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African cuisine and its healthy potential

Culinárias africanas e seu potencial de saudabilidade

Abstract

Introduction: African Cuisine has a rich diversity of knowledge, ingredients and techniques. There is, however, a gap in academic literature that further distances us from connecting with African and Brazilian food, perpetuating the misconception that they are unhealthy. ***Objective:*** The goal is to present the process of selection, elaboration, and analysis of African culinary recipes, considering ingredients, techniques, and technologies, in order to identify their potential in promoting a healthy diet, using the *Guia Alimentar para a População Brasileira* (Brazilian Population Dietary Guidelines) as a healthiness parameter. ***Methods:*** This is an original article that uses a quantitative-qualitative approach, using African recipes found on official embassy and government websites, specialized blogs and tourism portals from several different African countries. It analyzes the contexts and meanings of these recipes, their systematization, nutritious composition and food classification, based on their level of processing, as prescribed by the NOVA classification categorization. ***Results:*** In total, 18 recipes were tested: four sweet preparations and 14 savory. The preparations where the main ingredient were meat or eggs amounted to approximately 42% of the total, highlighting the prevalence of plant-based foods. It was also noticed the low use of saturated fat, showing a preference for unsaturated fats. All preparations primarily used *in natura* or minimally processed food, and none of them used processed or ultra-processed ingredients at any stage of preparation. ***Conclusion:*** The African recipes selected and prepared within the scope of this research comply with the criteria and guidelines set out in the *Guia Alimentar para a População Brasileira* (Brazilian Population Dietary Guidelines)

Keywords*:* Cuisine. Preparation Technical Sheet. Adequate and Healthy Eating Promotion. Brazilian Population Dietary Guidelines

Resumo

Introdução: A culinária africana possui riqueza de diversidade de conhecimentos, insumos e técnicas. Há, porém, uma lacuna na literatura acadêmica que nos distancia da conexão com a comida africana e a brasileira, desmistificando a ideia de que não são saudáveis. ***Objetivo***: Apresentar o processo de seleção, elaboração e análise de receitas culinárias africanas, considerando ingredientes, técnicas e tecnologias, a fim de identificar seu potencial para a promoção da alimentação saudável, tendo o *Guia Alimentar para a População Brasileira* como parâmetro suleador de saudabilidade. ***Métodos***: Trata-se de artigo original que utiliza a abordagem quanti-qualitativa, considerando as receitas africanas encontradas em sites oficiais de embaixadas e governos, blogs especializados e portais de turismo de diversos países africanos, seus contextos e significados, assim como a sistematização, a análise da composição nutricional e a classificação dos alimentos utilizados com base no seu grau de

processamento, como preconiza a categorização da classificação NOVA. ***Resultados***: Foram testadas 18 receitas, sendo quatro preparações doces e 14 salgadas. As preparações cujo ingrediente principal era carnes em geral ou ovo totalizaram, aproximadamente, 42%, evidenciando a prevalência de alimentos de origem vegetal. Também se constatou a baixa utilização de gordura saturada, privilegiando as insaturadas. Todas as preparações utilizaram preferencialmente alimentos *in natura* ou minimamente processados e nenhuma fez uso de alimentos processados ou ultraprocessados em qualquer etapa de elaboração. ***Conclusão***: As receitas africanas, selecionadas e elaboradas no âmbito desta pesquisa, apresentam conformidade com os critérios e orientações do *Guia Alimentar para a População Brasileira*.

Palavras-chave: Culinárias. Ficha Técnica de Preparo. Promoção da Alimentação Adequada e Saudável. Guia Alimentar para a População Brasileira.

INTRODUCTION

Brazilian Cuisine is a diverse field of knowledge, techniques and flavors, as well as disputes and tensions. It is not the result of a harmonic process of miscegenation among the peoples living under colonization. Eurocentric cultural Imperialism dominates the discourse in the field of food, emphasizing European contributions in spite of the technologies and knowledge of the Black population in the development of Brazilian culinary practices.[1-4]

The statement above exposes the racial democracy fallacy, which is characterized by the idea that there are no inequalities in the experiences lived by different social groups due to racism, and that the traditions and knowledge of racialized people were seamlessly integrated into Brazilian culture by the colonizer's benevolence.[4-6] From this perspective, Black and Indigenous populations would be seen merely as contributors to the European matrix.[7,8]

It is noticeable that both European and Asian cuisine are widely disseminated, popularized, and consequently more accepted than African cuisine. There are few Food and Nutrition studies that focus on African cuisine, despite how rich and diverse its ingredients and techniques are.[9,10] Similarly, there is a gap in the academic literature that further distances us from connecting with African and Brazilian cuisines, perpetuating the misconception that African and Afro-diasporic foods are unhealthy.

People from different regions of the African continent arrived in Brazil in the 16th century, during the period of enslavement. Through commercial trades, these people transformed local food systems through their culinary processes, using palm oil, okra, yam, gherkin, bananas, beans, shrimp, and other ingredients,[11-13] as well as through their methods of serving and consuming food. They also introduces traditional recipes like *vatapá*, *caruru*, and *acarajé*.[11,12]

Creativity and resourcefulness were key elements used by the diasporic Africans to maintain a diet similar to their traditional eating habits. In the absence of some items, they used their knowledge to replace them, forging Brazilian cuisine in the process. One example is the *farofa** *de azeite* (olive oil *farofa*), where the main ingredient is cassava flour — an indigenous ingredient — combined with palm oil in the preparation.[14] In this way, it is possible to find elements from African cuisine, not only in the preparation methods but also in the presence of its prominent ingredients in Brazilian food.[12,14,15]

It is important to consider that African Cuisine is very much related to the process of biointeraction,[16] which results from the relationship with local biomes, and the development of culinary techniques and social technologies, aiming to maximize ways to fully use food.

