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Identification, Collection and Domestication of Medicinal Plants in Southeastern Nigeria

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Abstract

Field studies were conducted to investigate the medicinal plants, through identification, collection and domestication of these plants in southeastern, Nigeria. Questionnaire, personal interview and review of available records show that out of forty-three plants about fifteen were undergoing domestication in the course of this research. This study revealed that much has not been done to domesticate these medicinal plants in Southeastern Nigeria. It was equally discovered that the medicinal plants have other uses as some could be used as vegetables, fruits, trees, ornamentals etc. From the results of this study, it is believed that nature has everything we need to exist happily on earth. But our inability to positively exploit nature makes the difference. If the result and recommendations of this study are strictly implemented, we hope for a better future.

Résumé

Des études de terrain ont été menées sur les plantes médicinales, grâce à un processus d'identification, de collecte et de domestication de ces plantes dans le sud-est du Nigeria. L'élaboration de questionnaires, des entrevues personnelles, ainsi que le travail de collecte des documents disponibles ont révélé que sur quarante trois plantes, environ quinze étaient soumises à un processus de domestication, pendant cette recherche. Cette étude a également montré que toutes les mesures nécessaires n'ont pas été prises pour la domestication de ces plantes médicinales dans le sud-est du Nigeria. Nous avons également découvert que les plantes médicinales peuvent être employées à d'autres fins et peuvent ainsi

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être utilisées comme des légumes, des fruits, des arbres, des plantes ornementales, etc. Les résultats de cette étude révèlent que la nature nous offre déjà tout ce dont nous avons besoin pour vivre heureux sur cette terre. Mais c'est notre incapacité à l'exploiter positivement qui fait la différence. Nous avons cependant toutes les raisons d'être confiants en l'avenir, si les résultats et recommandations de cette étude sont rigoureusement appliqués.

Introduction

In Southeastern, Nigeria many fruits, spices, herbs and leafy vegetables used as food and for medicinal purposes are obtained from the wild where there may be as many as a thousand species. To date, little attempt has been made to identify, domesticate and cultivate these plants despite the fact that they constitute a large proportion of the daily diet of the rural dwellers. The implication is that several of these plants could become extinct due to deforestation menace and the reluctance of people to venture into the forest to harvest them. The net result is that some of these plants such as *Neem* (*Azadirachta indica*), *Ncheonwu* (*Ocimum viride*), *Utazi* (*Gongronema ratifolia*), *Uziza* (*Piper guinenses*), *Uda* (*Xylopia acthiopica*), *Ehuru* (*Monodora tenuifolia*) are difficult to find in urban markets.

Some of the indigenous plants, their spices and herbs are used generally to prepare pepper soups which are hot and spicy especially during the cold season. In addition, they are very important in the diets of post partum women during which time it is claimed that these spices and herbs aid the contraction of the uterus. Spices and herbs are generally known to possess antibacterial and antioxidant properties (Iwu 1989). It is likely that indigenous spices and herbs found in Southeastern Nigeria may also possess these properties.

Leafy vegetables and fruits found in the wild also contribute immensely to the diet of Nigerians. Leafy vegetables contribute significant amounts of ascorbic acid, protein, minerals (particularly calcium) and carbohydrate to most diets (Rice et.al, 1986). Leafy vegetables obtained from the wild include *Oha* (*pterocarpus soyauxii*), *Okazi* (*Gnetum ofericanum*), *Onugbu* (*Vernonia amygdalina*), *Ugu* (*Telfaria occidentalis*).

Fruits and nuts which are found in the wild include *Udara* (*Crysophyllum albidium*), *Ube Okpoko* (*Dacryodes edulis*), *Nmimi* (*Denoettia tripelata*), *Ugba* (*Pentaclethra macrophylla*), *Kashu* (*Anacardium occidentale*) etc. These fruits also provide nutrients, protein, especially ascorbic acid and minerals. Fruits, in addition to being eaten raw, can also be processed into fruit drinks.

With this identification process on course, information on the traditional uses of plants by the people of Southeastern Nigeria reveals that some plants are used for folklore, medicine, foods, snacks, fruits animal feeds, dyes and ceremonies.

Collection is a motivated act which prepares ground for a useful grand work to be done. By this we mean that collection is made purposefully to domesticate the plants.

