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Socio-Economic Contributions of Edible Wild Plants to the Livelihood of Forest Dwellers in Akure and Idanre Forest Reserves in Ondo State, Nigeria

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ABSTRACT

The study determines socio-economic contributions of edible wild plants to the livelihood of forest dwellers in Akure and Idanre forest reserves in Ondo State, Nigeria. To achieve this, multistage sampling technique was employed for the study. The first stage involves a purposive selection of three large communities from each forest reserve. The second stage involves a random selection of 20 household respondents each from the selected communities. Thus, a total of 120 household respondents were interviewed for the study, using a well-structured interview schedule. The results established that almost all the forest dwellers collected and used edible wild plants for food security in the study area. Besides consumption, some were sold to generate income to sustaining their lives. The findings revealed that the respondents selling edible wild plants realized bellow ₦25,000:00 per month as gross monthly income from its sales in the study area. Yet it had a significant impact on the income earnings and livelihoods of forest dwellers. The edible wild plants products were majorly categorized as: fruits, leafy vegetables and seeds. Chi-square test confirmed that age of respondents has positive significant association with the uses of edible wild plants, while there was no significant association between gender, religion, educational level and economic status of respondents and uses of edible wild plants in the study area. Cultivation and domestication of these precious edible wild plant species are therefore recommended in order to reduce the pressure placed on the forest, and thus sustain the indigenous knowledge and conservation to continually improve livelihoods in the study area.

Keywords: Edible Wild Plants, Livelihood, Indigenous Knowledge, Forest Reserves, and Socio-economic Benefits.

INTRODUCTION

Edible wild plants are those plants with edible parts such as leaves, fruits, seeds, tuber and barks found growing naturally on farms, fallow or uncultivated land and forests. Termote *et al.,* (2011) described edible wild plants as uncultivated plants which grow spontaneously in self maintaining populations in natural or semi-natural ecosystems. Forest provides socio-economic benefits to meet basic human needs and improvements of life quality (FAO, 2014, Adedayo & Falade, 2019). Majorities of the rural dwellers especially in forest communities earn their livelihoods from the extraction and sales of edible wild plants thereby improving their quality of life and standard of living (Falade, 2021). The socio-economic benefits of edible wild plants are mostly through their consumption. Edible wild plants make significant addition to individual family food supplies; it

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contributes to household food security (Aju 2011). Edible wild plants products are categorized as: fruits, leafy vegetables, nut/seeds, flowers, barks, roots and whole plants which are used to make juices, spices, condiments, flavours, thickeners, tenderizers and sweeteners (Christopher *et al.,* 2002). Besides food, edible wild plants can improve the overall economy of the country. Despite all these, edible wild plants are still not valued as some of the introduced food plants and cultivated crops such as rice, mango, orange and cabbage (Oyun 2009 and Iraoye 2017). There is also a widespread decline in the knowledge about wild edible plants, especially among young people and those who live in urban areas. To a certain extent, some of these edible wild plants are still regarded as inferior and only meant for the poor. Consequently, Nigeria is yet to acknowledge the contributions of edible wild plants to her national economy and there is no clear and sustained policy directed at tropical forests by the government at any level in Nigeria on sustaining or improving edible wild plants (Falade, 2021). Therefore, the study is necessitated by the need to acknowledge the contributions of edible wild plants to forest dwellers livelihood; sustain indigenous knowledge about edible wild plants; and promote its conservation in the study area. The research questions for this study are: What are the socio-economic characteristics of forest dwellers? What are the preferred edible wild plants used? What are the categories of edible wild plant species consumed or sold by the forest dwellers in the study area? What are the socio-economic contributions of edible wild plants in terms of income to the livelihood of forest community dwellers in the study area?

Description of the Study Area

The study was carried out in Akure and Idanre forest reserves of Ondo State, Nigeria. Akure and Idanre forest reserves are parts of the 16 forest reserves in Ondo State with an area of 66km^2 and 561km^2 respectively (Adetula, 2008). The area lies between latitude 6.85780N and 7.31290N of the equator and longitude 5.02860E and 5.10560E of the Greenwich meridian (Figure 1). They are located at the central senatorial district of the forest belt State. The mean annual temperature of the study area is about 26^{0}C and rainfall of 1500mm with bimodal rainfall pattern. Akure and Idanre forest reserves are tropical rainforests which are naturally endowed with various edible wild plant species without restriction to their exploitation. The study area comprises many communities which are less than 2km distance from each other within the fringe area of the forest reserves, but far from city markets. These communities are dominated by Yoruba tribes. They are predominantly farmers who derive their livelihoods from farming activities and partly from collection and sales of non-timber forest products (NTFPs) such as edible wild plants.

