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Research Article

Contribution to the Nutritional Management of Diabetes in Cote d'Ivoire: Table of Nutritional Values, Glycemic Index, and Glycemic Load of Traditional Foods

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Abstract

Diabetes mellitus is rapidly increasing in sub-Saharan Africa, while locally adapted nutritional tools remain scarce. In Cote d'Ivoire, therapeutic recommendations for people with diabetes are often based on foreign databases that do not reflect the composition or glycemic characteristics of local foods. This study aimed to establish an integrated Ivorian reference table combining nutritional composition, glycemic index (GI), and glycemic load (GL) of traditional foods to guide nutrition education, dietary counseling, and public health strategies. Thirty commonly consumed dishes, prepared from standardized recipes, were analyzed for their proximate composition and evaluated for glycemic response in 30 healthy adults under controlled conditions, following the ISO 26642:2010 protocol. Test portions were standardized to 50 g of available carbohydrate. Capillary glucose was measured from 0 to 120 minutes, and the incremental area under the curve (iAUC) was calculated using the trapezoidal method, excluding baseline values. GI was expressed as a percentage of glucose (reference = 100) and GL as (GI/100) × available carbohydrate per portion. GI and GL values varied widely depending on the recipe and portion size. High values were recorded for *attieke* (GI 63–88; GL 46–47), *placali* (GI 106; GL 16), and white rice (GI 54; GL 28). Conversely, mixed dishes such as *toh* + okra sauce (GI 57; GL 12), rice + peanut sauce (GI 46; GL 13), and pounded plantain + okra sauce (GI 35–65; GL 6–11) exhibited more favorable glycemic profiles compatible with diabetes dietary management. These findings emphasize the importance of evaluating complete meals rather than single foods when providing dietary guidance, as sauces rich in fiber, protein, and lipids (okra or peanut) substantially modulate postprandial glycemia. The study resulted in two standardized tables: (i) a nutritional composition table for Ivorian traditional dishes and (ii) a corresponding GI/GL table. Together, these constitute the first comprehensive national reference integrating both nutrient and glycemic characteristics of local mixed meals. The resulting tools are intended to improve diabetes care, promote culturally relevant nutrition counseling, and support dietary interventions within clinical and community settings. This approach offers a replicable model for other African contexts seeking to bridge the gap between traditional diets and evidence-based metabolic health management.

Keywords

Glycemic Index, Composition Table, Mixed Meals, Therapeutic Education, Cote d'Ivoire

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1. Introduction

Type 2 diabetes (T2D) is a major public health concern worldwide and is accelerating in sub-Saharan Africa [1, 2]. Nutrition plays a decisive role in prevention and treatment and is widely regarded as the cornerstone of diabetes care [3]. Adequate dietary management is also the most economical and efficient treatment for people with diabetes [4]. Within lifestyle measures ("non-pharmacological treatment"), a key dietary goal is to reduce pathological postprandial hyperglycemia by balancing intake with endogenous and/or exogenous insulin concentrations [5]. Accordingly, lifestyle strategies (balanced diet and physical activity) promote low-glycemic foods [6-8] and higher dietary fiber intake [9].

Pathological postprandial hyperglycemia is implicated in T2D etiology and complications [10, 11]. Modulating postprandial excursions can be achieved *via* carbohydrate choice, glucose bioavailability, starch gelatinization, fiber content, or the development of functional foods [12]. Optimizing glycemic control through locally adapted lifestyle approaches remains essential [1, 13]. Among key tools for dietary management are the glycemic index (GI), which evaluates the effect of carbohydrate-rich foods on postprandial glycemia, and the glycemic load (GL), which reflects the overall glycemic impact of a portion [14-16].

International GI/GL tables synthesize evidence across foods. The 2008 table reported over 2,480 foods, highlighting wide variability categories (breads, breakfast cereals, rice) influenced by processing, while dairy, legumes, and fruits tended to have lower and more stable GI values [17]. The 2021 update expanded coverage to encompass over 4,000 foods (61% increase), distinguishing 2,100 values generated by methods conforming to ISO 26642:2010 from 1,900 values obtained by less robust methods; it confirmed high variability in cereals/cereal products, consistently lower GI for dairy, legumes, pasta, and fruits, and higher GI for most potatoes [18].

This update also underscored the limited representation of regional foods, strengthening the case for locally generated data [18]. In Cote d'Ivoire, dietary patterns include traditional staples e.g., *attieke*, *placali*, maize *toh* (*Cabatoh*), yam (*foutou igname*) or plantain fufu (*foutou banane*), rice, *garba* commonly paired with sauces such as peanut (*sauce arachide*), palm seed (*sauce graine*), or okra (*sauce gombo*). Because GI is fundamentally a property of carbohydrate-rich foods, it is crucial to document local staples and their pairing with sauces that may modulate glycemic responses [12, 18]. Prior work in Cote d'Ivoire showed that sauces like okra or peanut can lower the GI of a rice-based meal, whereas certain cassava-based preparations (*attieke*, *placali*) can present unfavorable GI profiles unless portions are adjusted [19-22].

Currently, there is no single table that jointly reports composition, GI, and GL of dishes particularly Ivorian traditional mixed meals. Moreover, the FAO/INFOODS West African Food Composition Table (WAFCT 2019) does not include GI/GL data for local culinary preparations, which hampers therapeutic education tailored to real mixed meals combining starchy staples and sauces [23]. This gap makes it difficult to provide therapeutic education and formulate recommendations that are tailored to the mixed meals that are actually consumed, which typically consist of starchy staple foods and sauces. A national reference was therefore developed, integrating composition, GI, and GL for traditional Ivorian foods explicitly accounting for mixed-meal reality to support clinical care and nutrition education in line with international guidance on robust, updatable regional GI/GL tables [14, 16, 18].

To contribute tools for diabetes nutrition care in Cote d'Ivoire by providing: (i) a composition table for traditional foods; (ii) a GI/GL table compliant with international standards; and (iii) practical nutrition recommendations (choices/portions, staple sauce combinations, low-GL alternatives).

2. Materials and Methods

2.1. Study Design, Setting, and Ethics

This crossover experimental study was conducted on a group of healthy adults with the objective of estimating the GI and GL of traditional Ivorian dishes. The clinical sessions took place at the NANGUI ABROGOUA University Medical Centre (UNA), and the food composition analyses were carried out at the Laboratory of Food Biochemistry and Processing of Tropical Products (LBATPT/UNA). Written informed consent was obtained from each participant, and the study complied with the Declaration of Helsinki. Approval was granted by the institutional ethics committee. The study was conducted in accordance with applicable ethical principles and internal confidentiality procedures (anonymous coding and restricted access to source data).

