



JOINT FAO/WHO FOOD STANDARDS PROGRAMME
FAO/WHO COORDINATING COMMITTEE FOR AFRICA
22nd Session

Nairobi, Kenya, 16 - 20 January 2017

PROPOSED DRAFT REGIONAL STANDARD FOR SHEA BUTTER
(At Step 3)

Governments and interested international organizations are invited to submit comments on the **proposed text for the draft Africa regional standard for shea butter as presented in Appendix I**, at Step 3, and should do so in writing in conformity with the Uniform Procedure for the Elaboration of Codex Standards and Related Texts (see *Procedural Manual of the Codex Alimentarius Commission*) **to:** CCAFRICA Secretariat, email akothe@kebs.org; info@kebs.org with copy to Secretariat, Codex Alimentarius Commission, Joint FAO/WHO Food Standards Programme, FAO, Rome, Italy, email codex@fao.org **by 30 November 2016**.
Format for submitting comments: In order to facilitate the compilation of comments and prepare a more useful comments document, Members and Observers, who are not yet doing so, are requested to provide their comments in the format outlined in **Annex I** to this document.

A. Background

At its Twenty-first Session, the Coordinating Committee for Africa (CCAFRICA) agreed to propose new work on a standard for shea butter to the Commission, and, subject to approval of the new work by the Commission (CAC38), set up an electronic working group (eWG), Chaired by Mali and co-chaired by Guinea, working in English and French, to draft a regional standard for circulation at Step 3 for discussion at the next session (REP15/AFRICA, paragraphs 64-65).

A letter of invitation was drafted by Mali and the Republic of Guinea and addressed to all interested CCAFRICA members and observers, inviting them to take part in the above-mentioned electronic working group and to inform Codex Contact Points before 31 December 2015. The list of participants is attached as Annex II.

This discussion paper forms part of the development work on the regional standard for shea butter.

B. General comments

After an exchange of views, the eWG agreed to draw on the Economic Community of West African States (ECOWAS) standard as a base document, supplemented by relevant parts from both the West African Economic and Monetary Union (WAEMU) standard and the Guinea national standard for shea butter.

C. Consideration of discussion papers

The eWG reviewed the discussion papers as follows:

- i. Decided to limit the scope of the application for the standard on unrefined shea butter and to change the title of the standard accordingly; it was agreed that the use of unrefined shea butter for non-food applications (in use) should be excluded from the standard;
- ii. Agreed that for provisions on: food additives, contaminants, hygiene and labelling; reference would be made to the corresponding Codex standards: *General Standard for Food Additives (GSFA)*, *CODEX STAN 193-1995*, *CAC/RCP 1-1969* and *CODEX STAN 1-1985*;
- iii. Responded to all comments and concerns raised by members and agreed to include all sections of the draft standard as presented in Appendix I.

D. Conclusion and recommendation

The eWG has concluded its work on the development of the draft regional standard for shea butter.

The Committee is invited to discuss the draft standard for shea butter as presented in the Appendix I.

APPENDIX I

PROPOSED DRAFT CODEX REGIONAL STANDARD FOR UNREFINED SHEA BUTTER

1. INTRODUCTION

Unrefined shea butter is a product consumed in Africa. It is used in the food sector. The adoption of harmonized regional standards for unrefined shea butter will help both African and international trade. It will also help to establish characteristic requirements for shea butter that is intended for human consumption.

2. TITLE OF THE STANDARD

Standard for unrefined shea butter.

3. SCOPE

This standard applies to unrefined shea butter intended for direct consumption, or as an ingredient in the manufacture of food products.

4. DESCRIPTION**4.1 Definitions**

The following definitions apply:

4.1.1 Shea butter

Vegetable fat from the kernels of the shea nut (nut kernels from the tree) denominated as *Vitellaria paradoxa*, C.F. Gaertn (synonyms: *Butyrospermum paradoxum*, *Butyrospermum parkii*), from the Sapotaceae family.

4.1.2 Unrefined shea butter

The oleaginous materials obtained from the nut kernel of the *Vitellaria paradoxa*, C.F. Gaertn (synonyms: *Butyrospermum paradoxum*, *Butyrospermum parkii*), from the Sapotaceae family by manual or mechanical methods. It is obtained through a thermal process or cold pressed, which does not alter the nature of the fat. It can be purified by washing with water, settling, filtering and centrifuging.

