

PHILIPPINE NATIONAL STANDARD

PNS/BFAD 13:2007
ICS 67.080

Banana chips - Specification



BUREAU OF PRODUCT STANDARDS

Foreword

The Philippine National Standard for Banana chips was the fourth product being developed by the Technical Working Group still under the project entitled “Development of Standards for Selected Ethnic Food Products”.

Prior to the promulgation of this Standard a public consultation was held in Davao City wherein most of the big players such as producers, manufacturers, representatives from the academe, government agencies, laboratory and testing agencies and private organizations were present and actively participated in the discussion on the essential composition and quality factors that provide us relevant inputs in banana chips specification.

Banana chips – Specification

1 Scope

This standard shall apply to banana chips made from sound and mature banana fruit (*Musa varieties*) preserved exclusively by frying.

2 Definition of terms

For the purpose of this standard, the following terms shall mean:

2.1**container**

It is any form of packaging material, which completely or partially encloses the food (including wrappers). A container may enclose the food as a single item or several units or types of prepackaged food when such is presented for sale to the consumer

2.2**current good manufacturing practices (cGMP)**

it is a quality assurance system aimed at ensuring that products are consistently manufactured, packed or repacked or held to a quality appropriate for the intended use. It is thus concerned with both manufacturing and quality control procedures

2.3**food**

it is any substance, whether processed, semi-processed or raw, which is intended for human consumption, and includes drink, chewing gum and any substance which has been used in the manufacture, preparation or treatment of “food” but does not include cosmetics or tobacco or substances used only as drugs

2.4**food additives**

it is any substance the intended use of which results or may reasonably be expected to result, directly or indirectly, in its becoming a component or otherwise affecting the characteristics of any food (including any substance intended for use in producing, manufacturing, packing, processing, preparing, treating, packaging, transporting, or holding food; and including any source of radiation intended for any such use), if such substance is not generally recognized, among experts qualified by scientific training and experience to evaluate its safety, as having been adequately shown through scientific procedures to be safe under the conditions of the intended use

2.5**food standard**

it is a regulatory guideline that defines the identity of a given food product (i.e. its name and the ingredients used for its preparation) and specifies the minimum quality factors and, when necessary, the required fill of the container. It may also include specific labeling requirements other than or in addition to the labeling requirements generally applicable to all prepackaged foods

2.6

frying

it is cooking in hot fat or oil deep enough to immerse the food entirely

2.7

ingredient

it is any substance including food additive, used as a component in the manufacture or preparation of a food and present in the final product in its original or modified form

2.8

label

it includes any tag, brand, mark, pictorial, or other descriptive script, written, printed, marked, embossed or impressed on, or attached to the container

2.9

labelling

it is any written, printed or graphic matter (1) upon any article or any of its container or wrappers and/or (2) accompanying the packaged food

2.10

lot

it is food produced during a period of time and under more or less the same manufacturing condition indicated by a specific code

2.11

moisture content

it is the percentage weight of water in relation to the dry weight of the product

2.12

packaging

it is the process of packing that is part of the production cycle applied to a bulk product to obtain the finished product. Any material, including painted material, employed in the packaging of a product including any outer packaging used for transportation or shipment. Packaging materials are referred to as primary or secondary according to whether or not they are intended to be in direct contact with the product

2.13

sweetening agent

it includes one or more of the sugars, honey, high intensity sweeteners and artificial sweeteners

2.14

water activity

it is the ratio of vapor pressure of water in the product to the water vapor pressure of pure water at the same temperature. It is also a measure of water available for the growth of microorganisms

3 Description of products

3.1 Product definition

Banana chips are prepared by frying the peeled sound and mature banana fruit (*Musa varieties*) sufficient to attain a crispy texture. It may be in the form of chips, slices, halves, cubes or any other forms with or without the addition of sweetening agent/s, salt/s or other food ingredients and additives packed in any suitable packaging materials.

3.2 Process definition

The products shall have undergone a frying process sufficient to ensure quality and shelf life stability at ambient conditions and shall be packed in any suitable packaging materials.

4 Essential composition and quality factors

4.1 Raw materials

4.1.1 Basic ingredients

4.1.1.1 Banana

Banana fruit to be used shall be fresh, sound, clean and mature from any cultivated variety conforming to the characteristics of the fruits of *Musa spp.* of the *Musaceae* family.