Each African country presents a unique and special way of growing and preparing their food. However, there are a few notable similarities in the composition of their dishes, techniques and ingredients. In the North African countries, couscous and *tahini* are very common. In West Africa, Jollof rice and cachupa (a stew of meat cooked with vegetables) are popular; while in East Africa, the use of fish, particularly Nile tilapia, is very common in many preparations.[17]

The presence of starch-rich, *in natura* food is an important feature in African cuisine, including ingredients such as rice, yam, and couscous, often served with vegetables, and sometimes cooked meats. Yam, in particular, is an important root used in culinary recipes, especially in stews preparation, combined with vegetables and spicy seasonings. Among legumes, *mancarra*, known as African peanut, is present in various preparations, such as side dishes, soups and sauces, not to mention cowpea, used in salads or broths. In terms of cereals, corn and sorghum are commonly utilized. Additionally, fruits and vegetables like coconut,

green banana (or plantain), and pumpkin are used in both sweet and savory preparations. Palm oil is frequently used as a fat base.[17]

In this context, the goal of this original article is to present the process of selecting, developing, and analyzing African culinary recipes, considering the ingredients, techniques, and technologies involved. The aim is to identify their potential for promoting healthy diets, using the *Guia Alimentar para a População Brasileira* (Brazilian Population Dietary Guidelines) as a healthiness parameter.

METHODS

The present investigation was conducted as part of one of the research lines of the *Culinafro* group, from the Multidisciplinary Center UFRJ-Macaé (Federal University of Rio de Janeiro, Macaé Campus). It uses the quantitative-qualitative approach, combining empirical information with numerical data analysis, to broaden the discussion on the topic.[18] In this particular case, we consider both the proximity to African recipes, their contexts and meanings, and the use of more precise materials and methods. The goal is to systematize and analyze the nutritional composition of recipes through mathematical calculations in the Preparation Technical Sheet.

Additionally, when classifying the foods used in African recipes, their level of processing was taken into consideration, as recommended by the NOVA classification system,[19] adopted by the *Guia Alimentar para a População Brasileira* (Brazilian Population Dietary Guidelines).[20] This research proposes a more subjective analysis, highlighting the food quality beyond their nutritional content, considering their relation to health.

In the previous phase of the production practice, an initial search was conducted on the Google platform about African foods, using the following combined terms: "country name" + "food" or "cuisine". As a result, 52 recipes from 27 African countries were randomly selected from official embassy and government websites, specialized blogs, and tourism portals. Up until the publication of this article, 18 recipes were prepared and tested, and their respective technical sheets completed, as presented in the following Chart 1.

Chart 1. List Of Selected Preparations, Their Respective Countries And Techniques Applied. 2023

Preparations	Country	Technique	Brief description
1 - Yellow Rice with Raisins	South Africa	Sautéed and Stewed	Sautéed rice with spices (saffron or turmeric), with raisins
2 - Bananas with Burundi Beans	Burundi	Stewed	Stewed beans with banana
3 - Berbere/Berbére	Eritrea	Grounded and Raw	Blended ground spices
4 - Digkobe	Botswana	Stewed	White corn stew with beans. Meat can be added.
5 - Banana Diongo	Angola	Roasted	Roasted banana covered in honey
6 - Lentil Stew	Eritrea	Stewed	Lentil Stew with carrots and pepper
7 - Falafel	Egypt	Fried or Roasted	Baked or Fried Chickpea dough

Chart 1. List Of Selected Preparations, Their Respective Countries And Techniques Applied. 2023 (Continues).

Preparations	Country	Technique	Brief description
8 - Chadian Roasted Chicken	Chad	Roasted	Whole Chicken Seasoned with Salt and Black Pepper, Oiled and then Roasted
9 - Funge	Angola	Porridge	Porridge or Dough with Corn Flour. Can Be Made with Cassava Flour
10 - Kachumbari	Kenya	Raw	Avocado Salad with Tomato and Onion
11 - Mafé	Senegal	Cooked porridge	Shredded Chicken with Peanut Cream
12 - Ouaddai	Chad	Raw or baked dough	Sweet Dough, Fried or Baked, Made with Cornmeal, Eggs, and Wheat Flour
13 - Ouagadougou	Burkina Faso	Raw dough	Sweet Dough Made with Cornmeal, Peanut, Ginger, and Sugar (Similar to *Cajuzinho*)
14 - Riz Gras	Burkina Faso	Sauteed and Stewed	Cooked Rice with Tomatoes
15 - Banana and Anana salad	Cameroon	Raw	Banana, Pineapple, Avocado, and Tomato Salad with Coconut Milk and Peanut Topping
16 - Scones	África do Sul	Baked dough	Bread Rolls Made with Wheat Flour, Eggs, Milk, and Sugar
17 - Coconut Noix Soup	Cameroon	Cooked cream	Creamy Potato Soup with Leeks and Freshly Grated Coconut
18 - Vatapá	Benin	Cooked cream	Porridge Made with Bread, Peanut, Cashew Nuts, Ginger, Onion, Garlic, Dried Shrimp, Coconut Milk, Palm Oil, and Salt

Source: Created by the authors

The next step was to elaborate a plan that included the acquisition of the food items, a schedule of activities indicating the dates, the recipes to be prepared and the researchers responsible for each process.