MATERIALS AND METHODS

Sampling Procedure and Sample Size

A multi-stage sampling procedure was employed to select respondents for the study. The first stage involves a purposive selection of three communities with 20 houses and above where 20 questionnaires could be easily administered. The communities were Obada, Sokoto and Kolawole in Akure forest reserve and Fayomi-Bolorunduro, Owena-Egbeda and Arun in Idanre forest reserve (Figure 1). The second stage involves a random selection of 20 household respondents from each of the selected communities through simple random system. Thus, a total of 120 respondents who were household heads were administered for the study using well-structured interview schedules.

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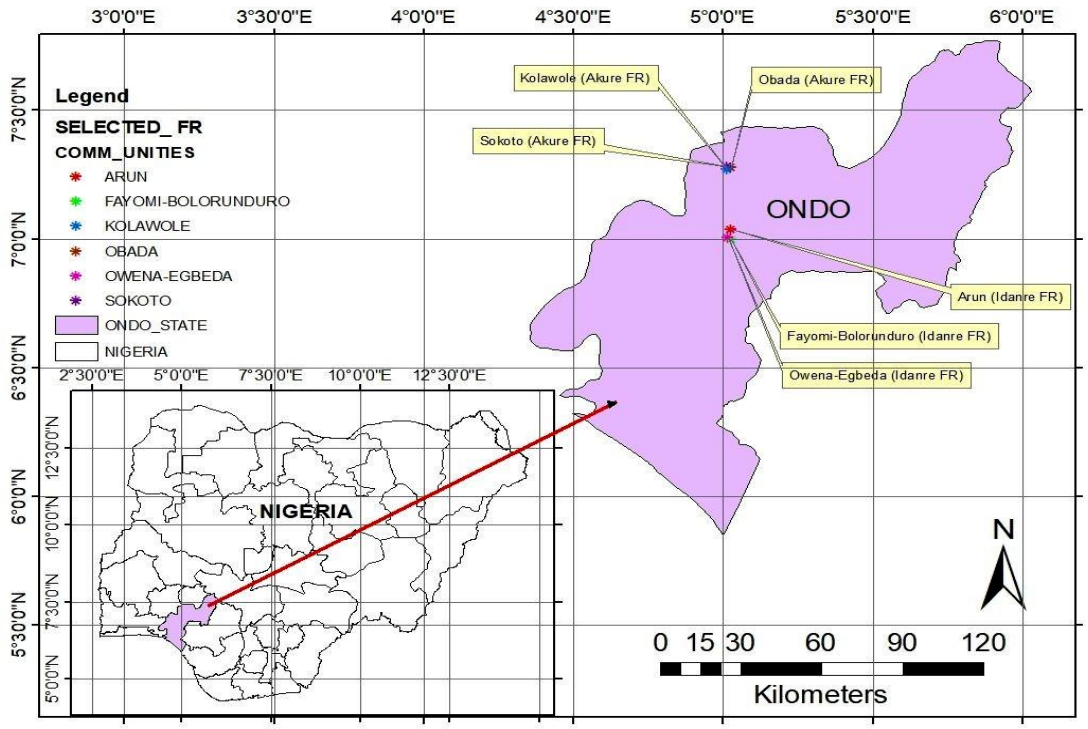

Figure 1: Map of the Selected Communities in the Two Forest Reserves.

Methods of Data Analysis

Data were analyzed using statistical package for the social sciences (SPSS) version 18 with the use of descriptive statistics in form of table and percentage frequency. In addition, Chi-square was used to carry out statistical test on the following hypotheses: There is no significant association between age, gender, religion, educational qualification, economic status and the use of edible wild plants among forest community dwellers in the study area.

