

SURVEY OF WILD PLANT SEEDS AND THEIR VALUE IN TRADITIONAL HERBAL MEDICINE IN OSUN STATE, NIGERIA.

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ABSTRACT

*A gap in knowledge exist on the traditional medicinal use of wild plant seeds in Nigeria. The study involved oral interview of 100 herb sellers (stall owners) in five selected herbal markets in Osun State to elicit vital information on medicinal seeds. Seeds of 58 medicinal plant species belonging to 56 genera and 34 families were identified and documented. These seeds are used in the traditional management of about 28 ailments. The common ailments are fever, cough, skin disease, asthma, dysentery and piles. Seeds from tree species accounted for 23 or (39.7%) of the total list, closely followed by seeds of climbing plants with 13 or (22.4%). The price per kilogram of these medicinal seeds varies between ₦1, 766.79 for *Sarcocephalus latifolius* (Sm) Bruce and ₦6,557.38 for *Monodora myristica* (Geartn) Dunal, in the markets surveyed. Establishment of medicinal plant gardens by traditional health practitioners is proposed to reduce the mounting pressure on the natural forest ecosystem and ensure the conservation of its rich medicinal plant genetic resources.*

Keywords: *herbal market, conservation, ecosystem, genetic resources.*

INTRODUCTION

Seeds are fertilized and ripened ovules. In a functional sense, they are units of dissemination. Taxonomically, phanerogams (seed plants) are grouped into two major divisions namely: Angiosperm and gymnosperm. Kozłowski (1972) had earlier highlighted the economic importance of seeds to include its uses as source of food, fiber, spices, beverages, edible and industrial oils, vitamins and drugs (medicine).

In the tropics, traditional health practitioners rely on selective harvesting of both vegetative and reproductive plant materials including fruits and seeds in crude herbal medicine preparation. Most of these plant materials are harvested from the wild. In South Africa, reports indicate that of the 400 to 500 species of medicinal plants sold for traditional medicine, 99% are harvested from the wild (Cunningham, 1991; Cunningham 1988 and Williams 1996). A similar trend was recently reported in Nigeria by Fashola (2006) and Obute (2007), where collectors of medicinal plant materials continuously harvest plants in the wild, generating some employment

opportunities in the rural area. However, Peters (1994) noted that intensive annual harvesting of valuable fruits or oil seeds, for example, may have a long term impact on populations of vulnerable species either because of the long term impact on seedling recruitment through depletion of seed banks or because fruit/seed collection can involve tree felling.

In a broader sense, uncontrolled seed harvesting and collection may alter the ecological balance of forest ecosystems when keystone plant species are unsustainably harvested. The food resources in the seeds of these species are vital in the sustenance of animal populations which depend on them when fruits are scarce as a result of infrequent flowering/fruitletting of certain plant species. The overall implication of these factors on annual recruitment of seedlings and population changes in the Nigeria's fragile tropical forest ecosystem have been documented (Oyeachusi, 1985; Isikhuemen, 2005). From the standpoint of the traditional medicinal value of seed of wild plants, not much has been reported in Nigeria.

This study was undertaken to document information on wild plant seeds used in traditional medicine in Osun State, Nigeria. This is aimed at building a databank of indigenous knowledge on the use of medicinal plant materials. It is hoped that information provided will further enhance the basis for phytochemical screening of its bioactive components for drug production to meet the ever increasing demand for plant based medicine.

MATERIAL AND METHODS

Study Area: The study was conducted in Osun State, South West, Nigeria. The state covers an area of approximately 14,875km² and lies between latitude 7.0⁰N to 8.0⁰N and longitude 04⁰.10⁰E to 05⁰.05⁰E, Fig1. Rainfall ranges from 1475mm per annum in the southern part to 1125mm in the northern part of the state. The vegetation lies in the lowland rain forest zone of southwestern Nigeria, with derived savanna featuring around Iwo and Osogbo (Abe, 1995).

