

PHILIPPINE NATIONAL STANDARD

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Fermented milks – Specification



BUREAU OF PRODUCT STANDARDS

Foreword

Pursuant to a Memorandum of Agreement, between Bureau of Food and Drugs and Food Manufacturers, the Joint BFAD- Industry Committee on Food was formed in 2000. The Joint BFAD-Industry Committee was established because the BFAD and the Philippine Chamber of Food Manufacturers Inc. (PCFMI) agreed to undertake joint programs that will promote the enhancement of public health and safety, consumer protection and fair trade practice.

Several meetings by the Technical Working Group (TWG) were held at BFAD where all members were duly invited. Long discussions took place where all issues were agreed and clarified.

Year 2002, the draft standard for fermented milks was formally submitted to BFAD by the Philippine Chamber of Food Manufacturers Inc. pursuant to MOA. After some refinement, the said draft was in turn referred to the BFAD Advisory Committee in 2003. The Food Advisory Committee was composed of experts from academe, government and the private sectors.

In 2006, BFAD Philippine National Committee on Food Products called for a meeting and organized a new TWG on Fermented Milks now with a bigger composition including the following members: National Dairy Authority (NDA) of the Department of Agriculture (DA) , Industrial Technology Development Institute (ITDI) of the Department of Science and Technology (DOST), Bureau of Product Standards (BPS) of the Department of Trade & Industry (DTI), College of Public Health -University of the Philippines (UP-CHE), Philippine Chamber of Food Manufacturers Incorporated (PCFMI), Philippine Association of Food Technologists (PAFT) and from the industry Nestle Philippine Incorporated, Yakult Philippines and Fonterra Brands Philippines

With the various meetings finally this standard on Fermented Milks was formulated based on Codex Standard for Fermented Milks Codex Stan 243-2003.

Fermented milks – Specification

1 Scope

This standard shall apply to fermented milks including heat treated fermented milks, concentrated fermented milks and composite milk products based on these products, for direct consumption or further processing in conformity with the definition in Clause 2 of this standard.

2 Definition of terms

For the purpose of this standard, the following terms shall mean:

2.1**composite milk product**

it is a product of which the milk, milk products or milk constituents are an essential part in terms of quantity in the final product, as consumed provided that the constituents not derived from milk are not intended to take the place in part or in whole of any milk constituent

2.2**contaminants**

it is any biological or chemical agent, foreign matter, or other substances that are not intentionally added to food, which may compromise food safety or suitability

2.3**food additives**

it is any substance the intended use of which results or may reasonably be expected to result, or indirectly, in its becoming a component or otherwise affecting the characteristics of any food (including any substance intended for use in producing, manufacturing, packing, processing, preparing, treating, packaging, transporting or holding of; and including any source of radiation intended for any such use), if such substance is generally recognized, among experts qualified by scientific training and experience to evaluate its safety, as having been adequately shown through scientific procedures to be safe under the conditions of the intended use.

2.4**good manufacturing practice (GMP)**

it is a quality assurance system aimed at ensuring that products are consistently manufactured, packed, repacked or held to a quality appropriate for the intended use. It is thus, concerned with both manufacturing and quality control procedures

2.5**labeling**

it is any written, printed or graphic matter (1) upon any article or any of its container or wrappers or (2) accompanying the packaged food

2.6

labneh

it is a middle eastern yogurt cheese

2.7

milk

it is the lacteal secretion free from colostrums obtained by the complete milking of one or more healthy cows and contains not less than: 8.25 % of milk solids not fat and 3.00 % milk fat

2.8

packaging

it is the process of packing that is part of the production cycle applied to a bulk product to obtain the finished product. Any material, including painted material, employed in the packaging of a product including any outer packaging used for transportation or shipment. Packaging materials are referred to as primary or secondary, whether or not they are intended to be in direct contact with the product

2.9

pasteurization

it is a heat treatment process applied to a product with the aim of avoiding public health hazards arising from pathogenic microorganisms associated with milk. Pasteurization, as a heat treatment process, is intended to result in only minimal chemical, physical and organoleptic changes

2.10

probiotic

are live microorganisms which when administered in adequate amounts confer a health benefit on the host

