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A survey of stem bark used in traditional health care practices in some popular herbal markets in Osun state, Nigeria

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Abstract

This study was conducted to determine the ethno-medicinal importance of stem barks used in traditional health care practices in Osun State, Southwest Nigeria. Market survey was carried out at Oja Oba at Osogbo, Oja-Oba at Ikirun, Oja Obada at Otan-Ayegbaju, and Oja Orisunmi- bare at Inisa in Osun state. Structured questionnaires were used to collect data on local uses, recipe, preparation, local names along with uses for different ailments. Data were analyzed using simple descriptive statistics. The market survey revealed the stem bark of forty plant species belonging to twenty two families were being used for therapeutic purposes in the study area. The common ailments are fever, cough, skin disease, asthma, dysentery and piles. The most frequently debarked tree species belong to Meliaceae family which accounted for (17.5%) closely followed by Fabaceae with (10%), while Apocynaceae and Anarcadiaceae families accounted for (7.5%) each. The price per kilogram of these medicinal barks varies between N40.00 for *Uvaria afzelii* Scott Elliot and N10.00 for *Anthocleista djalensis* A. Chev in the markets surveyed. Strategies for safeguarding our plant resources from the destructive practice of debarking were proposed to checkmate the danger of local extinction of these valuable and renewable plant resources. The role of herbarium for correct identification and authentication of barks is recommended.

Keywords: Medicinal plants, ailments, traditional health care practices

1. Introduction

The use of medicinal plants have been with man for thousands of years. A medicinal plant has substances in one or more of its organs that can be used for therapeutics purpose(s) or for synthesis of useful drugs (Sofowora, 1982) [12]. Over 90% of the drugs in health care centers today have been introduced in the last 50-60 years. The World Health Organization (WHO) estimates that up to 80% of the world's people rely on plants for their primary health care, since, western pharmaceuticals are often expensive, inaccessible or unsuitable WHO (1991) [13]. The plants parts used in health remedies include the barks, leaves, roots, flowers, fruits, and seeds Sofowora, (1982) [12]. In 1991, more than 7000,000 tons of plant material were used for medicine, in which 80% were collected from the wild (Botanic Gardens International, 2002). As medicinal plants receive increased scientific and commercial attention, there is increasing pressure on the wild plant populations from which most medicinal plants are harvested. Overharvesting has placed many medicinal species at risk of extinction. Peter (1996) [11] has observed that intensive annual harvesting of valuable fruits or oil-seeds could gradually eliminate a species from the forest, He stated further that over -harvesting may kill a large number of mature plants. Medicinal plants are at increasing risk from destruction of their habitats, bio-prospecting for new sources, and overharvesting of known medicinal species. The medicinal species that reside in natural areas have received increasing scientific and commercial attention in recent years, Worldwide, between 50,000 and 80,000 flowering plants are used medicinally Marinelli (2005) [9]. At current extinction rates, experts estimate that the Earth is losing at least one potential major drug every two years (Groombridge, and Jenkins 2002.) Our ignorance becomes increasingly dangerous as the rates of loss of plants, fish, wildlife, and habitat accelerate (IUCN Species Survival Commission, 2007)) [8]. Each species lost to extinction represents not only the potential loss of life-saving cures for diseases such as cancer or AIDS, but also the loss of possible protein- or vitamin-rich foods or more productive and stable crops. According to the World Conservation Union (IUCN), about 15,000 medicinal plant species may be threatened with extinction worldwide from over -harvesting (IUCN Species Survival Commission, 2007) [8].

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The world tropical rainforests are rich in biodiversity but there is depletion of this natural resource in the tropics particularly in Nigeria, as a result of the growing demand for medicinal plant barks, commercialization and destructive harvest. This study was aimed at providing information on ethno botanical and ethno medicinal applications of stem barks in western Nigeria and exploring ways of sensitizing rural communities on conservation in order to safe guard our plant heritage from extinction.

Methodology

A market survey was conducted to determine the stem barks available in purposively popular herbal markets in Osun

states. These markets are Oja-oba Osogbo; Oja-Oba Ikirun; Oja-Obada in Otan Ayegbaju and Orisumbare -Inisha all in Osun state base on their size. Structured questionnaires using oral interviews was adopted in eliciting information from the herb sellers. A total number of twenty-five(25) herb seller were interviewed per market Information obtained were in the varieties of stem barks sold and where they are sourced. They were also asked the medicinal uses of these stem barks. Some of the barks were identified by requesting for complete plants including floral parts in market, while others that could not readily be identified in the markets were taken to the Forest Herbarium Ibadan (FHI) for the identification.

