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Medicinal weed diversity and ethno-medicinal weeds in Odigbo local government area, Ondo State, Nigeria

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Abstract

Quests for natural sources of medicine is on the increase due to hazardous side-effects of orthodox medicine on human health. Forests and reserve areas have been the main targets of local medicine PR actioners since the time immemorial and this continues to pose unquantifiable threats on forest resources especially trees species whose parts are relied on for local medicine preparations. This study documented 56 medicinal weeds belonging to 49 genera and 25 families commonly used in Odigbo Local Government Area Ondo State for approximately 75 ailments. The family Amaranthaceae are commonly used for kidney diseases, gonorrhoea and inflammations, Poaceae are commonly used as fevers and cough remedies, Euphorbiaceae are popular for stomach troubles, while Fabaceae are prominent for diarrhoea cures. Whole plants were commonly Use for herbal preparations followed by leaves (26%) and stem (9%).

Weeds are economical plant resources and good alternative to trees species for local medicine preparations. However, their importance due to perceived unwanted nature has undermined their values in this respect. Thus, information provided in this work will not only create awareness about medicinal importance of weed but also serve as background information for research scientists who may wish to carry out research on phytochemistry or ethnomedicinal importance of these weeds.

Keywords: Weeds, ethno-medicine, Amaranthaceae, Poaceae and Euphorbiaceae

Introduction

There is a continuous rise in global demand for herbal medicines due to their inherent potentials which include ubiquitous nature, reduced side-effects and cost effectiveness (Srivastava, 2000; Radha and Manokari, 2017) ^[4, 3]. This quest for natural sources of medicine has encouraged the exploration of weed biodiversity for important flora of medicinal value, which could help in solving lingering problems relating to human and livestock health.

Plants remain the ultimate source of natural products among which are medicinal compounds (Immanuel and Elizabeth, 2009) ^[1]. Nowadays, while traditional medicine systems like Ayurveda and Siddha in globally recognized hotspots for traditional medicine such as India and China constitute nearly 90% herbal components of whole or parts of plants such as stem, bark, root, root back, rhizome, leaf, flower, fruits and seeds, some utilize plant secondary products of metabolism such as resin, gum and latex for drugs formulation (Radha and Manokari, 2017) ^[3].

Weeds had received little attention as a source of traditional medicine and this perhaps, may be attributed to the fact that tropical primary forest is prioritized as the main source of traditional medicine for its strength of biodiversity and endemism (Macilwain, 1998; Stepp and Moerman, 2001) ^[2, 5]. Local people seeking herbal remedies for various ailments which are either too expensive or ineffectively catered for by orthodox medicine usually seek recourse in this forests for sourcing medicinal plants, their parts or products in order to soothe their periodic needs.

In order to address these undue problems posed on tropical primary forests that had perceptibly reduced its productivity in other areas of more importance such as environmental protection and timber provision, there is thus a huge necessity to draw attentions of local inhabitants and other encroachers who pose threats on forests through sourcing for medicinal herbs. Therefore, this research work is aimed at documenting commonly used weeds of medicinal importance in Odigbo Local Government Area of Ondo State, Nigeria, so as to create awareness about these bio-resources which are often found growing with agroforestry crops or around homesteads and perceived as wastes cleared during land maintenance.

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Materials and Methods

The ethnomedicinal exploration was conducted to document medicinal weeds present in agro-forestry farm of Rainforest Research Station, Ore, Ondo State, an out-station of Forestry Research Institute of Nigeria, commonly utilized in Odigbo Local Government Area where the outstation is located. These weeds were collected and preserved during the flowering season of 2017-2018. The specimens were identified at the herbarium section of Forestry Research Institute of Nigeria, Jericho, Ibadan, Oyo State.

