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SOME ETHNOBOTANICAL USES OF PLANT RESOURCES IN NASARAWA STATE, NIGERIA.

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ABSTRACT
A study was carried out to evaluate the ethnobotanical uses of plant resources in Nassarawa State, Nigeria. A total of 80 plants belonging to 37 families were surveyed through oral interviews of local inhabitants from different locations in the State, who use various plant materials for their livelihood. Uses ranged from Ornamental, food, forage, timber and construction, pest control, and textile. Plants belonging to the families *Poaceae* and *Caesalpinniaceae* were mostly used for food (9.76% respectively), *Poaceae*(42.85%) for forage, *Combretaceae*, *Poaceae* and *Moraceae* (18.18% respectively) for timber, building constructions and fuel wood. Only members of the family *Lamiaceae* and *Malvaceae* were used for pest control and textile purposes respectively. Majority of plant use in the study area was for food (51.25%) followed by forage (17.15%). The genus *Ficus* had the highest number of ethnobotanical uses with four applications, followed by *Terminalia* and *Ceibaboth* having three applications each. The rich biodiversity of ethnobotanical significance in the study area needs to be adequately conserved in order to forestall over exploitation and extinction of economically important plant families which is the main source of economy to the inhabitants.

Key Words: *Ethnobotanical, Plant Families, Oral interviews, Nassarawa State*

INTRODUCTION

Nature totally depends on the life of plants. Plants feed us, clothe us, warm us, shelter us, define our livelihoods and underlie the myriad cultures of human populations. It is on plant life that all animal life, including that of humans, ultimately depend (Pedulosi *et al*., 2013). Plant resources are used in a variety of ways which may include food, medicine, shelter, forage, farming, hunting, fuel, clothing, traditional ceremonies and religious practices (Nichter, 1992). Ethnobotany establishes a relationship between human cultural practices and plant utilization (Aworinde and Erinoso, 2013).

In Tropical Africa, only 6, 376 (21%) out of the estimated 30,000 plant species are used by man (PROTA, 2004). The 6,376 useful indigenous African plants are comprised of 1,975 medicinal plants, 820 timbers, 611 forages, 533 ornamentals, 477 fruits, 397 vegetables, 377 fibers, 240 essential oil and exudates, 220 auxiliary plants, 176 carbohydrate plants, 130 spices and condiments, 129 dyes and tannins, 104 fuel plants, 80 cereals and pulses, 54 vegetable oils and 53 stimulants (Adebooye and Opabode, 2004)

In recent years, there has been a consistent growth in the demand for plant-based products from a variety of species. This has given rise to large-scale selective extraction of plants from their natural habitats, habitat degradation, loss of plant diversity, and the growing extinction of a number of valuable plant species (Jabeen *et al*., 2009).

In Africa, traditional plant use systems of many ethnic groups have impacted negatively on plant biodiversity, and in most instances, loss of traditional knowledge of plants and culture is synonymous to the disappearance of biodiversity (Huai and Pei, 2009). It is therefore important to take urgent action especially in developing African countries to ensure sustainable exploitation of plant resources and their continued availability for posterity (Fonge *et al.*, 2012).

This work was carried out to evaluate the uses of plant resourcesin Nasarawa State, Nigeria in an effort to providing knowledge data base for plant conservation in the study area.

MATERIALS AND METHODS

Study Area

Nasarawa State is located on $8^{0}32'N8^{0}18'E$ in the Southern Guinea Savannah region of North-Central Nigeria, and has 13 Local Government Areas spread out on a total land mass of 27,117km^2. The state is known chiefly for the presence of high deposits of solid minerals and agricultural activity. Local Government Areas surveyed in the study include: Akwanga, Awe, Nasarawa Eggon, Keffi, Kokona, Nasarawa, Obi,Toto and Wamba.

Data on local names and ethnobotanical uses of plants were obtained from local inhabitants of the sampled areas through oral interviews. Representative parts of sampled plants were collected, pressed and conveyed to the Botany Laboratory of Federal University Lafia for further identification and preservation.

Plant samples collected from the field were identified on the spot and in the Botany Laboratory of Federal University Lafia in consultation with appropriate guides such as plant taxonomic manuals(NNMDA 2004; 2006; 2008a; 2008b).

RESULTS

Table 1: Ethnobotanical Uses of plant species in Nasarawa State, Nigeria.

