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ETHNOBOTANICAL INVESTIGATION OF INDIGENOUS PLANTS USED IN THE MANAGEMENT OF SOME INFANT ILLNESSES IN IBADAN, SOUTH-WESTERN NIGERIA

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Abstract

Background: Ethnobotanical information on indigenous plants used in the management of infant illnesses was sourced from Bode herbal market in Ibadan South-western Nigeria to preserve indigenous knowledge of medicinal plants, and demonstrate the role of traditional medicine as complementary healthcare system.
Methods: Information was gathered using periodic open-ended questionnaire and personal interview. The respondents were randomly selected and consist, fifteen (15) women - herb sellers (of between 25-50, age range) who prescribed workable recipes used in the management of scalp infections, abscess, convulsion and cold shivers. The recipes documented are enumerated and served as groundbreaking preparations in infant diseases' management.
Results: The survey yielded 48 plant species belonging to 31 plant families. The family Fabaceae has the highest number of species followed by Combretaceae, Meliaceae, Euphorbiaceae. The leaves and roots constituted the frequency of plant parts used; while the stem has the least frequency. The methods of preparation purposefully cited were decoction, infusion, and soap; others include steeping in cold water and cream whereas the solvent of choice was water. A particular brand of bottle water was preferable for herbal preparation. Other ingredients cited include soft traditional black soap, sulphur, Shea butter, antimony/black lead ore, and local sponge. Method of administration and dosage involves diluting extracts from infusion or decoction in higher parts of water – to be drunk, as well as for bath.
Conclusion and Application of Results: The study documented indigenous knowledge of plants used in the management of infants' ailments. Results showed that herbal medicines have played and will continue to play significant roles as alternative or complementary healthcare delivery system. There is need for the sensitization of indigenous people on the conservation of plant resources especially in cases where the root (part) features in prescriptions. A regulatory measure for herbal practitioners as well as public enlightenment is recommended to help sustain and increase the awareness in herbal therapy to different audience. Again, the isolation and identification of active compounds as well as evaluative toxicity test could reveal and confirm indigenous claims by assurring safety in administration.

Keywords: Ethnobotanical information, Infant illnesses, Scalp infections, Skin diseases.

Introduction

"Infant" is a Latin derivative of "*infans*" which means "unable to speak" (Johnson and Blasco, 1997). The period of infancy covers the time of birth up to two years. Most paediatric ailments have been associated with witchcraft, sorcery, evil eye and/or the "abiku" mentality especially when they lead to death of the affected infant. The cultural belief in management of some childhood diseases have been investigated by several workers in this field, notable among these are Feyisetan et al. (1997) and Ubomba-Jeswa (1998). According to Gupta and Gupta (2001), two external forces determine the health status of a child: the physical environment and the interconnected systems of customs, habits and superstitious belief. However, every culture has a system of healthcare delivery for infants/children. The inadequacy of western medicine in many areas, especially the less developed countries have led to a renewed interest in the use of herbal remedies for the management of common ailments.

Scalp problems and diseases affect majority of children around the world, especially those within schools and child care centres. These scalp conditions can affect the head from the neck region to the ears, and sometimes up to the forehead (Magalhaes et al., 2011). The symptoms associated with scalp disorders can be unpleasant, especially for school children. Some scalp infections in children include: dandruff, head lice, ringworm, cradle cap, scalp eczema etc. Problems like dandruff can lead to extreme itching and white flakes on the dark uniform, causing the child a lot of embarrassment and ridicule at school. Again, skin diseases are a common cause of morbidity, especially among school children, worldwide. Although skin disease is rarely lethal, it can have a significant impact in terms of treatment cost, days absent from school, and psychological distress (Amin et al., 2011; Clore et al., 1990). Several factors have been reported to be responsible for skin problems in primary school children in different parts of the world (Amin et al., 2011; Ebomoyi, 1994; Kottenhahn et al., 1994; Popescu et al., 1999; Wegner et al., 1994).

