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*Full Length Research Paper*

# Ethnobotanical survey of medicinal plants used in treating viral infections among Yoruba tribe of South Western Nigeria

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**Ethnobotanical survey of plants used to treat some common viral diseases, such as chicken pox, poliomyelitis, influenza, hepatitis, measles and jaundice was carried out in Ekiti, Ondo, Osun and Oyo States in South Western Nigeria. Questionnaires were distributed among the participants and oral discussions were employed. Two hundred and eight (208) data were collected and tabulated. The Yoruba names, botanical names, methods of preparation and mode of administration of the plants were considered. The research work showed that members of the family Annonaceae (10.3%) were most frequently used, followed by members of Leguminosae (9.9%), and Zingiberaceae (7.9%), for treating chickenpox and measles infections, although all other plants play prominent roles in peoples` health care. Also, knowledge of medicinal herbs was being left in the hands of the elders between the age range of 51-70 years and 71-80 years. The leaves of the plants (45.5%) were mostly used in treating viral infections, followed by the use of stem bark (13.5%). All other parts were less commonly used to treat viral diseases. Mono-prescription was rare in the data collected. Oral application had the highest mode of administration (83.7%), while the combination of both oral and external applications (12.5%) closely followed. Decoction (90.4%) was the most frequently used method of anti- viral herbal preparation, while concoction (0.9%) was least used. Herb sellers (72.6%) constituted the major source of information about the use of anti-viral medicinal herbs, followed by traders, civil servants and herbalists with 17.31, 6.25 and 3.85 respectively. Many plants in the studied area may be a good source of lead molecules needed in viral chemotherapy after extraction of the bioactive components as well as removal of toxic residue following toxicological studies.**

**Key words:** *Leguminosae,* mono-prescription, chickenpox, decoction.

## INTRODUCTION

Indigenous medicine is now recognized worldwide both by the rural populace and the urban elite as an important healthcare resource. The World Health Organization (WHO) has pointed out that traditional medicine is an important contribution to its health goals. There are considerable economic benefits in the development of indigenous medicine and in the use of medicinal plants for the treatment of various diseases (WHO, 2003).

Medicinal plants have also been of importance in the health care system of local communities as the main source of medicine for the majority of the rural population. Plants have not only nutritional value but also, in the eyes of the local people, they have medicinal and ritual or magical values (Adewunmi et al., 2001).

Plants have been a major source of medicine for human kind. According to available information, a total of at least 35000 plants species are widely used for medicinal purposes. The demand for traditional herbs is increasing very rapidly, mainly because of the harmful effects of synthetic chemical drugs. The global clamor for more herbal ingredients creates possibilities for the local cultivation of medicinal and aromatic crops as well as for

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the regulated and sustainable harvest of wild plants. Such endeavors could help raise rural employment in the developing countries, boost commerce around the world and perhaps contribute to the health of millions (Anita, 2004).

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, medicinal, clothing, shelter, spiritual, recreational, and other needs of her population (Odugbemi and Akinsulire, 2006).

This biodiversity also ensures the essential ecological functions on which life depends, including a steady supply of clean water, nutrient cycling, and soil maintenance. It is the treasure house from which future food needs, cures diseases, and elements for knowledge and technology will be found. Plants have provided the basis for traditional treatment for different types of diseases and still offer an enormous potential source of new chemotherapeutic agent (Adewunmi et al., 2001). This however require extraction of the bioactive molecules of pharmacological importance present following purification and identification procedures as well as toxicological studies.

Therefore it is essential for drugs discovery to preserve and record traditional know –how on medicinal plants and in most cases, this depends on local practitioner and field survey (Anita, 2004).

Even though pharmacological industries have produced a number of new antiviral drugs in the last three decades, resistance to these drugs by microorganisms has increased. The use of plant extracts and phytochemicals being of great significance in therapeutic treatments can however be explored in ameliorating this problem (Erdogrul, 2002; Acharya and Shrivastava, 2008).

The components of ethnomedicine have long been ignored by many biomedical practitioners for various reasons. For example, the chemical composition, dosages and toxicity of the plants used in ethnomedicine are not clearly defined (Lowe et al., 2000). However, it is interesting to note that the ethnomedicinal uses of plants is one of the most successful criteria used by the pharmaceutical industry in finding new therapeutic agents for the various fields of biomedicine (Cox and Balick,1994).

Medicinal plants play a key role in the developed and advancement of modern studies on them has important contributions in the healthcare system of local communities as the main source of medicine for the majority of the rural population. However, there have been dearths of information on the various medicinal plants that are available for treating specifically infections of viral etiology.

The aims and objective of this project is therefore to find medicinal herbs and plants used to treat viral diseases which are cheap and easily accessible since viral infections can be one of the biggest nightmares for Medical Practitioners and patients.

## METHODOLOGY

### Study area

The study areas consist of Ekiti, Ondo, Osun, and Oyo states of Southwestern Nigeria. The areas consist of residents that are civil servants, traders, and farmers. Southwestern Nigeria lies within longitude 3°E and 5.8°E and latitude 6.4°N and 9.5°N Tropical with variations governed by interaction of moist South-West monsoon and dry North-East winds with mean maximum temperatures of 30-32°C. Annual rainfall decreases northward; about 2,000 mm in coastal zone.

### Mode of survey

The methods utilized in obtaining the information on plants used in the treatment of viral diseases in the study include-consulting herbalist, herb sellers, enquiry from villagers about plants/recipes used in the areas, and enquiry from relations. Advocacy visits involving field trips were embarked upon to collect information majorly from herb sellers, traders and few individuals in the states to solicit their support in the study areas.

Data collected as questionnaires were administered through person to person contact in order to identify the plants and to ask major question such as the preparation, mode of administration, and dosage of each plant depending on each state. The informants, majority being illiterate can only communicate through their dialect. Literatures on medicinal plants, vernacular and botanical names were consulted to corroborate the claims by the healers (Sofowora, 1982; Odugbemi and Akinsulire, 2006).

The objectives of the study were explained to the informants. The informed consent was obtained from each of the participants, although among the herb sellers' permission was granted from the head of the herb seller with certain amount of money before information could be unfolded nearly in all the study areas.

## RESULTS

The indigenous name is a reflection of the culture and trade name of area where the plants are mostly found. The name given was sometime indicative of the appearance of and use of the plants. The various plants used in treating some common viral diseases, their local names, botanical names and common names are presented in Table 1.

The occurrences of the various families of the plants used are on Table 2. The families Annonaceae, Leguminosae are the most abundant while families such as Compositae, Euphorbiaceae, Zingiberaceae frequency of occurrence was in the intermediate range. However, some in the families, Liliaceae, Poaceae and Curcurbitaceae has low frequency of occurrence. The various plant part utilized are represented on Table 3. The leaf, stem, bark are the most commonly used parts, while fruit, roots are seldomly used.

