

# Food culture, lifestyle & traditional food festivals: a narrative on the public health relevance of the traditional yam recipes in the Afikpo New Yam Festival

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## Abstract

Food culture has over the years remained the centre for socio-cultural linkages among people in a community, with generational transmission giving birth to cultural affinity and cultural heritage. Besides its primary aim of nourishment, enhancement of growth and body functions, it also defines religious and traditional belief systems. Several communities, tribes and nation states such as China, Italy, Japan, India, Europe and Americas, have been associated with unique food cultures. In North and West African countries like Tunisia and Nigeria respectively, food cultures abound. In South-East Nigeria, the Igbo tribe conduct yam rituals as food cultural festivals. Afikpo, a community in the Igbo-speaking part of Nigeria, celebrates an annual yam ritual called *Ikeji* Festival, part of which, as the new yam is harvested, is preparation of traditional yam recipes. This article reviews the nutritional content of the various traditional yam recipes consumed in such ceremonies and the associated drinks. A literature search revealed that yam, an energy-giving food with a carbohydrate content of 15 – 40.6%, could be prepared with vegetables, legumes, fish, meat, melon seeds, red palm oil, African black beans, pumpkin fruit pulp, eggplants, African oil bean, *piper guineense*, plantain, *solanum americanum*, *vitex donians*, *pterocarpus santalinoids*, which are sources of minerals, vitamins, antioxidants, dietary fibres and polyunsaturated fatty acids, all of which have been documented as beneficial in the management of chronic diseases. Alcoholic and various soft drinks are consumed with the yam recipes during the ceremony and there are possibilities that if awareness is not created, overindulgence could constitute to abuse.

## Background

Food is an instrument through which the culture of a people can be explored. The type of food consumed, the cultural historical evolution of the food, its processing and preparation, the consumption etiquette and, when others are involved, the person that leads in the consumption are some details that reveal the cultural depth of the food culture of a people (Fanzo, 2015; Chege, 2015). Food remains clearly the means of cultural and ethnic connections of a people and hence can form the link to cultural affiliations and identity (Igor, 1987; Counihan, 2012).

Religion is closely interwoven with food choices and culture, hence the prominent place of food in religious ceremonies, resulting in various and varied ways of preparing and time of consuming foods -- or outright food taboos based on religious commandments (Simoons, 1994; Simoons, 1998; Buruiana, 2003). Food therefore establishes enduring bonds within families, communities, regions and countries.

This is true for the ethnic groups of Igbo, Yoruba and Hausa in Nigeria, each having clear differences in the kind of food they consume, making clear delineations of preferred and unacceptable food choices, food pattern, ancestral origin and regional definition (Meyer-Rochow, 2009). Afikpo, a Local Government Area in Ebonyi State, South East, Nigeria, is among the Igbo speaking parts in Igbo Land that have rich food culture, interlaced with their cultural belief, practices and religion, which have survived generational transmission and cultural infusion (infiltration of an indigenous culture by a foreign culture) (Agwo, 2013; Unya, 2022; Ukpokolo *et al.*, 2018). Located 5°52'N 7°57' E, the community is a hilly area lying at a low altitude, between an open grassland and tropical forest, with an average annual rainfall of 2,000 mm, an annual population growth of 2.5%, a population of 881,611 in 2021, an area of 240km<sup>2</sup> (<https://en.wikipedia.org>). It has a rich cultural heritage, with the New Yam Festival celebrated as one of the peak traditions among its other festivals like the Okumkpo festival (Ikegwu *et al.*, 2017).

## Food Culture

Food remains a generational gift that acts to identify people`s heritage, social and family bonds and values (<https://study.com/academy/lesson/the-connection-between-food-culture-society.html>). Hence it is a cultural identity and, as a result, is governed by the cultural prescriptions for how it should be cultivated, harvested, stored, prepared, apportioned and consumed (Wahlqvist & Lee, 2007). It is used in special occasions as a social ritual and can be prescribed as a religious ritual (Kittler & Sucher, 2011). It can be shared among family members, guests and neighbours, across ages and sex (Fox, 2003).

