



Ethnobotanical Survey of Some Medicinal Plants used in Ikpoba-Okha Local Government Area, Edo State, Nigeria

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Abstract: Traditional use of plants for medicine has been an agelong practice among different ethnicities of the globe before the advent of modern medicine. A study was conducted among the people of Ikpoba-Okha Local Government Area of Edo State, Nigeria, to find out the ethnomedicinal knowledge of the traditional medical practitioners in the area for the purpose of documenting the available information relating to medicinal plants. Ikpoba-Okha Local Government Area comprise of 73 communities, out of which 32 (44%) communities were selected using stratified random sampling. Ethnobotanical data was collected using closed-end questionnaire, group discussion and guided field walk. A total of 500 questionnaire were administered to 37 local herb sellers, 144 traditional medical practitioner and 318 other local informants. Questionnaires used for the interview was divided into Part A & B; A containing demographic information of respondent and part B contained information on medicinal plant such as plant local name, life form, part of plant used, ailments treated, method of preparation, mode of administration, dosage etc. The data was analyzed using descriptive statistical method. The investigation revealed that 111 plant species belonging to 53 families are used for the prevention and treatment of 80 ailments. 22.64% of the plant species use for medicinal purpose belong to the 'Fabaceae' family. The most common of traditional medicinal preparation and administration methods were decoction and oral administration among others. The study revealed that the most of the traditional medicine knowledge in the area is still strictly held in secrecy, with the older generation being the major practitioners. This greatly puts the knowledge of the medicine plants at risk of being eroded in the near future and therefore requires an urgent need for more documentations.

Keywords: Medicinal; Ailments; Communities; Administration; Traditional.

INTRODUCTION

The utilization of plants for the prevention and cure of various ailments has a very long historical background, sometimes referred to as traditional medicines or herbal medicines after preparation. Traditional medicinal use dates back to 4,000 years and was the sole medicinal system before the introduction of modern medical system (Okoli *et. al.*, 2007). Medicinal plant is any plant in which some or all of its parts contain compounds of useful drugs (Sofowora *et. al.* 2013). In China, the citizens have kept to the tradition of using plants to prevent and treat diseases

since ancient times, likewise different countries around the world. Traditional medicine is a collection of knowledge, arts and practices based on the ideologies, beliefs and experience indigenous to different culture, whether explainable or not, used in the prevention, diagnosis, improvement or treatment of physical and mental illness (WHO, 1999). There are essential active ingredients present in medicinal plants used for curing diseases and relieving pains. (Okigbo and Mmeka, 2006).

In the remote areas of Nigeria, traditional method of treatment using medicinal plants holds a significant position in their daily livelihood, and have been

passed on from one generation to another (Ezekwesili-Ofili and Okaka, 2019). Although the information and skills of the utilization of medicinal plants is not restricted to traditional healers alone, market women, farmers, hunters, fishermen, business men and woman and other people irrespective of class and profession may have idea about medicinal plant uses (Ezekwesili-Ofili and Okaka, 2019). One of the major challenges faced in improvement in practice of medicinal plants is the scarcity and lack of research, little knowledge on the benefits of these medicinal plants to the people which lead to neglect or underutilization (Williams and Haq, 2002). The objective of this study was to access the ethnomedicinal knowledge among the inhabitants of Ikpoba-Okha local government area in Edo state in order to have an inventory of medicinal plants used in the locality.

MATERIALS AND METHODS

Description of Study Area

The study area Ikpoba-Okha local government area is one of the eighteen (18) local government areas of Edo state, Nigeria (Figure 1). It is made up of seventy-three (73) communities including camps, with a population of 372,080 people (National Population Census, 2006). The local government area occupies an approximate area of 855km² with population density of 622 persons per Km². The local government is divided into two (2) geographical parts, the urban areas and the rural areas. The Urban areas has six quarters, while the rural area has sixty-seven communities and camps (Department of Planning, Ikpoba-Okha Local Government Council).

Sampling Procedures

Thirty-two (32) communities from the seventy-three (73) communities in Ikpoba-Okha local government area were selected using stratified random sampling method. These thirty-two communities make up 44% of the total communities in the local government area, the communities selected are; Aduwawa/Evbomodu, Oregbeni, Ikhueniro, Abiala, Saint savior, Avbiana, Goretti, Okabere, Ulegun, Ukhiri N'Okhua, Ogua, Idogbo, Uhie, Obayantor, Iyanomo, Ekosa, Evbiakagba, Obe, Evbuomoma, Ogheghe, Ikpe, Giza camp, Igogogin camp, Ezuko camp, Court camp, Iguikpe, Odogun camp, Obagie/Urhobo camp, Kolokolo, Ologbo, Emwinyomwanru and Obagie N'Evbosa communities.

Data Collection and Analysis

Ethnobotanical data were collected using closed-end questionnaire, group discussion, and personal communication. The questionnaire was divided into two parts (Part A and B), part A containing the socio-demographic information of the respondent and part B containing information about the medicinal plants. The target respondents of the study were herbalist/ traditional medical practitioners, local herb seller, traditional midwives, farmers, hunters, fishermen and others who are inhabitants of the study area/communities. During the field

walk, specimens of plants were collected for proper identification. A total of 500 copies of questionnaire were distributed across the communities based on the population percentage of the community. Questionnaires were administered to randomly selected respondents. Information obtained from the data collection were recorded accordingly. All questionnaire administered were retrieved, collated, sorted and analyzed using descriptive statistics including bar charts and histograms.

RESULTS

Demography of the Respondents in Ikpoba Okha LGA

A total of 500 people were interviewed during the study period, 318 were males (63.6%) and 182 females (36.4%). Majority (52%) of the respondents were above the age of 60 years, followed by 30years - 60years (47.6%) and those below 30years (0.4%). Most information was collected from respondents of age 60 years and above. The local respondents were traditional healers/herbalist 144 (38.8%), herb sellers 37 (7.4%), with farmers, hunters, traders, community members making the highest percentage 63.8% (319). Most of them were uneducated as 232 (46.4%) had no formal education, primary education made up 129 (25.8%), Secondary education amounted to 118 (23.6%) and tertiary education 21 (4.2%).

Taxonomic Classification of the Medicinal Species

The study (Table 1) revealed traditional use of one hundred and eleven (111) plant species distributed among fifty three (53) families for the treatment of eighty (80) ailments, the plants are distributed across the families of Fabaceae (12 species); Malvaceae (8 species); Annonaceae and Euphorbaceae (6 species each); Solanaceae (5 species); Asteraceae, Apocynaceae and Cucurbitaceae (4 species each); Anarcadiaceae and Poaceae (3 species each), while the other 10 species were indicated by one or two species (Table 1).