The age distribution of the informants showed that the elderly in the age range 51 – 70 and 71 – 80 were the ones that reported information of recipes, while others showed little or no response. This is shown on Table 4. The sources of information in the research are from herbalist, herb sellers, trader and civil servants. The

**Table 1.** Plants used in the treatment of viral diseases.

| S/N | Local name | Botanical name | Family name | Common name | Parts use | Medicinal use(s) |
|---|---|---|---|---|---|---|
| 1 | Jaoke | *Ehretia cymosa* | Boraginaceae | Puzzle bush | Leaves | Measles |
| 2 | Otili | *Cajanus cajan* | Leguminosae | pegeon pea | Leaves | Measles |
| 3 | Arira | *Deterium microcarpum* | | | Stem bark | Hepatitis |
| 4 | Pandoro | *Kigelia Africana* | Bignoniaceae | Sausage tree | Leaves | Poliomylitis |
| 5 | Pandoro | *Kigelia Africana* | Bignoniaceae | Sausage tree | Leaves | Poliomylitis |
| 6 | Osan jagan | *Citrus aurantifolia* | Rutaceae | Bitter orange | Leaves,Fruit | Measles |
| 7 | Otili | *Cajanus cajan* | Leguminosae | pegeon pea | Leaves | Chickenpox |
| 8 | Buba awodi | *Capparis thonningii* | Cappararaceae | Capper bush | Leaves | Chickenpox,Measles |
| 9 | Eeru | *Xylopia aethiopica* | Annonaceae | Ethiopia pepper | Leaves | Measles |
| 10 | Odundun | *Bryophylum pinnatum* | Crassulceae | Life plant | Leaves | Measles |
| 11 | Odundun (abamoda) | *Bryophylum pinnatum* | Crassulceae | Tassel flower | Leaves | Measles |
| 12 | Bomubomunn | *Calotropis procera* | Asclepiadeceae | Giant milk weed | Leaves | Measles |
| 13 | Atare | *Aframomum melegueta* | Zingiberaceae | Alligator pepper | Leaves | Measles |
| 14 | Mafowokanmilomo | *Argemona Mexicana* | | Mexican poppy | Leaves | Hepatitis |
| 15 | Emiyemi | *Psuedocera kotschyi* | Meliaceae | Pseudocedrala | Stem bark | Hepatitst |
| 16 | Asangba (feregede) | *Clerodendrum Capitalum* | Verbenaceae | Hollow stem | Leaves | Measles |
| 17 | Odundun | *Bryophylum pinnatum* | Crassulceae | Life plant | Leaves | Hepatitis |
| 18 | Ata | *Capsicum annuum* | Solanaceae | Bell pepper | Stem bark | Hepatitis |
| 19 | Ira | *Bridelia ferrugineae* | Euphorbiaceae | Ira | Stem Bark | Hepatitis |
| 20 | Arira | *Deterium microcarpum* | | | Stem bark | Hepatitis |
| 21 | Okuuku | *Ancistropphyllum secundi* | | | Roots | Measles |
| 22 | Pia | *Persea Americana* | Lauraceae | Avocado Pear | Fruits | Poliomylitis |
| 23 | Isigun | *Mondia whitei* | Periplocaceae | Mondi | Fruit epicarp | Measles |
| 24 | Osanlakuregbe | *Jatropha curcas* | Euphorbiaceae | Physic nut | Leaves | Poliomylitis |
| 25 | Epo Agbon | *Cocos nucifera* | Palmae | Coconut palm | Leaves | Poliomylitis, Measles |
| 26 | Opoto | *Alchornea laxiflora* | Euphorbiaceae | Three veined bead string | Leaves | Poliomylitis, Measles |
| 27 | Apasa (Imi-esu) | *Ageratum conyzoides* | Compositae | Goat weed | Leaves | Poliomylitis, Measles |
| 28 | Gbegiojude | *Eleusine indica* | Poaceae | Wire grass | Leaves | Chickenpox |
| 29 | Laali | *Lawsonia inermis* | Lythraceae | Hennaplant | Leaves | Poliomylitis, Measles |
| 30 | Aparan | *Spigelia anthelmia* | Leguniaceae | Worm weed, Pink root | Roots | Measles |
| 31 | Pia | *Persea Americana* | Lauraceae | Avocado Pear | Leaves | Chickenpox, Measles |
| 32 | Pandoro | *Kigelia Africana* | Bignoniaceae | Sausage tree | Leaves | Chickenpox |
| 33 | Ijan, Pepe | *Alcohorneae laxiflora* | Euphorbiaceae | Christmas bush | Leaves | Chickenpox |
| 34 | Koko | *Theobroama cacao* | Sterculiaceae | Cocoa | Leaves | Measles |
| 35 | Oruru | *Spathodea campanulata* | Bignoniacea | Sausage tree | Leaves | Measles |
| 36 | Eeru | *Xylopia aethipaca* | Annonaceae | Ethopia pepper | Fruits | Measles |

