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Ethnomedicinal Herbal Knowledge and Practice among elders in Igalamela-Odolu Local Government Area of Kogi State, Nigeria

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Abstract

Objective: Documented Population based data on the use of herbal medicinal products and traditional knowledge among the younger generations is lacking in Nigeria and Africa at large and this is due to dearth of information passed across by the elderly ones. The aim of this study is to investigate and document the extent of use and general knowledge of herbal medicine among elders in Igalamela-Odolu Local Government of Nigeria for its use by the younger and future generation.

Methods: This study was carried out in Uwowo and Ajaka communities in Igalamela-Odolu Local Government Area of Kogi State in the year 2018, using a semi structured questionnaire/Interview and informal conversation with the respondents. Data collected were analyzed using Data analysis plus to generate frequencies.

Results: In total, sixty-eight (68) plant species distributed under forty (40) families with their ethnomedicinal uses were documented. Gastrointestinal tract disorders ranked highest among the categories of diseases cited by the respondents. It stood at 18.28% plant species cited by 20.15% respondents while Opthalmology and Venereal diseases ranked the lowest with 1.08% as mentioned by 0.85% respondents.

Conclusions: The study revealed that older generation are the major custodians of herbal knowledge. There is therefore the need for proper documentation of the use of herbal medicines and transfer of knowledge by the elderly population to younger and future generations for the management and treatment of human diseases.

Keywords: Herbal Medicine, Gastrointestinal Tract Disorder, Traditional Knowledge, Igalamela

INTRODUCTION

Traditional knowledge (TK) is a knowledge developed, sustained and passed on within a traditional community and between generations. It is the knowledge developed around a given conditions of the environment indigenous to a specific geographic zone[1]. It is cost effective, readily available, socially desirable and economically affordable.

Ethnomedicine is the use of plants in an unorganized medical system or formal training by members of an indigenous culture. It is also referred to as herbal medicine or native medicine in the traditional African curative system. Medicinal plants have been identified and used throughout human history and the documentation of traditional knowledge particularly on the medicinal uses of plants has offered many significant drugs of modern day[2,3]. According to the World Conservation Union (WCN), it has been estimated that one-quarter of all prescription drugs are developed from plants and several of these come from the humid tropical forests[4]. Over 80% of people living in developing countries rely on herbal medicines as their immediate choice in the treatment of diseases confirming its importance in Primary Health Care[5].

Herbal medicine use is widely popular because of the growing interest in health promotion and folk healing in the general population, dissatisfaction with some biomedical therapies and public recognition of herbal remedies due to advertising and media reports. However, the documentation of traditional knowledge on medicinal plants usage by the native people in Kogi State is still far from complete. Studies have been carried out on the ethnobotanical herbal knowledge and practice in

different local government areas and communities in Kogi state[6,7,8,9]. However, not much is known on the involvement of people on the uses of medicinal plant species and documentation of traditional knowledge in Igalamela-Odolu local government area of Kogi state. Hence, the aim of this study is to evaluate the level of use, and the general knowledge of ethnomedicine among the elders resident in Ajaka and Uwowo communities of Igalamela-Odolu Local Government Area of Kogi State in the North Central region of Nigeria.

MATERIALS AND METHODS

Description of study area

This study was conducted in Uwowo and Ajaka communities, Igalamela-Odolu Local Government Area of Kogi state (Figure 1) in October, 2018. Igalamela-Odolu Local Government Area is bordered by the Niger River in the West and Enugu State in the east. Its headquarters are located in the town of Ajaka in the north of the area at $7^0$10'16"N and $6^0$49'35"E. The northeasterly line of equal latitude and longitude passes through the Local Government Area. It is endowed with numerous forest reserves and community forests. It has a landmass of 2,175 km^2 and a population of 148,020 at the 2006 Nigeria Population Census[10]. The people depend mostly on the natural environment for their livelihood; they are involved in subsistence Agriculture. The climate of Igalamela-Odolu Local Government Area is divided into the tropical wet and dry climate. Government Area is divided into the tropical wet and dry climate. The rainy season lasts from April to October while the dry season lasts from November to March.