4.1.3 Lot

A specified quantity of the lot that has uniform characteristics, enabling the quantity to be assessed.

4.1.4 Consignment

The quantity of shea butter despatched at one time and covered by a particular contract or shipping document, which may comprise at least one lot or different lots.

5. ESSENTIAL COMPOSITION AND QUALITY FACTORS:**5.1. Raw materials**

Vitellaria paradoxa C.F. Gaertn nuts shall comply with the provisions of the relevant Codex standards, including the *Codex General Standard for Contaminants and Toxins in Food and Feed* (CODEX STAN 193 – 1995) and, where appropriate, the relevant sections of the *Code of Practice Concerning Source Directed Measures to Reduce Contamination of Foods with Chemicals* (CAC/RCP 49 – 2001).

The raw materials shall be stored, processed, and handled under conditions that maintain their chemical and bacteriological characteristics.

5.2. General characteristics

Shea butter shall not be mixed with other fats. It shall be free of all foreign matter.

5.2.1 Organoleptic characteristics

The product shall have the characteristic colour, aroma and flavour of unrefined shea butter and be free from any rancidity. The colour varies from ivory-coloured to yellowish.

5.2.2 Quality criteria

Shea butter shall meet the quality criteria specified in Table 1 of this standard.

Table 1. Quality criteria

| Characteristics | Unrefined shea butter | | | | | |
|-------------------------|-----------------------|------|----------------------|------|----------------------|------|
| | Grade 1 ^a | | Grade 1 ^b | | Grade 1 ^c | |
| | Concentration | | Concentration | | Concentration | |
| | Min. | Max. | Min. | Max. | Min. | Max. |
| Water content (%) | - | 0.05 | 0.06 | 0.2 | 0.3 | 2 |
| Free fatty acids (%) | - | 1 | 1.1 | 3 | 3.1 | 8 |
| Peroxide value (meq/kg) | - | 10 | 11 | 1.5 | 15.1 | 50 |
| Insoluble impurities | - | 0.09 | 0.01 | 0.2 | 0.3 | 2 |

The limits of these descriptive key variables of composition and quality of generic unrefined shea butter may appear very broad, with a large range of values between minimum and maximum values. This is because the descriptors consider the actual variation in characteristics found in shea butter in all production areas.

- ^a The first grade of unrefined shea butter can be used for the cosmetic and pharmaceutical industries, and for direct consumption
- ^b The second grade of unrefined shea butter can be used for the food industry (confectionery, chocolate, edible oil or the base for margarines)
- ^c The third grade of unrefined shea butter can be used for the soap-making industry, or it can be refined for direct consumption.

5.2.3 Physicochemical characteristics

5.2.3.1 General characteristics of non-distinctive qualities

Table 2: General characteristics of non-distinctive qualities

| | |
|----------------------------|-------------|
| Water content/moisture (%) | 0.02 – 0.60 |
| - Free fatty acids (%) | < 4 |
| - Peroxide value (meq/kg) | < 10 |
| - Insoluble impurities (%) | < 0.5 |

5.2.3.2. Distinctive criteria

Table 3: *Physicochemical variables and values*

| | |
|---|------------------|
| - Density (20°C) | 0.91 – 0.98 |
| - Density (40°C) | 0.89 – 0.93 |
| - Saponification value (mg KOH/g) | 160 - 190(195) |
| - Iodine value (g I ₂ /100g) | 30- 75 (50 – 60) |
| - Unsaponifiables (%) | 1 – 19 |
| - Refractive index at 44°C | 1.4620 – 1.4650 |
| - Melting point (°C) | 35 - 40 |

Table 4: GLC ranges of fatty acid composition²

| | % levels of fatty acids |
|---------------------------|--------------------------------|
| Lauric acid (C 12:0) | < 1 |
| Myristic acid (C 14:0) | <0.7 |
| Palmitic acid (C 16:0) | 2 - 10 |
| Palmitoleic acid (C 16:1) | <0.3 |
| Stearic acid (C 18:0) | 25-50 |
| Oleic acid (C 18:1) | 32-62 |
| Linoleic acid (C 18:2) | 1-11 |
| Linolenic acid (C 18:3) | 1-11 |
| Arachidonic acid (C 20:0) | <3.5 |

² Samples in which the fatty acid composition does not correspond to the ranges indicated do not conform to the standard. According to requirements, other criteria of a non-binding nature may be applied to confirm whether a given sample conforms to the provisions of the standard.