Information on the medicinal importance were gathered from the agro-forestry farmers, native doctors and herb sellers, predominantly the older people in the research station's community via oral interview which revealed the weeds local names and used plant parts. The information provided were verified from ethnomedicinally-inclined people in the neighbouring communities. Also, local names, medicinal uses and parts used were verified with the aid of the internet and the book authored by Z.O Gbile, titled, Vernacular names of Nigerian plants, Yoruba version published in 1984.

Results and Discussion

The study revealed a total of 56 medicinal weeds listed

alphabetically based on generic names (Table1) distributed into 49 genera and 25 families. From the survey, the most frequent family categories recorded were: Amaranthaceae, Asteraceae and Fabaceae, represented by 6 members, Euphorbiaceae represented by 5 members, Poaceae and Rubiaceae represented by 3 members (Fig.1). Approximately 75 ailments were recorded in the survey (Table.2) and fifteen most common of these shown in Fig.1 in descending order of their frequencies are: fevers, stomach troubles, diarrhoea, dysentery, coughs, headaches, asthma, ear infections, liver diseases, kidney diseases, rheumatism, arthritis, inflammations, ulcers and diabetes. The family Amaranthaceae had the highest number of weeds used for treating kidney diseases, gonorrhoea and inflammations, Poaceae had the highest number for fevers and coughs, Euphorbiaceae had the highest number for stomach troubles while Fabaceae had the highest number for diarrhoea. The whole plant was the most frequently used against therapeutic indications, followed by leaves, stem, root, bark, seed, root bark flower and rhizomes based on percentage computation (Fig.2).

Table 1: List of medicinal weeds commonly used in Odigbo Local Government Area, Ondo State.

S/N	Scientific Name	Family	English Name	Yoruba Name
1	<i>Argeratum conyzoides</i>	Asteraceae	Whiteweed / Goat weed	Y: Apasa, Imiesu
2	<i>Astonia boonei</i>	Apocynaceae	Cheese wood / Stool wood	Y: Ahun
3	<i>Alternanthera repens</i>	Amaranthaceae	Joy weeds / Joseph's coat	Y: Dangunro
4	<i>Alternanthera sessilis</i>	Amaranthaceae	Joy weeds	Y: Reku-reku
5	<i>Amaranthus spinosus</i>	Amaranthaceae	Pig weed	Y: Tete elegun
6	<i>Amaranthus viridis</i>	Amaranthaceae	Slender / Green Amaranth	Y: Tete abalaye
7	<i>Axonopus compressus</i>	Poaceae	Carpet grass	Y: Idi
8	<i>Biophytum petersianum</i>	Oxalidaceae	Sensitive plant	Y: Patanmo
9	<i>Boerhavia diffusa</i>	Nyctaginaceae	Hog weed	Y: Etinpon ola
10	<i>Bryophyllum pinnatum</i>	Crassulaceae	Air plant / Miracle leaf	Y: Abamoda
11	<i>Calotropis procera</i>	Apocynaceae	Sodom apple	Y: Bomu bomu
12	<i>Cassia mimosoides</i>	Fabaceae	Feather-leaved cassia	Y: Kilefimise
13	<i>Cassia occidentalis</i>	Fabaceae	Coffee senna	Y: Rere abo
14	<i>Cassia tora</i>	Fabaceae	Sickle wild sensitive plant	Y: Ako rere
15	<i>Celosia taxa</i>	Amaranthaceae	Wool flower	Y: Aje fowo
16	<i>Chromolaena odorata</i>	Asteraceae	Siam weed	Y: Akintola
17	<i>Cissampelos mucronata</i>	Menispermaceae	Laghun patha	Y: Jokooje / Jenjoko
18	<i>Cleome gynandra</i>	Capparidaceae	African Spider flower	Y: Ekuya
19	<i>Cleome viscosa</i>	Capparidaceae	Asian spider flower	Y: Ekuya
20	<i>Croton zambesicus</i>	Euphorbiaceae	Lavender croton	Y: Ajeobale
21	<i>Croton penduliflorus</i>	Euphorbiaceae	-----	Y: Aworoso
22	<i>Culcasia scadens</i>	Araceae	-----	Y: Agunmona
23	<i>Cyathula prostrata</i>	Amaranthaceae	-----	Y: Sawere pepe
24	<i>Cynbopogon giganteus</i>	Poaceae	Lemon grass	Y: Kooko oba
25	<i>Desmodium gangeticum</i>	Fabaceae	Tick-trefoil/ Tick clover	Y: Aberodefe
26	<i>Euphorbia hirta</i>	Euphorbiaceae	Asthma weed	Y: Egele / Akun esan
27	<i>Floccospa africana</i>	Commelinaceae	-----	Y: Godogbo
28	<i>Heinsia crinita</i>	Rubiaceae	Bush apple	Y: Tono poso
29	<i>Heliotropium indicum</i>	Boraginaceae	Indian heliotrope	Y: Agogo igun / Ogbe akuko
30	<i>Hibiscus surattensis</i>	Malvaceae	Wild sour / Bush sorrel	Y: Sinkinmini
31	<i>Imperata cylindrica</i>	Poaceae	Cogon grass / Blady grass	Y: Ekan
32	<i>Jatropha curcas</i>	Euphorbiaceae	Barbados nut	Y: Lapalapa / Botuje
33	<i>Jatropha gossypifolia</i>	Euphorbiaceae	Bellyache bush	Y: Lapalapa pupa
34	<i>Kalanchoe crenata</i>	Crassulaceae	-----	Y: Odundun
35	<i>Lagera alata</i>	Asteraceae	Winged lagera	Y: Eru taba
36	<i>Lagera pterodonta</i>	Asteraceae	-----	Y: Onrungo
37	<i>Launaea taraxasifolia</i>	Compositae	Wild lettuce	Y: Yanrin
38	<i>Mitracarpus scaber</i>	Rubiaceae	English button grass	Y: Irawo ile
39	<i>Mollugo nudicaulis</i>	Molluginaceae	Daisy-leaved chick weed	Y: Chick weed
40	<i>Momordica charantia</i>	Curcubitaceae	Bitter melon	Y: Ejnirin wewe
41	<i>Morinda lucia</i>	Rubiaceae	English brimstone tree	Y: Oruwo
42	<i>Mucuna flagellipes</i>	Fabaceae	-----	Y: Ijokun