**Table 1.** Contd.

| | | | | | | |
|---|---|---|---|---|---|---|
| 37 | Odundun (abamoda) | *Bryophylum pinnatum* | Crassulceae | Tassel flower | Leaves | Poliomylitis |
| 38 | Ayu | *Allium sativa* | Lilacaee | Garlic | Bulb | Poliomylitis |
| 39 | Ginger | *Zinger officinale* | Ginger | Atale | Rhizome | Poliomylitis, Measles |
| 40 | Yanrin | *Lactucal tarazacflora* | Compositae | Wild lettuce | Stem Bark | Poliomylitis |
| 41 | Igba | *Parkia clappertoniana* | Leguminosae | Neoul iol | Stem bark | Chickenpox, Measles |
| 42 | Rerinkomi | *Argyreia nervsa* | Convulvulaceae | Elephant creeper | Leaves | Chickenpox |
| 43 | Eeru | *Xylopia aethipaca* | Annonaceae | Ethopia pepper | Fruit | Chickenpox, Measles |
| 44 | Iyeye | *Spondias mombin* | Anacardiaceae | Yellow mombin | Stem bark | Chickenpox, Jaundice |
| 45 | Osan jagan | *Citrus aurantifolia* | Rutaceae | Lime | Leaves, Fruit | Measles |
| 46 | Osun | *Ptercrapus osun* | Leguminosae | Blood wood | Stem bark | Poliomulitis |
| 47 | Ahun | *Alstonia congesis* | Apocynaceae | Stool wood | Stem bark | Chickenpox |
| 48 | Oganwo | *Khaya ivorensis* | Mellceae | African mahogany | Stem bark | Chickenpox |
| 49 | Tude | *Calliandra* | Leguminosaes | Powder puff | Leaves, Roots | Measles |
| 50 | Arunje | *Xylopia aethipaca* | Annonaceae | Ethopia pepper | Fruit | Chickenpox |
| 51 | Seyo,Ayo | *Caelsalpinia bonduc* | Leguminosae | Yellow nicker | Leaves | Chickenpox, Measles |
| 52 | Atare | *Aframomum melegueta* | Zingiberaceae | Alligator pepper | Whole plant | Chickenpox |
| 53 | Awopa,Osopupa | *Enanatia chlorantha* | Annonaceae | African yellow wood | Stem bark | Jaundice |
| 54 | Oruwo | *Morinda lucida* | Rubiaceae | Brimstone tree | Leaves | Jaundice |
| 55 | Ibepe | *Carica papaya* | Caricaceae | Pawpaw | Leaves | Jaundice |
| 56 | Atare | *Aframomum melegueta* | Zingiberaceae | Alligator pepper | Whole plant | Chickenpox |
| 57 | Aparan(pupaati funfun) | *Spigelia anthelmia* | Loganiaceae | Worm weed | Roots | Hepatitis |
| 58 | Aridan | *Tetraplera tetraptera* | Leguminosaee | Aridan | Pods | Hepatitis |
| 59 | Aridan | *Tetraplera tetraptera* | Leguminosaee | Aridan | Pods | Poliomyliyis |
| 60 | Itaye | *Aframomum melegueta* | Zingiberaceae | Alligator pepper | Leaves | Poliomylitis |
| 61 | Ewuro | *Vernonia amygdalina* | Compoositae | Biter leaf | Leaves | Measles |
| 62 | Eeru | *Xylopia aethipaca* | Annonaceae | Ethopia pepper | Fruit | Chickenpox, Measles |
| 63 | Gbersi | *Nauclea latifolia* | Rubiaceae | Nauclea | Roots, stem bark | Measles |
| 64 | Odu | *Solanum americanus* | Solanaceae | Wonder berry | Whole plant | Jaundice |
| 65 | Atare | *Aframomum melegueta* | Zingiberaceae | Alligator pepper | Whole plant | Chickenpox |
| 66 | Ewuro | *Vernonia amygdalina* | Compoositae | Biter leaf | Leaves | Measles |
| 67 | Korowu | *Gossypium arboreum* | Malvaceae | Western idian cotton | Seeds | Hepatitis |
| 68 | Oruwo | *Morinda lucida* | Rubiaceae | Brimstone tree | Roots | Jaundice, Yellow fever |
| 69 | Paran | *Dabergia sxatilis* | Leguminosaea | Flat bean | Roots | Smallpox, hepatitis |
| 70 | Pandoro | *Kigelia Africana* | Bignoniaceae | Sausage tree | Leaves | Poliomylitis |
| 71 | Epinpin | *Acacia ataxacantha* | Mimosae | Acacia | Stem bark sap | Chickenpox |
| 72 | Obo | *Erythrophleum suaveolens* | Leguminosae | Saaswood | Stem bark | Chickenpox |
| 73 | Ogoro | *Raphia farinifera* | Palmae | Raffia palm | Leaves | Measles |

**Table 1.** Contd.

| | | | | | | |
|---|---|---|---|---|---|---|
| 74 | Tagiri | *Laganaria breviflorus* | Cucurbitaceae | Pseudclocyth | Fruits | Smallpox, Chickenpox, |
| 75 | Owu | *Gossypium arboreum* | Malvaceae | Western idian cotton | Leaves | Hepatitis |
| 76 | Ibepe | *Carica papaya* | Caricae | Pawpaw | Leaves | Jaundice |
| 77 | Ato | *Chasmanthera dependens* | Menispermae | Chasmanthera | Leaves | Poliomylitis |
| 78 | Osan wewe | *Citrus aurantifolia* | Rutaceae | Lime | Leaves, Fruit | Measles |
| 79 | Tagiri | *Adenopus breviflorus* | Cucurbitaceae | Pseudclocyth | Fruits | Measles |
| 80 | Ayuu | *Allium sativa* | Liliacea | Garlic | Bulb | Measles |
| 81 | Ira | *Bridelia atrviridis* | Euphorbiacea | Ira | Leavse | Jaundice |
| 82 | Uja | *Ehretia cymosa* | Boraginaceae | Puzzle bush | Leaves | Poliomylitis, Measles |
| 83 | Afomo | *Crudia klainei* | Loranthecеae | Mistletoe | Leaves | Measles |
| 84 | Feregede | *Cjanus cajan* | Leguminosae | Pigeonpea | Flower | Measles |
| 85 | Akomu | *Pycanathus angolensis* | Myristiaceae | Wild nutmeg | Roots | Chickenpox |
| 86 | Ayinyin,Afefe | *Trema orientalis* | Ulmaceae | Charcoal tree | Leaves | Chickenpox |
| 87 | Ojere agbado | *Zea mays* | Poaceae | Maize | Flower | Chickenpox |
| 88 | Owu | *Gossypium arboreum* | Malvaceae | Western idian cotton | Leaves | Jaundice |
| 89 | Arunje | *Harungana madagascariasis* | Hypericaea | Dragons blood tree | Stem bark | Jaundice |
| 90 | Iyere | *Perper guinensise* | Pepereceae | Clinbing balack pepper | Leaves | Chickenpox |
| 91 | Aluro | *Mimosa pigra* | Mimosaea | Catclaw mimosa | Leaves | Poliomylitis |
| 92 | Eriru | *Xylopia aethipaca* | Annonaceae | Ethopia pepper | Fruits | Chickenpox, Measles |
| 93 | Itaye | *Aframomum melegueta* | Zingiberaceae | Alligator pepper | Leaves | Measles |
| 94 | Casu | *Anacardium occidentale* | Anacardiaceae | Cashew | Leaves, stem bark | Jaundice |
| 95 | Oparun | *Banbusa vulgaris* | Poaceae | Bamboo | Leaves | Measles |
| 96 | Akerjupon,Ajo | *Sphenocenturm jollyanum* | Menispertmaer | Sphenocentum | Fruits | Jaundice |
| 97 | Alubosa elewe | *Allium ascalonicum* | Liliaceae | Shallt spring | Leaves | Chickenpox |
| 98 | Erinje | *Xylopia aethipaca* | Annonaceae | Ethopia pepper | Fruit | Chickenpox, Measles |
| 99 | Gbaguda,ege | *Manihot esculata* | Euphorbiaceae | Cassava | Leaves | Jaundice |
| 100 | Idahe | *Banbusa vulgaris* | Poaceae | Bamboo | Leaves | Measles |
| 101 | Arunpale | *Chenopodium ambrosiodes* | Chenopodiaceae | Worm wood | Roots | Chickenpox |
| 102 | Ewuro | *Vernonia amygdalina* | Compoositae | Biter leaf | Leaves | Measles |
| 103 | Ayuu | *Allium sativa* | Liliacea | Garlic | Bulb | Measles |
| 104 | Koko | *Theobroma cacao* | Sterculiaceae | Cocoa | Bark | Measles |
| 105 | Epoara | *Waltheria lucida* | Sterculiaceae | Sleeping morning | Whole plant | Poliomylitis |
| 106 | Orunpa | *Hymnocardia acida* | Euphorbiaceae | Hymenocardia | Leaves | Measles, Jaundice |
| 107 | Ope | *Elaeis guinensis* | Palmea | Red oil pal | Roots | Chickenpox ,Measles |
| 108 | Ipeta | *Securidaca longepedunculata* | Polygalaceae | Violet tree | Stem bark | Jaundice |
| 109 | Ibepe | *Carica papaya* | Caricaceae | Pawpaw | Leaves | Poliomylitis |
| 110 | Yanrin | *Lactuca capensis* | Compositae | Wild lettuce | Whole plant | Light Chickenpox |