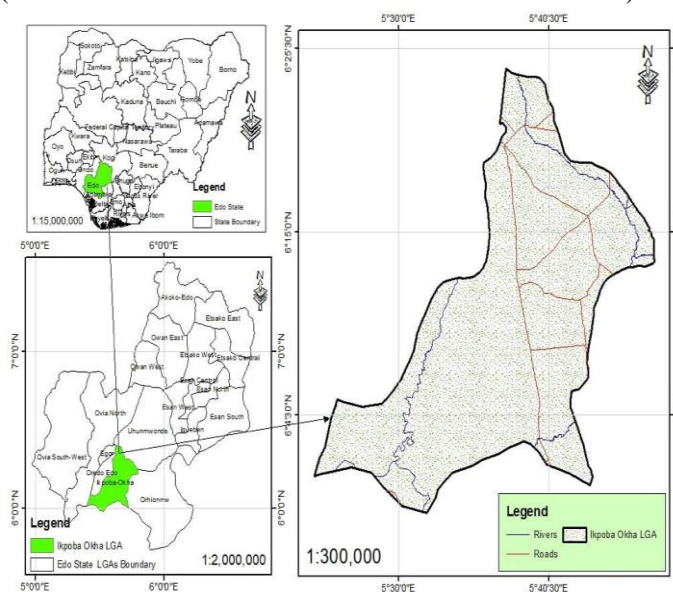


Figure 1: Map of Ikpoba Okha Local Government Area

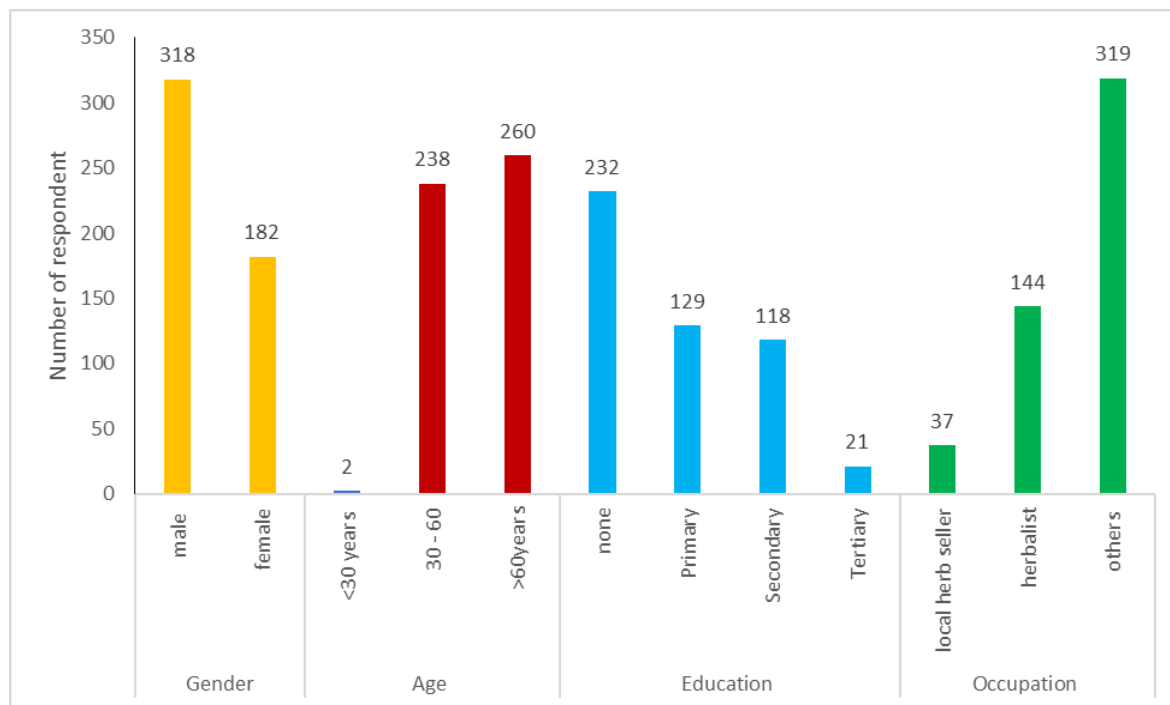


Figure 2: Socio-Demography Information of the respondents

Table 1: Ethnomedicinal plants obtained from the respondents in Ikpoba-Okha LGA

Botanical Name	Local Name	Family	Life Form	Ailment(S) Treated	Part Used	Mode Of Preparation & Administration
<i>Aloe vera</i> (L) Burm F.	Aloe vera	Xanthorrhoeaceae	Shrub	Appendix	Leaves	Squeeze to get juice, add ginger and garlic, 1 teaspoon 3X daily
<i>Anarcadium occidentale</i> L.	Ecashew (B)	Anarcadiaceae	Tree	Diabetes Fever	Leaves Leaves	Boil leaves for oral use. Boil the leaves for drinking
<i>Azadirachta indica</i> A.Juss	Dogoyaro (Y)	Meliaceae	Tree	Fever Hepatitis B	Leaves Leaves	Boil leaves for drinking Squeeze leaves with bitter leave and bitter kola for drinking
<i>Ananas comosus</i> (L) Merr.	Edin-ebo (B)	Bromeliaceae	Herb	Arthritis	Leaves	Boil for drinking
<i>Ageratum conyzoides</i> L.(H)	Ebighedore (B)	Asteraceae	Herb	Swellings Toothache Stomach ulcer	Leaves Leaves Leaves	Grind the leaves with native soap and pepper and apply. Grind, add gin and apply to tooth with cotton wool Boil the leaves for drinking