2.2. Participants

As part of this study, volunteers, particularly students, were recruited through a call for applications at NANGUI ABROGOUA University. The volunteers were selected in accordance with ISO standards (ISO 26642:2010). Parameters such as height (m), weight (kg) and body mass index were rigorously measured using a precision somatometer and electronic scales respectively, with BMI calculated as (kg)/height (m^2). Blood pressure was recorded using a sphygmomanometer. Subjects had to be in good health (no diabetes, etc.), non-smokers, and have a normal BMI (18.5-25.0 kg/m²). Systolic blood pressure had to be below 130 mmHg, diastolic blood pressure below 80 mmHg, and fasting blood glucose below 6.4 mmol/L.

2.3. Food Selection and Recipe Standardization

Thirty commonly consumed dishes were tested, grouped as starchy staples and composite dishes. Starches included *attieke*, *placali*, maize *toh*, yam/plantain fufu, plain rice, and rice with sauces. Ingredients were purchased at the Adjame wholesale market (Abidjan). Recipes were rigorously standardized for ratios, cooking times/conditions, plantain maturity stage, and processing steps. Uncontrolled variants (e.g., added meat or fish) were excluded.

2.4. Nutritional Composition Analyses

Proximate composition included moisture, water, protein, lipid, fiber (total; soluble/insoluble where applicable), ash, total carbohydrate using standard methods [24, 25]. Energy was calculated by Atwater and Rosa factors [26]. Total dietary fiber was assayed by AOAC 985.29 (enzymo-gravimetric: α-amylase, protease, amyloglucosidase) with protein/ash corrections, duplicate determinations, and analytical blanks.

2.5. GI Testing Protocol

The protocol followed FAO/WHO and ISO 26642:2010 recommendations [14-16]. On separate visits, each participant consumed the reference food (glucose; 50 g available carbohydrate) and test foods (portions providing 50 g available carbohydrate). For each dish, the test portion delivered 50 g available carbohydrate (available carbohydrate = total carbohydrate − total dietary fiber) based on analytical composition. Portions were weighed prior to consumption. Reference and test sessions alternated on two fixed days per week, yielding three replicate reference tests per subject for quality control.

2.6. Blood Glucose Measurement and Quality Assurance

Capillary blood glucose (finger-prick) was measured by the glucose-oxidase method using an Accu-Chek Performa glucometer, calibrated and verified daily. System accuracy complied with ISO 15197:2013 [27].

2.7. Time Points, iAUC, and GI Calculation

Glucose was measured at 0, 15, 30, 45, 60, 90, and 120 min. Incremental area under the curve (iAUC) was computed by the trapezoid method, excluding areas below baseline [14-16]. Individual GI was defined as:

$$GI\ (\%) = \frac{iAUC_{test}}{IAUC_{glucose}} \times 100 \tag{1}$$

Dish-level GI equals the mean of individual GIs and is reported as mean ± SD.

2.8. GL Calculation and Classification

GL per served portion was calculated as:

$$GL = \frac{GI}{100} \times carbohydrate\ per\ portion\ (g) \tag{2}$$

GL thresholds: low (≤10), moderate (11–19), high (≥20) [16].

2.9. Construction of the Tables (Composition; GI/GL)

The tables have been designed with harmonized formatting of variables, units and decimals. For each dish, the composition table shows the name, category, usual portion size (where documented) and average values (± standard deviation, where available). The main analytical parameters are water content, protein content, fat content, fibre content (total, soluble and insoluble where applicable), available carbohydrate content, ash content and caloric energy content. The units have been standardized (g/100 g, kcal/100 g, etc.) and the number of decimal places normalized to ensure comparability between rows and categories. The GI and GL values table provides the following information for each food: the average GI (reference glucose = 100); the standard deviation; the number of subjects (normoglycemic adults); the experimental portion (g); the available carbohydrates per portion (g); and the calculated GL. Inter-table consistency was verified by cross-checking calculations: for each entry, the reported GL was compared with the GI × carbohydrates per serving combination from the composition table. This process ensured the integrity of the values and identified any inconsistencies in data entry or rounding. When the usual portion was not explicitly available in the sources, the portion used to determine the GI was indicated as a practical reference.

2.10. Statistical Analysis

The data in the tables were presented as the mean ± standard deviation (SD) for composition, and as the mean ± standard error of the mean (SEM) for GI. The analysis was supplemented by an exploratory visualization in the form of box plots of GI by food category and a scatter plot representing GL based on available carbohydrates per serving. These analyses and figures were performed in R (version 4.4.2) using the ggplot2 package (version 3.5.1). The boxes displayed the median and IQR. The whiskers corresponded to 1.5 × IQR. Reference lines (GI = 55 and 70; GL = 10 and 20) were included to aid interpretation.

3. Results

3.1. Clinical and Anthropometric Characteristics of Study Participants

A total of 30 volunteers who met the eligibility criteria were recruited to participate in the study, comprising 14 women and 16 men. Table 1 provides a concise overview of the clinical and anthropometric data of the volunteers who were selected for the study. The mean age of the subjects was 28 years, with a mean BMI of 21.6 kg/m². As a component of the study, it was ascertained that the subjects exhibited a mean fasting blood glucose level of 4.5 mmol/L and a mean glycated haemoglobin (HbA1c) level of 3.5%. With regard to blood pressure, the mean values were 113.4 mmHg for systolic blood pressure (SBP) and 82.0 mmHg for diastolic blood pressure (DBP), with an average blood pressure of 83.8 mmHg.

Table 1. *Clinical and anthropometric characteristics of subjects.*

Characteristic	Experimental study data	Reference values*
Number of participants	30	At least 10 participants
Sex		
Female	14	—
Male	16	—
Age (years)	28 ± 2	—
Body weight (kg)	62.8 ± 7.5	—
Height (m)	1.7 ± 0.1	—
BMI (kg/m²)	21.6 ± 2.0	18–25
Fasting plasma glucose (mmol/L)	5.0 ± 0.4	4.4–5.5
HbA1c (%)	4.0 ± 0.6	—
Systolic blood pressure, SBP (mmHg)	113.4 ± 8.5	< 130
Diastolic blood pressure, DBP (mmHg)	82.0 ± 7.3	< 80
Mean arterial pressure, MAP π (mmHg)	83.8 ± 6.4	—

BMI, body mass index, calculated as weight/(height × height). * ISO/FDIS 26642:2010 (minimum recommended sample size for GI testing). π Lian formula: MAP = (SBP + 2 × DBP) / 3.