Such cultural heritage can be diluted through annihilation of part or all of the population, as occurred during territorial conquests, colonization or introduction of cultures felt to be superior, leading to many African countries having elaborate dietary changes at household levels (Oniang`o *et al.*, 2003). However, such cultural infusion only occurs to the extent that the conquered or indigenous people accept the new trends, mix them with their original culture, or preserve completely their original culture as their real identity. A global examination reveals still indigenous varieties of dishes and food-related traditions (<https://www.slofoodbank.org/food-as-culture/#:~:text=Food%20is%20an%20essential%20part,heritage%2C%20history%2C%20and%20values>), including the *Al-Mansaf* of Jordan (Shunnaq *et al.*, 2021), *Harissa* of Tunisia (Othmani, 2021), the traditional tea processing techniques in China (Li *et al.*, 2023), the *borscht* culture of Ukraine (Shparaga & Smishchenko, 2019), the *Plov* and *Beshbarmak* culture of Uzbekistan (Alymbaeva, 2020) and the coffee culture in Qatar, Oman and United Arab Emirates (Maspul, 2021). There is also the pasta and pizza culture of Italy (Ingrassia *et al.*, 2020), the *Sushis* and *Sashimis* of Japan (Aitintzoglou, *et al.*, 2016), the Mediterranean diet of Europe (Sikalidis *et al.*, 2021) and the hamburger of the Americans (<https://www.labeef.org>). Immigrants to some of these countries have also infused their cultures into some of these climes, resulting in cultural blending. Cuisines and traditions like Cajun and creole in the United States of America are products of such blending (Folse, 2024).

Among the Igbos of South-Eastern Nigeria, yam is regarded as the king of all crops, and thus, it is the only one that is ritualized (Iroegbu, 2010). Yam comes as a black or brownish peel covering a large tuberous root which can be white, yellow, or orange inside, can taste

sweet, and grows to assume many shapes and sizes (Adepoju, 2012). In Afikpo, yam is also celebrated with a festival called the *Ikeji* (New Yam) Festival as a mark of respect for the royal role the plant food plays in the nourishment and its cultural value. Its celebration marks the end of the harvest season and the commencement of the next farm work cycle (Agwo, 2013; Unya, 2022; Ukpokolo *et al.*, 2018).

## The New Yam Festival in Afikpo

From oral history and Afikpo cultural tradition, yam was a precious crop that involved the sacrifice of a human life. In a native cultural historian's account (Agwo, 2013; <https://ebonyiface.com>), a woman named, Nne Oriete Imomo (sister to Igbo Ukwu, the acclaimed founder of Afikpo), never liked "*Kpokpokume*," the wild bitter yams and hence had to commune with God Almighty and subsequently offered a sacrifice of a male child (son of Aliocha Imaga Orie, one of the seven daughters in-law), to the yam god, before her request for sweet yam was granted. As a mark of gratitude for the answered prayer, she was advised to accord great respect to the yam, hence the annual yam rituals.

The preparation for *Ikeji* starts in July, seven or eight traditional calendar weeks (*Izu essa*) for the festival every year, when a dance (*Egwu Imo*) is performed. In this preparation, the maidens from the community of Enohia Nkalu will pass a night at Ohia Eketa forest just a day before a dance. Within the seven traditional market days (*Izu essa*), a delegation of the Elders council (*Horri & Essa*) will pay a visit to Enohia Nkalu's Elders for possible date for the new yam festival, following which a large council of elders meets in a solemn conference, "*Ngidi-Ngidi*," to deliberate on the possible date for the *Ikeji* festival (Agwo, 2013; <https://afikpoonline.com>). The *Egwu Imo* dance is performed for the yam chief priest, *Eleri*, who then carries out a major spiritual assignment, the breaking of kola-nut, *Eleri Iwa Oji*, signifying permission for farmers to harvest their new yam. In view of the fact that traditionally, the harvest and celebration of the new yam heralds the beginning of a new traditional calendar year for the Afikpo communities, a candle night is held in major traditional village squares (*Ogo*) in the entire Afikpo, bidding good-bye to the farming year, welcoming the new traditional farm-year, and praying for God's blessings with bountiful foods in the incoming new traditional year (Agwo, 2013; <https://afikpoonline.com>).

