KENYA STANDARD

DKS 2707: 2016
ICS 67.100.10

Fermented Camel milk — Specification

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TECHNICAL COMMITTEE REPRESENTATION

The following organizations were represented on the Technical Committee.
Kenya Dairy Board
Ministry of Health — Food Safety Unit
Directorate of Livestock Production
Directorate of Veterinary Services
Egerton University — Department of Dairy and Food Science Technology
Government Chemist's Division
National Public Health Labs service
Kenya Industrial Research and Development Institute (KIRDI)
Consumer Information Network
New Kenya Creameries Cooperative (NKCC)
Brookside Dairy Ltd.
Eldoville Dairies Limited
Githunguri Dairy
Happy Cow Ltd
Sameer Agriculture and Livestock (K) Limited
KIBIDAV Ltd (TOGGS)
Kenya Camel Association (KCA)
Regional Pastoral livelihood resilience Project
Agricultural sector Development Support programme (ASDSP)
University of Nairobi
Kenya Bureau of Standards — Secretariat

REVISION OF KENYA STANDARDS

In order to keep abreast with the progress in the industry, Kenya Standards shall be regularly reviewed. Suggestions for improvements to published standards, addressed to the Managing Director, Kenya Bureau of Standards, are welcome.

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Foreword

This Kenya Standard was prepared by the milk and milk Products Technical Committee under the guidance of the Standards Project Committee and it is in accordance with the procedures of the Kenya Bureau of Standards.

The Camel sub sector has the potential to substantially contribute to Kenya's socio-economic development, food security and livelihood. This can be achieved by promoting domestic, intra-regional and international market access for camel dairy products. This will improve the livelihoods of value chain players including agro-pastoralists and pastoralists. Therefore camel milk products produced and marketed should meet the required National and international standards. Among the camel milk products being consumed and are popular with consumers is the fermented camel milk traditionally known as Suusa hence the need to develop a national standard to address the safety and quality concerns and also promote product diversification.

Fermented Camel milk — Specification

1 Scope

This Kenyan Standard specifies the requirements and methods of test and sampling for “Suusa”– a fermented camel milk product

2 Normative references

The following publications contain provisions which, through reference in this text, constitute provisions of this standard. At the time of publication, the edition indicated was valid. For undated references, the latest edition of the normative document referred to applies.

AOAC 942.17, Arsenic in foods Molybdenum blue method

AOAC 999.10, Lead, Cadmium,Copper, Iron, and Zinc in foods, Atomic Absorption Spectrophotometry after dry ashing

CAC/MRL 2 Maximum Residue Limits for Veterinary Drugs in Food

AOAC 962.16 Beta-lactam Antibiotics in milk

AOAC 980.21, Aflatoxin M1 in milk and cheese-thin layer chromatographic method

KS EAS 38, Labelling of pre-packaged foods

KS EAS 39; Code of practice for hygiene in the food and drink manufacturing industry

KS 2062, Pasteurized Camel milk- Specification

KS 1051, Guide on maximum limits of pesticide residues in foods

KS CAC/GL 23, Guidelines for use of nutrition claims

KS CODEX STAN 193, Codex general standard for contaminants and toxins in foods

KS ISO 2446 ;); Milk — Determination of fat content (Routine method

KS ISO 11866-2:2007; Milk and milk products-Enumeration of presumptive escherichia coli - Part 2: Colony-count technique at 44 °C using membrane

KS ISO/TS 11869:2012; Fermented milks -- Determination of titratable acidity -- Potentiometric method

KS ISO 14501:2007 Milk and milk powder - Determination of aflatoxin M 1 content - Clean-up by immunoaffinity chromatography and determination by high-performance liquid chromatography

KS ISO 4832:2006;Microbiology of food and animal feeding stuffs - Horizontal method for the enumeration of coliforms - Colony-count technique.