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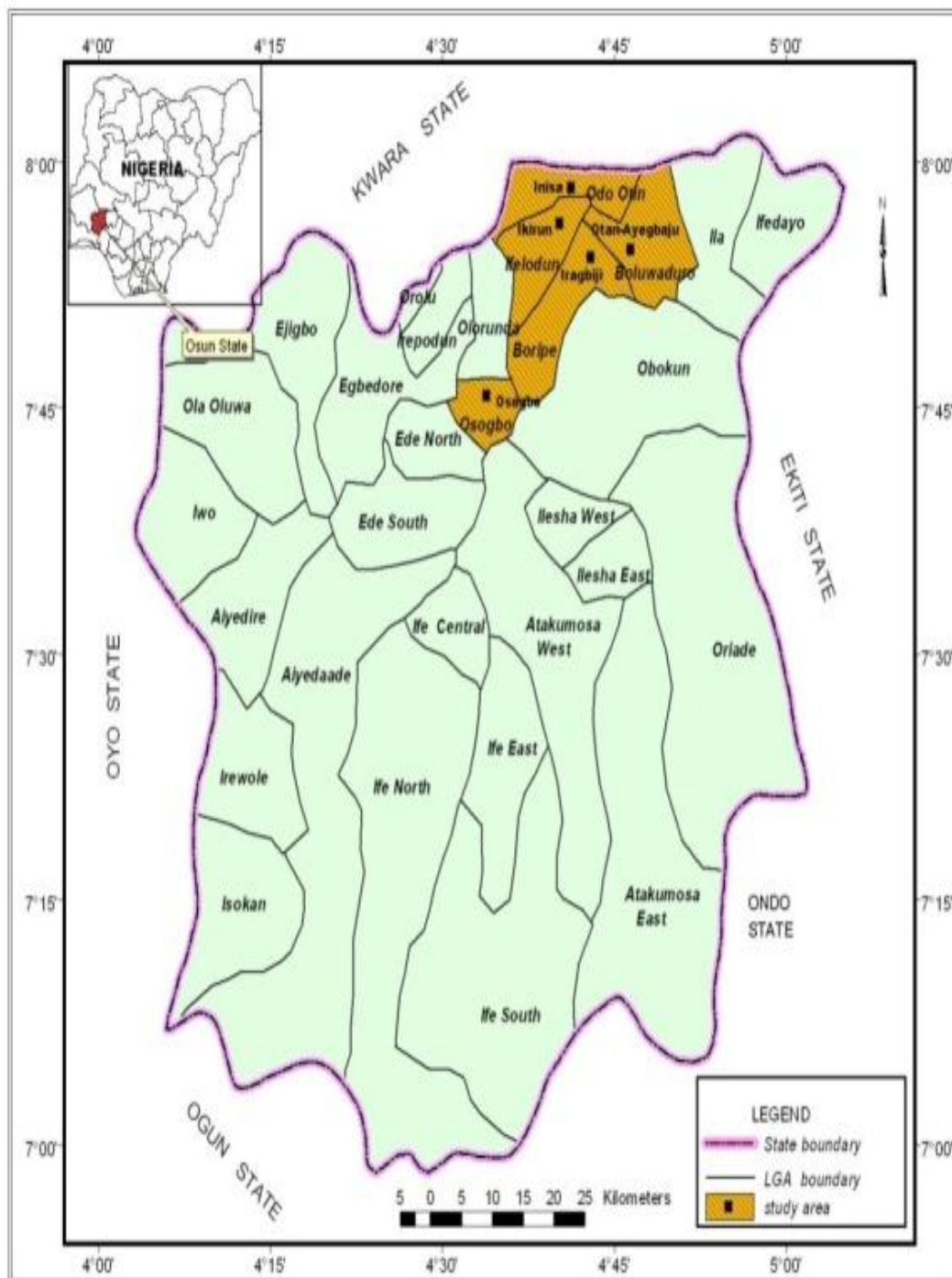


Figure 1. Map showing the study area.

Data Collection: Five Local Government Areas were randomly selected out of the 30 in the state. Most of the selected study areas lies in the northern parts of the state and shares a common boundary with the neighbouring Kwara State (Savanna vegetation). One major herbs market was then sampled from each of the five selected L.G.As to document wild medicinal plant seeds sold. These markets are: Oja Oba Iragbiji (Boripe), Oja Orisunbare (Odootin), Oja Oba Osogbo (Osogbo), Oja Oba Ikirun (Ifelodun) and Oja Obada Otan Ayegbaju (Boluwaduro). Field visits through personal contacts and oral interview of 20 randomly selected local herb sellers (Stall owners) per market were conducted. Information elicited included, medicinal uses, local names and the place of collection of plant materials. Furthermore, samples of some medicinal seeds were purposively bought from Ojaoba Osogbo (a central functional herbal market) for weight determination and their unit prices. Weight of seeds was determined using electronic weighing scale.

Data analysis

The botanical names, families and the habit of the taxa were determined using the *Flora of West Tropical Africa* by Hutchinson and Dalziel (1954 and 1972) and preserved plant specimens in the Forest Herbarium, Ibadan (FHI) listed in Holmgren *et al.* (1991). The data for the five markets surveyed were pooled and validity was verified by triangulation (Walter, 1998; Akinsoji and Oke, 2010).

