UNDER PEER REVIEW

Original Research Article

Survey of Ethnomedicinal importance of plants used in the managements of diseases in Irepodun Ifelodun Local Government Area, Ado-Ekiti, Southwest, Nigeria.

Abstract The use of plants in treating diseases traditionally was found to be part of culture of the inhabitants in the study area. It was shown that the greater number of respondents (61, 50.8%) preferred the use of herbs when compared to the number who used orthodox or synthetic (32, 26.6%) medicines. A total number of 50 botanicals belonging to 30 families were documented. Members of the family Fabaceae had the highest number (9) of plant species, followed by Euphorbiaceae which has five (5) plant species, Cucurbitaceae (3 plants) and Rutaceae (3 plants) respectively. However, Leguminosae, Apocynaceae, Araceae, Anacardiaceae, Poaceae and Bignoniaceae had two species each, while other families had only one species each. *Azadiracta indica* and *Alstonia boonei* were frequently mentioned on the frequency of citation. These plants were mostly used for the treatment of malaria and bodypains by the respondents in the study area. The botanical names, common names, family names, forms of plant, plant part used and disease treated were identified. Tree was found to be the most used plants followed by shrubs, herbs, underground stem, grass, climber, creeper and weed. The plants parts mentioned include fruit, leaves, root, seed, stem bark and whole plants. It was revealed that 34 plants out of all the 50 plants were common. The methods of preparation and mode of administration revealed that plants were mostly prepared traditionally with the combination of inert materials such as camphor, local gin or alcohol. Deforestation that lead to depletion of the plants and lack of government recognition were among the constraints to utilization of the traditional knowledge. It was concluded that effort on the development of cheaper medical services in the state should focus more on the abundant of resources such as flora and culture.

Key words: Respondents, herbal medicine, diseases, plants, citation, constrains

1.0 INTRODUCTION

Nigeria is endowed with diversity of plants and animals that are naturally used as foods, medicine, clothing and shelter. Traditional medicine is undoubtedly a reliable alternative approach to health delivery because it cheaper, easily accessible and effective as reported by kayode *et al*., (2009). Although the use of plants traditionally as medicine has been discouraged in the time past by many medical practitioners because of the lack of clarity

UNDER PEER REVIEW

of chemicals composition, dosages and toxicity level of plants used in ethno medicine (Elujoba 2005., Lowel *et al.,* 2001; Adjanohoun *et al.,* 1991).

Medicinal plants include different types of plants used in treating various health challenges because of the presence of different potent bioactive ingredients they contained. Olanipekun, *et al.,* 2016; Arowosegbe *et al.,* 2015; Olanipekun, and Kayode, 2014; kayode *et al*., 2009). These medicinal plants are considered as rich resources of ingredients which can be used in drug development, synthesis and for the treatment of various diseases (WHO, 2003). Moreover, some plants are considered as important source of nutrition and as a result they are recommended for their therapeutic values (Adodo, 2004). These plants include ginger, green tea, walnuts and some others plants (Tapsell *et al.,* 2006). Also, plants play a critical role in the development of human cultures around the whole world (Adodo, 2004).

Plants have not only nutritional values but also in the eyes of the local people, they have natural medicinal, ritual or magical values (Springob, and Kutchan (2009); Adewunmi *et al.,* (2001). Medicinal plants have been identified and used throughout the human history. Plants have the ability to synthesize a wide variety of chemical compounds that are useful in performing important biological functions Khan, et al., (2006). It was reported however by Lai and Roy (2004); Anita, 2004, Diallo 1999 that a number of 12,000 of various compounds have been isolated, a number estimated to be just less than 10% of the numerous compounds found as basic natural chemical products present in plants. Therefore it is essential that medicinal plants and their traditional practices are documented and protected from extinction. The use of herbs to treat disease is almost universal among non-industrialized societies and is often more affordable than purchasing modern pharmaceuticals (Akobundu and Agyakwa, 2003; Gbolade and Soremekun, 2000). The World Health Organization (WHO) in 2006 estimated that 80% of the population of some Asian and African countries presently uses herbal medicine for some aspect of primary health care. Studies in the United States and

UNDER PEER REVIEW

Europe shown that the use of herbal drugs are less common in clinical settings, but has becoming increasingly more common in recent years as scientific evidences about the effectiveness of herbal medicine becoming more widely available (Akobundu and Agyakwa, 2003).

It was noted by Falconer *et al.,* (2002) the high rate of self treatment with both herbal drugs used traditionally and pharmaceuticals is highly recognized recently. Different parts of the plants are used, ranging from roots and root bark, bark and stems, latex and sap, leaves, buds and flowers, and seeds. The parts of the plants are prepared in a variety of ways. For example, leaves and bark can be mashed and pound (in the treatment of rheumatism and swellings with root bark and leaves of *Alstonia boonei*, powdered root and leaf sap of *Hoslundia opposite* as an antiseptic and jaundice respectively or stewed leaf and buds of mango to treat fevers or oil extracted from seeds. There is also a range of different modes of application and administration, some are ingested as decoction and infusions and tisanes, some applied direct as poultices or rubs and lotions, as enemas and eye drops, gargle, or nasal drops and as snuff (Falconer *et al.,* 2002, Diallo *et al.,* 1999; Coatney, 1963).

