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Ethnomedicinal Use of Plant Species in Ijesa Land of Osun State, Nigeria

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ABSTRACT

A combination of social survey and direct field observation was used to identify the medicinal plant species used in Ijesa land of Osun State, Nigeria. Voucher specimens of the species were obtained and the relative abundance for each of the identified botanical species was determined.

A total of 45 plant species belonging to 30 families were identified. Our survey indicated they were used in the control of 22 diseases. Tribal information of these species is passed from one generation to another. These species were found to have multiple uses in the study area. Only 29% of the species were cultivated in the study area. A considerable proportion of these plant species were extracted predatorily and collections were done indiscriminately without consideration for size and age. At present, only 47% of the medicinal plants fall in the 'abundant' category for this study area. Most of these abundant species were cultivated for their fruits, seeds, leaves or vegetables. Finally, strategies that would enhance the conservation of the species in the study area were proposed.

INTRODUCTION

The Ijesa are a distinct ethnic Yoruba indigenous group in Osun State, Nigeria. They are found in local government areas in Ilesa West, Ilesa East, Oriade, Obokun and Atakumosa. Ijesa, like other Yoruba groups, cherished and preserved their culture seriously (Kayode 2002). Part of this culture is the use of plant species for the maintenance of their health.

A great many ethnomedicinal studies have been conducted in Nigeria (Gill 1992). However, according to Kayode (2006), most of these studies were conducted on a scattered basis usually by various ethnic groups of the country. There is however a dearth of such studies carried out on the ethnomedicinal values of plant species in Ijesa land. Recent initiatives revealed that Ijesaland, like other areas situated in the rainforest region of the country, is fast experiencing massive deforestation.

Thus, the study being reported here is part of an on going project aimed at the evaluation and conservation of useful plant species in Nigeria currently being conducted at the Department of Plant Science, University of Ado Ekiti, Ado-Ekiti, Nigeria.

MATERIALS AND METHODS

A combination of social surveys and direct field observations (after Lipp 1989) was used in this study. A major market center was identified in each local government area of Ijesa land. In each market

center, botanical vendors were identified and surveys of the medicinal plant species sold in the markets were carried out. The vendors were interviewed with a view to determine the source of the species and their conservation status. Voucher specimens of the species were obtained.

Also, two rural communities that could still be described as being far from urban influence were selected in each local government area of Ijesa land. In each community, 20 individuals who had each maintained continued domicile in the village for 20 years were selected and interviewed on the plant species utilized for medicinal purpose. Voucher specimens of the species identified by the respondents were also collected.

All the interviews (market and village interviews) were conducted with a fairly open framework that allowed for focus, conversational and two-way communication. The voucher specimens were taken to the Herbarium of the Department of Plant Science, University of Ado-Ekiti, Ado-Ekiti, Nigeria for proper identification and preservation.

The relative abundance of each of the identified botanical species was determined within 1 km radius from the center of the community and defined using the abundance scale of Bongas *et al* (1998) as occurrence of less than five individuals as rare (R), 5 to 10 individuals as occasional (O), 11 to 30 individuals as frequent (F), 31 to 100 individuals as abundant (A), and over 100 individuals as very abundant (VA).

Secondary information was obtained from records at the Health Departments of each of the local government secretariats, Osun State Ministry of Health and General Hospital, Ilesa, Osun State. Information on the nature of active ingredients present in each of the botanicals that were identified was obtained from the literature.

RESULTS AND DISCUSSION

A total of 45 plant species belonging to 30 families (Table 1) were identified. These were reported to be used in the control of 22 diseases (Table 2). The ethnomedicinal knowledge of the people—being passed down from one generation to another—had now formed a part of the people's culture. Most species were found to have multiple uses in the study area. Only 13 of the species, representing 29% of the total, were cultivated within the study area (Table 3). Among the species, *C. papaya*, *C. citrullus*, *M. indica*, *P. guajava* and *P. guineensis*, were cultivated for their fruits and/or seeds, which apart from their nutritional values, also constituted major sources of income in the study area. *S. bicolor* and *Z. mays* were also cultivated for their grains that formed the bulk of the major food supply. *G. arboreum* and *N. tobacum* were cultivated purely for their economic values as they formed parts of the major cash crops in the study area. *B. alba* and *V. amygdalina* were cultivated for their leafy vegetables. The cultivation of *C. articulatus* was attributed to its leaves used for wrapping and its stems used as a source of raw-material for the production of mats. *C. tora* was being cultivated to provide shade.