4.1.1.2 Cooking oil

Must be of food-grade quality and shall be of vegetable origin or their combination thereof. It must conform to RA 8976 of the Food Fortification Law.

4.1.1.3 Optional ingredients

(a) Sweetening agent

One or more of the sugars, honey, high intensity sweeteners or artificial sweeteners.

(b) Salt

Coarse or fine sodium chloride of food grade quality and meets the purity requirements as specified in Section 4.1 of the Implementing Rules and Regulations of the ASIN Law, Republic Act (RA) 8172, an Act Promoting Salt Iodization Nationwide.

(c) Flavoring agent/s

Must conform to the regulations of BFAD as defined in Bureau Circular 2006-016:2006.

(d) Other ingredients

All other ingredients to be used shall be of food grade quality and conform to all applicable food standards.

4.2 Quality criteria

4.2.1 General requirements

Banana chips shall have the following characteristics:

4.2.1.1 Water activity

The product shall have a maximum water activity of 0.40 at 25 °C.

4.2.1.2 Moisture content

The product shall have a moisture content of not greater than 4.0 %.

4.2.1.3 Fat content

The product shall have a fat content of not greater than 35.0 %.

4.2.1.4 Free fatty acid

The product shall have a free fatty acid content of not greater than 0.25% as oleic acid.

4.2.1.5 Peroxide value

The product shall have a peroxide value not greater than 5.0 %.

4.2.1.6 Sensory properties

The product shall have the characteristic color, aroma, and flavor of banana. It shall have a crispy texture with uniform size and shape. It shall be free from any objectionable sensory characteristic.

4.2.2 Types of defects

4.2.2.1 Foreign matter

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

4.2.2.2 Odor/flavor/color

A sample unit affected by objectionable odors or flavors indicative of decomposition or rancidity and unacceptable color.

4.2.3 Classification of “defectives”

A container that has any of the type of defects set in 4.2.2 shall be considered as “defective”.

4.2.4 Lot acceptance

A lot shall be considered as meeting the applicable quality requirements when the number of “defectives”, as defined in sub-section 4.2.3, does not exceed the acceptance number of the appropriate sampling plan.

5 Food additives

Food additives when used shall be in accordance with the regulations established by the Bureau of Food and Drugs (BFAD) (Bureau Circular No. 2006-016. Updated List of Food Additives) and/or the Codex Alimentarius Commission.

The following food additives listed in, but not limited to, Table 1, may be used for the manufacture of banana chips.

Table 1 – Food additives for banana chips*
(BFAD B.C. No.016 s. 2006. Updated List of Food Additives)

Food Additive	Max. Use Level	Food Additive	Max. Use Level
Acesulfame Potassium	500 mg/kg	Diacetyltartaric and fatty acid esters of glycerol	GMP
Aspartame	2000 mg/kg	Sorbitol	GMP
Butylated Hydroxyanisole	100mg/kg	Sucralose	150 mg/kg
Butylated Hydroxytoluene	100 mg/kg	Sulphites (as residual SO ₂)	GMP
Citric acid	GMP	Tartrates (as tartaric acid)	1300 mg/kg
* Based on the Food Category System: 4.1.2.12 Cooked or fried fruit			

6 Hygiene

6.1 It is recommended that the product covered by the provisions of this standard be prepared and handled in accordance with the appropriate sections of the Recommended International Code of Practice – General Principles of Food Hygiene (CAC/RCP 1 – 1969, Rev. 4-2003) and/or the BFAD A.O. No. 153 s. 2004 - Guidelines, Current Good Manufacturing Practices in Manufacturing, Packing, Repacking or Holding Food and processed according to the Recommended Code of Practice for the Processing and Handling of Banana Chips (PNS/BFAD 14:2007).

6.2 When tested by appropriate methods of sampling and examination, the product:

6.2.1 Shall be free from filth that may pose a hazard to health,

- 6.2.2 Shall be free from parasites which may represent a hazard to health;
- 6.2.3 Shall not contain any substance originating from microorganisms in amounts which may represent a hazard to health,
- 6.2.4 Shall be free from microorganisms capable of development under normal conditions of storage; and
- 6.2.5 Shall be free from container integrity defects which may compromise the hermetic seal.

