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Ethno- Botanical Survey Of Plants Used For Building Construction, Textile Materials And Cooking Purposes In Abeokuta, Ogun State, Nigeria.

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ABSTRACT

A total of 72 species of plants belonging to 37 families were collated. Fabaceae, Malvaceae, Combrataceae, Myrtaceae and Mimosaceae were the most frequently mentioned families. Stems, barks, fruits and whole parts were the most commonly used parts. *Lophira lanceolata*, *Milicia excelsa*, *Kigelia africana*, *Swietenia macrophylla*, *Tectonia grandis*, *Terminia superba*, *Triplochiton scleroxylon* and *Ceiba petandra* were the most frequently mentioned plants used for building construction, *Gossypium barbadense*, *Hibiscus sabdariffa*, *Bombax costatum*, *Celtis africana* were mostly used as textile materials while *Anogeissus leiocarpus*, *Daniellia oliveri* and *Tectonia grandis* were the most plants cited being used for cooking purposes. This study indicates that Abeokuta ecosystem is characterized by economically valued trees used for building construction, textile materials and cooking purposes.

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INTRODUCTION

Nigerian vegetations are naturally endowed with arrays of floristic composition of different plant forms including trees, shrubs, herbs, and other non woody forest resources (Olajide 2008). Within the natural forest, there abound several valuable non-timber resources of edible and highly nutritious plants whose fruits, twigs, barks, roots, gum, latex or dyes are available (Owonubi and Otegbeye, 2004). Mgeni (1991) opined that with this unique diversity of plant and animal life, tropical rain forest represents biologically renewable resources of food, medicine, clothing, building and fuel if well managed.

The tropical rain forests contains not less than 60% of all higher plant species known on earth and they provide all plant materias that needed for human survival. Forest dwellers often claim that most and perhaps all plants in their environment posses their unique importance (Balick and cox, 1997). For some countries, plants have provided man with an array of products crucial to his socio-economic life.

The interaction between man and his environment according to Agbogidi (2011) for almost everything relating to growth and survival on planet earth can not be over emphasized. This is due to his proximity to biotic components or symbiotic relationship between him and his environment (Agbogidi and Ofuoku, 2007).

Among the major biotic components of the environment are forests and other vegetations. The wise management of the environment depends on a better understanding of its components. Given the dynamic nature of the global ecosystem and environment changes influenced by man and natural causes are inevitable. Increase in economic activities and population growth have made the human influence on vegetation hazardously significant which can no longer be eradicated (Aimufia, 2002).

The beneficial roles of forest and its products to humanity are numerous and substantial from the cradle to the grave (Agbogidi and Eshegbeyi, 2008). Aimufia (2002) emphasized that the cot on which the baby lies at birth, the buildings and furniture he uses, at the various levels of his education, his endeavours in industry and agriculture, the shelter and furniture he acquires as a worker/ entrepreneur, his diet and health sustaining systems, the armchair, he relaxes are forest products.

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In Abeokuta just like other parts of Nigeria, most of the original forest have been either completely lost or badly degraded due to pressures from environmental degradation, forest fragmentation, afforestation, unsustainable land use, urbanization and industrialization (Kadiri *et al.*, 2013) and anthropogenic activities such as farming, hunting, tree felling, bush burning, mining operation, petroleum exploitation, civil engineering construction and water exploration have been shown to impact the forest negatively (Adeyemo and Jegede, 2002). Adelusi *et al.* (2002) noted that urban forest reserves and enclaves have suffered undue depletion and degradation with loss of biodiversity and renewable resources as a result of urbanization and encroachment on areas originally perceived as forest reserves and estate, thus reducing the biodiversity of the tropical rainforests of the country. Despite these, the potential of some of the available rain forest plant species are largely yet to be discovered and documented, most especial in Abeokuta, where the original rain forest has been changed to a derived savannah.

However, the link between the environment and human needs clamors for environmental impact assessment that will impact the generality of the populace and Abeokuta.

Objectives:

This study was carried out to assess the economic plants used in building construction, textile materials and cooking purposes in Abeokuta.