Also shown in Table 3 is that a considerable proportion of these plant species (42%) were extracted predatorily. Such extraction entailed the destruction of sources (Homman 1994, Kayode and Ogunleye 2008). Thus such destructions, in an environment where most of the species were growing wild, might likely contribute to genetic erosion of plant species in the study area. Field observation revealed that debarking of these species was done indiscriminately and quite often they were circularly carried out. Previous studies by Cunningham (1988) and Kayode (2008) had revealed that circular

debarking often leads to the death of the plants. Most of the identified species were indigenous species with poor reproduction and regenerative capacities (Kayode 2004, 2008). Momma (1992, 1994) had revealed that when the rate of regeneration is slower than the capacity to extract, the integrity of the mother plant is no longer protected hence extraction *ad infinitum* could no longer be guaranteed.

Though over 50% of the plant species (see Table 3) were extracted non-predatorily, yet field observation revealed that collection of plant parts were often accomplished by pulling or cutting of the branches, thus making such collection to be destructive. Collections were done indiscriminately without consideration for size and age. Such collections, according to Kayode and Ogunleye (2008), often results in species depletion. Results from this study revealed that only 47% (Table 3) of the medicinal plants were in 'abundant' category in the study area. Most of these abundant species were cultivated for their fruits, seeds, leaves or vegetables. *C. afer*, *E. caryophyllus* and *O. subscorpioides* grow freely and their wildlings were usually preserved while *E. convolvuloides*, *N. lotus*, *P. stratiotes* and *P. muellerianus* grow widely as weeds in the study area.

Field observation also revealed that medicinal parts, often dried, of the plant species observed as 'frequent' and 'rare' were being sold in the markets sampled in the study area. Marketing is done by women vendors who often traveled several kilometers to collect their botanical stocks. In conclusion, a high population growth rate (2.8%) and poverty rate in Nigeria, coupled with the diminishing economic resources of the country, has forced people to access plants which were formerly considered as cheap resources for their immediate needs. At present, the rate of deforestation in the country is unprecedented; hence, the need for the conservation of these resources cannot be over-emphasized. The major goal of such conservation efforts should ensure the protection of all representative vegetation types. Consequently, as suggested previously by Shinwari and Khan (2000), researchers need to develop a deep understanding of plant life cycles, pollination and dispersal mechanisms, biochemical analyses and relationships among species and their habitats.

Threatened species should be identified and their cultivation encouraged, trainings should be conducted on proper method(s) of collection and drying, identification and sustainable harvesting. *In situ* conservation methods, which according to Moore (1990) will involve the maintenance of species in their original self-perpetuating populations, should be carried out. Kayode (2008) and Kayode and Ogunleye (2008) have stressed the need for each district, such as a local government area, to have a botanical garden where most of the medicinal plant species can be cultivated and preserved.

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Table 1. Identified medicinal plant species in Ijesa land, Osun State, Nigeria.