**Table 1.** Contd.

| | | | | | | |
|---|---|---|---|---|---|---|
| 111 | Gbersi | *Nauclea latifolia* | Rubiaceae | Nauclea | Roots, stem bark | Measles |
| 112 | Oparun | *Banbusa vulgaris* | Poaceae | Bamboo | Leaves | Measles |
| 113 | Eriru | *Xylopia aethipaca* | Annonaceae | Ethopia pepper | Fruits | Measles |
| 114 | Gbure | *Tanum trianuglae* | Portulacaceae | Weter lettuce | Leaves | Measles |
| 115 | Eriru | *Xylopia aethipaca* | Annonaceae | Ethopia pepper | Fruits | Measles |
| 116 | Oganwo | *Khaya ivorensis* | Meliacea | African mahogany | Stem bark | Jaundice |
| 117 | Oruwo | *Morinda lucida* | Rubiaceae | Brimstone tree | Roots | J aundice |
| 118 | Ose | *Adenopus digitata* | Bombacaceae | Lemonoda tree | Leaves | Poliomylitis |
| 119 | Osopa | *Enantia chlorantha* | Annonaceae | African yellow wood | Roots | Poliomylitis |
| 120 | Gberesi | *Nauclea latifolia* | Rubiaceae | Nauclea | Roots | Measles |
| 121 | Gbogbonise | *Uvaria afzelii* | Annonaceae | Cluster pear | Roots | Measles |
| 122 | Ogbooriakuko | *Helitropium indiucm* | Boraginuceae | Heliotrope | Leaves | Measles |
| 123 | Ifon | *Olax-subscorpioidea* | Olacaceae | Olax, Stinkant forest | Roots | Poliomylitis |
| 124 | Amuje | *Brysocarpus coccineus* | Conniraceae | Crimson thyme | Leaves | Measles |
| 125 | Osan wewe | *Citrus aurantifolia* | Rutaceae | Lime, Swing | Fruits | Measles, Jaundice |
| 126 | Ahun | *Alstomia boonel* | Apocynaceae | Stool wood, Pattern wood | Leaves | Jaundice |
| 127 | Atare | *Aframomum melegueta* | Zingiberaceae | Alligator pepper | Leaves | Measles |
| 128 | Erinje/Eekugogo | *Xylopia aethiopiae* | Annonaceae | Ethopia pepper | Seeds | Measles |
| 129 | Atare | *Aframomum melegueta* | Zingiberaceae | Alligator pepper | Leaves | Measles |
| 130 | Otili | *Cajanus cajan* | Leguminosae | Pigeon pea | Leaves | Measles |
| 131 | Erinje/Eekugogo | *Xylopia aethiopiae* | Annonaceae | Ethopia pepper | Seeds | Chicken pox |
| 132 | Yanrin | *Lactuca capensis* | Compositae | Wild lettuce | Whole plant | Measles, Chickenpox |
| 133 | Poporobaba | *Sorghum bicolor* | Poaceae | Millet | Leaves | Chicken pox |
| 134 | Ayo | *Caelsalpinia bonduc* | Leguminosae | Bonduc nut | Leaves | Chickenpox |
| 135 | Atare | *Aframomum melegueta* | Zingiberaceae | Alligator pepper | Leaves | Measles |
| 136 | Iru, Erinje, Eeru | *Xylopia aethipaca* | Annonaceae | Ethopia pepper | Fruits | Jaundice |
| 137 | Mafowokanmilomo | *Argemone Mexicana* | | Mexican poppy | Whole plant | Jaundice |
| 138 | Erinje | *Xylopia aethipaca* | Annonaceae | Ethopia pepper | Seeds | Jaundice |
| 139 | Ewuro | *Vernonia amygdalina* | Compositae | Bitter leaf | Leaves | Jaundice |
| 140 | Osan wewe | *Citrus aurantifolia* | Rutaceae | Lime | Leaves,Fruit | Jaundice |
| 141 | Osan mimu | *Citrus sinensis* | Rutaceae | Sweet orange | Fruits | Jaundice |
| 142 | Ataile | *Zingiber officinale* | Zingiberaceae | Ginger | Roots | Jaundice |
| 143 | Odan | *Ficus thonninguii* | Moraceae | Umbrella thorn | Leaves | Chickenpox |
| 144 | Erinje | *Xylopia aethipaca* | Annonaceae | Ethopia pepper | Seeds | Poliomylitis, chicken pox |
| 145 | Orombo wewe | *Citrus aurantifolia* | Rutaceae | Lime, Swing | Leaves | Chickenpox |
| 146 | Otili | *Cajanus cajan* | Leguminosae | Pigeon pea | Leaves | Chickenpox |
| 147 | Ewuro | *Vernonia amygdalina* | Compositae | Bitter leaf | Leaves | Chickenpox |

