KENYA STANDARD **DKS 2848**

Moringa leaf products — Specification

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TECHNICAL COMMITTEE REPRESENTATION

The following organizations were represented on the Technical Committee:

Ministry of Health
Agriculture and Food Authority (AFA) — Nuts and Oil Crops Directorate
Kenya Industrial Research and Development Institute
Government Chemist's Department
Jomo Kenyatta University of Agriculture and Technology — Department of Food Science and Technology
Healthy-U Ltd.
Gold Crown Beverages
Consumer Information Network
Pharmacy and Poisons Board
Kili Naturals
Melvin Marsh Internationals
Moringa for Life — EPZ Ltd.
Kenya Bureau of Standards — Secretariat

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

KENYA STANDARD

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ICS 67.220.10

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Foreword

This Kenya Standard was developed by the Technical Committee on Herbal Drinks under the guidance of the Standards Projects Committee, and it is in accordance with the procedures of the Kenya Bureau of Standards.

Moringa Leaf products are obtained from the dried leaves of Moringa Oleifera and are used as a nutritional supplement in various forms including leaf powder, tablets and capsules. The Moringa leaf products are widely used in Kenya necessitating the need to establish guidelines to ensure products meet minimum food safety and quality requirements.

This standard aims at prevention of product adulteration and promotion of accurate health and nutritional claims.

During the preparation of this standard, reference was made to the following documents:

WHO guidelines for assessing quality of herbal medicines

South African Standard SANS 1683:2015, Moringa.

Acknowledgement is hereby made for the assistance derived from these sources.

Moringa leaf products — Specification

1 Scope

This Kenya Standard specifies the quality requirements and methods of test for moringa (*Moringa oleifera)* leaf products suitable for use as a beverage and nutritional supplement.

This standard covers moringa leaf powder, tablets and capsules.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

KS 137, *Methods for sampling food and animal feedstuffs*

KS EAS 38, Labelling of pre-packaged foods — *Requirements*

KS EAS 39, *Hygiene in the food and drink manufacturing industry — Code of practice*

KS ISO 763, *Fruit and vegetable products — Determination of ash insoluble in hydrochloric acid*

KS ISO 1576, *Tea — Determination of water-soluble ash and water-insoluble ash*

KS ISO 1842, *Fruit and vegetable products — Determination of pH*

KS ISO 6496, *Animal feeding stuffs — Determination of moisture and other volatile matter content*

KS ISO 6561-2, *Fruits, vegetables and derived products — Determination of cadmium content — Part 2: Method using flame atomic absorption spectrometry*

KS ISO 6579, *Microbiology of food and animal feeding stuffs — Horizontal method for the detection of Salmonella spp*

KS ISO 6633, *Fruits, vegetables and derived products — Determination of lead content — Flameless atomic absorption spectrometric method*

KS ISO 6637, *Fruits, vegetables and derived products — Determination of mercury content — Flameless atomic absorption method*

KS ISO 6888, *Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of coagulase-positive staphylococci (staphylococcus Aureus and other soecies) — Part 1: Technique using baird-packer agar medium*

KS ISO 7251, *Microbiology of food and animal feeding stuffs — Horizontal method for the detection and enumeration of presumptive Escherichia coli — Most probable number technique*

KS ISO 17239, *Fruits, vegetables and derived products — Determination of arsenic content — Method using hydride generation atomic absorption spectrometry*

KS ISO 20649, *Infant formula and adult nutritionals — Determination of chromium, selenium and molybdenum -- Inductively coupled plasma mass spectrometry (ICP-MS)*

KS ISO 21527, *Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of yeasts and moulds*

KS ISO 21567, *Microbiology of food and animal feeding stuffs — Horizontal method for the detection of shigella spp*

KS ISO 21871, *Microbiology of food and animal feeding stuffs — Horizontal method for the determination of low numbers of presumptive Bacillus cereus — Most probable number technique and detection method*

3 Terms and definitions

For the purposes of this document, the following definitions apply.

