

Forest Products: A Tool for Phytomedicine and Economic Security in Etche Ethnic Nationality, Rivers State, Nigeria

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ABSTRACT

The study investigated forest products as a tool for phytomedicine and economic security in Etche ethnic nationality of Rivers State, Nigeria. Descriptive survey design was adopted for the study. The population of the study consisted 786 registered farmers in Etche Ethnic nationality consisting of Etche and Omuma Local Government Areas. 270 and 90 registered farmers in Etche and Omuma Local Government Areas respectively were selected as the sample size, through random sampling techniques. Three research questions were answered. Data were collected through the administration of self-structured questionnaire which was validated and a reliability coefficient of 0.75 obtained and complimented with interview schedule for illiterate farmers. Data obtained were analyzed descriptively using mean and standard deviation. Results showed that most of the forest products were available for collection and utilization in the study area. The mean response showed that most of the forest products were utilized in the form of stimulants, spices, medicinal plants and animal products. Respondents opined that forest products would not only sustain their health, but would also enhance and improve their economic security. However, they remarked some constraining factors to the effective utilization of the forest products such as lack of power supply, processing facility, unfavorable market projections and deforestation among others. Based on the findings, it was recommended that deforestation should be discouraged and forest based activities, particularly processing of forest products should be prioritized by government and others stake holders to enhance the economic security of rural farmers.

Keywords: Forest, economic security, Etche, phytomedicine.

INTRODUCTION

Forest products are materials in the forest used by man to satisfy his needs and shape his destiny (Adekola and Mbalisi, 2015). Apart from meeting the economic needs of rural people for food and shelter, tropical forests are also a major source of industrial wood products and firewood. Firewood is the most important source of energy for developing countries and the only source of energy for most of the world's rural areas (IEA, 2002). In Sub-Saharan Africa, wood supplies about 70% of total energy used and firewood collectors' account for over 85% of the wood removed from the forest and woodlands (Contreras-Hermosilla, 2000). Furthermore, forest and forest trees are sources of a variety of food that supplement and complement what is obtained from agriculture. The majority of rural households in developing countries and a large proportion of urban household depend on plant product of forests to meet part

of their nutritional needs. Forest foods seldom provide the bulk of staple items that people eat; however, for rural people, they add variety to diets, improve palatability and provide essential vitamins, minerals, protein and calories (Bryon and Arnold, 1997). In the forest also is a wide array of economic or subsistence materials that come from the forest excluding timber called the Non-Timber Forest Products (NTFP). They range from food or food additives (nuts, mushrooms, wild fruits, herbs, spices, aromatic plants); plant materials (fibers, creepers and flowers); plant derivatives raffia, bamboo, rattan, cork and essential oils); to animals and animal products such as (honey, silk etc), (Malik, 2000).

The NTFPs play important roles in the livelihoods of millions of rural and urban people across the globe (Areki and Cunningham, 2010). It is well established that NTFPs fulfill multiple functions in supporting human

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wellbeing. The NTFPs provide the products for food, medicines, fibres, energy and cultural artifacts for many of the world's poorest people and a considerable proportion of the less poor (Belcher *et al.*, 2005, Chauhan *et al.*, 2008). The NTFPs create high economic value and large-scale employment. The NTFPs have attracted global interest due to the increasing recognition of the fact that they can provide important community needs for improved rural livelihood (Marshall *et al.*, 2003; 2006).

The most common forms of forest activities are timber extraction and non-timber forest produce (NTFPs) harvesting. Although timber products are highly valued worldwide, the NTFPs play important role in sustaining livelihoods of communities living around forest areas; NTFPs contribute significantly to household income, food security, household healthcare as well as provision of multiple social and cultural values. According to Ogundele *et al.*, (2012) use of forest products, especially non-timber items is fundamentally and generally impacted by financial variables. This is evident as NTFPs are generally used or relied on by individuals with low financial foundation. As indicated by the source (Malik 2000), the rich sometimes relies upon its accumulation for sustenance, since they have the cash or buying influence to purchase what they need from the market. They also opined that the use of forest products add to provincial vacation, for example, cooking, medicinal treatment, roofing materials, mat making and wage earning. Non-timber wood items (NTFPs) frame a necessary piece of the occupational methodology of rural groups in the tropics.