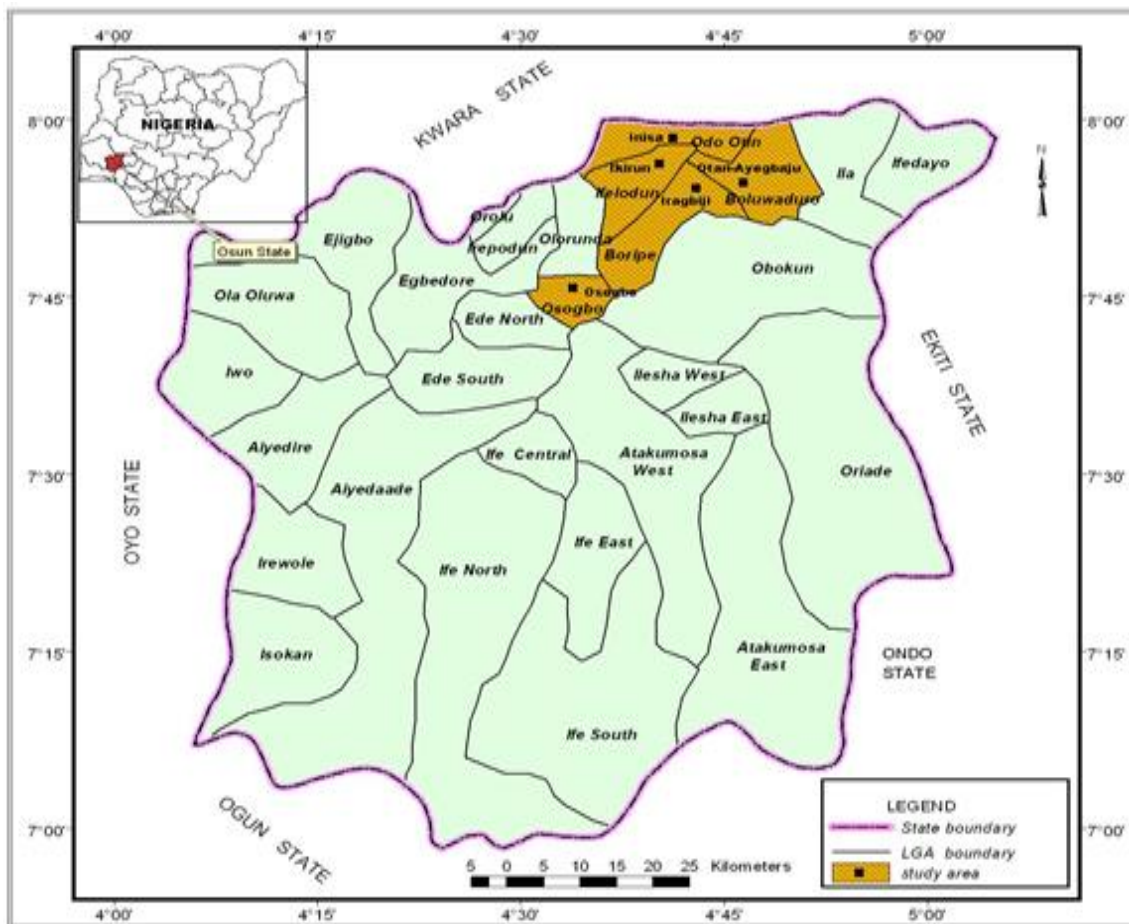


Table 1: Some medicinal stem barks and ethnomedicinal uses among people in the South-western Nigeria