RESULTS

Socio-Economic Characteristics of Respondents in the Study Area

The results of the study shows that 53.3% and 50.0% of the respondents from Akure forest reserve and Idanre forest reserve respectively were between 40 – 60 years of age (Table 1). Chi-square test ($p<0.05$) shows that there is significant association between age and the use of edible wild plants among forest community dwellers in the study area (Table 2; Hypothesis 1). Also, 56.7% and 60.0% of the respondents from Akure forest reserve and Idanre forest reserve respectively were male. Chi-square test ($p<0.05$) shows that there is no significant association between gender and the use of edible wild plants among forest community dwellers in the study area (Table 2; Hypothesis 2). According to the study, 60.0% and 66.7% of the respondents in Akure forest reserve and Idanre forest reserve respectively were Christian (Table 1). Chi-square test ($p<0.05$) shows that there is no significant association between religion and the use of edible wild plants among forest community dwellers in the study area (Table 2; Hypothesis 3). Most of the respondents in the study area had secondary school education. The results indicates that 66.7% and 63.3% of the respondents from Akure forest reserve and Idanre forest reserve respectively had secondary school certificate. Chi-square test ($p<0.05$) shows that there is no significant association between education and the use of edible wild plants among forest community dwellers in the study area (Table 2; Hypothesis 4). The annual income generated by respondents in the study area shows that 40.0% and 30.0%

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of the respondents in Akure forest reserve and Idanre forest reserve respectively earned between ₦500,000:00 and ₦1,000,000:00 per annum as shown in Table 1. The income generated by forest dwellers is a strong determinant of their economic status. Chi-square test ($p<0.05$) shows that there is no significant association between economic status and the use of edible wild plants among forest community dwellers in the study area (Table 2; Hypothesis 5).

Table 1: Socio-Economic Characteristics of Respondents in the Study Area (N = 120)

Socio-Economic Characteristics	Ondo State			
	Akure Forest Reserve		Idanre Forest Reserve	
AGE (YEARS)	Freq	%	Freq	%
< 20	4	6.7	2	3.3
20-40	22	36.7	24	40.0
40-60	32	53.3	30	50.0
> 60	2	3.3	4	6.7
Total	**60**	**100.0**	**60**	**100.0**
GENDER				
Male	34	56.7	36	60.0
Female	26	43.3	24	40.0
Total	**60**	**100.0**	**60**	**100.0**
OCCUPATION				
Farming	55	91.7	52	86.7
Hunting	3	5.0	4	6.7
Civil Service	0	0.0	0	0.0
Lumbering	2	3.3	2	3.3
Trading	0	0.0	2	3.3
Artisan	0	0.0	0	0.0
Total	**60**	**100.0**	**60**	**100.0**
RELIGION				
Christianity	36	60.0	40	66.7
Muslim	20	33.3	18	30.0
Traditional	4	6.7	2	3.3
Total	**60**	**100.0**	**60**	**100.0**
EDUCATIONAL QUALIFICATION				
No Formal Education	4	6.7	4	6.7
Primary Education	8	13.3	12	20.0
Secondary Education	40	66.7	38	63.3
Tertiary Education	8	13.3	6	10.0
Total	**60**	**100.0**	**60**	**100.0**
ANNUAL INCOME				
>₦500,000:00	12	20.0	10	16.7
₦500,000:00 – ₦1,000,000:00	24	40.0	18	30.0
₦1,000,000:00 – ₦1,500,000:00	10	16.7	14	23.3
₦1,500,000:00 – ₦2,000,000:00	8	13.3	8	13.3
₦2,000,000.00 – ₦2,500,000:00	4	6.7	6	10.0
>₦2,500,000:00	2	3.3	4	6.7
Total	**60**	**100.0**	**60**	**100.0**

Source: Field Survey, 2023.

Table 2: Relationship of Respondents and the Use of Edible Wild Plants in the Study Area.