Medicinal plant resources are relevant, although scattered and needed to be consolidated. Most indigenous plants are found in the wild and semi-wild habitats are presently suffering from genetic erosion due to large scale deforestation and other several uses at which plants are put into by the people in the study area. In-lieu of the above, the objective of the study is to identified, document the medicinal plants used in treating diseases with the aim of identifying their abundance status.

MATERIALS AND METHODS

2.1 Study area

The study area was Igbemo in Irepodun/Ifelodun Local Government Area, Ekiti State, Nigeria. Irepodun/Ifelodun is one of the sixteen Local Government areas in Ekiti-State where

UNDER PEER REVIEW

Igbemo is one of the rural town in the local Government area. The major occupation of the inhabitants is farming, local trading and civil servants.

2.2 Experimental materials

The plant materials for the study were collected from the survey through the use of Semi-Structured Questionnaires through interview at the local markets in the study area. Individual and group of three and four respondents were interviewed to ascertain the group consensus of the knowledge of the traditional use of plants. The plants were identified, collected and the information on the indigenous preparation and use of the plants were documented Gbile, (2002). The voucher specimens of the identified plants were prepared and deposited at the herbarium unit of Plant Science and Biotechnology Department of Ekiti State University, Ado Ekiti. The scientific name, family name, parts used, abundance status, methods of preparation and mode of administration were documented. Similarly, the frequency of citation and informants concensus agreement which revealed the reliability and credibility on the utilization reports were also obtained. The data were spread on Excel sheet and encoded using Statistical Package for Socio Sciences (SPSS). Descripive statistical tools (percentages, frequencies and mean) were used to sumarize the data.

Frequency of citation (%) (F_c) was calculated by using the following formula:

$$(F_c) = \frac{\text{Number of informants who cited the species}}{\text{Total number of informats interviewed}} \times 100$$

Factors of informant concensus (F_{IC}) on the knowledge used for different menstrual disorder was calculated using the methods provided by (Trotter and Logan,1991) and (Heinrich *et al.,*2009)

$$F_{ic} = \frac{N_{uR} - N_{TAXA}}{N_{uR} - 1}$$

UNDER PEER REVIEW

F_{ic} = Factor of informant consensus N_{uR} = Number of used reports in a particular ailment

N_{TAXA} = Number of taxa used to treat that particular ailment

Results and discussion

Results: The use of plants in treating diseases traditionally was found to be part of culture of the inhabitants in the study area. It was shown that the greater number of respondents (61, 50.8%) preferred the use of herbs when compared to the number who used orthodox or synthetic (32, 26.6%) medicines. Plants were observed to be readily available, less toxic, not resistance to diseases etc. However, a quiet number of 27(22.6%) respondents were of the opinion that the use of the combination of herbs and orthodox medicine effected a better, synegistics and fast healing than when only synthetic or herbal formulation is used (Table 1). Also, a total number of 50 botanicals belonging to 30 families were documented. Members of the family Fabaceae had the highest number (9) of plant species, followed by Euphorbiaceae which has five (5) plant species, Cucurbitaceae (3 plants) and Rutaceae (3 plants) respectively. However, Leguminosae, Apocynaceae, Araceae, Anacardiaceae, Poaceae and Bignoniaceae had two species each, while other families had only one species. *Azadiracta indica* and *Alstonia boonei* were frequently mentioned on the frequency of citation. These plants were mostly used for the treatment of malaria and pains by the respondents in the study area. The botanical names, common names, family names, forms of plant, plant part used and disease treated were presented in (Table 3). The plants mentioned were represented by various plants forms. Tree was found to be the most used plants followed by shrubs, herbs, underground stem, grass, climber, creeper and weed. The various plants parts mentioned include fruit, leaves, root, seed, stem bark and whole plants. Table 4 shows the availability of the identified plants in the study area. It was revealed that 34 plants out of all the 50 plants were common. These plants could be fetched within 20 to 30 minutes within the study area. The plants were cultivated sexually during the wet season of the year, thereby making the plants available. Similarly, it was shown in table 5, the methods of preparation and mode of administration of the identified plants used in treating diseases in the study area. The plants were mostly prepared traditionally with the combination of inert materials such as camphor, local gin or alcohol. Then, the concoction is taken as herbs, soup or use to bath. About 97% of the respondents complained of forest destruction, 87.2% complained of lack of

UNDER PEER REVIEW

government recognition while 97.4% complained of concealment of knowledge by those who have it (Table 6). They only reveal the knowledge to their trusted children.