Species	Local Name	Family	Part(s) Used
<i>Albizia coriaria</i>	Ayinre	Mimosaceae	Stem bark
<i>Fromomum melegueta</i>	Ata-ire	Zingerberaceae	Leaves
<i>Allium sativum</i>	Ayo	Alliaceae	Bulb, root
<i>Alstonia congensis</i>	Ahun	Apocynaceae	Bark
<i>Aristolochia ringens</i>	Ako-igba	Aristolochiaceae	Stem
<i>Bambusa vulgaris</i>	Oparun	Poaceae	Leaves
<i>Basella alba</i>	Amunututu	Basellaceae	Shoot, leaves
<i>Bridelia micrantha</i>	Ira	Euphorbiaceae	Bark
<i>Croton lobatus</i>	Eru	Euphorbiaceae	Seed
<i>Caesalpinia bonduc</i>	Ayo	Caesalpinaceae	Leaves
<i>Cassia tora</i>	Epa-ikun	Caesalpinaceae	Rhizome
<i>Carica papaya</i>	Ibepe	Caricaceae	Leaves
<i>Chenopodium ambrosioides</i>	Arunpale	Chenopodiaceae	Leaves
<i>Colocynthis citrullus</i>	Baara	Cucurbitaceae	Fruits

<i>Costus afer</i>	Tete regun	Coataceae	Stems, roots, fruits
<i>Cyperus articulatus</i>	Eni-oore	Cyperaceae	Whole plant
<i>Chrysophyllum albidum</i>	Baaka	Sapotaceae	Bulb
<i>Cylicodiscus gabunensis</i>	Aja-igi	Mimosaceae	Seeds
<i>Drypetes gossiweileri</i>	Agawo	Euphorbiaceae	Stem bark
<i>Eugenia caryophyllus</i>	Kanofuru	Myrtaceae	Seeds
<i>Euphorbia convolvuloides</i>	Ege-ile	Euphorbiaceae	Stem, root
<i>Gossypium arboretum</i>	Owu	Malvaceae	Seeds
<i>Mangifera indica</i>	Mangoro	Anacardiaceae	Leaves, stem, fruits
<i>Nauclea latifolia</i>	Egbesi	Rubiaceae	Stem
<i>Nicotiana tobacum</i>	Taba	Solanaceae	Leaves
<i>Nymphaea lotus</i>	Osibata	Nymphaeaceae	Stem
<i>Ocimum basilicum</i>	Efirin-aja	Lamiaceae	Leaves
<i>Ocimum gratissimum</i>	Efirin	Lamiaceae	Leaves
<i>Olax subscorpiodea</i>	Ifon	Oleaceae	Roots, stem
<i>Parinari capensis</i>	Awewe	Chysobalanaceae	Seeds
<i>Phaseolus lunatus</i>	Awuje	Papilionaceae	Leaves
<i>Phyllantus muellerianus</i>	Eegun-eja	Euphorbiaceae	Leaves
<i>Piper guinensis</i>	Ata-iyere	Piperaceae	Fruits
<i>Pistia stratiotes</i>	Ojuoro	Araceae	Roots, stem, leaves
<i>Psidium guajava</i>	Gurofa	Myrtaceae	Leaves
<i>Securidaca longipedunculata</i>	Ipeta	Polygalaceae	Stem
<i>Sorgum bicolor</i>	Oka-baba	Poaceae	Leaves
<i>Telfairia occidentalis</i>	Aworoko	Cucurbitaceae	Leaves
<i>Tetrapleura tetraptera</i>	Aidan	Mimosaceae	Fruits
<i>Trema orientalis</i>	Ayinyin	Ulmaceae	Leaves, stem barks
<i>Vernonia amygdalina</i>	Ewuro	Asteraceae	Leaves
<i>Zanthoxylum zanthoxyloides</i>	Ata	Rutaceae	Root, stem bark
<i>Zea mays</i>	Igbado	Poaceae	Tassel
<i>Zingiber officinale</i>	Ata-ile	Zingerberaceae	Stem

Table 2. Diseases cured by the identified medicinal plant species in Ijesa land, Osun State, Nigeria.