2.11

reconstituted milk product

it is a product resulting from the addition of water to the dried or concentrated form of the product in the amount necessary to re-establish the appropriate water to solids ratio

2.12

recombined milk product

it is a product resulting from the combining of milkfat and milk-solids-non-fat in their preserved forms with or without the addition of water to achieve the appropriate milk product composition

2.13

ultra-high temperature (UHT)

refers to pasteurization techniques with temperatures of at least 130 °C in a continuous flow, with holding times of approximately 1 second or more

2.14

symbiotic

it is use of organisms (especially of different species) living together but not necessarily in a relationship beneficial to each other

2.15**yllette**

it is skimmed milk that has been filtered under pressure and fermented

2.16**ymer**

it is a danish cultured milk product based on fermentation of ultra filtrated (UF) milk concentrate using an aromatic, mesophilic starter culture. This is normally unflavored

2.17**yoghurt**

it is a coagulated milk product obtained by lactic acid fermentation through the action of *Lactobacillus bulgaricus* and *Streptococcus thermophilus*, from milk and milk products such as pasteurized milk or concentrated milk, or pasteurized partly skimmed milk or concentrated partly skimmed milk, or pasteurized skimmed milk or concentrated skimmed milk, or pasteurized cream, or a mixture of two or more of these products; and with or without optional additions such as milk powder, skimmed milk powder, unfermented buttermilk, concentrated whey, whey powder, whey proteins, whey protein concentrate, water-soluble milk proteins, edible casein, caseinates, manufactured from pasteurized products; cultures of suitable lactic acid producing bacteria in addition *L. bulgaricus* and *S. thermophilus*; and sugars. The microorganisms in the final product must be viable and abundant.

3 Description of products**3.1 Product definition**

3.1.1 Fermented milk – A milk product obtained by fermentation of milk, which have been manufactured from products obtained from milk with or without compositional modification as limited by the provision in 4.2 by the action of suitable microorganisms and resulting in reduction of pH with or without coagulation (iso-electric precipitation). These starter microorganisms shall be viable, active and abundant in the product to the date of minimum durability. If the product is heat-treated after fermentation the requirement for viable microorganisms does not apply.

Certain fermented milks are characterized by specific starter culture(s) used for fermentation as follows:

3.1.1.1 Yoghurt

Symbiotic cultures of *Streptococcus thermophilus* and *Lactobacillus delbrueckii* subsp.*bulgaricus*.

3.1.1.2 Alternate culture yoghurt

Cultures of *Streptococcus thermophilus* and any *Lactobacillus species*.

3.1.1.3 Acidophilus milk

Lactobacillus acidophilus

3.1.1.4 Kefir

Starter culture prepared from kefir grains, *Lactobacillus Kefiri*, species of the genera *Leuconostoc*, *Lactococcus* and *Acetobacter* growing in a strong specific relationship. Kefir grains constitute both lactose fermenting yeasts (*Kluyveromyces marxianus*) and non-lactose-fermenting yeasts (*Saccharomyces unisporus*, *Saccharomyces cerevisiae* and *Saccharomyces exiguus*).

3.1.1.5 Kumys

Lactobacillus delbrueckii subsp. *Bulgaricus* and *Kluyveromyces marxianus*.

Other microorganisms than those constituting the specific culture(s) specified above may be added.

3.1.2 Concentrated fermented milk – A fermented milk the protein of which has been increased prior to or after fermentation to minimum 5.6 %. Concentrated fermented milks include traditional products such as Stragisto (strained yoghurt), Labneh, Ymer and Ylette.

3.1.3 Flavored fermented milks – Composite milk products, as defined in 2.3 of the Codex General Standard for the Use of Dairy Terms (CODEX STAN 206-1999), which contain a maximum of 50 % (m/m) of non-dairy ingredients (such as nutritive and non nutritive sweeteners, fruits and vegetables as well as juices, purees, pulps, preparations and preserves derived therefrom, cereals, honey, chocolate, nuts, coffee, spices and other harmless natural flavoring foods) and/or flavors. The non-dairy ingredients can be mixed in prior to/or after fermentation.

3.1.4 Heat-treated fermented milks – Products described in 3.1.1 up to 3.1.3 that have been subjected to any form of heat treatment such as pasteurization, UHT, or sterilization. The requirement for abundant and viable microorganisms does not apply.