Table 1: List of treatment used in treating diseases by the respondents in the study area.

Type of treatment	No. of respondents	Reasons for the treatment
Use of herbs	61 (50.8%)	Readily available, cheaper, resistance to diseases
Orthodox	32 (26.6%)	Effective, easy access, no need of special preparation
Both methods	27(22.6%)	Synergy, effectiveness, non-resistance to diseases

Table 3: List of identified botanicals used in treating diseases in the study area.

S/N	Botanical Name/Forms of plants	Family name	Common Name	Part used	Disease treated	Frequency of citation %
1	*Abrus precatorius* (L)	Leguminosae	Egboirejeje	Leaf	Leprosy	0.8
2	*Acanthospermum hispidum* (DC)	Asteraceae	Dagunro	Leaf , bark, root	Pain	0.8
3	*Aframomum melegueta* (K. Schum), Leaf	Zingiberaceae	EgboAtare	Root	Leprosy	2.3
4	Allium sativum (L), Leaf	Amaryllidaceae	Alubosaelewe	Leaf	Malaria	1.7
5	Aleovera (L)Burm.F. Leaf	Xanthorrhoeaceae	Aleovera	Leaf	Arthritis	4.4
6	*Alstonia boonei* (De wild), Tree	Apocynaceae	IgiAhun	Fruit	Yellow fever/ malaria	6.7
7	*Anchomanes difformis* (BI), Tree	Araceae	Ewe Abiorusoko	Leaf	Measles	1.7
8	*Anacardium ocidentale* (L), Tree	Anacardiaceae	Cashew leaf	Leaf and bark	Malaria	4.2
9	*Azadirachta indica* (A.Juss), Tree	Meliaceae	Dogoyaro	Leaf	Malaria	8.3
10	*Bambusa vulgaris* (schrad. Ex Wendel), Tree	Poaceae	Ewe oparun	Leaf	Chicken pox	1.7

UNDER PEER REVIEW

11	Boerhavia cocccinea(Mill)	Nyctaginace	EgboEtupaelila	Leaf and root	Liver problem	0.8
12	*Brachystegia eurycoma* (Harms), Tree	Fabaceae (Caesalpinoideae)	EpoEku	Root	Malaria	1.7
13	*Buchholzia coriacea* (Engl.)	Capparaceae	Wonderful cola	Leaf	Typhoid	3.3
14	*Caesalphinia bondac* (L)Roxb	Fabaceae	Ewe ayo	Root and leaf	Chicken pox	1.7
15	*Cajanus cajan*(L)	Fabaceae	Feregede	Leaf	Measles	2.3
16	*Calliandra haematocephala* (Hassk)	Fabaceae	Tude	Leaf, root	Measle	0.8
17	Citrullus lanatus (thumb), leaf	Cucurbitaceae	Egunsibara	Leaf, seed, fruit	Gonorrhea	3.3
18	*Citrus aurantifolia*(Christm).swingle	Rutaceae	osanwewe	Leaf	Tuberculosis	3.7
19	*Citrus aurantium* L.	Rutaceae	Osanganyinganyin	Leaf	Tuberculosis	0.8
20	*Citrus pradise* (Macfad), Tree	Rutaceae	Grape	Fruit	Tuberculosis	2.5
21	*Croton Zambesicus* (Muell,Arg.)	Euphorbiaceae	Ewe Ajeobale	Leaf	Tetanus	1.7
22	*Elaeis guenensis* (Jacq)	Arecaceae	Ogbaraneeyin	Seed, fruit	Headaches, Gonnorrhea	5.3
23	*Euphorbia Lateriflora* (schum&thonn); Herbs	Euphorbiaceae	Enuopire	Leaf	Viral disease	3.4
24	*Euphorbia hirta* (L.) Herbs	Euphorbiaceae	Ewe emile	Seed	Tetanus	0.8
25	Harungana madagascariensis (Lam ex poir), Tree	Cuttifereae	Arunje	Bark and leaf	Malaria	4.2
26	*Irvingia gabonensis* (Aubry1-lecomte) Tree	Irvingiaceae	Egbooro	Root	Leprosy	0.8
27	*Jatropha curcas* (L), Herb	Euphorbiaceae	Ewe lapalapa	Leaf	Malaria	1.2
28	Kigelia Africana (Lam),Benth. Tree	Bignoniaceae	Ewe pandoro	Leaf	Malaria	1.2
29	Lagenaria breviflora (benth. Roberty) Vine	Cucurbitaceae	Tangiri	Leaf	Measles	0.8
30	Lawsonia inermis	Lythraceae	Ewe laali	Leaf	Fever or high	1.2

