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## Traditional medicine and the future of medicinal Plants in Nigeria

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### Abstract

The use of Traditional medicine in developed as well as developing countries as basis for the treatment of many ailments has been in existence for thousands of years and there is no doubt that their importance has been widely acknowledged. The present study points out the fact that, medicinal plants have continued to play vital roles in the Nigerian healthcare sector, although traditional medical practitioners have not been fully recognized. Findings from this study also showed that the government is yet to adequately contribute positively to the conservation and sustainable use of these flora species. In general, this paper examines previously published articles on medicinal plants in Nigeria, presents the uses of some of these plants as earlier reported, discusses the challenges facing their availability and argues for rational conservation methods to be employed on time.

**Keywords:** Traditional/Herbal Medicine, Traditional Medical Practitioners, Medicinal Plants, Conservation, Nigeria.

### 1. Introduction

Man's life and survival would be impossible without 'symbiosis' with, and extensive use of plants and plant products. Traditional plant uses can be inventoried for present day use, adaptation, or for future survival. As defined by the World Health Organisation <sup>[1]</sup>, a medicinal plant is any plant which in one or more of its organs contains substances that can be used for the therapeutic purposes or which are precursors for the synthesis of useful drugs. Schmelzer & Gurib-Fakin <sup>[2]</sup> pointed out that they contribute significantly to rural livelihoods of the people and social equilibrium in Africa. Overtime, these important flora species have been collected from the wild and used for their medicinal activity in local traditional medicine, but little is known about their conservation status. The World Health Organization <sup>[3]</sup> redefined traditional medicine (TM) as comprising therapeutic practices that have been in existence, often for medicine and are still in use today. These practices vary widely in relation to the social and cultural heritage of different countries. According to Sofowora <sup>[4]</sup>, the practitioners of traditional medicine could serve as additional sources of health manpower in developing countries such as Nigeria. This is especially so where a developing country is trying to achieve total health coverage for its people. Sofowora <sup>[4]</sup> also noted that traditional medicine enjoys a wider acceptability among the people of developing countries partly due to the inaccessibility of orthodox medicine, but the major contributing factor is the fact that it blends readily into the socio-cultural life of the people in whose culture it is deeply rooted. In fact, it is reported that 60-85% of the population in every country of the developing world has to rely on traditional or indigenous forms of medicine. For example, Green and Makhubu <sup>[5]</sup> noted clearly that 85 % of Swazis use traditional medicine while Erinoshio & Ayonrinde <sup>[6]</sup> observed the same situation for Nigerians. There are instances today in Ogun, Osun, Ekiti, Edo, Delta, Imo, Enugu, Niger and Zamfara states to mention but a few places in Nigeria, where even the urban dwellers still consult traditional healers as a first choice. Such is also the case in Kenya, Guatemala, Ethiopia and Ghana respectively <sup>[6, 7, 8]</sup>.

However, several African countries including Nigeria have relied upon spiritual and practical skills of the traditional medical practitioners such as herbalists, herb sellers, traditional birth attendants, bone setters, faith healers and traditional surgeons, whose botanical knowledge of plant species, their ecology and scarcity are invaluable as opined by Cunningham <sup>[9]</sup>. Traditional medical knowledge may be passed on orally from generation to generation, in some cases with families specializing in specific treatments, or it may be taught in officially recognized universities <sup>[10]</sup> such as University of Ibadan (Ibadan, Oyo state), Obafemi Awolowo University (Ile-Ife, Osun State), University of Lagos (Lagos State), University of Nigeria (Nsukka, Enugu State) to mention a few of these in Nigeria.

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Over the years, the use of complementary and alternative medicine (CAM) in both rural and urban areas across Nigeria has increased, but there is a great concern for its safety, efficacy as well as control and this poses a great challenge for health authorities and the general public. Traditional healers use plant resources in treatment of diseases, but they are yet to consider the regeneration of these important medicinal plants used by them. On one hand, the use of these plants has contributed enormously to the health sector, on the other hand, the demand for herbs, particularly in parts of Africa, has brought some plants near extinction (even the simplest plant may have a future importance that we cannot predict). This paper highlights the importance of medicinal plants in traditional medicine, the roles played by traditional medical practitioners in the Nigeria health sector and thereafter points out the need for managing and protecting our rich flora diversity, as this ensures the availability and sustainable use of these important plants.

