

# Sensory Characterization of Eba

Biophysical Characterization of Quality Traits, WP2

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Ethics: The activities, which led to the production of this document, were assessed and approved by the CIRAD Ethics Committee (H2020 ethics self-assessment procedure). When relevant, samples were prepared according to good hygiene and manufacturing practices. When external participants were involved in an activity, they were priorly informed about the objective of the activity and explained that their participation was entirely voluntary, that they could stop the interview at any point and that their responses would be anonymous and securely stored by the research team for research purposes. Written consent (signature) was systematically sought from sensory panelists and from consumers participating in activities.

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# ABSTRACT

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*Eba* is a cassava-based staple food product commonly consumed in Nigeria and other countries in West African. It is prepared by constituting *gari* (a pregelatinized, fine to coarse granular flour, made from grated, fermented, and roasted cassava mash) in boiled water and stirred to form a dough. This SOP describes the sensory textural characterization of *Eba* using six (6) different cassava genotypes of contrasting cooking qualities i.e., good, intermediate, and bad for making *gari*. *Eba* was prepared in duplicate from *gari* made from each cassava genotype following a standardized protocol, where 100 g of *gari* (intermediate product) was reconstituted in 300 ml of boiled water and allowed to stand for 1 minute to swell. A planetary dough mixer was used to stir until a consistent dough was formed. Serving temperature was monitored at 40°C using a thermometer and the samples were assessed by 12 trained panelists for the following sensory textural attributes colour (white, gray, and cream); texture by hand (hardness, smoothness, mouldability, stickiness); and taste (sourness, sweetness, and smoothness) on a 0-10 points hedonic scale. The SOP also covers the required materials, setting up a sensory facility, tasting sequence, sample codifications, and storage before tasting.

**Keywords:** Cassava, *Gari*, *Eba*, Sensory Profile Analysis, Serving temperature,

# 1 SCOPE OF THE STUDY

## 1.1 Scope

The objective of the study is to establish a sensory texture profile of *eba* (stiff dough) prepared from gari using a trained panellist.

## 1.2 Prerequisite

The setting up and managing of a sensory analysis tasting panel was explained in the deliverable: RTBfoods\_F.2.2\_2018.pdf

# 2 PRODUCT

## 2.1 Product Preparation in Laboratory conditions

### Step 1.

- ✓ 100 g of gari was weighed into a clean container
- ✓ 300 mL of boiling water was added into a clean bowl or pot (**Note: 300 ml for South West Region and 250 ml of boiled water for South East Region of Nigeria**)
- ✓ Immediately the weighed gari was poured gradually into the boiled water and cover for 60 seconds to gelatinize.
- ✓ After which it was stir continuously with the aid of stirrer for 60 seconds until stiffed dough (*eba*) was formed.
- ✓ The stiffed dough (*eba*) was scooped immediately into an aluminium foil/nylon and wrapped, then it was placed in a warmer to maintain the temperature before it is served.

### Step 2. Coding and labelling:

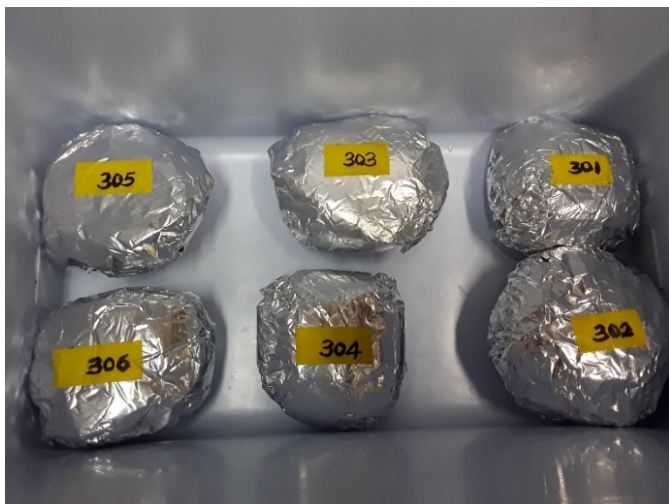
- A 3-digit codes was assigned to each sample. Labelling at this stage blinds the people involved in preparation and contributes to minimising bias. These codes were maintained throughout the preparation process and analysis of the products. See Plate 1.



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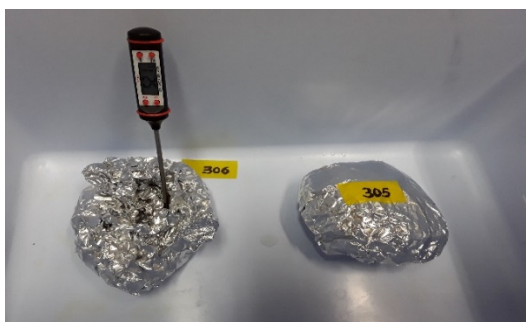
**Release: 1**



**Plate 1.** Coded samples after sample preparation and kept in a warmer and wrapped with foil.

## 2.2 Sample storage conditions before tasting

The samples were kept in a warmer immediately after preparation to maintain the temperature before serving. The samples were conveyed into the sensory room and temperature at the point of serving was measured quickly at 40°C using a thermometer. Samples were then presented for tasting by the trained panelists.