Minor forms of convulsion, referred to by mothers as "screaming convulsions", "inward convulsions", etc. may be the first sign of coming danger, in infants as they grow into adulthood (Chown, 1926). An abscess is a tender mass generally surrounded by a colour area from pink to deep red. Abscesses are often easy to feel by touch. The mid-point of an abscess is full of pus and debris; and this condition is common and widespread in infants.

In the recent years, traditional societal approaches have taught us relevant treatment plan for common and persistent illnesses such as malaria, measles, tuberculosis, diarrhoea etc. Many of these diseases are preventable; however, when new episodes break out, herbal products may serve as potent measures to arrest them. Although, orthodox medical practise does not subscribe to the use of herbal products especially with respect to inadequate standardization and dosage profile, yet, traditional societies – rural and/or semi-urban – have testified to the efficacy of these products. Minor ailments like sore throat, fever, cough and diarrhoea can be treated with cheap and readily available traditional medicines without consulting medical practitioners; when a child becomes ill, the parents are often influenced by their knowledge of the ailments (Dawood, 2010). In Nigeria, parents get medical advice highlights from the media (Nigerian dailies), friends, family tradition and other relevant sources including well established government hospitals and health centres. In the case of traditional medicines, herb sellers, traditional medical practitioners, herbalists, child-birth attendants are the most consulted. Information on the use of herbal formulation in the treatment of some of these ailments is usually fragmentary. This study aimed at documenting the indigenous plants used as well as their methods of preparation and administration.

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Materials and Methods

Ethno-botanical survey of plants used in the management of infants (children's) ailments such as: scalp infections, abscess, convulsion, cold shivers was conducted in Bode, Ibadan - South-western Nigeria. Since the sample area is large, a sampling method was used; this is known to be the most suitable means of generating data. Random sampling technique with semi-structured questionnaire was used for data collection. The field study was conducted between June 2013 and September 2013. Fifteen (15) women herb sellers (of age range between 25-50) were interviewed and ethnobotanical information regarding the recipe/plant species, local names of the plants, parts used, method of preparation and administration was systematically documented. Plants implicated were collected, dried and pressed; identified and authenticated using standard reference texts (Gbile, 1989; Akobundu and Agyakwa, 1998). Specimens were deposited in the Forestry Research Institute of Nigeria Herbarium (FHI).

Study Site

The geographical location of the study site is presented in Fig. 1. The basis of selection was that the site is a popular herbal market in Ibadan, with practising women herb sellers. Ibadan lies within latitude 7° 19′ 08″ and 7° 29′ 25″ of the equator and longitude 3° 47′ 50″ and 4° 0′ 22″ at a distance of about 154km North-East of Lagos. The temperature range is between 27^0C and 32^0C with relative humidity of about 75% to 90%. Ibadan metropolis consists of five local Government areas, namely Ibadan North, Southeast, North-West South-East and South West respectively (Famuyide et al., 2011), with a population of 2,550,593 people (NBS, 2006), where majority are traders. Ibadan had been the centre of administration of the old Western Region. The principal inhabitants of the city are the Yoruba people, with its strategic location on the railway line connecting Lagos to Kano. The city is a major center for trade in scent leaf, pepper, tomato, onion, leafy vegetables and spices. The main industries in the area include the processing of agricultural products (Usman et al., 2011).