Considering the importance of these wild fruits, vegetables, spices and herbs, the aim of this study is to investigate ways of identifying, collecting and domesticating these indigenous plants that are obtained from the wild.

Materials and Methods

Two methods of data identification and collection was used for this study. They are: (a) Questionnaire and (b) Oral interview method.

The dual method approach was adopted in recognition of the fact that not all the classes of respondents such as certified Native doctors, Herbalists, Qualified Medical practitioners and indigenous herb users can read and write. The area covered within Southeastern zones include Abia, Ebonyi, and Imo State respectively. Thus Questionnaire method was effective among the literate class(es) e.g. Qualified medical practitioners and few native doctors and herbalists.

All together, 50 questionnaires each were distributed for the three states mentioned above and about 15 respondents each were interviewed orally and their responses were recorded. Among the 50 respondents, 70 percent (35) were male while 30 percent (15) were female.

Our study territory covered:

- Abia state: Umuahia - Umudike, Ikwuano - Oboro, Bende - Etiti-ulor and part of Ubakala
- Ebonyi state: Ohaozara, Ivo, Onicha, Abakiliki Local Government Area.
- Imo state: parts of Owerri west - Obinze, Oforola, Okuku, parts of Ohaji and Ikeduru etc.

In every area we visited the categories of respondents we were working with not only gave their responses, but went further to involve themselves partially in the field work. They took us to the fields where those medicinal plants were identified wholly or partly. Then progressive attempts and efforts were made to collect the needed diagnostic features and propagative materials from those plants.

Diagnostic features examined

The diagnostic features, morphologically examined for each plant, were based on their flowers, stems, fruits, leaves, seeds and the type of habitat where they grew.

Identification and collection procedure

The local name and its medical contribution(s) to humanity are first established through the help of any of the categories of users mentioned earlier. Plants that were difficult to be identified in the field were later identified with the help of texts and bulletins, handbooks such as (*Flora of West Africa* (Hutchinson and Dalziel 1954) and *Your Guide to identifying some Arable Land Weeds of South Eastern Agricultural Zone of Nigeria*, (Ray P.A. Unanma 1982)).

Procedure for domestication

For each plant whose propagative material was collected from the wild, different conditions of propagation were tested. The two media used were the soils (top and sub) and the saw dust. The materials were then planted at reasonable depths.

Results and discussion

Table 1 shows plant specimens identified and collected in some of the Local Government Areas of part of Southeastern zones visited and their local names.

Among the 50 respondents, 70% were male while 30% were female. Among these numbers 35 acquired the skill through society, 10 by inheritance and 5 through formal education. Almost all the respondents claimed to cure similar ailments namely: Malaria, Sexually Transmitted Disease (STD), ear ache, head ache, Poison (human), snake and scorpion bites, wounds and bleedings, Eczema and body rashes etc. Parts of the plants used for the cure were merely extracts from the leaves, roots and barks.

Only 10% of the respondents had their hospitals registered with the government and had their patients accommodated at their hospitals wards. Others treated come from their home. 10% of the respondents have tried to domesticate one or more of those plants, but none practiced domestication on large (Commercial scale). Propagules used were mostly roots, stems and corms.

Some of the plants studied have no viable seeds, some have recalcitrant seeds while others have viable orthodox seeds. For those without viable seeds, domestication was made possible by the use of vegetative means of propagation such as stems as in *Ogbu* (*Indigofera tinctoria*), stock as in *Iganwaezigana* (*Chromolaena odorata*) etc.

During domestication trials too, it was observed that different seeds and different propagules germinated over a range of time which varied from species to species. These differences in germination period was observed to depend on the physiology of the seed, with emphasis on the amount of food reserve in the endosperm which in turn reflected on the vigour of germination and the growth of seedling (Ogwuru 1995).