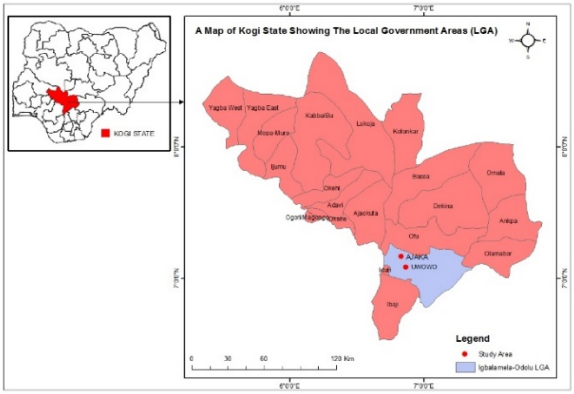

Figure 1. Map of study area

Sample procedure and data collection

The purpose of the study was explained to the respondents in the communities and informed consent was obtained from each of the respondents. The ethnobotanical data were collected through oral interview in native dialect and detailed discussions were conducted with elderly men and women knowledgeable and experienced in treating wide range of diseases with herbal preparations according to the method of Martin[11] and Betti[12]. Each plant recorded was mentioned by at least two respondents among a total of thirty-nine (39) consisting of 18 men and 21 women that were interviewed. Semi-structured questionnaire was used to collect data. The plants were identified and collected at the point of location. Data were collected to give the families, botanical names, common names and local names of the various plant species. Their use(s), specific plant part used and method of preparation were also recorded. Identification of some species was done by the authors while the difficult ones were done with assistance of an experienced taxonomist at the botanical garden, University of Ibadan. Standard literatures and floras such as Flora of West Tropical Africa[13] and medicinal plants from Nigeria[14] were also consulted.

Data analysis

Data collected were analyzed using Data analysis plus to generate frequencies. The results are presented in tables, bar chart and pie chart.

RESULTS AND DISCUSSION

The present work is based on the local knowledge of most commonly used plants by the elders within the area of study. Each plant species used is provided with its scientific name, family, common name, local name, habitat, plant parts mostly used, uses and method of preparation of the herbal remedies. The plant materials collected from the study area using the identification methods, and their medicinal information given, was examined and gathered which are described below.

Plant species

The study showed a total of sixty-eight (68) plant species distributed under forty (40) families.

Table 1. Ethnomedicinal plants of the Igala people with their uses

S/No	Family	Botanical Name	Common Name	Vernacular Name (Igala)	Plant parts used	Method of preparation	Ailment treated/Therapeutic effect
01	Amaranthaceae	*Amaranthus cruentus* L.	Purple amaranth	Etete-pupa	Leaves	Decoction with *Kigelia africana* leaves	Constipation, Fever & Anaemia
02	Anacardaceae	*Mangifera indica* L.	Mango	Umagolo	Stem- bark	Decoction	Anaemia
03	Anacardaceae	*Spondias mombin* L.	Hog plum	Ochikala	Stem-bark	Decoction	Malaria/Typhoid
04	Annonaceae	*Uvaria chamae* P. Beauv	Bush banana	Ailoko	Root-bark	Poultice	Swollen legs; Venomous bites/stings (snake, scorpion, etc)
05	Asclepiadaceae	*Calotropis procera* (Aiton) W.T Aiton	Apple of Sodom	Ebogu/Ugbabe	Latex	Extract the latex and apply	Wound healing; Toothache
06	Araceae	*Colocasia esculenta* L.	Cocoyam	Ikachi	Corm (Tuber)	Boil	Tonic
07	Arecaceae	*Cocos nucifera* L.	Coconut	Unoba	Seed	Liquid is collected from the fruit and drink	High body temperature
08	Asteraceae	*Ageratum conyzoides* L.	Goat weed	Iloji-anagbo	Leaves	Decoction with addition of Malt drink	Anaemia
09	Asteraceae	*Vernonia amygdalina* Delile	Bitter leaf	Illo	Leaves	Juice with *Ocimum gratissimum* to in water	Menstrual disorder
10	Bignoniaceae	*Kigelia africana* (Lam.) Benth.	Sausage tree	Ebie	Leaves	Juice with *Amaranthus cruentus* & *Mentha arvensis*; Cook as soup but no application of seasoning	Convulsion; Infertility in women
11	Bignoniaceae	*Newbouldia laevis* (P. Beauv.) Seeman ex Beauv.	African border tree	Ogishi	Stem-bark Leaves	Decoction; Juice with addition of a little salt; Juice	Induces labour; Toothache; Dysentery
12	Boraginaceae	*Heliotropicum indicum* L.	Indian heliotrope	Okogunu	Leaves	Decoction	Skin infection; Headache
13	Caesalpinaceae	*Burkea africana* Hook	Wild syringa	Ofo	Stem-bark	Juice	Swollen body
14	Caesalpinaceae	*Daniella oliveri* (Rolfe) Hutch & Dalziel	African copaiba balsam tree	Agba	Stem-bark	Decoction	Blood tonic
15	Caesalpinaceae	*Senna alata* (L.) Roxb.	Candle bush	Ogujeba	Leaves	Apply leaf sap or make a poultice	Skin infection, Itching