RESULT AND DISCUSSION

The demographic data from the respondents (Table1) revealed that about 92% of the interviewee are women. This was in agreement with observation by Fashola (2002) and Akinsoji and Oke (2010), who had earlier confirmed the significant role played by women herb sellers in local health tradition.

Table 1: Demographic characteristic of respondents (Herb sellers)

Demographic characteristic	Age	Frequencies	Percentage
Age (Years)	18 -28yrs	8	8%
	29 -39	32	32%
	40 -61	51	51%
	62 -72	9	9%
Sex			
	Male	8	8%
	Female	92	92%

Source: Field Survey, 2011.

From the study, seeds of 58 medicinal plant species (Table2) belonging to 56 genera and 34 families were documented from the 5 herbal markets surveyed in Osun State, Nigeria. Dicotyledons accounted for 52 or 89.6% of the medicinal plants seeds while monocotyledons accounted for 6 or 10.4% of the seeds. Most of the medicinal plant seeds were sourced from the forest and savanna vegetation. The closeness of the markets surveyed (Osun State) to savanna vegetation found in Kwara State may have contributed to the presence of seeds of savanna plants. These seeds include: *Sarcocephalus latifolia*, *Acacia nilotica* and

Kigelia africana. Since, seasonality affect flowering and fruiting, virtually all the seeds recorded in the market were dry specimens. Plates 1-5 shows some of the medicinal seeds obtained from the market.

Seeds from tree species accounted for about 23 (39.7%) of the total, closely followed by seeds of climbing plants with 13 (22.4%).

About 43.1% of the medicinal seed documented are contained in 7 families viz: Ceasalpiniaceae, Mimosaceae, Papilionaceae, Euphorbiaceae, Annonaceae, Apocynaceae and Cucurbitaceae. Some of the wild plant seeds recorded, such as, *Xylopia aethiopica* and *Garcina kola* had

earlier being classified as either threatened or endangered in the Nigerian flora (Gbile *et al*, 1978).

The medicinal value of the seeds sold revealed that they are used for the treatment or management of about 28 ailments. The common ailments were fever, cough, skin diseases, asthma, dysentery and piles. Investigation revealed that most of the

documented seeds are used in multi herbal preparation with other plant parts such as leaves, bark, and roots before administration. However, a few numbers of the seeds are used in the form of monotherapy.

Table 2: List of wild medicinal plant seeds recorded from ethnobotanical survey in the selected markets.

S/N	Scientific name	Family	Local name	Habit	Ailment/Medicinal Uses
1.	<i>Anacardium occidentale</i> Linn	Anacardiaceae	Kaju	Tree	Cough
2.	<i>Monodora tenuifolia</i> Benth	Annonaceae	Lakosin	Tree	Anemia
3.	<i>Xylopia aethiopica</i> (Dunal) A.Rich	Annonaceae	Eru	Tree	Rheumatism
4.	<i>Monodora myristica</i> (Gaertn.)Dunal	Annonaceae.	Abo lakoshe	Tree	Impotence
5.	<i>Picralimanitida</i> Th.et el.Dur	Apocynaceae	Abere	Tree	Stomach ache.
6.	<i>Pleicers barteri</i> Baill	Apocynaceae	Abeji	Shrub	Skin diseases
7.	<i>Thevetia peruviana</i> Schum.	Apocynaceae	Olomiojo	Shrub	Cardiac disorder
8.	<i>Helianthus annuus</i> L	Asteraceae	Ododo-orun	Herb	Cough
9.	<i>Vernonia cinerea</i> Lees	Asteraceae	Ewe ogan	Herb	Anthelmintics
10.	<i>Kigelia africana</i> (Lam) Benth	Bignoniaceae	Pandoro	Tree	Skin disease, breast diseases
11.	<i>Bixa orellana</i> Linn	Bixaceae	Osun-buke	Shrub	Skin diseases, malaria
12.	<i>Canna indica</i> Linn.	Cannaceae	Ido	Herb	Asthma
13.	<i>Bulbholzia coriacea</i> Engl.	Capparidaceae	Obi óata	Tree	Antimicrobials, gonorrhea
14.	<i>Afzelia africana</i> Smith	Cesalpiniaceae	Apa	Tree	Gonorrhea
15.	<i>Caesalpinia bonduc</i> (Linn) Roxb.	Cesalpiniaceae	Ayo	Climber	Sore throat
16.	<i>Garcinia kola</i> Heckel.	Clusiaceae	Orogbo	Tree	Cough, Respiratory problem
17.	<i>Quisqualis indica</i> Linn	Combretaceae	Oganfunfun	Shrub	Anthelmintics
18.	<i>Cnestis ferruginea</i> DC.	Connaraceae	Akara ó Oje	Climber	Low sperm count and weak erection.
19.	<i>Adenopus breviflorus</i> Benth	Cucurbitaceae	Tagiiri	Climber	Smallpox, measles
20.	<i>Cucurbita pepo</i> Linn	Cucurbitaceae	Elegede	Climber	Diuretic
21.	<i>Mormodica charantia</i> Linn	Cucurbitaceae	Ejinrin	Climber	Diabetes, dysentery
22.	<i>Croton penduliflorus</i> Hutch.	Euphorbiaceae	Aworoso	Shrub	Pile, Blood purifier
23.	<i>Jatropha curcas</i> Linn.	Euphorbiaceae	Lapalapa	Shrub	Ring worm, eczema
24.	<i>Plukenetia conophora</i> Mull.Arg.	Euphorbiaceae	Awusa	Climber	Anti snake bite
25.	<i>Ricinus cummunis</i> Linn.	Euphorbiaceae	Laa	Shrub	Abortion
26.	<i>Icacinatriacantha</i> Oliv.	Icacinaceae	Gbegbe	Shrub	Rheumatism.
27.	<i>Persea americana</i> Mill.	Lauraceae	Pia	Tree	Hypertension
28.	<i>Gossypium barbadens</i> Linn	Malvaceae	Owu	Shrub	Ear ache
29.	<i>Marantochloa leucantha</i> (K. Schum) Milne-Redh.	Marantaceae	Tooto	Herb	Boils
30.	<i>Azadirachta indica</i> A.Juss.	Meliaceae	Dongoyaro	Tree	Malaria
31.	<i>Rhigiocarya racemifera</i> Miers.	Menispermaceae	Lagbolagbo	Climber	Insomnia