**Table 1.** Contd.

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|---|---|---|---|---|---|---|
| 148 | Ojere agbado | *Zea maize* | Poaceae | Maize | Flower | Measles |
| 149 | Egbesi | *Nauclea latifolia* | Rubiaceae | Nuclea | Roots | Chickenpox |
| 150 | Odan | *Ficus thonningii* | Moraceae | Umbrella thorn | Leaves | Chickenpox |
| 151 | Koko | *Theobroma cacao* | Sterculiaceae | Cocoa | Stem bark | Chickenpox |
| 152 | Atare | *Aframomum melegueta* | Zingiberaceae | Alligator pepper | Seeds | Measles |
| 153 | Eso itagiri | *Laganaria breviflorus* | Cucurbitaceae | Pseudoclocynth | Roots, fruits | Small pox, Chicken pox |
| 154 | Efinrin | *Hoslundia opposite* | Labiatae | Hoshindia | Wholeplant | Jaundice |
| 155 | Amiye | *Brysocarous coccineus* | Connaraceae | Crimson thyme | Stem bark | Measles, Jaundice |
| 156 | Paran, Ogudu | *Belbergia saxatilis* | Leguminosae | Flat bean | Stem bark, Leaves | Small pox, Measles |
| 157 | Ewe were, Erinje were | *Momordica charantia* | Curbitaceae | Bitter cucumber | Whole plant | Jaundice, Yellow fever |
| 158 | Ataile | *Zingiber officinale* | Zingiberaceae | Ginger | Rhizome | Jaundice, Yellow fever |
| 159 | Gilofa | *Psidium guajava* | Myrtaceae | Guava | Stem bark | Jaundice |
| 160 | Mangoro | *Magnifera indica* | Anacardaceae | Mango | Stem bark | Jaundice |
| 161 | Dongoyaro | *Azadirachata indica* | Melcaceae | Neem tree | Stem bark | Jaundice |
| 162 | Ahun | *Alstomia boonei* | Apocynaceae | Stool wood, pattern wood | Stem bark, Leaves | Jaundice |
| 163 | Egbesi | *Naudeae latifolia* | Rubiaceae | Naucleae | Roots | Jaundice |
| 164 | Opon | *Tetracera pototoria* | Dilleniaceae | Cup of water | Stem bark | Jaundice |
| 165 | Ponhan | *Lophira alata* | Onchnaceae | Meni oil tree, Iron wood | Stem bark | Jaundice |
| 166 | Oganwo | *Khaya ivorensis* | Meliaceae | African mahogany | Stem bark | Jaundice |
| 167 | Iyeye | *Spondias mombin* | Anacardiaceae | Yellow mombin | Stem bark | Jaundice |
| 168 | Odan | *Ficus thonningii* | Moraceae | Umbrella thorn | Leaves | Jaundice, Measles |
| 169 | Efinrin | *Ocimum cannum* | Lubiateae | Tea bush, buslam | Leaves | Jaundice |
| 170 | Roro | *Allanblackia floribunba* | Guttiferacae | Fallow tree | Leaves | Chickenpox, Measles, |
| 171 | Odundun, eti | *Kalanchoe crenata* | Crassulaceae | Nerver die | Leaves | Poliomylitis, Small pox |
| 172 | Igbere | *Dennattia tripetata* | Annonaceae | Pepper fruit | Leaves | Measles |
| 173 | Iranje | *Securinega Virosa* | Euphorbiaceae | Securinega | Leaves | Poliomylitis, Jaundice |
| 174 | Afara | *Terminalia superb* | Cobretaceae | Korina, frake | Stem bark | Yellow fever |
| 175 | Owu | *Gossypium barbadense* | Malvaceae | West Indian Cotton | Leaves | Hepatitis |
| 176 | Egele | *Euphophia Spp* | Euphorbiaceae | | Leaves | Chickenpox |
| 177 | Saposapo | *Anthocleista nobilis* | Loganiaceae | | Roots | Jaundice |
| 178 | Tagiri | *Laganaria breviflorus* | Cucurbitceae | Psuedoclocynth | Whole plant | Measles |
| 179 | Agbado | *Zea maize* | Poaceae | Maize | Seeds | Chickenpox |
| 180 | Dongoyaro | *Azdirachta indica* | Meliaceae | Nemm tree | Roots, bark | Jaundice |
| 181 | Erinje | *Xylopia aethiopica* | Annonaceae | Ethopia pepper | Seeds | Measles |
| 182 | Atare | *Aframomum melegueta* | Zingiberaceae | Alligator pepper | Leaves | Measles |
| 183 | Ayo | *Caesalpinia bonduc* | Leguminosaea | Bonduc nut | Leaves | Measles |
| 184 | Oparun | *Banbusa vulgaris* | Poaceae | Bamboo | Leaves | Measles |

**Table 1.** Contd.

| | | | | | | |
|---|---|---|---|---|---|---|
| 185 | Feregede | *Cajanus cajan* | Legumioseae | Pigeon pea | Leaves | Measles,Chickenpox |
| 186 | Orogbo | *Garcia cola* | Guttiferae | Bitter cola | Roots | Smallpox |
| 187 | Odundun owo | *Emilia cocciea* | Compositeae | Tassel flower | Leaves | Measles |
| 188 | Tee | *Cymbopoqon citratus* | Theceaea | Tea | Leaves | Jaundice |
| 189 | Kaju | *Anacardium occidentale* | Anacardiaceae | Cashew | Leaves | Jaundice |
| 190 | Mangoro | *Magnifer indica* | Anacardiaceae | Mango | Leaves | Jaundice |
| 191 | Imi-esu | *Agerantum conyzoides* | Compositae | Goat weed | Whole plant | Poliomylitis, Measles, yellow fever |
| 192 | Atare | *Aframomum melegueta* | Zingiberaceae | Alligator pepper | Leaves | Measles |
| 193 | Iyere | *Perper guinensise* | Pepereceae | Clinbing balack pepper | Leaves | Measles |
| 194 | Alubosa elewe | *Allium ascalonicum* | Liliaceae | Shallt spring | Leaves | Chickenpox |
| 195 | Erinje | *Xylopia aethiopica* | Annonaceae | Ethopia pepper | Seeds | Chickenpox |
| 196 | Ewedu | *Corchorus olitorius* | Tiliaceae | Jute plant | Whole plant | Measles |
| 197 | Atare | *Aframomum melegueta* | Zingiberaceae | Alligator pepper | Leaves | Measles Poliomylitis |
| 198 | Erinje | *Xylopia aethiopica* | Annonaceae | Ethopia pepper | Seeds | Chickenpox |
| 199 | Tagiri | *Laganaria breviflorus* | Cucurbitceae | Psuedoclocynth | Whole plant | Measles |
| 200 | Rere | *Senna occidentalis* | Leguminosae | Affrica coffee | Leaves | Measles |
| 201 | Oruwo | *Morinda lucida* | Rubiaceae | Brimstone tree | Roots | Yellow fever |
| 202 | Mangoro | *Magnifera indica* | Anacardaceae | Mango | Stem bark | Yellow fever |
| 203 | Taba | *Nicotiana tabacum* | Solanaceae | Tobacco | Leaves | Poliomylitis |
| 204 | Atare | *Aframomum melegueta* | Zingiberaceae | Alligator pepper | Seeds | Poliomylitis |
| 205 | Jogbo | *Hiptis pectinata* | Labiatae | Hiptis | Leaves | Poliomylitis |
| 206 | Aba | *Sympolia globulifera* | Gutiferae | Hog gum tree | Roots | Poliomylitis |
| 207 | Arin | *Dioclea reflexa* | Leguminosae | Bull's eye | Seeds | Measles |
| 208 | Alubosa elewe | *Allium ascalonicum* | Liliaceae | Shallt spring | Leaves | Chickenpox |

herb sellers are the major source of the information, while the herbalist and civil servant gave less information as depicted by Table 5.

The mode of preparation as presented on Figure 1 indicated that decoction was the most common way of preparing these herbs while other methods are less commonly employed. The mode of administration as shown on Figure 2 revealed that drinking was found to be the most preferred mode of administration while rubbing and bathing were less frequently employed. The majority of the people in the study area preferred combination of herbs and modern drugs. However, the uses of herbs alone are not well employed (Table 6). The generality of the populace does not take any precaution in the use of the recipe. However, plants should be washed before taken them. Although using of herbs and drugs at the same time was discouraged as repre-sentedon Table 7. The side effects commonly associated with the use of herbal recipe were vomiting and stooling. However, most informants opined that there is not much side effect in taking herbal recipes as shown on Table 8.

