
Draft Jamaican
Standard Specification
for
Processed ackee (*Blighia sapida*)



BUREAU OF STANDARDS JAMAICA

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Draft Jamaican Standard

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JS 276: 2023

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Bureau of Standards
Jamaica 6 Winchester Road
P.O. Box 113
Kingston 10
JAMAICA, W. I.
Tel: (876) 926 -3140-5/ 632- 4275/ 619- 1131
Fax: (876) 929 -4736
Website: www.bsj.org.jm
E-mail: info@bsj.org.jm

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Jamaican Standards establish requirements in relation to commodities, processes and practices, but do not purport to include all the necessary provisions of a contract.

The attention of those using this standard is called to the necessity of complying with any relevant legislation.

Amendments

No.	Date of issue	Remarks	Entered by and date

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Foreword

This standard is a revision of and supersedes JS 276: 2016 Jamaican Standard Specification for Processed ackee (*Blighia sapida*).

This standard was revised to include requirements for trimmed and cored ackees that are offered for retail. In addition, requirements for processed ackee were modernized in line with international standards and regulations. The standard provides for the production of processed ackee utilizing an internationally recognized food safety management system which places greater responsibility on the plant's operating staff; is adaptive to technological developments and focuses on prevention rather than relying mainly on end-product testing.

The standard is compulsory.

Committee representation

The preparation of this standard for the Standards Council established under the Standards Act 1968, was carried out by the Bureau's National Food Standards Technical Committee, which at the time comprised the following members:

Acknowledgement

Acknowledgement is made to the United States Office of the Federal Register, National Archives and Records Administration and to the Codex Alimentarius Commission for the use of material from the related documents below.

Related documents

This standard makes reference to the following:

CAC /RCP 1 - 1969	Codex Alimentarius General Principles of food hygiene
Annex to CAC/RCP 1 - 1969, Rev 6 2022	Hazard Analysis and Critical Control Points (HACCP) System and Guidelines for its application
CAC 193-1995	Codex Alimentarius General standard for contaminants and toxins in food and feed
9 CFR part 416	Sanitation
9 CFR part 417	Hazard Analysis and Critical Control Points system
JS 36 1991	Jamaican Standard Specification for Processed food (General)
JS CRS 5: 2010	Jamaican Standard Specification for Labelling of pre-packaged foods
JS 317: 2012	Jamaican Standard for the production of processed food utilizing the HACCP principles (general)

The Processed Food (General) Regulations 1959

The Processed Food (Grades & Standards) Regulations 1964

Jamaican Standard Specification for Processed Ackee (*Blighia sapida*)

1. Scope

This standard specifies requirements for the processing of ackee, the fruit of the *Blighia sapida* (ackee) plant.

This standard does not include requirements for fermented ackee products.

2. Terms and definitions

For the purposes of this standard, and unless the context otherwise requires, the following definitions apply:

2.1

ackee

the fruit of the *Blighia sapida* (ackee) plant.

2.2

aril

edible flesh protruding from the seed.

2.3

adulterated food

food that has been:

- (a) processed under such conditions that render it unfit for human consumption;
- (b) prepared, packed or kept under such conditions that it becomes contaminated and therefore injurious to health.

2.4

NCRA

refers to the National Compliance and Regulatory Authority.

2.5

commercial sterility

condition, achieved by application of heat or other approved processing method to food, which renders food free of any viable form of micro-organisms (including spores) having public health significance as well as any micro-organisms of non-health significance capable of reproducing in the food under normal non-refrigerated conditions of storage and distribution.

2.6

competent processing authority

qualified person(s) having expert knowledge of thermal processing requirements for low acid foods in hermetically sealed containers and/or expert knowledge and experience in acidification and processing of acidified foods and having adequate facilities for making such determinations.

2.7

contaminant

any biological or chemical agent, foreign matter, or other substances added to food which may compromise food safety or suitability.

2.8**contamination**

The introduction or occurrence of a contaminant in food or food environment.

2.9**control**

(verb) To take all necessary action to ensure and maintain compliance with established criteria.