5.2.4 Other characteristics:

Table 5: Other characteristics

| Characteristics | Maximum level | Methods of analysis |
|----------------------------------|----------------------|----------------------------|
| Volatile matter at 105°C (% m/m) | 0.2 | ISO 622 |
| Insoluble impurities (%m/m) | 0.05 | ISO 663 |
| Soap content (% m/m) | 0.005 | CAC/RM 13 |
| Iron (Fe) (mg/kg) | 5 | CAC/RM 14 |
| Copper(Cu) (mg/kg) | 0.4 | ISO 12193 |
| Lead (Pb) (mg/kg) | 0.1 | ISO 2590 |
| Arsenic (As) (mg/kg) | 0.1 | ISO 2590 |

6. Food additives

The use of food additives in unrefined shea butter shall conform to the provisions of the Codex General Standard for Food Additives (GSFA).

6.1 Antioxidants

The types and levels of antioxidants below may be used and shall comply with the specifications below:

Table 6: Maximum level of antioxidants

| Antioxidant | Maximum level (mg/kg) |
|---|--------------------------------------|
| Ascorbyl palmitate Ascorbyl stearate | 500 (individually or in combination) |
| Propyl gallate | 100 |
| Butylated hydroxytoluene (BHT) | 75 |
| Butylated hydroxyanisole (BHA) | 175 |

| | |
|--|---|
| Tertiary butyl hydroquinone (TBHQ) | 120 |
| Any combination of gallates, BHA and BHT and/or TBHQ | 200 (but limits above not to be exceeded) |
| Natural and synthetic tocopherols | Limited by GMP |

6.2 Antioxidant synergists

The types and levels of antioxidant synergists contained in unrefined shea butter shall comply with the limits stated below:

Table 7: Maximum levels of antioxidant synergists

| Antioxidant synergists | Maximum level (mg/kg) |
|---|--------------------------------------|
| Citric acid | Limited by GMP |
| Dilauryl Dilauryl thiodipropionate | 200 |
| Sodium citrate | Limited by GMP |
| Isopropyl citrate Phosphoric acid Monoglyceride citrate | 100 (individually or in combination) |

7. Contaminants

7.1 Heavy metals

Unrefined shea butter shall not contain heavy metals to the extent that would pose a health hazard and shall not exceed the limits specified in Table 8.

Table 8: Maximum limits for heavy metals

| Characteristics | Maximum level | Methods of analysis |
|---------------------|---------------|---------------------|
| Iron (Fe) (mg/kg) | 5.0 | ISO 8294 |
| Copper (Cu) (mg/kg) | 0.4 | ISO 8294 |
| Lead (Pb) (mg/kg) | 0.1 | ISO 12193 |
| Arsenic (As) mg/kg | 0.1 | ISO 2590 |

7.2. Chemical contaminants

7.2.1 Total amount of aflatoxin

The total amount of aflatoxin in unrefined shea butter shall not exceed 4 µg/kg.

7.2.2 Polycyclic Aromatic Hydrocarbons (PAH)

The maximum limits for PAH (such as benzopyrene) in shea butter shall not exceed 2.0 µg/kg.

7.2.3 Pesticide residues

Unrefined shea butter shall comply with the maximum residue limits of pesticides established by the Codex Alimentarius Commission (CAC/MRL 1: 2009 – Maximum Residue Limits (MRL) for pesticides).

7.3. Microbiological impurities

When tested by appropriate methods of sampling and examination, the product shall conform to the following microbiological limits:

Table 9: Microbiological limits

| Parameters | Microbiological limits |
|----------------------------------|------------------------|
| Total Viable Count (TVC) (cfu/g) | 1×10 ³ |
| Total coliforms (cfu/g) | Nil |
| Escherichia coli (cfu/g) | Nil |
| Salmonella (cfu/g) | Nil |
| Yeast & Mould (cfu/g) | 1×10 ² |

8. Hygiene

It is recommended that unrefined shea butter be prepared and handled in accordance with the appropriate sections of the recommended international code of practice, *General Principles of Food Hygiene* (CAC/RCP 1-1969, 3-1997, Rev. 2003) and other relevant Codex codes of hygienic practice.