		Uses (%)						
	Family	**Ornamental**	**Food**	**Forage**	**Timber, building Construction and fuel**	**Pest Control**	**Textile**	**Frequency of use (%)**
1.	*Annonaceae*	-	*Uvariachamae, Annona senegalensis*	-	-	-	-	*2(2.5)*
2.	*Mimosaceae*	-	*Parkiabiglobossa*	-	-	-	-	*1(1.25)*
3.	*Sapotaceae*	-	*Vitellaria paradoxa*					*1(1.25)*
4.	*Papilionaceae*	-	*Cajanuscajan*	*Desmodium velutinum, Stylosanthe shamata, Alysicarpus vaginalis, Securidacalonge pedunculata, Sylosanthes micronata*	*Pericopsis laxiflora*	-	-	*7(8.75)*
5.	*Caesalpinniaceae*	-	*Detarium microcarpum, Tamar indusindica, Daniella oliveri, Dialium guineense*	-	-	-	-	*4(5.00)*
6.	*Verbanaceae*	*Gmelinaarborea*	*Vitex doniana*	-	*Gmelinaarborea*	-	-	*3(3.75)*
7.	*Rubiaceae*		*Sarco cephaluslatifolius*	-	-	-	-	*1(1.25)*
8.	*Mimosaceae*	-	*Propsopsis africana*	*Dachro stachyscinerea*	-	-	-	*2(2.50)*
9.	*Anacardiaceae*	-	*Mangifera indica, Anacardium occidentalis*	-	-	-	-	*2(2.50)*
10.	*Musaceae*	-	*Musa paradisiaca*	-	-	-	-	*1(1.25)*
11.	*Arecaceae*	-	*Elaeis guineensis*	-	*Elaeis guineensis*	-	-	*2(2.50)*
12.	*Zingiberaceae*	-	*Zingiber officinales*	-	-	-	-	*1(1.25)*
13.	*Malvaceae*	-	*Abelmoschu sesulentum, Hibiscus sabdariffa*	-	-	-	*Gossypium barbadens*	*3(3.75)*
14.	*Convolvulaceae*	*Ipomoea* spp	*Ipomoea batatas*	-	-	-	-	*2(2.50)*
15.	*Asteraceae*	-	*Vernonia* spp.	-	-	-	-	*1(1.25)*
16.	*Myrtaceae*	*Eucalyptus globulus*	*Psidium guajava*	-	-	-	-	*2(2.50)*
17.	*Araceae*	-	*Colocasiae sculenta*	-	-	-	-	*1(1.25)*
18.	*Rutaceae*	-	*Citrus sinensis*	-	-	-	-	*1(1.25)*
19.	*Combretaceae*	-	*Terminalia catapa*	*Terminalia avicennoid*	*Anogeisusleiocarpa, Terminalia superba*	-	-	*3(3.75)*
20.	*Euphorbiaceae*	*Alchorneacordifolia*	*Manihot esculentum*	-	-	-	-	*2(2.50)*
21.	*Poaceae*	-	*Sorghum bicolor, Pennisetum typhoides, Zea mays, Oryza sativa*	*Andropogon tectorum, Brachiariajubata, Panicum maximum, Hyperrheniarufa, Paspalu morbiculare, Panicum* spp.	*Imperata cylindrica, Schizachyrium exile*	-	-	*12(15)*
22.	*Fabaceae*	*Crotalaria* spp.	*Vignaun giculata*	-	-	-	-	2(2.50)
23.	*Lamiaceae*		*Ocimum gratissimum*	-	-	*Hyptissuaveolens*	-	2(2.50)
24.	*Sterculiaceae*	*Sterculiasetigera*	-	-	-	-	-	1(1.25)
25.	*Apocynaceae*	-	*Landolphia owariensis*	-	-	-	-	1(1.25)
26.	*Arecaceae*	*Borassiusaethiopium*	-	-	-	-	-	1(1.25)
27.	*Liliaceae*	*Asparagus africanus*	-	-	-	-	-	1(1.25)
28.	*Moraceae*	*Ficusexasperata*	*Ficus capensis*	*Ficus capensis*	*Ficus exasperate, Ficus polita*	-	-	5(6.25)
29.	*Amarantheceae*	-	*Amaranthus spinosus*	-	-	-	-	1(1.25)
30.	*Solanaceae*	-	*Lycopersicon esculentum,*	-	-	-	-	1(1.25)
31.	*Tiliaceae*	-	*Corchorus* spp.	-	-	-	-	1(1.25)
32.	*Meliaceae*	*Khayasenegalensis*	-	-	*Khayasenegalensis*	-	-	*2(2.50)*
33.	*Asclepiadaceae*	*Calotropisprocera*	-	-	-	-	-	*1(1.25)*
34.	*Balanitaceae*	-	*Balanitesae gyptiaca*	-	-	-	-	*1(1.25)*
35.	*Portulacaceae*	-	*Portulacao lecacea*	-	-	-	-	1(1.25)
36.	*Dioscoreaceae*	-	*Dioscorea alata*	-	-	-	-	1(1.25)
37.	*Bombacaceae*	*Ceibapentandra*	*Ceibapentandra*	-	*Ceibapentandra*	-	-	3(3.75)