43	<i>Ocimum basilicum</i>	Lamiaceae	Sweet basil	Y: Efinrin wewe
44	<i>Pepromia pellucida</i>	Piperaceae	Shining bush	Y: Rinrin
45	<i>Phyllanthus niruri</i>	Phyllanthaceae	Gale of the wind / Stone breaker	Y: Eyin olobe
46	<i>Physalis angulata</i>	Solanaceae	Cut leaf ground cherry	Y: Koropo
47	<i>Piliostigma reticulatum</i>	Fabaceae	Camel's foot	Y: Abafe
48	<i>Pistia stratiotes</i>	Araceae	Water lettuce / Water cabbage	Y: Oju oro
49	<i>Scleria depressa</i>	Cyperaceae	Sword grass	Y: Labe labe
50	<i>Securidaca longepedunculata</i>	Polygalaceae	Violet tree	Y: Ipeta
51	<i>Senecio abyssinicus</i>	Asteraceae	Ragwort	Y: Amunimuye
52	<i>Sida acuta</i>	Malvaceae	Wire weed	Y: Osepotu
53	<i>Sphenocentrum jollyanum</i>	Menispermaceae	-----	Y: Akerejupon
54	<i>Spilanthes filicaulis</i>	Compositae	African power cress	Y: Awerepepe
55	<i>Talinum triangulae</i>	Portulacaceae	Water leaf	Y: Gbure
56	<i>Vernonia amygdalina</i>	Asteraceae	Bitter leaf	Y: Ewuro