S/N	Scientific Name	Families	Local Names	Ailments	Preparation
1.	<i>Khaya ivorensis</i> A.chev	<i>Meliaceae</i>	Yor Oganwo Igbo Ono Hau Male	Rheumatism	Bark of mahogany, root of fagara and <i>Xylopia aethiopica</i> dried and pounded together, two spoonful powder would be taken with pap every morning.
2.	<i>Bridelia feruginea</i> Benth.	<i>Euphorbiaceae</i>	Yor Igi ira Igbo Ola Hau kirni	Mouthwash, Coated tongue.	The macerated of the stem with small allum, boiled together. The extract from the mixture can be used as a mouth wash.
3	<i>Morinda lucida</i> .Benth	<i>Rubiaceae</i>	Yo r Oruwo Igbo nuke	Fever	The bark of <i>Morinda lucida</i> , tea leaves (<i>Cymbopogum citratus</i>),and bark of mahogany, the mixture then boiled together.. A glass cup would be taken three times per day.
4	<i>Alsteonia boonei</i> De willd	<i>Apocynaceae</i>	Yor;Ahun Igbo; Egbu Hau;	Rheumatism	The bark and leaves are macerated in water and applied externally on the site where the pains is felt.
5	<i>Albizia zygia</i> . Mac.	<i>Mimosoides</i>	Yor; ayunre Igbo; nyie- aya Hau; madobiyar- rafi	Eruptive fever	The decoction of bark, tea leaves and pawpaw leaves. A glass cup would be taken three times daily.
6	<i>Azadirachta indica</i> A. juss	<i>Meliaceae</i>	Yor;Dongoyaro	Fever	The decoction of bark, tea leaves and pawpaw leaves. A glass cup would be taken three times daily.
7	<i>Kigelia Africana</i> (Lam).Benth.	<i>Bignonaceae</i>	Yor;Pandoro Igbo; uturubein Hau; bantsargiwa	Skin infection	The bark and root are grounded together with black soap for bathing.
8	<i>Tetrapleura tetraptera</i> Taub	Mimosoideae	Yor; Aidan Igbo; oshoso Hau; dawo	Wormsexp-eller, Gonorhea	A decoction of the bark is used as emetic. It is also used to wash affected part as a cure for gonorrhoea.