UNDER PEER REVIEW

	(L), Shrubs				temperature	
31	*Mangifera indica* (L), Trees	Anacardiaceae	Mango leaf	Leaf	Malaria	5.8
32	*Mormodica charantia* (L.) Herbs	Curcubitaceae	Ejinrin	Fruit	Gonorrhea/Pile	0.8
33	*Milicia excelsa* (welw), Tree	Moraceae	Ewe iroko	Leaf	Measles	0.8
34	*Morinda lucida* (Benth.) Trees	Moringaceae	Egbooruwo	Seed and root	Malaria	4.0
35	*Newbouldia leavis* (Seem), Tree	Rubiaceae	Ewe Akoko	Leaf, root, Bark	Arthritis, diarrhea and dysentery	0.8
36	*Parquetina nigrenscens* (Afzel), Vine	Apocynaceace	Egbo ewe ogbo	Fruit	Leprosy	2.5
37	*Phylantus muellerianus* (kuntze) Shrubs	Phyllanthaceae	Ewe egigun-eja	Leaf	Typhoid	0.8
38	*Piper guineense* (Schum.and Thonn.) vine	Piperaceae	EsoIyere	Seed	Tetanus	1.7
39	*Piptadeniastrum africanum* (Hook.f) Trees	Fabaceae	Agboyin	Leaf	Cough, headache and genitor-urinary infectious	0.8
40	Plumbago zeylanica(L) Herbs	Plumbaginaceae	Ewe inabiri	Root	Influenza flu	0.8
41	*Rauvolfia vomitoria* (Afzel). Shrubs	Apocynaceae	Ewe Asofeyeje	Leaf, root, bark,	Hypertension	0.8
42	*Senna siamea* (Lam) Trees	Fabaceae	Cashia leaf	Leaf	Malaria	3.3
43	*Spigelia anthelmia* (L), Shrubs	Loganiaceae	Paran-funfun	Root	Hepatitis	0.8
44	Termnalia superba Engl&Diels), Tree	Combretaceae	Epo igiafara	Root	Malaria	0.8
45	*Tetrapleura tetraptera* Tree (Schumach)	Fabaceae	Esoaidan	Leaf, root, bark	Tetanus	1.2
46	*Trema orientalis* (L), Tree	Cannabaceae	Egbo igiafefe	Fruit	Cough	0.8
47	*Uraria pizta* (Jacq), Shrubs	Fabaceae	Ewe apada	Leaf	Leprosy	0.8
48	Xylopia aethiopica(Dunal) A.Rich. Trees	Annonaceae	Egboeruru	Root, fruit	Chicken pox	4.2
49	*Zea mays* (L.) Grass	Poaceae	Ewe agbado	Leaf, seed, husk	Chicken Pox	0.8

UNDER PEER REVIEW

50	*Zingiber officinale* (Rosc), Herbs.	Zingiberaceae	Ginger	Seed	Arthritis	1.2

146

147 **Table 4: The Occurrences of the Identified Plants in the Study Area.**

S/N	Botanical name	Availability of the plant	Materials for propagation	Season
1	*Abrus precatorius*	Common	Seed	Wet
2	*Acanthospermum hispidum*	Common	Seed/cutting	Wet
3	*Aframomum melegueta*	Scarce	Seed	Wet
4	*Allium sativum*	Common	Seed	Dry
5	*Aloe vera*	Common	Stem cutting	Wet
6	*Alstonia boonei*	Common	Seed	Wet/dry
7	*Anchomanes difformis*	Common	Tuber	Wet
8	*Anacardium ocidentale*	Common	Seed	Dry
9	*Azadirachta indiica*	Common	Seed	Wet
10	*Bambusa vulgaris*	Common	Sucker	Seed
11	*Boerhavia coccinea*	Scarce	Seed/root cutting	Dry
12	*Brachystegia eurycoma*	Scarce	Seed	Dry
13	*Buchholza coniacca*	Scarce	Bulb	Dry
14	*Caesalpinia bondac*	Scarce	Seed	Wet
15	*Cajanus cajan*	Common	Seed	Dry
16	*Calliandra haematocephala*	Rare	Seed	Wet
17	*Citrullus lanatus*	Common	Seed	Wet
18	*Citrus aurantifolia*	Common	Seed	Dry
19	*citrus aurantium*	Common	Seed	Wet
20	*Citrus paradise*	Common	Seed/root cutting	Dry/wet
21	*Croton zambesicus*	Common	Seed	Wet
22	*Elaesis guenensis*	Common	Seed	Wet
23	*Euphorbia laterflora*	Common	Cutting	Wet
24	*Euphorbia hirta*	Common	Cutting	Wet
25	*Harungana madagascariensis*	Common	Seed	Dry/wet
26	*Irvingia gabonensis*	Common	Seed	Wet
27	*Jatropha curcas*	Common	Seed	Wet
28	*Kigelia Africana*	Common	Stem cutting	Wet
29	*Lawsonia inermis*	Scarce	Seed	Wet
30	*Magnifera indica*	Common	Seed	Wet
31	*Momondica charantia*	Common	Seed	Wet
32	*Milicia excelsia*	Common	Seed	Wet
33	*Morinda lucida*	Common	Root cutting	Wet
34	*Newbouldia leavis*	Common	Seed	Wet
35	*Laganaria brevifiourus*	Common	Seed	Wet
36	*Parquetina nigrescens*	Scarce	Seed/root cutting	Wet
37	*Phyllantus muellerianus*	Scarce	Seed	Wet
38	*Piper guineense*	Scarce	Seed	Dry
39	*Piptadeniastrum africanum*	Common	Seed	Dry
40	*Plumbago zeyianica*	Scarce	Seed/root cutting	Wet
41	*Rauvolfia vomitoria*	Common	Seed	Wet
42	*Senna siamea*	Common	Seed	Dry/wet