				Anti-poison Dysentery Eye infection Internal heat	Leaves Leaves Leaves Leaves	Chew some of the leaves with 7 alligator pepper before going to public places. Squeeze leaves and drink the juice. Squeeze out juice from the leaves and use as Eye drops. Squeeze leaves with water for drinking for treatment of internal heat usually called ‘Eda and owowo’.
<i>Amphimas pterocarpoides</i> Harms.	Erhuruesi (B)	Papilionoideae	Tree	Miscarriage	Root	Soak in water for drinking. Peel off the bark of root, grind with 7 alligator pepper, make incision round waist of the pregnant woman and apply.
<i>Allium sativum</i> L.	Garlic	Amaryllidaceae	Herb	High cholesterol	Bark	Pound to get juice for drinking or oral consumption of bulb.
<i>Abrus precatorius</i> L.	Ikpanro-eghodin (B)	Fabaceae	Vine	Insomnia Stomach ulcer	Leaves Leaves	Squeeze leaves and drink liquid Boil leaves for drinking
<i>Allanblankia floribunda</i> Oliv.	Ize-eni (B)	Clusiaceae	Tree	Chest pain	Bark	Boil with <i>xylopia aethiopica</i> (unien) for drinking.
<i>Anthonotha macrophylla</i> P. Beauv.	Ogha-aba (B)	Fabaceae	Shrub	Snake/scorpion bite	Leaves	Chew the leaves with <i>Phyllanthus aboreas</i> (ebe-eyekebezukpe) and also apply.
<i>Anchomanes difformis</i> (Blume) Engl. Pallidus	Olikhoro (B)	Araceae	Herb	Elephantiasis and Rheumatism	Root	Pound, add urine from children or water in the case of rheumatism for rubbing the parts affected.
<i>Anthocleista vogelli</i> Panch.	Ohimwinghughu (B)	Gertianaceae	Tree	Fever Spleen inflammation Excess fat Anti-poison Asthma	Bark Bark Leaves Root Bark	Boil for drinking. Pound with <i>Piper guineense</i> , put in hot gin for drinking. Cook with a pinch of potash for drinking. Boil the roots for drinking. Soak in water for drinking.
<i>Anthocleista djalonensis</i> A. Chev.	Ezenogbogan (B)	Gertianaceae	Tree	STD & UTI	Bark	Pound and put in alcoholic gin.
<i>Annona muricata</i> L.	Soursop	Annonaceae	Tree	HBP	Leaves	Boil the leaves with water for drinking

				Diabetes Breast cancer	Leaves Bark, Leaves	Boil the leaves with water for drinking Boil with water for drinking.
<i>Alstonia boonei</i> Dc. Wild.	Ukhu (B) Ogiegbukhu (ES)	Apocynaceae	Tree	Mental disorder Fever Dysentery Female infertility Diabetes Stomach ache Snake bite STD & UTI	Leaves Bark, Leaves Bark, Leaves Leaves Leaves Bark Bark Bark	Boil with <i>Piper guineense</i> for drinking Put in alcoholic gin or boil for drinking. Boil for drinking. Boil for drinking first thing in the morning. Squeeze the leaves for drinking. Put in alcoholic gin for drinking. Boil for drinking. Add <i>Xylopi aethiopica</i> , lime and put in alcoholic gin for drinking.
<i>Alchornea cordifolia</i> (Schuum. & Thonn.)	Uwowen (B)	Euphorbiaceae	Shrub	Prostate cancer Hernia Anemia	Leaves Leaves Leaves	Boil for drinking. Boil for drinking. Sun dry leaves, grind into powder and take as tea to reduce frequent anemic crisis.
<i>Boerhavia diffusa</i> L. nom. cons.	Afiyekegbotor (ES)	Nyctaginaceae	Herb	Miscarriage Erectile dysfunction Arthritis Kidney disease Liver disease Herat failure	Leaves Leaves Leaves Leaves Leaves Leaves	Boil with a pinch of salt for drinking. Boil for drinking. Grind into paste and apply on affected part. Boil for drinking. Boil for drinking. Squeeze leaves for drinking
<i>Begonia epiphyta</i> Hook. f.	Emunomueran (B)	Bengoniaceae	Shrub	Whitlow Purgative	Leaves Leaves	Grind to form paste and apply. Boil for drinking.
<i>Bryophyllum pinnatum</i> (Lam.) Pers.	Ebirioven (B)	Crassulaceae	Herb	Ear infection HBP Dysentery Sore/skin ulcer Umbilical cord	Leaves Leaves Leaves Leaves Leaves	Heat the leaves on fire to soften, press to get liquid and use as ear drop. Boil for drinking. Heat on fire, squeeze on fire to get juice, add a pinch of salt and drink. Squeeze and apply on the part. Heat on fire, squeeze to get juice and apply on the umbilical cord.

				Cough	Leaves	Heat on fire, squeeze out juice and add pinch of salt for drinking.
<i>Bucholzia coriacea</i> Engl.	Owi (B)	Capparaceae	Tree	Breast cancer Rheumatism	Leaves Bark Bark	Chew the leaves and blow on the part, do not swallow juice. Boil bark with <i>Piper guineense</i> for drinking. Put in alcoholic gin for drinking.
<i>Bambusa vulgaris</i> Schrad. ex. J.C Wendl.	Ukpoko (B)	Poaceae	Tree	Rheumatism	Leaves	Boil for drinking.
<i>Baphia pubescens</i> Hook.	Otua (B)	Fabaceae	Shrub	Miscarriage Rheumatism Spleen inflammation	Leaves Root Leaves	Grind into paste and use for soup for drinking to prevent miscarriage. Put in alcoholic gin for drinking. Chew the leave and blow on the part of the swollen stomach.
<i>Cymbopogon citratus</i> (L.) Spreng.	Ebe-tea (B)	Poaceae	Grass	Arthritis Female infertility Fever	Leaves Leaves Leaves	Grind and put in coconut oil for rubbing. Sun dry, grind into powder and mix in honey for leaking. Boil for drinking.
<i>Carpolobia lutea</i> G. Don	Asuen (B)	Polypolaceae	Shrub	Erectile dysfunction Swollen stomach	Root Root Leaves	Put in alcoholic gin for drinking, a shot glass daily. Burn with a whole alligator pepper and grind to powder for taking. Boil for drinking.
<i>Chromolena odorata</i> (L) King & Robinson	Awolowo (B)	Asteraceae	Shrub	Bleeding wound Stomach ulcer Stomach ache	Leaves Leaves Leaves	Squeeze and apply juice on the part to stop bleeding. Squeeze leaves with water and add pure honey for drinking. Squeeze leaves to get juice and drink.
<i>Citrus aurantifolia</i> (Christm) Swingle	Alimo N' giere (B)	Rutaceae	Shrub	Mouth odor Toothache Cold & Nasal congestion	Leaves Leaves Leaves	Boil with water, use to gaggle mouth twice daily, do not swallow. Put in hot drink, use to gaggle mouth, do not swallow. Boil and pour in bowl, cover with wrapper and inhale.
<i>Croton gratissimus</i>	Ebe-ugbazen (B)	Euphorbiaceae	Shrub	Anti-poison	Root	Put in gin, take a shot