16	Caesalpinaceae	*Senna obtusifolia* (L.) Irwin & Barn.	Sicklepod	Idagbofifi	Leaves	Decoction	Sore throat, Laxative
17	Caricaceae	*Carica papaya* L.	Pawpaw	Echibakpa	Leaves; Fruit	Juice; Slice the unripe fruit & soak in water to ferment for 24 hours	Induces labour, venereal diseases; Typhoid/Malaria
18	Clusaceae	*Garcina kola* Heckel	Bitter kola	Egoligo	Seed	Crush 7 seeds with 2 garlic together & squeeze 2 lime oranges in water, then add natural honey	Asthma
19	Connaraceae	*Byrsocarpus coccineus* Schum. &Thonn.		Achamadele	Root-bark	Chew; Poultice	Stomachache; Venomous bite/sting
20	Convulvulaceae	*Ipomoea batatas* (L.) Lam.	Sweet potato	Odumu	Tuber	Boil	Tonic
21	Euphorbiaceae	*Alchornea cordifolia* (Schum. &Thonn.) Mull. Arg.	Christmas Bush	Oyi	Leaves	Decoction	Stomachache, Colic
22	Euphorbiaceae	*Bridelia ferruginea* Benth		Ede	Leaves:stem-bark (2:1)	Decoction	Fibroid, Laxative
23	Euphorbiaceae	*Euphorbia hirta* L.	Asthma herb	Omiaku-ikele	Whole plant	Decoction	Hemorrhoids
24	Euphorbiaceae	*Hymenocardia acida* Tul.	Wedding hat	Enache	Stem-bark	Chew; Decoction	Dysentery; Stomachache
25	Euphorbiaceae	*Jatropha curcus* L.	Physic nut	Ikekene	Leaves; Stem	Decoction; Poultice	Cough; Wound
26	Euphorbiaceae	*Manihot esculentus* Crantz	Cassava	Abacha	Tuber	Poultice	Venomous bites/stings
27	Euphorbiaceae	*Phyllanthus muellerianus* (Kuntze) Exell.		Oganana	Leaves	Decoction	Worm expellant, Migraine
28	Lamiaceae	*Mentha arvensis* L.	Wild mint	Ashefa	Leaves	Decoction/Infusion	Catarrh
29	Lamiaceae	*Ocimum africanum* Lour.	Lemon basil	Curry	Leaves	Condiment in soup	Flatulence, Colic
30	Lamiaceae	*Ocimum grattissimum* L.	Scent leaf/ African basil	Anyeba	Leaves	Condiment in soup	Dysentery, Tonic
31	Lauraceae	*Persea Americana* Mill	Pear	Pear	Fruit	Eaten fresh	Hypertension
32	Leguminosae	*Arachis hypogea* L.	Groundnut	Opa	Seed	Eat fresh uncooked	Ulcer
33	Leguminosae	*Pterocarpus erinaceus* Poir	African Kino	Ache	Leaves	Decoction	Infertility