The acquisition of food was made through financial resources, based on prior research on supermarket websites in Rio de Janeiro, at the time the recipes were being developed.

In the next phase, known as the production practice phase, the preparation, cooking and finalization stages were executed, followed by photographic documentation. It is worth noting that this research is part of the African Cuisine project, involving seven team members who organized themselves to prepare the recipes during weekly or biweekly meetings. The preparation and characterization of the dishes happened at the university restaurant in *Universidade Federal do Rio de Janeiro, Campus Fundão* (Federal University of Rio de Janeiro, Fundão Campus). It is important to say that the preparation method adhered to the instructions from the original recipes, except in cases where alterations were necessary. In these cases, a note was made and transcribed into the Technical Preparation Sheet (TPS). Next, subjective sensory evaluations were made

to assess the sensory characteristics of each recipe, considering variables such as the presentation, the aroma, the taste and the texture. To wrap it up, photographic and video recordings were made.

Following that up, all data were transcribed into the TPS, that was formulated in Excel spreadsheets. Culinary indicators were calculated, such as: correction factor, gross and net weight, as well as nutritional analysis covering calories, macronutrients and micronutrients. For the NOVA classification, also included in the aforementioned spreadsheet, a number one (1) was used to indicate the presence of classifying ingredients and a zero (0) to indicate their absence. To better illustrate it, we present the recipes and the classification of their ingredients in Chat 2.

Chat 2. Food Classification According To Their Processing Degree, As Per The Nova Methodology.

Groups	Definition	Examplos
In natura or minimally processed food	*In natura* food is obtained directly from plants or animals, not suffering any alterations outside nature. If they go through minor alterations, they are called minimally processed.	Vegetables, greens, fruits, beans of all colors, milk, red and white meats, cornmeal, cassava, wheat, etc
Processed cooking ingredients	Products extracted from *in natura* food, or directly from nature, used to season and cook foods or preparations.	Salt, sugar, oils and fats.
Processed food	Products made by the industry, with salt or sugar added to an *in natura,* or minimally processed, food.	Canned foods, syrups, crystallized fruits, cheeses, breads made from wheat flour, yeast, water, salt, etc
Ultra Processed food	Industrial formulations made partially or wholly from substances extracted from foods, derived from food constituents, or synthesized in the laboratory	Cookies and snacks, ice creams, soft drinks and sodas, "instant" food, frozen or ready-to-eat items, etc.

Source: *Guia Alimentar para a População Brasileira* (Brazilian Population Dietary Guidelines).[18]

We would like to make it clear that the decision to use subjective sensory evaluation was made aiming to approximate the research to everyday home kitchens, where senses and personal bodily perception are highly valued.

It is also important to inform that this article was not submitted to the *Comitê de Ética em Pesquisa* (Research Ethics Committee), since it did not involve gathering human subjects data, or any identifiable information.

RESULTS

The recipes

Initially, 18 recipes were selected, since until the publication of this article, this was the number of recipes tested and analyzed, which included four sweet preparations and 14 savory. This information is presented in the following Chart 3, which provides a summary of the compositions of the tested recipes, in order to facilitate the understanding of the results..

Chart 3. Composition of the Tested and Analyzed Recipes According to the NOVA Classification - Nupens, 2024.

nº	Tested Recipes	*In natura* / MMP	Culinary Ingredient	Processed	Ultra Processed
1	Yellow Rice with Raisins (South Africa)	Rice Ground Cinnamon Turmeric	Salt Salted butter	0	0
2	Banana with Beans (Burundi)	Red Beans Plantain Onion Finger Chili/ Brazilian Chili Pepper	Soy Oil	0	0
3	Berbere/berbére (Eritrea)	Grounded Black Pepper Cayenne pepper Allspice Finger Chili/ Brazilian Chili Pepper Coriander seeds Ginger Saffron Dried parsley	0	0	0
4	Digkobe (Botswana)	Beans White Corn Beef Brisket	Soy Oil Salt	0	0
5	Banana Diongo (Angola)	Plantain Honey Ground Cinnamon	0	Salted butter	0
6	Lentil Stew (Eritrea)	Lentil Carrot Tomato Finger Chili/ Brazilian Chili Pepper Berbére	Soy Oil Salt	0	0

Chart 3. Composition of the Tested and Analyzed Recipes According to the NOVA Classification - Nupens, 2024. (Continues)

nº	Tested Recipes	*In natura* / MMP	Culinary Ingredient	Processed	Ultra Processed
7	Falafel (Egypt)	Chickpea Garlic Onion Parsley Coriander Seeds Fresh Coriander Ground cumin Sesame seeds Cayenne pepper	Salt Soy Oil	0	Baking powder
8	Frango assado chadiano (Chad)	Whole Chicken Ground black pepper	Salt Soy Oil	0	0
9	Funge (Angola)	Cornmeal Water	Salt	0	0
10	Kachumbari (Kenya)	Tomato Avocado Tahiti lime Red onion	0	0	0
12	Ouaddai (Chad)	Cornmeal Wheat Flour Egg	Granulated sugar Soy Oil	0	0
13	Ouagadougou (Burkina Faso)	Cornmeal Shelled roasted peanuts Grated ginger	Sugar	0	0
14	Riz Gras (Burkina Faso)	White rice Tomato Garlic Bay Leaf Onion	Soy Oil	Chicken Stock	0

