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DRAFT EAST AFRICAN STANDARD

Honey mix — Specification

EAST AFRICAN COMMUNITY

DRAFT EAST AFRICAN STANDARD ON PUBLIC REVIEW

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Foreword

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

The Community has established an East African Standards Committee (EASC) mandated to develop and issue East African Standards (EAS). The Committee is composed of representatives of the National Standards Bodies in Partner States, together with the representatives from the public and private sector organizations in the community.

East African Standards are developed through Technical Committees that are representative of key stakeholders including government, academia, consumer groups, private sector and other interested parties. 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 principles and procedures for development of East African Standards. XXXXXX.

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.

The committee responsible for this document is Technical Committee EASC/TC 011 *Apiary and apiary products.*

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Introduction

Honey is sometimes mixed by the addition of compounds to change its flavour or viscosity or increase the fructose content to stave off crystallization. Honey mix has been practiced since ancient times, when honey was sometimes blended with plant parts or any food product fit for human consumption such as maple, birch, or sorghum and sold to customers as honey mix.

Sometimes crystallized honey was mixed with flour or other fillers, hiding the adulteration from buyers until the honey was liquefied. In modern times the most common adulterant became clear, almost-flavourless corn syrup; the mixture can be very difficult to distinguish from pure honey

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Honey mix — Specification

1 Scope

This Draft East African Standard specifies requirements, sampling and test methods for honey mix intended for human consumption.

This standard does not apply to products with therapeutic purposes.

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.

AOAC 920.181, *Ash of honey*

AOAC 920.184, *Sucrose in honey*

AOAC 952.13, Arsenic in food. Silver diethyldithiocarbamate method

AOAC 958.09, *Diastatic activity of honey*

AOAC 962.19, *Determination of acidity (free, lactone, and total). Titrimetric method*

AOAC 969.38, Moisture in honey

AOAC 980.23, *Hydroxymethylfurfural (HMF) in honey. Spectrophotometric method*

AOAC 999.11*, Lead, Cadmium, Copper, Iron and Zinc in Food, Atomic Absorption Spectrophotometry*

AOAC, 920.183, *Sugars (reducing) in honey*

CAC/GL 50*, General guidelines on sampling*

CAC/GL 66*, Guidelines for the use of flavourings*

EAS 38*, Labelling of pre-packaged foods — Requirements*

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

ISO 6579-1, *Microbiology of the food chain — Horizontal method for the detection, enumeration and serotyping of Salmonella — Part 1: Detection of Salmonella spp.*

ISO 16050, *Foodstuffs Determination of aflatoxin B1, and the total content of aflatoxins B1, B2, G1 and G2 in cereals, nuts and derived products — High-performance liquid chromatographic method*

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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 degrees C using 5-bromo-4-chloro-3-indolyl beta-D-glucuronide*

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*

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
honey mix
honey mixed with plant parts or any food products fit for human consumption

3.2

food grade packaging material

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

3.3

Plant parts

Any parts of a plants added to honey such as leaves, roots, barks, stem, seeds and flowers that are fit for human consumption.

4 Requirements

4.1 Essential ingredients

The following essential ingredients used in the processing of honey mix shall comply with relevant standards:

a) Minimum of 60% of honey complying with EAS 36 or EAS 991; and

b) any food products or plant parts fit for human consumption.

4.2 General requirements

Honey mix shall:

a)

b) not be heated to such an extent that its essential composition and /or its quality is impaired;

c)

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d) have the characteristic colour of the product;

e) have the flavour and aroma derived from plant parts and/or food product fit for human consumption;

f) be free from visible mould and as far as practicable, be free from inorganic or organic matter foreign to its composition, such as insects, insect debris, grains of sand, or soil.