34	Loganiaceae	*Anthocleista djalonensis* A. Chev.	Cabbage tree	Odogwu	Leaves	Decoction	Stomachache, Colic
35	Loranthaceae	*Tapinanthus dodoneifolius* (DC.) Danser	Mistletoe from *Parkia biglobosa*	Oche-oliugba	Leaves	Decoction	Cough, Painkiller
36	Loranthaceae	*Tapinanthus* spp.	Mistletoe from any plant	Oche-oli	Leaves	Dry and grind to powder form and add to pap	Miscarriage
37	Lythraceae	*Lawsonia inermis* L.	Henna tree	Oli-inale	Root-bark	Decoction	Weight reduction
38	Malvaceae	*Corchorus capsularis* L.	White Jute	Bolibo	Leaves	Condiment in soup	Laxative, stimulant
39	Malvaceae	*Gossypium hirsutum* L.	Cotton	Totowu	Leaves	Juice	Blood disorders
40	Malvaceae	*Sida acuta* Burm. f.	Common wirewood	Efa	Root	Crush and add potash as poultice for 24 hrs; Squeeze 4 lime oranges, 3 garlic and boil together. Leave to ferment for 24 hrs	Rheumatism; Waist pain, Heart problem
41	Meliaceae	*Azadirachta indica* A. Juss	Neem tree	Oli-neem	Leaves	Decoction & add Malt drink	Yellow fever
42	Meliaceae	*Khaya senegalensis* (Desr.) A. Juss	Dry-zone mahogany	Ago	Stem-bark	Decoction	Skin infection
43	Mimosaceae	*Prosopis africana* (Guill. & Perr.) Taub.	Iron tree	Ukpiye	Stem-bark	Chew; Decoction	Stomachache, worm expellant
44	Moraceae	*Ficus exasperate* Vahl.	Fig tree	Ogbaikolo	Leaves, Stem-bark	Decoction	Blood tonic
45	Moringaceae	*Moringa oleifera* Lam.	Moringa	Igeligedi	Leaves, Seed	Dry and grind to powder form; Use as condiment to soup	Low sperm count, High Blood pressure
46	Musaceae	*Musa* spp	Banana	Ogede	Root	Decoction with leaves of *Gossypium hirtum*	Blood tonic
47	Musaceae	*Musa* spp	Plantain	Ogede-agbo	Leaves	Decoction of yellowish leaves mixed with *Citrus aurantifolia* leaves &yellowish *Carica papaya* leaves	Typhoid, Yellow fever
48	Myrtaceae	*Psidium guajava* L.	Guava	Goba	Leaves	Decoction	Dysentery, Fever
49	Poaceae	*Bambusa vulgaris* Schrad. Ex J.C. Wendl.	Common Bamboo	Otacho	Leaves	Decoction	Cough
50	Poaceae	*Cymbopogon citratus* (DC.) Stapf	Lemon grass	Egbo-Oyibo	Leaves	Poultice and inhale; Decoction	Cattarh Headache

51	Poaceae	*Heteropogon contortus* (Linn.) P. Beauv.	Spear grass/wild oats	Elie/Abenedichi	Root; Whole plant	Maceration for 24 hours; Decoction	Vomiting; Stomachache
52	Papilionaceae	*Desmodium mauritianum* (Wild.)DC.	Stick tight	Igbaligba-okolo	Leaves	Decoction	Menstrual pain
53	Papilionaceae	*Desmodium velutinum* (Willd) DC.	Canelapreta	Umogaji	Leaves; Seed	Decoction; Roast , blend and add palm kernel oil	Headache; Migraine
54	Portulacaceae	*Portulaca oleraceae* L.	Common Purslane	Etikeleku	Whole	Poultice	Whitlow
55	Rosaceae	*Parinari curatellifolia* Planch. Ex Benth	Mobola plum	Ijakere	Leaves	Decoction	Blood tonic
56	Rubiaceae	*Crossopteryx febrifuga* (Afzel.) Benth.	English African Bark	Omukpakpa	Leaves; Stem-bark	Decoction and add to Pap; Decoction	Dysentery; Laxative, Hemorrhoid, Lactation
57	Rubiaceae	*Gardenia jasminoides* J. Ellis	Cape Jasmine	Ikaga	Root	Decoction	Rheumatism
58	Rubiaceae	*Sarcocephalus latifolius* (Sm.) E.A. Bruce	African peach	Ogbayi	Leaves	Juice 14 leaves in water	Sore throat
59	Rutaceae	*Citrus paradisi*Macfad.	Grapefruit	Alemu-iba	Fruit	Juice	Fever, lower cholesterol
60	Rutaceae	*Citrus sinensis* L.	Sweet orange	Alemu	Fruit	Juice	Constipation, boost immunity
61	Sapindaceae	*Paullinia pinnata* Linn.		Egwubiomekpa	Leaves	Decoction	Stomach upset, Laxative
62	Solanaceae	*Physalis angulata* L.	Cutleaf ground cherry	Ekpakpo	Leaves	Decoction	Skin infection
63	Solanaceae	*Solanum tovrum* SW.	Wild eggplant	Ika-ewe	Leaves	Cook as soup	Hypertension
64	Tiliaceae	*Corchorus olitorius* L.	Jute mallow	Otakiliko	Leaves	Cook as soup	Constipation, Tonic
65	Urticaceae	*Laportea aestuans* (L.) Chew	Wood nettle	Atewogboligboli/ Atewogbogbodo	Leaves	Decoction; Poultice	Stomachache, Headache; Swollen skin
66	Verbenaceae	*Stachytapheta jameicensis* (L.) Vahl.	Blue porterweed	Eneokaku	Leaves	Decoction	Headache
67	Verbenaceae	*Vitex doniana* Sweet	Black plum	Ejiji	Leaves	Decoction	Swollen body
68	Vitaceae	*Cissus populnea* Guill. &Perr.		Oro-okoyo	Leaves	Decoction	Infertility