The morning following the candle night becomes the *Ikeji* festival day. Christian families take some of the harvested yams or tubers purchased from the market to church for blessings, while traditionalists offer prayers to gods for the repose of souls of their ancestors and for bountiful harvests. It is after this that families can prepare the yam in various forms for consumption, with pounded yam eaten with special sauce and soup, a white spiced soup with baked *egusi*--stock fish, dry fish and chicken--creating *ohe sarara*, as the main dish. Exchanges of visits and gifts, especially yam, stock fish and chicken are extended to family relations, friends, and well-wishers (Agwo, 2013; <https://afikpoonline.com>). Guests are invited from far and nearby prominent families, while some community development unions and associations use the days around the festival for meetings and consultations. A day following the *Ikeji* festival, inter-community wrestling competitions are held for men while the women dressed in beautiful traditional customs perform dances for winners of the competitions. At the end of the wrestling sessions, the host community goes into a lavish hosting of the visiting community with traditional delicacies and associated drinks, usually palm wine, beer and whiskey (<https://afikpoonline.com>, <https://ebonyiface.com>).

## Traditional Yam Recipes in Afikpo and their Health Implications

Yam's nutritional value includes: moisture: 50 to 78%, carbohydrate: 15 to 40.61%, protein: 0.087 to 8.7%, crude fat: 0.3 to 2.7%, crude fibre: 0.3 to 3.8%, and ash: 0.5 to 2.6% (Adepoju, 2012; Wang *et al.*, 2023). In Nigeria, boiled yam is usually consumed with palm oil, pepper sauce, or any preferred sauce (Adepoju, 2012). Boiled yam can be mashed with palm oil, porridge served with stew; or pounded with a traditional mortar and pestle to create a thick starchy paste known as pounded yam, eaten with traditional sauces such as *egusi* and palm nut soup.

Afikpo has various traditional recipes of preparing yam. One may simply boil yam and eat it with drinking water, or fresh red palm oil. It may be cooked as yam porridge, hot yam peppered soup, yam with beans, yam with cowpea, yam with pumpkin vegetable and *ugba* delicacy. It can also be boiled and eaten with pumpkin pulp, some other leaves (*Ewa*, *Uchakuru*, *uturukpa*) or consumed as pounded yam with rich soup varieties known in the native parlance as *Ohe Sarara*, *Ohe Egburuegbu*, *Ohe manuiko*, *ohe ahu* etc. In all of these recipes, the natives enjoy it as traditional delicacies. In Table 1, the various traditional yam recipes and their health benefits have been listed.

Studies have documented the nutritional values of some of the common ingredients: red palm oil (Absalome, *et al.*, 2020), African oil beans (Akinlabu *et al.*, 2019; Ogueke *et al.*, 2010), egg (Puglisi & Fernandez, 2022), plantain (Amadi *et al.*, 2021), Fish (Chen *et al.*, 2022), pumpkin pulp (Chuwa & Dhiman, 2023; ElKatib & Muhieddine, 2020), vegetables (Ebabhi & Adebayo, 2022; Umerah, *et al.*, 2019), melon seed (Enujiugha, *et al.*, 2022), cowpea (Jayathilake *et al.*, 2018), beans (Mullins & Arjmandi, 2021), black plum leaves (Fatou, *et al.*, 2022), nightshade leaves (Hassen & Umar, 2008). Hence, when the already bioactive constituents and nutritious yam (Hongsprabhas, *et al.*, 2024; Wang, *et al.*, 2023; (<https://medicine.yale.edu/news/yale-medicine-magazine/article/whats-in-a-yam-clues-to-fertility-a/>), is prepared with these aforementioned ingredients, nutritious recipes are obtained.