3.2. Table of Nutritional Values of Dishes

Table 1 summarizes composition for 30 dishes across four categories: plantain and derivatives; cereals and cereal products; roots/tubers and derivatives; and mixed meals (starch + sauce). Water ranged from 33.6 to 81.3 g/100 g. Protein reached up to 17.0 g/100 g (e.g., rice with peanut sauce), lipid up to 31.1 g/100 g (e.g., *placali* with *sauce graine*). Total fiber ranged from 0.33 to 14.0 g/100 g. Available carbohydrate generally ranged from 48 to 94 g/100 g. Energy spanned 368–518 kcal/100 g.

3.3. Tables of Glycemic Index (GI) and Glycemic Load (GL) Values by Food

The GI and GL values of the tested foods are summarized in Table 2. This table includes foods with and without accompanying sauces. Inter-table consistency was confirmed, with the reported GL for each entry corresponding to (GI/100) × carbohydrates per serving (differences compatible with rounding). This ensures the integrity of the calculations and clinical comparability.

3.4. GI by Category and Identification of "High-GL Traps"

Figure 1 shows GI distributions (ISO 26642:2010; reference glucose = 100) by category, with dashed lines at GI = 55 and 70 indicating low/medium/high glycemic potential. Whisker plots of GI by food category were constructed from individual GIs (reference glucose = 100) measured according to ISO 26642:2010. Each box represented the median and IQR (interquartile range), with whiskers defined as 1.5 × IQR. After a summary visualization of the data, three food groups were identified: plantain products; cereals and cereal products (including rice and *toh*), and roots, tubers and derivatives (*attieke, placali, foutou igname*). Dotted lines at GI = 55 and GI = 70 represented the low, medium and high thresholds for the food's ability to increase postprandial blood glucose levels. Analysis of these data revealed a more significant dispersion for GI boxes by category for cereal bases and plantain products, compared to certain combinations of bases + okra/peanut sauces. Starchy bases and certain composite dishes had high GI and/or GL values. For example, *attieke ayite* had a GI of around 88 and a GL of around 47, while *attieke agbodjama* had a GI of around 63 and a GL of around 46. Similarly, *placali* had a GI of 106 and a GL of 16, and white rice had a GI of 54 and a GL of 28. On the other hand, certain combinations such as rice and okra or rice and peanuts were found to lower the GI and GL (GI = 57, GL = 12 for the first example and GI = 46, GL = 13 for the second).

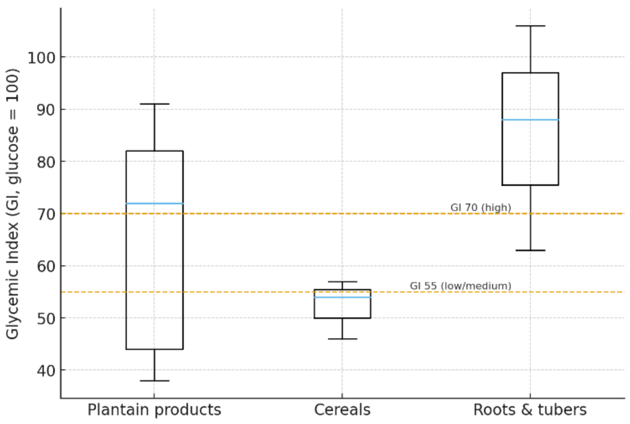

Figure 1. *Boxplots of glycemic index by food category. Caption. Glycemic index (GI; reference glucose = 100) of traditional Ivorian foods grouped by category, measured under ISO 26642 protocol (capillary glucose, 0–120 min; iAUC by trapezoids; n = 30 normoglycemic adults). Boxes show the interquartile range (IQR) with the median; whiskers extend to 1.5 × IQR; points denote outliers. Dashed reference lines mark GI classes: low < 55, medium 55–69, high ≥ 70. Values are means ±SEM unless otherwise indicated.*

Figure 2 plots GL against available carbohydrate per portion with reference lines at GL = 10 and 20 and annotations for emblematic "high-GL traps." A scatter plot of 'GL versus carbohydrates available per serving' was therefore plotted for each dish, with the glycemic load (GL) calculated using the formula GL = (GI/100) × carbohydrates (g) per serving. Reference lines at GL = 10 and GL = 20 indicated low, moderate and high zones. Risk points were annotated (*attieke ayite, attieke agbodjama, rice + sauce arachide, banane braisee*) in order to visualize the 'GL traps'. The categories used for Figure 1 were retained for the joint reading of the two graphs. Thus, adding sauces rich in fiber/protein/lipid (e.g., *sauce gombo, sauce arachide*) was associated with lower GI and more controlled GL (*rice + sauce arachide; foutou banane + sauce gombo*; *Cabatoh + sauce gombo*). Conversely, several configurations were "GL traps" (GL ≥ 20): all *attieke* variants, roasted plantain, *chips, claclo, doclou*, and *foutou banane* without sauce. Placali exhibited a dissociated profile (very high GI with moderate GL) dependent on per-portion carbohydrate.

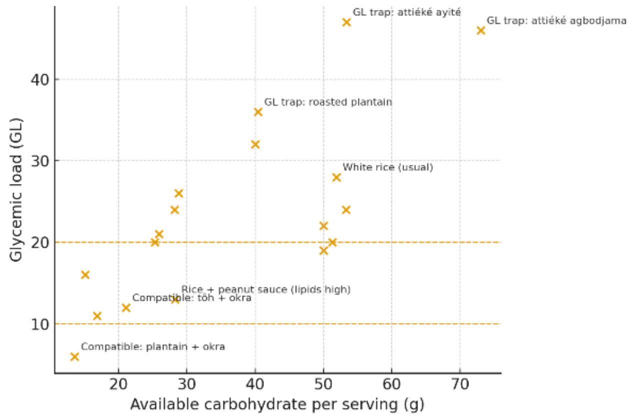

Figure 2. *Scatterplot of glycemic load vs. available carbohydrate per serving. Caption. Relationship between glycemic load (GL) and available carbohydrate per serving (g) for traditional Ivorian dishes. GL was computed as GL = (GI/100) × available carbohydrates (g), using GI measured with glucose as reference (ISO 26642). Horizontal guidelines indicate GL thresholds (≤ 10 low; 11–19 medium; ≥ 20 high). Annotated examples highlight high-risk "GL traps" (e.g., attieke ayite, attieke agbodjama, rice + sauce graine, banane braisee) and more compatible options (e.g., Cabatoh + sauce gombo, foutou banane + sauce gombo).*

