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DRAFT ZANZIBAR STANDARD

Dried sea cucumber- specifications

ZANZIBAR BUREAU OF STANDARDS

First edition

Foreword

This draft Zanzibar National Standard has been developed Fish and fisheries, meat, poutry and their products Standard Technical committee (TCFA6). In accordance with ZBS general procedures, this draft standard is presented to the public in order to receive any technical and editorial comment concerns.

The Zanzibar Bureau of Standard (ZBS) was established under Standard Act No. 1 of 2011.

In the preparation of this Standard, the reference was derived from: PNS/BAFPS 128:2013 Dried sea cucumber

Zanzibar Bureau of Standards (ZBS)
PO Box 1136
Zanzibar
Tel: +255 24 2232225
Fax: +255 24 2232225
E-mail: info@zbs.go.tz
Web: www.zbs.go.tz

Dried sea cucumber –specifications

1 Scope

This draft standard specifies requirements, method of sampling and test of dried sea cucumber of species *Holothuria scabra* intended for human consumption and/or for further processing.

2 Normative references

The following referenced documents are indispensable for the application of this draft Zanzibar National Standard. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

AOAC 937.09, Salt (chlorine as sodium chloride) in seafood

CODEX STAN 193, *Codex general standard for contaminants and toxins in food and feed*

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

ISO 6579-1, Microbiology of the food chain — Horizontal method for the detection, enumeration and serotyping of Salmonella — Part 1: Detection of Salmonella spp.

ISO 6888-1, Microbiology of the food chain — Horizontal method for the enumeration of coagulase-positive staphylococci (Staphylococcus aureus and other species) — Part 1: Method using Baird-Parker agar medium

ISO 11290-1, Microbiology of the food chain — Horizontal method for the detection and enumeration of Listeria monocytogenes and of Listeria spp. — Part 1: Detection method

ISO 16649-2, Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of beta-glucuronidase-positive Escherichia coli — Part 2: Colony-count technique at 44 degrees C using 5-bromo-4-chloro-3-indolyl beta-D-glucuronide

ISO 21872, Microbiology of the food chain — Horizontal method for the determination of Vibrio spp. — Part 1: Detection of potentially enteropathogenic Vibrio parahaemolyticus, Vibrio cholerae and Vibrio vulnificus

ZNS 52, Edible fortified salt

ZNS 57, Potable water specification

ZNS 61*, Packaging and labeling of food*

ZNS 94, *Rounding off numerical values*

3 Terms and definitions

For the purposes of this Standard, the following (terms and) definitions shall apply.

3.1
sea cucumber
any echinoderm of the Class Holothuroidea, generally having soft elongated body and bearing clusters of tentacles at the oral end

3.2
dried sea cucumber
sea cucumber obtained by the removal of water through sun/solar dried or artificial means

3.3
food grade material
material which shall safeguard the hygienic, safety, nutritional, technological, and organoleptic qualities of the product

4 Requirements

4.1 Raw materials

The following raw materials shall be used in the processing of dried sea cucumber

a) the clean, live or fresh sea cucumber

b) salt conforming to ZNS 52; and

c) water conforming to ZNS 57.

4.2 General requirements

Dried sea cucumber shall
a) be properly dried; stone hard (i.e. cannot be bent or broken by hand)
b) have characteristic fresh appearance and colour;
c) Characteristic odour of the species and shall be free from any off odour.
d) be free from extraneous and foreign matter
e) Shall have dark brown to black on the dorsal side and pale white on the ventral side

4.3 Specific requirements

Dried sea cucumber shall be classified into three classes on the basis of the specific requirements given in Table 1 when tested in accordance with test methods specified therein.

SN	Characteristics	Requirement	Test method
i.	Moisture, %, max.	10	Annex A
ii.	Sodium chloride, % by weight on moisture free basis, max.	15	AOAC 937.09
iii.	Acid insoluble ash, %, max.	1.5	Annex B

4.4 Size of product

Size shall be determined by the length of the dried sea cucumber as described in table 1.