## DISCUSSION

In the ethnobotanical survey conducted in Ekiti, Ondo, Osun and Oyo States of South Western Nigeria (Figure 3), a number of (208) reported medicinal plants species and their uses in treating some common viral diseases by the rural populace demonstrates the depth of their local indigenous knowledge on medicinal plants and their application. Similar study undertaken in Belvia came up with 129 plant species of medicinal importance. In general, various studies

**Table 2.** Occurrence of various families of medicinal plants surveyed.

| Family name | Frequency | % Occurrence |
|---|---|---|
| Anacardaceae | 7 | 3.4 |
| Annonaceae | 21 | 10.3 |
| Apocynaceae | 3 | 1.5 |
| Asclepiadeceae | 1 | 0.5 |
| Bignoniaceae | 5 | 2.5 |
| Bombacaceae | 1 | 0.5 |
| Boraginaceae | 3 | 1.5 |
| Cappararaceae | 1 | 0.5 |
| Caricaceae | 3 | 1.5 |
| Chenopodiaceae | 1 | 0.5 |
| Cobretaceae | 1 | 0.5 |
| Compositae | 11 | 5.4 |
| Connaraceae | 2 | 1.0 |
| Convulvulaceae | 1 | 0.5 |
| Crassulaceae | 5 | 2.5 |
| Cucurbitaceae | 6 | 3.0 |
| Dilleniaceae | 1 | 0.5 |
| Euphorbiaceae | 9 | 4.4 |
| Ginger | 1 | 0.5 |
| Guttiferae | 3 | 1.5 |
| Hypericaea | 1 | 0.5 |
| Labiatae | 2 | 1.0 |
| Lauraceae | 2 | 1.0 |
| Leguminosae | 20 | 9.9 |
| Liliaceae | 6 | 3.0 |
| Loganiaceae | 2 | 1.0 |
| Loranthecеae | 1 | 0.5 |
| Lubiateae | 1 | 0.5 |
| Lythraceae | 1 | 0.5 |
| Malvaceae | 5 | 2.5 |
| Meliaceae | 5 | 2.5 |
| Menispermae | 2 | 1.0 |
| Mimosaceae | 2 | 1.0 |
| Moraceae | 3 | 1.5 |
| Myristicaceae | 2 | 1.0 |
| Olacaceae | 1 | 0.5 |
| Onchnaceae | 1 | 0.5 |
| Palmae | 3 | 1.5 |
| Piperaceae | 2 | 1.0 |
| Periplocaceae | 1 | 0.5 |
| Poaceae | 9 | 4.4 |
| Polygalaceae | 1 | 0.5 |
| Portulacaceae | 1 | 0.5 |
| Rubiaceae | 9 | 4.4 |
| Rutaceae | 7 | 3.4 |
| Solanaceae | 3 | 1.5 |
| Sterculiaceae | 4 | 2.0 |
| Theaceae | 1 | 0.5 |
| Liliaceae | 1 | 0.5 |
| Ulmaceae | 1 | 0.5 |
| Verbenaceae | 1 | 0.5 |
| Zingiberaceae | 16 | 7.9 |
| | 203 | 100.0 |

**Table 3.** Plant parts used for treating viral infections.

| Parts used | Frequency | % Occurrence |
|---|---|---|
| Bulb | 3 | 1.4 |
| Flower | 3 | 1.4 |
| Fruit epicarp | 1 | 0.5 |
| Fruits | 15 | 7.2 |
| Leaves | 95 | 45.7 |
| Leaves, fruit | 4 | 1.9 |
| Leaves, root | 1 | 0.5 |
| Leaves, stem bark | 1 | 0.5 |
| Pods | 2 | 1.0 |
| Rhizome | 2 | 1.0 |
| Roots | 20 | 9.6 |
| Roots, bark | 1 | 0.5 |
| Roots, fruit | 1 | 0.5 |
| Roots, stem bark | 2 | 1.0 |
| Seeds | 12 | 5.8 |
| Stem bark | 28 | 13.5 |
| Stem bark sap | 1 | 0.5 |
| Stem bark, leaves | 2 | 1.0 |
| Wholeplant | 14 | 6.7 |
| | 208 | 100.0 |

**Table 4.** The distribution of informants in age –classes.

| Age class | Frequency | Percentage |
|---|---|---|
| 21-30 | 11 | 5.29 |
| 31-54 | 49 | 23.56 |
| 51-70 | 83 | 39.90 |
| 71-80 | 65 | 31.25 |
| | 208 | 100.00 |

have shown that different areas in different parts of the world demonstrated the existence of considerable amount of indigenous ethnomedicinal knowledge (Tesfaye and Zemede, 2009).

The study also revealed that Family Annonaceae (10.3%) took the leading, followed by family Legiminosae, Zingiberaceae, Compositae, Liliaceae, Anarcadaceae, Rabiaceae, Poaceaes and Rutaceae, were most commonly mentioned in the study areas. Although recent research in Ogun State showed that Cucurbitaceae is highly effective against Measles (Sonibare et al., 2009). The fact that some of the reported plants are having similar uses in the area elsewhere can be taken as an indication of their pharmacological effectiveness having been tested in different areas by different culture. The emphasis of the synergism of more than one medicinal plant was emphasized by the informants (Wassihun et al., 2003).

Leaf was most commonly used for medicinal purpose than the other plant parts in the study areas. This was followed by the use of stem bark, root, fruit and whole plant, while fruit epicarp, stem bark sap and a combination of leaf and root were least used. Many studies conducted in different parts in Ethiopia and many parts of the world showed that plant leaves are used more than the other parts of a plant. This practice helps to reduce the rate of threat on plant species (Giday et al., 2003).

This study reveals that, most knowledge on herbal remedies is handled down the older members of the community between 51-70 and 71-80 years of age. This hits at the fact that ethnomedicinal knowledge is concentrated in, and relative difficulty in its transfer from the elderly to the younger generation. This might be related to the waning of interest of the young generation on indigenous knowledge. Different studies in different areas showed that medicinal plant knowledge and transfer of knowledge to the young generation have been affected by modernization (having access to modern education and health service) and environmental change (Hillenbrand, 2006).