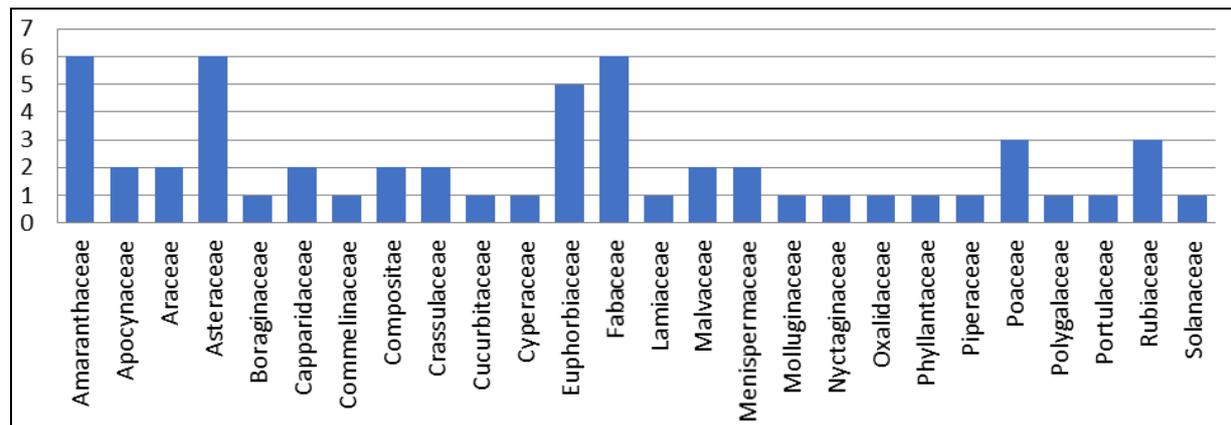


Fig 1: Number of families of medicinal weeds encountered in the survey.

Table 2: List of weeds and parts used for curing various ailments in Odigbo L.G Area Ondo State Nigeria

S/N	Scientific Name	Parts Use	Cure Ailments
1	<i>Argeratum conyzoides</i>	Leaves, stem and flower	Inflammation, skin infections and kidney diseases
2	<i>Astonia boonei</i>	Leaves and Bark	Fevers
3	<i>Alternanthera repens</i>	Leaves and Stem	Gastro-intestinal infections
4	<i>Alternanthera sessilis</i>	Whole plant	Asthma, lung infections, liver diseases and haemorrhage
5	<i>Amaranthus spinosus</i>	Whole plant	Jaundice and kidney diseases
6	<i>Amaranthus viridis</i>	Whole plant	Kidney diseases, stomach troubles, inflammation, boils and gonorrhoea
7	<i>Axonopus compressus</i>	Whole plant	Fevers, asthma and breast swelling
8	<i>Biophytum petersianum</i>	Whole plant	Kidney diseases, stomach troubles, epilepsy and bites
9	<i>Boerhavia diffusa</i>	Whole plant	Analgesic, asthma, jaundice, insomnia, kidney diseases and haemorrhoids
10	<i>Bryophyllum pinnatum</i>	Leaves	Kidney diseases, hypertension, fevers and cancer
11	<i>Calotropis procera</i>	Leaves	Diarrhoea, stomach troubles, ulcers, toothache, joint pains, cramps and elephantiasis
12	<i>Cassia mimosoides</i>	Whole plant	Diarrhoea, dysentery and facial eruptions
13	<i>Cassia occidentalis</i>	Leaves and Stem	Kidney diseases, rheumatism, leprosy, fevers, eczema, diabetes and worm infestation
14	<i>Cassia tora</i>	Leaves and Stem	skin diseases, stomach troubles, leprosy, itching, snake bite, arthritis and swelling
15	<i>Celosia taxa</i>	Whole plant	Fevers, diarrhoea, mouth sores, itching, wounds, jaundice, gonorrhoea and inflammations
16	<i>Chromolaena odorata</i>	Whole plant	Fevers and wound
17	<i>Cissampelos mucronata</i>	Leaves, Stem and Rhizome	Asthma, cough, fevers, arthritis, obesity, dysentery, snake bite and jaundice
18	<i>Cleome gynandra</i>	Whole plant	Fevers, rheumatism and scorpion stings
19	<i>Cleome viscosa</i>	Leaves and Seed	Wounds and ulcers
20	<i>Croton zambesicus</i>	Leaves	Febrifuge, kidney infections, rheumatism and stomach troubles
21	<i>Croton penduliflorus</i>	Whole plant	Stomach troubles, contraceptive and fibroid
22	<i>Culcasia scadens</i>	Whole plant	Headaches, fevers and vomiting
23	<i>Cyathula prostrata</i>	Whole plant	Coughs and dysentery
24	<i>Cynbopogon giganteus</i>	Leaves	Fevers, coughs and kidney diseases
25	<i>Desmodium gangeticum</i>	Whole plant	Inflammation and diabetes
26	<i>Euphorbia hirta</i>	Whole plant	Eye infections, asthma, sore throats, cough, lung infections and venereal diseases
27	<i>Floccosa africana</i>	Whole plant	Erectile dysfunction
28	<i>Heinsia crinita</i>	Whole plant	Febrile illness and erectile dysfunction
29	<i>Heliotropium indicum</i>	Whole plant	Wounds, furuncles, eye infections and ulcers
30	<i>Hibiscus surattensis</i>	Whole plant	Stomach troubles, heart problems, skin infections, cancer, convulsion and epilepsy
31	<i>Imperata cylindrica</i>	Whole plant	Skin diseases and facial eruptions
32	<i>Jatropha curcas</i>	Leaves, Seed and Root	Skin diseases, gonorrhoea, dysentery and diarrhoea
33	<i>Jatropha gossypifolia</i>	Leaves and Root	Body pains, diabetes, haemorrhage and hypertension