9	<i>Zanthoxylum zanthoxyloides</i> Lam	Rutaceae	Yor;orin ata Igbo; Hau; fasakwari	Toothache	The stem and root bark are boiled together along with red Pepper. The hot liquid is allowed to stay in mouth as long as possible.
10	<i>Xylopia aethiopica</i> (Dunal) A.Rich	Annonaceae	Yor; Eeru Igbo;Uda	Dysentary	Decoction of the bark is drunk for the treatment of dysentery.
11	<i>Mangifera indica</i> Linn.	Anacardiaceae	Yor; mangoro Igbo; Okpokpa Hau; Mangwo	Fever.	The decoction of the bark of mango, cashew and Neem tree are boiled together. A glass cup would be taken three times daily.
12	<i>Spondia mombin</i> Linn.	Anacardiaceae	Yor;iyeye Igbo;isikala Hau: tsadarian-marudu	To aid memory	The decoction of <i>Spondia mombin</i> together with honey would be given to small children.
13	<i>Anacardium occidentale</i> Linn.	Anacardiaceae	Yor;kaju Igbo; Hau; kanju	Toothache	An infusion of the bark and leaves is used to relieve toothache and Sore gum.
14	<i>Rauvolfia vomitoria</i> Afzel.	Apocynaceae	Yor; asofeyeje Igbo; akanta Hau; wada	Convulsion	The bark and root soaked in water give extract to relive Convulsion in children.
15	<i>Dacryoides edulis</i> (G.Don)H.J.Lam.	Burseraceae	Yor;elemi Igbo; ube Hau	Skin diseases	Resin from the stem is used to treat skin Parasite ,like enzema and ringworm.
16	<i>Khaya grandifoliola</i> C.DC	Meliaceae	Yor;oganwo Igbo; male Igbo;ono	Fever	The decoction of stem bark is used in Healing fever. Some women also use Decoction for bath after delivery for perfect health.
17	<i>Dichrostachys cinerea</i> (Linn.)Wight&Arn.	Mimosoideae	Yor;Kara Igbo; ami ogwu Hau; dundu	Dysentery, Worms	The bark is scrapped and Macerated in cold water spices; and lime juice is added. The mixture is then drunk as a cure for worms and dysentery.
18	<i>Chrysophyllum albidum</i> G.Don.	Sapotaceae	Yor;agbalumo Igbo; udala	Stomach Ache	The bark decoction is drunk to stop stomach ache
19	<i>Garcinia kola</i> Heckel	Guttiferae	Yor;orogbo Igbo;adu Hau; goro	Hypentens-ion	The decoction of the bark, is Drunk to treat hypertension.
20	<i>Harungana madascariensis</i> Lam.	Guttiferae	Yor; elepo Igbo;ututru Hau; alillibar	Anaemia	The decoction of the bark of sorghum, and bark of cocoa tree, is served as blood tonic..
21	<i>Pycnanthus angolensis</i> (Welw.)Warb.	Myristicaceae	Yor; akomu Igbo; tamakwa	Loss of Apptite	The bark is pounded and drunk with Palmwine for restoration of an appetite loss.
22	<i>Detarium microcarpum</i> Guill&Perr.	Caesalpinioideae	Yor; Arira Igbo; ofo Hau taura	Blood tonic	Bark soaked in water for bathing and drinking by a women who have just delivered.
23	<i>Khaya senegalensis</i> A Juss.	Meliaceae	Yor Oganwo IgboOno Hau; Madachi	Pile	The bark is soaked in water together with galic and taken against pile.
24	<i>Melicia exelsia</i> (Welw.)C.C Berg.	Moraceae	Yor; Iroko Igbo; oji Hau; loko	Stomachac-ache	The decoction of the bark is Drunk as remedy for stomach ache.
25	<i>Ficus capensis</i> Thunb.	Moraceae	Yor Opo to Hau;uwar yara	Aneamia	The bark, cocoa bark and sorghum, boil and drink for remedy of aneamia.
26	<i>Okoubaka aubrevilli</i> Pellgrin & Normand.	Octoknemaceae	Yor; Igi nla Igbo; Akoebilisi	Skin diseases	The bark is ground together with Shea butter then applied to the affected part.
27	<i>Alstonia congensis</i> Engl.	Apocynaceae	Yor; Awogba	Fever	The decoction of the bark is taken three times in a day.
28	<i>Anogeissus leiocarpus</i> (DC)Guill&Per.	Combretaceae	Yor;orin odan Igbo;atara Hau;smarike	Fever	The bark is soaked in either local gin or 7up, and drink three times daily.
29	<i>Daniellia oliveri</i> (Rolfe)Hutch&Daz	Caesalpinioideae	Yor;Iyaa Igbo;Ozabwa Hau;maje'	Fever	The decoction of the bark is drunk as remedy for fever.
30	<i>Reissantia indica</i>	Celasterceae	Yor; ponju owiwi	Yellow fever	The bark is soaked in local gin or Water and drink for fever.
31	<i>Anthocleista djalonensis</i> A. chev.	Loganiaceae	Yor; Shapo Hau; Kwari	Skin-diseases	A decoction of the bark together with the leaves is good for the treatment of skin-diseases.
32	<i>Uvaria afzelii</i> Scott Elliot.	Annonaceae	Yor; Gbogbonse	Liver infection	A decoction of the bark is used in the treatment of liver infection.
33	<i>Acacia nilotica</i> (L) Wild Subsp.	Mimosoideae	Yor; Booni Hau; Bagaruwa	Insomnia	A powdery form of the bark mixed with palm wine.
34	<i>Ekebergia senegalensis</i> A. Juss.	Meliaceae	Yor; ironu Hau; Madachin dutsi	Malaria	A decoction of the bark is used for the treatment of malaria.
35	<i>Celtis mildbraedii</i> Engl.	Ulmaceae	Yor; Itagidi Igbo; Akpula	Fever	A decoction of the bark is used for the treatment of fever.
36	<i>Napoleona imperialis</i> P.Beauv.	Lecythidaceae	Yor;Irosun Igbo; Akbodo. Hau; Mabungi	Asthma	A powdery form of the bark is good for the treatment of asthma.
37	<i>Pseudocedrela kotschy</i> Harms	Meliaceae	Yor; Emigbegi Hau; Tuna	Dysentary	A powdery form of the bark thoroughly mixed with alcoholic drink.
38	<i>Entandrophrgma cylindricum</i> Sprague	Meliaceae	Yor;Ijebo Igbo; Owura.	Intestinal disorder	A decoction of bark is used for the treatment of gastro-intestinal disorder.
39	<i>Newbouldia laevis</i> Seems.	Bignoneaceae	Yor; Akoko Igbo; Ogirisi Hau; Aduruku	Hemorrhoids	Boil the bark with water. Apply the decoction into the anus.
40	<i>Moringa oleifera</i> Lam.	Moringaceae	Yor; Ewe- Igbale Igbo; Okwe oyibo Hau; Zogallagandi	Diahoroa	Pound the bark, and add cold water. Allow to stand for about 30mins. Drink as required

Table 2: Demographic characteristics of Respondents (Herb seller)

Demographic characteristics	Categories	Frequencies	Percentage
Age (Years)	18-28 years	8	18%
	29-39 years	32	32%
	51-61 years	51	51%
	62-72 years	9	9%
Sex	Male	5	8%
	Female	90	95%