**Table 1: Plant Specimens Collected in Some of the Areas
in the Southeastern States**

Local Names	Plants (botanical names)	State
<i>Osi-isi</i>	<i>Emilia cocinea</i>	Ebonyi State
<i>Ovee</i>	<i>Telfairia occidentalis</i>	Ebonyi State
<i>Uko</i>	<i>Milicia excelsa</i>	Ebonyi State
Ndianwu	<i>Ocimum viride</i>	Ebonyi State
<i>Ogba-kpee</i>	<i>Cnestis ferruginea</i>	Ebonyi State
<i>Mgbimghi</i>	<i>Carica papaya</i>	Ebonyi State
<i>Onugbu</i>	<i>Vernonia amygdalina</i>	Ebonyi State
<i>Kashu</i>	<i>Anacardium occidentale</i>	Ebonyi State
<i>Inene</i>	<i>Amaranthus spinosus</i>	Ebonyi State
<i>Umimi</i>	<i>Denoettia tripelata</i>	Ebonyi State
<i>Okpete</i>	<i>Palisota hirsuta</i>	Ebonyi State
<i>Olorohuru</i>	<i>Chromoleana odorata</i>	Ebonyi State
<i>Ede</i>	<i>Colocassia esculenta</i>	Ebonyi State
<i>Ogbu-evo</i>	<i>Euphorbia heterophylla</i>	Ebonyi State
<i>Ogwu ugwoo</i>	<i>Mitracopus villosus</i>	Ebonyi State
<i>Ube</i>	<i>Daeryodes edulis</i>	Abia State
<i>Akuinu</i>	<i>Garcinia kola</i> Haked	Abia State
<i>Inene-nwata</i>	<i>Combretum racemosum</i>	Abia State
<i>Echu-ayahi</i>	<i>Landdolphia owariensis</i>	Abia State
<i>Osikapu</i>	<i>Oryza sativa</i>	Abia State
<i>Ogbu</i>	<i>Indigofera tinctoria</i>	Abia State
<i>Ugba</i>	<i>Pentaclethra macrophlla</i>	Abia State
<i>Dogoyara</i>	<i>Azadiracha indica</i>	Imo State
<i>Ugiri Nwautoba</i>	<i>Lophira alata</i>	Imo State

Table 2: Plants used in traditional medicine and their medicinal remarks

1) Botanical Name: <i>Anacardium occidentale</i> L
Local Name: <i>Kashu</i>
Family: Anacardiaceae
Parts used: Barks and leaves
Remarks: Extracts of leaves used to bath patients with malaria.
2) Botanical Name: <i>Xylopiya aethiopia</i>
Local Name: <i>Uda</i>
Family: Annonaceae
Parts used: Seeds
Remarks: Powered seeds inhaled by Nursing mother
3) Botanical Name: <i>Landolphia owariensis</i>
Local Name: <i>Echu ayahi</i>
Family: Apocynaceae
Parts used: Roots
Remarks: Roots extracts used as Vermifuge. Cures obesity through induced vomiting
4) Botanical Name: <i>Rauwolfia vomitoria</i>
Local Name: <i>Urubia</i>
Family: Apocynaceae
Parts used: Roots
Remarks: Root extract drunk to reduce Labour pains.
5) Botanical Name: <i>Chromolaena odorata</i>
Local Name: <i>Iganwaezigana</i>
Family: Asteraceae (compositae)
Parts used: Leaves
Remarks: Leaves extract used for cuts & wounds for fast healing
6) Botanical Name: <i>Colocassia esculenta</i>
Local Name: <i>Ede</i>
Family: Araceae
Parts used: Leaves
Remarks: Leaves extract used to heal Cracked foot heels
7) Botanical Name: <i>Caladium bicolor</i>
Local Name: <i>Okpakara</i>
Family: Araceae
Parts used: Leaves
Remarks: Leaves extract used to cure Convulsion in children

Table 2: Plants used in traditional medicine and their medicinal remarks (contd.)