(noun) The state wherein correct procedures are being followed and criteria are being met.

2.10**control measure**

any action or activity which can be used to prevent or eliminate a hazard or reduce that hazard to an acceptable level.

2.11**cooked ackee**

ackee which has been prepared for consumption by heating.

2.12**edible segments**

mature ackee aril with seeds and raphe removed.

2.13**employee**

a person who works in the establishment.

2.14**establishment**

a facility where ackee is processed and packaged.

2.15**fairly uniform colour**

the colour of the segments or mass is characteristic of properly matured and properly ripened ackee of the same varietal characteristics, with not more than 25% of the units varying in colour from the rest of the units.

2.16**fairly good flavour and odour**

a distinct and normal flavour, characteristic of properly matured and properly ripened ackee, free from any objectionable flavour or odour.

2.17**fairly good character**

segments are firm and not less than 75% are of unit wholeness (a 'unit' for these purposes being an unbroken half of the segment); and not more than 15% of the weight of the unit wholes shall be so broken, squashed or badly misshapen as to render them unidentifiable.

2.18**food handler**

any employee who directly handles packaged or unpackaged food, packaging material, food equipment and utensils, or food contact surfaces and is therefore required to comply with food hygiene requirements.

2.19**food hygiene**

all conditions and measures necessary to ensure the safety and suitability of food at all stages in the food chain.

2.20**food safety**

the assurance that food will not cause harm to the consumer when it is prepared or consumed according to its intended use.

2.21**food suitability**

the assurance that food is acceptable for human consumption according to its intended use.

2.22**free from defects**

the product is free from trimmings, seeds or portions of seeds, pods or portions of pods and stems.

2.23**fully matured**

ackee fruit that has attained stage 7-9 in the Ackee Maturity Index Chart, Annex A-2.

2.24**HACCP (Hazard Analysis Critical Control Point)**

a system that identifies, evaluates and controls hazards that are significant for food safety.

2.25**HACCP plan**

a plan prepared by an establishment in accordance with the principles of HACCP to ensure control of hazards which are significant for food safety in the processing of ackee.

2.26**hazard**

a biological, chemical or physical agent in, or the condition of, food with the potential to cause an adverse health effect.

2.27**Hazard analysis**

the process of collecting and evaluating information on hazards and the conditions leading to their presence to decide which are significant for food safety and therefore should be addressed in the HACCP plan or a plan based on any other food safety system recognized by the BSJ.

2.28**hermetically sealed container**

A container which is designed and intended to be secure against the entry of micro-organisms and which maintains the commercial sterility of its contents after processing.

2.29**operator**

the person responsible for the operation of an establishment.

2.30**primary production**

the steps in the food chain up to and including the harvesting of agricultural produce.

2.31**processed**

altered from the natural state by any process or processes, including but not limited to: washing, cleaning, cutting, chopping, preheating, heating, blanching, cooking, canning, freezing

2.32**raphe**

pink fibrous membrane extending from the seed to the placenta and which is embedded in the centre of the ackee aril.

2.33**registered establishment**

an establishment that has been registered by the National Compliance and Regulatory Authority, the Ministry of Health, and all other relevant authorities

2.34**step**

a point, procedure, operation or stage in the food chain from primary production to final consumption.

3. Product description

In this standard, processed ackee refers to a preparation consisting of edible, fully matured fruit of *Blighia sapida* (ackee) plant and the segments of which have been:

(a) properly trimmed and cored (cleaned);

and/or;

(b) processed in accordance with a process schedule developed by a competent processing authority; and

and/or

(c) sufficiently processed to ensure preservation of the product by:

(1) heating in hermetically sealed containers;

(2) pasteurization;

(3) blanching and freezing; or

(4) any other means to ensure preservation of the product, as per scope.