## 2. Methodology

The use of herbal medicine involves a diversity of indigenous knowledge and cultural beliefs and constitutes an important basis for the development of a society. In this regard, literatures were sourced from previous studies on the subject matter. Relevant organizations and individuals with an in-depth knowledge about the uses of plants in tackling health issues were also consulted. Members of traditional medicine groups such as the Nigerian Traditional Medical Association (NTMA), the Nigerian Union of Medical Herbal Practitioners (NUMHP) and the National Association of Nigerian

Traditional Medicine Practitioners (NANTMP), were consulted and interviewed using structurally designed questionnaires and important information regarding medicinal plants were adequately documented. Some of the questions asked include: years of experience, kind of ailment for which a plant is used, reliability and shelf life of the herbal drugs, accessibility and conservation status of these medicinal plants, to mention a few. An overview of some reported plants, their families, habit and their uses in traditional medicine was obtained from previous related studies on ethnomedicinal plants and is presented in Table 1.

## 3. Results and discussion

Researchers have reported several species of plants to be useful in the management of ailments. Okoli *et al.* [11] recorded 70 herbal plants used in management of different ailments among Esan people of Edo state; Abubakar *et al.* [12] identified 72 plants useful in the treatment of cancers and related disorders among the Hausa and Fulani tribes of Northern Nigeria, while recent works [13, 14, 15] revealed a total of 73, 143 and 132 plant species to be very useful in the traditional management of cancer, haemorrhoids and diabetes respectively in south western Nigeria. Some of these plants are included in Table 1. Rufus [16] reported that a large number of plant species grows in the Niger Delta forest and these species have been known to be of importance in the medical and pharmaceutical industries. Many other researchers have also listed a number of species that are medicinally useful in Nigeria (Table 1).

**Table 1:** Some selected medicinal plants used in the traditional treatment of various ailments in Nigeria.

S/no	Family	Scientific Name	Habit	Parts used	Medicinal Uses
1.	Acanthaceae	<i>Asystasia gangetica</i> (L.) T. Anders	Herb	Whole plant	Pile, astringent
2.	Acanthaceae	<i>Elytraria marginata</i> Vahl	Herb	Leaves	Stomachache, chest pain, wounds
3.	Acanthaceae	<i>Phalopsis ciliata</i> (Wild.) Hepper	Herb	Whole plant	Wounds, laxative
4.	Amaranthaceae	<i>Aerva lanata</i> (L.) Juss. ex Schult.	Herb	Whole plant	Ulcers, wounds, snake bite, diuretic, purgative
5.	Amaranthaceae	<i>Alternanthera sessilis</i> (L.) R. Br ex	Herb	Leaves, whole plant	Antibacterial, astringent, headache
6.	Amaranthaceae	<i>Celosia argentea</i> L.	Herb	Leaves, roots, seeds	Diuretic, gonorrhoea, diarrhoea
7.	Amaryllidaceae	<i>Crinum jagus</i> Baker	Herb	Leaves, bulbs	Anthelmintics, purgative
8.	Anacardiaceae	<i>Anacardium occidentale</i> L.	Tree	Leaves, fruits, stem bark	Typhoid fever, malaria, cough, haemorrhoids
9.	Anacardiaceae	<i>Mangifera indica</i> L.	Tree	Leaves, bark	Malaria, diarrhoea, diabetes, sore-throat, dysentery
10.	Anacardiaceae	<i>Spondias mombin</i> L.	Tree	Fruits, bark, leaves	Diuretic, fever, cold, gonorrhoea
11.	Annonaceae	<i>Annona senegalensis</i> Pers.	Tree	Leaves, roots, fruits	Cancer, dysentery, cough, venereal diseases, toothache,
12.	Annonaceae	<i>Enantia chlorantha</i> Oliv.	Tree	Bark	Fever, jaundice
13.	Annonaceae	<i>Monodora myristica</i> Dunal	Tree	Seeds	Constipation, arthritis, anaemia, headache
14.	Annonaceae	<i>Uvaria chamae</i> P. Beauv		Leaves	Toothache
15.	Apocynaceae	<i>Alafia barteri</i> Oliv.	Liana	Leaves, roots	Diabetes
16.	Apocynaceae	<i>Alstonia boonei</i> De Wild	Tree	Roots, leaves	Astringent, fever, diabetes, haemorrhoids
17.	Apocynaceae	<i>Funtumia elastica</i> (Preuss) Stapf.	Tree	Stem, latex	Pile, jaundice
18.	Apocynaceae	<i>Holarrhena floribunda</i> (G. Don) Dur & Schinz	Tree	Bark, leaves, whole plant	Anti-malaria, gonorrhoea, dysentery, jaundice
19.	Apocynaceae	<i>Picralima nitida</i> (Stapf) T.Dur & H.Dur.	Shrubs	Bark, roots	Fever, diabetes, desentery
20.	Apocynaceae	<i>Rauwolfia vomitoria</i> Afzel	Tree	Rook, bark, leave sap	Convulsion, jaundice, measles, herpes, internal disorder
21.	Arecaceae	<i>Cocos nucifera</i> L.	Tree	Bark, nuts, root	Dysentery, diabetes, migraine, toothache, liver ailment, laxative
22.	Asclepiadaceae	<i>Calotropis procera</i> R.B	Shrub	Leaves, roots, latex, bark	Diabetes, diarrhoea, dysentery, cough elephantiasis, leprosy, ringworm,