34	<i>Kalanchoe crenata</i>	Whole plant	Ear infections, headache, inflammations and convulsion
35	<i>Lagera alata</i>	Whole plant	Body pains, rheumatism, arthritis and heart problems
36	<i>Lagera pterodonta</i>	Whole plant	Lung infections
37	<i>Launaea taraxasifolia</i>	Whole plant	Heart problems, lung infections, blood infections and kidney diseases
38	<i>Mitracarpus scaber</i>	Whole plant	Headaches, tooth aches, menstrual disorder, dyspepsia, liver, skin and venereal diseases
39	<i>Mollugo nudicaulis</i>	Leaves	lung infections, vemifuges and liver diseases
40	<i>Momordica charantia</i>	Leaves	stomach troubles, fevers and diabetes
41	<i>Morinda lucia</i>	Leaves, Root and Root bark	Fevers and trypanosomiasis
42	<i>Mucuna flagellipes</i>	Whole plant	Body pains, diarrhoea, vemifuges and menstrual disorder
43	<i>Ocimum basilicum</i>	Whole plant	Inflammation
44	<i>Pepromia pellucida</i>	Whole plant	Stomach troubles, Abscesses, facial eruptions, boils, headaches, fatigue and rheumatism
45	<i>Phyllanthus niruri</i>	Whole plant	Liver diseases and ear infections
46	<i>Physalis angulata</i>	Whole plant	Body pains, diarrhoea, vemifuges and menstrual disorder
47	<i>Piliostigma reticulatum</i>	Leaves	Insomnia, arthritis, diarrhoea, dysentery, eye and ear infections
48	<i>Pistia stratiotes</i>	Whole plant	Skin infections, leprosy, ulcers, piles, stomach disorders and inflammations
49	<i>Scleria depressa</i>	Whole plant	Menstrual disorders and venereal diseases
50	<i>Securidaca longepedunculata</i>	Whole plant	Headaches, arthritis, coughs, fevers, diabetes and stomach troubles
51	<i>Senecio abyssinicus</i>	Leaves, Stem and Flower	Sores and burns
52	<i>Sida acuta</i>	Whole plant	Kidney infections, blood infections, liver diseases and bites
53	<i>Sphenocentrum jollyanum</i>	Leaves, Seed, Bark and Root bark	Stomach disorder, kidney diseases, swellings, epilepsy and convulsion
54	<i>Spilanthes filicaulis</i>	Whole plant	Fevers
55	<i>Talinum triangulae</i>	Whole plant	Liver diseases, anaemia, cancer and heart diseases
56	<i>Vernonia amygdalina</i>	Leaves and Stem	Fevers, diarrhoea, dysentery, liver diseases, coughs, stomach troubles and infertility

