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DRAFT ZANZIBAR NATIONAL STANDARD

Essential oil of clove-Specification

DRAFT FOR STAKEHOLDER'S COMMENT

ZANZIBAR BUREAU OF STANDARDS

Foreword

This draft Zanzibar standard has been developed Cooking and Essential Oil Standard Technical committee (TCFA4). 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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Essential oil of clove - Specification

1 Scope

This draft Zanzibar National Standard specifies requirements and methods of sampling and test for essential Oil of clove derived from *Syzygium aromaticum* (L.) Merr. et Perry, syn. *Eugenia caryophyllus* (Sprengel) Bullock et S. Harrison]

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.

CODEX STAN 193, General Standard for Contaminants and Toxins in Foods

ISO 279, Essential oils — Determination of relative density at 20 °C — Reference method

ISO 280, Essential oils — Determination of refractive index

ISO 592, Essential oils — Determination of optical rotation

ISO 7359, Essential oils — Analysis by gas chromatography on packed columns — General method

ISO 7609, Essential oils — Analysis by gas chromatography on capillary columns — General method

ISO 8432, Essential oils — Analysis by high performance liquid chromatography — General method

ISO/TR 11018, Essential oils — General guidance on the determination of flashpoint

ISO 212, Essential oils — Sampling

ZNS 94, Rounding off numerical values

3 Terms and definitions

For the purposes of this document, the following (terms and) definitions apply

3.1

essential oil of clove buds

oil obtained by steam distillation of the dried flower buds of clove tree

3.2

essential oil of clove leaves

oil obtained by steam distillation of the leaves of clove tree

3.3

essential oil of clove stem

oils obtained by steam distillation of the stem of clove tree

3.4

packaging material

packaging material, made of substances which are safe and suitable for the intended use and which will not impart any toxic substance or undesirable odour or flavour to the product.

4 Requirements

4.1 Types of essential oils of clove

Essential oil of clove shall be one of the following types:

- a) essential oil of clove bud derived from dried flower bud;
- b) essential oil of clove stem derived from dried stem; and
- c) essential oil of clove leaf derived from dried leaves.

4.2 General requirement

Essential oils of clove shall

- a) be clear and mobile liquid, slightly viscous;
- b) have odour of spicy and characteristics of eugenol;
- c) have colour range from yellow to clear brown for clove bud and stem oil, and Yellow to light brown for leave clove oil;
- d) be free from sediment and suspended matter; and
- e) be free from admixture with other oils when tested according to appropriate method

4.3 Specific requirement

Essential oils of clove shall comply with specific requirements given in table 1 when tested in accordance with test methods specified therein.

Table 1: Specific requirements for essential oils of clove

S/N	Characteristic	Requirements			Method of test
		Stem clove oil	bud clove oil	leaf clove oil	
i.	Relative density at 20 °C/water at 20 °C	1.041-1.059	1.042-1.063	1.039-1.049	ISO 279
ii.	Refractive index at 20 °C	1.531-1.536	1.528-1.538	1.528 -1.535	ISO 280
iii.	Optical rotation at 20 °C	(-1 ⁰) (+1 ⁰)	(-1.5 ⁰) - 0 ⁰	0 ⁰ - 2 ⁰	ISO 592
iv.	eugenol content %	83-95	75-85	73-92	ISO 7609/ISO 7359/ISO 8432
v.	eugenyl acetate content %	0.5-4	7-15	0.2-1	
vi.	β-caryophyllene content %	4-12	2 - 9	4-17	
vii.	total phenolic compound v/v %	85-95	85-93	min 78	ISO 1272
viii.	flash point °C	+120	+120	+112	ISO/TR 11018

5 Contaminants

5.1 Pesticide residues

Essential oil of clove shall comply with pesticide residue limits established by the Codex Alimentarius Commission for this commodity.

5.2 Heavy metal

Heavy metal in Essential oil of clove shall not exceed maximum residue limits as established in the Codex Stan 193.

6 Weights and measures

Essential oil of clove shall be packaged in accordance with the Zanzibar weights and measures regulations.

7 Packaging and labelling

7.1 Packaging

Essential oil of clove shall be packaged in grade containers and sealed in manner to ensure the safety and quality requirements specified in this standard are maintained throughout the shelf life of the product.

7.2 Labelling

7.2.1 Essential oil of clove shall be legibly and indelibly labelled with the following:

- a) name of the product 'essential oil of clove bud or essential oil of clove leaf or essential oil of clove stem (Latin name including the botanical authority of the plant),
- b) brand name/trade name if any;
- c) date of manufacture;
- d) best before date;
- e) the percentage of the eugenol content/eugenol acetate content
- f) name and physical address of the manufacturer or packer or the distributor;
- g) directions for use and storage condition
- h) lot identification or batch or code number;
- i) net weight in metric unit;
- j) country of origin; and

7.2.2 The language on the label shall be 'Kiswahili' and/or English. Additional language may be used depending on the designated market.

8 Sampling

Sampling of Essential oil of cloves shall be done according to ISO 212