DRAFT UGANDA STANDARD

DUS DARS 1216

First Edition
2022-mm-dd

Chicken essence — Specification

Reference number
DUS DARS 1216: 2022

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The Executive Director
Uganda National Bureau of Standards
P.O. Box 6329
Kampala
Uganda
Tel: +256 417 333 250/1/2
Fax: +256 41 286 123
E-mail: info@unbs.go.ug
Web: www.unbs.go.ug

National foreword

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(a) a member of International Organisation for Standardisation (ISO);

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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 representatives of consumers, traders, academicians, manufacturers, government and other stakeholders.

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.

This Draft Uganda Standard, DUS DARS 1216:2022, *Chicken essence — Specification,* is identical with and is being reproduced from an African Standard, DARS 1216:2022, *Chicken essence — Specification,* and is proposed for adoption as a Uganda Standard.

The committee responsible for this document is Technical Committee UNBS/ TC 214, *Poultry and poultry products.*

Wherever the words, “African Standard" appear, they should be replaced by "Uganda Standard".

AFRICAN STANDARD

DARS 1216

First Edition 2022

Chicken essence — Specification

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Foreword

The African Organization for Standardization (ARSO) is an African intergovernmental organization established by the United Nations Economic Commission for Africa (UNECA) and the Organization of African Unity (AU) in 1977. One of the fundamental mandates of ARSO is to develop and harmonize African Standards (ARS) for the purpose of enhancing Africa's internal trading capacity, increase Africa's product and service competitiveness globally and uplift the welfare of African communities. The work of preparing African Standards is normally carried out through ARSO technical committees. Each Member State interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, Regional Economic Communities (RECs), governmental and non-governmental organizations, in liaison with ARSO, also take part in the work.

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This African Standard was prepared by ARSO/TC 07, *Meat, poultry, eggs and related products.*

ARSO Central Secretariat
International House 3rd Floor
P. O. Box 57363 — 00200 City Square
NAIROBI, KENYA

Tel. +254-20-2224561, +254-20-3311641, +254-20-3311608

E-mail: arso@arso-oran.org
Web: www.arso-oran.org

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ARSO Central Secretariat
International House 3rd Floor
P.O. Box 57363 — 00200 City Square
NAIROBI, KENYA

Tel: +254-20-2224561, +254-20-3311641, +254-20-3311608

E-mail: arso@arso-oran.org
Web: www.arso-oran.org

Introduction

Chicken essence is prepared from whole dressed chickens by partial hydrolysis along with the boiled water extract and concentrated under vacuum. The concentrated extract is further sterilized and the fat, if any, is removed. The concentrate is further processed and clarified to meet the prescribed requirements of nitrogen, total solids, etc. The required sweetening and flavouring agents are added and the product is packed in hermetically sealed ampoules.

The demand for chicken essence is increasing considerably both from the civilian population and from the defence personnel. This standard is being formulated in order to ensure that the production of chicken essence is up to a quality level that is acceptable to the consumers and feasible for the manufacturers.

In the preparation of this African Standard, references made to national experts and international Standards are hereby acknowledged:

Chicken essence — Specification

1 Scope

This African Standard specifies the quality and safety requirements, referenced test methods and sampling for chicken essence.

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

ISO 936, *Meat and meat products — Determination of total ash*

ISO 937, *Determination of Nitrogen*

ISO 2917, Meat and meat products –measurement of pH

AOAC 934.07 Processed meat and poultry products Lead Colorimetry (dithizone) II

AOAC 952.13, *Arsenic in food — Silver diethyldithiocarbamate method.*

AOAC Official Method 990.20Solids (Total) in Milk

ISO 1841-2 Meat and meat products — Determination of chloride content — Part 2: Potentiometric method

AOAC 974.07 Official Method of Analysis of Lead in Foods- Atomic Adsorption Spectrophotometry

AOAC 973.34, Official Method of Analysis of Cadmium in Foods

AOAC 971.21, Official Method of Analysis of Mercury in Foods

CAC/MRL 2, *Maximum residue limits for veterinary drugs in food.*

ARS 56, Labelling of pre-packaged foods — General requirements

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

ISO 4833-1, *Microbiology of the food chain — Horizontal method for the enumeration of microorganisms — Part 1: Colony count at 30 ˚C by the pour plate technique*

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 16654, *Microbiology of food and animal feeding stuffs — Horizontal method for the detection of Escherichia coli 0157*

ISO 16649-2, *Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of beta-glucuronidase-positive Escherichia coli — Part 2: Colony-count technique at 44 ˚C using 5-bromo-4-chloro-3-indolyl beta-D-glucuronide*

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

ISO 11290-1, *Microbiology of the food chain — Horizontal method for the detection and enumeration of Listeria monocytogenes and of Listeria spp. — Part 1: Detection method*

ISO 10272-1:2017, *Microbiology of the food chain — Horizontal method for the detection and enumeration of Campylobacter spp. — Part 1: Detection method*

ISO 6579, *Microbiology of food and animal feeding stuffs — Horizontal method for the detection of Salmonella spp.*
CXS 234 Recommended Methods of Analysis and Sampling