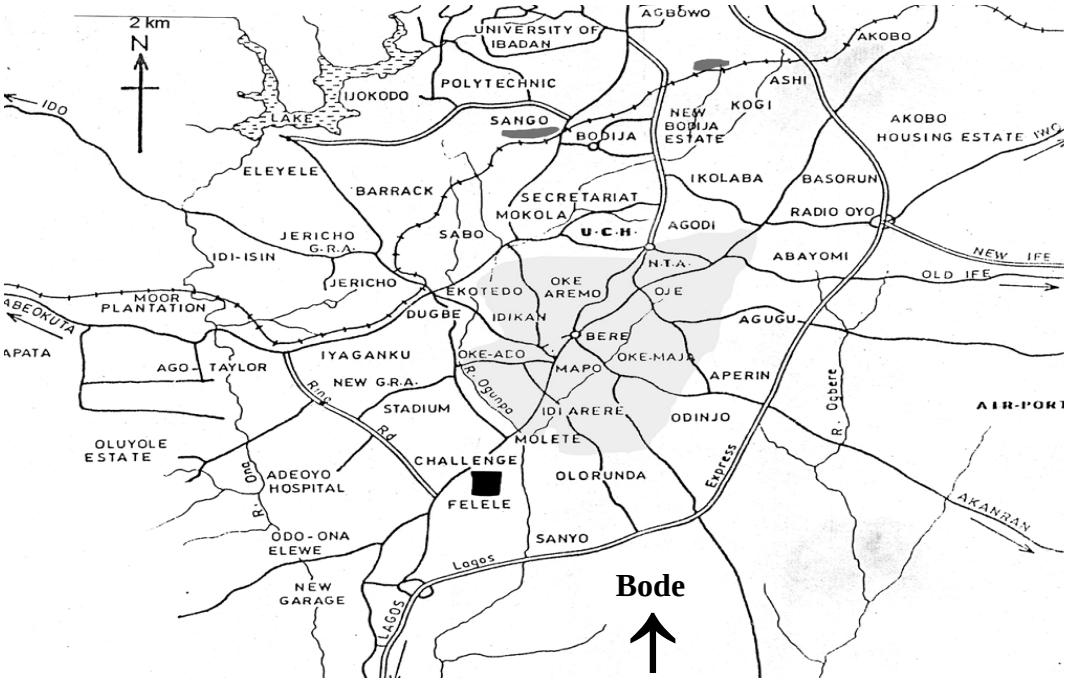

Figure 1: Map of Ibadan, Oyo State (study site in boldface and arrowed). Source: Fourchard (2003).

Data Analysis

Data were analyzed using descriptive statistics with Epi6-info version 6.04 (CDC, Atlanta, GA, USA) (Dean et al., 1994).

Results

The survey yielded 48 plant species belonging to 31 plant families. The family Fabaceae has the highest number of species followed by Combretaceae, Meliaceae, Euphorbiaceae. Amaryllidaceae, Poaceae, Rutaceae, Sapindaceae, Araceae have two (2) species each while other plant families are each represented by a lone species (Fig. 1). The leaves and roots contributed to the frequency of plant parts used while the stem has the least frequency (Fig. 2). The semi-structured questionnaire was administered to randomly select fifteen (15) women (herb sellers) whose age ranged from 25 to 50. Recipes used to manage infant illnesses were systematically documented. Initially, two recipes were obtained from each of the respondents, totalling 30 treatment combinations. This report presents 15 distinct recipes herein referred to as miscellaneous/assorted. The remaining 15 are regarded as more or less duplication of the ones reported here. The opened fruit of *Xylopia aethiopica* featured in virtually all the recipes. This is suggestive of its wide application in the treatment of common ailments. The methods of preparation cited were decoction, infusion and soap, while the solvent of choice was water. The respondents mentioned a particular brand of bottle water which they believe is pure enough for herbal preparation. Other materials/ingredients cited include: soft traditional black soap, sulphur, Shea butter, antimony/black lead ore, and local sponge. Method of administration and dosage involves diluting extracts from infusion or decoction in higher parts of water – to be drunk as well as for bath. Other methods of preparation include steeping in cold water, soap and cream. The recipes are enumerated as follows:

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scalp infections of children (1-9), abscess (10-13), ringworm (12), convulsion (14) and cold shivers (15). Table 1 presents the local names, botanical names, families and plant parts used in the management of these ailments peculiar to children.