KS ISO 4833-1, Microbiology of the food chain — Horizontal method for the enumeration of microorganisms — Part 1: Colony count at 30 degrees C by the pour plate technique

KS ISO 5764:2009, Milk - Determination of freezing point - Thermistor cryoscope method (Reference method)

KS ISO 6785:2001 (IDF 93:2001); Milk and milk products -- Detection of Salmonella spp

KS ISO 6611, Milk and milk products — Enumeration of colony—forming units of yeasts and/or moulds — Colony-count technique at 25 degrees C

KS ISO 6731:2010; Milk, cream and evaporated milk- Determination of total solids content (reference method)

KS ISO 6888-1:1999; Microbiology of food and animal feeding stuffs -- Horizontal method for the enumeration of coagulase-positive staphylococci (Staphylococcus aureus and other species) -- Part 1: Technique using Baird-Parker agar medium

KS ISO 707, Milk and milk products — Guidance on sampling

KS ISO 8968-1:2014 (IDF 20-1:2014); Milk and milk products -- Determination of nitrogen content -- Part 1: Kjeldahl principle and crude protein calculation

3 Definitions

For the purposes of this standard, the following definition shall apply.

3.1 Suusa

Shall mean fermented camel milk made from pasteurized whole or fat reduced camel milk as per the KS 2062: 2017.

3.2 Back sloping

Refers to using good quality suusa (based on characteristic of quality fermented milk) as liquid starter culture

4 Product Description

Suusa is a traditional fermented camel milk product. The fermentation is spontaneous based on inherent and environmental microorganisms. It is white, of low-viscosity with a distinct smoky flavor and astringent taste. Suusa is prepared using two methods. Firstly, the traditional method (homemade) which requires fresh camel milk to be fermented in a pre-smoked gourd (using flaming acacia twig) and incubated naturally at ambient temperature (25–30 0 C) for 1–2 days.
The second method improves on the process by pasteurizing the milk, cooling it to 25 to 30 oc and inoculating at 2-3% using good quality suussa (back sloping). This is left to ferment for 24-48 hours at room temperatures. Thereafter it's cooled, packed and distributed

5 Essential ingredients

The temperature of milk shall be raised to not less than 72 °C and not more than 80 °C and retained within this range for 15 s and immediately and rapidly cooled to 4°C or less.

5.1 Raw materials

Pasteurised whole or fat reduced camel milk

5.2 Culture

Good quality suusa shall be used for inoculation.

5.3 Plain suusa

None except stabilizers, emulsifiers, thickeners and pH adjusters in Table 1

Table 1 — Stabilizers, emulsifiers and thickeners for fruit yoghurt

Name	Maximum level mg/kg
Alginates	5
Agar	5
Edible gums	5
Celluloses	5
Pectin	5
Gelatin	10

Starches and modified starches	10

5.4 Other types of suusa

5.4.1 Flavours

5.4.1.1 Fruit suusa may contain the following flavours:

a) essences and extracts derived from fruit or parts of fruit, and

b) synthetic equivalents of essences.

5.4.1.2 Flavoured suusa may contain the following flavours

a) essences and extracts derived from fruit or parts of fruit, and

b) synthetic equivalents of essences.

5.4.2 Food colours

Others types of suusat may have ***colours*** exclusively from substances as a result of carry-over or of vegetable source complying with Table 2.

Table 2 – Residual colour in fruit/flavoured suusa

Name	Maximum level mg/kg
Allura red	50
Annato	50
Quinoline yellow	18
Carmines	20
Caratenoids	100
Caramel (ammonium sulphate process)	150
Sunset yellow	12
Tatrazine	27
Indigotine	6
Coloured ingredients extracted from natural fruit and vegetable source	GMP

5.2.3 Stabilizers, emulsifiers and thickeners

Suusa may contain approved stabilizers, emulsifiers and thickeners which shall be used are listed in Table 1.

5.2.4 Preservatives

Preservatives shall not be added to suusa.

6 Essential composition and quality requirements

General Requirements

a) Suusa should not have any foreign matter
b) Should not have any odour
c) Should have a characteristic taste and flavor when tested using the methods stipulated in KS 05 – 746, Methods of sensory analysis of foods.
d) Shall be free flowing and shall not whey off.

Table 1 — Compositional requirements for Fermented camel milk

S/No.	Characteristics	Limits (%)	Test methods
1.	**Fat content** Whole milk Fat reduced milk Fat free milk	 - Min 2.0 - Min 1.0 - Max 0.5	KS ISO 2446
2.	Milk solids non fat	- Min 6.0	KS ISO 6731
3.	Acidity(lactic acid)	0.7 – 0.9	KS ISO/TS 11869

7. Food additives

Food additives may be used in preparation of fermented camel milk as provided for by CAC.