(Burch.)	Azentinyan (B)					twice daily to neutralize the effect of the poison.
<i>Curcuma longa</i> L.	Agio (B)	Zingiberaceae	Herb	STD's & UTI's Body pains	Rhiz. Rhiz.	Crush with ginger and put in water for drinking. Sun dry and grind into powder to be taken as tea or boil for drinking.
<i>Cocos nucifera</i> L.	Ivin-ebo (B)	Arecaceae	Tree	Appendix	Fruit	Remove bark, put a whole alligator pepper into the edible fruit and burn into ash and grind into powder to be taking.
<i>Citullus colocynthis</i> (L.) Schrad	Bara (Y)	Cucurbitaceae	Vine	Ovarian cyst	Fruit	Cut into pieces, soak in water for 3days and start drinking.
<i>Calotropis procera</i> (Aiton) W.T Aiton	Ewe-bombom (Y)	Apocynaceae	Shrub	Typhoid fever Skin ulcer Hernia	Root Fruit Fruit	Boil for drinking. Pound the fruit with shear butter and use to rap the part for 3days, untie after 3 days and reapply. Cut into piece, add negro pepper and alligator pepper, put in gin for drinking.
<i>Cassia tora</i> L.	Ihemwen-ibieka (B)	Fabaceae	Shrub	Cough Stomach ulcer Convulsion Eczema/skin disease	Leaves Leaves Leaves Leaves	Grind and mix with palm kernel oil for leaking. Boil with water, add a pinch of salt for drinking. Grind and mix in palm kernel oil to rub the child's body. Grind and apply on affected part.
<i>Cola accuminata</i> (P. Beaur) Schott & Endl	Evbee (B)	Malvaceae	Tree	Female infertility	Bark	Boil for drinking.
<i>Ceiba pentandra</i> (L) Gaertn	Okha (B)	Malvaceae	Tree	Kidney disease Rheumatism Whitlow	Bark Bark Bark	Boil for drinking. Pound with <i>Piper guineense</i> and put in gin for drinking. Grind into paste and apply.
<i>Chrystophyllum albidum</i>	Otien (B)	Sapotaceae	Tree	Fever Food poison	Bark Root	Boil for drinking. Soak in water for drinking.

<i>Carica papaya</i> L.	Uhoho (B)	Caricaceae	Tree	Appendix STD & UTI Erectile dysfunction Fever Asthma Stomach ulcer	Seed Root Root Leaves Leaves Fruit	Burn all seeds of a whole fruit without one falling off, grind into powder to be taking. Boil for drinking. Put in gin for drinking. Boil for drinking. Burn with whole alligator pepper, grind to powder and mix in palm kernel oil for leaking. Put one whole alligator inside the pawpaw and burn to ashes, grind into powder to be taking with water. Also cut unripe fruit into pieces, soak in water for 3days and start drinking.
<i>Ciplukan (Physalis angulate)</i> L.	Posi-posi (ES)	Solanaceae	Herb	Diabetes Skin disease Lungs disease Rheumatism	Whole Leaves Leaves Leaves	Boil for drinking. Squeeze to get juice and apply on affected part. Boil for drinking. Pound with turmeric for drinking
<i>Costus afer</i> Ker. Grawl.	Ukhueroha (B)	Costaceae	Herb	Strength loss	Whole	Pound with native chalk, add a pinch of salt, mold into morsel, sun dry to be eating.
<i>Dennettia tripetata</i> Baker f.	Ako (B)	Annonaceae	Tree	Fever	Leaves	Boil for drinking.
<i>Datura metel</i> L.	Arhamuhen (ES)	Solanaceae	Shrub	HBP	Leaves	Boil for drinking, half glass daily.
<i>Distemonathus benthamianus</i> Baill.	Ayanran (B)	Ceasalphinoideae	Tree	Food poison Blood tonic	Bark Bark	Sun dry and mill into powdery form and mix with honey for licking. Boil and taken by pregnant women to boast blood level.
<i>Dissotis rotundifolia</i> (Sm.) Triana	Ebe-afor (B)	Melastromataceae	Herb	Rashes	Leaves	Grind and mix with native chalk and apply.
<i>Dacryodes edulis</i> (G. Don) H.J Lam	Ohun (B)	Burseraceae	Tree	HBP Rheumatism Swollen legs	Bark Bark Bark	Boil for drinking. Pound with <i>Piper guineense</i> and put in alcoholic gin for drinking. Pound and put in water for rubbing.
<i>Erythrina senegalensis</i> A. Dc.	Eranigbonyakehi (B)	Faboideae	Shrub	Cough	Bark	Soak in water for drinking.
<i>Euphobia hirta</i> L.	Ebe-azigban (B)	Euphorbiaceae	Herb	Asthma	Leaves	Grind to form paste, add

				Thorn removal	Leaves	locally prepared locust beans (evbarie) and mix in water for drinking.
				Stomach ache	Leaves	Squeeze to get juice, drop on the spot of injury to extract the thorns.
				Dandruff	Leaves	Grind, add salt, pepper and lime juice to drink.
						Grind and mix in coconut oil and apply.
<i>Enantia chlorantha</i> Oliv.	Erhenbavbogo (B)	Annonaceae	Tree	Malaria fever	Bark	Put in gin or boil for drinking
<i>Euadenia tridoliolata</i> (Schum & Thonn) Oliv.	Obo-hienhor (B)	Capparidaceae	Shrub	Ear pain	Leaves	Heat on fire, squeeze to extract liquid and use as ear drop.
				Rheumatism	Leaves	Chew and blow on part, do not swallow the juice.
<i>Elaeis guinensis</i> Jasq.	Udin (B)	Arecaceae	Tree	Miscarriage	Roots, leaves	Boil for drinking to prevent miscarriage.
				Stomach ulcer	Bark	Boil for drinking.
<i>Ficus exasperata</i> Vahl.	Amienmen (B)	Moraceae	Tree	STD & UTI	Leaves	Squeeze leave and allow to ferment in palm wine for drinking.
				Spleen inflammation	Bark, Leaves	Boil for drinking.
				HBP	Leaves	Squeeze leaves to extract juice and drink, a shot glass should be taken at most 3X daily. Frequent check of the blood pressure level should be done while using this medicine.
				Ringworm	Leaves	Squeeze leaves and apply on affected part.
				Tuberculosis	Leaves	Burn leaves, grind to powder and mix in palm oil for leaking.
				Vomiting	Leaves	Grind with crayfish and pepper to make soup.
<i>Gossypium aboreum</i> L.	Ebe-olulu (B)	Malvaceae	Shrub	Vaginal discharge	Leaves	Put in alcoholic gin with lime to drink.
				Ovarian cyst	Leaves	Boil for drinking to shrink the cyst.
				Fever	Leaves	Squeeze the leaves in water for drinking.
				Dysentery	Leaves	Put in alcoholic gin for drinking.
<i>Garcina cola</i> Herkel.	Edun (B)	Clusiaceae	Tree	Cough	Fruit	Burn to ash, grind to powder, and mix in palm oil or honey for leaking.