3 Terms and definitions

For the purpose of this standard, in addition to the terms and definitions stated in ARS 1219-2021 the following shall apply:

3.1 chicken essence
liquid extract containing the hydrosoluble extractives of chicken flesh and free from any preservative, added gelatin and micro-organisms

4 Ingredients

4.1 Essential ingredients

4.1.1 Dressed Poultry that complies with the requirement of CD-ARS 1213.

4.1.2 Chicken Meat –Carcasses and parts that complies with the requirement of CD-ARS 1224.

4.1.3. Water that complies with the requirement of Codex 227/2001.

4.2 Optional Ingredients

4.2.1 Food additives, if used in chicken essence shall comply with Codex Stan 192

4.3 Processing requirements

Healthy chickens shall be dressed, extracted with hot distilled water, concentrated to desired volume, clarified properly after rendering it fat-free, adjusted to proper solid and nitrogen content, filtered, filled in clean ampoules, sealed and sterilized.

5 Quality Requirements

5.1 General Requirements

5.1.1 The product shall be clear and without any sediment.

5.1.2 It shall have a characteristic taste and odour of chicken meat.

5.1.3 The chicken essence shall not show evidence of deterioration, discoloration or slimy appearance on storage.

5.2 Specific Requirements

The product shall comply with the requirements in Table 1;

Table 1 — Requirements for Chicken Essence

S/N.	Parameter	Requirement	Reference test Method
i)	Total solids, percent by weight	10 - 12	AOAC 990:20
ii)	Protein content, percent by weight	8 - 10	ISO 937 Titrimetry
iii)	Chloride content, percent by weight	0.15 - 0.20	ISO 1841-2
iv)	pH	5.8 to 6.2	ISO 2917
v)	Sterility test	To pass the test	Annex C
vi)	Setting time at -10 °C	not more than 1½ hours	Annex A

5.3 Contaminants

5.3.1 Heavy metals

Chicken essence shall comply with maximum limits for heavy metals as specified in Table 2, when tested in accordance with the methods given therein.

Table 2— Maximum limits of heavy metals contaminants

S/N.	Parameter	Requirement	Reference Test method
i	Arsenic (As)	0.1	AOAC 952.13
ii	Lead (Pb)	0.1	AOAC 974.07
iii	Cadmium (Cd)	0.03	AOAC 973.34
iv	Mercury (Hg)	0.01	AOAC 971.21

5.3.2 Microbial contaminants

Chicken essence shall comply with maximum limits for microbial level as specified in Table 3, when tested in accordance with the methods given therein.

Table 3 — Microbiological limits for Chicken essence

S/N.	Parameter	Requirement	Reference test Method
I	Total plate count, cfu/g	10^5	ISO 4833-1
ii	*Staphylococcus aureus*, cfu/g	10^2	ISO 6888-1
iii	*Escherichia Coli*, cfu/g	10^2	ISO 16649-2
iv	*Escherichia Coli* 0157:H7 per 25 g	Absent	ISO 16654
v	*Salmonella* spp, per 25 g	Absent	ISO 6579
vi	*Clostridium perfringes*	Absent	ISO 7937
vii	*Listeria monocytogens*, per 25 g,	Absent	ISO 11290-1
viii	*Campylobacter* per 25 g	Absent	ISO 10272-1

5.3.3 Veterinary drug residues

Chicken essence shall comply with the maximum drug residue limits specified in CAC/MRL 2,

5.3.4 Pesticide residues

Chicken essence shall comply with the maximum pesticide residue limits as specified by the Codex Alimentarius Commission.

6 Hygienic requirements

6.1 The product shall be prepared and handled under strict hygienic conditions only in premises maintained in a thoroughly clean and hygienic condition (see ARS 53 or CXS 227/2001).

6.2 All equipment coming in contact with raw materials or products in the course of manufacture shall be kept clean. An ample supply of steam and water, hose, brushes and other equipment, necessary for proper cleaning of machinery and equipment shall be available. The equipment may be sterilized by immersion in or swabbing with hypochlorite or other chlorine solution.

7 Packaging

7.1 Packing

The material shall be packed in hermetically sealed ampoules.

7.2 The product shall be packed in suitable cartons.

7.3 The number of packed products in each carton shall be subject to agreement between the purchasers and the vendors.

8 Labelling

In addition to the requirement in *ARS 56, Labelling of pre-packaged foods — General requirements,* the ampoules shall be marked by labelling on the containers themselves or as agreed to between the purchaser and the vendor. The marking or the label shall give the following information:

a) Name of the material along with brand name, if any;

b) Name and address of the manufacturer;

c) Net weight of the contents;

d) Batch number in code;

e) Names of the ingredients; and

f) Licence number given by the competent authority.

g) Date of production

h) Date of expiry

9 Sampling

Sampling of chicken essence shall be done in accordance with CXS 234.

Annex A
(normative)

Determination setting

A.1 Apparatus

A.1.1 Bath — made of suitable material for holding ice-salt freezing mixture.

A.1.2 Thermometer — calibrated 10 °C to 110 °C.