Table 1: Sizing of Dried sea cucumber

S/n	Size Designation	Length (cm)
a)	Class A	5.0 - 7.5
b)	Class B	7.6 – 9.9
c)	Class C	> 10

4.5 Defectives

The sample unit shall be considered as defective when it exhibits any of the properties below.

a) Appearance: Presence of the following:
   i. molds;
   ii. salt crystals;
   iii. chalky deposits and extraneous matter (if appropriate);
   iv. cracks and bruises; and
   v. scorched or burnt surface.
b) Deformed shape (e.g., bent, twisted, flattened); and
c) Texture: case hardened texture or the presence of hard outer layer but moist inner layer.

5 Food additives

Dried sea cucumber shall be free from added colouring matter, flavouring substances and preservatives except edible salt (sodium chloride).

6 Contaminants

6.1 Heavy Metal contamination

Dried sea cucumber shall comply with those maximum heavy metal limits established by the Codex Stan 193 and/or competent authority for this commodity.

6.2 Pesticide residues

Seaweed powder shall comply with those pesticide maximum residues limits established in the Codex pesticide residues in food online data base and/or competent authority for this commodity.

7 Hygiene

The product shall be prepared and handled in a hygienic manner in accordance with EAS 39, CAC/RCP 1 and CAC/RCP 52 and shall comply with the microbiological limits given in Table 2.

S/No.	Micro-organisms	Maximum limit	Test method
i	Total viable count, CFU/g	10^5	ISO 4833-1
ii	*Staphylococcus aureus,* CFU/g	10^3	ISO 6888-1
iii	*Salmonella* spp per 25 g	Absent	ISO 6579-1
iv	*Escherichia coli,* MPN/g	absent	ISO 16649-2
v	*Listeria monocytogenes per 25 g*	Absent	ISO 11290-1
vi	*Vibrio Spp*. per 25 g	Absent	ISO 21872

8 Weights and measures

Dried sea cucumber shall be packed in accordance with the weights and measures regulations of Zanzibar.

9 Packaging and labelling

9.1 Packaging

Dried sea cucumber shall be packaged in food grade material that secures the integrity and the safety of the product.

9.2 Labelling

9.2.1 In addition to the labelling requirements specified in ZNS 61, the containers shall be also legibly and indelibly labelled with the following: -

a) name of the product ‘Dried sea cucumber;

b) species name;

c) grade

d) brand name/trade name if any;

e) name and address of producer/packer/distributor;

f) storage condition;

g) date of packing;

h) best before date;

i) lot identification or batch or code number;

j) country of origin;

k) net weight in metric unit; and

l) instruction for disposal of used packaged material

9.2.2 The language on the label shall be ‘Kiswahili’ and/or English. Additional language may be used depending on the designated market.

10 Sampling

Sampling of dried sea cucumber shall be done according to Annex C.

Annex A
(normative)
Determination of moisture content

A.1 Principle

The sample is dried to constant weight in an oven.

A.2 Apparatus

A.2.1 Moisture dishes, made of nickel, stainless steel, aluminium or porcelain, with well-fitting lids

A.2.2 Oven

A.2.3 Desiccator

A.3 Procedure

Weigh accurately about 10 g of the sample in a suitable moisture dish, previously dried in an oven and weighed. Place the dish in an oven maintained at 105 °C ± 2 °C for five hours. Cool the dish in a desiccator and weigh with the lid on. Repeat the process of heating, cooling and weighing at half-hour intervals until the loss in mass between two successive weightings is less than 1 mL. Record the lowest mass obtained. Preserve the dish containing this dried material in a desiccator for the determination of total ash (see A.2.3).

A.4 Calculation

The moisture content shall be expressed as follows:

$$\text{Moisture, \% by mass} = \frac{m_1 - m_2}{m_1 - m} \times 100$$

where

m_1 is the mass, in grams, of the moisture dish with material before drying;

m_2 is the mass, in grams, of the moisture dish with the material after drying; and

m is the mass, in grams, of the empty moisture dish.