3.5. Nutrition Recommendations

Table 3 summarizes the recommended and avoided foods. With regard to plantains and plantain products, mixed meals combining banana, *foutou* and *sauce gombo* showed particularly favourable consumption profiles. For certain varieties and stages of fruit ripeness, the GL values were below 10, indicating that they could be consumed without restriction. For other varieties and stages of fruit ripeness, the GL values ranged between 10 and 19, suggesting that a recommended portion would be more appropriate. On the other hand, fried or very sweet preparations (*aloco, claclo,* and *chips*), *banane braisee, doclou,* and *foutou* without sauce were classified as unfavorable due to their high assimilable carbohydrate load and/or high energy density. For cereals and cereal products, the combination of corn *toh* (*Cabatoh*) and okra sauce was found to be compatible with a controlled GL (< 20). It was observed that plain white rice, when included in small portions, can be consumed without significantly affecting the GL, provided that it is kept below 20. However, the combination of rice and *sauce arachide* revealed moderate levels of glycemic control but high lipid content. This underscores the necessity of moderating the consumption of this meal, taking into account each individual's metabolic profile. It is now considered best practice to avoid or prohibit combinations without sauce (*toh* alone) or with seed/ *sauces gnangnan*. Finally, among roots, tubers and derivatives, *attieke* (all variants), *placali* (with or without seeds) and *foutou igname* (with/without *gnangnan*) were found to be 'GL traps', thereby justifying portion reductions or substitutions in favour of combinations with fibre-rich sauces (*sauce gombo*).

Table 1. *Nutritional Value Table for traditional dishes.*

Foods (names kept)	Energy (kcal)	Energy (kJ)	Water (g)	Protein (g)	Fat (g)	Available carbohydrate (g)	Crude fiber (g)	Ash (g)
Category: Plantain and derived products								
aloco avec la banane de variete agninhin au stade de maturite jaune	448.63 ± 0.38	1885.03 ± 1.39	36.40 ± 0.00	4.40 ±0.00	11.57 ± 0.06	80.97 ±0.12	1.60 ±0.00	1.50 ± 0.00
aloco avec la banane de variete agninhin au stade de maturite tigre	454.77 ± 0.32	1910.00 ± 1.13	33.87 ± 0.06	8.77 ±0.06	12.37 ± 0.06	76.33 ±0.06	1.60 ±0.00	0.93 ± 0.06
Banane braisee avec la banane de variete afoto au stade de maturite vert clair	392.57 ± 0.40	1660.50 ± 1.64	55.53 ± 0.12	5.27 ±0.06	0.30 ± 0.10	91.47 ±0.12	1.67 ±0.06	1.40 ± 0.00
chips avec la banane de variete ameletiha au stade de maturite vert	443.43 ± 0.21	1863.43 ± 0.64	33.60 ± 0.10	5.27 ±0.06	10.93 ± 0.06	80.27 ±0.06	1.67 ±0.06	1.93 ± 0.06
claclo avec la banane de variete ameletiha au stade de maturite toute noire	462.57 ± 0.96	1941.27 ± 3.62	36.27 ± 0.06	6.13 ±0.06	14.07 ± 0.21	77.10 ±0.26	1.60 ±0.00	1.13 ± 0.06
doclou fait de manière traditionnel avec la banane ameletiha au stade de maturite toute noire	374.60 ± 0.70	1549.03 ± 3.53	68.13 ± 0.12	4.17 ±0.06	1.07 ± 0.06	82.53 ±0.40	9.27 ±0.15	3.00 ± 0.17
doclou optimise (10% de farine de maïs) fait avec la banane ameletiha au stade de maturite toute noire	371.27 ± 0.25	1534.50 ± 1.45	68.20 ± 0.10	4.17 ±0.06	1.23 ± 0.06	81.23 ±0.12	9.27 ±0.15	4.10 ± 0.00
foutou avec la banane de variete afoto au stade de maturite vert clair	394.87 ± 0.40	1669.57 ± 1.81	70.90 ± 0.30	6.13 ±0.06	0.33 ± 0.06	90.97 ±0.06	1.80 ±0.00	0.80 ± 0.00
foutou avec la banane de variete afoto au stade de maturite vert clair à la sauce gombo	406.30 ± 1.04	1709.20 ± 4.19	79.47 ± 0.06	13.57 ± 0.06	4.00 ± 0.17	77.63 ±0.35	2.80 ±0.00	2.03 ± 0.06
foutou de banane de variete afoto au stade de maturite jaune a extremites	399.77 ± 0.32	1689.00 ± 1.25	68.37 ± 0.21	5.27 ±0.06	1.33 ± 0.06	90.83 ±0.06	1.87 ±0.06	0.80 ± 0.00
foutou de banane de variete afoto au stade de maturite jaune à extremites à la sauce gombo	409.93 ± 1.11	1723.57 ± 4.10	78.53 ± 0.21	12.87 ± 0.12	4.70 ± 0.26	77.57 ±0.47	2.83 ±0.12	2.00 ± 0.10
foutou de banane de variete agninhin au stade de maturite tournant jaune	395.57 ± 0.32	1672.67 ± 1.36	55.80 ± 0.00	6.10 ±0.00	0.47 ± 0.06	90.90 ±0.00	1.77 ±0.06	0.80 ± 0.00
foutou de banane de variete	406.83 ±	1711.47 ±	75.00 ±	13.53 ±	4.07 ±	77.60 ±0.50	2.77 ±0.06	2.03 ±