RESULTS AND DISCUSSION

A total of 200 respondents comprising saw milers, farmers, wood cavers, local textile factory owners and herbal sellers were interviewed (Table 1). 30 percent were saw-milers, 15 percent were farmers, 20 percent were wood cravers, 20 percent were local textile factory owners while 15 percent were herbal sellers (Table 1). The respondents were majorly males (60.5%) and of age range (30-39) years (33%). This may be because the respondents were usually stronger and resourceful at this age range as some of the activities of the professions, most especially sawmilling operations which require the strength of able bodied people or gender selection.

A total of 72 species of plants belonging to 37 families were identified as being used for building construction, cooking and as textile materials in Abeokuta. Ethnobotanical data of plants collated such as scientific, common and family names and parts used were summarized (Table 2). The most frequently mentioned families were Fabaceae, Malvaceae, Comebretaceae, Myrtaceae and Mimosaceae (Table 2). *Lophira lanceolata*, *Milicia excelsa*, *Kigelia africana*, *Swietenia macrophylla*, *Tectonia grandis*, *Terminia superba*, *Triplochiton scleroxylon* and *Ceiba petandra* were the most frequently mentioned plants used for building construction, *Gossypium barbadense*, *Hibiscus sabdariffa*, *Bombax costatum*, *Celtis africana* for textile materials while *Anogeissus leiocarpus*, *Daniellia oliveri* and *Tectonia grandis* were the most frequently mentioned for cooking purposes (Table 2). Stems were commonly used in all the plants collated being useful for building construction. Stems and fronds were reported in *Elaeisis guineensis*, *Acacia nilotica*, *Raphia sudanica*, *Acacia nilotica*, *Phonenix sylvestris* while culms and leaves were reported in *Saccharum bengalensis*. The trees collated were reported being useful not only for domestic activities alone but also for commercial purposes such as baking bread and furniture works. Some of the trees were supplied to few sawmills located in the study areas on daily basis which converted them into electric poles and others such as wood craft (Ogunkunle and Oladele, 2004).

Barks, fruits and whole plant were reported in *Gossypium barbadense* and *Hibiscus sabdariffa* as textile materials. This may be because the plants are characterised by fibres and chemicals used as dye agents. This implies that the inventory of trees are providing the basic needs of vegetation resources such as fuel wood, fodder, timber and textile materials which make it possible for rural people to enjoy their living in the area (Rabi'u *et al.*, 2013).

The study area which was formerly rain forest zone has metamorphosed to derived savannah due to over exploitation and adverse effect of anthropogenic activities. This has led the disappearance of many economically valued tree and shrub species not only in Abeokuta but across the Nigeria vegetation zones ((Agbogidi, 2002; Iroko *et al.*, 2008; Agbogidi and Ofuoku, 2006; Adekunde and Akinlemibola, 2008; Olajide *et al.*; 2008; Oni *et al.*, 2010). Deforestation for various reasons are equally evident (Adeyemo and Jegede, 2002; Foskett and Foskett, 2004; Omotoyinbo and Kayode, 2008; Oguntade and Awolala, 2010).

If forests are indiscriminately depleted, various roles associated with trees would be lost; there will be prevalence of food insecurity, environmental problems would be increased as there will be heightened climate change resulting in reduced immunity and outbreak of various diseases leading to the death of organisms including the species called man as emphasized by Nwoboshi (2001). However, there is an ultimate need for conservation of biodiversity (Foskett and Foskett, 2004) the goal for sustainable development (Agbogidi and Okonta, 2009).

Domestication of indigenous tree and shrub species is advocated both for poverty alleviation in rural communities like Abeokuta and for a balance to be maintained in the ecosystem (Oregbeme, 2005; Jimoh and

Haruna, 2007; Anamayi *et al.* (2005) and Olufemi and Akinlosutu (2006) shared similar view. Nature reserves, groves and sanctuaries should be established in the area to enhance conservation strategies and to ensure sustainability.

The danger of extinction of these plants is ahead; therefore it is necessary to ensure the survival of their germplasm by their protection, conservation, multiplication and maximum sustainable development of such economically important plant species.

