로 채택하였으며 이 사업을 위한 실행국으로 한국, 일본, 인도네시아, 태국, 호주를 선정하였다.

본고에서 발표하려는 분류법의 기본방침은 발효식품의 기본 특성을 숫자에 의하여 분류 표기하고 그 다음에 자세한 내용을 기술함으로서 분류와 제품묘사를 동시에 할 수 있도록 하였다. 이 방법은 아직 완전한 것이 아니며 하나의 제안에 불과한 것으로 광범위한 적용시험을 통하여 수정 보완되어야 하므로 이 분야에 관심이 있는 분들의 많은 조언과 협조를 바라는 바이다.

References

- 1) Proceedings of the 8th Conference of ASCA. (1981)
- 2) Mheen, T. I., T.W. Kwon and C.H. Lee : Traditional fermented food products in Korea, The Technical

Seminar of the 8th Conference of the Association for Science Cooperation in Asia, Medan, Indonesia, Feb. 9-15. (1981)

Table 3. Contents and Order of Detailed Description of Fermented Products.

Table 1. Series No. and Code No. for the Classification of Traditional Fermented Foods.

Series No.	Code No.
1. Raw materials	1. Cereal 2. Pulses (soybean) 3. Vegetable & fruits 4. Fish & shell fishes 5. Milk 6. Others
2. Mode of fermentations	1. Salt 2. Alcoholic 3. Acidic 4. Others (Sugar, amino acids)
3. Microorganisms involved	1. Bacteria 2. Yeast 3. Fungi 4. Mixed
4. Usage of products	1. Staple food 2. Snack 3. Condiments 4. Beverage 5. Starter 6. Others
5. Detail description of products	

Table 2. Examples for the Classification Number Applied to some of Korean Fermented Foods.

Takju	1, 2, 2, 4
Kochujang	1, 1, 4, 3
Doenjang	2, 1, 4, 3
Kanjang	2, 1, 4, 3
Kimchi	3, 1, 1, 1
Saewoojot	4, 1, 4, 3

1. Name of product
 - 1.1. Common English name
 - 1.2. Local name(s)
2. Physical and organoleptical properties
 - 2.1. Consistency
 - 2.1.1. Solid
 - 2.1.2. Semisolid/paste
 - 2.1.3. Liquid
 - 2.2. Color
 - 2.3. Flavor
3. Raw materials
 - 3.1. Major ingredients (in %)
 - 3.2. Minor ingredients
4. Process of preparation
 - 4.1. Pre-heating/cooking
 - 4.1.1. Duration
 - 4.1.2. Temperature
 - 4.2. Fermentation
 - 4.2.1. Temperature
 - 4.2.2. Duration
 - 4.2.3. Humidity
 - 4.2.4. Aeration
 - 4.2.5. pH
 - 4.3. Aging/ripening
 - 4.3.1. Temperature
 - 4.3.2. Duration
 - 4.3.3. Humidity
 - 4.3.4. Aeration
 - 4.4. Pasteurization
 - 4.5. Flow sheet
5. Microorganisms involved
6. Chemical composition of products
7. Other comments
 - 7.1. Shelf life
 - 7.2. Level of industrialization
 - 7.3. Quantity produced
8. Pictures

Table 4. An Example of Description for Korean Kimchi According to the Classification Scheme.

- 3.1.1.1. Kimchi (Korean)
 - 1.1. Fermented vegetable
 - 1.2. Baechoo-Kimchi (배추김치)
 - 2.1. Solid
 - 2.2. Redish yellow and green
 - 2.3. Sour with sweet, hot and carbonated taste
 - 3.1. Korean cabbages Ca. (90%)
 - 3.2. Garlic(2.0%), Green onion(2.0%), Hot pepper(2.0%), Girger(0.5%), Salt(2.5-3.0%)
 - 4.2.1. Ambient temperature(5-30°C)
Optimum temperature(10-15°C)
 - 4.2.2. 1-30 days depending on temperature,
(optimum 10°C, 7 days)
 - 4.2.5. Initial pH 5.8, Final pH 4.2
 - 4.5. Cabbages → Salting → Washing → Blending → Mixing → Fermentation
Minor ingredients → Washing → Blending → Mixing → Fermentation
- 5. Mianly *Leuconostoc mesenteroides* and other *Lactobacilli* (*Lac. brevis*, *Lac. plantarum*, *Pediococcus cervisiae*)
- 6. pH; 4.2, Acidity; 0.6-0.8% (as lactic acid)
Calories(Cal.) 19.0, Water 88.4%, Protein 2.0%, Fat 0.6%, Carbohydrate 1.3%
Ca 28.0mg Thiamine 0.03mg, Riboflavin 0.06mg, Niacin 2.1mg, Ascorbic acid 12.0mg in 100g edible portion.
- 7.1. Varies depending on preservation temperature,
(6 months at 5°C, 15 days at 10°C, 3 days at 20°C, 1 day at 30°C)
- 7.2. 1.3%
- 7.3. Total 800,000 M/T/year (Home, 790,000 M/T, Industry 10,000 M/T)
- 8. Pictures

Table 5. An Example of Description for a Fermented Soybean Paste according to the Classification Scheme.

- 1.1.4.3. Kochujang (Korean)
 - 1.1. Fermented cereal and soybean(*Meju*) paste
 - 1.2. Kochujang (고추장)
 - 2.1. Solid
 - 2.2. Red
 - 2.3. Sweet and hot taste
 - 3.1. Rice and/or Barley (37%)
Ground Meju (8%)
Red pepper powder (12%)
Salt (10%)
Water (33%)
 - 4.1.1. 1 hour
 - 4.1.2. 120°C
 - 4.2.1. 25-30°C
 - 4.2.2. 3-6 months
 - 4.2.5. 5.8-5.0
 - 4.3.1. 25-30°C
 - 4.3.2. 1-3 months
 - 4.5. Rice or Barley → Steaming → Meju → Ground → Mixing → Fermentation
Red pepper powder → Mixing → Fermentation
Salt and water → Mixing → Fermentation
- 5. *Aspergillus oryzae*, *Saccharomyces rouxii*, *Torulopsis versatilis*
- 6. Calories (Cal.) 171, Water 47.7%, Protein 8.9g, Fat 4.1g, Carbohydrate 25.9g, Ca 126mg, P 72mg, Thiamine 0.35mg, Riboflavin 0.35mg, Niacin 1.5mg, Ascorbic acid 10mg, β -carotene 210 μ g in 100g kochujang.
- 7.1. Varies depending on storage conditions, about 6-12 months
- 7.2. Commercial production 25%, Home made 75%
- 7.3. 133,449 M/T in 1980
- 8. Pictures