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Proximate Analysis and Frequency of Consumption of Selected Local Snacks in Bida Metropolis, Niger State, Nigeria.

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Abstract
Local snacks are cheap, ready, to eat meals available for purchase and consumption both on streets and at homes. The study examined the proximate analysis of seven selected local snacks and determined the frequency of consumption of these selected local snacks among the consumers. Samples of these local snacks were purchased from various locations in Bida. Proximate composition of the samples was determined using standard methods. Frequency of consumption of these local snacks within the metropolis was also determined using 104 pretested questionnaires. The selected local snacks are: Gbankuru, Bambara Efon, Kararogo, Alaka, Donkwa, Masa and Ikima. The result indicated that the energy content of the selected local snacks ranged from 504.62kcal/100g to 230.32kcal/100g.The moisture content of the samples was generally low except that of Bambara Efon (52.07%).The protein content ranged from 4.53%(Bambara Efon) to14.36%(Donkwa).Crude fibre content also varied with the lowest value obtained from Donkwa (0.11%) and the highest value (8.60%) Kararogo. The results suggested that these local snacks are good sources of energy and protein. The results also revealed that a higher number of consumers interviewed with the pretested questionnaires consume these local snacks as their main meal (61.5 %) and 86% of the consumers consume these snacks at home. Based on these findings, local snacks play a significant role in the nutrient intake of the people in Bida metropolis.

Keywords: Consumers; Consumption; Local snacks, Proximate;

Introduction
Urban population growth has stimulated a rise in the number of street food vendors in many cities through out Nigeria. Migrants from rural centers have created a daily need among many working class people to eat outside the home. Demand for relatively inexpensive ready-to-eat food has increased. Many foods are eaten traditionally as snacks and as light meal during working hour in urban areas, a selection of these and other foods suitable for parties and picnic have been reported (Isoun and Anthonio, 2002).

There has been increased interest worldwide on the importance of snacks (street foods) as part of general concern for food security and health. The street food sector is also very important in the context of urbanization and urban economy in a way that reflects the way of life and the survival strategies adopted by many African urban dwellers (Canet and N'diaye, 1996). With the breakdown of the traditional family ties accompanying rapid urbanization; the general poor urban dwellers have embraced the street food sectors as a provider of cheap food and income generation. According to the Foods and Agricultural Organization (F.A.O), 2.5 million people eat street food everyday (F.A.O., 1990). If the street food sector is adequately and fully tapped, it is an avenue for economy transformation.

Street food is obtainable from street side vendor in a makeshift or portable stall. While some streets foods are regional, many are not, having spread beyond their region or origin, these foods are available on the street for a fraction of the cost of a

restaurant meal. The survival and proliferation of street food stands in the cities reflect the great demand for the sector by the burgeoning urban population. Its advantages include provision of both familiar local dishes and newer dishes adapted to urban living conditions, low cost and convenience. It also has a leisure function in that street foods stand to provide meeting place for people in the evening especially around densely populated residential areas, although concerns of hygiene and freshness often discourage people form eating street food. The crucial role of street food in the context of localization in many African homes cannot be underestimated (Akinyele, 1993). In most parts of Nigeria, people depend on ready made foods for their nutritional requirements. These foods are served during breakfast and in-between meals for both children and adults.

This study therefore determines the proximate analysis and also assesses the frequency of consumption of selected local snacks in Bida metropolis, Niger State with the hope that information generated would be helpful in planning an improved nutritional strategy for both the producers and the consumers. This will help to improve the economy of the affected communities and also advance the knowledge on the use of local crops for making different kinds of snacks and street foods. The selected local snacks include; Gbankuru, Ikima, Bambara Efon, Kara-rogo, Masa, Donkwa and Alaka.

Materials and Methods

Two prepared samples of each sample of the 7 selected local snacks were purchased from 2 randomly selected locations in Bida metropolis, making up a total of 14 samples. The 2 samples of each type of snacks from 2 different locations were combined and milled together to have an average using an electric blender. The milled samples were packed in moisture resisting polythene bags and kept at 0^{o} C prior to analysis. The samples were immediately taken to the laboratory for analysis. The snack samples and their various purchasing locations are presented in table 1.

Table 1: Purchasing locations of the selected local snacks

	Snacks	Purchasing Spots
1	Gbankuru	Kaduna motor park, Wadata
2	Donkwa	Kaduna motor park, Wadata
3	Kara-rogo	Doko motor park, Wadata
4	Masa	Hajia Lolo, Zungeru road
5	Bambara efon	Gbangbara, Old market
6	Alaka	Post office market, Old market
7	Ikima	Doko motor park, Gbangbara

Proximate Analyses

The Proximate composition (moisture, crude fat, crude protein, crude fibre and ash content) was determined according to the method of Association of Official Analytical Chemist (A.O.A.C., 1990) at the National Cereals Research Institute Baddegi, Niger State. The carbohydrate was determined by simple difference, % carbohydrate = 100 – (% moisture + % ash + % fat + % protein).