7 Labeling

7.1 Each container shall be labeled and marked with the following information in accordance with BFAD's Labeling Regulation:

7.1.1 The name of the product shall be "Banana Chips". It may have additional name to describe the product. Ex. Honey-dipped Banana Chips, Vacuum-Fried Banana Chips

7.1.2 The complete list of ingredients and food additives used in the preparation of the product in descending order of proportion.

7.1.3 The net quantity of content by weight in the metric system. Other systems of measurement required by importing countries shall appear in parenthesis after the metric system unit.

7.1.4 The name and address of the manufacturer, packer and/or distributor of the food.

7.1.5 Open date marking

The words "Best/"Consume Before" indicating end of period at which the product shall retain its optimum quality attributes at defined storage conditions.

7.1.6 Lot or code number identifying product lot.

7.1.7 The words "Product of the Philippines", or the country of origin if imported.

7.1.8 Additional requirements

A pictorial representation of fruit(s) on the label should not mislead the consumer with respect to the fruit so illustrated.

7.2 Nutrition labeling

Nutrition labelling shall conform to the established regulations of BFAD and or authority for this commodity.

8 Methods of analysis and sampling

8.1 Determination of water activity

According to the AOAC Official Methods of Analysis, 16th ed., 1995. Method No. 978.18.

8.2 Determination of moisture content (vacuum oven method)

According to the AOAC Official Methods of Analysis, 16th ed., 1995. Method No. 934.06.

8.3 Determination of fat content

According to the AOAC Official Methods of Analysis, 16th ed., 1995. Method No. 963.15.

8.4 Determination of free fatty acid content

According to the IUPAC, 1987. Method No. 2.201 as cited from the Codex Alimentarius listing.

8.5 Determination of peroxide value

According to IUPAC, 1987. Method No. 2.501 and ISO 3960:1977 as cited from the Codex listing.

8.6 Method of sampling

Sampling shall be in accordance with the FAO/WHO Codex Alimentarius Sampling Plans for Prepackaged Foods - CAC/RM 42-1969, Codex Alimentarius Volume 13, 1994.

References

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The following documents contain provisions that, through reference in this text, constitute provisions of this standard. For undated references, the latest edition of the referenced document (including amendments) applies.

A.O. No. 153 s. 2004. **Guidelines, Current Good Manufacturing Practice in Manufacturing, Packing, Repacking or Holding Food.** Bureau of Food and Drugs. Department of Health. Alabang, Muntinlupa City, Philippines.

Association of Analytical Chemists. **Official Methods of Analysis Manual.** 16th ed., 1995. AOAC International. 481 North Frederick Ave., Suite 500, Gaithersburg, MD 20877-2417. U.S.A.

B.C. No. 2006-016 . **Updated List of Food Additives.** Bureau of Food and Drugs. Department of Health. Alabang, Muntinlupa City, Philippines.

Enhancing the Productivity of Saba Industry. 2001. **Subproject 3. Development/Improvement of Processing Technologies and Quality Assurance Program for Saba.** Industrial Technology Development Institute. Department of Science and Technology. Bicutan, Taguig City, Philippines.

FAO/WHO Codex Alimentarius Commission Manual. 1995. Codex Alimentarius Commission. Food and Agriculture Organization. Viale delle Terme di Caracalla, 00100 Rome, Italy.

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Philippine National Standards No. 991:1993. **Agricultural and Other Food Products – Bottled Drinking Water Specifications.** Bureau of Product Standards. Department of Trade and Industry. Makati City, Philippines.

R.A. 3720. **Food, Drugs and Cosmetic Act.** Bureau of Food and Drugs. Department of Health. Alabang, Muntinlupa City, Philippines.

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The use of the PS Certification Mark is governed by the provisions of Department Administrative Order No. 01 series of 1997 – Revised Rules and Regulations Concerning the Philippine Standard (PS) Quality and / or Safety Certification Mark Scheme by the Bureau of Product Standards. This mark on a product/container is an assurance by the manufacturer/producer that the product conforms with the requirements of a Philippine standard. Details of conditions under which a license to use the PS Certification Mark may be granted can be obtained from the Bureau of Product Standards, Department of Trade and Industry, 361 Sen. Gil J. Puyat Avenue, Makati City.



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Standard for Thermally Processed Fish Products

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