8) Botanical Name: <i>Amaranthus spinosus</i>
Local Name: <i>Ineni</i>
Family: Amaranthaceae
Parts used: Leaves and stem
Remarks: Paste of leaves and stem with palm oil used to cure pile and stomach aches.
9) Botanical Name: <i>Acanthus montanus</i>
Local Name: <i>Agamsoso</i>
Family: Acanthaceae
Parts used: Roots
Remarks: Root extracts used to bath to Relieve aches and pains.
10) Botanical Name: <i>Newbouldia spinosuslaevis</i>
Local Name: <i>Agirioshishi</i>
Family: Bignoniaceae
Parts used: Leaves
Remarks: Leaves paste to cure migrane pains
11) Botanical Name: <i>Dennettia triplata</i>
Local Name: <i>Umimi</i>
Family: Annonaceae
Parts used: Alcoholic extract of roots and
Remarks: pepper mixed with potash recommended for the treatment of gonorrhoea by drinking.
12) Botanical Name: <i>Dacryodes edulis</i>
Local Name: <i>Ube</i>
Family: Burseraceae
Parts used: Stem bark
Remarks: Bark powder made into paste with Honey and rubbed on the body to reduce body aches.
13) Botanical Name: <i>Ananas comosus</i>
Local Name: <i>Parapu</i>
Family: Bromeliaceae
Parts used: fruits
Remarks: Fruit recommended for eating during High fever.

Table 2: Plants used in traditional medicine and their medicinal remarks (contd.)

14) Botanical Name: <i>Adansonia digitata</i>
Local Name: <i>Agba</i>
Family: Bombacaceae
Parts used: Fruits pulps leaves and roots
Remarks: Extract of the fruit pulp used as eyedrop to cure measles. Leaves used as expectorant diuretic and for the treatment of liver and kidney diarrhoea. Powdered roots given for malaria treatment.
15) Botanical Name: <i>Canarium schweinfurthii</i>
Local Name: <i>Ubembada</i>
Family: Burseraceae
Parts used: Stem barks
Remarks: Power of stem bark with potash applied on the swollen limbs of pregnant women.
16) Botanical Name: <i>Carica papaya</i>
Local Name: <i>Mgbimbi</i>
Family: Caricaceae
Parts used: Leaves
Remarks: Leaves extract used for malaria
17) Botanical Name: <i>Chlorophyllum macrophyllum</i> Aschor
Local Name: <i>Ukpazi</i>
Family: Ciliaceae
Parts used: Seeds
Remarks: Seeds powdered with native chalk chewed for relief of footache.
18) Botanical Name: <i>Palisota hirsute</i>
Local Name: <i>Okpete</i>
Family: Commelianaceae
Parts used: Roots & Leaves
Remarks: Roots juice used for treatment of gonorrhoea. Leaves extracts used to stop bleeding on wounds.
19) Botanical Name: <i>Vernonia anygdalina</i>
Local Name: <i>Onugbu</i>
Family: Compositae
Parts used: Leaves and stems
Remarks: Leaves and stem chewed to cure stomach, aches

Table 2: Plants used in traditional medicine and their medicinal remarks (contd.)

20) Botanical Name: <i>Combretum racemosum</i>
Local Name: <i>Inenenwata</i>
Family: Combretaceae
Parts used: Roots and leaves
Remarks: Decoction of the roots and leaves used for abortion.
21) Botanical Name: <i>Emilia occionea</i>
Local Name: <i>Osisi</i>
Family: Compositae
Parts used: Leaves
Remarks: Leaves extract used to cure earache
22) Botanical Name: <i>Cnestis ferruginea</i>
Local Name: <i>Ogbakpee or Ojiei</i>
Family: Connariaceae
Parts used: Leaf
Remarks: Decoction of leaves used for dysentery
23) Botanical Name: <i>Telfairia occidentalis</i>
Local Name: <i>Ovee</i>
Family: Cucubitaceae
Parts used: Leaves
Remarks: Leaves extract used for treatment of convulsions in children.
24) Botanical Name: <i>Vaccinium myrtillus</i>
Local Name: <i>Uri</i>
Family: Fruit juice
Remarks: Fruit juice remedy for joint aches
25) Botanical Name: <i>Ocimum viride</i>
Local Name: <i>Nchanwu</i>
Family: Labiatae
Parts used: Leaves
Remarks: Burnt leaves drives away ants (especially white ants).
26) Botanical Name: <i>Oryza sativa</i>
Local Name: <i>Osikapa</i>
Family: Graminae
Parts used: Grains
Remarks: The grain extract used to cure body rashes.

