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## Powdered silver cyprinid (*Mukene*) — Specification

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## Foreword

Uganda National Bureau of Standards (UNBS) is a parastatal under the Ministry of Trade, Industry and Cooperatives established under Cap 327, of the Laws of Uganda, as amended. UNBS is mandated to coordinate the elaboration of standards and is

- (a) a member of International Organisation for Standardisation (ISO) and
- (b) a contact point for the WHO/FAO Codex Alimentarius Commission on Food Standards, and
- (c) the National Enquiry Point on TBT Agreement of the World Trade Organisation (WTO).

The work of preparing Uganda Standards is carried out through Technical Committees. A Technical Committee is established to deliberate on standards in a given field or area and consists of key stakeholders including government, academia, consumer groups, private sector and other interested parties.

Draft Uganda Standards adopted by the Technical Committee are widely circulated to stakeholders and the general public for comments. The committee reviews the comments before recommending the draft standards for approval and declaration as Uganda Standards by the National Standards Council.

The committee responsible for this document is Technical Committee UNBS/TC 211, [*Fish and Fishery products*].

This second edition cancels and replaces the first edition (US 780:2012), which has been technically revised.

## Introduction

Silver cyprinid (*Rastrineobola argentea*) is a nutritious and low-cost source of proteins for food and feed. Processing and storage of silver cyprinid are still sub-optimal and may therefore impact on its quality and safety

Globally, around 14 percent of food produced is lost from the post-harvest stage up to, but excluding, the retail stage. Highly nutritious material is lost or nutritionally compromised, affecting the diets of millions of people, including in regions where undernutrition and micronutrient deficiencies are endemic (FAO, 2011).

The Fish industry in Uganda plays a very important role in the economy through employment creation, income generation, foreign exchange earnings and contribution to food security and poverty reduction strategies. Uganda exports annually about 40,000 tonnes of fishery products which earn about USD140 million annually (FAO, 2010).

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# Powdered silver cyprinid (*Mukene*) — Specification

## 1 Scope

This Working Draft Uganda Standard specifies requirements and methods of sampling and test for powdered silver cyprinid (*Mukene*) of the species *Rastrineobola argentea*, intended for human consumption.

## 2 Normative references

The following referenced documents 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.

US 28, *Code of practice for hygiene in the food and drink manufacturing industry*

US 45, *General standard for food additives*

US 738, *General standard for contaminants and toxins in food and feed*

US 919, *Dried silver cyprinid (Mukene) – Specification*

US EAS 803, *Nutrition labelling - Requirements*

US EAS 804, *Claims on food - Requirements*

US EAS 805, *Use of nutrition and health claims - Requirements*

US ISO 11290-2, *Microbiology of food and animal feeding stuffs — Horizontal method for the detection and enumeration of *Listeria monocytogenes* – Part 2: Enumeration method*

US ISO 13720, *Meat and meat products — Enumeration of presumptive *Pseudomonas* spp.*

US ISO 15089, *Water quality Guidelines for selective immunoassays for the determination of plant treatment and pesticide agents*

US ISO 16050, *Food stuffs - Determination of aflatoxins B1 and total content of aflatoxins B1, B2, G1 and G2 in cereals, nuts, and derived products ? High performance liquid chromatographic method*

US ISO 21527-2, *Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of yeasts and moulds — Part 2: Colony count technique in products with water activity less than or equal to 0.95*

US ISO 4831, *Microbiology of foods and animal feeding stuffs — Horizontal method for the detection and enumeration of coliforms – Most probable number technique*

US ISO 4833, *Microbiology of foods and animal feeding stuffs — Horizontal method for the enumeration of microorganisms – Colony count technique at 30 °C technique*

US ISO 5985, *Animal feeding stuffs — Determination of ash insoluble in hydrochloric acid*

US ISO 6490-1, *Animal feeding stuffs — Determination of calcium content — Part 1: Titrimetric method*

US ISO 6579, *Microbiology of food and animal feeding stuffs — Horizontal method for the detection of Salmonella spp. (Cor\_1\_2004)*