Foods (names kept)	Energy (kcal)	Energy (kJ)	Water (g)	Protein (g)	Fat (g)	Available carbohydrate (g)	Crude fiber (g)	Ash (g)
agninhin au stade de maturite tournant jaune à la sauce gombo	1.19	4.57	0.17	0.15	0.32			0.06
foutou de banane de variete agninhin au stade de maturite vert	398.00 ± 0.20	1682.77 ± 0.80	64.20 ± 0.00	3.50 ±0.10	0.50 ± 0.00	94.03 ±0.06	1.80 ±0.00	0.20 ± 0.00
foutou de banane de variete agninhin au stade de maturite vert à la sauce gombo	408.90 ± 1.08	1719.87 ± 4.08	77.47 ± 0.15	11.77 ± 0.21	4.20 ± 0.26	79.57 ±0.50	2.87 ±0.06	1.63 ± 0.06
foutou de banane de variete ameletiha au stade de maturite tournant vert	396.50 ± 0.10	1676.53 ± 0.35	63.67 ± 0.06	10.50 ± 0.00	0.43 ± 0.06	86.77 ±0.06	1.80 ±0.00	0.57 ± 0.06
foutou de banane de variete ameletiha au stade de maturite tournant vert à la sauce gombo	407.13 ± 0.93	1713.07 ± 3.49	76.77 ± 0.15	16.53 ± 0.15	3.97 ± 0.23	74.93 ±0.45	2.77 ±0.06	1.80 ± 0.10
Category: Cereals and cereal products								
riz blanc cuit	396.50 ± 0.20	1682.93 ± 0.76	67.63 ± 0.06	12.50 ± 0.17	0.67 ± 0.06	85.00 ±0.17	0.33 ±0.06	1.53 ± 0.06
riz à la sauce arachide	508.87 ± 0.40	2122.73 ± 1.85	76.77 ± 0.06	17.03 ± 0.06	24.53 ± 0.06	53.83 ±0.21	2.10 ±0.00	2.40 ± 0.17
riz à la sauce gnangnan	388.83 ± 0.21	1635.70 ± 0.79	72.27 ± 0.12	13.57 ± 0.15	0.77 ± 0.06	80.20 ±0.10	3.53 ±0.06	1.97 ± 0.06
riz à la sauce graine	443.10 ± 0.10	1857.77 ± 0.31	69.37 ± 0.12	11.70 ± 0.10	11.03 ± 0.06	72.97 ±0.12	2.60 ±0.00	1.73 ± 0.06
toh de maïs	375.70 ± 1.21	1570.93 ± 4.66	73.40 ± 0.36	8.27 ±0.38	0.77 ± 0.06	81.20 ±0.70	5.50 ±0.35	4.27 ± 0.50
toh de maïs à la sauce gombo	395.10 ± 1.47	1647.90 ± 6.33	81.33 ± 0.29	16.33 ± 0.40	4.97 ± 0.40	68.50 ±1.01	5.57 ±0.12	4.67 ± 0.50
Category: Roots, tubers and derivatives								
attieke agbodjama	406.47 ± 0.40	1722.30 ± 1.57	51.20 ± 1.65	0.83 ±0.06	2.60 ± 0.10	94.67 ±0.21	0.40 ±0.00	1.47 ± 0.06
attieke ayite	390.73 ± 0.32	1633.40 ± 1.75	47.97 ± 0.81	0.40 ±0.00	1.60 ± 0.10	90.87 ±0.21	5.60 ±0.10	1.50 ± 0.00
foutou d'igname variete Kponan	398.00 ± 0.44	1678.87 ± 2.61	70.97 ± 0.06	5.33 ±0.06	2.63 ± 0.06	87.23 ±0.15	2.07 ±0.15	2.73 ± 0.06
foutou igname (Kponan) à la sauce gnangnan	368.47 ± 0.21	1499.83 ± 0.75	81.30 ± 0.00	11.17 ± 0.06	2.50 ± 0.00	68.33 ±0.06	13.97 ± 0.06	4.03 ± 0.06
placali	366.40 ± 1.39	1519.57 ± 7.87	81.00 ± 0.00	4.30 ±0.26	0.00 ± 0.06	82.97 ±0.42	8.37 ±0.47	4.27 ± 0.12
placali à la sauce graine	518.37 ± 1.55	2112.30 ± 7.69	76.57 ± 0.06	5.67 ±0.21	31.13 ± 0.12	48.10 ±0.17	11.53 ± 0.31	3.57 ± 0.12

Table 2. *Table of glycemic index and glycemic load values for traditional dishes.*

Foods (names kept)	GI* (Glucose = 100)	GI (White bread = 100)	Subjects (type and number)	Reference food and duration	Experimental portion (g)	Available carbohydrate per experimental portion (g)	GL (g per experimental portion)
Category: Plantain and derived products							
aloco avec la banane de variete agninhin au stade de maturite jaune	39 ±1	56	normoglycemic, 30	glucose, 2 h	99.0	51.3	20
aloco avec la banane de variete agninhin au stade de maturite tigre	38 ±0	54	normoglycemic, 30	glucose, 2 h	97.0	50.0	19
banane braisee avec la banane de variete afoto au stade de maturite vert clair	89 ±1	127	normoglycemic, 30	glucose, 2 h	122.9	40.4	36
chips avec la banane de variete ameletiha au stade de maturite vert	45 ±0	64	normoglycemic, 30	glucose, 2 h	93.8	53.3	24
claclo avec la banane de variete ameletiha au stade de maturite toute noire	44 ±0	63	normoglycemic, 30	glucose, 2 h	101.8	50.0	22
doclou optimise (10% de farine de maïs) fait avec la banane ameletiha au stade de maturite toute noire	79 ±2	113	normoglycemic, 30	glucose, 2 h	193.6	25.3	20
doclou traditionnel fait avec la banane ameletiha au stade de maturite toute noire	81 ±1	116	normoglycemic, 30	glucose, 2 h	190.0	25.9	21
foutou de banane	91 ±4	130	normoglycemic, 30	glucose, 2 h	173.9	28.8	26
foutou avec la banane de variete afoto au stade de maturite vert clair à la sauce gombo	44 ±2	63	normoglycemic, 30	glucose, 2 h	313.4	13.6	6
foutou de banane de variete afoto au stade de maturite jaune à extremites à la sauce gombo	65 ±3	93	normoglycemic, 30	glucose, 2 h	300.5	16.9	11
foutou de banane de variete afoto au stade de maturite jaune à extremites	85 ±5	121	normoglycemic, 30	glucose, 2 h	173.9	28.2	24
foutou de banane de variete agninhin au stade de maturite tournant jaune	80 ±3	114	normoglycemic, 30	glucose, 2 h	148.5	40.0	32