UNDER PEER REVIEW

43	*Spigelia anthelmia*	Rare	Seed	Dry/wet
44	*Termnalia superbia*	Common	Vegetative/seed	Wet
45	*Tetrapleura tetraptera*	Common	Seed	Dry/wet
46	*Trema orientalis*	Common	Seed	Wet
47	*Uraria pizta*	Common	Seed/cutting	Wet
48	*Xylopia aethiopica*	Common	Seed	Wet
49	*Zea mays*	Common	Seed	Wet
50	*Zingiber officinale*	Common	Rhizomes	Wet

Table 5: Methods of preparation and mode of administration of the identified plants used in treating diseases in the study area.

Name of diseases	Medium of contact	Method of preparation and administration
Arthritis	Injury or surgical procedure.	1.Aloe plants, grind with Naphtalene (kafura) and mixed with black soap for bathing at morning and night. 2.Grind camphor, Naphtalene (kafura) and *Buchholza coriacea* (Wonderful kola) mixed together and pour it into bottle of gin. 1 teaspoon 3 times daily.
Chicken pox	Body contact Coughing and sneezing.	*Caesalpinia bondac* leaf, *Bambusa vulgare* leaf, *Zea may* leaf *Xylopia aethiopica* leaf/cooked together. To be taken 3(three) times daily for 3 days.
Gonorrhea	Sexual contact	1.*Citrillus lanatus*, palmwine, *Momordica charantia* squeeze together and drink immediately. 2.*Citrillus lanatus*, peel it inside and soak for 2 days before drinking.
Hepatitis	Sexual contact Sharing of needle or sharp object	Egbo iyaoya. Wash and grind with *Piper guineense* seed, Full snail, *Boerhovia coccinea*, sun dry and grind then cook with bush meat and eat.
Influenza flu	Airborne e.g coughing and sneezing	*Acanthospermum hispidum* leaf, *Plumbago zeylanica* leaf, boil and drink 1 cup in the morning afternoon and night. Chewing of cashew stick.
Leprosy	Body contact nasal secretion	Powder Efu ado (yellow colour) Etutu-sun dry Korofoeyinadie Grind it very well and start rubbing soap. Root and vine of *Parquetina nigrescens* with the root of *Abrus precatorius* root of *Chemopodium ambrosioides* (aruntata), root of *Irvingia gabonensis*, root of *Aframomum melegueta*, root of *Piper guineese* grind and mixed with adin apaku with black soap .

UNDER PEER REVIEW

		For bathing morning and night.
Malaria	Insect	1. Root of khaya spp, Bark of *Terminalia superba*, Bark of *Brashystegia eurycoma*, Root of *Morinda lucida*. Wash and cut into pieces and cooked together.
Measles	Body contact	1. Rub *Anchomanes difformis* leaf, Fresh *Cajanus cajan* leaf, Efun ado (African chalk), Grind together with Calliandra portoricensis then boiled together and add Native Hot (ogogoro). For bathing Drink 2 spoonful Morning/night
Tetanus	Insect or bacteria	Seed of *Tetrapleura tetrapetra*, root of *Piper guineese*, root of *Aframomum melegueta*, *Croton zambesicus*, *Euphorbia hirta,Xylopia aethiopia* grind together and used it to wash.
Septic wounds	Insect or bacteria bites	*Parquetina nigrescens*(201) leaves, *Xylopia aethiopica* (9) leaves; Adin-Ifun Adie(Foul intestine) Male-akuko Female-Abo Adie.Grind all together and used peripe(foul feathers) to add to the wound.
Typhoid	Contaminated water E.G when typhi-bacteria get into water for drinking.	(1) 2. *Buchlozia coriacea*, 9 (nine) kolanut, cut into pieces inside a bottle add sevenup and soak for seven hours before drinking (2) Unripe *Carica papaya*, leaf of *Phyllantus muellerianus*, bark of *Alstonia boonei*, leaf of *Anacardium occidentale*, leaf of *Azadirachta indica*, bark of *Mangifera indica*, cooked together and drink 3 (three) times daily for 3 days.
Tuberculosis	Airborne e.g coughing and sneezing	Leave of *Citrus aurantifolia*, Leave of *Citurs paradisiaca*, cooked together and add small potash and after cooking, leave it for 10 minutes before drinking, drink three times daily
Viral disease	Sexual contact	Peel *Citrullus lanatus* inside palm wine and soak for 12 hours. Drink 1 (one) cup per meal daily
Yellow fever	Insect bit	Bark of *Alstonia boonei*, bark of *Magnifera indica*, bark of *Harungana madagascenriensis* boiled together Drinking and bathing for 3 days.