US 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*

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

US ISO 7937, *Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of Clostridium perfringens — Colony-count*

### 3 Terms and definitions

For the purposes of this document, the following terms and definitions apply. ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at <http://www.iso.org/obp>

#### 3.1

##### **powdered silver cyprinid (*Mukene*)**

product produced by milling or grinding of dried silver cyprinid (*Mukene*) into powder

#### 3.2

##### **foreign matter**

presence in the sample unit of any matter, which has not been derived from the fish does not pose a threat to human health, and is readily recognized without magnification or is present at a level determined by any method including magnification that indicates non-compliance with good manufacturing and sanitation practices

#### 3.3

##### **extraneous matter**

organic matter of silver cyprinid (*Mukene*) origin other than powdered silver cyprinid (*Mukene*)

#### 3.4

##### **food grade material**

materials that are free from substances that are hazardous to human health

### 4 Essential quality and composition requirements

#### 4.1 Raw materials

The raw material shall be dried silver cyprinid (*Mukene*) of sound quality that complies with the requirements of US 919.

#### 4.2 Finished product

Powdered silver cyprinid (*Mukene*) shall be safe and suitable for human consumption and shall conform to the following requirements. It shall:

- a) have taste and odour typical of the product;
- b) have colour characteristic of the variety;

- c) be free from any indication of spoilage; and  
 d) be free from extraneous and foreign matter.

#### 4.3 Specific requirements

4.3.1 With regard to the particle size, using a standard method of sifting, not less than 90 % of the product shall pass through a sieve the dimension of the mesh of which is of diameter of 1000 µm.

4.3.2 The powdered silver cyprinid (*Mukene*) shall comply with the requirements of Table 1.

**Table 1 — Specific requirements for powdered silver cyprinid (*Mukene*)**

S/N	Parameter	Requirement	Test methods
1	Moisture content, % m/m, max.	10	Annex A
2	Total ash content, % max.	15	AOAC 923.03
3	Acid insoluble ash, % max.	0.5	US ISO 5985
4	Protein content, % min. (NX5.7)	45	AOAC 954.01
5	Crude fat, % max.	14	AOAC 922.06
6	Iron, mg/100 g, min	8	AOAC 999.11
7	Zinc, mg/100 g, min	5	AOAC 999.11
8	Calcium, mg/100 g, min.	1500	US ISO 6490-1

#### 5 Food additives

Food additives may be used in the preparation of powdered silver cyprinid (*Mukene*) in accordance with US 45.

#### 6 Hygiene

Powdered silver cyprinid (*Mukene*) shall be produced and handled in a hygienic manner in accordance with US 28. Powdered silver cyprinid (*Mukene*) shall comply with the microbiological limits given in Table 2.

**Table 2 — Microbiological limits for Powdered silver cyprinid (*Mukene*)**

S/N	Microorganisms	Requirement	Method of test
1	<i>Pseudomonas</i> species/g, max.	Absent	US ISO 13720
2	<i>Salmonella</i> in 25 g, max.	Absent	US ISO 6579
3	<i>E. coli</i> /g, max.	Absent	US ISO 7251 US ISO 16649-2
4	<i>Staphylococcus aureus</i> /g, max.	10 <sup>3</sup>	US ISO 6888-1
5	Total viable count/g, max.	10 <sup>5</sup>	US ISO 4833

6	Yeast and moulds cfu/g	10 <sup>4</sup>	US ISO 21527-2
7	<i>Clostridium perfringens</i> /g, max.	Absent	US ISO 7937
8	<i>Listeria monocytogenes</i> in 25 g, max.	Absent	US ISO 11290-2

## 7 Contaminants

Powdered silver cyprinid (*Mukene*) shall comply with maximum levels for contaminants in accordance with US 738.

