



DRAFT TANZANIA STANDARD

Edible insects – Specification

DRAFT STANDARD FOR PUBLIC COMMENTS

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0 FOREWORD

Edible insects are rich in protein, vitamins, minerals and fat with good ratios of essential fatty acids and high nutrients bioavailability. Edible insects are locally produced and widely consumed in Tanzania. The demand for these products is increasing hence the necessity to develop the standard that will assist in ensuring safety and quality of edible insects traded in the country.

In the preparation of this Tanzania standard assistance was drawn from US 2146 Edible insects — Specification published by the Uganda National Bureau of Standards (UNBS).

In reporting the results of a test or analysis made in accordance with this finalized Tanzania Standard, if the final value observed or calculated is to be rounded off, it shall be done in accordance with TZS 4 (see clause 2).

1.0 SCOPE

This draft Tanzania standard prescribes requirements, methods of sampling and test for edible insects intended for human consumption.

2.0 NORMATIVE REFERENCES

The following referenced standards are indispensable for the application of this standard. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced standard (including any amendments) applies.

TZS 4, Rounding off numerical values.

TZS 109, Food processing units - Code of hygiene.

TZS 2426-1

TZS 118 / ISO 4833, Microbiology of food and animal feeding stuffs – Horizontal method for the enumeration of microorganisms – Colony-count technique at 30 °C.

TZS 122, Microbiology of food and feeding stuffs – Horizontal method for detection of *Salmonella* spp.

TZS 125 – 1 / ISO 6888-1, Microbiology of food and animal feeding stuffs – Horizontal method for the enumeration of coagulase-positive staphylococci (*Staphylococcus aureus* and other species) – Part 1: Technique using Baird-Parker agar medium – Amendment 1: Inclusion of precision data

TZS 125 – 2 / ISO 6888-2, Microbiology of food and animal feeding stuffs – Horizontal method for the enumeration of coagulase-positive staphylococci (*Staphylococcus aureus* and other species) – Part 2: Technique using rabbit plasma fibrinogen agar medium

TZS 538, Labelling of pre-packaged foods — General requirements

TZS 730-2 / ISO 7251, Microbiology of food and feeding-stuffs – Horizontal method for enumeration of presumptive *Escherichia Coli* – Most Probable Number Technique

Codex Stan 193 – Codex general standard for contaminants and toxins in food and feed

ISO 1442 Meat and meat products – Determination of moisture content (Reference method)

CAC/GL 50 - General Guidelines on Sampling

3.0 TERMS AND DEFINITIONS

For the purpose of this draft Tanzania standard, the following terms and definitions shall apply:

3.1 whole edible insects

insects farmed or wild-harvested, intended for human food in their natural form after primary processing to minimize contamination and improve palatability.

3.2 insect powder

a particulate product obtained after milling/grinding dried edible insects

3.3 insect paste

a semisolid product obtained after milling/grinding edible insects

3.4 extraneous material

any material that is not of that particular edible insect such as other species, castes, sand, stones, metallic chips, plant parts and pests.

3.5 food grade material

materials that are free from substances that are hazardous to human health and therefore, may come in contact with food.

4.0 REQUIREMENTS

4.1 General requirements

4.1.1 Edible insect shall be;

- a) in form of either whole or granulated or powder or paste and either fried or dried.
- b) of characteristic colour of the insect prepared
- c) free from adulterants, extraneous material and objectionable odour
- d) free from pest infestation, mould growth.

4.1.2 Edible insects may be whole or with some body parts removed.

4.1.3 Acceptable food grade ingredients and seasonings may be used.

4.2 Specific requirements

Edible insects shall conform to the specific requirements when tested with the test methods described in Table 1.

Table 1: Specific requirements for edible insects (dried insects and fried edible insects)

| S/n | Parameter | Limits, %, m/m | Method of test (See clause 2) |
|-----|---------------------------------|----------------|-------------------------------|
| 1. | Moisture content, max | 13 | ISO 1442 |
| 2. | Crude protein, min | 20 | TZS 1760 |
| 3. | Acid insoluble ash, max, %, m/m | 1 | ISO 5985 |

5.0 FOOD ADDITIVES

Additives when used in edible insects shall comply with the respective levels specified in Codex Stan 192.

6.0 CONTAMINANTS

6.1 Heavy metal

Edible insects shall not contain any heavy metal in excess of the quantities specified in Table 2.

Table 2 — Maximum limits of heavy metals in edible insects

| S/No. | Heavy metals E | Maximum limits ppm | Test method |
|-------|----------------|-----------------------|-------------|
| i | Arsenic (As) | 0.1 | TZS 76 |
| ii | Lead (Pb) | 0.1 | TZS 268 |
| iii | Cadmium (Cd) | 0.03 | AOAC 973:34 |
| iv | Mercury (Hg) | 0.01 | AOAC 971:21 |

6.2 Pesticides and veterinary drug residues

Edible insects shall comply with the requirements on maximum allowable pesticides and veterinary drugs residue limits as prescribed in the CAC/MRL 2.

7.0 HYGIENE

6.1 Edible insects shall be prepared under strict hygienic conditions according to TZS 109 (See clause 2).

6.2 Sample of edible insects tested shall not contain microbiological count more than the requirements prescribed in Table 3.

Table 3: Microbiological limits for edible insects

| S/N | Characteristic | Limit | Method of test (see clause 2) |
|-----|--------------------------------------|-----------------|----------------------------------|
| 1. | Total plate count, cfu/g, max. | 1×10^5 | TZS 118 |
| 2. | <i>Escherichia coli</i> , cfu/g | Absent | TZS 730-2 |
| 3. | <i>Staphylococcus aureus</i> , cfu/g | Absent | TZS 125 (Part 1 or 2) |
| 4. | <i>Salmonella</i> spp. per 25g | Absent | TZS 122 |
| 5. | Yeast and moulds, cfu/g, max | 1×10^3 | TZS 2426-1 |

7.0 Sampling and test

7.1 Sampling

Sampling of edible insects shall be done according to CAC/GL 50 (see clause 2).

7.2 Test

Testing of edible insects shall be done according to test methods described in Table 1, 2 and in Table 3.

8.0 PACKAGING, MARKING AND LABELING

8.1 Packing

In addition to the packaging requirements prescribed in TZS 538 (see clause 2), edible insects shall also be packed in food grade containers which will safeguard the hygienic, nutritional, technological, and organoleptic qualities of the product.

The containers shall be made of substances that are safe and suitable for their intended use. They shall not impart any toxic substance or undesirable odour or flavor to the product.

8.2 Marking and labeling

The container shall be marked and labeled in accordance with TZS 538 (see clause 2). In addition, each container of edible insects shall be legibly and indelibly marked with the following information:

- a) Name of the product to be shown on the label for example, “dried whole insect” or “dried powdered insects” or “dried milled insects” or “fried insect products” or “grinded/ground insect product” etc;
- b) Declare the insect by common name and biological name in brackets,
- c) Name and physical address of the processor/packer;
- d) Name and trade name of the processor;
- e) Batch or code number;
- f) Net weight in metric units;
- g) Date of packaging;
- h) Expiry date;
- i) Storage and cooking instructions;
- j) Country of origin;

8.3 The container may also be marked with TBS Certification Quality Mark.

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