Hypotheses	Forest Reserve	Variables	Statistics	Remark
1	Akure F R	Age (Years)	$\chi^2 = 29.59$; Sig = 0.00	*
	Idanre F R	,,	$\chi^2 = 34.68$; Sig = 0.00	*
2	Akure F R	Gender	$\chi^2 = 0.98$; Sig = 0.32	NS
	Idanre F R	,,	$\chi^2 = 1.06$; Sig = 0.40	NS
3	Akure F R	Religion	$\chi^2 = 2.23$, Sig = 0.33	NS
	Idanre F R	,,	$\chi^2 = 2.17$; Sig = 0.34	NS

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4	Akure F R	Educational level	$\chi^2 = 0.34$; Sig = 0.95	NS
	Idanre F R	,,	$\chi^2 = 0.17$; Sig = 0.98	NS
5	Akure F R	Economic status	$\chi^2 = 11.72$; Sig = 0.14	NS
	Idanre F R	,,	$\chi^2 = 7.31$; Sig = 0.20	NS

Note: *FR = Forest Reserve, NS = Not Significant, * = Significant, P = < 0.05*

Wild Plants Consumed by Respondents in the Study Area.

The preferred edible wild plants consumed and sold by respondents in the study area are shown in Table 3. Some of the edible wild plants consumed and sold as vegetable leaves according to the respondents include: *Solanum nigrum, Gongronema latifolium, Cloredendrum volubile, Solanecio biafrae, Piper guineense, Piper umbelata, Pterocarpus mildbraedii* and *Peperomia pelucida.* They are all used as soup and available throughout the year except *Pterocarpus mildbraedii* which is available only during wet season. While some of the fruits include: *Deinbollia pinnata, Icacina trichanta, Sphenocentrum jollyanum, Xylopia aethiopica* and *Dennettia tripetala.* They are all available during wet season and eaten fresh except *Sphenocentrum jollyanum* that is used as soup. Others whose seeds were consumed and sold include: *Monodora myristica, Brachystegia eurycoma* and *Afzelia africana* which are all available during wet season and are used as soup (Table 3).

Monthly Income Generated from the Sale of Edible Wild Plants by Respondents in the Study Area.

The findings in Table 4 reveals that all the respondents selling edible wild plants realized less than 25,000:00 per month as gross monthly income from the sales of edible wild plants in the study area. This is about 20% of their monthly income in the study area.

Table 4: Gross Monthly Income Generated by Respondents from the Sales of Edible Wild Plants in the Study Area.

Monthly Income (₦)	Akure Forest Reserve (%)	Idanre Forest Reserve (%)
<25,000:00	100.0	100.0
25,000:00 -50,000:00	0.0	0.0
50,000:00 -75,000:00	0.0	0.0
>75,000:00 – 100,000:00	0.0	0.0
>100.00	0.0	0.0

Source: Field Survey, 2023.

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Table 3: Information on the Preferred Wild Plants Collected for Food Purposes by the Respondents in the Study Area.

S/N	Family Name	Scientific Name	Common Name	Local Name	Habitus	Season	Category/part Collected	Mode of Preparation	Preservation Method
1	Sapindaceae	*Deinbollia pinnata* Schum & Thonn	Fruit pulp	Marigbo	S	2	flower, fruit	Cooked	Dried & stored
2	Annonaceae	*Dennettia tripetala* G. Bakr	African pepper fruit	Igbere	T	2	Fruit	Raw	Nil
3	Marantaceae	*Thaumatococcus danielli* Benth.	Wrapping leave	Eweran	H	2	Fruit/leave	Raw	Nil
4	Steculiaceae	*Cola millenii* K. Schum	Baboo kola	Obi Edun	T	2	Fruit	Raw	Nil
5	Aristolochiaceae	*Sphenocentrum jollyanum* Pierre	Colouring plant	Ajo	T	2	Fruit	Cooked	Nil
6	Steculiaceae	*Cola hispida Brenan Keay*	Billy goat test testicle	Ipa obuko	T	2	Fruit	Raw	Nil
7	Icacinaceae	*Icacina trichanta* Oliv.	Icacina	Gbegbe	S	2	Fruit	Raw	Nil
8	Steculiaceae	*Sterculia tragacantha* Lindl.	Tragacanth	Alawefon	T	2	Fruit	Raw	Dried & stored
9	Annonaceae	*Monodora myristica* (Gaertn.) Dunal	Africa Nutmeg	Ariwo	T	2	Seed	Cooked	Dried & stored
10	Caesalpinoideae	*Brachystegia eurycoma* Harms	Okwen	Achi, Eku	T	2	Seed	Cooked	Dried & stored
11	Fabaceae	*Afzelia africana* Sm. Ex pers.	Apa	Akparata	T	2	Seed	Cooked	Dried & stored
12	Compositae	*Solanecio biafrae* (Oliv. & Hiern.)	Gbologi	Worowo	C	1	Vegetable Leaves	Cooked	Dried & stored
13	Solanaceae	*Solanum nigrum* Linn.	Black night shade	Odu	H	1	Vegetable Leaves	Cooked	Dried & stored
14	Asclepiadaceae	*Gongronema latifolium* Benth.	Utazi	Arokeke	C	1	Vegetable Leaves	Cooked	Dried & stored
15	Piperaceae	*Piper guineense* Schum. & Thonn.	African black pepper	Iyere	C	1	Vegetable Leaves	Cooked	Dried & stored
16	Lamiaceae	*Cloredendrum volubile* P. Beauv.	Magic leaf	Marigbo soup	C	1	Vegetable Leaves	Cooked	Dried & stored
17	Papaveraceae	*Piper umbellatum*	Wild pepper	Ewe Efon	C	1	Vegetable	Cooked	Dried &