Survey Instrument

A pre-tested questionnaire was administered to a total of 104 respondents comprising of students, artisan, market women, traders, motorist, etc. The respondents were randomly selected from the fourteen (14) wards in the town. The questionnaires sought information on the local snacks consumption frequency of the consumer, most preferred local snacks, and amount spent on local snacks etc. The questionnaire was designed as the second instrument of data collection in this study. The consumers were randomly selected from different consuming spot in Bida metropolis. The food frequency questionnaire indicated the number of times the snacks are usually consumed in a day, per week etc.

Results and Discussion

Proximate Analysis: Percentage of moisture content, carbohydrate, protein, fat, crude fibre and ash are shown in Table 2. All the selected local snacks have remarkably low moisture content except Bambara Efon (52.07%). The implication of this is that these snacks with low moisture content would have a longer keeping quality. This may also explain why most of the vendors prepare them in large quantity and sell over time and also in agreement with the study of Abulude (2004) on flours. Donkwa contain the highest amount of protein (14.36%). The high protein content of Donkwa might be due to the fact that legume (groundnut) forms the main part of the ingredients. This is in agreement with Aletor and Ojelabi (2007) who also reported that kulikuli contains high protein which is obvious from the fact that it was produced from groundnut as its major ingredient. Legumes are known for their high protein content. Ikima which is a wheat product contains the highest value of carbohydrate (69.94%) while Gbakuru, a legume product has the lowest carbohydrate content (16.03%). Donkwa also contain the highest amount of fat content (24.50%) while kara-rogo had the least (7.72%). Kara-rogo had the highest source of crude

Table 2: Proximate Analysis of the Selected Local Snacks

SAMPLE	MOISTURE %	FAT %	PROTEIN %	FIBRE %	ASH %	CHO %	ENERGY (Kcal)
Donkwa	2.97±0.94^{f}	24.50±0.11^{a}	14.36±0.11^{a}	0.11±0.18^{f}	1.39±0.07^{c}	56.67±0.08^{c}	504.62±0.72^{a}
Masa	27.97±0.21^{c}	14.20±0.04^{d}	4.03±0.14^{d}	7.63±0.0^{c}	1.27±0.11^{d}	44.90±0.11^{e}	323.52±0.44^{d}
Kara rogo	31.10±0.11^{b}	7.72±0.14^{f}	1.14±1.02^{e}	8.60±0.25^{a}	1.49±0.07^{c}	49.98±1.02^{d}	273.96±0.39^{d}
Alaka	2.03±0.01^{f}	23.63±0.04^{b}	5.17±0.04^{c}	7.30±0.6^{c}	1.26±0.11^{d}	58.61±0.04^{b}	467.79±0.11^{b}
Bambara Efon	52.07±1.98^{a}	14.44±0.14^{d}	4.53±0.11^{d}	6.79±0.11^{d}	1.81±0.11^{b}	20.36±0.11^{f}	230.32±0.30^{g}
Gbankuru	11.23±0.13^{d}	15.13±0.04^{c}	12.96±0.5^{b}	0.25±0.13^{f}	4.25±0.14^{a}	16.03±0.51^{g}	252.13±0.49^{e}
Ikima	9.60±1.75^{e}	8.27±0.21^{e}	6.57±0.04^{c}	8.42±0.25^{b}	1.20±0.39^{a}	69.94±0.39^{a}	380.47±0.19^{c}

Mean scores of the selected local snacks (±) standard deviation, mean scores with different super script letter on the same column are significantly different ($p<0.05$).

fibre of (8.60%) while the lowest source of crude fibre was found in Donkwa (0.11%). This high level fibre content has been found to be useful in the treatment of some ailment like constipation (Oyenuga, 1998). Gbankuru contain the highest amount of ash (4.25%) while Ikima contained the least ash (1.20%). Generally; all the snacks are good sources of energy (Table 2). All the local snacks examined provided substantial amount of dietary energy ranging from 504.62Kcal/100g for Donkuwa to 252.13Kcal/100g for Gbankuru.