Headache and Migraine was the main ailment treated with *Desmodium velutinum*, *Laportea aestuans* and *Stachytapheta jameicensis*. *Daniella oliveri* and *Ficus exasperata* are used as blood tonic while *Sennaalata* is a good remedy for skin infection (Table 1).

The most cited plant family was Euphorbiaceae (10.15%) followed by the family Caesalpinaceae (5.80%) as shown in Table 2.

Tropical plants have been used for medicinal purposes since the evolution of man. Many of these tropical plants are used to treat and cure a wide variety of diseases. The accumulation of knowledge of plant used is passed on from generation to generation. It is the ancient people of all ages that were having knowledge of medicinal plants, which they acquired as a result of trial and error[15].

Plant habits and parts used as medicines

Approximately 34% of the plants mentioned were from herbs, 32.4% were from trees, 27.9% from shrubs, 2.94% from climber and 2.94% from shrubby parasite (Figure 2). This could be attributed to the type of vegetation (derived savanna) of the study areas. Majority (55%) of the herbal medicines mentioned were obtained from leaf while latex produced the least (1%) (Figure 3). The rationale for the use of leaves could be the abundance of phytochemicals they contain. Furthermore, leaves are recognized as the major synthesis site of secondary metabolites in plants and are the most frequently used plant parts by traditional medicine practitioners[16,17]. This also constitutes an advantage as harvesting leaves on a sustainable manner ensures continuity of the plant[18].

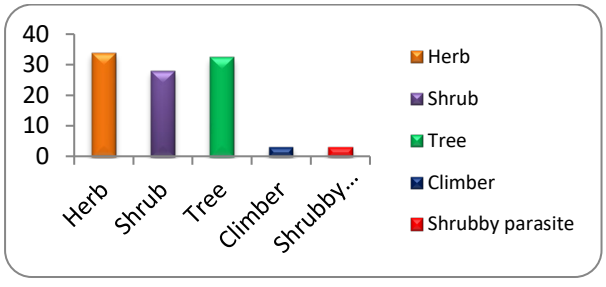

Figure 2. Plants habit of medicinal plants mentioned by respondents

Table 2. Medicinal plants families mentioned by the respondents

S/ NO	Family	Occurrence	% Occurrence
01	Amaranthaceae	1	1.45
02	Anacardaceae	2	2.90
03	Annonaceae	1	1.45
04	Asclepiadaceae	1	1.45
05	Araceae	1	1.45
06	Arecaceae	1	1.45
07	Asteraceae	2	2.90
08	Bignoniaceae	2	2.90
09	Boraginaceae	1	1.45
10	Caesalpinaceae	4	5.80
11	Caricaceae	1	1.45
12	Clusaceae	1	1.45
13	Connaraceae	1	1.45
14	Convulvulaceae	1	1.45
15	Euphorbiaceae	7	10.15
16	Lamiaceae	3	4.34
17	Lauraceae	1	1.45
18	Leguminosae	2	2.90
19	Loganiaceae	1	1.45
20	Loranthaceae	2	2.90
21	Lythraceae	1	1.45
22	Malvaceae	3	4.34
23	Meliaceae	2	2.90
24	Mimosaceae	1	1.45
25	Moraceae	1	1.45
26	Moringaceae	1	1.45
27	Musaceae	2	2.90
28	Myrtaceae	1	1.45
29	Poaceae	3	4.34
30	Papilionaceae	2	2.90
31	Portulacaceae	1	1.45
32	Rosaceae	1	1.45
33	Rubiaceae	3	4.34
34	Rutaceae	2	2.90
35	Sapindaceae	1	1.45
36	Solanaceae	2	2.90
37	Tiliaceae	1	1.45
38	Urticaceae	1	1.45
39	Verbenaceae	2	2.90
40	Vitaceae	1	1.45