The high gross energy content of yam explains why it serves as a staple source of energy in Nigeria (Adepoju, 2012). The most common cooking methods of white yam are boiling, frying and roasting. Another method of consumption is to sun-dry parboiled yam pieces which is then milled into a light-brownish powder when dry. Pre-treatment of yam is very beneficial (Quaysan, *et al.*, 2021). The light-brown powder can be prepared with boiling water to create a thick brown starchy paste known as *amala* which is consumed with local soups and sauces. The high frying temperature affects the colour of the yam chips but this processing method significantly improved the crude protein, lipid and gross energy content compared to the raw sample. Roasting significantly increases its crude protein and lipid value as well as slightly increasing the carbohydrate and gross energy content compared to the raw yam, which is very low in crude lipid, crude fibre and protein, moderate in ash content, and high in moisture, carbohydrate and gross energy content (Adepoju, 2012). Soaking/blanching of yam in water reduces the sugar content and hence acrylamide formation during frying or roasting (Quaysan, *et al.*, 2021).

Pounding yam brings an improvement in the crude lipid, crude fibre, and ash content of the processed foods compared with raw yam. This improvement is more significant if yam is pounded with its boiling water, as this leads to increase in crude protein, lipid, ash and gross energy compared with all other processed forms of the food, and retains more of the nutrients than the one pounded with cold water. This is an indication that some of these nutrients leached into the cooking water, which is usually discarded (Adepoju, 2012).

Cooking yam flour to *amala* results in significant increases in its crude protein, lipid, fibre, and ash; with a reduction in its energy content. In terms of mineral content, raw white

yam is very high in sodium, potassium, phosphorus and zinc, moderate in iron, but low in calcium and magnesium. Processing yam into various products results in significant reduction in all mineral content to varying degrees (Adepoju, 2012). The low iron and magnesium content can be overcome by adding vegetables and legumes such as black beans (*ekidi*) and palm oil (Absalome, *et al.*, 2020; Jayathilake *et al.*, 2018; Ebabhi & Adebayo, 2022; Umerah, *et al.*, 2019). Yam has a carbohydrate content of about 15-41% depending on the cultivar and variety (Adepoju, 2012; Wang *et al.*, 2023). Pre-treatment processing methods such as wet-cooking the yam with the peels intact, and blanching/soaking the yam before dry-cooking (frying and roasting) are methods employed to reduce deleterious health effects (Quaysan, *et al.*, 2021). Wet-cooking with intact yam peels decreases the glucose content and therefore is desirable for diabetic patients who with lower quantity of such yam plus legumes and vegetable, can enjoy yam without reasonable health risks. Frying results in the formation of acrylamides, which are neurotoxic and carcinogenic, besides the antioxidant properties resulting from the products of mallard's reaction (Quaysan, *et al.*, 2021). To mitigate the formation of acrylamides during dry-cooking, blanching/soaking is advised, to reduce the glucose concentration in the yam in order to decrease formation of such acrylamides. The pre-soaking time range for effective result is between 12 – 24 hours, while the blanching (also called scalding is mild heat treatment usually in boiling water or steam for a short time, followed by quick thorough cooling in very cold or ice water) time is for 1-5 minutes (Quaysan, *et al.*, 2021).