Etche ethnic nationality is predominantly rural in nature and endowed with forest and its products. From time immemorial the people depend on its products, especially the non-timber forest products as a livelihood support. Though an agrarian society, the utilization of forest products seems to be on the increase just as environmental factors seem to be adversely affecting crop production, the primary source of their livelihood.

Forest products of plant origin are known to contain some medicinal chemical compounds such as tannins, Phenols, tannin and flavonoids which are antimicrobial, anti-inflammatory and antioxidant. Hence they are often referred to as Phyto-medicine. The antioxidant mechanism of plants is important in lipid peroxidation and contributes to the reduction of risks of developing various diseases (Demiral and Turkan, 2005; Pandey and Rizvi, 2009). Some of these forest plants contain phenolic compounds. Studies have shown that diet rich in phenolic compounds contributes to reduced risk of diseases such as cancer, cardiovascular and neurodegenerative diseases that are linked to inflammation and oxidative stress (Lobo *et al.*, 2010). It therefore, becomes imperative to investigate forest products as a tool for phytomedicine and economic security among rural farmers in Etche ethnic nationality. The purpose of this study therefore is to ascertain how forest products could enhance phyto (herb) medicine and economic security among rural farmers in Etche, Rivers State.

Specifically, the objectives are to;

1. Identify medicinal forest products available in the study area.
2. Determine the extent of utilization of medicinal plants and medicinal animal products by farmers in the study area
3. Determine the influence of medicinal forest products on the economic security of farmers in the study area.
4. Identify the constraining factors to the effective utilization of forest products in the study area.

RESEARCH QUESTIONS

The following research questions guided the study area.

1. What are the medicinal forest products available for use by the farmers in Etche Ethnic nationality?
2. What is the extent of utilization of the medicinal forest products by farmers in Etche Ethnic Nationality?

3. What is the influence of medicinal forest products utilization on the economic security of farmers in Etche ethnic nationality?
4. What are the constraining factors to the effective utilization of medicinal forest products for the economic security of farmers in Etche Ethnic Nationality?

METHODOLOGY

The study was conducted in Etche, an ethnic nationality made up of Etche and Omuma Local Government areas in Rivers State, Nigeria. Descriptive survey design was adopted for this study. The designed was adopted based on the recommendation of Nwankwo (2016), who noted that descriptive survey is that study in which the researcher collects data from a large sample drawn from a given population and describe certain feature of the samples as they were at the time of the study. The population of the study comprised of 786 registered farmers in Etche ethnic nationality. The choice of Etche was informed by the presence of vast forest lands, the active participation of the people in Agriculture and a record of poverty in the area. As at the time of the study, there were 584 and 202 registered farmers in Etche and Omuma Local Government Areas respectively. (Source: Rivers State Ministry of Agriculture).

RESULTS

Research Question 1: What are the medicinal forest products available for use by the farmers in Etche Ethnic nationality? Table 1 showed that all the items used as medicinal plants recorded percentage above 50%, hence are all considered available. Among the items used as medicinal animal products, items 1,3,4 and 6 recorded scores below 50% which was indicative of non-availability, while the other items were considered available having recorded percentage score above 50%.

Research Question 2: Determine the extent of utilization of medicinal plants and medicinal animal products by farmers in the study area. Female respondents utilized medicinal plant products to a higher