4.3 Specific requirements

Honey mix shall comply with the specific requirements stipulated in Table 1 when tested in accordance with test methods specified therein

Table 1 — Specific requirements for Honey mix

S/N	Characteristic		Requirement	Test method
i.	Reducing sugar content calculated as invert sugar, % m/m, min.		45	AOAC 920.183
ii.	Moisture content, % m/m, max.		20	AOAC 969.38
iii.	Sucrose content, % m/m, max.		5	AOAC 920.184
iv.	Water insoluble solids, % m/m, max.	Honey other than pressed honey	0.1	Annex A
		Pressed honey	0.5	
v.	Total ash, % m/m, max.		5.5	AOAC 920.181
vi.	Acidity as meq acid per kg, max.		40	AOAC 962.19
vii.	Diastase activity, Schade units, min		8	AOAC 958.09
viii.	Hydroxymethylfurfural (HMF), mg/kg, max.		40	AOAC 980.23
ix.	Fructose-glucose ratio[a]		1	Annex B
x.	Fiehe's test		Negative	Annex C
[a] amount of fructose divided by the amount of glucose shall be equal or greater than 1				

5 Hygiene

Honey mix shall be prepared under Good Hygienic Practices as stipulated in EAS 39, and shall comply with the microbiological limits given in Table 2.

Table 2 — Microbiological limits for Honey mix

S/N	Microorganism	Maximum limit	Test method
2	*Salmonella, spp.*in 25 g	Absent	ISO 6579-1
3	*Escherichia coli*, CFU/g	Absent	ISO 16649-2
4	*Yeast and moulds*, CFU/g	10^2	ISO 21527-2

6 Contaminants

6.1 Pesticide residues

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Honey mix shall comply with maximum limits for pesticide residues established by Codex Alimentarius Commission

6.2 Heavy metals

Honey mix shall not contain heavy metals in levels exceeding the limits indicated in Table 3 when tested in accordance with test methods therein

Table 3 — Limits of heavy metals for honey mix

S/N	Heavy metal	Maximum limit mg/kg	Test method
i.	Lead (Pb)	0.5	AOAC 999.11
ii.	Copper (Cu)	2.0	
iii.	Arsenic (Ar)	1.0	AOAC 952.13

6.3 Aflatoxins

Honey mix shall not contain aflatoxins in levels exceeding the limits given in Table 4 when tested in accordance with test methods specified therein.

Table 4 — Limits for aflatoxins in Honey mix

S/N	Type	Maximum limit µg/kg	Test method
i.	Total aflatoxins	10	ISO 16050
ii.	Aflatoxin B1	5	

7 Food additives

Food additives when used shall comply with CXS 192

Flavourings when used, they shall be in accordance with CAC/GL 66.

8 Packaging

Honey shall be packaged in a food grade packaging material that protects integrity and safety of the product. safety

9 Labelling

In addition to the requirements of EAS 38, the following specific labelling requirements shall be legibly and indelibly marked:

a) name of the product as, “Honey mix”

b) list of ingredients in descending order of proportion;

c) net weight in metric units;

d) name and l address of the manufacturer/packer/distributor of the product shall be declared on the label;

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e) date of manufacture;

g) lot/batch identification;

h) expiry date;

i) country of origin;

instructions for use;

k) storage instructions; and

l) instructions on disposal of used package.

10 Sampling

Sampling of honey mix shall be done as per the guidance in CAC/GL 50.

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Annex A
(normative)

Gravimetric determination of water-insoluble solids content (Type II method)

A.1 Sampling

A.1.1 Liquid or strained honey

If sample is free from granulation, mix thoroughly by stirring or shaking; if granulated, place closed container in water-bath without submerging, and heat 30 min at 60 °C; then, if necessary, heat at 65 °C until liquefied. Occasional shaking is essential. Mix thoroughly and cool rapidly as soon as sample liquefies. Do not heat honey intended for Hydroxymethylfurfural or diastatic determination. If foreign matter, such as wax, sticks, bee's particles or comb, etc., is present, heat sample at 40 °C in water-bath and strain through cheesecloth in hot-water-funnel before sampling

A.1.2 Comb honey

Cut across top of comb, if sealed, and separate completely from comb by straining through a sieve the meshes of which are made by so weaving wire as to form square opening of 0.500 mm by 0.500 mm when portions of comb or wax pass-through sieve, heat sample as in A.1.1 and strain through cheesecloth. If honey is granulated in comb, heat until wax is liquefied; stir, cool and remove wax.