Chart 3. Composition of the Tested and Analyzed Recipes According to the NOVA Classification - Nupens, 2024. (Continues)

nº	Tested Recipes	In natura / MMP	Culinary Ingredient	Processed	Ultra Processed
15	Banana and ananás Salad (Cameroon)	Prata banana Tomato Pineapple Avocado Coconut Milk Crushed roasted peanuts	0	0	0
16	Sopa noix de coco (Cameroon)	Potato Onion Leek Coconut Milk Black Pepper	0	Salted butter	0
17	Scones (South Africa)	Wheat flour Egg Milk	Granulated sugar Salt	Salted butter	Baking Powder
18	Vatapá (Benin)	Shelled roasted peanuts Coconut Milk Roasted cashew nuts Ginger Onion Garlic	Palm oil	French bread Dried shrimp	0

MMP = Minimally Processed .
Source: Created by the authors, 2023

Throughout the preparation of the recipes, few alterations were necessary regarding the ingredients, as most were readily available for purchase, which allows us to affirm that they are part of the local culinary. When modifications were made, they respected the similarities between the ingredients to preserve the essence of the recipe as much as possible, adapting to the ingredients availability in the city of Rio de Janeiro, without altering the preparation techniques.

The main preparation techniques identified in the recipes are Porridges and Dough, used in seven different recipes: falafel (Image 1), funge, mafé, ouaddai (Image 2), ouagadougou, scones and vatapá. Grinding and Maceration techniques appear in six: banana porridge, berbere, falafel, mafé, coconut soup (Image 3), and vatapá. Sautéed and Stewed are present in six preparations: yellow rice with raisins (Image 4), digkobe, lentil stew, funge, mafé and riz gras. At last, five Baked preparations: banana diongo, falafel, Chadian roasted chicken, ouaddai and scones.

Image 1. Falafel (Egypt)

Source: Created by the authors

Image 2. Ouaddai (Chadde)

Source: Created by the authors

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Image 3. Coconut Noix Soup (Cameroon)

Source: Created by the authors

Image 4. Yellow Rice with Raisins (South Africa)

Source: Created by the authors

Nutritional Composition Qualitative Assessment

The savory dishes preparations featured mainly plant-based ingredients (such as greens and fruits), which contributes to the intake of micronutrients and fiber. It was also included condiments (vinegars, paprika, oils, peppers, among others), herbs (basil, oregano, parsley, rosemary, sage, among others) and spices (ginger, cardamom, anise, juniper, cloves, cinnamon, among others). These ingredients can be considered functional foods due to their composition of substances such as natural pigments and antioxidants, which can help prevent chronic non-communicable diseases (NCDs).[21] Preparations where the main ingredient was meet (beef, poultry and seafood) or eggs accounted for approximately 42% from the total of dishes, highlighting the predominance of plant-based foods.

It was also noted that the use of saturated fat was low, favoring unsaturated fats (mono and polyunsaturated). The amount of butter, vegetable oil, or palm oil per recipe did not exceed two tablespoons, with the exception of two dishes, where the cooking method was frying - falafel and ouaddai.

Regarding the use of salt, the recipes, when specified, instructed the use by "a pinch" or "to taste", not determining a precise amount of the ingredient. In these instances, the group chose not to use it, as the recipes contained several seasonings that made the addition of salt unnecessary.

Assessment According to NOVA Classification

When analyzing the ingredients of each tested recipe according to the NOVA classification, it was possible to observe that all preparations used preferentially *in natura* or minimally processed ingredients. In total, 111 ingredients were analyzed, from which 86 (77,4%) were under the *in natura* or minimally processed category, and 25 (22,5%) were classified as culinary ingredients. It should be highlighted that none of the preparations tested used processed or ultra-processed foods at any stage of preparation.

Subject sensorial Assessment

The preparations were presented in a colorful and visually appealing way, featuring a variety of cuts. In terms of aroma and flavor, these stood out due to the combined use of condiments, herbs, and spices. These ingredients infused the dishes with sensations, offering olfactory and gustatory discoveries that expanded their potential for use in the future preparations. The textures were highly variable, ranging from solid and crunchy to creamy, soft, and liquid.

By activating the senses and considering flavor, texture, and aroma, the act of eating becomes even more enriching and pleasurable, considering that the more colorful the plate, the more nutritious the meal tends to be.

DISCUSSION

African cuisine techniques

Food is a form of communication that comprehends symbolic dimensions of ancestry, belonging, memory, and identity for individuals and communities. According to Franzoni,[22] culinary habits and techniques are a result of the ongoing interaction between people and their diverse cultures. Despite persistent attempts to erase the African influences in Brazil, the techniques and traditions brought through African diasporas have transcended generations, and their protagonism in Brazilian kitchens—whether in African rites or domestic settings—remains undeniable.

The tested preparations exhibit techniques and practices similar to those found in Brazilian domestic kitchens, especially in the quilombos of Rio de Janeiro, where Afro-ancestral knowledge has been preserved and transmitted through generations,[9] as exemplified below::

Porridge and dough techniques

The porridge* technique consists in mixing some type of flour with some type of liquid, such as water, milk or broth. The mixture is poured into a pan and stirred constantly with a large spoon - usually wooden one - on low heat, until a creamy consistency is achieved. [12]

This technique is widely used in domestic Brazilian culinary,[23] in the "santo's food"[14] and in the *quilombola* traditions.[9,24,25] Notable examples are savory or sweet *angu** and puréed cooked banana, present in different quilombola cuisines, highlighting the lasting influence of millennia-old African techniques in Brazilian culinary traditions.

