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Identification, Collection and Domestication of Medicinal Plants in Southeastern Nigeria

A. E. Ibe* and Martin I. Nwufo**

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 shows 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

* A. E. Ibe is currently a lecturer in the Department of Crop Science and Technology, Federal University of Technology Owerri, Imo State, Nigeria.

**Martin I. Nwufo, Professor of Plant Pathology, Department of Crop Science and Technology Federal University of Technology, Owerri, Nigeria.

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 tenuafolia) 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 postpartum 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 occidentalis) 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 ArableLand 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 recalsistrant 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
Osi-isi	Emilia cocinea	Ebonyi State
Ovee	Telfairia occidentalis	Ebonyi State
Uko	Milicia excetsa	Ebonyi State
Ndianwu	Ocimum viride	Ebonyi State
Ogba-kpee	Cnestis ferruginea	Ebonyi State
Mgbimgbi	Carica papaya	Ebonyi State
Onugbu	Vernonia amygdalina	Ebonyi State
Kashu	Anacardium occidentalis	Ebonyi State
Inene	Amaramthus spinosus	Ebonyi State
Umimi	Denoettia tripelata	Ebonyi State
Okpete	Palisota hirsuta	Ebonyi State
Olorohuru	Chromoleana odorata	Ebonyi State
Ede	Colocassis esculenta	Ebonyi State
Ogbu-evo	Euphobia heteriphylla	Ebonyi State
Ogwu ugwoo	Mitracpus villosus	Ebonyi State
Ube	Daeryodes edulis	Abia State
Akuinu	Garcinia kola Haked	Abia State
Inene-nwata	Combretum racemosum	Abia State
Echu-ayahi	Landdolphia owariensis	Abia State
Osikapa	Oryza sativa	Abia State
Ogbu	Indigofera tinctoria	Abia State
Ugba	Pentaclethra macrophlla	Abia State
Dogoyara	Azadiracha indica	Imo State
Ugiri Nwautoba	Lophira alata	Imo State

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

1) Botanical Name: Anacardium occidentalis L
Local |Name: *Kashu* Family: Anacardiaceae Parts used: Barks and leaves Remarks: Extracts of leaves used to bath patients with malaria.
2) Botanical Name: Xylopia aethiopica
Local |Name: *Uda* Family: Annonaceae Parts used: Seeds Remarks: Powered seeds inhaled byNursing mother
3) Botanical Name: Landolphia owariensis
Local |Name: *Echu ayahi* Family: Apocynaceae Parts used: Roots Remarks: Roots extracts used as Vermifuge. Cures obesity through induced vomitting
4) Botanical Name: Rauwolfia vomitoria
Local |Name: *Urubia* Family: Apocynaceae Parts used: Roots Remarks: Root extract drank to reduce Labour pains.
5) Botanical Name: Chromolaena odorata
Local |Name: *Iganwaezigana* Family: Asteraceae (compositae) Parts used: Leaves Remarks: Leaves extract used for cuts & wounds for fast healing
6) Botanical Name: Colocassia esculenta
Local |Name: *Ede* Family: Araceae Parts used: Leaves Remarks: Leaves extract used to heal Cracked foot heels
7) Botanical Name: Caladium bicolor
Local |Name: *Okpakara* 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: Amaranthus spinosus
Local |Name: *Ineni* 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: Acanthus montanus
Local |Name: *Agamsoso* Family: Acanthaceae Parts used: Roots Remarks: Root extracts used to bath to Relieve aches and pains.
10) Botanical Name: Newbouldia spinosuslaevis
Local |Name: *Agirioshishi* Family: Bignoniceae Parts used: Leaves Remarks: Leaves paste to cure migrane pains
11) Botanical Name: Dennettia tripelata
Local |Name: *Umimi* Family: Annonaceae Parts used: Alcoholic extract of roots and Remarks: pepper mixed with potash recommended for the treatment of gonorohoea by drinking.
12) Botanical Name: Dacryodes edulis
Local |Name: *Ube* 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: Ananas comosus
Local |Name: *Parapu* 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: Adansonia digitata
Local |Name: *Agba* 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: Canarium schweinfurthri
Local |Name: *Ubemgbada* Family: Burseraceae Parts used: Stem barks Remarks: Power of stem bark with potash applied on the swollen limbs of pregnant women.
16) Botanical Name: Carica papaya
Local |Name: *Mgbimgbi* Family: Caricaceae Parts used: Leaves Remarks: Leaves extract used for malaria
17) Botanical Name: Chlorophylum macrophyllum Aschor
Local |Name: *Ukpazi* Family: Ciliaceae Parts used: Seeds Remarks: Seeds powdered with native chalk chewed for relief of footache.
18) Botanical Name: Palisota hirsute
Local |Name: *Okpete* 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: Vernonia anygdalina
Local |Name: *Onugbu* 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: Combretum racemosum
Local |Name: *Inenenwata*
Family: Combretaceae
Parts used: Roots and leaves
Remarks: Decoction of the roots and leaves used for abortion.
21) Botanical Name: Emilia occionea
Local |Name: *Osiisi*
Family: Compositae
Parts used: Leaves
Remarks: Leaves extract used to cure earache
22) Botanical Name: Cnestis ferruginea
Local |Name: *Ogbakpee or Ojieyi*
Family: Connariaceae
Parts used: Leave
Remarks: Decoction of leaves used for dysentry
23) Botanical Name: Telfariria occidentalis
Local |Name: *Ovee*
Family: Cucubitaceae
Parts used: Leaves
Remarks: Leaves extract used for treatment of convulsions in children.
24) Botanical Name: Vaccinium myrtillus
Local |Name: *Uri*
Family: Fruit juice
Remarks: Fruit juice remedy for joint aches
25) Botanical Name: Ocimum viride
Local |Name: *Nchanwu*
Family: Labiatae
Parts used: Leaves
Remarks: Burnt leaves drives away ants (especially white ants).
26) Botanical Name: Oryza sativa
Local |Name: *Osikapa*
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: Saccharum officinarium
Local |Name: *Ichara ucho* Family: Graminae Remarks: Stem juice given to malaria patients to restorate vitality.
28) Botanical Name: Euphorbia heterophylla
Local |Name: *Ogwu-eva-osisa* 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: Garcinia kola heckle
Local |Name: *Akuinu* Family: Guffiferae Parts used: Seeds Remarks: Seeds used for cough and catarrh.
30)Botanical Name: Cassytha fili
Local |Name: *Gbanigerige* Family: Lauraceae Parts used: Stem used during epilepsy attack.
31) Botanical Name: Albizia gummefera
Local |Name: *Ogwu akpee* Family: Leguminosae Parts used: Roots Remarks: Roots paste with salt and pepper used for scorpion bites.
32) Botanical Name: Pentacletira macrophylla
Local |Name: *Akpaka/Ugba* Family: Leguminosae Parts used: Stem bark Remarks: Stem bark paste used to counter act the effect of poison.
33) Botanical Name: Indigofera tinctoria
Local |Name: *Ogbu* Family Name: Legiminosae 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 dismise bruises.