S/no	Family	Scientific Name	Habit	Parts used	Medicinal Uses
23.	Asclepiadaceae	<i>Gongronema latifolium</i> Benth.		Root, stem	Haemorrhoids, anthelmintic
24.	Asclepiadaceae	<i>Pergularia daemia</i> (Forssk) Chiov.	Climber	Whole plant	Fever, piles, diabetes
25.	Asteraceae	<i>Ageratum conyzoides</i> L.	Herb	Whole plant	Diarrhoea, ulcer, diabetes, skin diseases, irregular menstruation and menstrual pain
26.	Asteraceae	<i>Aspilia africana</i> (Pers.) C.D. Adams.	Herb	Leaves, whole plant	Stomach disorders, Skin diseases, haemorrhoids
27.	Asteraceae	<i>Chromolaena odorata</i> (L.) King & Rob.	Herb	Leaves	Antimicrobial, fever, headache, dysentery, haemorrhoids
28.	Asteraceae	<i>Synedrella nodiflora</i> (L.) Gaertn.	Herb	Leaves	Sores, skin infections
29.	Asteraceae	<i>Tridax procumbens</i> L.	Herb	Whole plant	Stomachache, backache
30.	Bignoniaceae	<i>Kigelia africana</i> Benth	Tree	Leaves, stem-bark	Anti-cancer
31.	Bignoniaceae	<i>Newbouldia laevis</i> (P.Beauv) Seaman ex Bureau.	Tree	Bark, roots, leaves	Epilepsy, diabetes, convulsions, skin infections
32.	Bombacaceae	<i>Adansonia digitata</i> L.	Tree	Leaves, fruit pulp, bark	Malaria, asthma, diabetes
33.	Bombacaceae	<i>Bombax buonopozense</i> P. Beauv	Tree	Stem-bark, leaves	Skin infections, stomachache, Blood tonic,
34.	Bombacaceae	<i>Ceiba pentandra</i> (L.) Gaertn.	Tree	Leaves, oil	Laxative, sores, rheumatism
35.	Caesalpinaceae	<i>Senna alata</i> (L.) Roxb	Shrub	Leaves, stem-bark	Dysentery, skin diseases, anthelmintics, constipation
36.	Caesalpinaceae	<i>Senna hirsuta</i> (L.) Irwin & Barneby	Shrub	Leaves, roots	Antimicrobial, skin infection, purgative
37.	Capparaceae	<i>Crateva adansonii</i> Dc.	Tree	Leaves, roots	Diabetes, tonic, stomachache, antipyretic
38.	Caricaceae	<i>Carica papaya</i> L.	Shrub	Leaves, fruits, stem bark	Diabetes, malaria, dysentery, diabetes, venereal diseases, catarrh, cough, purgative, haemorrhoids
39.	Chenopodiaceae	<i>Chenopodium ambrosioides</i> L	Herb	Leaves, whole plant	Anthelmintics, rheumatism, anti-cancer
40.	Combretaceae	<i>Combretum platypterum</i> Hutch. & Dalziel	Climber	Leaves	Febrifuge
41.	Connaraceae	<i>Byrsocarpus coccineus</i> (Schum & Thonn) Benth	Shrub	Leaves, roots	Pile, dysentery, gonorrhoea, tumours, jaundice, cancer, haemorrhoids
42.	Connaraceae	<i>Cnestis ferruginea</i> DC	Shrub	Leaves, roots	Laxative, fever, toothache, haemorrhoids
