



EAST AFRICAN STANDARD

Lactarius sp. canned in oil — Specification

EAST AFRICAN COMMUNITY

Foreword

Development of the East African Standards has been necessitated by the need for harmonizing requirements governing quality of products and services in East Africa. It is envisaged that through harmonized standardization, trade barriers which are encountered when goods and services are exchanged within the Community will be removed.

In order to meet the above objectives, the EAC Partner States have enacted an East African Standardization, Quality Assurance, Metrology and Test Act, 2006 (EAC SQMT Act, 2006) to make provisions for ensuring standardization, quality assurance, metrology and testing of products produced or originating in a third country and traded in the Community in order to facilitate industrial development and trade as well as helping to protect the health and safety of society and the environment in the Community.

East African Standards are formulated in accordance with the procedures established by the East African Standards Committee. The East African Standards Committee is established under the provisions of Article 4 of the EAC SQMT Act, 2006. The Committee is composed of representatives of the National Standards Bodies in Partner States, together with the representatives from the private sectors and consumer organizations. Draft East African Standards are circulated to stakeholders through the National Standards Bodies in the Partner States. The comments received are discussed and incorporated before finalization of standards, in accordance with the procedures of the Community.

Article 15(1) of the EAC SQMT Act, 2006 provides that "Within six months of the declaration of an East African Standard, the Partner States shall adopt, without deviation from the approved text of the standard, the East African Standard as a national standard and withdraw any existing national standard with similar scope and purpose".

East African Standards are subject to review, to keep pace with technological advances. Users of the East African Standards are therefore expected to ensure that they always have the latest versions of the standards they are implementing.

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Introduction

In the preparation of this East African Standard, the following sources were consulted extensively:

IS 6121:1985(R2000), *Specification for Lactarius sp Canned in Oil*

CAC/RCP 52:2003(Rev. 4:2008), *Code of practice for fish and fishery products*

IS 4303-1:1975, *Code of hygienic conditions for fish industry — Part 1: Pre-processing stage*

IS 4303-2:1975, *Code of hygienic conditions for fish industry — Part 2: Canning stage*

Codex Alimentarius website: http://www.codexalimentarius.net/mrls/vetdrugs/jsp/vetd_q-e.jsp

USDA Foreign Agricultural Service website: <http://www.mrlatabase.com>

USDA Agricultural Marketing Service website: <http://www.ams.usda.gov/AMSV1.0/Standards>

European Union: http://ec.europa.eu/enterprise/sectors/pharmaceuticals/veterinary-use/maximum-residue-limits/index_en.htm

Assistance derived from these sources is hereby acknowledged.

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Lactarius sp. canned in oil — Specification

1 Scope

This standard prescribes the requirements and the methods of sampling and test for *Lactarius* sp canned in oil.

2 Normative references

The following referenced documents are indispensable for the application 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.

CAC/GL 21, *Principles for the establishment and application of microbiological criteria for foods*

CAC/RCP 1, *Recommended international code of practice — General principles of food hygiene*

CAC/GL 30, *Principles and guidelines for the conduct of microbiological risk assessment*

CAC/GL 31, *Guidelines for the sensory evaluation of fish and shellfish in laboratories*

CD/K/572:2010, *Fish and fisheries products — Methods of sampling*

CAC/RCP 52[CD/K/521:2010], *Code of practice for fish and fishery products*

EAS 35, *Edible salt — Specification*

EAS 12, *Drinking (potable water) — Specification*

EAS 38, *Labelling of prepackaged foods — Specification*

EAS 41, *Fruits, vegetables and derived products — Sampling and methods of test*

EAS 103, *Schedule for permitted food additives*

EAS 123, *Distilled water — Specification*

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

ISO 4832, *Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of coliforms — Colony-count technique*

ISO 4833, *Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of microorganisms — Colony-count technique at 30 degrees C*

ISO 6579, *Microbiology of food and animal feeding stuffs — Horizontal method for the detection of Salmonella spp.*