## Associated Consumption of Drinks during the Festival and their Health Implications

### Consumption of Yam Recipes with Alcoholic Drinks

Drinking alcohol in any amount carries a health risk (Rehm, 2011; Ediomu-Ubong, 2018). While the risk is low for moderate intake, it goes up as the amount taken increases. Many people drink alcohol as a personal preference, during social activities, or as a part of cultural and religious practices. Moderate drinking for healthy adult women, refers to intake of not than one drink and for healthy adult men, not more than two drinks, where one drink equals 10ml or 8g of pure alcohol, which is around the amount of alcohol the average adult can process in an hour (ICAA, 1988). Heavy drinking, on the other hand, means intake of more than four drinks on any day or more than 14 drinks a week, for a healthy adult man, and for women, more than three drinks on any day or more than seven drinks a week. Binge drinking is behaviour that raises blood alcohol levels to 0.08%, which occurs when one consumes four or more drinks within two hours for women and five or more drinks within two hours for men (Jensen, *et al.*, 2002; ICAA, 1988; Naimi *et al.*, 2007; <https://www.nhs.uk/live-well/alcohol-advice/calculating-alcohol-units/>; <https://www.healthline.com/health/how-long-does-alcohol-stay-in-your-system#fa-qs>; <https://www.niaaa.nih.gov/alcohol-health/overview-alcohol-consumption/moderate-binge-drinking>). Intake of high dose of alcoholic drinks can be harmful to various organs of the body ([https://www.who.int/health-topics/alcohol#tab=tab\\_3](https://www.who.int/health-topics/alcohol#tab=tab_3)).

Palm wine contains about 4 - 6% alcohol and, while, again, the alcohol is harmful, such drinks in moderation can be protective of the cardiovascular system and healthy for diabetics because of the products of fermentation (Oluwole *et al.*, 2023; Mgbodile & Nwagu, 2023). However high intake of palm wine, can raise alcohol level in the body and cause cardiovascular and other body organ damage.

**Table 1. Some popular traditional yam recipes in Afikpo/Edda & their health benefits**

S/N	Some Popular Yam Recipe in Afikpo & Edda	Additional Major Food Sources	Nutritional Facts / Composition	Health Benefits	References
1	Yam (Boiled, Roasted, Fried)	Yam ( <i>Dioscorea alata</i> )	Potassium, manganese, vitamins, fibre, steroidal saponins, flavonoids, polyphenols	Source of energy, fertility boost, antioxidants, management of some metabolic diseases	Wang <i>et al.</i> , 2023; Hongsprahbas <i>et al.</i> , 2024
2	Yam + Fresh Red Palm Oil ( <i>Ji ya Manu nri</i> )	Fresh Red Palm Oil ( <i>Elaeis guineensis</i> )	50% unsaturated fatty acids, carotenoids and vitamin E, Phenolics, Phytosterols	Prevents Diabetes, Obesity, cancers. Excess consumption can raise blood triglycerides with possible cardiovascular disease	Absalome <i>et al.</i> , 2020
3	Yam + African Black Beans / Cowpeas (Ekidi) ( <i>Ji Ekidi</i> )	African Black Beans / Cowpeas ( <i>Vigna unguiculata</i> )	High in protein, polyphenols, flavonoids, anthocyanins, high in dietary fibres, low in fat,	Anti-diabetic, anti-cancer, anti-hyperlipidaemic, anti-inflammatory and anti-hypertensive	Jayathilake <i>et al.</i> , 2018
4	Yam + Beans ( <i>Ji ya Agwa</i> )	Beans ( <i>Phaseolus vulgaris</i> )	High in protein, carbohydrates, dietary fibres, beneficial short-chain fatty acids, minerals and vitamins, phenolic compounds	Anti-diabetic, anti-cancer, cardioprotective, anti-hyperlipidaemic, anti-inflammatory	Mullins & Arjmandi, 2021
5	Yam + Pumpkin Fruit Pulp ( <i>Enyu</i> ) ( <i>Ji ya Enyu</i> )	Pumpkin Fruit Pulp ( <i>Cucurbita moschata Duchesne</i> )	High in lipids, dietary fibres and proteins, carotenoids, iron, vitamin C, vitamin E, calcium, potassium, phosphorus and magnesium. Phytosterol is high.	Prevents osteoporosis, hypertension, diabetes mellitus, anti-cancers	El Khatib & Muhieddine, 2020; Chuwa & Dhiman, 2023.