**Table 2: Plants used in traditional medicine
and their medicinal remarks (contd.)**

27) Botanical Name: <i>Saccharum officinarum</i>
Local Name: <i>Ichara ucho</i>
Family: Graminae
Remarks: Stem juice given to malaria patients to restore vitality.
28) Botanical Name: <i>Euphorbia heterophylla</i>
Local Name: <i>Ogwu-evo-osisa</i>
Family: Euphorbiaceae
Parts used: Leaves
Remarks: Cleans the stomach and cures constipation by causing purging of the stomach when dish prepared with the leaves is eaten. eg. Yam porridge.
29) Botanical Name: <i>Garcinia kola heckle</i>
Local Name: <i>Akuinu</i>
Family: Guttiferaceae
Parts used: Seeds
Remarks: Seeds used for cough and catarrh.
30) Botanical Name: <i>Cassytha filifolia</i>
Local Name: <i>Gbanigerige</i>
Family: Lauraceae
Parts used: Stem used during epilepsy attack.
31) Botanical Name: <i>Albizia gummifera</i>
Local Name: <i>Ogwu akpee</i>
Family: Leguminosae
Parts used: Roots
Remarks: Roots paste with salt and pepper used for scorpion bites.
32) Botanical Name: <i>Pentaclethra macrophylla</i>
Local Name: <i>Akpaka/Ugba</i>
Family: Leguminosae
Parts used: Stem bark
Remarks: Stem bark paste used to counteract the effect of poison.
33) Botanical Name: <i>Indigofera tinctoria</i>
Local Name: <i>Ogbu</i>
Family Name: Leguminosae
Parts used: Stem leaves and twines
Remarks: Stem chewed to cure cough and decoction of Leaves used to cure chest pains The twine paste cures dislocation. Also the Warm leaves disperse bruises.

Table 2: Plants used in traditional medicine and their medicinal remarks (contd.)

34) Botanical Name: <i>Dialium guinense</i> wild
Local Name: <i>Unuagu</i>
Family: Leguminosae
Parts used: Leaves
Remarks: Decoction of leaves used for stomach ache.
35) Botanical Name: <i>Azadirachta indica</i>
Local Name: <i>Ochoikaoneme/Dogoyaro</i>
Family: Meliaceae
Parts used: Leaves
Remarks: Decoction of leaves used to cure malaria.
39) Botanical Name: <i>Musa paradisiacal</i>
Local Name:
Family: Musaceae
Parts used: Leaves
Remarks: Decoction of leaves used to cure swollen stomach.
40) Botanical Name: <i>Vitellaria paradoxa</i>
Local Name: <i>Osisiekwume</i>
Family: Sapotaceae
Parts used: Fruit
Remarks: Fruit oil used for body pains and aches.
41) Botanical Name: <i>Senna occidentalis</i>
Local Name: <i>Uri-Oka</i>
Family: Leguminosae
Parts used: Leaves
Remarks: Leaves extract used for cure of malaria and also crushed leaves used for eczema.
36) Botanical Name: <i>Milicia excelsa</i>
Local Name: <i>Uko</i>
Family: Moraceae
Parts used: Roots & leaves
Remarks: Decoction of leaves or roots cure stomach aches.
37) Botanical Name: <i>Lophira alata</i>
Local Name: <i>Ugiri Nwautobo</i>
Family: Ochnaceae
Parts used: Leaves
Remarks: Paste of the leaves with potash and local gin used for fast healing of wounds.

38) Botanical Name: *Mitracarpus Villosus*

Local Name: *Ogwu Ugwo*
Family: Rubiaceae
Parts used: Leaves
Remarks: Leaves used for eczema

42) Botanical Name: *Nicotiana tabacum*

Local Name: *Anwuru or utaba*
Family: Solanaceae
Parts used: Leaves
Remarks: Leaf paste with palm oil and potash used to cure tooth ache.

43) Botanical Name: *Celtis durandi*

Local Name: *Egid*
Family: Ulmaceae
Parts used: Roots
Remarks: Alcoholic extract of roots used for malaria and fever.

Conclusion

The entire study on the identification, collection and domestication of some medicinal plants have given us the statement of truth, that right from creation, God endowed mankind with invaluable natural gifts upon which all the so called scientific findings and contributions are centred, with the ultimate aims of identifying those natural endowments and harnessing the benefits derived from them to suit the problems of mankind. Further research work is hereby solicited especially in the areas of chemical composition of the medicinal plants.

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