The product should comply with any microbiological criteria established in accordance with the *Principles and Guidelines for the Establishment of Microbiological Criteria Related to Foods* (CAC/GL 21-1997).

9. Labelling

Packaging and Labelling

9.1 Packaging

Shea butter should be packed in containers that can guarantee the hygienic, nutritional, technological and organoleptic qualities of the product.

The containers including the packaging material shall be made of suitable material for their intended use. It shall not impart or transmit any toxic substance or undesirable odour to the product.

9.2 Labelling

The product shall be labelled in accordance with the provisions of the *Codex General Standard for the Labelling of Pre-packaged Foods* (CODEX STAN 1-1985). Furthermore, each container shall be marked with a label containing the following information:

- (a) Name of the product
- (b) Name and address of the manufacturer and/or the trademark
- (c) County of origin
- (d) Net weight in kg
- (e) Date of manufacture
- (f) Product shelf life
- (g) Production lot number or code
- h) Storage instructions.

9.3. Labelling of non-retail containers

The information required by this standard and by section 4 of the *Codex General Standard for the Labelling of Pre-packaged Foods* shall be given either on the container or in accompanying documents, except that the name of the product, the net weight of the product, date of manufacture, the production lot number as well as the name and address of the manufacturer, the packer, the distributor and/or importer shall appear on the container.

However, lot identification, and the name and address of the manufacturer, packer, distributor, and/or importer may be replaced by an identification mark, provided that such a mark is clearly identifiable with the accompanying documents.

10. Methods of sampling and analysis

10.1 Sampling

Sampling shall be done in accordance with the provisions of ISO 5555:2001, Animal and vegetable fats and oils – Sampling.

10.2 Analysis

To ensure compliance with this quality standard, the samples selected as specified in clause 9 shall be tested in accordance with the appropriate testing procedures:

Determination of moisture content

- AOAC 920.116
- IUPAC 2.60
- ISO 662: 1998

Determination of free fatty acid content: acid value and acidity

- ISO 660: 1996
- IUPAC 2. 201

Determination of relative density

- IUPAC 2. 101

Determination of saponification value

- ISO 3657: 1988 (revised 1992)
- IUPAC 2. 202

Determination of iodine value

- AOAC 925.56
- ISO 3961: 1999

Determination of peroxide value

- AOCS cd. 8b - 90
- IUPAC 2501
- ISO 3960: 2005

Determination of unsaponifiable matter

- ISO 3596-1: 1996
- IUPAC 2. 401

Determination of insoluble impurities content

- ISO 663: 2000
- IUPAC 2604

Determination of melting point

- ISO 6321: 2002

Determination of lead content (Pb)

- ISO 12193: 1994
- AOAC 972.25
- AOAC 994.02
- IUPAC 2632

Determination of arsenic content (As)

- AOAC 952.13
- IUPAC 3136

Determination of iron content (Fe)

- ISO 8294: 1994
- AOAC 990.05
- IUPAC 2631

Determination of copper content (Cu)

- ISO 8294: 1994
- AOAC 990.05
- IUPAC 2631

11. Criteria for conformity:

A lot shall be declared as conforming to these standards if the final sample satisfies the provisions of this standard.

GUIDANCE ON THE SUBMISSION OF COMMENTS

In order to facilitate the compilation of comments and the preparation of documents for comments, members and observers who do not yet are asked to submit their comments under the following headings:

- (i) General comments
- (ii) Specific Observations

Specific comments should include a reference to the relevant section and/or subsection of the document to which the comments refer.

When it is proposed to amend a particular paragraph, members and observers are requested to provide their proposal for an amendment with a corresponding rationale. The new labels should be presented in **bold/underlined characters** and deleted passages should be presented in bar characters.

To facilitate the work of the secretariats that compile observations, members and observers are requested to refrain from using characters or a highlight in color because the documents are printed in black and white, and do not use the track changes feature, as these can be lost when comments are copied and pasted into a consolidated document.

In order to reduce the volume of translation work and to save paper, members and observers are requested to not to reproduce the document in full, but only the parts of the text to which the change or amendment is proposed.