S/N	Diseases	Botanical Used
1	Anemia	<i>T. occidentalis</i>
2	Boils	<i>B. alba</i> , <i>V. unguiculata</i>
3	Catarrh	<i>E. grandis</i> , <i>N. tabacum</i>
4	Cancer	<i>C. afer</i> , <i>E. convolvunoides</i> , <i>N. latifolia</i> , <i>N. lotus</i> , <i>O. gratissimum</i> , <i>O. subscorpioidea</i> , <i>P. stratiotes</i> , <i>S. longepeduculata</i> , <i>T. tetraptera</i>
5	Coated tongue	<i>A. coriaria</i> , <i>B. micrantha</i>
6	Cough	<i>B. Africana</i> , <i>T. orientalis</i>
7	Convulsion	<i>T. Africana</i>
8	Cholera	<i>C. papaya</i>
9	Diarrhea	<i>C. articulatus</i> , <i>M. charanta</i> , <i>O. gratissimum</i> , <i>V. amygdalina</i>
10	Dysentery	<i>M. charanta</i> , <i>O. gratissimum</i> , <i>V. amygdalina</i>
11	Fever, Malaria and Typhoid	<i>A. congensis</i> , <i>A. melegueta</i> , <i>B. vulgaris</i> , <i>C. bonduc</i> , <i>D. gossweileri</i> , <i>G. arboretum</i> , <i>M. indica</i> , <i>O. gratissimum</i> , <i>P. guajava</i> , <i>P. lunatus</i>
12	Generalized Oedema	<i>C. ambrosioides</i>
13	Hot flushes (internal heat)	<i>B. alba</i>

14	Measles	<i>B. vulgaris, C. convolvuloides, C. lobatus, G. arboretum, O. gratissimum, Z. mays</i>
15	Pharyngitis (sore throat)	<i>Z. zanthoxyloides, P. guinensis</i>
16	Piles	<i>A. repens, C. prortoricensis, O. basilicum, P. capensis, Z. officinale</i>
17	Pneumonia	<i>A. sativum</i>
18	Septicaemia	<i>S. bicolor, T. occidentalis, V. amygdalina</i>
19	Skin diseases (Eczema, Scabies, Ringworm)	<i>D. gossweileri, G. arboretum, N. latifolia, T. tetraptera</i>
20	Sexually Transmitted Diseases	<i>C. albidum, C. citrullus, C. tora, E. sauevelens, H. madagascarensis, S. longepedunculata</i>
21	Upper/Lower Respiratory Track Infection	<i>E. grandis, N. tobacum</i>
22	Worm infection	<i>C. aurantifolia, T. tetraptera</i>

Table 3. Ecological attributes of the medicinal plant species in Ijesa land, Osun State, Nigeria.

Attributes	Medicinal Plant Species
Cultivated species	<i>B. alba, C. articulatus, C. citrullus, C. papaya, C. tora, G. arboreum, M. indica, N. tobacum, P. guajava, P. guineensis, S.bicolor, V. amygdalina, Z. mays</i>
Species extracted predatorily	<i>A. coriaria, A. sativum, A. congensis, A. ringens, B. alba, B.micrantha, C. tora, C. afer, C. articulatus, D. gossweileri, E. convovuloides, Z. zanthoxyloides, N. lotus, N. tobaculum, O. subscorpioidea, S. longipedunculat, T. orientalis, T. tetraptera, Z. officinale</i>
Species occurring abundantly in the study area	<i>A.sativum, B. alba, C. papaya, C. E.convolvuloides, E. hirta, M. indica, N. lotus, N. tobacum, O. basilicum, O. gratissimum, O. subscorpioide, P. guajava, P.guineensis, P. stratiotes,P. muellerianus, S. bicolor, Z. mays</i>
Species occurring as "frequent" in the study area	<i>A. coriaria, B. vulgaris, B. micrantha, C. tora, G. arboretum, S. longipedunculata, V. amygdalina, Z. officinale</i>
Identified 'rare' species in the study area	<i>A. melegueta, A. congensis, A. ringens, C. lobatus, C. bonduc, C.ambrosiodes, C. albidum, C. gabonensis, D. gossweileri, N. latifolia, P. capensis, P. lunatus, T. ocidentalis, T. tetraptera, T. orientalis, Z. zanthoxyloides</i>