ISO 6887-1, *Microbiology of food and animal feeding stuffs — Preparation of test samples, initial suspension and decimal dilutions for microbiological examination — Part 1: General rules for the preparation of the initial suspension and decimal dilutions*

ISO 6887-3, *Microbiology of food and animal feeding stuffs — Preparation of test samples, initial suspension and decimal dilutions for microbiological examination — Part 3: Specific rules for the preparation of fish and fishery products*

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*

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*

ISO 6888-3, *Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of coagulase-positive staphylococci (Staphylococcus aureus and other species) — Part 3: Detection and MPN technique for low numbers*

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

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

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

ISO 16654, *Microbiology of food and animal feeding stuffs — Horizontal method for the detection of Escherichia coli O157*

ISO 17239, *Fruits, vegetables and derived products — Determination of arsenic content — Method using hydride generation atomic absorption spectrometry*

ISO 6634, *Fruits, vegetables and derived products — Determination of arsenic content — Silver diethyldithiocarbamate spectrophotometric method*

ISO 21567, *Microbiology of food and animal feeding stuffs — Horizontal method for the detection of Shigella spp.*

ISO/TS 21872-1, *Microbiology of food and animal feeding stuffs — Horizontal method for the detection of potentially enteropathogenic Vibrio spp. — Part 1: Detection of Vibrio parahaemolyticus and Vibrio cholerae*

ISO/TS 21872-2, *Microbiology of food and animal feeding stuffs — Horizontal method for the detection of potentially enteropathogenic Vibrio spp. — Part 2: Detection of species other than Vibrio parahaemolyticus and Vibrio cholerae*

ISO 11290-1, *Microbiology of food and animal feeding stuffs — Horizontal method for the detection and enumeration of Listeria monocytogenes — Part 1: Detection method*

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

3 Description and presentation

3.1 Ingredients requirements

3.1.1 Fish — The raw material used for preparation of canned *Lactarius* sp shall be fresh or frozen, sound, wholesome fish, properly cleaned and free from entrails.

3.1.2 Oil — Refined, pure, clear and deodourized edible vegetable oil having characteristic colour shall be used for canning *Lactarius* sp. The oil shall be free from any foreign matter or mineral oils and objectionable flavour and odour.

3.1.3 Salt — Edible salt complying with EAS 35 shall be used for canning.

3.2 Other presentations

Any other presentation of the product may be permitted provided that it:

- a) is sufficiently distinctive from the forms of presentation set out above;
- b) meets all other Regulatory requirements; and
- c) is adequately described on the label and in accordance with all regulatory labelling requirements.

3.3 Processing site requirements

The material shall be prepared, filled and processed under hygienic conditions and in premises maintained in a thoroughly clean and hygienic manner complying with CAC/RCP 52 and duly approved or licensed by the authorities concerned for fish products. The water used for processing of fish shall conform to EAS 12 and shall contain 10 mg/kg of available chlorine.

3.4 Processing requirements

3.4.1 Cleaning — The fish shall be washed well in potable water so as to remove slime, blood, etc. The head, fins, tail and entrails shall be removed. The fish shall be cut to the size of the can.

3.4.2 Cooking — The pieces shall be cooked and drained properly.

3.4.3 Packing in cans — The pieces shall be packed in suitable cans and hermetically sealed. If the cans are lacquered, the lacquer used shall be of such quality that it does not impart any foreign unpleasant taste and smell to the contents of the can and does not peel off during processing and storage of the product. The lacquer shall not be soluble in oil or brine to any extent. The cans shall show no evidence of rusting. The cans shall be thoroughly cleaned before filling. The cans may also be lacquered externally subject to agreement between the purchaser and the manufacturer or the vendor.

3.4.4 Processing — Processing shall be at such temperature and for such length of time as will ensure adequate sterilization of the finished product without burning, scorching or over-cooking.

3.4.5 Cooling — The cans shall be cooled immediately after processing by immersing in cold water of potable quality. The cooling water shall be maintained in clean and hygienic containers and shall be maintained at a minimum residual chlorine of 1 mg/kg.