43.	Convolvulaceae	<i>Merremia tridentata</i> (L.) Hallier F.	Climber	Whole plant	Gonorrhoea
44.	Costaceae	<i>Costus afer</i> Ker-Gawl	Tall herb	Stem, roots	Nausea, stomachache, aphrodisiac
45.	Crassulaceae	<i>Kalanchoe pinnata</i> (Lam) Pers.	Herb	Leaf sap	Diuretic
46.	Cucurbitaceae	<i>Citrullus colocynthis</i> (L.) Schrad	Tree	Whole plant, roots, fruit pulp	Purgative, diabetes, anthelmintics, contraceptive
47.	Cucurbitaceae	<i>Coccinia barteri</i> (Hook. f.) Keay	Climber	Whole plant	Venereal diseases
48.	Cucurbitaceae	<i>Momordica charantia</i> L.	Climber	Leaves, fruits, whole plant	Ulcers, burns, skin infections, diabetes, convulsion, pile
49.	Cucurbitaceae	<i>Telfaria occidentalis</i> Hook.f.	Climber	Leaves	Blood tonic, convulsion
50.	Cyperaceae	<i>Mariscus flabelliformis</i> Kunth	Herb	Roots	Root is aromatic
51.	Dioscoreaceae	<i>Dioscorea bulbifera</i> L.	Climber	Fruits	Boils, fever
52.	Dioscoreaceae	<i>Dioscorea dumetorum</i> (Kunth) Pax	Climber	Leaves, tubers	Malaria, abdominal pain
53.	Euphorbiaceae	<i>Acalypha fimbriata</i> Schum. & Thonn.	Herb	Leaves	Ulcer, rheumatism, asthma
54.	Euphorbiaceae	<i>Alchornea cordifolia</i> (Schumach. & Thonn.) Muell. Arg.	Shrub	Leaves, stem, bark	Fever, diabetes, antimicrobial, haemorrhoids
55.	Euphorbiaceae	<i>Alchornea laxiflora</i> (Benth) Pax et K. Hoffm	Shrub	Leaves, roots	Typhoid fever, antioxidant
56.	Euphorbiaceae	<i>Bridelia ferruginea</i> Benth	Shrub	Leaves, stem-bark, roots	Diabetes, anti-cancer, haemorrhoids
57.	Euphorbiaceae	<i>Bridelia micrantha</i> (Hochst) Baill	Small tree	Leaves, roots, bark	Headache, migraine
58.	Euphorbiaceae	<i>Croton lobatus</i> L.	Herb	Leaves, root	Skin diseases, rheumatism
59.	Euphorbiaceae	<i>Euphorbia heterophylla</i> L.	Herb	Leaves, roots	Purgative, skin infections
60.	Euphorbiaceae	<i>Flueggea virosa</i> (Roxb. ex Wild.) Voigt	Shrub	Leaves, roots	Cancer, dysentery
61.	Euphorbiaceae	<i>Jatropha curcas</i> L.	Shrub	Leaves	Haemorrhoids
62.	Euphorbiaceae	<i>Mallotus oppositifolius</i> Mull. Arg.	Shrub	Leaves, roots	Astringent, ringworm
63.	Fabaceae (Caesalpinioideae)	<i>Caesalpinia bunduc</i> (L.) Roxb	Shrub	Leaves, seeds, roots	Fever, diabetes, anthelmintics
64.	Fabaceae (Mimosoideae)	<i>Albizia adianthifolia</i> (Schumach.) W. Wight	Tree	Stem bark	Gonorrhoea, cough, diabetes, night blindness, haemorrhoids

