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DRAFT ZANZIBAR STANDARD

Seaweed powder - Specification

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.

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Seaweed powder- Specification

1 Scope

This draft standard specifies requirements, method of sampling and test of Seaweed powder intended for human consumption or for industrial use.

2 Normative references

The following referenced documents are indispensable for the application of this working 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 952.13, Arsenic in food — Silver diethyldibocarbamate method

AOAC 972.23, Lead in fish —– Atomic absorption spectrophotometric method

AOAC 973.34, Cadmium in food — Atomic absorption spectrophotometric method

AOAC 983.20, Mercury (methyl) in fish and shellfish — Gas chromatographic method

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

ZNS 61*, Packaging and labeling of food*

ZNS 94, *Rounding off numerical values*

PCD 435, *Dried raw seaweed*- Specification

PCD 437, Code of Good Aquaculture Practices (GAqP) for Seaweed

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

3 Terms and definitions

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

3.1
seaweed
cluster of macroscopic, multicellular, benthic marine algae; includes some members of the red, brown and green algae.

3.2
seaweed powder
product obtained by grinding clean dried raw seaweed either bleached or unbleached

3.3
bleaching
process of removing natural colour from wet/dried raw seaweed

3.4
foreign matter
all organic and inorganic material

3.6.1
inorganic matter
stones, shells, sand, glass, and other mineral matter

3.6.2
organic matter
any animal or plant matter (filth, rodent) other than seaweed powder

3.8
filth
impurities of animal origin including dead insects

3.9
contaminants
any biological or chemical agent, foreign matter, or other substances not intentionally added to seaweed powder which may compromise food safety and suitability.

3.10
food grade material
material which shall safeguard the hygienic, safety, nutritional, technological, and organoleptic qualities of the product

3.11
sifting
particle size separation by sieving and aspiration of milled products

4 Requirements

4.1 Raw material

The seaweed powder shall be made from dried raw seaweed conforming to the requirements given in PCD 435.

4.2 General requirements

Seaweed powder shall

a) be from one species only

b) have characteristic appearance, colour and taste of seaweed powder;

c) be free from abnormal flavours and odours; and

d) free from living insects, worms, filth, and foreign matter;

4.3 Specific requirements

Seaweed powder shall comply with the requirements given in Table 1 when tested in accordance with the test methods specified therein

Table 1: Specific requirements for Seaweed powder

S/No	Characteristics		Requirement	Test methods
i.	Moisture content (MC), (% max)		13.5	Annex A
ii.	Acid insoluble ash, % max.		1.5	ISO 5985
iii.	Residue on sieving through 1000-micron sieve, %, m/m, max.	fine	0.5	AOAC 965.22
		coarse	N/A	
iv.	Salt as KCl, (% max)		25	Annex B
N/A means Not applicable				

5 Food additives

Seaweed powder shall be free from added colouring matter, flavouring substances and preservatives.

6 Contaminants

6.1 Heavy Metal contamination

seaweed powder shall comply with those maximum heavy metal limits given in Table 2 when tested in accordance with test methods specified therein.

Table 2: Maximum limits for heavy metal contaminants in seaweed powder

S/N	Parameter	Maximum limit mg/kg	Test method
i.	Arsenic (As)	3	AOAC 952.13
ii.	Lead (Pb)	5	AOAC 972.23
iii.	Mercury	1	AOAC 983.20
iv.	Cadmium (Cd)	1	AOAC 973.34

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

Seaweed powder shall be produced, transported and /or distributed in accordance with requirements set according to code of aquaculture practice PCD 437 and EAS 39.

8 Weights and measures

Seaweed powder shall be packed in accordance with the weights and measures regulations of Zanzibar.

9 Packaging and labelling

9.1 Packaging

Seaweed powder 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 ‘Seaweed powder’;

b) species name;

c) brand name/trade name if any;

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

e) storage condition;

f) manufacturing date;

g) best before date;

h) lot identification or batch or code number;

i) country of origin;

j) net weight in metric unit;

k) instruction for disposal of used packaged material; and

l) declaration of bleaching process if applicable.

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 Seaweed powder shall be done according to Annex C.

Annex A
(normative)

Determination of moisture

A.1 Apparatus

A.1.1 Electric oven, maintained at 105^0 C ± 1^0 C

A.1.2 Moisture dish, made of porcelain, silica, glass or aluminium

A.1.3 Desiccator

A.2 Procedure

Weigh accurately about 5 g of the prepared sample in the previously weighed dried moisture dish,

Place the dish in the oven maintained at 105 ^{o}C ± 1^{o}C for 4 hour.