NOTE: A properly trimmed ackee is a matured ackee aril whose raphe and seed have been removed

4. General requirements**4.1 Primary production**

Primary production of ackee shall be carried out in such a manner as to ensure food safety and food suitability and accordingly, producers shall:

(a) adhere to good manufacturing practices during rack ripening, where applicable;

- (b) as far as practicable implement measures to control contamination so that it does not pose a threat to human health through food consumption, or adversely affect the suitability of the product;
- (c) establish and implement procedures to:
 - (1) sort food and food ingredients so as to segregate material which appears to be unfit for human consumption;
 - (2) dispose of any rejected material in a hygienic and environmentally acceptable manner;
 - (3) protect food and food ingredients from contamination by pests, or by chemical, physical or microbiological contaminants or other objectionable substances during handling, storage and transport;
 - (4) prevent, as far as reasonably practicable, deterioration or spoilage of food through appropriate measures;

4.2 Production and hygiene requirements

4.2.1 Establishments shall be registered and operate in accordance with requirements of the latest version of JS 36, as well as other necessary legislations as required.

4.2.2 Processed ackee shall be produced utilizing the HACCP principles as outlined in JS 317 Jamaican Standard for The production of processed food utilizing the HACCP principles (general) or any other food safety system recognized by the NCRA.

4.2.3 Each operator shall conduct or have conducted, a hazard analysis to determine whether there are hazards that are reasonably likely to occur and to identify the control measures that can be applied to control identified hazards. In addition every operator shall develop a HACCP plan, or a plan based on any other food safety system recognized by the NCRA which shall be implemented whenever a hazard analysis reveals one or more hazards that are reasonably likely to occur.

5. Specific product requirements

5.1 Incoming material & supplier requirements

5.1.1 Specification for raw materials shall be developed and applied by each operator. The operator shall ensure that purchased raw material conforms to specified raw material purchase requirements.

5.1.2 Raw materials or ingredients shall be inspected and sorted before processing.

5.1.3 Where necessary, laboratory tests shall be conducted to establish fitness for use. Only sound, suitable raw materials or ingredients shall be used.

5.1.4 Ackee shall be suitable for processing in accordance with Annex A-2 - Ackee Maturity Index Chart.

5.1.5 The operator shall evaluate and select suppliers based on their ability to supply raw material in accordance with the operator's requirements. Criteria for selection, evaluation and re-evaluation shall be established. Records of the results of evaluations and any necessary actions arising from the evaluation shall be maintained.

5.2 Time and temperature control

5.2.1 Each establishment shall:

- (a) develop and implement systems to ensure that temperature is controlled effectively where it is critical to food safety and suitability;
- (b) have, documented in the process schedule, approved by a competent processing authority, tolerable limits for time and temperature deviations.

5.2.2 Where ackee is processed in brine, processing shall be done according to a scheduled process and procedures to achieve commercial sterility as established by a competent processing authority recognized by the NCRA.

5.3 Standard of identity**5.3.1 General requirements**

Processed ackee shall at a minimum:

- (a) be the product prepared from clean arils of the fully matured fruit of *Blighia sapida* (ackee) plant;
- (b) be fairly uniform in colour;
- (c) have fairly good flavour and odour; and
- (d) be free from defects.

5.3.2 Canned ackee in brine

Canned ackee in brine shall:

- (a) be the product prepared from clean arils of the fully matured fruit of *Blighia sapida* (ackee) plant;
- (b) have fairly good character;
- (c) have a drained weight of not less than 60% of the capacity of the container;
- (d) be commercially sterile at 35°C and 55°C if pH \geq 4.6;
- (e) be commercially sterile at 30°C if pH \leq 4.6.

5.3.3 Ackee spread

Ackee spread shall:

- (a) be the product prepared from clean arils of the fully matured fruit of *Blighia sapida* (ackee) plant, an approved preservative and a food-grade acid;
- (b) be sufficiently processed in accordance with a process schedule developed by a competent processing authority;
- (c) possess the characteristic bright yellow colour, aroma and taste of cooked ackee and shall be creamy and viscous in texture;
- (d) meet the chemical, microbiological and packaging requirements as detailed in 5.4, 5.5 and 5.6 respectively.