				Asthma	Root	Put in bottle and add water or 7-up soft drink.
<i>Glyphaea brevis</i> (Spreng) Monach.	Uweriontan (B)	Malvaceae	Shrub	Stomach ulcer Dysentery	Leaves Leaves	Squeeze and mix with native chalk for drinking. Squeeze to get juice and drink.
<i>Glycine max</i> (L) Merr.	Soya beans	Fabaceae	Legume	Measles	Leaves	Boil with 3 negro pepper for drinking and bathing.
<i>Hylodendron gabunense</i> Taub.	Akon-esi (B)	Fabaceae	Tree	Toothache	Root	Grind to form paste and apply on the tooth.
<i>Heliotropium indicum</i> L.	Ukpayamwen N'ohkua (B)	Boraginaceae	Herb	Heart disease Skin diseases	Leaves Leaves	Sun dry, grind to powder and be taking as tea. Squeeze and rub juice on affected part.
<i>Icacina trichantha</i> Oliv.	Osan (B)	Icacinaceae	Tree	Rheumatism	Root	Pound the root tuber and mix with palm kernel oil and apply.
<i>Irvingia gabonensis</i> (Aubry-Lecomte ex. O'Rorke) Baill.	Ogui (B)	Irvingiaceae	Tree	Hernia Spleen inflammation	Bark Bark	Put in alcoholic gin for drinking. Put in alcoholic for drinking.
<i>Jathropa curcas</i> L.	Omohuebo (B)	Euphorbiaceae	Shrub	Anti-poison Fibroid Snake bite Ear pain	Root Root Leaves Leaves	Put in alcoholic gin. Boil with ginger for drinking. Grind into paste and apply on surface. Squeeze leaves and use juice as ear drop.
<i>Khaya ivorensis</i> (Desr.) A. Juss	Ogun-agho (B)	Meliaceae	Tree	Body pain Rheumatism Reduce fat	Bark Bark Bark	Put in alcoholic gin. Boil with negro pepper for drinking or put in alcoholic gin. Boil for drinking.
<i>Kigelia africana</i> (Lam) Benth	Ugbongbon (B)	Bignoniaceae	Tree	Fibroid Skin disease	Root Root, Leaves	Boil for drinking. Boil in water for drinking and bathing
<i>Luffa cylindrica</i> (Linn.) M.J Roem.	Ebe-iyonsa (B)	Cucurbitaceae	Liana	Fever HBP Anemia	Fruit Leaves Leaves	Boil for drinking. Boil for drinking. Squeeze to get use for drinking.
<i>Lecaniodiscus cupanioides</i> Planch ex. Benth	Utantan (B)	Sapindaceae	Tree	Erectile dysfunction Ante-natal	Root Root	Burn to ashes and take with water. Burn with whole alligator pepper.
<i>Microdesmis puberula</i> Hook F. ex. Planch	Akpata (B)	Pandaceae	Shrub	Erectile dysfunction	Root	Put in hot gin for drinking.
<i>Mimosa pudica</i> L.	Awuyore (B)	Fabaceae	Shrub	Asthma Fibroid	Whole Whole	Pound to get juice for drinking. Boil for drinking.
<i>Manihot esculenta</i>	Igari (B)	Euphorbiaceae	Shrub	Scorpion bite	Leaves	Chew the leaves and

Crantz.						swallow juice.
<i>Monodera myristica</i> (Gaertn.) Dunal	Ebenoye-oba (B)	Annonaceae	Tree	Post-natal	Fruit	Grind into paste as spice for soup for nursing mothers.
<i>Mormodica charantia</i> L.	Ebe-isughu (B)	Cucurbitaceae		Dysentery Fever Whitlow Ear pain	Leaves Leaves Leaves	Squeeze leaves to get juice for drinking. Boil for drinking. Grind to form paste and apply. Squeeze leave to get juice, use as ear drop.
<i>Myrianthus arboreus</i> P. Beur.	Iyeghe (B)	Urticaceae	Shrub	Snake bite	Root	Scrape the bark the root, grind to form paste and apply.
<i>Moringa oleifera</i> Lam.	Moringa	Moringaceae	Tree	Hot stomach HBP Fever	Leaves Seeds, Leaves Leaves	Squeeze leaves to get juice for drinking to prevent hot stomach that causes miscarriage. Boil for drinking. Boil with Lipton tea for drinking.
<i>Polyalthia longifolia</i> (Sonn.) Thwaites	Masquerade tree	Annonaceae	Tree	Fever	Leaves	Boil for drinking.
<i>Mangnifera indica</i> L.	Mango	Anarcadiaceae	Tree	Rheumatism Asthma Pile Fever	Bark Seed Seed Leaves	Pound with <i>Piper guineense</i> and put in alcoholic gin for drinking or boil with onion for drinking. Sun dry and ground into powder to be taken as tea. Sun dry, grind into powder and mix with honey. Boil with <i>A. indica</i> for drinking.
<i>Musanga cecropioides</i> R. Br.	Owohen (B)	Urticaceaa	Tree	Menstrual cramps HBP Elephantiasis	Bark Leaves Flower	Boil for drinking few days before the menstrual period. Boil for drinking. Burn with native soap for rubbing.
<i>Musa paradisiaca</i> L.	Oghede (B)	Musaceae	Tree	Stretch mark Stomach ulcer Hot stomach	Fruit Fruit Fruit	Sun dry the bark of the unripe plantain, grind into powder and mix with cocoa butter and apply on affected part. Cut the unripe fruit into pieces and soak in water for 3days before drinking. Pound the fruit with chalk and little salt, mold

						into morsels and sundry to be eating.
<i>Nephthytis constricta</i> N.E Br	Ebe-ewere (B)	Araceae	Herb	STD & UTI	Leaves	Squeeze to extract juice for drinking.
<i>Nauclea diderrichii</i> (De. Wild.) Merr.	Ovbiakhe (B)	Rubiaceae	Tree	Fever Hot stomach	Bark Leaves	Boil for drinking. Boil for drinking.
<i>Newbouldia laevis</i> Seem.	Ikhimwin (B)	Bignoniaceae	Tree	Metrorrhagia Chest pain Waist pain Toothache Female infertility Ear infection Erectile dysfunction Elephantiasis Eye infection	Leaves Bark Root Root Root, Leaves Leaves Root Leaves Leaves	Burn with alligator pepper, grind to powder and mix in palm oil or lime orange to be drinking. Boil for drinking. Scrape the bark of the root collar, burn with snake bone. Mark incisions round the waist with razor blade and apply the medication. Peel off the bark of root, grind to form paste and apply on the affected tooth. Boil for drinking Squeeze juice from leaves and use as ear drop. Cut the tap root into pieces and put in alcoholic gin for drinking. Shake the tree and catch 7 leaves the leaves that did not touch the ground, grind the leaves with camphor and wood dust, mix in urine, kerosene or water to be rubbing the part affected. Squeeze leaves to get juice and use as eye drop.
<i>Nicotina tobaccum</i> L.	Itaba-egbogho (B)	Solanaceae	Herb	Convulsion Diabetes	Leaves Leaves	Squeeze to get juice and rub on the Childs body. Put in alcoholic gin for drinking.
<i>Ocimum gratissimum</i> L.	Ebe-amwonkho (B)	Lamiaceae	Herb	Stomach ache	Leaves	Squeeze to get juice and drink or grind into paste for soup.
<i>Piptadeniastrum africana</i> (Hook.f.) Brenan	Ekhimwin (B)	Fabaceae	Tree	Sore throat	Bark	Chew and swallow juice.
<i>Phyllanthus amarus</i> L.	Iyekebezugpe (B)	Phyllanthaceae	Herb	Pile Hiccups	Whole Leaves	Boil for drinking. Grind into paste with 7