Foods (names kept)	GI* (Glucose = 100)	GI (White bread = 100)	Subjects (type and number)	Reference food and duration	Experimental portion (g)	Available carbohydrate per experimental portion (g)	GL (g per experimental portion)
foutou de banane de variete agninhin au stade de maturite tour-nant jaune à la sauce gombo	37 ±1	53	normoglycemic, 30	glucose, 2 h	257.7	18.9	7
foutou de banane de variete agninhin au stade de maturite vert	40 ±1	57	normoglycemic, 30	glucose, 2 h	124.5	30.0	12
foutou de banane de variete agninhin au stade de maturite vert à la sauce gombo	35 ±4	50	normoglycemic, 30	glucose, 2 h	278.6	17.1	6
foutou de banane de variete ameletiha au stade de maturite tour-nant vert à la sauce gombo	51 ±3	73	normoglycemic, 30	glucose, 2 h	287.1	15.7	8
foutou de banane de variete ameletiha au stade de maturite tour-nant vert	75 ±2	107	normoglycemic, 30	glucose, 2 h	158.5	29.3	22
Category: Cereals and cereal products							
riz à la sauce arachide	46 ±0	66	normoglycemic, 30	glucose, 2 h	335.4	13.0	6
riz à la sauce gnangnan	76 ±0	109	normoglycemic, 30	glucose, 2 h	226.9	22.4	17
riz à la sauce graine	35 ±0	50	normoglycemic, 30	glucose, 2 h	226.9	22.9	8
riz blanc cuit	54 ±1	77	normoglycemic, 30	glucose, 2 h	181.7	27.5	15
toh de maïs à la sauce gombo	57 ±6	81	normoglycemic, 30	glucose, 2 h	389.9	12.3	7
toh de maïs	74 ±5	106	normoglycemic, 30	glucose, 2 h	231.5	21.6	16
Category: Roots, tubers and derivatives							
attieke agbodjama	63 ±2	90	normoglycemic, 30	glucose, 2 h	108.2	46.2	29
attieke ayite	88 ±4	126	normoglycemic, 30	glucose, 2 h	105.7	47.3	42
foutou d’igname	85 ±4	121	normoglycemic, 30	glucose, 2 h	197.5	25.3	22
foutou d’igname à la sauce gnangnan	94 ±1	120	normoglycemic, 30	glucose, 2 h	391.0	12.8	12
placali	106 ±5	151	normoglycemic, 30	glucose, 2 h	317.1	15.8	17

Foods (names kept)	GI* (Glucose = 100)	GI (White bread = 100)	Subjects (type and number)	Reference food and duration	Experimental portion (g)	Available carbohydrate per experimental portion (g)	GL (g per experimental portion)
placali à la sauce graine	86 ± 0	123	normoglycemic, 30	glucose, 2 h	499.9	9.3	8

GI values use glucose as the reference food set to 100.

4. Discussion

GI varied markedly by recipe and portion. Starchy bases consumed alone often had high GL (e.g., usual portions of rice or *attieke*), whereas pairing with sauces particularly okra lowered GI and kept GL < 20. Fried or simply cooked plantain preparations (aloco, claclo, chips, roasted plantain) were “GL traps,” supporting a meal-based rather than single-food perspective in nutrition counseling [12, 16]. These observations align with international tables reporting generally low GI for legumes, pasta, and fruits, and wide GI variability in cereals/cereal products due to technology (gelatinization/retrogradation, particle size, cooking conditions) [17, 18]. Findings also emphasize testing of under-represented regional foods, notably cassava derivatives *(attieke*, placali) and plantain preparations whose profiles are sensitive to maturity and processing.

Mechanistically, starch structure and processing (fermentation, pounding, cool-reheat cycles) likely modulate hydrolysis kinetics and thus GI of foods tested [15, 28]. Soluble fiber from okra, plus protein and lipid from sauces (peanut, palm seed), can slow gastric emptying and blunt postprandial responses, explaining lower GI/GL in mixed meals [15, 29]. By contrast, frying raises energy density and can sustain high GL despite a sometimes-moderate GI.

For public health, the present tables provide reference tools for therapeutic education, institutional catering, and standardized communication (e.g., “GL-per-portion” factsheets for typical dishes). While not exhaustive, the composition table offers normalized macronutrient benchmarks for traditional dishes with controlled decimal precision and mean ± SD values.

From a counseling standpoint, guidance should prioritize meals rather than isolated foods: pair starchy bases (rice, *attieke, placali, toh, foutou*) with viscous/fiber- or protein-rich sauces (notably okra). Peanut and palm-seed sauces (*sauce arachide and sauce graine*) require discretion. This approach reduces GI and controls GL. In relation to glycemic targets per serving, it is advised to decrease the basic portion of meals and increase the portion of vegetables or sauce when the estimated carbohydrate load exceeds 20, in order to return to a range that is compatible with glycemic targets. In order to achieve a more favourable and efficient outcome, it is recommended that dishes such as *toh* accompanied by okra sauce (*sauce gombo*), banana *foutou* (*foutou banane*) with okra sauce (*Sauce gombo*), including green plantain, or rice served with okra sauce be selected. It is imperative to exercise meticulous oversight when combining the peanut and rice sauces, owing to their elevated fat content. This combination exhibits a moderate carbohydrate concentration, while simultaneously containing a substantial fat content. Consequently, in instances of dyslipidaemia or excess weight, it is recommended to impose limitations on their consumption. It is also advisable to limit or avoid the following foods, except in very small quantities. Examples of such dishes include *attieke* (in all its various forms*), placali*, fried plantain (*aloco, claclo*), *banane braisee* and *doclou*. These foods have high concentrations of carbohydrates (GL) and/or high fat content.

With regard to portions and substitutions, if the usual portion leads to a high GL, it would be preferable to reduce the starchy base, i.e. to reduce its quantity by one third to one-half, and to double the quantity of okra sauce and vegetables. When preparing healthy, balanced meals, it is advisable to make appropriate food substitutions. For example, *attieke* or *placali* can be replaced by *toh* accompanied by okra, or *foutou banane* combined with *sauce gombo*. In addition, it is important to note that rice with peanut sauce can be substituted with rice with *sauce gombo*, thus offering nutritious alternatives.

5. Conclusion

This study provides, an integrated national table combining nutritional composition, GI, and GL for traditional dishes including mixed meals using a protocol aligned with ISO 26642:2010. The two standardized tables are operational tools for clinics, therapeutic education, and collective catering. Focusing on meals and GL per portion can guide culturally compatible choices for glycemic control. Clinical validation in patients with diabetes, regional extension, and periodic updates will enhance impact.

Abbreviations

ADA	American Diabetes Association
AOAC	Association of Official Analytical Collaboration
FAO	Food and Agriculture Organization of the United Nations

FAO/INFOODS	FAO International Network of Food Data Systems
IDF	International Diabetes Federation
ISO	International Organization for Standardization
WHO	World Health Organization
WAFCT	West African Food Composition Table
GI	Glycemic Index
GL	Glycemic Load
iAUC	Incremental Area Under the Curve
T2D	Type 2 Diabetes

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Author Contributions

Adam Camille Kouame: Conceptualization, Data curation; Formal Analysis, Investigation, Methodology; Software; Writing – original draft;

Aïssatou Coulibaly: Data curation, Formal Analysis, Methodology, Validation, Writing – review & editing

N'Zue Kouadio Christian Oka: Validation, Writing – review & editing

Yao Denis N'Dri: Supervision, Validation, Visualization, Writing – review & editing

N'Guessan Georges Amani: Funding acquisition, Project administration, Validation, Visualization

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Data Availability Statement

The data is available from the corresponding author upon reasonable request.