Cornmeal porridge and angu are also among the most cited preparations in the kitchens of Black women in rural Rio de Janeiro.[23] These dishes align with the corn production period, valuing the local agriculture and keeping environmental balance. In this sense, they contribute strengthening traditional local cuisine and encouraging the consumption of a variety of regional foods, improving local economy.[24]

In this same direction, Costa[25] talks about *ubuntu* ethics, an inherent philosophy in Black traditional communities. In the African Cosmoperception, the *self* exists because the *other* also exists. Here, the human being is part of the cosmos, made up of vegetal, animal, mineral, and spiritual elements. In this sense, all existence beyond oneself is an extension of the self. Similarly, in biointeraction,[16] the human being interacts with the environment/territory of which they are a part of, in an interdependent relationship. Therefore, care takes place in the entirety, beyond the utilitarian logic of subsistence. In these communities, there is evidence that kitchens are formed from the relationship with yards, forests, and rivers. Techniques like porridges, stews and dough made from roots, beans, cereals and fruits are used to interact with the available food.

The porridge technique was also present in the main streets of the country, in the early 20th century, in preparations commercialized by Black female vendors, freed or working slaves, who sold them either to obtain income for the slaveholding households, for their own sustenance and/or to support others. They formed support networks like sisterhoods, Candomblé temples, and the so-called *zungus*, residences where parties and capoeira manifestations took place, but also where escaping enslaved hid.[26] There, angu was served to the urban enslaved people as a gesture of solidarity.

Grinding or maceration of grains/spices

Grinding is the procedure where a grain is crushed until it becomes powder. This process can be done using a mortar and a pestle, as Querino[12] points out: ground it in the mortar, sift it, and then flour is obtained."

The ancestral technique of processing grains and spices using a wooden mortar is a legacy from African peoples, introduced into the kitchens of the American continent, especially in Brazil.[27] This culinary heritage is used in familiar preparations, such as "crushing garlic", in making *farofas* and flours, sauces, pastes and in preparing homemade medicine. This grinding technique is also known as crushing, milling or pounding

Sauntéed and Stews

Yellow rice with raisins, banana with Burundi beans, dikgobe, lentil stew, funge, mafé and riz gras dishes may have different origins, but they share the use of sautéing and stewing technique as the base of their preparation. The sautéing technique is characterized by the addition of some oil/fat into a pan, followed by

the ingredients, that are stirred constantly until browned.This process enhances the food's color, flavor, and texture. For stewing, water is added to the sautéed mixture, the pan is kept covered and the heat low.

Sautéed or stewed preparations are part of the vast Afro-Brazilian culinary patrimony, as pointed out by the *Alimentos Regionais Brasileiros* (Brazilian Regional Foods),[28] and contribute to build a sense of appreciation for their affective and cultural memory. They are an important counterpoint to the transformations posed by the Food Industry expansion, that promotes high consumption of unhealthy fats, affecting the food and nutritional security of the population.[29,30]

Similar to the stewed preparations, roasted dishes are characterized by their cooking method. However, they differ in the use of dry heat, since roasting involves cooking in an enclosed environment where heat surrounds the food from all sides, promoting the concentration of extractive substances through dehydration. This method also facilitates the coagulation of proteins, decomposition of fats, dextrinization of starches, and caramelization of sugars, enhancing flavor, aroma, and texture.[31]

According to Levis-Strauss,[32] stewed food is prepared for intimate settings, destined to a small closed group. This food is shared with people closer to you, physically or affectively, such as family, friends or neighbors. In this sense, beyond matters of health, African stews open space to hospitality and commensality, where many people are invited to eat and socialize

African recipes nutritional and health composition

Even though African cuisine mainly utilizes *in natura* and minimally processed foods, its healthiness is frequently doubted. It is commonly said that African recipes make excess use of fats, sugar, salt and other ingredients.

Oliveira et al.[33] identified that the Brazilian population presents a low intake of fruits and greens, which reduces the levels of nutrients and bioactive compounds in their diet. However, the nutritional variety in African preparations contributes to a more balanced diet, rich in essential healthy elements, such as vitamins and minerals, important to prevent and control nutritional deficiencies, and to strength the immune system, among others benefits [34,35]

Besides, it is notable the reduced use of salt in the tested recipes: the lower sodium content is due to a higher use of herbs, spices, and seasonings. The presence of these seasonings, a strong feature of African cuisine, not only adds more taste, aroma and color to the dishes, but also offers cardiovascular benefits, since they help reduce the risks of hypertension and other chronic non-communicable diseases (NCDs),[21] due to the pigments and bioactive compounds in their structure.

Another relevant aspect of the preparations is related to the use of vegetable fats, such as palm oil, and a significant use of oilseeds (peanuts, cashews, sesame, among others), instead of animal fats. This characteristic interferes positively in the lipid composition of the preparations, considering these are unsaturated fats that enhance the fat profile of the diet. When allied with fiber intake, these fats help reduce cholesterol, triglycerides, mortality rate from heart diseases and the risk of developing colon cancer, among other benefits. .[36-39]

According to Meira et al.[40] research, *in natura* or minimally processed food contributes 68% of the fiber intake in the diet, through foods such as beans, cereals, fruits, roots, and tubers, reinforcing the healthy profile of the tested African recipes.