4 Requirements for the finished product

4.1 The finished product shall be free from pieces of gills and fins. It shall be free from foreign matter like sand, dirt, insects and grittiness. The product shall be free from any type of poisonous and deleterious substances.

4.2 Vacuum — The can shall give a negative pressure when punctured. If round cans are used the vacuum shall be not less than 100 mm Hg, when determined by the method prescribed in Annex A of CD-K-552:2010, *Prawns/shrimp canned in brine — Specification*.

4.3 Drained mass of the contents — The drained mass of the contents in each can shall be not less than 65 % of the net water capacity of the can as tested by the method prescribed in Annex A.

The drained liquid shall not contain more than 10 percent by volume of water.

NOTE The drained liquid shall, be collected in a measuring cylinder and kept for separation of oil from water and the volume of oil and water shall be noted and percentage of water calculated.

4.4 The product shall also conform to the requirements given in Table 1.

4.5 The content of can shall not display any appreciable disintegration. Pieces from which portions have separated out shall be treated as disintegrated units. The percentage of detached portions of fish, calculated on the drained mass, shall not exceed 5 percent.

Table 1 — Requirements for *Lactarius* sp canned in oil (physical and organoleptic characteristics)

Characteristic	Silver and white pomfret	Method of test
(1)	(2)	(4)
i) Can exterior	Free from dent, rust, etc	—
ii) Colour and condition of the skin	Characteristic colour of the species; un-broken	—
iii) Colour of the meat	Characteristic white	—
iv) Texture of the meat	Firm and soft	—
v) Bones	Soft and yielding	—
vi) Odour of the meat	Characteristic of the species	—
vii) Flavour	Characteristic of the species	—
viii) Can interior	Free from blackening, pitting, nut, etc	Annex A

5 Food additives

Only the food additives permitted under EAS 103 may be used at the prescribed level.

6 Hygiene

6.1 The material shall be prepared, filled and processed under hygienic conditions and only in premises maintained in a thoroughly clean and hygienic manner complying with CAC/RCP 1, CAC/RCP 52 and duly approved or licensed by the authorities concerned for fish products. The water used for processing of fish shall conform to EAS 12.

6.2 The details of the scheduled processes, the heat penetration data, bacteriological and chemical test shall be kept and be readily available for inspection for a minimum period of 3 years from the date of the last production to which they relate.

6.3 When processed containers are cooled in water, the water used for cooling the cans shall be maintained in clean condition and chlorinated to maintain a minimum residual-free chlorine concentration of two parts per million. If cooling water is re-circulated, it shall be filtered and super chlorinated (5 ppm of residual chlorine) before use or each re-use.

6.4 It is essential that water used for can cooling shall be free from harmful organisms. Even though the can seams are satisfactory, small quantities of water can enter the can during this cooling coliform organisms at monthly intervals and coliforms shall not be detected in any samples of 100 ml. A colony count of less than 100 organisms per millilitre after incubation for 5 days at 26 °C to 22 °C is satisfactory, but any significant variation from the established limits shall be investigated immediately.

6.5 The water used for cooling shall not contain toxic chemical quantities likely to cause harm to health.

6.6 After processing, the containers shall be handled in such a manner as to avoid contamination of the product.

6.7 A damaged can shall not be offered for sale.

6.8 The product shall be free from pathogenic micro-organisms and shall also satisfy the test in accordance with the methods of Annex J of CD/K/520-1:2010.

6.9 Other requirements

The canned fish shall also comply with the following requirements in Table 2.

Table 2 — Microbiological and heavy metal limits for *Lactarius* sp canned in oil

Type of contaminant		Maximum limit (mg/kg)	Method of test
(i)	Microbiological requirements	Shall be commercially sterile	See J.5.1; CD/K/551:2010
(i)	Arsenic	0.1	EAS 41
(ii)	Copper	0.4	EAS 41
(iii)	Iron	5.0	EAS 41
(iv)	Tin		
	(a) For product packed in tin plate	50.00	EAS 41
	(b) For product packed in other packing containers	250.00	EAS 41
(v)	Mercury	0.5	EAS 41
(vi)	Lead	0.3	EAS 41
(vii)	Cadmium	0.3	EAS 41
(viii)	Methylmercury	0.5	EAS 41
(ix)	Zinc	50.0	EAS 41

7 Packing and marking

7.1 Packing

Unless agreed to otherwise between the purchaser and the vendor, the cans shall be packed in cases sufficiently strong to withstand rough handling by rail, road and sea transport without damage to their contents.