151

152
153
154
155
156
157
158

UNDER PEER REVIEW

Table 6: Constraints to Utilization of Ethno-botanical Knowledge

Methods	*Frequency	Percentage
Deforestation	110	96.9
Lack of Government recognition	98	87.2
Western education	76	77.5
Concealment of knowledge	113	97.4
Bush burning	91	84.1

Discussion

Plants have been a major source of medicine for human kind. The demand for traditional herbs is increasing very rapidly, mainly because of the cheaper cost and their disease resistance against synthetic or orthodox drugs. Nigeria is endowed with an enormous diversity of animals and plants, both domesticated and wild, and an impressive variety of habitats and ecosystems. This heritage sustains the food, medicine, clothing, shelter, spiritual, recreational, and other needs of her population. The information given on the local names of plants and the recipes used in the treatment of various diseases made the plants to be easily accessed for collection. This was in consonance with Singh (2008) who reported that plants are generally known by their local names in every part of the world. The local names play a vital role in ethno botanical study of a specific tribe or region (Jouad, *et al*., 2001; Kayode *et al*., 2009). Local names rendered a useful service as a means of reference by local people in a particular area, they may certainly be considered as a tool for search of new useful plants. However, the local names are not recommended directly for scientific accounts as they lack uniformity and consistency. Arowosegbe et al., 2016; Olanipekun et. al., 2016; Kayode et al., 2009, had earlier reported that the knowledge of the uses of plants, which is sometimes jealously guarded by their owners, is a tradition passed on from one generation to the other by verbal transfer, the changes imposed by modern life on social structures and attitudes now seems to be the cause of the loss or rejection of such indigenous practices. The study discovered the use of quite a number of plant parts from the identified species where the leaves, roots and stem barks have be found to be efficient in the management of various diseases in the study area. Recently, Ebong, *et.al.,* (2015) asserted the ethnobotanical importance of some useful plants. The plants mentioned were represented by all plants forms. Trees were found to be the most used plants followed by shrubs, herbs, underground stem, grass, climber, creeper and weed. However, leaves formed the most frequently used parts. The use of leaves are important ingredients in the traditional treatment of various diseases as it features as a component in many herbal preparation, leaf is the site of photosynthesis where

UNDER PEER REVIEW

there is manufacture of food and accumulation of phytochemicals, thus, highly significant as herbal preparation composition (Olanipekun *et al*; 2016; Ebong, *et al*., 2015; Kayode *et al*.,2015). The respondents reported that increasing number of people are turning to herbal remedies for prevention and cure of diseases. Thus, there is increase in the demand of medicinal plants. Incidentally, many of the plants indentified are propagated sexually, therefore planting of the plants is highly advocated for, in order to sustain the availability of the plants. This is in accordance to the reports of Kayode *et al*., 2015; Olanipekun, 2014 who said there is tendency for the total eradication of medicinal plants if the rare ones are not afforested and conserved, as plants are facing a lots of pressures on their existence due to the increase in populations, advancements in science and technology, changing in farming system to commercial production among others. The methods of preparation varies between decoctions and infusions. The plants are prepare in combination of other plants and some inert materials. This exert synergy, thereby ensure adequate treatment. This is in accordance with the reports of Erinoso and Aworinde, (2012); Oladunmoye, and Kehinde, (2011); Etuk et al.,(2010); Tahraoui et al., (2007); Ogbole et al., (2010). Ajaiyeoba et al.,(2006) Osowole *et al.,* (2005), Lyoussi, (2007 that plants are prepared traditionally and are effective against various common and febrile illnesses among traditional healers. The methods are purely traditional because there were no scientific precautions such as the sterilization of the tools to prevent further outbreak of diseases and the consideration of toxicity and concentration of the plants extracts used was observed (Kayode *et al.,* 2015). Although, the respondents reported that there are rare occurrences of further outbreak of diseases, because there are measures taken such as dosages with the use of calibrated cups, teaspoons, proper washing of the plants materials before processing, with the full assurance that the measures are enough without any side effects (Mustapha 2014., Ajaiyeoba, *et al*.,2006; Osowole *et al.,* 2005). However, there are challenges where the respondents are not willing to give relevant information due to fear of losing their major source of their income, some demanded money prior to interview as they claimed to have “intellectual properties” stocked with knowledge of medicinal plants, while some castigated government for neglecting them and sending researchers to come and exploit their ethno medicinal knowledge. Also, some aged men preferred sharing the knowledge on a television programme rather than disseminating ethno medicinal information to researchers. This they claimed will also help to advertise their names and services.