32	<i>Sphenocentrum jolly-anum</i> Pier	Menispermaceae	Akerejupon	Shrub	Cough
33	<i>Acacia nilotica</i> (Linn) Wild exDel.	Mimosaceae	Booni	Tree	Insomnia.
34	<i>Entada gigas</i> L	Mimosaceae	Aagbaa	Tree	Diarrhoea
35	<i>Parkia biglobosa</i> (Jacq) R.Br.exG.Don	Mimosaceae	Iru	Tree	Aiding of sight
36	<i>Tetrapleura tetraptera</i> (Schum&Thonn)Taub.	Mimosaceae	Aridan	Tree	Fever
37	<i>Ficus sur</i> Forssk.	Moraceae	Opoto	Tree	Lack of milk in breast
38	<i>Moringa oleifera</i> lam.	Moringaceae	Ewe ó igbale	Tree	Asthma
39	<i>Microdesmis puberula</i> Hook.ex.	Pandaceae	Esunsun	Tree	Diarrhea, dysentery
40	<i>Abrus precatorius</i> Linn	Papilionaceae	Ominsinmisin	Climber	Cough, rheumatism
41	<i>Cajanus cajan</i> (Linn) Millsp.	Papilionaceae	Otili	Shrub	Small pox
42	<i>Canavalia ensiformis</i> (L) D.C	Papilionaceae	Pinpondo	Climber	Antibiotic
43	<i>Dioclea reflexa</i> Hook. F.	Papilionaceae	Agbarin	Climber	Asthma, Stimulant
44	<i>Mucuna sloanei</i> FaweklRendle	Papilionaceae	Yerepe	Climber	Haemorrhoids
45	<i>Tephrosia densiflora</i> Hook.f.	Papilionaceae	Lakuta	Herb	Cough
46	<i>Piper guineensis</i> Schum&Thonn	Piperaceae	Iyere	Herb	Sterility
47	<i>Coix lacryma-jobi</i> Linn	Poaceae	Ida ahun	Herb	Irregular menstraion, asthma
48	<i>Olyra latifolia</i> Linn	Poaceae	Iyeigbo	Herb	Pain
49	<i>Securidaca longipendiculata</i> Fres.	Polygalaceae	Ipeta	Tree	Fever, diabetes.
50	<i>Sarcocephalus latifolius</i> (Sm) Bruce	Rubiaceae	Egbesi	Woody climber	Jaundice
51	<i>Psychotria guineensis</i> Petit	Rubiaceae	Olomi	Shrub	Cough
52	<i>Blighia sapida</i> Konig	Sapindaceae	Isin	Tree	Malaria, ease labour
53	<i>Paullina pinnata</i> Linn	Sapindaceae	Kankansela	Climber	Cough
54	<i>Vetillaria paradoxum</i> (Gaertn.f) Hepper.	Sapotaceae	Emi ó emi	Tree	Hypertension
55	<i>Cola nitida</i> (vent) Scholf&Endl.	Sterculiaceae	Obi gbanja	Tree	Diarrhoea
56	<i>Vitex doniana</i> Sweet.	Verbenaceae	Oori-nla	Tree	Inflammatory
57	<i>Aframomum meleguata</i> K. Schum	Zingiberaceae	Atare	Herb	Small pox, toothache, malaria.
58	<i>Aframomum sceptrum</i> (Oliv. &Hanb) K. Schum	Zingiberaceae	Oburoetu	Herb	Small pox
59	<i>Sphenocentrum jolly-anum</i> Pier	Menispermaceae	Akerejupon	Shrub	Cough