In the same direction, researches indicate that the preparation method can impact health promotion and the prevention of non-communicable chronic diseases, reducing the incidence of cardiovascular events, like atherosclerosis,[41] specially through the adoption of a diet low in saturated fats. In this case, by favoring sautéed and cooked preparations, adopting recipes from African cuisine into daily routine can be an ally both in promoting adequate and healthy eating and preventing more serious health issues.[41]

Therefore, African cuisine nutritional composition — that features predominant use of *in natura* ingredients, minimal use of salt, preference for vegetable fats and fiber in abundance — demystifies misconceptions about its healthiness, and highlights not only its rich gastronomic value, but also the significant contribution of these dietary practices to a balanced and health-promoting diet.

African Cuisine according to the NOVA classification

It is noteworthy that none of the 18 recipes tested here made use of ultra-processed foods. These foods are central to discussions about the influence of globalization on Brazilian eating habits, who are increasingly consuming these products. In addition to their low cost, they are hyper-palatable and, as a consequence, ultra-processed foods have great potential to replace *in natura* or minimally processed foods.[42-44]

It has been proved that these products are nutritionally unbalanced, due to their high level of sodium, saturated fat and sugar. Besides, they have several flavor enhancing additives, and can be associated to a higher risk of non-communicable chronic diseases, like diabetes, cardiovascular diseases and cancer, summing up nearly 57,000 deaths per year in Brazil.[42-44]

For many years health, nutrition and dietary orientations were guided by models that presented a very biologically oriented approach, categorizing food solely as sources of nutrients. This model defends the idea that foods with similar nutritional profiles belonged to the same class, regardless of their level of processing. Fresh meat and processed meat were in the same group as a source of protein, for example. Furthermore, it was believed that the relationship between health and diet could be explained solely by the nutritional composition of food.[45]

Even though models like this still dominate some spaces and sectors, they have become obsolete and unable to encompass the multifactorial extension of nutrition. It wasn't until 2009, when the article *"Nutrition and Health. The issue is not food, nor nutrients, so much as processing"*[45] was published, that a new perception gained space, where food is categorized by their degree of processing, broadening the debate on diet, nutrition, and health.

At first, the methodological tool named NOVA grouped foods into processed and unprocessed categories. These were: 1) Minimally processed foods; 2) Processed culinary ingredients; and 3) Ultra-processed foods.[44] Later, the *Núcleo de Pesquisas Epidemiológicas em Nutrição e Saúde* (Center for Epidemiological Research in Nutrition and Health) from the *Universidade de São Paulo* (University of São Paulo), assumed that many foods undergo some level of processing. As a result, the most recent version categorizes the foods according to the extension and the purpose of the industrial processing they go through, adding *in natura* foods to Grupo 1 and introducing a new group of food before the ultra-processed, known as the processed food group.[46,47]

It is important to emphasize that the most recent version of the Nova classification was used to analyze the African recipes here mentioned, since they are also used to guide the recommendation from the *Guia*

Alimentar para a População Brasileira (Brazilian Population Dietary Guidelines). The definitions and examples of each group are available in Table 3.

African cuisine recipes are an invitation for healthier eating habits, both individually and collectively

FINAL CONSIDERATIONS

The African recipes selected and prepared within the scope of this research are in agreement with the criteria and guidelines present in the Guia Alimentar para a População Brasileira (Brazilian Population Dietary Guidelines).

When working with any activities related to African and Afro-diasporic cultures we understand the importance of maintaining a critical stance to avoid reproducing stereotypical perceptions that contribute to cultural erasure. We consider that engaging with African cuisine and its contexts can work as a tool for health promotion, especially through a harmonious combination of quantitative and qualitative aspects, and can encourage the adoption of eating habits that value emotional and cultural memories, respecting African history and worldview perception.

Hopefully this work will serve as a reference for further research that highlights Afro-Brazilian cuisine as an adequate and healthy diet, within the Food and Nutrition field, filling existing gaps on this subject.

REFERENCES

1. Brasil. Ministério da Educação. Diretrizes curriculares nacionais para a educação das relações étnico-raciais e para o ensino de história e cultura afro-brasileira e africana. Brasília: Ministério da Educação; 2005. [Acesso 10 nov 2023]. Disponível em: https://download.inep.gov.br/publicacoes/diversas/temas_interdisciplinares/diretrizes_curriculares_nacionais_para_a_educacao_das_relacoes_etnico_racia

2. Santos BS. Para uma Pedagogia do Conflito. A Pedagogia do conflito revisitada contra o desperdício da experiência. Porto Alegre: Redes; 2009.

3. Costa RRS, Lima DSN, Silva GM, Rizzo TP, Pinto TJ. Culinária afro-brasileira: um sabor possível na educação de jovens e adultos. Cadernos Cenpec. 2019;9(1):75-99.

4. Costa RRS, Oliveira M F B, Rizzo TP, Rivas JC, Mendes KA, LIMA DSN, Assunção PCG, Silva GM, Fonseca AB. Projeto de extensão A culinária afro-brasileira como promotora da alimentação saudável no ambiente escolar - CulinAfro. In: Lourenço AEP, Bergold LB. Organizadores. Saberes e Experiências de Extensão em Promoção da Saúde 1ed; 2020. p. 63-79.

5. Cascudo LC. História do Rio Grande do Norte. 2 ed. Natal/Rio de Janeiro: Fundação José Augusto/Achiamé;1984.

6. Freyre G. Açúcar: uma sociologia do doce, com receitas de bolos e doces do Nordeste do Brasil. Rio de Janeiro: Global Editora; 2020.