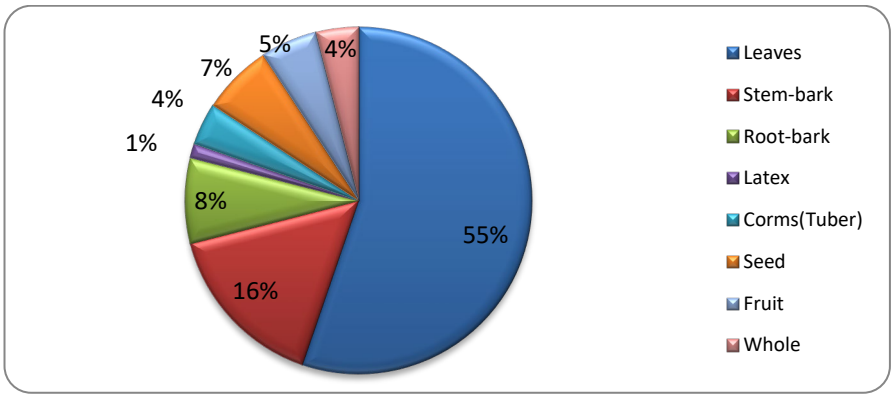

Figure 3. Plants parts of the medicinal plants mentioned by respondents

Disease category

When the diseases were categorized, gastrointestinal tract (GIT) disorders ranked highest among the categories of diseases cited by the respondents (20.51%) and 18.28% of plant species were mentioned for GIT. Next to it was Fever with 15.38% citation and 15.05% plant species mentioned for it. Others were metabolic disorders (12.82%), haematology (11.11%), dermatology (11.11%) and obstetrics and gynaecology (9.40%) with 9.68%, 12.90%, 10.75% and 10.75% number of species of plants cited (Table 3).

Table 3. Disease category in the study area

S/NO	Disease category	Citation	% Citation	Number of species	% Number of species
1.0	Cardiovascular diseases	6	5.13	5	5.38
2.0	Dermatology	13	11.11	10	10.75
3.0	Dental disorders	2	1.71	2	2.15
4.0	Fever	18	15.38	14	15.05
5.0	Gastrointestinal tract	24	20.51	17	18.28
6.0	Haematology	13	11.11	12	12.90
7.0	Metabolic disorders	15	12.82	9	9.68
8.0	Musculoskeletal	4	3.42	3	3.23
9.0	Obsterics&Gynaecology	11	9.40	10	10.75
10	Opthalmology	1	0.85	1	1.08
11	Respiratory/Ear, Nose & Throat	9	7.69	9	9.68
12	Venereal diseases	1	0.85	1	1.08
		117		93	

The high prevalence of GIT disorders in the area could be attributed to feeding habit of the people, moreover, high occurrence of Fever could be attributed to closeness to river[19] and bushes, and the inability to adopt preventive measures like the use of mosquito nets and this could be due to the poverty level of the people in the communities. However, there was no confirmation to support the claims. This may also reflect the conditions of the study area being a rural setting. The health issues are common in rural areas as the finding agrees with the works of Betti[20] in his study of medicinal plants sold in Yaoundé markets Cameroon.

CONCLUSION

The study helps us to understand the ethnomedicinal uses of identified plants to the Igala people of Igalamela-Odolu local government area of Kogi State.

This suggests that ethnomedicinal knowledge can be best obtained from the indigenous people who

use plants, animals, and minerals or have something to do with the various biological resources constantly or more often. The documentation is essential to preserve the ethnomedicinal uses of plants. There is need to create awareness or enlightenment for the conservation of this biodiversity rich area and also the proper use of these floras that would protect the life of this generation and the future generation, as such the senseless destruction of flora that are useful for life maintenance would be curtailed. More so, specialist knowledge of the older practitioners should be transferred to the younger generation and proper documentation of this knowledge be done as this will help the younger and future generations keep the useful aspect of their tradition which is helpful to their life. The documentation of the herbal health remedies in the area under study does not prescribe or recommend for their use till it is been subjected to pharmaceutical analysis in other to validate their authenticity and future prospect.

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