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		Linn.		Bufallo			Leaves		stored
18	Papilonceae	*Pterocarpus mildbraedii* Harms.	Oha	Oha	T	2	Vegetable Leaves	Cooked	Dried & stored
19	Malvaceae	*Ceiba pentandra* Linn.	Cotton tree	Araba	T	1	Vegetable leave	Cooked	Dried & stored
20	Piperaceae	*Peperomia pellucida* (L.) Kunth	Curry leaf	Ewe rinrin	H	1	Vegetable leave	Cooked	Dried & stored
21	Acanthaceae	*Asystasia gangetica* (L.) T.	Hunter's weed	Lobiiri	H	1	Vegetable leave	Cooked	Dried & stored

Source: Field Survey, 2023.
Note on Habitus: T = Tree, C = Climber, H = Herb, S = Shrub
Note on Season of Availability: 1= throughout the year, 2 = only wet season, 3 = only dry season

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DISCUSSION

The results of the study showed that the degree at which the respondents use edible wild plants in the study area vary. Majorities of the respondents collect edible wild plants for their personal use and also sell some to generate income especially during food shortage in the study area. The plant products include edible wild fruits, wild leafy vegetables, nuts/seeds and whole plants. The results of the study revealed that the usage cut across age, gender, religion, educational qualification and economic status. Majority of the forest community dwellers were still within the active age range. The result affirms Christopher *et al.,* (2002), NPC (2010), and Adedayo and Falade (2019) in their reports that forest dwellers were mostly young and economically active men who occasionally were accompanied by wives and children. Chi-square test ($p<0.05$) shows that there is significant association between age and the use of edible wild plants among forest community dwellers as elderly people are more involved in the use of edible wild plants than the young ones in the study area. This is because the indigenous knowledge about the use of edible wild plants resides with the elderly people more than the younger ones as earlier stated by Christopher *et al.,* (2002) and Sofowora (2006). Also, there is no significant association between gender and the use of edible wild plants among forest community dwellers in the study area. This denotes that the use of edible wild plants does not depend on gender as both male and female are involved in the use of edible wild plants in the study area. It further buttresses the fact that edible wild plants play important role in the diet and nutrition of forest community dwellers. As such, both male and female are involved in its utilization as earlier opened by Falade *et al.,* (2014). Moreover, there is no significant association between religion and the use of edible wild plants among forest community dwellers in the study area. This infers that no religion is against or restrict the use of edible wild plants in the study area. The results of the study revealed that majority of the forest dwellers in the study area had formal but low education as more than half of the respondents had secondary school education. They can read and write as well as interpreting both labels and instructions. While few of them had tertiary education, engaged in both farming and non-farming activities such as hunting and lumbering in the study area. This is corroborated by Adedayo (2013) and Iwuchukwu *et al.,* (2008) that forest dwellers are sometime educated farmers, timber contractors and hunters who sustain their livelihoods from the forest. Chi-square test ($p<0.05$) shows that there is no significant association between educational qualification and the use of edible wild plants among forest dwellers as everyone use edible wild plants regardless of education qualification in the study area. The average annual income generated by respondents across the study area were between ₦1,000,000.00 and ₦1,500,000.00. This is low income compared with the present economy in Nigeria where there is inflation and high cost of living. The low level of income leads to their high level of poverty and dependence on edible wild plants for their livelihoods. It also defines whether or not they can conveniently meet their needs including conventional food and pharmaceutical medicines. It therefore follows that those in the higher economic class may not be consuming more of edible wild plants because they could afford to get alternatives in form of agricultural fruits and food additives. This affirms the claims of Iraoye (2017) and Adedayo and Akindele (2003) that income is a very strong index or indicator of poverty. Nevertheless, Chi-square test ($p<0.05$) shows that there is no significant association between economic status of respondents and the use of edible wild plants as all respondents use edible

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wild plants in the study area. This was probably due to their low annual income in the study area.