7.2 Marking

The can should be marked by printing or lithography on the can itself or by attaching labels printed on paper or as agreed to between the purchaser and the vendor.

7.2.1 The labels shall give the following information:

- a) Name of the material with brand name, if any;
- b) name and address of the manufacturer;
- c) Net mass of the contents of the cans;
- d) Batch or lot number and date of manufacture (to be given in code);
- e) The nature of the canning medium used and ingredients;
- f) Licence number, date and authority, if any, under which the manufacturer has been permitted to can the product — optional for export; and

7.2.2 The warranty period may also be mentioned subject to agreement between the purchaser and the vendor.

7.2.3 Each container may also be marked with a Certification Mark.

8 Sampling, examination and analyses

8.1 Sampling

8.1.1 The sampling and tolerance plans in CD-K-572:2010 shall be used to determine the acceptability of the lot. The sampling plans dictate the minimum sample size to be taken. If necessary, in the opinion of the inspector, more than the minimum sample size specified may be taken.

8.1.2 Sampling of lots for the sensory examination of the product shall be in accordance with CD-K-572:2010 except that a lower acceptance number for decomposition shall be used as indicated in the sampling tables.

The tables specify the minimum number of sample units to be used for the following types of inspections:

- a) Level I — Sensory examinations of all products subject to inspection other than lots which are subject to reinspection.
- b) Level II — Sensory examinations of all products which are under reinspection.

8.1.3 The sample unit shall consist of a can of fish and the entire contents thereof.

8.2 Sensory and physical examination

Samples taken for sensory and physical examination shall be assessed by persons trained in such examination in accordance with CAC/GL 31.

8.3 Determination of the fill of the container

8.3.1 Apparatus

8.3.1.1 Top pan balance

8.3.1.2 Rotary can opener

8.3.2 Procedure

8.3.2.1 The container selected shall be undamaged in all respects. Carefully open the container and note the level of the contents by means of a pencil mark on the internal surface of the can. Wash, dry and weigh the container.

8.3.2.2 Fill the container with distilled water at 20 °C to the height of the contents. Weigh the container plus the water. Subtract the weight of the container from this weight to give the weight of the equivalent to the volume of the contents.

8.3.2.3 Fill the container with additional water at 20 °C a distance of 4.76 mm below the top level of the container if the container has a double seam. (For other container, fill up to the top of the container). Weigh the container plus the water. Subtract the weight of the container from this weight to give the weight of the equivalent to the full volume of the container.

8.3.3 Calculation

Fill of container, per cent mass of remaining water

$$= \frac{\text{mass of the equivalent full volume of the content}}{\text{mass of water equivalent to full volume of content}} \times 100$$

8.4 Physical examination

8.4.1 Complete external can examination. Open can and complete net weight determination, according to defined policies and procedures for these examinations.

8.4.2 Examine appearance of product in can. Carefully remove fish from can to examination tray. Inspect can contents for presence of foreign material or other undesirable parts, carefully separating fish as necessary.

8.4.3 Examine can interior for presence of foreign material, smut, struvite, and corrosion or other can interior defects.

8.4.4 Observe colour of flesh as an indicator of decomposition.

8.4.5 Assess odour, flavour and texture as required.

8.4.6 Record any defect for that unit on the appropriate worksheet.

9 Definition of defectives

A sample unit will be considered defective when it fails to meet any of the following final product requirements referred to in Clause 4.