S/no	Family	Scientific Name	Habit	Parts used	Medicinal Uses
65.	Fabaceae (Mimosoideae)	<i>Albizia ferruginea</i> (Guill & Perr) Benth	Tree	Root, stem bark, leaves	Dysentery, constipation
66.	Fabaceae (Mimosoideae)	<i>Albizia zygia</i> (DC) J. F. Machr.	Tree	Leaves, stem bark	Astringent
67.	Fabaceae (Mimosoideae)	<i>Leucaena leucocephana</i> (Lam) Dewit	Small tree	Leaves	Anti-microbial
68.	Fabaceae (Mimosoideae)	<i>Parkia biglobosa</i> Benth.	Tree	Leaves	Anti-inflammatory
69.	Fabaceae (Papilionoideae)	<i>Abrus precatorius</i> L.	Climber	Leaves, seeds, roots	Diabetes, cough, convulsion, rheumatism, conjunctivitis
70.	Fabaceae (Papilionoideae)	<i>Baphia nitida</i> Lodd	Small tree	Leaves, bark, roots	Skin diseases, constipation, small pox, diabetes
71.	Fabaceae (Papilionoideae)	<i>Centrosema pubescens</i> Benth	Climber	Leaves	Skin diseases
72.	Fabaceae (Papilionoideae)	<i>Crotalaria retusa</i> L.	Herb	Leaves, root, seds	Fever, diabetes, dysentery
73.	Fabaceae (Papilionoideae)	<i>Dalbergiella welwitschii</i> (Baker) Baker f.	Shrub	Stem, roots, leaves	Purgative, diabetes, anthelmintics, menstrual disorder.
74.	Fabaceae (Papilionoideae)	<i>Pterocarpus osun</i> Craib	Tree	Root, stem bark	Eczema, asthma, skin infections
75.	Guttiferae	<i>Garcinia kola</i> Heckel	Tree	Fruits, roots, stem- bark	Anti-cancer, dysentery, diabetes, toothache, cough
76.	Icacinaceae	<i>Icacina trichanta</i> Oliv.	Shrub	Leaves, roots, exudates	Rheumatism, aphrodisiac, anthelmintics, toothache, abortifcent, purgative
77.	Irvingiaceae	<i>Irvingia gabonensis</i> (Aubry- Lecomte O'Rorke) Baill.	Tree	Leaves	Spleen infection
78.	Labiatae	<i>Ocimum gratissimum</i> L.	Shrub	Leaves, whole plant	Diarrhoea, pile, diabetes, fever, cold, convulsion
79.	Lamiaceae	<i>Solenostemon monostachyus</i> (P. Beauv.) Briq.	Herb	Leaves	Convulsion, stomachache
80.	Liliaceae	<i>Allium ascolanicum</i> L	Herb	Whole plant	Haemorrhoids, diabetes, anti-cancer, dysentery
81.	Liliaceae	<i>Asparagus africanus</i> Lam.		Whole plant	Antimicrobial, diuretic
82.	Loganiaceae	<i>Anthocleista djalensis</i> A.chew	Tree	Leaves, stem-bark	Eczema, diabetes, antipyretic, purgative, abdominal pain
83.	Lythraceae	<i>Lagerstroemia speciosa</i> (L.) Pers.	Tree	Ripe fruits, leaves	Diabetes
84.	Lythraceae	<i>Lawsonia inermis</i> L.	Shrub	Leaves	Haemorrhoids
85.	Malvaceae	<i>Abelmoschus esculentus</i> (L.) Moench	Herb	Fruit	Diabetes, fever, gonorrhea, dysentery
86.	Malvaceae	<i>Sida veronicifolia</i> Lam.	Herb	Whole plant	Aphrodisiac, diabetes
87.	Marantaceae	<i>Thaumatococcus danielli</i> Benth.	Herb	Fruit	Diabetics
88.	Melastomataceae	<i>Heterotis rotundifolia</i> (SM) Jac- Fel	Herb	Whole plant	Antimicrobial, venereal diseases, cough
89.	Meliaceae	<i>Khaya grandifoliolia</i> C. DC.	Tree	Bark	Haemorrhoids, anti-cancer
90.	Menispermaceae	<i>Chasmanthera dependens</i> Hochst	Climber	Roots	Haemorrhoids, diuretic
91.	Menispermaceae	<i>Rhigiocarya racemifera</i> Miers	Climbing plant	Leaves, seeds	Sedative, aphrodisiac
92.	Moraceae	<i>Antiaris toxicaria</i> Lesch	Tree	Root, stem bark	Purgative, skin diseases, epilepsy
93.	Moraceae	<i>Ficus exasperata</i> Vahl	Tree	Leaves, bark, roots	Skin irritations, gonorrhoea, urinary ailments, haemorrhoids
94.	Moraceae	<i>Ficus mucoso</i> Welw. Ex Ficalho	Tree	Stem-bark	Insomnia
95.	Moraceae	<i>Ficus sur</i> Forssk	Tree	Roots	Haemorrhoids
96.	Moraceae	<i>Milicia excelsa</i> (Welw.) C.C. Berg	Tree	Bark, roots, latex	Nausea, malaria, abdominal pain, insomnia
97.	Moraceae	<i>Musanga cecropioides</i> R. Br.	Tree	Roots, leaves, bark, exudates	Dysentery, cough, anthelmintics
98.	Moraceae	<i>Myrianthus arboreus</i> P.Beauv.	Tree	Bark	Dysentery, cough, anthelmintics
99.	Moraceae	<i>Treulia africana</i> Decne	Tree	Leaves, bark, roots	Haemorrhoids, ulcer, cough, venereal diseases, anaemia, malaria
100.	Musaceae	<i>Musa paradisiaca</i> L.	Shrub	Leaves, roots, fruits	Haemorrhoids, diabetes, diarrhoea, dysentery, epilepsy, goiter, gonorrhoea, anaemia
101.	Myristicaceae	<i>Pycnanthus angolensis</i> (Welw.) Warb	Tree	Leaves, stem-bark	Black tongue, cough, fever, skin infections, anti-cancer
102.	Myrtaceae	<i>Psidium guajava</i> L.	Tree	Roots, leaves, stem- bark	Haemorrhoids, fever, dysentery, diarrhoea, malaria, stomach ache
103.	Olacaceae	<i>Olox subscorpioidea</i> Oliv.	Tree	Roots, leaves, stem, bark, twigs	Yellow fever, jaundice, guinea worm, venereal disease
104.	Pandaceae	<i>Microdesmis puberula</i> Hook f.	Shrub	Leaves, bark, seeds	Dysentery, impotence, Diarrhoea, wound
105.	Pedaliaceae	<i>Ceratotheca sesamoides</i> Endl.	Herb	Seeds	Relieve pains after circumcisions