6	Yam + Pumpkin Vegetable ( <i>Ji ya Ekwukwo nri</i> )	Pumpkin Vegetable ( <i>Cucurbita pepo</i> )	Rich in vitamin C, potassium, vitamin A, beta-carotene, fibre	Lowers blood pressure, and risk of heart diseases, reduces cancers, lowers risk of eye diseases, other chronic diseases, anti-obesity	Pem and Jeewon, 2015; Ebabhi & Adebayo, 2022
7	Yam + Egg Plant (Ibere) ( <i>Ji ya Ibere</i> )	Eggplant ( <i>Solanum melongena</i> )	Fiber, fat, protein, magnesium, potassium, copper, vitamin C and vitamin B6	Lowers blood pressure, and risk of heart diseases, reduces cancers, lowers risk of eye diseases, other chronic diseases, anti-obesity	Pem and Jeewon, 2015; Ebabhi & Adebayo, 2022
8	Yam + African Oil Bean (Ugba) + Vegetable	African Oil Bean ( <i>Pentaclethra macrophylla</i> ) (Ugba)	High in dietary fibres, protein, potassium, Iron, calcium, phosphorus and magnesium, vitamins and oil and phytochemicals like flavonoids	Antioxidant, antimicrobial, immune boosting	Ogueke <i>et al.</i> , 2010; Akinlabu <i>et al.</i> , 2019
9	Yam + Dry Fish Pepper Soup ( <i>Ji mini oku</i> )	Dry Fish	High in protein, polyunsaturated fatty acids, potassium, vitamin B and C, magnesium and iron	Antioxidant, anti-inflammation, wound healing, neuroprotection, cardio-protection and hepatoprotection	Chen <i>et al.</i> , 2022
		Uzizza ( <i>Piper guineense</i> )	High content of Vitamin C and Vitamin E, Protein, dietary fibres and essential oil	Lowers blood pressure, and risk of heart diseases, reduces cancers, lowers risk of eye diseases, other chronic diseases, anti-obesity	Pem and Jeewon, 2015; Ebabhi & Adebayo, 2022
10	Yam + Plantain ( <i>Ji ya Une</i> )	Ripe Plantain ( <i>Musa paradisiaca</i> )	High in carbohydrate, dietary fibre, potassium, vitamin C, magnesium,	Cardioprotective, maintains body fluid balance, lowers blood cholesterol level.	Amadi <i>et al.</i> , 2021

			and iron. It also contains protein		
11	Yam Porridge ( <i>Ji Idi minioku / Ipor</i> )	Spices, Dry Fish, Cray fish,	High in Protein, Polyunsaturated fatty acids, potassium, Vitamin B and C, Magnesium and Iron	Antioxidant, anti-inflammation, wound healing, neuroprotection, cardio-protection and hepatoprotection	Chen <i>et al.</i> , 2022
		Tomatoes ( <i>Solanum lycopersicum</i> )	A major source of lycopene, an antioxidant, protein, carbohydrate, dietary fibre, Vitamin K, B and E	Lowers blood pressure, and risk of heart diseases, reduces cancers, lowers risk of eye diseases, other chronic diseases, anti-obesity	Ebabhi & Adebayo, 2022; Pem and Jeewon, 2015
12	Yam + Egg Sauce	Egg	High quality protein, folate, vitamins A, D, B and E, Iodine Iron and Choline	Anti-cancer, antimicrobial, improves sight, reduces malnutrition, protects against sarcopenia	Puglisi & Fernandez, 2022
13	Yam + Tomatoes sauce	Tomatoes ( <i>Solanum lycopersicum</i> )	A major source of lycopene, an antioxidant, protein, carbohydrate, dietary fibre, Vitamin K, B and E	Lowers blood pressure, and risk of heart diseases, reduces cancers, lowers risk of eye diseases, other chronic diseases, anti-obesity	Pem and Jeewon, 2015; Ebabhi & Adebayo, 2022
14	Yam + Ewa / Uchakuru / Uturukpa ( <i>Ji agworuagwo</i> )	Ewa ( <i>Solanum americanum</i> ) / Uchakuru ( <i>Vitex doniana</i> ) / Uturukpa ( <i>Pterocarpus santalinoides</i> )	Sources of protein, high in fibre, minerals, Beta carotenes and antioxidants	Reduction of oxidative stress and anaemia	Hassan & Umar, 2008; Fatou <i>et al.</i> , 2022; Umerah <i>et al.</i> , 2019.
15	Pounded Yam with Soup	Different Soup			