- = Not applicable

Data on ethnobotanical uses of plant species in Nasarawa State (Table 1) reveals that uses of plant resources in the study area included ornamentals, food, forage, timber and construction, pest control, and textile. The genus *Ficus* had the highest number of uses (4) followed by *Terminalia* and *Ceibaboth* having 3 applications each. Plant species belonging to the family Poacea had the highest frequency of use (15%) in the study area followed by *Papilionaceae*(8.75%).

Table 2:Frequency of Ethno-Botanical Usage of Different Plant Families in Nasarawa State, Nigeria.

		Uses (%)					
S/No.	**Family**	**Ornamental**	**Food**	**Forage**	**Timber, building Construction and fuel**	**Pest Control**	**Textile**
1.	*Annonaceae*	0.00	4.88	0.00	0.00	0.00	0.00
2.	*Mimosaceae*	0.00	2.44	0.00	0.00	0.00	0.00
3.	*Sapotaceae*	0.00	2.44	0.00	0.00	0.00	0.00
4.	*Papilionaceae*	0.00	2.44	37.71	9.09	0.00	0.00
5.	*Caesalpinniaceae*	0.00	9.76	0.00	0.00	0.00	0.00
6.	*Verbanaceae*	8.33	2.44	0.00	9.09	0.00	0.00
7.	*Rubiaceae*	0.00	2.44	0.00	0.00	0.00	0.00
8.	*Mimosaceae*	0.00	2.44	7.14	0.00	0.00	0.00
9.	*Anacardiaceae*	0.00	4.88	0.00	0.00	0.00	0.00
10.	*Musaceae*	0.00	2.44	0.00	0.00	0.00	0.00
11.	*Arecaceae*	0.00	2.44	0.00	9.09	0.00	0.00
12.	*Zingiberaceae*	0.00	2.44	0.00	0.00	0.00	0.00
13.	*Malvaceae*	0.00	4.88	0.00	0.00	0.00	100.00
14.	*Convolvulaceae*	8.33	2.44	0.00	0.00	0.00	0.00
15.	*Asteraceae*	0.00	2.44	0.00	0.00	0.00	0.00
16.	*Myrtaceae*	8.33	2.44	0.00	0.00	0.00	0.00
17.	*Araceae*	0.00	2.44	0.00	0.00	0.00	0.00
18.	*Rutaceae*	0.00	2.44	0.00	0.00	0.00	0.00
19.	*Combretaceae*	0.00	2.44	7.14	18.18	0.00	0.00
20.	*Euphorbiaceae*	8.33	2.44	0.00	0.00	0.00	0.00
21.	*Poaceae*	0.00	9.76	42.85	18.18	0.00	0.00
22.	*Fabaceae*	8.33	2.44	0.00	0.00	0.00	0.00
23.	*Lamiaceae*	0.00	2.44	0.00	0.00	100.00	0.00
24.	*Sterculiaceae*	8.33	0.00	0.00	0.00	0.00	0.00
25.	*Apocynaceae*	0.00	2.44	0.00	0.00	0.00	0.00
26.	*Arecaceae*	8.33	0.00	0.00	0.00	0.00	0.00
27.	*Liliaceae*	8.33	0.00	0.00	0.00	0.00	0.00
28.	*Moraceae*	8.33	2.44	7.14	18.18	0.00	0.00
29.	*Amarantheceae*	0.00	2.44	0.00	0.00	0.00	0.00
30.	*Solanaceae*	0.00	2.44	0.00	0.00	0.00	0.00
31.	*Tiliaceae*	0.00	2.44	0.00	0.00	0.00	0.00
32.	*Meliaceae*	8.33	0.00	0.00	9.09	0.00	0.00
33.	*Asclepiadaceae*	8.33	0.00	0.00	0.00	0.00	0.00
34.	*Balanitaceae*	0.00	2.44	0.00	0.00	0.00	0.00
35.	*Portulacaceae*	0.00	2.44	0.00	0.00	0.00	0.00
36.	*Dioscoreaceae*	0.00	2.44	0.00	0.00	0.00	0.00
37.	*Bombacaceae*	8.33	2.44	0.00	9.09	0.00	0.00