Wild Plants Consumed by the Respondents in the Study Area

With respect to food security, several wild plants were identified for provision of vital nutrients to the people in the study area. The result reveals that vegetable leaves, fruits and seeds were the major parts collected as food by the respondents in the study area. This was supported by FAO (2014) who reported that the wild plants are consumed as fruits, nuts/seeds, vegetable leaves, and as whole plant. About eight common wild plant species were consumed through their vegetable leaves. They include: *Solanum nigrum, Gongronema latifolium, Cloredendrum volubile, Solanecio biafrae, Piper guineense, Piper umbelata, Pterocarpus mildbraedii* and *Peperomia pelucida.* They are all used as soup and available throughout the year except *Pterocarpus mildbraedii* which is available only during wet season. The soups are also medicinal for the treatment of some sicknesses. While some of the fruits include: *Deinbollia pinnata, Icacina trichanta, Sphenocentrum jollyanum, Xylopia aethiopica* and *Dennettia tripetala* also for vitamin supplements and medicinal purposes. They are all available during wet season and eaten fresh except *Sphenocentrum jollyanum* that is used as soup. Others whose seeds were consumed and sold include: *Monodora myristica, Brachystegia eurycoma* and *Afzelia africana* which are used as flavour in preparation of food. They are easily stored for future use.

Gross Monthly Income Generated from the Sale of Edible Wild Plants by Respondents in the Study Area

Forests dwellers produced both food and cash crops as farmers to sustain their livelihoods. Investigation on socio-economic impacts of edible wild plants on the livelihood of the forest dwellers in the study area shows that besides being consumed as food by the collectors, they are also sold to generate income to sustain their livelihoods in the study area. The contribution of forest income to forest dweller according to Fonta & Ayuk (2013) is due to income diversification. Therefore, the meaningful contributions from the sales of edible wild plants by the respondents serve as supports to the major income realized from the sales of agricultural produces. All the respondents selling edible wild plants in the two forest reserves generated less than ₦25,000:00 per month each. The result of the findings affirms the assertion of CARPE (2001), FAO (2010), and Adedayo and Falade (2019) that NTFPs especially, edible wild plants provide small but significant sources of income for rural and forest dwellers particularly, women. This is not unconnected with the fact that the forest dwellers gain free access to the edible wild plants in the study area. These they collect freely from the forest reserves, buffer, fringe areas, free areas, within the communities, farm and fallow lands. The plant products were always sold at home and community markets except the very few ones that were taken to semi-urban and urban markets. These categories were always collected in bulk and transported out of the communities for sale. For instance, *Dennettia tripetala, Piper guineense, Pterocarpus mildbraedii* and *Gongronema latifolium* were always sold in both local markets and urban markets. Some edible wild plants like *Pterocarpus mildbraedii, Gongronema latifolium, Dennettia tripetala, Solanecio biafrae, Crassocephalum rubens* and *Piper guineense* were sold raw. While some like *Treculia africana,* and *Monodora myristica* were sold after light processing for preservation and value addition.

CONCLUSION

The study finds out that edible wild plants products in the study area were majorly fruits, leafy vegetables and seeds. And they play important roles in food security in the

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study area as the forest dwellers collect, buy and consume them as food and phytomedicines. Their uses were not restricted by religion, educational qualification, gender, economic status and age especially the older ones in the study area. Besides consumption, they are also sold to generate income. The little income realized from the sales of edible wild plants in addition to other incomes contribute meaningfully to the livelihood of the forest dwellers in the study area. Hence, it is not amazing that edible wild plants had a significant impact on the income earnings and livelihoods of forest dwellers in the study area.

In view of the results of this study, it is therefore recommended that there should be cultivation and domestication of these precious edible wild plant species. This will reduce the pressure placed on the forest and also conserve it to continually improve livelihoods, and sustain indigenous knowledge on edible wild plants in the study area.