Conflicts of Interest

The authors declare no conflicts of interest.

References

[1] International Diabetes Federation. IDF Diabetes Atlas (7th ed.). Brussels, Belgium: IDF; 2015.

[2] Lokrou A., Doumbia A., Kouassi F. In-hospital mortality of diabetic patients in Cote d'Ivoire. Med. Mal. Metab.. 2009; 3(6): 616–619. https://doi.org/10.1016/S1957-2557(09)73635-1

[3] Kalergis M., De Grandpre E., Andersons C. The role of the glycemic index in the prevention and management of diabetes: A review and discussion. Can J Diabetes. 2005; 29: 27–38.

[4] Ohlhorst S. D., Russell R., Bier D., Klurfeld M. D., Zhaoping Li, Jonathan R., Milner J., Ross A. C., Stover P., Konopka E., Nutrition research to affect food and a healthy life span. J Nutr. 2013; 143(8): 1349-1354. https://doi.org/10.3945/jn.113.180638

[5] Jenkins D. J., Wolever T. M. S., Thorne M. J., Jenkins A. L., Wong G. S., Josse R. G., Csima A. The relationship between glycemic response, digestibility, and factors influencing the dietary habits of diabetics. Am J Clin Nutr. 1984; 40: 1175-1191. https://doi.org/10.1093/ajcn/40.6.1175

[6] Cândido F. G., Pereira E. V., Alfenas R. C. G. Use of the glycemic index in nutrition education. Revista de Nutrição. 2013; 26: 89-96. https://doi.org/10.1590/S1415-52732013000100009

[7] Augustin L. S. A., Kendall C. W. C., Jenkins D. J. A., Willett W. C., Astrup A., Barclay A. W., Björck I., Brand-Miller J. C., Brighenti F., Buyken A. E., Ceriello A., La Vec-chia C., Livesey G., Liu S., Riccardi G., Rizkalla S. W., Sievenpiper J. L., Trichopoulou A., Wolever T. M. S., Baer-Sinnott S., Poli A. Glycemic index, glycemic load and glycemic response: An International Scientific Consensus Summit from the International Carbohydrate Quality Consortium (ICQC). Nutr Metab Cardiovasc Dis. 2015; 25: 795-815.. https://doi.org/10.1016/j.numecd.2015.05.005

[8] e-diabete. org. Therapeutic education resources on diabetes. Available from: www. e-diabete. org (accessed 20 March 2015).

[9] American Diabetes Association. Standards of Medical Care in Diabetes. Diabetes Care. 2015; 38(Suppl.1): S1-S94. https://doi.org/10.2337/dc15-S001

[10] Blaak E. E., Antoine J. M., Benton D., Björck I., Bozzetto L., Brouns F., Diamant M., Dye L., Hulshof T., Holst J. J., Lamport D. J., Laville M., Lawton C. L., Meheust A., Nilson A., Normand S., Rivellese A. A., Theis S., Torekov S. S., Vinoy S. Impact of postprandial glycaemia on health and prevention of disease. Obes Rev. 2012; 13(Suppl.): 923-984. https://doi.org/10.1111/j.1467-789X.2012.01011.x

[11] Laville M., Vors C., Nazare J-A., Michalski M-C. Postprandial metabolism and health. Bull Acad Natl Med. 2013; 197(1): 65-78. https://doi.org/10.1016/S0001-4079(19)31626-7

[12] Zhang Y., Mei X., Li W., Yuxing P., Huan C., Shiguo C., Xingqian Ye, Jianle C., Mechanisms of starchy foods glycemic index reduction under different means and their impacts on food sensory qualities: A review. Food Chem. 2025; 467: 142351. https://doi.org/10.1016/j.foodchem.2024.142351

[13] World Health Organization. Global status report on noncommunicable diseases 2014. Geneva: WHO Press; 2014.

[14] FAO/WHO. Carbohydrates in Human Nutrition. FAO Food and Nutrition Paper 66. Rome: FAO/WHO; 1998.

[15] Brouns F., Björck I., Frayn K. N., Gibbs A. L., Lang V., Slama G., Wolever T. M. Glycaemic index methodology. Nutr Res Rev. 2005; 18: 145-171. https://doi.org/10.1079/NRR2005100

[16] Venn B. J., Green T. J. Glycemic index and glycemic load: measurement issues and their effect on diet-disease relationships. Eur J Clin Nutr. 2007; 61(Suppl.1): S122-S131. https://doi.org/10.1038/sj.ejcn.1602942

[17] Atkinson F. S., Foster-Powell K., Brand-Miller J. C. International tables of GI and GL values: 2008. Diabetes Care. 2008; 31: 2281-2283. https://doi.org/10.2337/dc08-1239

[18] Atkinson F. S., Brand-Miller J. C., Foster-Powell K., Buyken A. E., Goletzke J. International tables of GI and GL values 2021: a systematic review. Am J Clin Nutr. 2021; 114(5): 1625-1632. https://doi.org/10.1093/ajcn/nqab233

[19] Kouame A. C., Kouassi N. K., Coulibaly A., N'Dri Y. D., Tiahou G. G., Lokrou A., Amani N. G. Effects of three traditional sauces commonly consumed in Cote d'Ivoire on GI of rice in normoglycemic adults. Int J Sci Technol Res. 2014; 3(1): 187-194.

[20] Kouame A. C., Kouassi N. K., Coulibaly A., N'Dri Y. D., Amani N. G. Glycemic index and load of selected staples based on rice, yam and cassava commonly consumed in Cote d'Ivoire. Food Nutr Sci. 2014; 5(4): 308-315. https://doi.org/10.4236/fns.2014.54037

[21] Kouame A. C., Kouassi N. K., N'Dri Y. D., Amani N. G. GI and GL values tested in normoglycemic adults for five staple foodstuffs: pounded yam, pounded cassava-plantain, placali, attieke and maize meal stiff porridge. Nutrients. 2015; 7: 1267-1281. https://doi.org/10.3390/nu7021267

[22] Kouame A. C., Kouassi N. K., Abodo J. R., Pereko K. K. A., Casiraghi M. C., N'Dri Y. D., Amani N. G. Glycemic responses, GI and GL of plantain street foods in Cote d'Ivoire. Foods. 2017; 6: 83. https://doi.org/10.3390/foods6090083

[23] Vincent A., Grande F., Compaore E., Amponsah Annor G., Addy P. A., Aburime L. C., Ahmed D., Bih Loh A. M., Dahdouh Cabia S., Deflache N., Dembele F. M., Dieudonne B., Edwige O. B., Ene-Obong H. N., Fanou Fogny N., Ferreira M., Omaghomi Jemide J., Kouebou P. C., Muller C., Nájera Espinosa S., Ouattara F., Rittenschober D., Schönfeldt H., Stadlmayr B., van Deventer M., Razikou Yiagnigni A., Charrondière, U. R. FAO/INFOODS West African Food Composition Table (2019) - User Guide and Condensed Table. Rome: FAO; 2020. https://openknowledge.fao.org/handle/20.500.14283/ca7779b

[24] AOAC. Official Methods of Analysis. Vol. 2, 15th ed. Washington, DC: AOAC; 1990.