Results and Discussion

The study revealed the use of thirty (40) stem barks of different tree species belonging to twenty two families and their therapeutic uses. About 20 ailments, which can be cured by tree barks were identified (Table 1). The bark is either used alone or mixed with other herbal extractives. The barks are usually soaked in water in a bottle and the filtered aqueous extracts are taken once or twice daily. The use of herbal decoction and extracts for treatment of ailments has been reported by several authors (Gbile 1986; Adodo 1998; Sowora 1982; Ugboogu and Odewo 2004) [5, 1, 13]. Informal interviews with herb sellers revealed that majority of stem barks are sourced from the wild except for few domesticated ones. This agrees with the Obute (2007) [10] report, which stated that

more of medicinal plants are sourced from the wild than are cultivated, regardless of how medicinally important they are. Excessive debarking of trees for medicinal purposes poses a danger for the survival of the few indigenous tree populations. This confirms the findings of Grace *et al.* 2002 that the supply of tree barks to the medicinal plant trade has been rendered non sustainable, due to ever increasing users, population and reduced indigenous vegetation. There is need to bring fresh and complete specimens to a recognized plant herbarium such as Forest herbarium, Ibadan for the proper identification of barks before use in order to avoid the confusion that normally arise when two species of a particular plants have the same local name e.g. *Khaya ivorensis* and *Khaya grandifoliola* with the same common yoruba name "Oganwo", in Yoruba land. All these were overcome through the authentication of plants of interest in the herbarium, most especially the bark. Ayodele (1995) [2] urged Nigerian taxonomists and conservation biologist to rise to the task of properly identifying and conserving these important genetic resources. The need to conserve and curb excessive debarking of forest trees, particularly, those species that have slow re-growth has been reported by Fasola (2002) [4].

Table 3: Pricelist of some stem bark sold in the herbal market

Scientific name	Family	Local Name	Common Name	Quantity (GMS)	Unit price (#)
<i>Anthocleista djalonensis</i> A.chev.	Loganiaceae	Shapo	Cabbage Tree	5.4	10.00
<i>Uvaria afzelii</i> Scott Elliot.	Annonaceae	Gbogbonse	Cluster Pear	11.6	40.00
<i>Dacryodes edulis</i> (G.Don) H.J. Lam.	Burseraceae	Emi/Elemi	Nature Pear	16.1	30.00
<i>Acacia nilotica</i> (L) Wild Subsp. Nilotica	Fabaceae	Booni	Acacia	4.3	15.00
<i>Khaya ivorensis</i> A.Chev.	Meliaceae	Oganwo	African mahogany	11.9	20.00
<i>Ekebergia capensis</i> Sparrm	Meliaceae	Orunu	Cape ash	20.3	20.00
<i>Harungana madagascariensis</i> Lam ex Poir	Hypericaceae	Amuje	Dragon blood Tree	7.1	20.00
<i>Celtis mildbraedii</i> Engl.	Ulmaceae	Emegidi	Nettle Tree	6.0	10.00
<i>Phyllanthus muellerianus</i> (O.ktze) Excell	Euphorbiaceae	Arunjeran	Myrobalan	16.0	20.00
<i>Napoleona imperialis</i> P. Beauv.	Lecythidaceae	Irosun	Napoleona	9.7	10.00
<i>Pseudocedrela kotschy</i> Harms	Meliaceae	Emegbegi	Pseudocedrela	25.0	30.00
<i>Entandrophragma cylindricum</i> Sprague	Meliaceae	Ijebo	Cedar Mahogany	16.9	30.00

Conclusion and Recommendation

The use of medicinal plant species and accumulated knowledge of traditional medicinal practice is threatened by habitat destruction and by unsustainable harvesting of plants from wild. The shortages of plant material have been noted by collector concerned that need to travel further for these valuable raw materials. This is a valuable indicator of current status of medicinal plant species in the wild and is a critical warning sign that action needs to be taken now to reduce pressure of these diminishing populations. This study revealed that the use of stem barks is at increased in traditional health care practices in Osun State, Southwest Nigeria. Plant populations can be driven to extinction if increases in harvesting continue unchecked. All hands must be on deck in order to ensure sustainable supply of stem barks and domestication of frequently debarking medicinal plants. Phytochemical screening of documented medicinal plant species for its bioactive component to ascertain the claim of traditional health practitioners is proposed. In addition, the need to vigorously develop and pursue relevant policies to mainstream traditional health practitioners into national health programs is further advocated. It is expected this study will go a long way to develop adequate policies and plan for their conservation.

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