7. Ferreira M. Comida, patrimônio e cultura: apontamentos sobre a feijoada carioca. Revista do arquivo geral da

cidade do Rio de Janeiro. 2018;(14):123-138.

8. Silva PP. Farinha, feijão e carne-seca: um tripé culinário no Brasil colonial. São Paulo: Editora SENAC; 2005

9. Damião J, Costa RRS; Lisboa CMP; Gonçalves ACT; Silva AS; Marinho J. Memórias e receitas das cozinhas dos quilombos do Maciço da Pedra Branca na cidade do Rio de Janeiro. 1 ed. Rio de Janeiro: Editora; 2022. [Acesso 12 dez 2023]. Disponível em: https://aspta.org.br/files/2023/02/Mem%C3%B3rias-e-Receitas-das-Cozinhas-dos-Quilombos-do-Maci%C3%A7o-da-Pedra-Branca-.pdf

10. Costa RRS. A feijoada da comunidade remanescente de quilombo Machadinha/RJ: para pensar o mito da democracia racial. In: Costa RRS, Castro MLL, Fonseca AB (Orgs.). Tempero de quilombo na escola: Experiências de extensão do projeto CulinAfro (UFRJ-Macaé). 1 ed. Rio de Janeiro - RJ: Universidade Federal do Rio de Janeiro, Instituto NUTES de Educação em Ciências e Saúde; 2021. Volume 1. p. 33-50. [Acesso 10 nov 2023]. Disponível em: https://neab.uff.br/wp-content/uploads/sites/416/2021/10/CulinAfro_Livro-versa%CC%83o-final.pdf

11. Silva HK. A cultura afro como norteadora da cultura brasileira. Perspectiva. 2014;38(144):25-35.

12. Querino MR. A arte culinária na Bahia. 3ª ed. São Paulo: Editora WMF Martins Fontes; 2014.

13. Santos MA. Contribuição do negro para a cultura brasileira. Temas em Educação e Saúde. 2016;12(2):217-229.

14. Alves LC, Carvalho MCVS, Ferreira FR. Onjé: candomblé, cozinha e axé. In: Oliveira MASA, Vanzella E, Brambilla A. Organizadores. Processos sociais: sistemas culinários em contexto de ressignificações, comensalidade, processos discursivos e religiosos. João Pessoa: Editora do CCTA; 2018. p. 341-382.

15. Vespucci AC. A evolução da cozinha no Brasil. Brasil: Empresa das Artes Projetos e Edições Artísticas; 1997.

16. Santos AB. Colonização, quilombos, modos e significações. Brasília: INCTI/UnB; 2015.

17. Okech RN, Timothy DJ. Culinary traditions and heritage foods in Africa. In: Cultural heritage and tourism in Africa. New York: Taylor and Francis; 2023.

18. Schneider EM, Fujii RA, Corazza MJ. Pesquisas qualiquantitativas: contribuições para a pesquisa em ensino de ciências. Revista Pesquisa Qualitativa. 2017;5(9):569-584. [Acesso 18 dez 2023]. Disponível em: <https://editora.sepq.org.br/rpq/article/download/157/100>.

19. Monteiro CA, Levy RB, Claro RM, de Castro IRR, Cannon G. A new classification of foods based on the extent and purpose of their processing. Cad Saúde Pública 2010;26(11):2039-2049.

20. Brasil. Ministério da Saúde. Secretaria de Atenção à Saúde. Departamento de Atenção Básica. Guia alimentar para a população brasileira. 2. ed., 1. reimpr. Brasília: Ministério da Saúde; 2014. [Acesso 15 out 2023]. Disponível em: https://bvsms.saude.gov.br/bvs/publicacoes/guia_alimentar_populacao_brasileira_2ed.pdf.

21. Barreto APM. Bases e princípios da nutrição funcional. In: Dolinsky, M. Organizadora. Nutrição funcional. São Paulo:

Roca; 2009. p. 1-36.

22. Franzoni E. A gastronomia como elemento cultural, símbolo de identidade e meio e integração. Dissertação. Lisboa: Faculdade de Ciências Sociais e Humanas, Universidade Nova de Lisboa; 2016. [Acesso 15 out 2023]. Disponível em: https://run.unl.pt/bitstream/10362/19832/1/_ELISA%20FRANZONI%20-%20A%20gastronomia%20como%20elemento%20cultural_%2C%20s%C3%ADmbolo%20de%20identidade%20e%20meio-.pdf

23. Lima DS do N, Costa RR da S, Rizzo TP. Culinária, histórias e educação popular: aprendendo das cozinheiras negras macaenses. Revista de Educação Popular. 2021;20(3):252–274. [Acesso 16 out 2023]. Disponível em: https://seer.ufu.br/index.php/reveducpop/article/view/60445.

24. Bezerra EK. Cozinha de quilombo: cultura, patrimônio, ancestralidade. Garanhuns: IFPE; 2022.

25. Costa RRS. Mulheres negras, ciência e cozinha: a encruzilhada de potências. In: Anjos MB, Silva EM, eds. Ensino, diversidade cultural e de colonização. 2 ed. Rio de Janeiro: Editora Imperial; 2021. p. 18-25.

26. Machado TS. Um pé na cozinha: um olhar sócio-histórico para o trabalho das cozinheiras negras no Brasil. São Paulo: Fósforo; 2022. 400 p.

27. Carney J, Marin RA. Aportes dos escravos na história do cultivo do arroz africano nas Américas. Estudos sociedade e agricultura. 1999; 7(1):113-133.