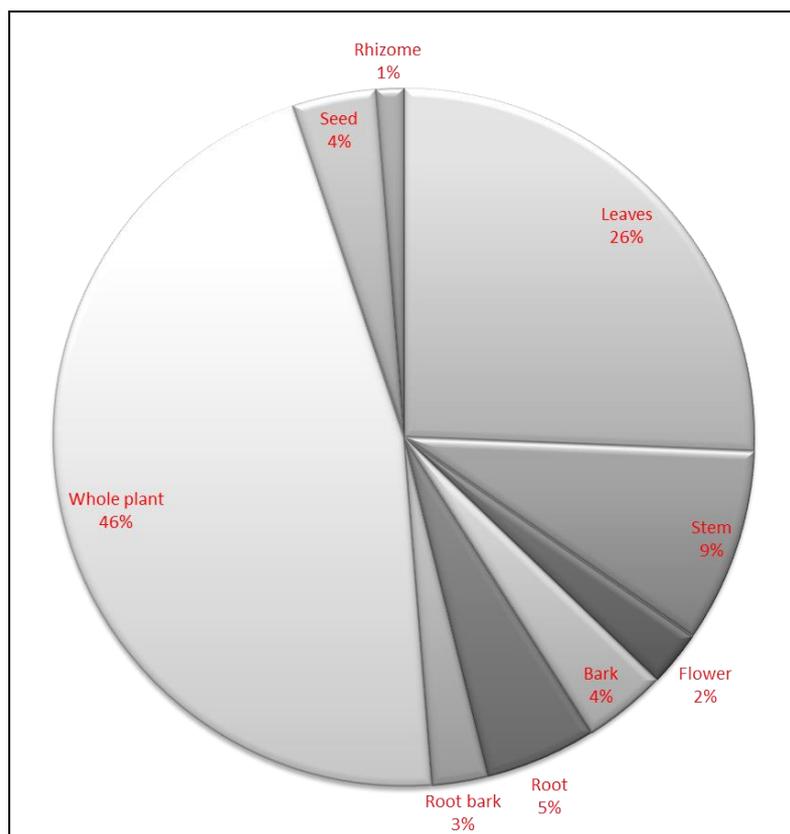


Fig 2: Percentage of plant parts used for curing different ailments

Conclusion

Medicinal plants remain the ultimate source of drugs for curing many diseases affecting mankind. The information gathered from this study showed that, just like other parts of Nigeria, medicinal weeds are used for diseases treatments in the study area.

Data on the use of the 56 discovered weeds from this survey could arouse interests of scientists, who may wish to carry out research on ethno-botany, pharmacognosy or phytochemistry

of these plants. Apart from the discovered weeds, many weeds of medicinal importance abound in Nigeria which are predominantly known for their adverse effects on crops growth. Generally, the annual loss in crops yield due to competition with weeds is worth billions of Naira. Thus, harnessing these flora for their medicinal importance could go a long way in reducing their unpleasant effects in terms of crop productivity.

A lot of efforts to shift attentions of those who hunt various

plants parts of medicinal importance in the forests or reserve areas and inadvertently threaten health and survival of important trees species, majorly as a result of exposure of their cut surfaces to invasion by pathogens have been unyielding. Therefore, creating awareness of medicinal importance of weeds, some of which could be found in homesteads, farms and office premises will go a long way in reducing the havoc posed on trees species in the forests and reserve areas.

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