Frequency of Consumption: Table 3 results obtained from the pretested questionnaire reveals that the majority of the local snacks consumers are males (67%) (). This shows that male consume local snack more probably as a result of their spending time at work or outside. The status of the respondent reveals that singles (unmarried) had the highest percentage (57.7%); this implies that singles consume local snacks most. The Educational level reveals that 62% of the consumers attain tertiary education while the lowest level of education was primary school (3.8 %). The lowest income earners were 19.23% with less than N500 - N 1000 weekly income. Respondents (36.5%) spent between N10 - N20 on local snacks per day while 3.8% of the respondents spent between N5 – N10 on local snacks per day. This is an indication that these local snacks are relatively cheap and is in line with the study by Folorunso and Afolabi (2006).

About 61.5% of the respondents consume these local snacks as their main meal while 38.5% eats them as in-between meals. Also 86.5% consume these local snacks at home while 3.8% takes them both in school and at work. This is due to the fact that some of these snacks are taken mostly during breakfast at home. Donkwa has the highest consumption rate of 32.7% per day. The above facts have both nutritional and health implications on the subjects as it has been shown that all the people evaluated eat at least one local snack from street foods.

Conclusion

Lack of knowledge on the nutrient composition of some commonly consumed local snacks in Bida has made it difficult to figure out the exact nutrient intake of the consumers of these local snacks in Bida Metropolis. This is because available food composition tables have figures on only raw foods making it necessary to determine the nutrient contents of these local snacks. It can be concluded from the findings of this study that these snacks contain some appreciable amount of energy, protein, fat and carbohydrate.

It could also be concluded that these snacks are not only cheap and readily available but could be nutritionally adequate to meet the nutritional needs of the people if varied accordingly considering the nutrient contents.

It is however recommended that regular control over snacks vendors with respect to nutritive value, hygiene and food safety should be exercised by policy makers. Also further studies should be carried out to determine the vitamins and nutrient inhibitors contents of these local snacks.

Table 3: Frequency of Consumption and Socio-economic Characteristics of the Consumers

S/N	VARIABLE		FREQUENCY (N=104)	PERCENTAGES %
1	Sex:	Female	34	32.7
		Male	70	67.3
2	Status:	Married	42	40.4
		Single	60	57.7
		Widowed	2	1.9
3	Educational level:	Primary	4	3.84
		Secondary	20	19.23
		Tertiary	64	62
		Quranic	16	15.4
4	Weekly income:	< ₦500	20	19.23
		₦500 - ₦1000	50	48.1
		> ₦1000	24	23.1
		Do not know/dependent	10	9.6
5	Amount spent on local snacks per day:			
		₦5 – ₦10	4	3.8
		₦10 – ₦20	38	36.5
		₦20 – ₦30	28	26.0
		₦30 – ₦40	34	32.7
6	Mode of consumption:			
		Main meal	64	61.5
		In-between	40	38.5
7	Place of consumption:			
		At work	4	3.8
		At home	90	86.5
		At a spot	6	5.8
		At school	4	3.8
8	Frequency of consumption per day:			
		Donkuwa	34	32.7
		Masa	24	23.1
		Kara rogo	10	9.6
		Alaka	10	9.6
		Bambara efon	18	17.3
		Gbankuru	4	3.9
		Ikima	4	3.9

References

Abulude, F.O. (2004). Effect of processing on nutritional composition of phytate and functional properties of rice. *Nigeria Food journal*, 22: 144-149.

A.O.A.C., (1990). Official methods of official analysis of the Association of Official analytical chemists, 15 editions, Arlington: V.A.

Akinyele, I.O. (1993). Street foods in Nigeria. Street foods as a solution to hunger. Giradent Press, Rome, pp.15-51.

Aletor, O., and Ojelabi, A., (2007). Comparative Evaluation of the Nutritive and Functional Attributes of Some Traditional Nigerian Snacks and Oil Seed Cakes: *Pakistan Journal of Nutrition, 6* (1): 99-103.

Canet, C.and N'Daiye, C. (1996). Street Foods in Africa. *Food Nutrition, Agric*.17 (18): 4-13.

F.A.O., (1990). A report of FAO Expert Consultation (5-8). Food & Nutrition paper No.46.Rome: FAO.

Folorunso, A. A., and Afolabi, W.A.O. (2006). Proximate Composition of Consumption of commonly Eating Local Snacks in south-west Nigeria. *Proceedings of 37th Nutrition Conference, Nutrition Society of Nigeria, 92 – 95*.

Isoun, M. and Anthonio, H.O. (2002). Nigerian Cookery. Riverside Comm., Portharcourt.p. 32.

Oyenuga, V.A. (1998). Nigeria Foods and Feeding Stuffs, their Chemistry and Nutritive Value. U.I. Press, Nigeria, p43.