LISTE DES PARTICIPANTS

| | |
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| <p>Cameroun</p> <p>M. Nkandi Hermann Ministère de l'Agriculture et du Développement Rural 00237 699 808 724 Email : nkandihermann@yahoo.fr</p> <p>Cote d'Ivoire</p> <p><u>Stanislas Dewinther</u> Sous- Directeur de la Qualité et de la Formation Laboratoire National d'Essais de qualité de Métrologie et d'Analyses (LANEMA) (+225) 03378706 / 05701783 Email: stantape@gmail.com</p> <p>Guinée</p> <p><u>Aly SYLLA</u> Institut Guinéen de Normalisation et de Métrologie (IGNM) 00224 622 47 52 29 / 00224 655 70 21 21 Email : alybagatatema@yahoo.fr</p> <p>Kenya</p> <p><u>Alice Onyango</u> Kenya Bureau of Standards Email: akothe@kebs.org</p> <p><u>George Kimanzi - KEBS</u> Kenya Bureau of Standards Email : kimanzig@kebs.org</p> <p><u>Dr.Ayore Nicholas</u> Directorate of Veterinary Services Email : nicholasayore@gmail.com</p> <p><u>Dr Oumou TRAORE CISSE</u> Technologue en Industrie Alimentaire ; Secrétaire Exécutive Adjointe du Comité National de la Recherche Agricole (CNRA) Tel : +223 66 75 02 71 ; +223 79 12 95 89 Email : Oumouni2006@yahoo.fr</p> | <p>Mali</p> <p><u>Farakoro KONE</u> Ingénieur d'Agriculture et du Génie Rural Tel : +223 76 30 60 78/66 32 03 16 Email: farakorokone@hotmail.com</p> <p><u>Yaya MALLE</u> Président de la Fédération Nationale des transformateurs des Produits Agroalimentaires du Mali (FENATRA) B.P. E163 Bamako Tél. +223 66 73 43 78 / 76 48 27 15 Email : fenatramali@yahoo.fr malle.yaya@gmail.com Skype: malleya2</p> <p><u>Simpara el Housseini</u> SITAMA +223 66732433 Email : elfoussim@yahoo.fr</p> <p><u>Tiémoko Diakité</u> Chef de Bureau Communication à la Direction National de la Pêche, Mali CTESA, BP MA 144, Bamako(223) 66762678/78156850 Email : diakctesa@gmail.com</p> <p><u>Mamadou Ouologuem</u> chercheur IER/URG76 10 03 62 Email : madwolo@yahoo.fr</p> <p><u>Mouctar COULIBALY</u> Professeur d'Enseignement Supérieur, Maitre de conférences IPR/IFRA Katibougou Tel : +223 66965496 / 223 20283808 Email : mocaly2000@yahoo.fr</p> <p><u>Mme DICKO Salimata DJILLA</u> Spécialiste Corps Gras Tel : +223 66797586</p> <p><u>Hamidou COULIBALY</u> Direction Nationale de l'Agriculture Tel : +223 73331280</p> |
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|---|---|
| <p>Tanzanie</p> <p>Happy BROWN Standard officer +225 767639686 Email : Happy.kanyeka@ttas.go.tz</p> <p><u>Stephen A. LUKANGA</u> Principal Fisheries Officer +225 754 437234 Email : salukanga@gmail.com</p> <p>Uganda</p> <p><u>Hakim MUTUMBIRO</u> Head Food and Agriculture Standards +256772-513680 Hakimmutumbiro@yahoo.com</p> <p>USA</p> <p><u>Richard Cantrill, PhD</u> Chief Science Officer AOCS (American Oil Chemists Society) 2710 S. Boulder Drive Urbana IL 61802, USA Tel: +1 217 693 4830, office +1 217 979 9123, cell +1 217 239 5876 VOIP Email: Richard.cantrill@aoacs.org www.aoacs.org</p> | <p><u>Mohmed Abdoul BAKI</u> Laboratoire Nationale de la Santé Tel : +223 66790283</p> <p><u>Mamadou Kissima KEITA</u> Exportateur Fruits et Légumes Tel : +223 66731728</p> <p><u>Fana COULIBALY</u> Agence Nationale de la Sécurité Sanitaire des Aliments. Tel : +223 76309526</p> |
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