A sample size of 360 registered farmers (270 and 90 illiterate and literate farmers from Etche and Omuma local Government Areas), were used for the study. 20 respondents were randomly selected from 18 communities in the study area giving a total of 360 respondents. The instrument used for data collection was a self-structured questionnaire complimented with interview schedule to elicit responses from the illiterate farmers. The instrument was designed in a pattern of 4-point likert scale of Strongly Agree (SA), Agree (A), Disagree (D) and Strongly Disagree (SD) with assigned numerical values of 4, 3, 2, and 1 respectively and was duly validated and reliability Coefficient (r) of 0.75 established using test-retest. A total of 360 copies of the instrument were distributed directly to the respondents by the researchers. Completed copies of the instruments retrieved were 340 representing 95% rate of return. This number was considered adequate and used for analysis. Data obtained were analyzed descriptively using means and standard deviation with a criterion mean score of 2.50 as the benchmark for acceptance in respect of research question 2 and 3, frequency and percentage were used in respect of research question 1, while regression analysis was used to test the hypothesis at 0.05 level of significance.

extent than male with the grand mean value 3.80 and 3.20 for female and male respectively. Similarly, female respondents utilized medicinal animal forest products to a higher extent than their male counterparts, with grand mean value 2.68 and 2.29 for male and female respondents respectively. Among the variables measured, bitter leaf and honey were utilized to a higher extent (3.89) and (3.88) respectively as seen in table 2.

Research Question 3: What is the influence of medicinal forest products utilization on the economic well-being of farmers in Etche Ethnic Nationality The respondents agreed that forest products can improve their financial security and also make them employers of labour as seen in Table 3.

Table 1: Medicinal Plants and Medicinal Animals Products Available in Etche**Ethnic Nationality**

Items	Available		Not Available	
	Yes	%	NO	%
Medicinal Plants				
Ginger	325	90.27	35	9.72
Negro perre (Uda)	356	98.88	4	1.11
Lemon Grass	344	95.55	16	4.44
Moringa leaf	322	89.44	38	10.55
Aloe vera	330	91.66	30	8.33
Scent leaf	310	86.11	50	13.88
Utazi	287	79.72	73	20.27
Bitter leaf	300	83.33	60	16.66
Awolowo leaf	388	107.77	72	20
Acasis (ring worm leaf)	326	90.55	34	9.44

Medical Animal Products

Horns	158	43.88	202	56.11
Bones	186	51.66	174	48.33
Tusk	8	2.22	352	97.77
Cat gut	173	48.05	187	51.94
Animal Blood	282	78.33	78	21.66
Whiskers	35	9.72	325	90
Gunea fowl egg	286	79.44	74	21
Hoof	188	52.22	172	48
Feather	303	84.16	57	16
Hides	256	71.11	104	29
Honey	310	86.11	50	14

Source: Field Survey, 2019. Range 50% available, less than 50% not available

DISCUSSION

Forest products create high economic value and large-scale employment. The NTFPs have attracted global interest due to the increasing recognition of the fact that they can provide important community needs for improved rural livelihood (Marshall *et al.*, 2003; 2006). Forest products utilized as medicinal plants and animal

products were identified to be available in the study area.

These plants species of high medicinal value are scent leaf, bitter cola, lemon grass, pawpaw leaf among others were significantly available for the treatment of various ailments, while medicinal animal products such as animal blood, guinea fowl egg, bone were also available to high extent within the acceptance range.

Table 2: Extent of Utilization of Medicinal Plants and Medicinal Animal Products by Farmers in the Study Area