S/no	Family	Scientific Name	Habit	Parts used	Medicinal Uses
106.	Periplocaceae	<i>Parquetina nigrescens</i> (Afzel.) Bullock	Climber	Leaves, roots	Anti-cancer, blood tonic, haemorrhoids
107.	Piperaceae	<i>Peperomia pellucida</i> (L.) Kunth	Herb	Whole plant	Haemorrhoids, hypertension, convulsion, bone fracture
108.	Piperaceae	<i>Piper guineense</i> Schum & Thonn	Climber	Seed	Haemorrhoids, anti-cancer, diabetes
109.	Poaceae	<i>Bambusa vulgaris</i> Schrad.	Grass	Leaves, young shoots	Haemorrhoids, gonorrhoea, anthelmintics
110.	Poaceae	<i>Saccharum officinarum</i> L.	Shrub	Leaves, stem juice	Diabetes, headache
111.	Polygalaceae	<i>Carpolobia lutea</i> G. Don	Shrub	Leaves, bark	Aphrodisiac
112.	Polygalaceae	<i>Securidaca longepedunculata</i> Fres.	Shrub	leaves	Anti-cancer
113.	Portulacaceae	<i>Portulaca oleracea</i> L.	Herb	Whole plant	Fever, skin diseases, fever, astringent
114.	Rubiaceae	<i>Morinda lucida</i> Benth	Tree	Leaves, stem bark	Malaria
115.	Rubiaceae	<i>Nauclea diderrichii</i> (De Wild. & T.Durand) Merr.	Tree	Roots, stem-bark, fruits	Gonorrhoea, pile, malaria, dysentery
116.	Rutaceae	<i>Citrus aurantifolia</i> (Christm.) Swingle.	Tree	Leaves, stem bark, fruit	Malaria, gonorrhoea, haemorrhoids, diabetes
117.	Rutaceae	<i>Citrus sinensis</i> Osbeck.	Tree	Stem-bark, leaves, fruits	Dysentery, headache, fever, toothache, anthelmintics
118.	Sapindaceae	<i>Lecaniodiscus cupanioides</i> Planch ex Benth	Tree	Leaves, stem-bark, roots, seeds	Fever, purgative, typhoid, jaundice, cough, malaria
119.	Sapindaceae	<i>Paullinia pinnata</i> L.	Woody climber	Leaves, roots, seeds	Jaundice, leprosy, aphrodisiac, dysentery
120.	Sapotaceae	<i>Chrysophyllum albidum</i> G. Don	Tree	Bark, leaves	Haemorrhoids, diabetes, stomachache, fever
121.	Solanaceae	<i>Nicotiana tabacum</i> L.	Shrub	Leaves	Convulsion, stimulant
122.	Sterculiaceae	<i>Theobroma cacao</i> L.	Tree	Seeds, roots	Gingivitis, toothache, stimulant
123.	Tiliaceae	<i>Corchorus olitorius</i> L.	Woody herb	Leaves, roots, seeds	Diarrhoea, fever, asthma
124.	Tiliaceae	<i>Glyphaea braevis</i> (Spreng) Monachino	Small tree	Leaves, stem bark	Fever, diarrhoea, toothache, fever
125.	Ulmaceae	<i>Trema orientalis</i> (L.) Blume	Tree	Leaves, stem-bark	Haemorrhoids, fever, cough, dysentery, pneumonia, jaundice
126.	Urticaceae	<i>Laportea aestuans</i> (L.) Chew	Herb	Whole plant	Piles, burns, astringent
127.	Zingiberaceae	<i>Aframomum melegueta</i> (Roscoe) K.Schum.	Herb	Leaves, seeds	Haemorrhoids, diabetes, stimulant