9.1 Taint

A unit will be considered tainted when any of the following conditions are found:

a) **Rancid** — The contents in the container show the following defects:

Odour characterized by the distinct or persistent odour of oxidized oil; or

Flavour characterized by that of oxidized oil which leaves a distinct bitter aftertaste.

b) **Abnormal** — Distinct and persistent uncharacteristic odours or flavours such as burnt or acrid, metallic, or associated with feed and not defined as rancid or decomposed; or

Flavour or odour resulting from the improper addition and/or mixing of ingredients.

9.2 Decomposition

A unit will be considered decomposed when any of the following conditions are found:

a) **Odours and flavours** — Persistent, distinct and uncharacteristic odour or flavour including but not limited to the following: fruity, vegetable, stale, musty, yeasty, sour, faecal, ammonia, hydrogen sulphide, bilge-like and putrid.

b) **Discolouration** — Discolouration associated with decomposition which is uncharacteristic of the species and type of pack, such as flushed pink, dark brown, green or yellowish to orange colours.

c) **Texture** — Breakdown of muscle structure due to decomposition characterized by:

— muscle structure which is very tough, dry, mealy or chalky; or

— muscle structure which is very soft, mushy, or pasty.

9.3 Unwholesome

a) **Critical foreign material** — A lot will be considered defective when any of the following conditions are found:

— the presence of any material which has not been derived from fish (and packing media) and which poses a threat to human health (such as glass, etc.); or

- distinct and persistent odour or flavour of any material which has not been derived from fish (and packing media) and which poses a threat to human health (such as solvents, fuel oil, etc.).
- b) **Foreign material** — A unit will be considered defective when the following condition is found:
 - the presence of any material which has not been derived from fish (and packing media) but does not pose a threat to human health (such as insect pieces, sand, etc.).
- c) **Other defects** — A unit will be considered defective when any of the following conditions are found:
 - 1) **Struvite crystals** (magnesium ammonium phosphate crystals) — Any struvite crystal greater than 5 mm in length.
 - 2) **Sulphide blackening** (smut) — Staining affecting greater than 5% of the drained contents.
 - 3) **Undesirable parts** — Any combination of head parts, heads, tails, scales and viscera exceeding 2% of the drained weight.

10 Lot acceptance

A lot shall be considered as meeting the requirements of this standard when:

- (i) not any single instance of critical foreign matter occurs; or
- (ii) the total number of sample units found defective for taint, decomposition or unwholesomeness, individually or in combination, does not exceed the acceptance number for the sample size designated in the sampling plans; or
- (iii) the total number of sample units found defective for decomposition does not exceed the acceptance number (c) shown in parentheses for the sample size designated in the sampling plans in CD-K-572:2010; or
- (iv) the average net weight and the average drained weight of all sample units examined is not less than the declared weight and provided there is no unreasonable shortage in any individual container;
- (v) the Food Additives, Hygiene and Labelling requirements of Sections 5, 6, and 7 are met.
- (vi) the total number of sample units found defective for standards of identity (style of presentation) and size designation or count range (if a size designation or count range is declared), does not exceed the acceptance number for the sample size designated in the sampling plans.

Annex A
(normative)

Determination of drained weight

A.1 Apparatus

A.1.1 Test sieve 200 (Aperture 2.00 mm) — BS Sieve 8 or Tyler Sieve 9 or ASA Sieve 10 (same as ASTM Test Sieve), may also be used.

A.2 Procedure

A.2.1 Carefully weigh the clean and dry sieve and transfer the contents of the can to the sieve. Allow to drain for five minutes and weigh the sieve with the contents. The difference between the two weights gives the drained weight. Calculate the drained weight as percentage of the water capacity of the can. Retain the residue on the sieve as well as the drained liquid.

A.2.2 Determine the water capacity of the can by the procedure given in A.2.2.1 to A.2.2.4.

A.2.2.1 Cut out the lid without removing or altering the height of the double seam.

A.2.2.2 wash, dry and weigh the empty can.

A.2.2.3 Fill the container with distilled water at 20 °C to 4 mm vertical distance below the top level of the container and weigh.

A.2.2.4 Subtract the weight in A.2.2.2 from the weight in A.2.2.3. The difference shall be considered to be the weight of water required to fill the container.

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