4 Essential composition and quality factors

4.1 Raw materials

4.1.1 Basic ingredients

- Milk and/or products obtained from milk
- Potable water for the use in reconstitution and recombination

4.1.2 Permitted ingredients

- Starter cultures of harmless microorganisms including those specified in Clause 3;
- Sodium chloride;
- Non-dairy ingredients as listed in 3.1.3 (flavored fermented milks);

- Gelatine and starch in:
- Fermented milks heat-treated after fermentation
- Flavored fermented milk; and
- Plain fermented milks if permitted by national legislation in the country of sale to the final consumer; provided they are added only in amount functionally necessary as governed by Good Manufacturing Practice, taking into account any use of the food additives listed in Table 1. These substances may be added either before or after adding the non-dairy ingredients.

4.2 Composition

Table 1 – Composition of fermented milk, yogurt, kefir and kumys

Composition	Fermented milk	Yogurt/Alternate culture yogurt/Acidophilus milk	Kefir	Kumys
Milk protein ^a , % (m/m)	min 2.7 %	min. 2.7 %	min 2.7 %	-
Milk fat (%m/m)	<10 %	<15 %	<10 %	<10 %
Titratable acidity, expressed as % lactic acid (%m/m)%	min 0.3 %	min. 0.6 %	min 0.6 %	min 0.7 %
Ethanol, % (vol/w)	-	-	-	min 0.5 %
Sum of microorganisms constituting the starter culture (cfu/g, total)	min 10 ⁷	min 10 ⁷	min 10 ⁷	min 10 ⁷
Labeled microorganisms ^b (cfu/g, total)	min 10 ⁶	min 10 ⁶	-	-
Yeast (cfu/g, total)	-	-	min 10 ⁴	Min10 ⁴
^a Protein content is 6.38 multiplied by total Kjeldahl nitrogen determined. ^b Applies where a content claim is made in the labeling that refers to the presence of a specific microorganism (other than those specified in definition for the product concerned) that has been added as a supplement to the specific starter culture.				

In flavored fermented milks the above criteria apply to the fermented milk part. The microbiological criteria (based on the proportion of fermented product) are valid up to the date of minimum durability. This requirement does not apply to products heat-treated after fermentation.

Compliance with the microbiological criteria specified above is to be verified through analytical testing of the product through to “the date of minimum durability” after the product has been stored under the storage conditions specified in the labeling.

4.3 Essential manufacturing characteristics

Whey removal after fermentation is not permitted in the manufacture of fermented milks, except for concentrated fermented milk (3.1.2).

5 Food additives

Only those additive classes indicated in Table 2 may be used for the product categories specified. Within each additive class, and where permitted according to the table, only those individual additives listed may be used and only within the limits specified and current BFAD regulations on food additives.

In accordance with section 4.1 of the Preamble to the General Standard for Food Additives (CODEX STAN 192-1995 Rev. 6-2005), additional additives may be present in the flavored fermented milks and heat-treated fermented milks as a result of carry over from non-dairy ingredients.

Table 2 – Additive classes that may be used for fermented milks and fermented milks heat treated after fermentation

Additive class	Fermented milks		Fermented milks heat treated after fermentation	
	Plain	Flavored	Plain	Flavored
Colors	-	X	-	X
Sweeteners	-	X	-	X
Emulsifiers	-	X	-	X
Flavor enhancers	-	X	-	X
Acids	-	X	X	X
Acidity regulators	-	X	X	X
Stabilizers	X ¹	X	X	X
Thickeners	X ¹	X	X	X
Preservatives	-	X ²	-	X
Packaging gases	-	X	X	X

X = The use of additives belonging to the class is technologically justified
 - = The use of additives belonging to the class is not technologically justified
¹ = Use is restricted to reconstitution and recombination and if permitted by national legislation in the importing country
² = Use is restricted to list of permissible additives as listed in current BFAD regulations on Food Additives and/or Codex

6 Contaminants

The product covered by this standard shall comply with the maximum limits for contaminants and the maximum residue limits for pesticides and veterinary drugs established by the Codex Alimentarius Commission.