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

34) Botanical Name: Dialium guinense wild

Local |Name: *Unuagu*
Family: Leguminosae
Parts used: Leaves
Remarks: Decoction of leaves used for stomach ache.

35) Botanical Name: Azadiracha indica

Local |Name: *Ochoikaoneme/Dogoyaro*
Family: Meliaceae
Parts used: Leaves
Remarks: Decoction of leaves used to cure malaria.

39) Botanical Name: Musa paradisiacal

Local |Name:
Family: Musaceae
Parts used: Leaves
Remarks: Decoction of leaves used to cure swollen stomach.

40) Botanical Name: Vitellaria paradoxa

Local |Name: *Osisiekwume*
Family: Sapotaceae
Parts used: Fruit
Remarks: Fruit oil used for body pains and aches.

41) Botanical Name: Senna occidentalis

Local |Name: *Uri-Oka*
Family: Leguminosae
Parts used: Leaves
Remarks: Leaves extract used for cure of malaria and also crushed leaves used for eczema.

36) Botanical Name: Milicia excelas

Local |Name: *Uko*
Family: Moraceae
Parts used: Roots & leaves
Remarks: Decoction of leaves or roots cure stomach aches.

37) Botanical Name: Lophira alata

Local |Name: *Ugiri Nwautobo*
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 tocure 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.

References

Adam, C. E., Banford, K. M. and Early, M. P., 1964, *Principles of Horticulture, 2nd Edition*, Cambridge University Press, Cambridge and London.

Awake, May 1998, 'Can the Rainforests be saved?', *Journal of the Watchtower Bible Tracts Society of New York*, USA.

Iwu, M., 1989, 'Food for Medicine' in: M. Iwu, (ed.), *Dietary Plants and masticetories as sources of biologically active substances*, University of Ife Press, pp. 303-310.

Ogwuru, C.C., 1995, 'Domestication of Medicinal Plants in Ebonyi State', B. *Agric Project*, unpublished.

Unanma, R. P. A., 1982, 'Your Guide to Identifying some Arable Land Weeds of Southeastern Agricultural Zone of Nigeria, Extension Research Liaison Service, National Roots Crops Research Institute', Umudike, Nigeria, *Extension Bulletin*, Vol. 1 pp. 41-42.