UNDER PEER REVIEW

There are constraints to the use of ethno-botanical knowledge and this serves as threat to wild plant resources and their habitats because of over exploitation (Usman*, et al.,*2015). These resources are threatened by forest removal and bush burning.

Ethno-veterinary information like any other form of traditional knowledge is orally transmitted from generation to generation, and hence in danger of extinction as older people die and younger generations fail to learn the traditional way of life. This situation is worsened by rapid socio-economic, technological and environmental changes as many youths are into western education and they preferred western veterinary medicine which they considered less stressful.

Conclusion

The survey has added more to the existing discoveries of the relevance of plants and their usefulness in the treatment of diseases in the study area. The traditional uses of plants have their benefits that cannot be eradicated among the users in the rural areas because plants are cheaper, available, disease resistance and effective. However, the dosage of the concoction, the toxicity and the concentration should be subjected to further studies.

REFERENCES

Adodo, A. (2004) Nature Power, A Christian Approach to Herbal Medicine. *3rd Edition. Benedictine Publication Nigeria.* pp. 103–111.

Adjanohoun, E., Ahiyi, M.R.A., Ake-Assi, L., Dramane, K., Eewude, J.A., Fadoju, S.O, Gbile Z.O, Goudote, E., Johnson, C.L.A., Keita, A., Morakinyo, O., Ojewole, J.A.O., Olatunji, A.O., Sofowora, E.A, (1991). Traditional Medicine and Pharmacopoeia: Contribution to ethnobotanical and floristic studies in western Nigeria. *Organization of African Unity/ Scientific Technical and Research Commission,* 420pp,

Ajaiyeoba, E,O., Ogbole O.O., Ogundipe, O.O. (2006). Ethnobotanical survey of plants used in the traditional management of viral infections in Ogun State of Nigeria. *European Journal of Scientific Research* 13(1): 64-73

UNDER PEER REVIEW

248 Akobundu, I.O. and C.W. Agyakwa, 1987. A Handbook of West African Weeds.
249 *International*

250 *Institute of Tropical Agriculture,* Oyo State, Ibadan, Nigeria.

251 Anita, M. (2004). 'Medicinal and aromatic plants: Monitoring the effectiveness of
252 nbiological conservation. www.confound.org/global/global.html.

253 Arowosegbe, S, Olanipekun, M.K, Kayode, J. (2015). Ethnobotanical survey of medicinal
254 plants

255 used for the treatment of Diabetes mellitus in Ekiti-State Senatorial districts, Nigeria.
256 European. *Journal of Botany and Plant Science Phytology.* 2(4):1-8.

257 Coatney, G.R. (1963). Pitfalls in a discovery: the chronicle of chloroquine. *American*
258 *Journal*

259 *of Tropical Medicine* 12:121-128.

260 Diallo D B, Hveem MA, Mahmoud G, Betge BS, Paulsen and A Maiga 1999. An
261 ethnobotanical

262 survey of herbal drugs of gourmadistrict, Mali. *Phamaceutical Biology 37*: 80-91

263 Ebong, O. Nwauche, C, Ogbuehi I, Ifeyinwa N. Chijioke, N, Chinwe T. Umoh E, Aniekan
264 Afia G, Pius Z (2015). Is this Evidence of Success in Malaria Prevention and Control
265 Measures? *Greener Journal of Medical Sciences 5 (1)*: 001-010.

266 Erinoso, S.M. and Aworinde, D.O. (2012) Ethnobotanical Survey of Some Medicinal Plants

267 Used in Traditional Health Care in Abeokuta Areas of Ogun State, Nigeria. African
268 *Journal of Pharmacy and Pharmacology,* 6, 1352-1362.

269 Etuk, E.U., Bello, S.O., Isezuo, S.A., Mohammed, B.J. (2010). Ethnobotanical survey of

270 medicinal plants used for the treatment of diabetes mellitus in North-waestrern region
271 of Nigeria. *Asian Journal of Experimental Biological Science* 1(1): 55-59

272 Falconer, D.A., Moore, R.L., Gary, G.A. (2002) Correlation of the Coronal Mass Ejection

UNDER PEER REVIEW

Productivity of Solar Active Regions with Measures of Their Global Nonpotentiality from Vector Magnetograms: Baseline Results. The Astrophysical Journal, Volume 569, Issue 2, pp. 1016-1025.