7 Hygiene

7.1 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 Recommended International Code of Practice-General Principle of Food Hygiene (CAC.RCP 1-1969, Rev. 4-2003), Codex Code of Hygienic Practice for Milk and Milk Products (CAC RCP 57-2004) and other relevant Codex texts such as Codes of Hygienic Practice and Codes of Practice.

7.2 The products should comply with any microbiological criteria established in accordance with the Principles for the Establishment and Application of Microbiological Criteria for Foods (CAC/GL 21-1997) and the microbiological standards in BFAD Bureau Circular No. 01-A series of 2004 or any amendments thereto.

8 Labeling

In addition to the provision of the Codex General Standard for the Labeling of Prepackaged Foods (CODEX STAN 1-1985, Rev. 1-1991) and the General Standard for the Use of Dairy Terms (CODEX STAN 206-1999), the following specific provisions apply:

8.1 Name of the food

8.1.1 The name of the food shall be fermented milk or concentrated fermented milk as appropriate.

However, these names may be replaced by the designations Yoghurt, Acidophilus Milk, Kefir, Kumys, Stragisto, Labneh, Ymer and Ylette, provided that the product complies with the specific provisions of the standard, Yoghurt may be spelled as appropriate in the country of retail sale.

“Alternate culture yoghurt”, as defined in Section 3, shall be named through the use of an appropriate qualifier in conjunction with the word “yoghurt”. The chosen qualifier shall describe, in a way that is accurate and not misleading to the consumer, the nature of the change imparted to the yoghurt through the selection of the specific *Lactobacilli* in the culture for manufacturing the product. Such change may include a marked difference in the fermentation organisms, metabolites and/or sensory properties of the product when compared to the product designated solely as “yoghurt”. Examples of qualifiers which describe differences in sensory properties include terms such as “mild” and “tangy”. The term “alternate culture yoghurt” shall not apply as a designation.

The above specific terms may be used in connection with the term “frozen” provided (i) that the product submitted to freezing complies with the requirements in this standard, (ii) that the specific starter cultures can be reactivated in reasonable numbers by thawing, and (iii) that the frozen product is named as such and is sold for direct consumption, only.

Other fermented milks and concentrated fermented milks maybe designated with other variety names as specified in the national legislation of the country in which the product is sold, or names existing by common usage, provided that such designations do not create

an erroneous impression in the country of retail sale regarding the character and identity of the food.

8.1.2 Products obtained from fermented milk(s) heat treated after fermentation shall be named “Heat Treated Fermented Milk” which shall be in bold letters. Immediately below the said product name, additional description of the specific fermented milk from which the product was derived may be declared provided that the product actually went through the said fermentation process using the declared starter culture.

8.1.3 The designation of Flavored Fermented Milks shall include the name of the principal flavoring substance(s) or flavor(s) added.

8.1.4 “Fermented Milk to which only nutritive carbohydrate sweeteners have been added may be labeled as “sweetened _____”, the blank being replaced by the term “Fermented Milk” or another designation as specified in section 8.1.1 If non-nutritive sweeteners are added in partial or total substitution to sugar, the mention “sweetened with _____” or “sugared and sweetened with _____” should appear close to the name of the product, the blank being filled in with the name of the artificial sweeteners.

8.1.5 The names covered by this standard may be used in the designation, on the label, in commercial documents and advertising of other foods, provided that it is used as an ingredient and that the characteristics of the ingredient are maintained to a relevant degree in order not to mislead the consumer.

8.2 Declaration of fat content

If the consumer would be misled by the omission, the milk fat content shall be declared in a manner acceptable in the country of sale to the final consumer, either as (i) a percentage of mass or volume, or (ii) in grams per serving as qualified in the label, provided that the number of serving is stated.

8.3 Labeling of non-retail containers

Information required in Clause 8 of this standard and 4.1 to 4.8 of the General Standard for the Labeling of Prepackaged Foods, and, if necessary, storage instruction, shall be given either on the container or in accompanying documents, except that the name of the product, lot identification, and the name and address of the manufacturer or packer, shall appear on the container. However, lot identification and the name and address of the manufacturer or packager may be replaced by an identification mark, provided that such mark is clearly identifiable with the accompanying documents.

9 Methods of sampling and analysis

See Codex Alimentarius, Volume 13.

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