Results of survey of ethno-botanical uses among different plant families in Nasarawa State, Nigeria (Table 2), indicates that plants belonging to the family *Poaceae* and *Caesalpinniaceae* were the most frequently used for food (9.76% respectively), *Poaceae*for forage (42.85%), *Poaceae*, *Combretaceae* and *Moraceae*(18.18% respectively) for timber, building construction and fuel wood. Members of the families *Annonaceae*, *Caesal Pinniaceae, Convol vulaceae, Asteraceae, Myrtaceae, Euphorbiaceae, Fabaceae, Sterculiaceae, Arecaceae*, *Liliaceae, Meliaceae, Asclepiadaceae* and *Bombacaceae* were respectively used most frequently as ornamentals (8.33%). Only members of the family *Lamiaceae* and *Malvaceae* were used for pest control and textile purposes respectively.

Table 3: Frequency of plant use in the study area.

Plant Use	Frequency (%)
Ornamentals	15
Food	51.25
Forage	17.15
Building, construction and fuel wood	13.75
Pest control	1.25
Textile	1.25

Results of frequency of plant use in the study area (Table 3) reveal that plant resources were used mostly for food (51.25%) followed by forage (17.15%). The least applications of plant resources in the study area were in the aspects of pest control and Textile each with 1.30% frequency use respectively.

DISCUSSION

In the reported study, plant use for food was higher than every other category under consideration. Humans require food to provide the needed energy for daily activities. Food is no doubt the highest need for plant use worldwide (Krishnamurthy, 2003).

Plants belonging to the family *Poaceae* and *Caesalpinniaceae*,were most frequently used for food compared to other families.Members of the family *Poaceae* including maize, wheat, millet and rice, are quite popular in the study area. Local foods prepared from the *Poaceae* include; Akanmu, Tuwonchikafa and Maasa. Purseglove (1992); Osagie and Eka (1998) also agree that the *Poaceaeare* among the most important food crops in the world with regard to cultivation areas and total production. The use of plant parts of members of family *Caesalpinniaceae* in the preparation of various foods has also been documented by Seidemann (2005).

The extensive usage of members of the *Poaceae* for forage observed in the study can be explained by their relative abundance, nutritional content and preference by most livestock for food in the study area. In support of the enormous abundance of grasses for forage purposes, Oregon State University (OSU) (2008) also stated that Seventy-five percent of all forages are grasses. Structurally resilient plant members of the *Poaceae* such as spear grass (*Imperata cylindrica,* L) and bamboo (*Bambusa vulgaris*) as well as *Combretaceae* such as *Anogeissu sleiocarpa* and *Malvacea*e such as *Ficus* spp. are also relatively abundant in the study area and account for their common usage for building, timber and construction as well as fuel wood purposes in the study area.

Plants belonging to the Malvaceae family were the only ones used for textile in the study area. Cotton (*Gossypium* spp), a member of the Malvaceae family is a common textile plant used in the study area for making wool and cotton fabrics. The use of cotton in textile production is popular across the globe and their applications have been reported by several researchers (Brown and Ware, 1958).

Plant families used for ornamental purposes in the study included *Annonaceae, Caesalpinniaceae, Convolvulaceae, Asteraceae, Myrtaceae, Euphorbiaceae, Fabaceae, Sterculiaceae, Arecaceae, Liliaceae, Meliaceae*, and *Asclepiadaceae*. This also represents the category with the highest plant diversity in the study. Several plants belonging to these families are often utilized for beatification purposes in homes, public places and places of religious worship in the study area.

CONCLUSION AND RECOMMENDATIONS

Data obtained from the study establishes a relationship between human practices and plant utilization in the study area. This has serious implications in the extinction of wildly harvested plant species and loss of vegetative cover from extensive logging and other human activities in the area. There is therefore need for proactive sensitization of the local dwellers on the benefits of renewable plant use and sustainable agricultural practices in order to conserve plant biodiversity in the study area.

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