**Plate 2:** Temperature control of the sample



**Plate 3:** Samples kept in a warmer

## 3 TASTING SEQUENCE

### 3.1 General Information

#### 3.1.1 Test Responsible Person/Group Animator

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### 3.1.2 Date/Time Phase of the test

The tests were done between 18/03/20 and 24/03/2020, and between 11.00 AM and 1.00 PM.

## 3.2 Sample

### 3.2.1 Quantity of sample given to each panellist

Each panellist was served between 10 g and 20 g portion of eba.

### 3.2.2 Type of dish

The *Eba* samples were served using a white plastic disposable plate (see Plate 2)

### 3.2.3 Temperature of tasting

The samples were served at the same temperature. Sensory evaluation takes 10 minutes per sample. Hence towards the end, when assessing texture, the temperature of the sample was measured at 40°C immediately before serving to panelist. Samples were tested at the same time and same temperature by all the panelists. Sample temperature was maintained by wrapping in foil and placed in a box.

### 3.2.4 Repeated sample

One of the samples is repeated during each testing session to assess panel performance in terms of homogeneity and repeatability

### 3.2.5 Sample Codification:

<b>Sample Code</b>	<b>Replicate</b>	<b>Tasting Code</b>	<b>Cultivars</b>	<b>Tasting date</b>

## 3.3 Service

### 3.3.1 Number of sample tasted by session

In each session, five samples were tasted.

### 3.3.2 Type of service (ex: monadic)

Monadic



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### 3.4 Panel

#### 3.4.1 Number of panellists who participate in this study

The panel were between 10 and 12 members

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## 3.5 Vocabulary

Type	Attributes	Definition	How to measure?	Scale
Colour	White	Colour of the surface of the sample from light white to off white	When you receive the sample, immediately open it and examine the colour	0: white 10: off white
	Grey	Colour of the surface of the sample from grey to light grey		0: grey 5: light grey 10: dark grey
	Cream	Colour of the surface of the sample from cream to light cream		0: cream 5: light cream 10: dark cream
Texture in mouth	Fibrousness	Geometrical attribute of product associated with presence of long string like particles	After chewing feel sample between tongue and palate to assess the amount of string like particles present on sample	0: low fibre 5: moderate fibre 10: high fibre
Taste	Sweet	Basic taste produced by solutions of various substances such as sucrose	Take a small piece of sample, chew slowly and take a whiff to score the intensity of basic tastes you observe	0: slightly sweet 5 : sweet 10: very sweet
	Sourness	gustatory complex sensation, generally due to presence of organic acids	Put a part of the sample in the mouth and evaluate the intensity of the sourness	0: slightly sour 5: sour 10: very sour
	Smoothness	Geometrical attribute associated with the overall degree of absence of particles within sample	After chewing feel sample between tongue and palate to assess the amount of string like particles present on sample	0: fine 5: moderately coarse 10: coarse
Texture by hand	Hardness	Mechanical textural attribute related to the force necessary to achieve a certain deformation	Place sample between fingers and feel to access the amount of force required to press it	0: soft 5: slightly soft 10: very hard
	Cohesiveness (moldability)	Textural attribute relating to degree to which a substance can be deformed before it breaks	Take a sizeable piece of sample and using all fingers attempt to make a ball with the sample	0: not mouldable 5: slightly mouldable 10: mouldable

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Type	Attributes	Definition	How to measure?	Scale
Texture by hand	Stickiness	mechanical textural attribute relating to the force required to remove material that sticks to the hand	put a part of the sample between thumb and index fingers and using tapping motions, evaluate the amount of product adhering on them	0: not sticky 5: slightly sticky 10: very sticky
	Stretchability	The tendency of a body to return to its original shape after it has been stretched or compressed	Take a sizeable piece of sample, flatten it with palms and stretch	0: not stretchable 5: slightly stretchable 10: very stretchable

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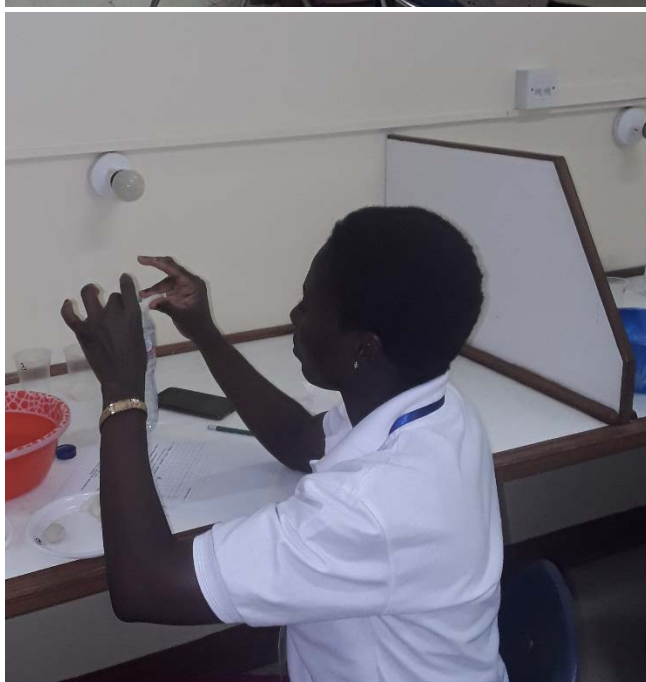


Plate 4 Paneslits conducting sensory evaluation of the product



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