**Table 5.** Sources of information.

| Respondents | Frequency | Percentage |
|---|---|---|
| Herbalist | 8 | 3.85 |
| Herb seller | 151 | 72.60 |
| Trader | 36 | 17.31 |
| Civil servants | 13 | 6.25 |
| | 208 | 100.00 |

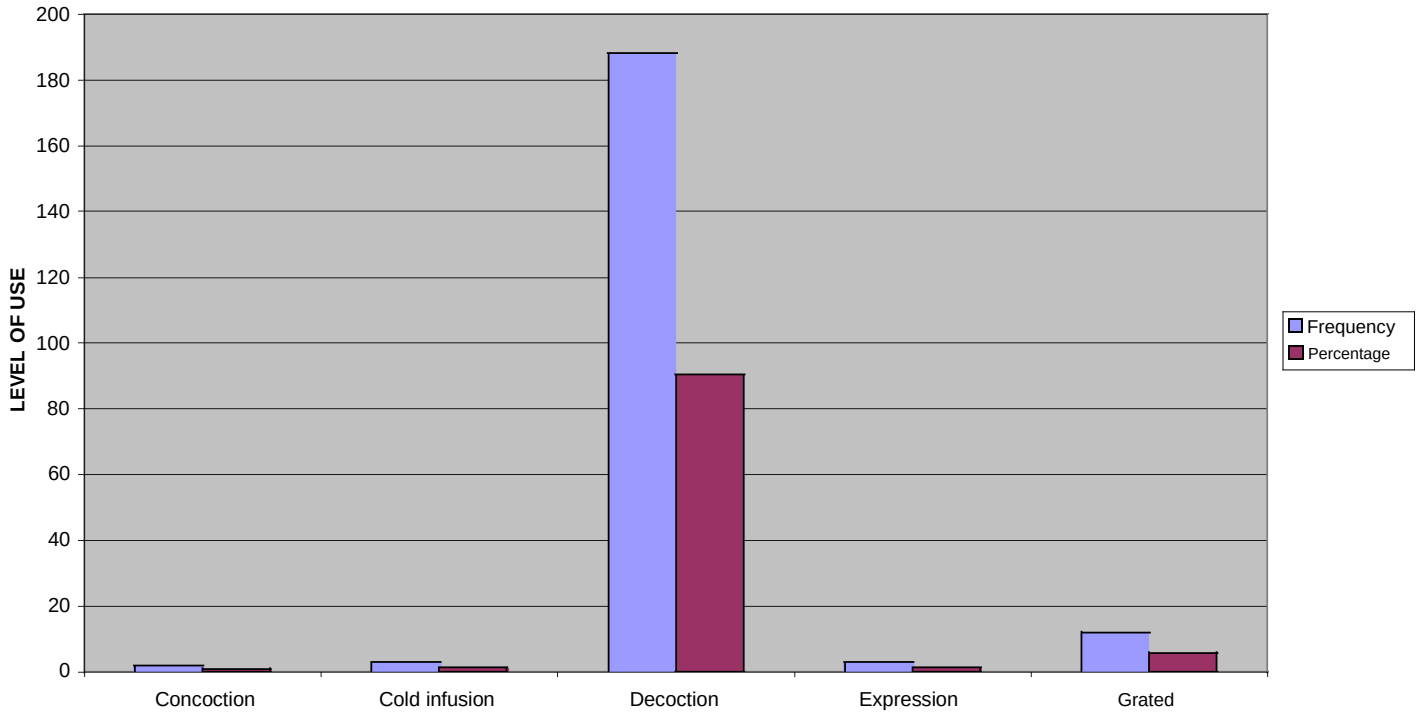


**Figure 1.** Mode of preparation.

Responses from the informants showed that herbal preparation was up-held only by the herb sellers. Other respondents such as, traders and civil servants showed little or no response. This was due to lack of interest from the community people as a result of easy access to modern drugs and health education.

The study revealed that decoction was the mostly employed method of preparation in the study areas for viral treatment. The results of this study also showed that the use of concoction was not a common practice for some viral treatment in the areas. Some other viral medicinal plants were only prepared on special prescription. Similar studies among the Kani's tribe in India are said to usually prepare medicines from a combination of several plants as they believed that combinations of several plant parts cure diseases rapidly (Ayyanar and Iguacinathu, 2005).

It was observed from the research that there were some disagreements among the informants on the dosage of certain remedies prescribed. The dosage depended on the informant that prescribed the herbs for medicinal purpose. Lack of standardization and precision on dosage and quality control is seen as one of the main disadvantages of traditional medicine as summarized from various sources (Sofowora, 1982).

Also in the study areas, oral applications took the upper hand, followed by a combination of both external and oral administration, depending of the type of viral infection and informant's prescription. This is similar to a study conducted in Bolivia which shows that, the most frequently used route of administration is oral ingestion (Hunde et al., 2004).

The toxicity of some medicinal plants and their potentials to cause harm were a common complaint among those who would like traditional medicine to be standardized. It is commonly believed that traditional