[25] AOAC International. Official Methods of Analysis of AOAC International. Arlington, VA: AOAC International; 2011.

[26] Atwater W., Rosa E. A new respiratory calorimeter and the conservation of energy in the human body. Phys Rev. 1899; 9: 214-251. https://doi.org/10.1103/PhysRevSeriesI.9.214

[27] ISO. In vitro diagnostic test systems — Requirements for blood-glucose monitoring systems for self-testing in managing diabetes mellitus (ISO 15197: 2013). Geneva: International Organization for Standardization; 2013.

[28] Ranawana V., Leow M. K-S., Henry C. J. K. Mastication effects on GI: impact on variability and practical implications. Eur J Clin Nutr. 2014; 68: 137-139. https://doi.org/10.1038/ejcn.2013.231

[29] Flint A., Møller B. K., Raben A., Pedersen D., Tetens I., Holst J. J., Astrup A. Using GI tables to predict the GI of composite breakfast meals. Br J Nutr. 2004; 91: 979-989. https://doi.org/10.1079/BJN20041124

Biography

Adam Camille Kouame is a biochemist, nutritionist and researcher in the field of animal nutrition at the National Center for Agricultural Research (CNRA), Livestock Production Research Station (Bouake Regional Directorate, Cote d'Ivoire). His research is centred on the analysis of nutrition and the development of methods for biological and agri-food matrices. Additionally, he specializes in the determination of the glycemic index and glycemic load of carbohydrate foods, as well as the utilization of biotechnological approaches to enhance nutritional quality. He engages in collaborative research at the interface of agriculture, biotechnology and animal production, and publishes peer-reviewed articles and technical briefs. The focus of his current research projects is the valorization of agricultural products and co-products (for example, tapioca starch and cassava peels) in animal feeding.

Aïsatou Coulibaly is a lecturer-researcher at NANGUI ABROGOUA University (UNA) in Abidjan, within the School of Food Science and Technology (UFR-STA) and the Laboratory of Food Biochemistry and Processing of Tropical Products (LBATPT). Her work focuses on food biochemistry, nutrition, and food safety, with particular attention to foods and dietary practices in Cote d'Ivoire. She has held teaching and research responsibilities at UNA for several years. Scientifically, she has co-authored studies on (i) the glycemic index (GI) and glycemic load (GL) of staple Ivorian dishes; (ii) energy-drink consumption and related nutritional characteristics among students; and (iii) the valorization of local by-products (e.g., *Ricinodendron heudelotii*/*akpi* kernel cake) for agri-food applications. Overall, her author profiles and publication record reflect a position at the food-nutrition-health interface, aligned with UNA's research priorities.

N'Zue Kouadio Christian Oka is a lecturer-researcher at NANGUI ABROGOUA University (UNA), affiliated with the School of Food Science and Technology and the Laboratory of Food Biochemistry and Processing of Tropical Products (LBATPT). His work focuses on food biochemistry and the valorization of tropical products and co-products, with applications to nutritional quality and agri-food systems. He has co-authored studies on the composition and nutritional value of edible mushrooms (Pleurotus) and on technico-economic assessments of processing value chains (e.g., dried mango in Cote d'Ivoire). Published in international journals, these contributions sit at the food-nutrition-processing technologies interface. More recently, he has contributed to SWOT analyses and production/valorization studies (mango, mushrooms) in collaboration with UNA researchers and partner institutions, strengthening the bridge between applied research and the improvement of local value chains.

Yao Denis N'Dri is a faculty researcher at NANGUI ABROGOUA University (UNA), affiliated with the School of Food Science and Technology and the Laboratory of Food Biochemistry and Processing of Tropical Products (LBATPT). His author profiles confirm these affiliations and his positioning at the food-nutrition-technology interface. His research focuses on food biochemistry and nutritional quality, the valorization of tropical products and co-products, and postharvest issues (the "Kponan" yam: cultivation practices, storage, culinary and sensory quality). He has also published on the glycemic index and glycemic load of edible wild fruit juices, on edible mushrooms (Pleurotus), and on infant foods based on cereals and caterpillar powder. His publication lists and author records (ResearchGate, Scilit, indexed journals) attest to steady output and collaborations within UNA and with partner institutions. He also serves as an academic supervisor and reviewer.

N'Guessan Georges Amani is a lecturer and researcher at NANGUI ABROGOUA University (UNA), attached to the Food Science and Technology Training and Research Unit (UFR-STA) and Laboratory of Food Biochemistry and Processing of Tropical Products (LBATPT). His academic profile reveals a substantial scientific output, with around 150 publications and more than 1,400 citations, as well as supervisory responsibilities within the UNA. His research focuses on two main areas: food biochemistry on the one hand, and the nutritional quality and valorization of tropical products and co-products on the other. His disciplinary roots at the interface of food, nutrition and processing technologies are reflected in renowned publications and scientific contributions, as well as in collaborations with leading partner teams.

Research Field

Adam Camille Kouame: human nutrition, glycemic index, glycemic load, traditional Ivorian foods, food composition, diabetes nutrition therapy, dietary assessment, functional foods development, public health nutrition, nutrition education

Aïsatou Coulibaly: food biochemistry, food composition analysis, dietary fiber analysis, carbohydrate analysis, method validation, laboratory quality control, food processing, nutritional profiling, moisture and ash analysis

N'Zue Kouadio Christian Oka: food science and technology, tropical product processing, cereal and tuber products, sauce formulation, rheology of foods, sensory evaluation, recipe standardization, experimental design, nutrition of mixed meals

Yao Denis N'Dri: nutritional physiology, postprandial glycemia testing, glycemic index measurement, glycemic load estimation, human feeding trials, clinical data management, biostatistics in nutrition, metabolic health, nutrition counseling

N'Guessan Georges Amani: food science and technology, lipid chemistry, cereal science, tropical food processing, functional ingredient development, protein and starch interactions, product formulation, nutrition and health, food quality and safety