Additional wholesome ingredients may be included such as salted fish, spices and seasonings and other suitable ingredients.

5.3.4 Frozen ackee

5.3.4.1 Cooked frozen ackee shall possess the characteristic bright yellow colour, aroma and taste of cooked ackee and have fairly good character.

5.3.4.2 Additional wholesome ingredients may be included such as salted fish, spices and seasonings and other suitable ingredients.

5.4 General requirements for extraneous matter

When tested by appropriate methods of sampling and examination, limits for extraneous matter shall be as required in table 1.

Table 1. Limits for extraneous matter

Extraneous matter	Limits
Insects, insect parts, insect excreta	Nil
Fly eggs and maggots	Nil
Rodent excreta and rodent parts	Nil
Raphe	max of 10 pieces per 200 g with no single piece being > 5mm

5.5 Microbiological requirements

5.5.1 Specific requirements for ackee spread

Table 2. Microbiological requirements for ackee spread and frozen ackee

Tests	Requirements
Mesophilic Aerobic Plate Count/g	< 1.0 x 10 ⁵
Coliform Count/g	< 1.0 x 10
Yeast and Mould Count/g	< 5.0 x 10

5.6 Chemical requirements

Representative samples of any production lot when tested in accordance with recognized methods shall not exceed the following levels:

5.6.1 General

Table 3. Chemical requirements

Parameter	Limits
Hypoglycin A	150 ppm (mg/kg)
Lead	≤ 0.1 ppm (mg/kg)

Arsenic	≤ 0.1 ppm (mg/kg)
Tin	≤ 0.1 ppm (mg/kg)

5.6.2 Additional requirements for ackee spread:

- (a) pH of 4.0 - 4.3

5.7 Packaging

5.7.1 Packaging design and materials shall provide adequate protection to minimize contamination, prevent damage, and accommodate proper labelling.

5.7.2 Packaging material shall be non-toxic and not pose a threat to food safety and suitability under the conditions of storage and as specified on the packaging.

5.7.3 Only packaging material which is not likely to impair the organoleptic or chemical characteristics of the product or make them harmful to health shall be used.

5.7.4 Can seam and other packaging (for frozen/ ackee spread etc.) tolerances shall be as stipulated by the Bureau.

5.7 Storage and transportation

5.7.1 Ackee spread

The finished product shall be stored and transported under refrigerated conditions at ≤ 4°C.

5.7.2. Frozen ackee

5.7.2.1 Cooked frozen ackee

After processing, the product shall be subjected to quick freezing. The finished product shall be stored and transported at a temperature of ≤ 0°C.

5.7.2.2 Raw frozen ackee

The finished product shall be stored and transported at a temperature of ≤ 0°C.

5.7.3 Trimmed and cored ackee

5.7.3.1 Mature ackee that has been properly trimmed and cored shall be transported in such a way that it is adequately aerated to maintain the integrity of the raw material/product.

5.7.3.2 Mature ackee retained in their pods shall be transported in such a way that it is adequately aerated to maintain the integrity of the raw material/product.

5.8 Labelling requirements.

5.8.1 The product shall be labelled in accordance with the JS CRS 5 Jamaican Standard Specification for Labelling of Prepackaged foods.

5.8.2 Each container of processed ackee shall be:

- (a) permanently marked to identify the producer and the lot; and

- (b) labelled with clear instructions to enable the next person in the food supply chain to handle, display, store and use the product safely.

5.8.3 Additional labelling requirement for ackee spread:

- (a) The label of the finished product shall include the following statement: 'Keep refrigerated'.

5.8.4 Additional labelling requirement for frozen ackee:











- (a) The label of the finished product shall include the following statement: 'Keep frozen'.
- (b) The label shall include instructions for thawing and preparation of the product for consumption.