S/N	Items	Male (n=90)			Female = (n=270)		
		\bar{X}	SD	Remark	\bar{X}	SD	Remark
1.	Ginger	3.60	0.86	VHE	3.92	0.84	VLE
2.	Bitter kola	3.50	0.88	VHE	3.85	0.73	VHE
3.	Lemon grass	3.41	1.03	VHE	3.68	0.75	VHE
4.	Moringa leaf	2.87	1.00	VHE	3.37	1.10	VHE
5.	Aloe Vera	2.92	0.90	VHE	3.82	0.84	VHE
6.	Scent leaf	3.10	0.92	VHE	3.90	0.82	VHE
7.	Okazi	3.58	0.64	VHE	3.80	0.73	VHE
8.	Bitter leaf	3.20	1.09	VHE	3.93	0.80	VHE
9.	Awolowo leaf	2.72	0.78	VHE	3.91	0.82	VHE
10.	Acacis (ringworm lead)	3.08	0.72	VHE	3.44	1.00	VHE
	Grand mean/SD	3.20	0.88	VHE	3.80	0.84	VHE
Medicinal Animal Products							
11.	Horns	2.21	0.70	LE	2.67	0.76	HE
12.	Bones	2.60	0.73	HE	3.70	0.92	VHE
13.	Tusk	1.95	0.86	VLE	1.91	0.86	VLE
14.	Cat gut	1.25	0.85	VLE	2.08	0.82	LE
15.	Animal Blood	2.44	0.78	LE	2.85	0.86	VLE
16.	Whiskers	1.20	0.80	VLE	1.16	0.84	VLE
17.	Guinea fowl egg	3.57	0.75	VHE	3.80	0.90	VHE
18.	Hoof	1.93	0.92	VLE	1.97	0.85	VLE
19.	Feather	2.12	0.88	LE	2.81	0.77	HE
20.	Hides	2.23	0.92	LE	2.67	0.78	HE
21.	Honey	3.82	0.99	VHE	3.88	0.97	VHE
	Grand mean/SD	2.29	0.83	LE	2.68	0.85	HE

Source: Field Survey, 2019. VHE-very high extent, HE-high extent, VLE – very low extent. (M) Mean = 2.50; Accept if $M \geq 2.50$, reject if $M \leq 2.50$

Table 3: Influence of Medicinal Forest Products Utilization on the Economic Security of Farmers

S/N	Items	Male (n=90)			Female = (n=270)		
		Mean	SD	Decision	Mean	SD	Decision
1.	Improved financial security for rural dwellers	2.66	0.23	Agreed	2.53	0.35	Agreed
2.	Improved quality of live for rural dwellers	2.55	0.19	Agreed	2.70	0.23	Agreed
3.	Improved standard of living for rural dwellers	2.61	0.20	Agreed	2.75	0.23	Agreed
4.	Rural dwellers can diversity their source of income	2.33	0.11	Disagreed	2.20	0.35	Disagreed
5.	Rural dwellers can become employers of labour	2.80	0.11	Agreed	3.11	0.41	Agreed
	Grand Total	2.28	0.10		2.43	0.31	

Source: Field Survey, 2019 (M) Mean = 2.50; Accept if $M \geq 2.50$, reject if $M \leq 2.50$

Research Question 4: What are the constraining factors to the effective utilization of medicinal forest products for the economic security of farmers in Etche Ethnic Nationality?

These medicinal plant and animal products have been identified as very effective in ethno medicine as well as essential ingredients in the production of orthodox medicine. It has also provided occupation for herbal medical practitioners who are engaged in the collection and extraction of these forest products for folk medicine. Traditional birth attendant (midwives) depends solely on these herbs which have proven to be effective preventive and curative medicine. Writing has shown that herbal

medical practice has gained attention and patronage lately in Nigeria and has become a very lucrative business for both rural and urban folks. The availability and utilization of these medicinal forest products also support rustic job in the study area for those who engage in trading of the said forest products. This result resonates with the observation of Matuka (2003) who noticed that rural inhabitants normally depend on customary herbs for treatment when need arises. FAO

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(1995) detailed that not less than 25% of medications utilized as a part of present day pharmaceutical arrangement are gotten from plants while numerous others are engineered simple based on proto kind confined from plants. This is additionally affirmed by

Bear (2000), according to him, it has been contended that 80% for every penny of aggregate families prevalent in rustic zones rely upon common herbs for their human service conveyance.