Gbile, Z.O. (2002) Vernacular Names of Nigeria Plants (Yoruba).Forestry Research Institute of Nigeria (FRIN), Ibadan, 124. Nigeria. *Tropical Journal of Pharmaceutical Research,* 9, 110-118.

Gbolade and Soremekun, A.A, (2000). Medicinal and pesticidal potential of Nigerian plants.

Proceedings of International Symposium on Natural Products in Developing Countries: Trends and Needs.

Jouad, H., Haloui, M., Rhiouani, H., EL Hilaly, J., Eddouks, M. (2001). Ethnobotanical survey

of medicinal plants used for the treatment of diabetes, cardiac and renal diseases in North-central region of Morocco (Fez-Boulemane*). Journal of Ethnopharmacology* 77(2-3): 175-182

Kayode, J, Michael, A.O, Modupe, J.A., Ayodele, A.O (2015). Stem Barks and Roots

Extravitism in Ekiti State Nigeria: Need for Conservation as a Sustainable Innovation in Healthcare Management in Rural Areas. *American Journal of Bioscience.* 3(2):28-33.

Kayode, J., Olanipekun, M.K, Tedela, P.O (2009). Medicobotanicals studies in relation to

veterinary in Ekiti-State, Nigeria Conservation of botanicals used for the treatment of poultry diseases. *Ethnobotany of Leaf*. 13:273-280.

Khan, N.A, Rashid, A.Z.M., (2006). A study on the indigenous medicinal plants and healing

practices in Chittagong hill tracts (Bangladesh). *African Journal of Traditional Medicine*. 2: 37 – 47.

Mustafa, A.A., Fawibe, O.O., Ajiboye, A.A., Agboola, D.A. (2014). Ethnobotanical survey of

UNDER PEER REVIEW

299 medicinal plants used in the treatment of diabetes in Irepodun Local Government area
300 of Osun State, Nigeria. *Greener Journal of Biological Sciences*. 4(2): 59-68

301 Ogbole O, Abolade A, Ajayeoba E (2010). Ethnobotanical survey of plants used in treatment
302 of inflammatory diseases in Ogun State of Nigeria. *European Journal of Scientific*
303 *Research* (3)79-124

304 Ogbole, O.O. and Ajaiyeoba, E.O. (2010).The Practice and Ethnobotanical Survey. *African*

305 *Journal of Traditional Medicine*, Complementary and Alternative Medicines,

306 Oladunmoye, M.K. and Kehinde, F.Y. (2011) Ethnobotanical Survey of Medicinal Plants
307 Used in Treating Viral Infections among Yoruba Tribe of South Western Nigeria. *African*
308 *Journal of Microbiology Research*, 5, 2991-3004.

309 Olanipekun, M.K., Kayode, J. (2014). Ethno-veterinary studies on botanicals used for
310 treating

311 carnivorous in Ekiti State, Nigeria. *Ind. Journal of Science and Technology* 2(3): 98-
312 104

313 Osowole, O., Ajaiyeoba, E., Bolaji, O, Akinboye, D., Fawole, O., Gbotosho, G., Ogbole, O,

314 Ashidi, J., Abiodun, O., Falade, C., Sama, W., Oladepo, O., Itiola, O., Oduola, A.,
315 (2005). A survey of treatment practices for febrile illnesses among Traditional Healers
316 in the Nigerian (Middle Belt Zone). *African Journal of Traditional Medicine 2*, 337 –
317 344.

318 Singh, M.P., Malla, S.B., Manadkar, A (1980). Medicinal plants of Nepal. *Ecology and*
319 *Botany*

320 *33* (2): 185-193

321 Singh, H. (2008) Importance of Local Names of Some Useful Plants in Ethnobotanical Study.

322 *Indian Journal of Traditional Knowledge,* 7, 365-370.

323 Tahraoui, A., El-Hilaly, J., Istraili, Z.H., Lyoussi, B. (2007). Ethnophamacological survey of
324 plants used in the traditional treatment of hypertension and diabetes I South-eastern
325 Morocco (Errachidia province). *Journal of Ethnopharmacology* 110: 105-117.

UNDER PEER REVIEW

Tapsell, L.C., I. Hemphill, L. Cobiac, C.S. Patch and Sullivan D.R (2006). Health benefits of herbs and spices: The past, the present, the future. *Medical Journal of Australia*, 185: S4- S24.

Usman, I. S., A. U. Mani and I. D. Mohammed (2015).Indigenous Foot and Mouth Disease Control Methods among Nomadic Cattle Fulanis in Adamawa State, Nigeria. *Alexandria Journal of Veterinary Science*. 45:71-78.

World Health Organisation. (1985). Diabetes mellitus report of WHO study group on diabetes mellitus. Geneva: *WHO Technical Report*. pp 727.

WHO (2002). Traditional medicine – growing needs and potential. WHO Policy Perspectives Med. 2:1–6.