3.1
nutritional supplements
intended to provide nutrients that may otherwise not be consumed in sufficient quantities for example, vitamins and minerals

3.2
acceptable
satisfactory to the authority administering this standard, or to the parties concluding the purchase contract, as relevant

3.3
adulteration
deliberate addition of any substance or any part of the *moringa oleifera* plant other than the leaves

3.4
clean moringa leaf
moringa oleifera leaf or leaf product free from dirt and other foreign matter

3.5
conformity check
inspection carried out by an inspector to check that moringa leaf products conform to the requirements laid down in this standard

3.6
foreign matter
all matter (organic and inorganic) such as soil and other vegetative materials other than moringa leaf

3.7
lot
quantity of moringa leaf products produced from the same raw materials under similar conditions by the same producer

3.8
milled moringa leaf
milled dry moringa leaf or leaves excluding the main stalk

3.9
sampling
collective sample taken randomly from a lot during a conformity check inspection

4 Product requirements

4.1 General requirements

The adulteration of moringa leaf products shall not be permitted. moringa leaf products shall be free from foreign matter. When visually inspected, moringa products shall be uniform green in appearance. moringa leaf products shall also comply with the requirements given in Table 1.

Table 1 — Requirements *for* moringa leaf products

S/N	Characteristic	Requirement	Test method
i)	Acid-insoluble ash, max.	0.5 (% by mass)	KS ISO 763
ii)	Moisture content, max.	10.0 (% by mass)	KS ISO 6496
iii)	Water soluble solids, min.	0.2 (% by mass)	KS ISO 1576
iv)	pH of aqueous extract	5.5 – 6.5 at 25°C	KS ISO 1842

5 Hygiene

Moringa leaf products shall be processed in premises that comply with the requirements of KS EAS 39, the Public Health Act, Cap. 242 of the Laws of Kenya, the Food, Drugs and Chemical Substances Act, Cap. 254 of the Laws of Kenya and the Bio Safety Act, No. 2 of 2009 of the Laws of Kenya.

5.1 Microbiology

Moringa leaf products shall comply with the microbiological limits given in Table 2 when tested in accordance with the test methods specified therein.

Table 2 — Microbiological limits for moringa leaf products

S/N	Characteristic	Max. limit	Test method
ii)	Yeast and mould counts, cfu/g	$\leq 5.0 \times 10^2$ cfu/g	KS ISO 21527
iii)	*Escherichia Coli* counts	Absent	KS ISO 7251
iv)	B. *Cereus*	Absent	KS ISO 21871
v)	*Staphylococcus aureas*, per 25 g	Not detected	KS ISO 6888
vi)	*Shigella* per 25 g	Not detected	KS ISO 21567
vii)	*Salmonella*, per 25 g	Not detected	KS ISO 6579

6 Contaminants

Heavy metal limits in moringa leaf products shall not exceed the limits given in Table 3 when tested in accordance with the test methods specified therein.

Table 3 — Heavy metal contaminant limits for moringa leaf products

S/N	Contaminant	Limit, max (mg/kg)	Test method
i)	Lead	10	KS ISO 6633
ii)	Mercury	0.5	KS ISO 6637
iii)	Arsenic	5	KS ISO 17239
iv)	Cadmium	0.3	KS ISO 6561-2
v)	Chromium	2	KS ISO 20649

7 Packaging

Moringa leaf products shall be pre-packaged in clean, dry and opaque containers made of materials which do not affect the quality of the product. The packaging shall be done in such a manner as to allow the Moringa leaf products to retain its freshness over the shelf life period. Each unit package shall be properly sealed to prevent the leakage of the content and the absorption of the moisture.

8 Labelling

Labels for moringa leaf products shall include the following information:

a) the label shall indicate the name of the product as “Moringa”;

b) name of manufacturer/vendor /importer;

c) date of manufacture;

d) expiry date;

e) net weight in metric units;

f) storage instructions;

g) Dosing recommendation daily use should be stated, e.g. 1 teaspoonful/5 g;

h) GMO status; and

i) Where irradiation has been used it shall be declared on the label and depicted by using the irradiation symbol (Radura mark).

9 Nutritional information

Typical nutritional information should be listed in descending order and the following nutrients should be available on the label with the values for each indicated proteins value, minerals, vitamin A, B-vitamins and vitamin E.

10 Sampling

10.1 Sampling for moringa leaf products shall be done according to KS 137.

10.2 Any package or container of moringa leaf products randomly sampled shall constitute a representative sample of the whole batch.