Table 4: Mean Responses on Constraining Factors to the Effective Utilization of Forest Resources

S/N	Item	Male (n=90)			Female (n = 270)		
		Mean	SD	Decision	Mean	SD	Decision
1.	Non-awareness of the health and economic importance of forest products by rural people.	3.33	0.35	Agreed	3.66	0.60	Agreed
2.	The risk and health hazards associated with sampling the forest for its products	4.00	0.20	Agreed	3.11	0.89	Agreed
3.	Lack of interest by rural dwellers.	2.66	0.35	Agreed	2.25	0.23	Agreed
4.	Lack of technical skills to identify useful forest products.	3.00	0.35	Agreed	3.22	0.73	Agreed
5.	Lack of technical skills required to process forest products.	4.00	0.20	Agreed	3.88	0.89	Agreed
6.	Lack of storage and processing facilities to preserve forest products.	3.66	0.20	Agreed	3.88	0.89	Agreed
7.	Lack of electricity supply to preserve forest products	4.00	0.20	Agreed	3.11	0.89	Agreed
8.	Unfavourable market projections.	3.33	0.35	Agreed	3.22	0.73	Agreed
9.	Unfavourable climate conditions	3.00	0.35	Agreed	3.11	0.62	Agreed
10.	Lack of incentive from Government for rural dwellers	4.00	0.00	Agreed	4.00	1.07	Agreed
11.	Lack of technical knowledge in handling disease and pests of the forest products.	3.66	0.20	Agreed	3.35	0.58	Agreed
12.	High rate of theft and insecurity	3.66	0.20	Agreed	3.11	0.89	Agreed
13.	Deforestation	3.33	0.32	Agreed	3.00	1.07	Agreed
14.	Loss of forest/vegetation to urbanization	4.00	0.00	Agreed	3.44	0.50	Agreed
15.	Fear of attack by man or wild animals.	3.66	0.60	Agreed	4.00	1.07	Agreed
	Grand Total	3.55	0.26		3.35	0.78	

Source: Field Survey 2019

(M) Mean = 2.50; Accept if $M \geq 2.50$, Reject if $M \leq 2.50$

Table 5 shows that all items had mean values higher than the criterion mean 2.5 indicating all items are accepted.

Results obtained from research question 3 indicated that forest products enhance improved financial security and can also enable rural dwellers becomes employers of labour. This is supported by the findings of Olumide (2009) which reported that, in the local, urban, national and international markets, NTFPs contribute substantially to national economic growth. Okafor (1998), reported that the Nigerian rural economic is highly dependent on these forest products to generate income and to provide medical care. Similarly,

Osemeobo and Ujo (1999) posited that in Nigeria NTFPs is a tried source of wage and nourishment supply and it stays focal in financial prosperity and sustenance of the local populace.

Results from research 4 showed the respondents agreed to all the variables surveyed as constraining factors to effective utilization of forest resources which include non-awareness of the health and economic importance of forest products by rural people, The risk and health hazards associated with sampling the forest for its

products, Lack of interest by rural dwellers, Lack of technical skills to identify useful forest products, Lack of technical skills required to process forest products, Lack of storage and processing facilities to preserve forest products, Lack of electricity supply to preserve forest products, Unfavourable market projections, Unfavourable climate conditions, Lack of incentive from Government for rural dwellers, Lack of technical knowledge in handling disease and pests of the forest products, High rate of theft and insecurity. This result agrees with Omofonmwan and Osa-Edoh (2008) which reported that loss of forest (deforestation) has been attributed to unsustainable human activities on forest areas including losing, agriculture, urbanization and high population, Onuche (2010) reported that exploitation that outstrips regeneration constitutes a threat to the sustainability of forest resources in Nigeria.

CONCLUSION

Based on the findings of the study, the following conclusions were made.

Most of the NTFPs used for medicinal purposes were relatively available for utilization in Etche nationality, while some fibers, stimulants among others were not available which could be attributed to lack of appropriate knowledge on the utilization of forest resources products.

It could also be concluded that the differences in the availability of forest products used as medicine were statistically significant.

RECOMMENDATIONS

Based on the findings of the study the following recommendations were made.

1. The government at federal, state, ministries of forest and environment should regularly organize workshop and seminars for the rural farmers, to update their knowledge on the uses and health benefits of some forest products.
2. Government should intensify efforts in providing processing facilities for rural dwellers. That will enhance the value added

chain of forest products and also help improve their standard of living.

3. Government should encourage the domestication of economically valuable forest products.

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