Table 1: Socio-economic characteristics of the respondents (Saw-millers farmers, herbal sellers, wood carver, local textile factory owners) in Abeokuta metropolis, Ogun State Nigeria

Respondents (Specification)	Gender		Total respondents	% Total frequency	Mode
	Male	Female			
Saw milers	52	8	60	30	30
Farmers	21	9	30	15	
Wood cavers	24	16	40	20	
Local textile factory owners	13	27	40	20	
Herbal sellers	11	19	30	15	
Total	121	79	200	100	
Age class (Years)					
20-29	16	8	24	12	
30-39	40	26	66	33	33
40-49	34	16	50	25	
50-59	16	20	36	18	
60-69	8	16	24	12	
Total	114	86	200	100	
Marital status					
Single	44	32	76	38	
Married	86	38	124	62	62
Total	130	70	200	100	
Religion					
Christianity	60	20	80	40	
Islam	70	30	100	50	50
Traditional	14	6	20	10	
Total	144	56	200	100	
Educational status					
None	16	8	24	12	
Primary	40	34	74	37	
Secondary	58	26	84	42	42
Tertiary	14	4	18	9	
Total	128	72	200	100	
Local government area				100	
Abeokuta north	72	36	108	54	54
Abeokuta north	70	22	92	46	
Total	142	58	200	100	

Table 2: Some plants species used for building, construction, cooking (fire wood) and textile materials

Family/botanical name	Family	Common/local name	Part used	Habit
Building construction				
<i>Acacia catechu</i>	Leguminosae	catechu,	Stem	Tree
<i>Acacia leucophloea</i>	Fabaceae	<i>Acacia</i> , brewers <i>acacia</i>	Stem	Tree
<i>Acacia nilotica</i>	Leguminosae-Mimosoideae	scented-pod <i>Acacia</i>	Stem, branches	Tree
<i>Adansonia digitata</i>	Malvaceae	dead-rat tree		Tree
<i>Albizia gummifera</i>	Fabaceae	Peacock Flower	Stem	Tree
<i>Albizia zygia</i>	Fabaceae – Mimosoideae	West African walnut	Stem	Tree
<i>Anacardium occidentale</i>	Anacardiaceae	Cashew nut tree	Stem	Tree
<i>Anogeissus pendula</i>	Combretaceae	Chakwa	Stem	Tree
<i>Bambus vulgaris</i>	Poaceae	Bamboo		Tree
<i>Bambusa arundinacea</i>	Gramineae	Thorny bamboo,	Culms	Shrubs
<i>Boswellia serrata</i>	Burseraceae	Indian Olibanum Tree	Stem	Tree
<i>Butea monosperma</i>	Fabaceae	Flame of the Forest	Stem, branches and leaves	Tree
<i>Cajanus cajan</i>	Fabaceae	<i>pigeon pea</i>	Stem	Tree
<i>Cassia fistula</i>	Fabaceae	Indian laburnum	Stem	Tree
<i>Ceiba pentandra</i>	Bomebacea	Silk cotton tree	Stem	Tree
<i>Cocos nucifera</i>	Palmaceae.	Coconut tree	Stem/ fronds	Tree
<i>Cola nitida</i>	Sterculiaceae	Cola nut	Stem	Tree
<i>Diospyros melanoxylon</i>	Ebenaceae	<i>Coromandel Ebony</i>	Stems	Tree
<i>Elaeisis guineensis</i>	Arecaceae	Palm tree	Stem/fronds	Tree
<i>Ficus benjamina</i>	Moraceae	Weeping fig	Stem	Tree