REFERENCES

Adedayo A. G and Akindele S. O (2003): Appraisal of Forest Resources Utilization and its impact on Rural Household Poverty in Kwara State, Nigeria. *The Nigeria Journal of Forestry*.33 (1&2) 11-17.

Adedayo A. G and Falade O. I (2019): Non-timber Forest Products (NTFPs) Utilization and its Impact on Poverty Reduction among Rural Women in Ondo State, Nigeria. *Journal of Experimental Agricultural International (EAI)*. 37 (2), Pg1-11.

Adedayo A. G (2013): Involvement of Women in the Sale of Non-timber Forest Products (NTFPs) in Urban Market in Osun State, Nigeria. *Forests and Forest Products Journal* 6, 68 -74.

Adetula T (2008): Challenges of Sustainable Forest Management in Ondo State: Community Based Forest Management System as a Panacea. In *Proceedings of 1st National Conference of the Forest and Forest Products Society of Nigeria*. 16th-18th April 2008. Pg. 242-247.

Aju (2011): Valuation of the Consumptive and Productive Uses of Wild and Domesticated Leafy Vegetables in Southeastern Nigeria. A PhD Thesis in the Department of Forest Resources Management, Faculty of Agriculture and Forestry, University of Ibadan, Oyo State.

Central African Regional Programme for the Environment (CARPE) (2001): Non-Timber Forest Products Economics and Conservation Potential. Congo Basin Information Series Issue Brief No 10 March, 2001.

Christopher K. R, Birnie A and Tengnas B (2002): Edible Wild plants of Tanzania Regional Land Management Unit (RELMA) Technical Handbook No. 27.

Falade O. I, Adedayo A. G and Oyerinde V. O (2014): Gender Involvement in Collection and Sales of Non-timber Forest Products. Forest and Forest Products Society held at Federal University of Agriculture, Abeokuta, Ogun State. April 2014, pp 345-349.

Falade O. I, (2021): Abundance, Diversity and Socio-Economic Benefits of Edible Wild Plants in Some Forest Reserves in South-West, Nigeria. A PhD Thesis in the Department of Forestry and Wood Technology, Federal University of Technology, Akure, Ondo State, Nigeria.

Fonta & Ayuk (2013) William M. Fonta & Elias T. Ayuk (2013): Measuring the Role of Forest Income in Mitigating Poverty and Inequality: Evidence from South-Eastern Nigeria, *Forests, Trees and Livelihoods*, 22:2, 86-105.

Food and Agriculture Organization (2010): Global Forestry Resources Assessment 2010. Main Report. Forestry Paper 163, Rome, Italy.

DOI: 10.56892/bima.v8i4.1140

Food and Agriculture Organization (2014): State of the World's Forests – Enhancing the Socio-Economic Benefits from Forests. ISSN1020-5705www.fao.org/publications.

Iwuchukwu J. C, Agwu A. E and Igbokwe E. M (2008): Incorporating Migrant Farmers into Nigeria's Agricultural Extension Policy. *Journal of Agricultural Extension* 12 (2) 95-108.

Iraoye A. O (2017): Enhancing the Socio-Economic Benefits from Forest in Nigeria. 9th FUTA Agric Conference Proceeding. School of Agriculture and Agricultural Technology, Federal University of Technology, Akure. Page 431-436.

National Population Commission NPC (2010): Federal Republic of Nigeria, 2006 Population and Housing Census, Priority Table Volume III Population Distribution by Sex, State, Local Government Area LGA and Senatorial District, National Population Commission, Abuja, Nigeria, April, 2010. pp 64.

Oyun M. B (2009): The Role of Non-timber Forest Products on the Livelihoods of Fringe Communities of Idanre Forest Reserve, Nigeria. *Forests and Forest Products* Journal, 2: 6" 75, 2009.

Sofowora A (2006): Medicinal Plant and Traditional Medicine in Africa. Spectrum books. Pp289.

Termote C, Van Damme P and Djailo B. D (2011): Eating from the wild: Turumbu, Mbole and Bali traditional knowledge on non-cultivated edible plants, District Tshopo, DR Congo. *Genetic Resources and Crop Evolution* 58(4):585-618.