				Fever	Whole	alligator seeds and put in coconut oil for licking.
				Hepatitis B STD & UTI	Whole Whole	Boil with <i>A. indica</i> for drinking. Boil for drinking. Pound with <i>piper guineense</i> (oziza) and negro pepper, put in alcoholic gin.
				Dysentery Kidney stone	Leaves Whole	Grind into paste and lick. Sun dry, grind into powder to be taken as tea.
				Quick delivery	Whole	Pound and put in alcoholic gin, take a shot while in labor.
<i>Pysidium guajava</i> L.	Guava (B)	Myrtaceae	Tree	Diarrhea	Leaves	Boil for drinking or chew the flush and swallow juice.
				Low sperm count	Leaves	Squeeze to get juice for drinking or boil with <i>Phyllanthus amarus</i> for drinking.
				Ovarian cyst	Leaves	Boil with soursop leaves for drinking.
				Breast pain	Root, Leaves	Boil for drinking.
<i>Plukenetia conophora</i> Mull. Arg.	Ohkue (B)	Euphorbiaceae	Vine	Snake bite	Fruit, Leaves	Boil for drinking.
<i>Picralima nitida</i> (Stapf.) T. Durand & H. Durand	Osu (B)	Apocynaceae	Tree	Fever	Bark, Fruit, Leaves	Boil with lime for drinking.
				Diabetes	Fruit	Slice into piece and soak in water for drinking or boil with 7 negro pepper for drinking.
				STD & UTI	Bark	Pound with <i>Anthocleista djalensis</i> (ezenogbogan) bark and put in alcoholic gin.
<i>Pentaclethra macrophylla</i> Benth.	Okpagha (B)	Fabaceae	Tree	Spleen inflammation	Fruit	Burn with negro pepper and mix with palm kernel oil for leaking.
				Hernia	Bark	Pound with negro pepper and put in alcoholic gin for drinking.
				Rheumatism	Bark	Pound with <i>Piper guineense</i> (oziza) and put in alcoholic gin.
<i>Pennisetum purpureum</i> Schumach.	Ukhuere-oghodogho (B)	Poaceae	Shrub	Jaundice	Whole	Pound and soak in water with pap water for 3days before drinking.
				Anti-poison	Whole	Pound and boil for

				Heart disease	Whole	drinking. Squeeze to get juice and mix with honey for drinking.
<i>Parkia biglobosa</i> (Jacq). R. Br. ex Don.	Ugbore (B)	Fabaceae	Tree	Eye infection	Seed	Grind into paste for cooking soup.
<i>Pycnanthus angolensis</i> (Welw.) Warb	Umoghan (B)	Myristicaceae	Tree	Toothache	Root	Scrape the root bark, grind into paste and apply.
<i>Persea americana</i> Mill.	Avocado peer	Lauraceae	Tree	Fever Stomach ulcer Asthma	Leaves Seed Seed	Boil for drinking. Sun dry, grind into powder and add to pap. Sun dry, grind into powder to be taken as tea.
<i>Petersianthus macrocarpum</i> (P. Beauv) Libe-Bull. Jard. Bot.	Owewe (B)	Lecythidaceae	Tree	Infertility Cough Diabetes	Bark Bark Bark	Put in alcoholic gin for drinking. Soak in water for drinking. Boil for drinking.
<i>Sarcocephalus latifolius</i> (Smith) Bruce	Aghagbahi (B)	Rubiaceae	Tree	STD & UTI Stomach ulcer Body pain	Root Leaves Bark	Put in alcoholic gin with negro pepper for drinking. Squeeze to get juice and add a pinch of salt for drinking. Pound with <i>Piper guineense</i> and <i>Anthocleista djalensis</i> (ezenogbogan) bark and put in alcoholic gin for drinking.
<i>Sida acuta</i> Burn. F	Ahanmwenevbi, Riequeyotor (B)	Malvaceae	Herb	Miscarriage Cholera Rheumatism Whitlow Low sperm count Stomach ulcer	Whole Whole Root Leaves Whole Whole	Boil for drinking to prevent miscarriage. Squeeze to extract juice, add a pinch of salt and drink. Put in alcoholic gin for drinking. Grind to form paste and apply. Squeeze to get juice for drinking. Pound with native chalk, mix with water for drinking.
<i>Stephania absyninica</i> (Dilon & A. Rich.) Walp.	Ebe-ewuaki (B)	Menispermaceae	Vine	Tooth ache	Leaves	Boil with alum, use to goggle mouth and throw off, do not drink.
<i>Senna alata</i> (L) Roxb.	Aroghamiason	Fabaceae	Shrub	Skin disease	Leaves	Squeeze to get juice and

	(B)			Stomach ulcer Cough STD & UTI Pile Fibroid	Leaves Leaves Leaves Leaves Leaves	apply on affected part. Sun dry, grind into powder for making pap. Grind and mix with palm kernel oil for leaking. Squeeze to get juice and drink. Boil for drinking. Room dry <i>Newbouldia laevis</i> leaves and grind into powder for making tea.
<i>Solanum melanogena</i> L.	Ebe-ekhue (B)	Solanaceae	Shrub	Kidney failure	Leaves	Boil for drinking.
<i>Solanum anguivi</i> Lam.	Ekhue-erimwin (B)	Solanaceae	Herb	Stomach ulcer Boil/swelling	Leaves Leaves	Boil for drinking. Boil for drinking and grind into paste to apply.
<i>Spilanthes filicaulis</i> (Schum & Thonn.) J.CD Adams	Ehiendo-oto (B)	Astaraceae	Herb	Fever Stroke	Whole Whole	Boil for drinking. Pound with <i>Piper guineense</i> (oziza) and put in alcoholic gin for drinking.
<i>Sphenocentrum jollyanum</i> Pierre	Obanabe (B)	Menispermaceae	Shrub	Stomach ache Fever Erectile dysfunction	Root Root, Leaves Leaves	Put in alcoholic gin and take a shot. Boil for drinking. Put in alcoholic gin for drinking.
<i>Spondias mombin</i> L.	Okhikhan (B)	Anarcadiaceae	Tree	Stomach pain Stomach ulcer Swollen legs Eye infection Toothache	Bark Bark Bark Leaves Leaves	Boil with pepper for drinking. Soak in water for drinking. Boil for drinking. Squeeze to get juice and use as eye drop. Squeeze to get juice and use cotton wool to apply on the tooth
<i>Streulia tragacantha</i> Lindl.	Poripo (B)	Malvaceae	Tree	Stomach ache Malaria	Leaves Leaves	Squeeze to get juice and drink. Boil for drinking.
<i>Theobroma cacao</i> L.	Cocoa (B)	Malvaceae	Tree	Blood supplement	Bark	Boil for drinking.
<i>Terminalia catapa</i> L.	Ebolebo (B)	Combretaceae	Tree	Diabetes Leprosy HBP	Leaves Bark, Leaves Bark	Squeeze to get juice for drinking. Pound and soak with water for rubbing and dinking. Boil for drinking.
<i>Tetrapleura tetraptera</i> (Schumach) Taub.	Ighimiakhie (B)	Fabaceae	Tree	Liver disease Epilepsy	Leaves Fruit	Burn with <i>Mimosa pudica</i> (touch me not) and grind to powder to be taking with water.