A.1.3 Watch

A.2 Procedure

A.2.1 Break the ice into pieces and mix common salt with it, and place it in the tub. Maintain the temperature of ice-salt mixture at below -10 °C. Place 5 ampoules in the bath and note the time. Also note the time separately when the contents of each of 5 ampoules form a jelly.

The ampoules should form a transparent solid jelly without any separation of solids or appearance of turbidity.

Annex B
(informative)

Determination of total solids

B.1 Apparatus

B.1.1 Flat-bottom dishes — of nickel or other suitable material and with cover. Dishes should not be affected by boiling water. They may be 7 to 8 cm in diameter and not more than 2.5 cm deep. They should be provided with short glass stirring rods having a widening flat end.

B.1.2 Well-ventilated oven — maintained at 100° ± 2°C.

B.2 Procedure

Weigh accurately about 5 g of the sample into a flat-bottom glass or china or aluminium dish (with a cover) previously dried and weighed. Heat the dish containing the material after uncovering in an oven maintained at 100° ± 2°C for about 5 hours. Cool in a desiccators and weigh with the cover on. Repeat the process of drying, cooling and weighing at half-hourly intervals, until the difference between two consecutive weighings is less than 2 mg. Record the lowest weight.

B.3 Calculation

$$\text{Total solids, percent by weight} = \frac{100(W_2 - W)}{(W_1 - W)}$$

where
W_2 = weight in g of dried sample with the dish,
W = weight in g of empty dish, and
W_1 = weight in g of sample with the dish.

Annex C
(normative)

Test for sterility

F.1 Principle

F.1.1 Tests for sterility are based upon the principle that if bacteria are placed in a medium which provides nutritive material and water, and kept at a favourable temperature, the organisms will grow, and their presence will be indicated by a turbidity in the originally clear medium.

F.1.2 General

The test for sterility comprises: (a) detection of aerobic and anaerobic organisms; and (b) detection of fungi.

F.2 Detection of aerobic and anaerobic organisms

F.2.1 Reagents

F.2.1.1 Medium for aerobic organisms — The medium either consists of meat extract containing a suitable concentration of peptone or is prepared by the enzymic digestion of protein material. After the final sterilization, the alkalinity of the medium lies between the limits represented by pH 7.2 and pH 7.8, except where otherwise stated.

F.2.1.2 Medium for Anaerobic Organisms — The medium is similar to that for aerobic organisms, with the addition of either (a) sufficient heat-coagulated muscle to occupy a depth of at least 1 cm at the bottom of the container, or (b) about 0.05 percent of agar together with other suitable substance which may decrease the oxidation-reduction potential of the final medium sufficiently to permit the growth of obligate anaerobic organisms, an oxidation-reduction potential indicator such as resazurin sodium may be added. After final sterilization, the alkalinity of the medium lies between the limits represented by pH 7.2 and pH 7.8. Before the sample to be tested is added, the medium is heated at 100°C for sufficient time to free it from dissolved oxygen, and cooled.

F.2.2 Procedure — Inoculate 100 mg of media for aerobic organisms and for anaerobic organisms with 2 ml of the contents of each sealed container to be tested. Incubate the inoculated media between 30 °C and 32 °C for seven days. The product shall pass the test if a growth of micro-organisms does not occur in any tube before the end of seven days. If growth occurs, fresh material may be taken and the test repeated, and, if necessary, this may be done a third time. The product shall fail to pass tests if growth occurs in each of the three tests, or if a growth of the same organisms occurs in more than one test.

F.3 Detection of fungi

F.3.1 Reagents

F.3.1.1 Fluid sabouraud medium

Dextrose	20 g
Pancreatic digest of casein	5 g
Peptic digest of animal tissue	5 g
Water	1 000 ml

Dissolve the dextrose, the pancreatic digest of casein, and the peptic digest of animal tissue in the water with the aid of gentle heat. Adjust the medium with 1 N sodium hydroxide solution so that, after sterilization, it will have a pH of 5.7 + 0.1. Filter, if necessary; place in culture tubes, and sterilize at 121 °C for 20 minutes. The autoclave temperature should be reached within ten minutes.

F.3.2 Procedure — Inoculate 15 ml of sabouraud medium with 1 ml of the contents of each sealed container to be tested. Incubate the inoculated medium between 22° to 25 °C for not less than ten days. When the material to be tested renders the medium turbid so that it is not possible to determine the presence or absence of growth readily by visual examination, transfer suitable portions of this turbid medium between the third and seventh days after the test is started. Incubate both the original and transfer tubes for seven to eleven days. Examine all tubes during and at, the end of the incubation period. When evidence of growth is observed within two days, check the tubes showing such evidence by microscopic examination of stained smears or by transferring to a suitable medium. If on the first test no growth is found the material under examination meets the requirements of the absence of contamination with fungi. If growth is found, the test may be repeated to rule out laboratory contamination which may be introduced during the test, using twice the number of samples. If repeated tests confirm the presence of contamination due to fungi, the sample shall fail to pass the test.

Bibliography

IS 5558:1970(R2000), Specification for Chicken Essence

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

USDA Foreign Agricultural Service website: http://www.mrldatabase.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

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