Sources: Bhat *et al.* [17], Abubakar *et al.* [12], Odugbemi [18], Ugbogu *et al.* [19], Soladoye *et al.* [13, 4, 15].

It is not surprising that plants considered as weeds also play important roles in traditional medicine as studies have shown their effectiveness against microorganisms [20]. Hill and Ramsay [21] and Soladoye *et al.* [22] suggested that some weeds serve as sources of drugs which are used in orthodox medicine, while others have been used locally for decades for several traditional medicinal purposes ranging from simple laxative to cure dysentery. Soladoye *et al.* [23] further opined that apart from the fact that weeds generally provide vegetative cover to protect the soil surface against water and wind erosion, some, such as *Alternanthera sessilis* (L.) DC., *Acalypha fimbriata* Schumach. & Thonn. and *Mariscus flabelliformis* Kunth have medicinal properties and are used extensively in homeopathic and naturopathic medicine.

As reported by the interviewees, many medicinal plants are gradually becoming rare while others are already endangered owing to infrastructural development by several individuals, governmental and non governmental agencies. They are no longer readily available and this situation may be harmful to the practice of traditional medicine in Nigeria. The reporters also blamed the government for her inefficient role in conservation matters particularly policy implementation. The loss of ethnic culture was also identified to be another serious threat to the subject matter. While traditional medicine knowledge is held only by the older generations and the practitioners of TM who are gradually reducing in number, the younger generations are indifferent about it probably because of recent technological developments as well as urbanization.

The roles played by traditional medicine organizations such as

the Nigerian Traditional Medical Association (NTMA) and the Nigerian Union of Medical Herbal Practitioners (NUMHP), cannot be over emphasized. Some of these roles include: quality control, pricing, and mode of marketing herbal preparations; screening of authentic members (fake traditional healers are expelled from the organization); lobbying Government for recognition (which has been achieved); interacting with orthodox medical practitioners for recognition as an alternative healing practice (this is still far from being achieved); establishment of herbal gardens in several parts of the country as well as carrying out correct plant identification for herbal plants to ensure that fake products are eliminated. The Nigeria Natural Medicine Development Agency (NNMDA) has also initiated a number of activities, projects and programs to document medicinal and aromatic plants as well as animals/animal parts used in traditional medicine and also develop strategies to utilize and bring to limelight the nation's indigenous non-medication, technologies and techniques involved in the practice. As part of measures to build the capacity of members, many traditional medicine practitioners have undergone training on child birth, processing and packaging of drugs. These bodies, among others, should be encouraged by the federal, state and local government authorities to ensure continuity in the practice of herbal medicine. While such encouragement is necessary, it is also important to enlighten them on the need for biodiversity conservation which will ensure species availability.

The management of traditional medicinal plant resources is important, because of their value as potential sources of new