28. Brasil. Ministério da Saúde. Secretaria de Atenção à Saúde. Departamento de Atenção Básica. Alimentos regionais brasileiros. 2. ed. Brasília: Ministério da Saúde; 2015. [Acesso 15 out 2023]. Disponível em:https://bvsms.saude.gov.br/bvs/publicacoes/alimentos_regionais_brasileiros_2ed.pdf.

29. Monteiro CA, Levy RB, Claro RM, Castro IR, Cannon G. Increasing consumption of ultra-processed foods and likely impact on human health: evidence from Brazil. Public Health Nutr 2011;14(1):5-13. https://doi.org/10.1017/S1368980010003241

30. Monteiro CA, Moubarac JC, Cannon G, Ng SW, Popkin B. Ultra-processed products are becoming dominant in the global food system. Obes Rev 2013;14:21-8.

31. Ornelas LH, Shizuko K, Verruma-Bernardi MR. Técnica dietética: seleção e preparo de alimentos. 8ª ed. São Paulo: Editora Atheneu; 2007.

32. Lévi-Strauss C. O Cru e o cozido mitológico. Brasiliense; 1991.

33. Oliveira N, Santin F, Paraizo TR, Sampaio JP, Moura-Nunes N, Canella DS. Baixa variedade na disponibilidade domiciliar de frutas e hortaliças no Brasil: dados das POF 2008-2009 e 2017-2018. Ciênc saúde coletiva [Internet]. 2021 Nov;26(11):5805-16. https://doi.org/10.1590/1413-812320212611.25862020.

34. Proença RPC, Sousa AA, Hering B, Veiros MB. Qualidade nutricional e sensorial na produção de refeições. 3 ed.

Florianópolis: UFSC; 2008. 221p.

35. Duarte RC. Estudo dos compostos bioativos em especiarias (*Syzygium aromaticum L, Cinnamomum zeylanicum Blume* e *Myristica fragans Houtt*) processadas por radiação ionizante [Tese]. São Paulo: Universidade de São Paulo; 2014.

36. Kim Y, Je Y. Dietary fiber intake and mortality from cardiovascular disease and all cancers: A meta-analysis of prospective cohort studies. Arch Cardiovasc Dis. 2016;109(1):39-54. https://doi.org/10.1016/j.acvd.2015.09.005.

37. McRae MP. Dietary fiber is beneficial for the prevention of cardiovascular disease: An umbrella review of meta-analyses. J Chiropr Med. 2017;16(4):289-299. https://doi.org/10.1016/j.jcm.2017.05.005.

38. Ma Y, Hu M, Zhou L, Ling S, Li Y, Kong B, Huang P. Dietary fiber intake and risks of proximal and distal colon cancers: A meta-analysis. Medicine (Baltimore). 2018;97(36):e11678. https://doi.org/10.1097/MD.0000000000011678.

39. Raymond JL, Couch SC. Tratamento nutricional clínico da doença cardiovascular. In: Mahan KL, Raymond JL, Escott-Stump S. organizadores. Krause: Alimentos, Nutrição e Dietoterapia. 13 ed. Amsterdam: Elsevier; 2013. p. 130-195.

40. Meira RCF, Capitani CD, Filho AAB, Barros MBA, Assumpção A. Contribuição dos diferentes alimentos segundo a classificação NOVA para a ingestão de fibras alimentares em adolescentes. Ciênc. saúde coletiva. 2021; 26 (08):3147-3160 https://doi.org/10.1590/1413-81232021268.09592020.

41. Scherr C, Ribeiro JP. Influência do modo de preparo de alimentos na prevenção da aterosclerose. Rev Assoc Med Bras [Internet]. 2013;59(2):148-54. [Acesso 12 dez 2023]. Disponível em: https://www.scielo.br/j/ramb/a/53cbZwFKwJ4y6hTQTsJJgqr/

42. Monteiro CA, Cannon G, Levy RB, Moubarac JC, Louzada ML, Rauber F, et al. Ultra-processed foods: what they are and how to identify them. Public Health Nutr 2019; 22:936-41.

43. Nilson E. Alimentos ultraprocessados e seus riscos à cultura alimentar e à saúde. Rev. Alim. Cult. Amer [Internet]. 2023;3(2):133-46. [Acesso 12 dez 2023]. Disponível em: https://raca.fiocruz.br/index.php/raca/article/view/145

44. Nilson EAF, Ferrari G, Louzada MLC, Levy RB, Monteiro CA, Rezende LFM. Premature deaths attributable to the consumption of ultraprocessed foods in Brazil. Am J Prev Med. 2023 Jan;64(1):129-136. https://doi.org/10.1016/j.amepre.2022.08.013. Epub 2022 Nov 7. PMID: 36528353.

45. Monteiro CA. Nutrition and health. The issue is not food, nor nutrients, so much as processing. Public Health Nutr. 2009;12(5):729-31. https://doi.org/10.1017/S1368980009005291. PMID: 19366466.

46. Monteiro CA, Cannon GA, Levy RB, Moubarac JC, Jaime P, Martins AP, Canela D, Louzada M, Parra D. NOVA. The star shines bright. Food classification. Public Health] World Nutrition, 2016;7(1-3):28-38.

47. Monteiro CA, Levy RB, Claro RM, Castro IRR, Cannon GA new classification of foods based on the extent and purpose of their processing. Cad Saúde Pública, 2010 26(1):2039-2049. https://doi.org/10.1590/S0102-311X2010001100005.

Contributors

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