				Pile	Fruit	Burn, grind to powder and mix in palm kernel oil for licking. Burn, grind to powder, mix with native chalk and take with water.
<i>Trilepisium madagascariense</i> DC.	Ikputu (B)	Moraceae	Tree	Tuberculosis	Latex	Mix with snail water for drinking.
<i>Telfairia occidentalis</i> Hook F.	Ebe-umwenkhen (B)	Cucurbitaceae	Vine	Blood supplement	Leaves	Squeeze leaves to get juice for drinking.
<i>Vernonia amygdalina</i> Del.	Ebe-oriwo (B)	Asteraceae	Shrub	Detoxification Stomach ulcer	Leaves Leaves	Squeeze to get juice for drinking. Squeeze to get juice for drinking.
<i>Vitex doniana</i> Sweet.	Oriri (B)	Lamiaceae	Tree	Hot stomach	Leaves	Boil for dinking.
<i>Wissudala rostrata</i> (Schumach & Thonn)	Ebe-efua (B)	Malvaceae	Shrub	Sperm leakage Miscarriage	Leaves Leaves	Squeeze to get juice for drinking. Pound and mix with native chalk, add a pinch of salt, mold into morsel, sun dry. To be eaten by pregnant women to prevent miscarriage.
<i>Xylopia aethiopica</i> (Durand) A. Rich.	Unien (B)	Annonaceae	Shrub	Post-natal	Seed	Grind into powder for cooking soup for nursing mothers.
<i>Zingiber officinale</i> Roscoe	Ginger	Zingiberaceae	Shrub	Cold	Rhiz.	Boil for drinking.
<i>Zanthoxylum gilleti</i> (De. Wild) Waterman	Okor (B)	Rutaceae	Tree	Rheumatism Fibroid Stroke Asthma Stomach pain	Bark Bark Bark Bark Leaves	Pound with <i>Piper guineense</i> (oziza) and put in gin for drinking. Boil with negro pepper for drinking. Pound with <i>Piper guineense</i> for rubbing affected part and also put some in alcoholic gin for drinking or boil for drinking. Grind into powder and mix in palm kernel oil for leaking. Chew the leaves and swallow juice.

Footnote: Rhiz. (Rhizome); B (Benin); ES (Esan); Y (Yoruba); HBP (High blood pressure); STD (Sexual transmitted diseases); UTI (Urinary tract infections)

Life Form of Medicinal Species Surveyed

The life forms of medicinal species (Figure 3) shows that trees constitute the highest percentage of 47.75%, followed by shrubs (27.3%), herbs (18.02%), vines (6.3%) and grasses (0.90%).

Plant Part Utilized for Traditional Medicine

The result (Figure 4) indicated that leaves had the highest percentage of use plant part of (51.88%), followed by bark (18.77%); root (12.63%); whole plant was 6.4%; fruit (5.80%), seed (2.73%), rhizome (1.02%), flower (0.34%) and latex (0.34%).

Method of Preparation of Traditional Medicinal Plants

The method of preparation of medicinal plants in the area (Figure 5) reveals that decoction with a frequency of 105 (35.8%), juices was 57 (19.5%), tincture was 41 (14.0%), paste, 25 (8.9%), powder, 18 (6.1%), infusion/soaking, 18 (6.1%), oil, 4 (1.4%), use of fresh plant part, 8 (2.7%) and ashing recorded a frequency of 16 (5.5%).

Mode of Administration of Traditional Medicine

The mode of administration (Figure 6) of prepared medicines according to the study were oral 238 (81.23%), external application 36 (12.29%), drops (eye/ear) 9 (3.07%), inhalation 1 (0.34%), bathing 2 (0.68%), tooth drop 4 (1.37%) and gargling 2 (0.68%).