Annex B
(normative)
Determination of acid insoluble ash

B.1 Reagents

Dilute hydrochloric acid, prepared by diluting concentrated hydrochloric acid with water in a ratio of 2:5 or 5N

B.2 Apparatus

B.2.1 Muffle furnace at 600 °C ± 20 °C

B.2.2 Water bath

B.2.3 Sinter crucible

B.2.4 Platinum dish

B.3 Procedure

Weigh accurately 5 g -10 g of finely powdered dried sea cucumber in a porcelain or platinum dish. Ignite the material in the dish with a suitable flame until it chars. Place the ignited dried sea cucumber in the muffle furnace. Heat at 600 °C ± 20 °C for at least 1 h. Remove the dish from the furnace and cool.

Wet the ash with a suitable amount of hydrochloric acid, and place on a water bath for 10 min. Filter through a No. 1 sinter glass crucible. Wash the crucible with water until the washings are free from acid. Dry the crucible in an air-oven for 2 h. Cool in a desiccator and weigh. Repeat the process until the difference between two successive weighings is less than 1 mg. Take the lowest mass.

B.4 Calculation

Acid insoluble ash, percent by mass (on wet basis) A = M2 X 100/M1

where,

A, Acid insoluble ash on wet basis
M1 is the mass of sample, and
M2 is the of insoluble matter.

Acid insoluble ash, percent by mass (on dry basis) $= \frac{A \times 100}{100 - M}$

where,

M, Moisture content of dried sea cucumber.

Annex C

Sampling plans

Sampling plan 1
(Inspection level I, AQL = 6.5)

Net weight is equal to or less than 1 kg (2.2 lb)

Lot size (N)	Sample size (n)	Acceptance number
4,800 or less	6	1
4,801 – 24,000	13	2
24,001– 48,000	21	3
48,001– 84,000	29	4
84,001 – 144,000	38	5
144,001– 240,000	48	6
more than 240,000	60	7

Net weight is greater than 1 kg (2.2 lb) but not more than 4.5 kg (10 lb)

Lot size (N)	Sample size (n)	Acceptance number
2,400 or less	6	1
2,401 – 15,000	13	2
15,001 – 24,000	21	3
24,001 – 42,000	29	4
42,001 – 72,000	38	5
72,001 – 120,000	48	6
more than 120,000	60	7

Net weight is greater than 4.5 kg (10 lb)

Lot size (N)	Sample size (n)	Acceptance number
600 or less	6	1
601 – 2,000	13	2
24,001 – 7,200	21	3
7,201 – 15,000	29	4
15,001 – 24,000	38	5
24,001 – 42,000	48	6
more than 42,000	60	7

Annex B
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Sampling plans

Sampling plan 2
(Inspection level II, AQL = 6.5)

Net weight is equal to or less than 1 kg (2.2 lb)

Lot size (N)	Sample size (n)	Acceptance number
4,800 or less	13	2
4,801 – 24,000	21	3
24,001– 48,000	29	4
48,001– 84,000	38	5
84,001 – 144,000	48	6
144,001– 240,000	60	7
more than 240,000	72	8

Net weight is greater than 1 kg (2.2 lb) but not more than 4.5 kg (10 lb)

Lot size (N)	Sample size (n)	Acceptance number
2,400 or less	13	2
2,401 – 15,000	21	3
15,001 – 24,000	29	4
24,001 – 42,000	38	5
42,001 – 72,000	48	6
72,001 – 120,000	60	7
more than 120,000	72	8

Net weight is greater than 4.5 kg (10 lb)

Lot size (N)	Sample size (n)	Acceptance number
600 or less	13	2
601 – 2,000	21	3
24,001 – 7,200	29	4
7,201 – 15,000	38	5
15,001 – 24,000	48	6
24,001 – 42,000	60	7
more than 42,000	72	8