A.2 Procedure

A.2.1 Preparation of test sample

Weigh 20 g of honey and dissolve in a suitable quantity of distilled water at 80 °C and mix well.

A.2.2 Gravimetric determination

The test sample is filtered through a previously dried and weighed fine sintered glass crucible (pore size 15.40) and washed thoroughly with hot water (80 °C) until free from sugars (Mohr test). The crucible is dried for one hour at 135 °C, cooled and weighed to 0.1 mg.

A.2.3 Expression of results

The result is expressed as percent water insoluble solids (m/m).

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Annex B
(informative)

Determination of fructose-glucose ratio

B.1 Principle of the method

The glucose portion of the invert sugar content of honey is determined by reacting it with iodine. The fructose content is calculated by subtraction.

B.2 Apparatus

B.2.1 0.05 N iodine solution

B.2.2 0.01 N sodium hydroxide solution

B.2.3 0.05 N standard sodium thiosulphate solution

B.3 Procedure

Pipette 50 ml of honey solution in a 250-ml stoppered flask. Add iodine solution and 25 ml of sodium hydroxide solution. Stopper the flask and keep in dark for 20 min. Acidify with 5 ml of sulphuric acid and titrate quickly the excess of iodine against standard thiosulphate solution. Conduct a blank using 50 ml of water instead of honey solution.

B.4 Calculation and expression of results

B.4.1 Approximate glucose, percent by mass (g of glucose per 100 g honey)

$$w = \frac{(B - S) \times 0.004502 \times 100}{a}$$

where

B is the volume, in millilitres, of sodium thiosulphate solution required for the blank.

S is the volume, in millilitres, of sodium thiosulphate solution required for the sample, and

a is the mass, in grams, of honey taken for the test.

B.4.2 Approximate fructose, per cent by mass (g fructose per 100 g honey)

$$x = \frac{Total\ reducingsugars(c) - approximateglucosecontent\ (w)}{0.925}$$

B.4.3 Actual glucose content (g per 100 g honey), per cent (Y)= W-0.012X

$$Fructosecontent(gper\ 100g\ honey), percent\ (z) = \frac{Total\ reducingsugars - y\ actual}{0.925}$$

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B.4.4 Fructose-glucose ratio

$$Fructose - glucos\ ratio = \frac{Actual\ fructosecontent\ (z)}{Actual\ glucosecontent\ (y)}$$

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Annex C
(informative)

Fiehe's test

C.1 Reagent

C.1.1 Resorcinol solution

Dissolve 1 g of resublimed resorcinol in 100 ml of hydrochloric acid (specific gravity 1.18 or 1.19).

C.2 Procedure

Dissolve 2 g of honey in 10 ml of water and extract with 30 ml ether. A continuous extractor is preferable. Remove ether in a separating funnel and concentrate the layer at 5 ml. Add 2 ml of freshly prepared resorcinol solution, shake and note the colour.

C.3 Expression of results

A cherry red colour appearing in a minute indicates the presence of commercial invert sugar.

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Bibliography

[1] ISO #####-#, *General title — Part #: Title of part*

[2] ISO #####-##:20##, *General title — Part ##: Title of part*

A **Bibliography**, if present, shall appear after the last annex. The drafting rules set out in ISO 690[11] shall be followed.

The bibliography may include

— documents that are not publicly available,

— documents which are only cited in an informative manner, and

— documents which have merely served as bibliographic or background material in the preparation of the document.

For online referenced documents, information sufficient to identify and locate the source shall be provided. Preferably, the primary source of the referenced document should be cited, in order to ensure traceability. Furthermore, the reference should, as far as possible, remain valid for the expected life of the document. The reference shall include the method of access to the referenced document and the full network address, with the same punctuation and use of upper case and lower case letters as given in the source (see ISO 690-2[12]).

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