

Sensory Characterization of Attiéké

Biophysical Characterization of Quality Traits, WP2

Bingerville, Côte d'Ivoire, December 2021

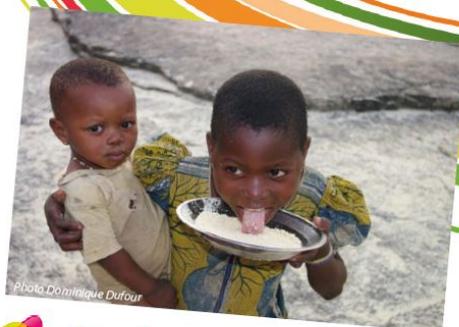
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Ethics: The activities, which led to the production of this manual, were assessed and approved by the CIRAD Ethics Committee (H2020 ethics self-assessment procedure). When relevant, samples were prepared according to good hygiene and manufacturing 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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RTBfoods		
WP2: Biophysical Characterization of Quality Traits		
SOP: Sensory Characterization of Attieke		
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Recommendations of the focal point: the number of sensory attributes is a bit high (19), so we recommend to reduce the number of samples to be evaluated per session or to score some attributes on a binomial scale (yes/no).

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ABSTRACT

Attieke is a fermented and granulated product commonly consumed in Côte d'Ivoire and other countries in Africa and overseas. To prepare the product, cassava tubers are peeled, crushed, and fermented. Water in the fermented paste is removed by pressing and grains are formed, slightly dried and steam cooked. In household, stored attieke are warmed up by steaming before consumption. This Standard Operation procedure (SOP) describes the preparation of Attieke samples produced from different varieties and subsequent quantitative descriptive analysis. About 400 g of Attieke samples removed from the fridge were warmed up by steaming in an electric steamer with 100 ml of water, and then let to cool down at room temperature. Trained panellists identified colour, brightness, presence of fibers, fermented or fresh attieke odor, firmness, cohesiveness, stickiness, moldability, masticability, Sourness, sweetness, and palm oil taste as quality attributes that could be used to differentiate between samples. Attributes were defined and means to evaluate or measure them were described. A scale was set up using known food products.

Key words: fermented cassava, attieke, sensory, quality attributes, colour, moldability, stickiness, cohesiveness, sourness.

1 SCOPE OF THE STUDY

1.1 Scope

The objective of the study is to develop and establish a sensory profile for Attieke prepared from species/varieties of cassava using a trained panel.

1.2 Prerequisite

The setting up and managing 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

Attieke samples tested in the sensory laboratory are received prepared in 2 big hubs by woman processors following a typical process.

Upon receiving, samples are stored in the freezer.

2.1.1 Step1: Re-Steamng

Attieke samples are removed from the freezer and let to thaw at room temperature. About 300-400 g of unfreezed samples are steamed for about 10 min in a steamer.



Figure 1 Unfreezed Samples



Figure 2 Samples in a steamer

2.1.2 Step2: Cooling and Packing

Samples are put in bowls and mixed 3-5 times to help the cooling process.



Figure 3 Attieke in bowls

After samples are cooled down, about 20g are put in small, labelled plastic dishes to be served to panellists. A new 3-digit code was assigned to each sample. Labelling at this stage blinds the people involved in preparation and contributes to minimising bias.

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Figure 4 3-digit coded samples in small dishes for panellists

2.2 Sample storage conditions before tasting

The samples are left to cool down, kept in bowls and served to panellists at room temperature: about 25-30°C.

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

Tests were done between 07/15/2020 and 09/06/2020 from 10am-11am.

3.2 Sample

3.2.1 Quantity of sample to be given to each panellist

Each panellist is served between 20-30 g of Attieke.

3.2.2 Type of dish

Plastic dish (See Fig 4.).

3.2.3 Temperature of tasting

As attieke is a product consumed at room temperature (RT), room temperature was chosen as tasting temperature (about 25°C) for serving and tasting.

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3.2.4 Sample Codification

Codes will be allotted to the samples as sensory evaluation is being conducted.

3.3 Service

3.3.1 Number of sample tasted by session

Four to 6 samples are tasted per session. At least 1 sample is repeated at the same session.

3.3.2 Type of service (ex: monadic, ...)

Monadic: samples are served one after the other, once they have been tasted by all the panellists.

3.4 Panel

3.4.1 Number of panellists who participate in this study

The panel is between 9-12 members.

3.5 Vocabulary

The definition of the sensory attributes is facilitated by the norm ISO standard NF 5492-2009.

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Type	Attributes	Definition	How to measure?	Scale
Appearance	Orange color	Color of grains from light yellow to orange	Observe the sample and evaluate the attributes	0: White 5: Yellow 10: Orange
	Brightness	Brighter or somber		0 : Dark 10 : Clear
	Homogeneity of grains	Degree of uniformity of the size of grains		0 : Broken corn grains 10 : Fish Eggs
	Presence of fibers	Quantity of fibers		0 : Couscous 10 : Gari
Odor	Attieke	Aroma of attieke	Smell the sample and asses each attribute	0 : Gari 10 : Fresh attieke
	Red Palm Oil	Characteristic odor of red palm oil		0: Non présent 10: Red palm oil odor
	Sourness	Odor of sourness		0: Absence 10: High intensity (pur vinegar)
	Off-odors	Undesired or atypical odor associated with transformation or deterioration of the product. (Smoke, molds, overfermented, etc)		
Texture by touch	Firmness	Softness or hardness of the attieke grains	Put the sample between fingers and press to evaluate how hard the grains are.	0 : Soft cheese (Laughing cow) 5 : Pitted olives 10 : Hard candy
	Stickiness	Ability of grains to stick in the palm after the granules are pressed in the hand	Put the sample between fingers and press to evaluate the amount of product adhering onto them	0 : Non sticky 10 : chewing gum
	Cohesiveness	Cohesion between granules (ability of grains to stick together or retake initial form after force of pressure)	Put the sample between fingers and press to evaluate how grains adhere to each other.	0 : Uncooked gari 10 : Attoukpou (ivorian cassava dish)

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Type	Attributes	Definition	How to measure?	Scale
	Modelable	Ability to form a ball	Try to make a ball of the sample and evaluate how easy it is to deform or break the sample	0 : uncooked semolina 10 : Modelable paste
Texture in mouth	Masticability	Force required to a given deformation, penetration or to reduce to sample to a shallowable form, (being easily chewable)	Put a part of the sample in mouth, chew it and after 5 chews, evaluate attributes	0: mush (Coco baca) 10: uncooked gari
	Mouth filled sensations	Sensation that grains fill the mouth		0 : Compacted 10 : Dispersed
Taste/ Impression	Sweet	Degree or intensity of the sweet taste or after-taste (basic taste produced by dilute aqueous solutions of natural or artificial substances such as sucrose)	Put a part of the sample in the mouth and evaluate the intensity of attribute.	0: Yace cassava variety 10: Bonoua cassava variety
	Sourness	Sourness of the sample (gustatory complex sensation, generally due to presence of organic acids)		0: Absence 10: High intensity
	Fermented	Intensity of the fermented taste		0: Gari 10: Mangnan (the traditional starter of attieke)
	Taste of Red Palm oil	Presence and Intensity of the taste of Red Palm oil		0 : No red palm oil 10 : Red palm oil
	Undesired taste	Any undesired taste in the sample (smoke, over-fermented, etc.).		0 : Absence 10 : High intensity

3.6 Pictures to illustrate the tasting sessions



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Panellists assessing samples during product training sessions



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