drugs for the sustainable enhancement of the country's health-care delivery, promotion of her economy and conservation of her biodiversity. The widespread practice of conserving edible wild fruit-bearing trees e.g. *Irvingia gabonensis* (Aubry-Lecomte ex O'Rorke) Baill., *Artocarpus altilis* (Park.) Fosberg, *Persea americana* Mill., *Treculia africana* Decne. and recently *Allanblackia floribunda* Oliv. for their fruits, oil or shade should also be encouraged as this ensures availability of some traditional medicines since several of these plants are multi-purpose species. The conservation of these important plants and the knowledge of traditional medicine run in parallel, they are important and interrelated as many medicinal plants are under threat due to over-collection and destructive harvesting practices. The most serious proximate threats generally are habitat degradation, intensive crop cultivation, population pressure and over-exploitation<sup>[24]</sup>. With increasing demand for wood and wood products, large areas of the natural forest ecosystems are being deforested and degraded. At present, most of the plant materials used in traditional medicine is harvested from the wild by gatherers who usually collect everything they think they can sell, without taking into account how the plants will survive for the future. Moreover, it has become increasingly difficult to collect enough material from the wild, and several species can no longer be found readily available owing to the aforementioned threats. Even the available species are most likely to disappear as well. If they do disappear, where else do we go in search of these important plant species? Soladoye & Olowokudejo<sup>[25]</sup> pointed out that if these trends are allowed to continue, many medicinal plants which are chemical factories are at risk and may become extinct before they are scientifically described. Gbile *et al.*<sup>[26, 27]</sup> revealed that about four hundred and eighty plant species of the Nigerian flora have been endangered due to increasing population pressure and urbanization, forest logging and clearing for plantations of trees and arable crops, thereby resulting in the destruction of the formally rich vegetation. IUCN<sup>[28]</sup> recently reported that of about 560 indigenous tree species found in Nigeria, 16 are critically endangered, 18 are endangered, 138 are vulnerable, 2 species are at lower risk/conservation dependent, 15 are near threatened, 10 are data deficient and 173 have been shown least concern. This also supports that fact that, the number of endangered Nigerian flora is fast increasing. Sadly, the government has continued to play a largely ineffective role in controlling the use of medicinal plants in Nigeria owing to ineffective implementation of forest and other related laws. Besides, the alarming rate of environmental disasters in rural and urban areas of the country indicates that these areas are under threat and require urgent attention. It is therefore, very vital to adopt a conservation approach for medicinal plants in Nigeria and Africa as a whole to prevent our rich forest from total loss. Obviously, the use of botanical gardens and arboreta as a means of conservation and development of medicinal plants is a cheap means of conservation as earlier noted by Sofowora<sup>[4]</sup>. Both *in situ* and *ex situ* preservation in botanic gardens and arboreta can be fully practiced in Nigeria although the latter may need application of special techniques to establish some particularly difficult species. In addition, the use of protected areas, nature reserves, national parks, etc (*in situ*) in the conservation of medicinal plants in Nigeria and beyond is important but they should be well selected, planned and managed such that people will be able to benefit in a sustainable way from the natural resources that are being conserved. As indicated by Allaby<sup>[29]</sup>, lack of conservation measures will lead to an increase in the number of endangered plant species and this will ultimately result in extinction which

is the gradual but sure elimination of taxa.

Similarly, some of the approaches to conservation as suggested by Olowokudejo<sup>[24]</sup> include - identification of medicinal plants (mapping their distribution and assessing their abundance); studying the traditional knowledge on the use of plants in health care systems; identification of institutions to plan, complement and implement ethnobotanical surveys; constitution of Traditional Health Practitioners (THPs) into National Bodies; incorporation of proven traditional remedies into the national programme of primary health care; cataloguing of all plant species used for medicinal purposes in the country by botanical institutions; identification of medicinal plants that are threatened in the wild so they can be given priority in conservation programmes; establishment of nurseries where medicinal plants are cultivated by a co-ordinated programme between the ministries of Agriculture and Health; control of trade in medicinal plants and their products; prohibition of collection of threatened medicinal plants from the wild except for propagation purposes; improvement of harvesting, storage and production techniques and re-introduction of heavily depleted plant species because of over-collection into areas where they once grew wild. It should be noted that the conservation of medicinal plants cannot be undertaken by a single sector; rather, it requires a team work involving many disciplines such as plant taxonomists, ecologists, ethnobotanists, plant pathologists, traditional health practitioners, agronomists and plant breeders.

#### 4. Conclusion

The present study has clearly shown that many medicinal plants in Nigeria are on the verge of total disappearance with the continuous destructive practices by the end users who are yet to consider the sustainable use and conservation status of these important flora species. Loss of indigenous knowledge on their medicinal potential is also fast increasing and reports from this study revealed that this may continue until the younger generations are adequately enlightened about the importance of traditional medicine in our society and its role in restoring the health of man. There is therefore, the need to strategize reliable approaches to conservation of our rich flora diversity, and also continuous documentation of indigenous ethnobotanical knowledge as many related studies have shown that native species constitute a large part of traditional medicine in Nigeria and Africa as a whole.

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