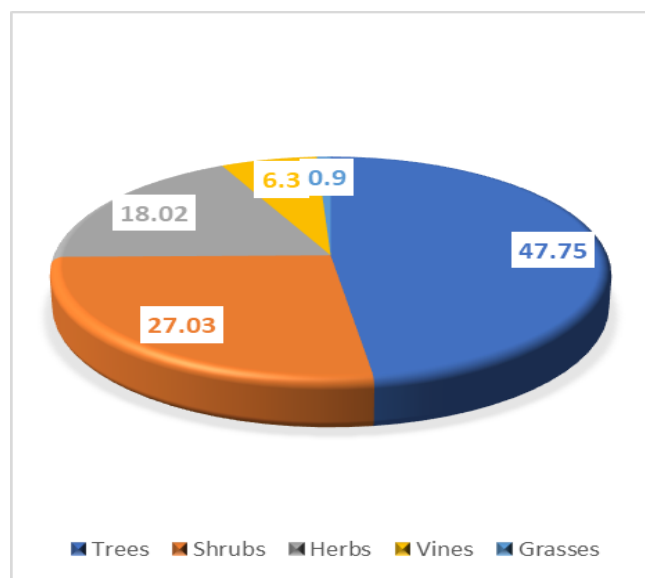


Figure 3: Life forms of plant used for traditional medicine

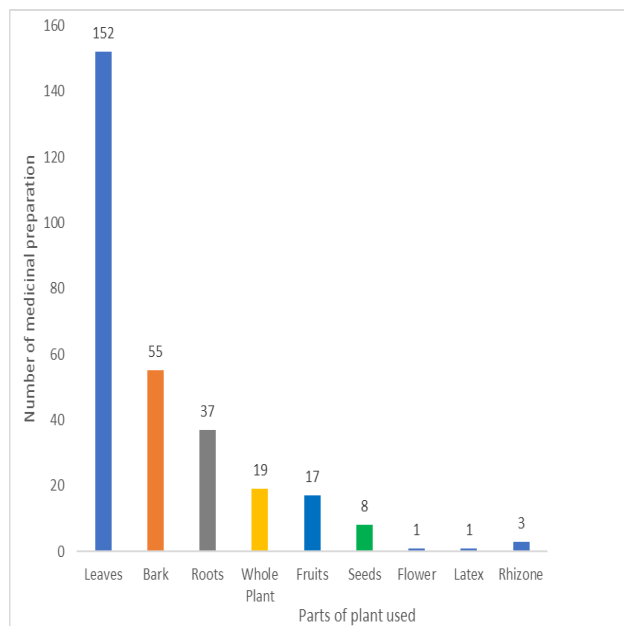


Figure 4: Parts of plant used for traditional medicine preparation

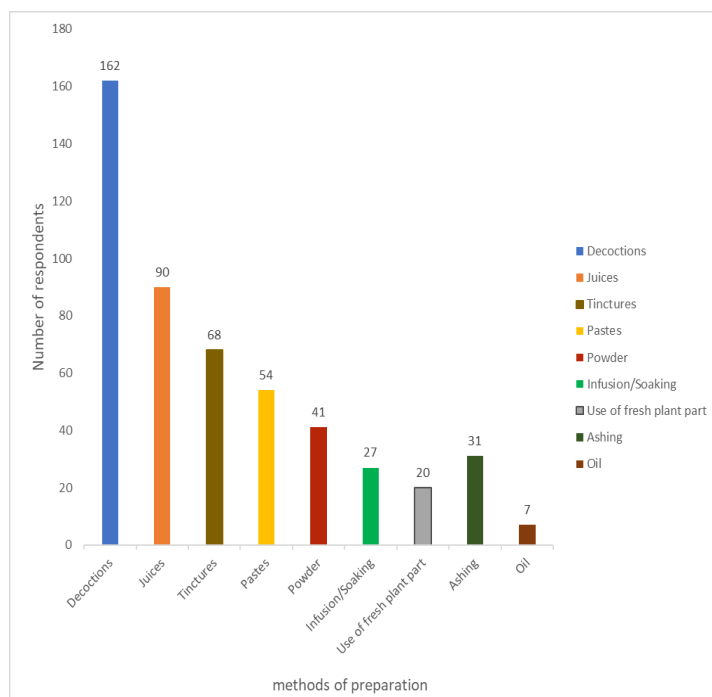


Figure 5: Methods of medicinal plant preparation

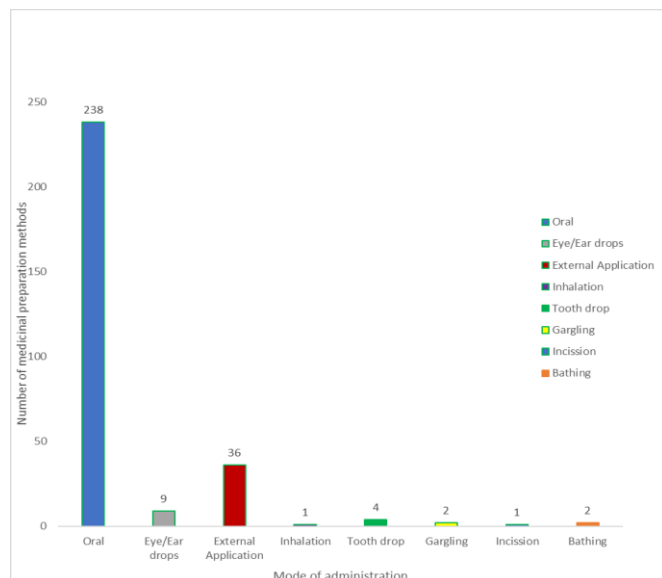


Figure 6: Mode of Administration of traditional medicine

DISCUSSION

The study revealed that the trado-medicinal profession is dominated by males and is basically practiced by the elderly in the area with majority having no formal education (Figure 2). The assessment and characterization of plant species used for the traditional medicine revealed that family Fabaceae had the highest number, the dominance is due to the worldwide distribution of species from the Fabaceae (Marles and Farnsworth, 1995). On the life form of plant species, the trees constitute the highest percentage of medicinal use and grasses have the lowest percentage. The study revealed the use of trees were common among the people as many agreed to collecting raw materials from trees for medicinal use from the wild.

All the parts of the plant are important for the preparation of traditional medicine. The active ingredients used for the treatment of various ailments are embedded in different parts of plants such as leaves, bark, root, flowers, fruits, seed, and latex. Leaves were evidently more preferred for the preparation of traditional medicine. This may be due to all year-round availability as a result of favorable weather condition and reason of ease of collection, handling and processing through grinding, decoction and even tinctures. Similar results have been noted by authors in different part of the world (Faruque and Uddin (2011); Kadir *et. al.* (2013)).

The range of method for preparation of medicinal plants in the area are decoction which was the highest, then tinctures, pastes, powder, infusion/soaking and oil having the lowest percentage. The preferred use of decoction method agrees with the findings of Mahmood *et al.* (2013) and Boudjelal *et al.* (2013). Many persons prefer medicines prepared through decoction because of the ease of intake as it can be mix with tea to reduce bitter or unpleasant taste (Rokaya *et*

al. 2010; Ssegawa and Kasenene, 2007). Users prefer fresh parts of plants for medicinal preparation as compared to dry parts.

The mode of administration of prepared medicines differs depending on the plant used and the ailment treated with such plant, as not all plant species used for traditional medicine preparation are edible (Bernhoft, 2010). The various mode of administering these prepared medicines according to the observation are oral had the highest percentage, followed by external application, and the least percentage were inhalation and bathing. Oral administration was observed to be most used method as compared to other forms of administration, this is in line with the findings of Kadir *et, al.* (2012); Luitel *et, al.* (2014) and Umair *et, al.* (2017). The use of incision and bathing as mode of administering traditional medicines is rapidly fading away the efficacy notwithstanding, Modern civilization and religious beliefs see incision marks and medicinal bath as rituals, archaic and fetish (Umair *et, al.* 2017), particularly in this part of the world. The traditional understanding medicinal plants utilization has been strictly held in secrecy, with limited access by the public and younger generation. Nonetheless most of the practitioners were willing to share some of the knowledge when approached.

CONCLUSION

This study revealed that the elderly men and women of 60 years and above have better knowledge of traditional medicine. The preservation of this knowledge may result from their dependency on medicinal plants in spite of the presence of modern healthcare system. It also revealed high diversity of traditional knowledge and medicinal plants use, preparation and method of application for different ailments, which is very much maintained by the people of the area, including the documentation of these indigenous medicinal knowledge.

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Conflict of Interest

There are no conflicts of interest declared by the authors.

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