Cool in the desiccator and weigh.

Repeat the process of drying, cooling and weighing at 30-min intervals until a constant mass, *m,* is obtained.

A.3 Calculation

Moisture, percent by mass, = $\frac{100(M - m_1)}{(M - m_2)}$

where

M is the mass, in grams, of the dish with the sample before drying;

m_1 is the mass, in grams, of the dish with the sample after drying to constant mass; and

m_2 is the mass, in grams, of the empty dish.

Annex B

(normative)

Determination of salt (as KCl)

D.1 Determination of salt as KCl

D.1.1 Get a one (1) kilogram representative sample of the seaweed powder material;

D.1.2 Weigh 250 g into a 2-L beaker;

D.1.3 Add about 900 ml of distilled water, soak the seaweed powder overnight salt. Remove the seaweed, stir the solution very well to completely dissolve the salt;

D.1.4 Decant the solution into a 1-L volumetric flask and dilute to volume distilled water

D.1.5 Mix the solution well and measure a 50 ml aliquot into a 250-ml volumetric flask;

D.1.6 Dilute to volume with distilled water. Mix well and measure a 10 ml aliquot into an Erlenmeyer flask;

D.1.7 Add 5 drops of K_2CrO_4 and titrate with standard 0.100 N $AgNO_3$ to end point (tinge of orange brown);

D.1.8 Calculate % salt (as KCl) using the following formula:

$$\%\ \text{salt (as KCl)} = \frac{V\ \text{Ag}NO_3 \times N\ \text{Ag}NO_3 \times \frac{74.50}{1000}}{250 \times \frac{50}{1000} \times \frac{10}{250}} \times 100$$

Annex C

(normative)

Sampling

E.1 Definition of terms

E.1.1
bulk sample
quantity of seaweed powder obtained by combining and mixing the primary sample taken from a specific lot.

E.1.2
consignment
quantity of seaweed powder dispatched or received at one time and covered by a particular contract or shipping document. It may be composed of one or more lot.

E.1.3
laboratory sample
quantity of seaweed powder removed from the bulk sample and is intended for analyses or other examination.

E.1.4
lot
composed of seaweed powder belonging to the same species intended to be uniform in characteristics regarding post harvest treatment.

E.1.5
primary sample
a small quantity of seaweed powder taken from a bag/bale from a lot.

E.2 Sample size

Sampling shall be done in accordance with the plan specified in Table E.1.

Table E.1: Sampling plan for seaweed powder

Lot size (N)	**Size of the sample (n)**
1 to 5 bags/bales	All bags/bales
6 to 49 bags/bales	5 bags/bales
50 to 199 bags/bales	10% of the bags/bales
200 bags/bales or more	$\sqrt{n} + 1$ Where n = number of bags/bales

E.3 Sampling procedure

The sample shall be taken at random from the lot and in order to achieve this, a random number table agreed upon between the buyer and seller should be used. If such table is not available, the following procedure shall be adopted:

a) Starting from any bag/bale, count the bags/bales as 1, 2, 3… etc. up to r and so on. Withdraw from the lot every rth bag/bale thus counted for sampling, the value of r is equal to

$$r = \frac{N}{n}$$

where:

N is the total number of bags/bales in the lot;

n is the number of bags/bales to be taken (see Table E.1)

b) If r is a fractional number, its value shall be taken as equal to the integral part of it.

E.3.1 When the product is in movement, samples may be taken at the time of loading or unloading of the bags/bales. For this purpose, the number of bags/bales to be taken shall also be in accordance with Table 2. The value of r shall be calculated as indicated above, and every rth bags/bales counted during loading or unloading shall be removed for sampling.

E.3.2 Take primary samples, by means of an appropriate sampling instrument, from different parts of each bags/bales selected.

E.3.3 A series of primary samples should be taken from different positions in the lot.

E.4 Bulk sample

E.4.1 Thoroughly mix all the primary samples taken as described above to form the bulk sample.

E.4.2 The size of the bulk sample shall be more than three (3) times the quantity of sample required to carry out all the tests required in the specification.

E.5 Laboratory samples

E.5.1 Divide the bulk sample into three (3) or more equal parts. Each part thus obtained constitutes a laboratory sample; one (1) of these samples is intended for the buyer and another for the seller. The third sample, bearing the seals of the buyer and of the seller (or of their representatives) if they were present at the time of sampling or of the person who sampled the lot, shall constitute the reference sample to be used in case of dispute between buyer and seller; it shall be kept at a place acceptable to both parties.

E.5.2 Samples for test shall be one (1) kilogram.