### 7.1 Heavy metals

Powdered silver cyprinid (*Mukene*) shall comply with the heavy metal limits given in Table 3 when tested in accordance with the test methods specified therein

**Table 3 — Heavy metal limits for canned silver cyprinid (*Rastrineobola argentea*)**

S/N	Heavy metal	Maximum limit mg/kg	Test method
i.	Arsenic	0.1	AOAC 952.13
ii.	Lead	0.3	AOAC 972.23
iii.	Cadmium	0.3	AOAC 973.34
iv.	Mercury	0.5	AOAC 983.20

### 7.2 Aflatoxin

When tested in accordance with US ISO 16050, the level of total aflatoxin in Powdered silver cyprinid shall not exceed 10 µg/kg.

### 7.3 Pesticide residues

Powdered silver cyprinid (*Mukene*) shall comply with those maximum pesticides residue limits given in Table 4 when tested in accordance with the test methods specified therein.

**Table 4 — Pesticide residue limits in Powdered silver cyprinid (*Rastrineobola argentea*)**

S/N	Pesticide residue	Maximum limit mg/kg	Test method
i	Dichloro-diphenyl-trichloroethane (DDT)	0.1	US ISO 15089
ii	Polychlorinated biphenyls (PCBs)	0.01	
iii	Dioxin	0.01	

## 8 Weights and measures

Powdered silver cyprinid (*Mukene*) shall be packaged in accordance with the Weights and measures legislation of the destination country.

## 9 Packaging

9.1 Powdered silver cyprinid (*Mukene*) shall be packaged in food grade packaging that will safeguard the hygienic, nutritional, technological, and organoleptic qualities of the product.

9.2 The packaging containers used shall conform to the requirements given in US 1659.

## 10 Labelling

### 10.1 General

10.1.1 In addition to the requirements given in US EAS 38, the following specific labelling requirements shall apply and shall be legibly and indelibly marked:

- a) name of the product as “Powdered silver cyprinid (*Mukene*)”; and/or local name (*Omena/Dagaa/Mukene/Indagala and Isambaza*);
- b) net weight in metric units;
- c) name and physical address of the manufacturer/packer/distributor;
- d) date of manufacture;
- e) instructions for use

10.1.2 The name of the product declared on the label shall be the common or usual name applied to the species in accordance with the law and custom of the country in which the product is sold, and in a manner not to mislead the consumer.

10.1.3 The name of the product shall be qualified by a term descriptive of the presentation.

10.1.4 Where a mixture of species of the same genus are used, they shall be indicated on the label.

10.1.5 In addition, the label shall include other descriptive terms that will avoid misleading or confusing the consumer.

### 10.2 Nutritional labelling, nutrition and health claims

Nutritional labelling, nutrition and health claims shall be made in accordance with US EAS 803, US EAS 804 and US EAS 805.

## 11 Sampling

Powdered silver cyprinid (*Mukene*) shall be sampled in accordance with US CAC/GL 50.

## Annex A (normative)

### Determination of moisture content

#### A.1 Principle

The method determines moisture content as the loss of mass fraction, expressed as a percentage, of a sample when heated under specified conditions.

#### A.2 Apparatus

##### A.2.1 Analytical balance

##### A.2.2 Moisture dishes

##### A.2.3 Desiccator

##### A.3.3 Air oven

#### A.3 Procedure

**A.3.1 Place a moisture dish containing about 20 g of acid washed sand and a glass rod in an air oven and dry to constant weight at  $103\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$  (1 h should be sufficient). Cool in a desiccator for 30 min and weigh the dish with sand and glass rod (4-place balance).**

**A.3.2 Add about 5 g of the sample and reweigh.**

**A.3.3 Add about 5 cm<sup>3</sup> of industrial ethanol and stir with the glass rod to give a homogenous paste.**

**A.3.4 Place on a water bath (temperature 60 °C to 80 °C) and stir occasionally until all the ethanol has evaporated.**

**A.3.5 Place the dish and content (including the glass rod) in an air oven and dry to constant weight at  $103\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$ . Cool in a desiccator for 30 min and weigh.**

#### A.4 Calculation

Moisture, per cent by mass =  $100 \frac{M_2}{M_1}$

where

$M_2$  is the loss of mass, in grams, of the sample, and

$M_1$  is the mass, in grams, of the sample taken.

## Certification marking

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