Table 3 shows the unit weights and unit prices of 10 medicinal plant seeds sold in Oja ó Oba market in Osun State. The price per kilograms of reported medicinal seeds varies between ₦1,766.79 for *Sarcocephalus latifolius*(Sm) Bruce and ₦6,557.38 for *Monodora myristica* (Geartn) Dunal in the market surveyed. This indicates that *M. myristica* is the most expensive medicinal

plant seed /kg sold and is more than ₦2,661.28 higher than its closest rival, *Icacina tricantha* Oliv, sold at ₦3,896.10. The difficulty in sourcing for certain medicinal plant seeds in high demand in the selected herbal market is a contributory factor to the variation in unit prices.

Table 3, Price list of some wild medicinal plant seeds sold in Oja – Oba herbal market Osogbo.

Scientific Name	Family	Local Name	Unit Weight(G)	Unit Price (₦)	Price/kg (₦)
<i>Monodora myristica</i> (Geartn)	Annonaceae	Ariwo /sasagbeku	6.1	40.00	6,557.38
<i>Xylopiya aethiopia</i> (Dural) A.Rich	Annonaceae	Eru	6.2	20.00	3,225.81
<i>Picralima nitida</i> (Stapf) Th.&H.Dur.	Apocynaceae	Abere	8.0	30.00	3,750.00
<i>Thevetia peruviana</i> Schum	Apocynaceae	Lako	12.6	30.00	2,380.95
<i>Canna indica</i> Linn	Cannaceae	Ido	6.8	20.00	2,941.12
<i>Jatropha curcas</i> Linn	Euphorbiaceae	Lapalapa	14.3	50.00	3,496.50
<i>Icacina tricantha</i> Oliv	Icacinaceae	Gbegbe	7.7	30.00	3,896.10
<i>Gossypium barbadense</i> Linn	Malvaceae	Koroowu/ Kerewu	5.6	20.00	3,571.43
<i>Acacia nilotica</i> (L) Wild subsp <i>nilotica</i>	Mimosaceae	Booni	7.4	30.00	4,054.05
<i>Sarcocephalus latifolius</i> (Sm) Bruce	Rubiaceae	Egbesi	28.3	50.00	1,766.79

G: Gramms



Plate 1: *Monodora myristica*



Plate 2: *Caesalpinia bunduc*



Plate 3: *Xylopiya aethiopia*



Plate 4: *Buchholzia coriacea* (Wonderful cola)



Plate 5: *Etanda gigas*

CONCLUSION AND RECOMMENDATION

It has been observed that substantial proportion of some of the most useful plant families is currently threatened by either habitat loss or over-exploitation of some specific species (or a combination of these factors). Mac.Guirk (1988) and Oluwalana and Adeola (2002) report that less than 1% of the earth's 265,000 flowering plants have been tested for their active components. It is evident that very few studies have been conducted on the medicinal value of wild seeds in Nigeria. There is the need to document useful ethnobotanical knowledge from experienced older people in the use of seeds of medicinal wild plants sold in our local herbal markets. The level of availability in these markets could provide a clue to plant seeds rarity or abundance in their natural habitat.

Further studies on the marketing of seeds of medicinal plant seeds from herbal markets in other states in Nigeria are recommended. There is also the need to carry out pharmacognostic investigation to isolate

useful bioactive components of these seeds.

This will provide a basis for reaping their

enormous therapeutic potentials. It is further suggested that traditional health practitionerø should establish medicinal plant gardens to reduce the mounting pressure on natural forest ecosystems. Education of dependent rural populace involved in the harvesting of reproductive plant materials such as seeds should be encouraged to ensure sustainability in the use of our endangered medicinal plant resource.

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