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Annex A1 (normative)
Minimum acceptable criteria for ackees - Maturity scale assignment

Assigned Number	Stage of Maturity	Description of Fruit	
1	Blossom developing	Tiny	GREEN IMMATURE FRUIT
2	Small	Hard Green	
3	Medium	Hard Green	
4	Large, Full Size	Some yellowing	
5	(Unopened Fruit) Fruit Colour has Changed	Completely Red or yellow (no Green). When Cut-Open: Raphe Easily Separates from Aril	YELLOW - RED MATURE FRUIT
6	Slightly Open	Pod Lobes Split Seed & Aril Visible	SUITABLE FOR RACKING
7	Medium Open	Seed & Aril Visible	FULLY MATURED FRUIT
8	Wide Open	Pod interior Visible	
9	Aril Completely Exposed	Pod Shrivelling	
10	Onset of Spoilage	Aril Decay Evident	UNACCEPTABLE

Annex A2 (Normative) Ackee Maturity Index Chart

Unsuitable for processing or eating			
 <p>Stage 1 Inflorescence: Ackee Blossoms</p>	 <p>Stage 2 Small in size, hard, green, immature, unopened fruit UNSUITABLE FOR PROCESSING OR EATING</p>	 <p>Stage 3 Medium sized, hard, green, immature, unopened fruit UNSUITABLE FOR PROCESSING OR EATING</p>	 <p>Stage 4 Large, full sized, immature, some yellowing UNSUITABLE FOR PROCESSING OR EATING</p>
Fruit can be reaped for racking but at this stage should not be processed or eaten			
 <p>Stage 5 Unopened Fruit: Fruit colour has changed to yellow – red, completely red or yellow (no green), when cut-open: raphe (pink/red membrane) easily separates from aril (edible part). Fruit can be reaped for racking but at this stage must not be processed or eaten.</p>		 <p>Stage 6 Slightly open, pod lobes split seed and aril visible. WARNING...At this stage the hypoglycin (poison) is at a dangerously high level. Fruit can be reaped for racking but at this stage must not be processed or eaten.</p>	
Still suitable for processing and eating.			
 <p>Stage 7 Medium opened (half open) ...seed and aril clearly visible: Suitable for processing and eating.</p>	 <p>Stage 8 Fully opened (wide open) seed and aril clearly visible: Suitable for processing and eating.</p>	 <p>Stage 9 Fully opened (wide open) seed and aril clearly visible, pod is beginning to shrivel. Still suitable for processing and eating.</p>	 <p>Stage 10 Advanced shriveling of pod, onset of spoilage, aril begins to decay (rot), unsuitable for processing and eating.</p>
Unsuitable/Reject			

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The Council is appointed by the Minister in the manner provided for in the Standards Act, 1968. Using its powers in the Standards Act, the Council appoints committees for specified purposes.

The Standard Act, 1968 sets out the duties of the Council and the steps to be followed for the formulation of a standard.

Preparation of standards documents

The following is an outline of the procedure which must be followed in the preparation of documents:

1. The preparation of standards documents is undertaken upon the Standard Council's authorization. This may arise out of representation from national organizations or existing Bureau of Standards' Committees of Bureau staff. If the project is approved it is referred to the appropriate sectional committee or if none exists a new committee is formed, or the project is allotted to Bureau staff.
2. If necessary, when the final draft of a standard is ready, the Council authorizes an approach to the Minister in order to obtain the formal concurrence of any other Minister who may be responsible for any area which the standard may affect.
3. With the approval of the Standards Council, the draft document is made available for general public comment. All interested parties, by means of a notice in the Press, are invited to comment. In addition, copies are forwarded to those known to be interested in the subject.
4. The Committee considers all the comments received and recommends a final document to the Standards Council
5. The Standards Council recommends the document to the Minister for publication.
6. The Minister approves the recommendation of the Standards Council.
7. The declaration of the standard is gazetted and copies placed on sale.
8. On the recommendation of the Standards Council the Minister may declare a standard compulsory.
9. Amendments to and revisions of standards normally require the same procedure as is applied to the preparation of the original standard.

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Application to use the reference library and to purchase Jamaican and other standards documents should be addresses to:

Bureau of Standards
6 Winchester Road
P.O. Box 113,
Kingston 10
JAMAICA, W. I.