Enumeration of recipes

Recipe 1

Plant	Botanical Name	Part(s) Used
Ako igun	*Aristolochia repens*	Root
Abere	*Picralima nitida*	Seed
Alubosa elewe	*Allium ascalonicum*	Leaf
Agbarin pelebe	*Dioclea relexa*	Seed
Parun pupa, funfun	*Oxytenanthera abyssinica*	Root
Kanafuru	*Syzygium aromaticum*	Fruit

Preparation: Infusion (pure water).
Administration: Drinking – once daily.

Recipe 2

Plant	Botanical Name	Part(s) Used
Apoka pupa, funfun	*Combretum sordidum*	Root, Leaf
Ayoka	*Combretum tomentosum*	Root, Leaf
Kaasan	*Smilax kraussiana*	Root, Leaf
Okan	*Combretum bracteatum*	Root, Leaf
Kakansela	*Paullina pinnata*	Root, Leaf
Oganwo	*Khaya ivorensis*	Bark
Jebo	*Entandrophragma utile*	Bark
Afara	*Terminalia superba*	Bark
Elewekan	*Salacia pallescens*	Leaf
Egbesi	*Nauclea latifolia*	Root
Arunje eran	*Harrisonia abyssinica*	Root
Tapara	*Griffonia simplicifolia*	Root
Eru – Alamo	*Xylopia aethiopica*	Fruit

Preparation: Decoction (pure water)
Administration: Drinking and for bath.

Recipe 3

Plants	Botanical Name	Part(s) Used
Oja ikoko	*Sanseveria laurentii*	Leaf
Ose dudu	Traditional black soap	-

Preparation: Extract from leaf of the plant is mixed with the soap
Administration: For bath.

Recipe 4

Plant	Botanical Name	Part(s) Used
Apoka pupa, funfun	*Combretum sordidum*	Root
Orokoro	*Mallotus oppositifolius*	Root
Opon	*Lecaniodiscus cupanioides*	Root, Bark
Atapari obuko	*Clausina anisata*	Root, Leaf
Ewe tea	*Cymbopogon citatus*	Leaf
Aidan	*Tetrapleura tetraptera*	Fruit
Eru – Alamo	*Xylopia aethiopica*	Fruit
Opele	*Schrebera arborea*	Seed
Ogbolo	*Grewia mollis*	Seed

Preparation: Decoction (pure water).
Administration: For drinking – 5cl, 3 times daily. Also for bath.

Recipe 5

Plant	Botanical Name	Part(s) Used
Eru – Alamo	*Xylopia aethiopica*	Fruit
Aidan	*Tetrapleura tetraptera*	Fruit
Ifon	*Olax subscorpioidea*	Seed
Ose dudu	Traditional black soap	-

Preparation: Scrape any two opposite sides of *Tetrapleura tetraptera* and grind with the other plants' parts and mix the powder with the soap. Administration: For bath.

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Recipe 6

Plants	Botanical Name	Part(s) Used
Emi gidi	*Butyrospermum paradoxum*	Bark
Emi gbegiri	*Pseudocedrela kotschyi*	Bark
Oganwo	*Khaya ivorensis*	Bark
Egbesi	*Nauclea latifolia*	Root
Ponpola	*Bombax buonopozense*	Bark
Ayoka	*Combretum tomentosum*	Root, Leaf
Apoka	*Combretum sordidum*	Root
Kaasan	*Smilax kraussiana*	Root, Leaf
Opon	*Lecaniodiscus cupanioides*	Root, Bark
Banni	*Acacia nilotica*	Seed
Eru – Alamo	*Xylopia aethiopica*	Fruit

Preparation: Decoction (pure water), 4 teaspoonfuls of extract in 5cl of water.
Administration: Drinking – morning and night; for bath.