8 Contaminants

Fermented camel milk shall comply with the maximum levels of CODEX STAN 193 and the maximum residue limits for pesticides and veterinary drugs established by the Codex Alimentarius Commission (CAC).

8.1 HEAVY METALS

Table 2 — Limits for heavy metal contaminants Fermented Camel milk

SL No	Heavy metal	MRL (Max.)	Test method
i).	Arsenic (AS)	0.1 mg/kg	*AOAC 942.17*
ii).	Lead (PH)	0.02 mg/kg	AOAC 972.25 / KS ISO 6733

iii).	Mercury (Hg)	1.0 mg/kg	AOAC 999.10
iv).	Copper (Cu)	5.0 mg/kg	AOAC972.25 / KS ISO 5738
v).	Zinc (Zn)	50 mg/kg	AOAC 999.10
vi).	Tin (Sn)	250 mg/kg	AOAC 999.10
vii).	Cadmium as Cd,	1.5 mg/kg	AOAC 999.10
viii).	Iron (fe),	0.5 mg/kg	AOAC 999.11 or KS ISO 6732

8.2 Mycotoxin residues

Fermented camel milk shall not have more than 0.015 ppb aflatoxin M1 content when tested according to KS ISO 14501 or AOAC 980.21.

8.3 Veterinary drug residues

Pasteurized camel milk shall comply with those maximum limits for veterinary drug residue limits established by the Codex Alimentarius Commission in; Codex general standard for contaminants and toxins in foods and feed (Codex Stan 193)

8.3.1 Antibiotic residues

Fermented camel milk shall not have more than 10.0 ppb beta lactam content of antibiotic residues as beta lactam content when tested according to AOAC 962.16 and when analyzed by the appropriate approved methods as given in the Food, Drugs and Chemical Substances Act, Cap. 254 of the Laws of Kenya and the CODEX guidance

8.5 Pesticide residues

Fermented camel milk shall conform to the maximum limits for pesticide residues, established by the Codex Alimentarius Commission for these products in Codex general standard for contaminants and toxins in foods and feed (Codex Stan 193)

9 Hygiene

9.1 Fermented camel milk shall be handled in accordance with KS 1552:2016 and other relevant Kenya standards and regulations.

Table 3 — Microbiological Limits requirements for Fermented camel milk

S/No.	Micro-organism	**Limits**(CFU/ml)	Test methods
1	Total coliform count	Nil	KS ISO 4833/ KS ISO 4832
2	*E. Coli*	Nil	11866-2
3	Salmonella spp	Nil	KS ISO 6785
4	*Staphylococcus aureus*	Nil	KS ISO 6888-1
5	*Listeria monocytogenes*	Nil	KS ISO 4833
6	Yeast and molds	Max 10	KS ISO 6611
7	Shigella in 25 g or (mL)	Nil	KS ISO 4833
8	*Clostridium botulinum*	Nil per gram	KS ISO 4833

10 Weights and measures

The weight and measures of the Fermented camel milk shall be in accordance with the Weight and Measures Act Cap 513

Fill of container

The milk shall occupy not less than 90 % v/v of the water capacity of the container. The water capacity of the container is the volume of distilled water at 20 °C, which the sealed container will hold when completely filled.

11. Packaging

The Fermented camel milk shall be packaged in food grade, sanitized and sealed containers

12 Labelling

In addition to the provisions of the General Standard for the Labelling of Prepackaged Foods; KS EAS 38 and the General Standard for the Use of Dairy Terms (CODEX STAN 206-1999), the following specific provisions apply:

a) Name of the product shall be declared in accordance with categories defined in clause 5,as ‘fermented whole camel milk’, ‘fat reduced fermented camel milk’ or’ fat free fermented camel milk’.

b) List of Ingredients in descending order of proportion; Indicate source of gelatin if used as an ingredient

c) Net content by volume or mass in SI units d) Name and address of the manufacturer, importer, exporter, vendor packer or distributor

e) Country of origin

f) Date of manufacture

g) Expiry date

h) Storage instructions

i) Lot identification

13 Sampling

Sampling shall be done in accordance to with KS ISO 707