	Peppered Soup ( <i>Ohe Sarara</i> )	Baked Egusi (Melon seed) ( <i>Citrullus vulgaris</i> )	Protein, Vitamin A, B, C and E; Unsaturated fatty acids (76%), minerals like calcium, iron, zinc, selenium, phosphorus, magnesium, copper; *aflatoxin	Boosts immune system, lowers diabetes, lowers lipid levels, heart friendly, prevents osteoporosis	Enujiugha <i>et al.</i> , 2023
	Vegetable ( <i>Egburuegbu</i> )	Vegetable / Assorted Fish & Meat	-do-	-do-	-do-
	Oha ( <i>Ohe manuiko</i> )	Oha / Assorted Fish/ Baked Egusi / Red Oil	-do-	-do-	-do-
	Ahu ( <i>Ohe Ahu/Egusi</i> )	Egusi/Pepper/Red Palm Oil	-do-	-do-	-do-

## Consumption of Yam recipes with Soft Drinks

The sugar content of soft drinks sold in Nigeria ranges from 0.36g% - 3.88g%. Of the malt drinks produced in Nigeria, the glucose content ranges from 9 g% - 2.74 g% (Obuzor, & Ajaezi, 2010). Zero calorie soft drinks have no added sugar but artificial sweetener whose biosafety is in dispute (Shil, *et al.*, 2023). These values are within the range of 7–14 g/100 ml, as recommended by regulatory bodies (Standard Organization of Nigeria, 2017). Commercial fruit juice is high in sugar, with orange juice containing 25 g of sugar per 250 ml. Natural fruit juice (orange, apple, grape or blend of these may contain 21 - 23g of sugar per 240 ml.

One teaspoon of sugar equals 4.2g=1 cube of sugar. The WHO recommended maximum daily intake of free added sugar (WHO, 2015) is less than 25g (5 teaspoon) for adult females and less than 36g for adult males. This means that one should not exceed one glass of orange juice per day. Children 2-18 years should also not take more than 25 grams of free sugar per day (WHO, 2015). High sugar intake can lead to insulin resistance, with a resultant diabetes mellitus, cardiovascular diseases, endocrine disorders, lipid abnormalities, obesity and weight gain (Prada *et al.*, 2022).

## Conclusions

Food culture, tradition and religion are interlinked with religion and tradition, being a major determinant of the food cultural heritage. Such food culture includes selection of food types, preparation, eating and the belief system. In different societies, traditional recipes have been encouraged through food festivals. In the Igbo speaking community of Afikpo, South-East Nigeria, yam (*Dioscorea alata*) is regarded as the king of crops and as a result ritualized through a ceremony called the *Ikeji* (New Yam) Festival during which various traditional yam recipes involving yam and other plants, animals, foods, and fish are prepared and consumed. An in-depth analysis of the traditional yam recipes of Afikpo people revealed that such recipes were often nutritionally healthy in addition to containing various sources of bioactive compounds that can help prevent diseases of public health importance. It is therefore recommended that festivals such as the *Ikeji* Festival should be encouraged as indigenous ways of propagating healthy living, provided that any sugar- or alcohol-containing drinks associated with it are consumed in moderation.

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