<i>Ficus exasperate</i>	Fabaceae	Sandpaper tree	Stem	Tree
<i>Funtumia elastic</i>	Apocynaceae	Silk rubber tree	Stem	Tree
<i>Gmelina arborea</i>	Lamiaceae	Gmelina	Stem	Tree
<i>Harungana madagascariensis</i>	Guttiferae	Orange-milk/ Blood tree	Stem	Tree
<i>Kigelia Africana</i>	Bignoniaceae	African kigeli tree	Stem	Tree
<i>Lophira lanceolata</i>	Ochnaceae	African oak	Stem	Tree
<i>Madhuca indica</i>	Sapotaceae	Butter Tree;	Stem	Tree
<i>Mangifera indica</i>	Anacardiaceae	Mango	Stem	Tree
<i>Milicia excels</i>	Moraceae	African Teak		Tree
<i>Musa sapientum</i>	Musaceae	Plantain	Front	Grass
<i>Newbouldia laevis</i>	Bignoniaceae	African Border Tree	Stem	Tree
<i>Phoenix sylvestris</i>	Arecaceae	Wild Date Palm	Stem and leaves	Tree
<i>Psidium guajava</i>	Myrtaceae	Guava	Stem	Tree
<i>Raphia sudanica</i>	Arecaceae	Raffia palm	Stem/frond	Tree
<i>Saccharum bengalense</i>	Poaceae	Sweet cane.	Culms and leaves	Grass
<i>Swietenia macrophylla</i>	Meliaceae	<i>Mahogany</i>	Stem	Tree
<i>Syzygium cumini</i> ,	Myrtaceae.	black plum		Tree
<i>Tectonia grandis</i>	Verbenaceae	Teak	Stem	Tree
<i>Terminalia bellirica</i>	Combretaceae	Myrobalan	Stem	Tree
<i>Terminalia catappa</i>	Combretaceae	Bengal almond	Stem	Tree
<i>Terminalia crenulata</i>	Combretaceae	Laurel	Stem	Tree
<i>Terminlia superb</i>	Combretaceae	White afara	Stem	Tree
<i>Trema orientalis</i>	Uimaceae		Stem	Tree
<i>Triplochiton scleroxylon</i>	Malvaceae	Obeche	Stem	Tree
TEXTILE MATERIALS				
<i>Acacia Senegal</i>	Mimosaceae		Bark	Shrub
<i>Acacia seyal</i>	Mimosaceae		Bark	Tree
<i>Albizia coriaria</i>	Mimosaceae		Bark	Tree
<i>Albizia zygia</i>	Mimosaceae		Bark	Tree
<i>Bombax costatum</i>	Bombacaceae	Silk cotton tree	Bark	Shrub
<i>Celtis Africana</i>	Ulmaceae		Bark	Tree
<i>Ficus. Exasperate</i>	Fabaceae		Bark	Tree
<i>Gossypium barbadense</i>	Malvaceae	West Indian cotton	Fruits	Shrub
<i>Hibiscus sabdariffa</i>	Malvaceae		Whole plant	Shrub
<i>Justicia betonica</i>	Acanthaceae		Bark	Shrub
<i>Prunus Americana</i>	Lauraceae		Bark	Tree
<i>Psidium guajava</i>	Myrtaceae		Bark	Shrub
<i>Syzygium guineense</i>	Myrtaceae			Tree
Cooking purposes				
<i>Adansonia digitata</i>	Malvaceae	Dead-rat tree	Stem	Tree
<i>Albizia zygia</i>	Fabaceae – Mimosoideae	West African walnut	Stem	Tree
<i>Anogeissus leiocarpus</i>	Combretaceae	Axle wood tree	Stem	Tree
<i>Balanites aegyptiaca</i>	Balanitaceae	soapberry tree	Stem	Tree
<i>Bombax costatum</i>	Bombacaceae	silk cotton tree	Stem	Tree
<i>Daniellia oliveri</i>	Leguminosae.	parkland trees	Stem	Tree
<i>Diospyros mespiliformis</i>	Ebenaceae	African ebony	Stem	Tree
<i>Newbouldia laevis</i>	Bignoniaceae	African Border Tree	Stem	Tree
<i>Parkia biglo bosa</i>	Fabaceae	African Locust Bean,	Stem	Tree
<i>Sclerocarya birrea</i>	Anacardiaceae	Jelly plum	Stem	Tree
<i>Strychnos spinosa</i>	Loganiaceae	Spiny Monkey-orange	Stem	Tree
<i>Swietenia macrophylla</i>	Meliaceae	<i>Mahogany</i>	Stem	Tree
<i>Tectonia grandis</i>	Verbenaceae	Teak	Stem	Tree
<i>Triplochiton scleroxylon</i>	Malvaceae	Obeche	Stem	Tree
<i>Vitellaria paradoxa</i>	Sapotaceae	<i>Shea-butter tree</i>	Stem	Tree
<i>Xmenia americana</i>	Olcaceae	wild olive, wild lime;	Stem	Tree
<i>Ziziphus mauritiana</i>	Rhamnaceae.	<i>Indian jujube</i>	Stem	Tree

Conclusion:

The ecosystems of Abeokuta forest tree and shrub species is characterized by economically valued products used for building construction, textile and cooking purposes.

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