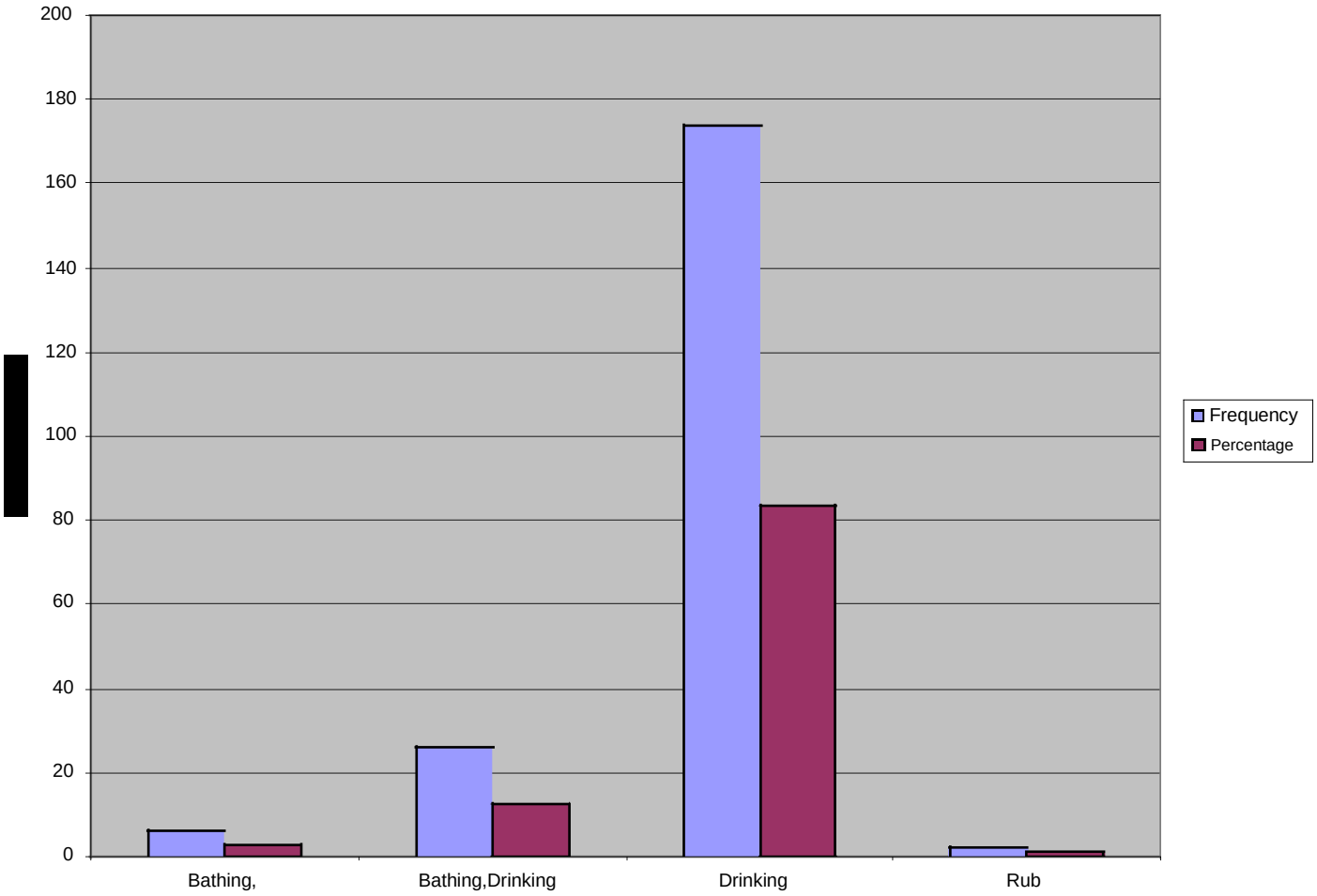


**Figure 2.** Mode of administration.

**Table 6.** Preference for the use of herbs or modern drugs.

| Parameters | Frequency | Percentage |
|---|---|---|
| Combination of herbs and modern drug is more effective and gives better result | 85 | 40.87 |
| Herbal preparation is very credible and effective because it has been used for time immemorial | 64 | 30.77 |
| Modern drug is faster acting than herbs and has definite quantity to be used | 18 | 8.65 |
| Herbs used alone to prevent side effects | 65 | 31.25 |
| | 208 | 100.00 |

**Table 7.** Precautions for the use of herbal recipe.

| Parameters | Frequency | Percentage |
|---|---|---|
| Use before meal | 13 | 6.25 |
| Use after meal | 10 | 4.81 |
| Specified dose should be used | 7 | 3.37 |
| Preparation should be cooked before use | 53 | 25.48 |
| Plants should be washed before taken them | 44 | 21.15 |
| Drugs and herbs should not be used at the same time | 19 | 9.13 |
| None | 62 | 29.81 |
| | 208 | 100.00 |

**Table 8.** Side effects in the use of herbal recipes.

| Parameters | Frequency | Percentage |
|---|---|---|
| Too much causes vomiting | 55 | 26.44 |
| Excess intake causes stooling | 35 | 16.83 |
| Stomach upset | 15 | 7.21 |
| None | 103 | 49.52 |
| | 208 | 100.00 |

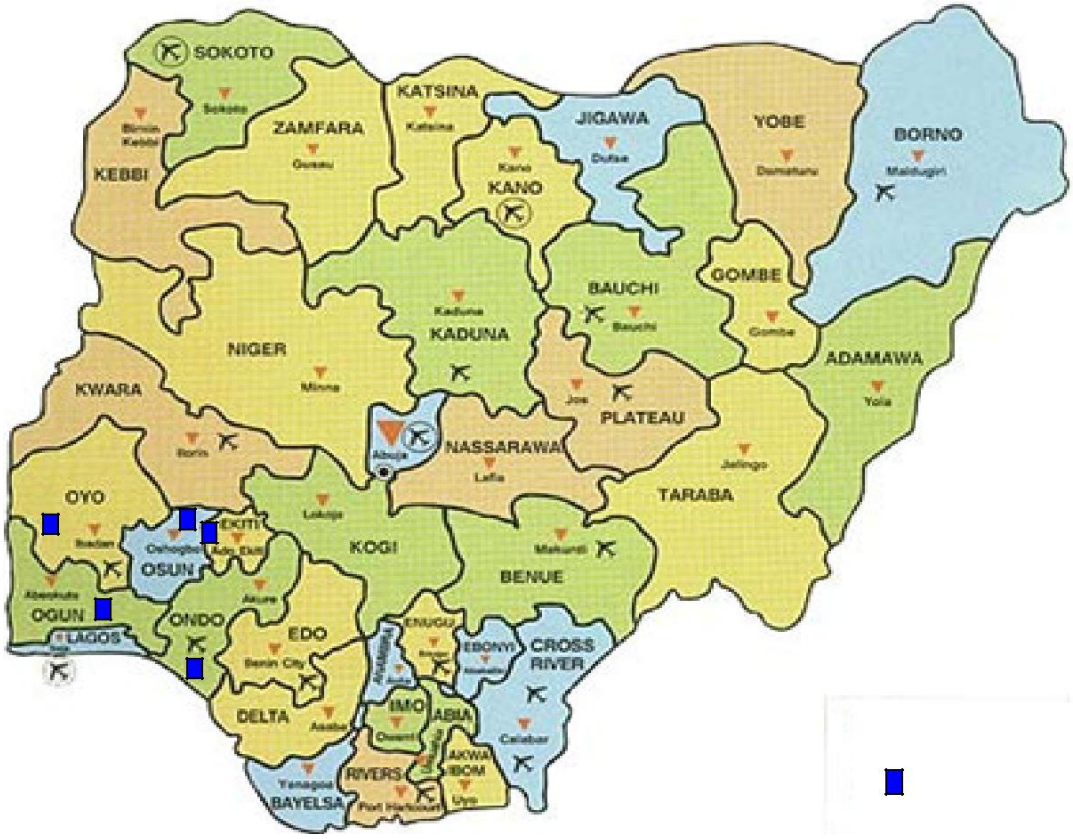


**Figure 3.** Map of Nigeria indicating study area.

practitioners either do not know the strength of their own medicines or do not bother to fix doses to the size or body weight of the patients (Tesfaye and Zemede, 2009).

## Conclusion

The result of the study revealed that there was high diversity of medicinal plants and traditional knowledge about the use, preparation, and application of which is still maintained in the South western Nigeria. However, the knowledge of herbal medicine was held by elders. The decline in the use of plants by the younger generation may gradually lead to the fading away of indigenous knowledge associated with the plants.

## RECOMMENDATIONS

There is a need for validation and standardization of phytomedicines and traditional medical practices so that this sector can be accorded it rightful place in the health care system. Government should provide a global forum for growers, traders, manufacturer of herbal medicine and professionals in the field of traditional and alternative therapies to share knowledge, experiences and ideas. Scientists, therefore should rise to get the knowledge from the elders and encourage the herb sellers to register with the government agency and make them available so that herbal medicine could easily be accessible and cheap for the less privileged.

Further research should be carried out to confirm the

efficacy of some of the most commonly used anti-viral herbs against bacterial infections.

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