Recipe 7

Plant	Botanical Name	Part(s) Used
Emi gidi	*Butyrospermum paradoxum*	Fruit
Alubosa elewe	*Allium ascalonicum*	Leaf
Eru – Alamo	*Xylopia aethiopica*	Fruit
Ose dudu	Traditional black soap	-
Kankan	Traditional sponge	-

Preparation: Char the plant parts and powder. The powdered material is mixed with the soap.
Administration: For bathing the head. Use a new sponge each day.

Recipe 8

Component	English Name	Part(s) Used
Ose dudu	Traditional black soap	-
Tiro	Antimony/black lead ore	-

Preparation: Mix in equal proportion.
Administration: For bath.

Recipe 9

Plant	Botanical Name	Part(s) Used
Emi gidi	*Butyrospermum paradoxum*	Bark
Emi gbegiri	*Pseudocedrela kotschyi*	Bark
Egbesi	*Nauclea latifolia*	Root
Ponpola	*Bombax buonopozense*	Bark
Apoka	*Combretum sordidum*	Root
Ayoka	*Combretum tomentosum*	Root
Kaasan	*Smilax kraussiana*	Root
Efinrin oso	*Hoslundia opposita*	Leaf
Owu	*Gossypium hirsutum*	Seed
Banni	*Acacia nilotica*	Fruit
Eru – Alamo	*Xylopia aethiopica*	Fruit

Preparation: Decoction (pure water).
Administration: **1 teaspoonful of extract to 4 teaspoonfuls of water.**

Recipe 10

Plant	Botanical Name	Part(s) Used
Emi gbegiri	*Pseudocedrela kotschyi*	Bark
Emi gidi	*Butyrospermum paradoxum*	Bark
Ponpola	*Bombax buonopozense*	Bark
Egbesi	*Nauclea latifolia*	Root
Ifon	*Olax subscorpioidea*	Root
Ipeta	*Securidata longepedunculata*	Root
Oro agogo	*Opuntia* sp.	Stem
Enu opiri	*Euphorbia laterifolia*	Leaf
Aidan	*Tetrapleura tetraptera*	Fruit
Ejinrin wewe	*Momordica charantia*	Leaf
Lasangba	*Parkia biglobosa*	Fruit
Eru – Alamo	*Xylopia aethiopica*	Fruit
Banni	*Acacia nilotica*	Fruit
Oganwo	*Khaya ivorensis*	Bark

Preparation: Decoction (pure water).
Administration: 2 teaspoonfuls of extract in 4 teaspoonfuls of pure water. Drinking and for bath.

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Recipe 11

Plant	Botanical Name	Part(s) Used
Enu opiri	*Euphorbia laterifolia*	Leaf
Eru Alamo	*Xylopia aethiopica*	Fruit
Aidan	*Tetraplera tetraptera*	Fruit
Obo	*Erythrophleum suavolens*	Bark
Ose dudu	Traditional black soap	-
Imi ojo	Sulphur	-

Preparation: The plants are ground; powder mixed with sulphur and soap
Administration: For bath.

Recipe 12

Plant	Botanical Name	Part(s) Used
Atare	*Aframomum melegueta*	Underground stem
Ori	Shea butter	-
Imi ojo	Sulphur	-

Preparation: The rhizome is chopped and ground with the sulphur. The preparation is mixed with Shea butter.
Administration: As cream.

Recipe 13

Plant	Botanical Name	Part(s) Used
Gbegbe	*Icacina trichanta*	Tuber
Ogede odo	*Crinum jagus*	Leaf
Ato	*Chasmanthera dependens*	Root
Alubosa elewe	*Allium ascalonicum*	Leaf
Eru – Alamo	*Xylopia aethiopica*	Fruit
Banni	*Acacia nilotica*	Fruit
Epa kun	*Curculigo pilosa*	Seed
Isu baka	*Colocasia esculenta*	Underground stem
Oko ofe	*Barteria nigritiana*	Leaf

Preparation: Cut the plants' parts to pieces and steep in cold water.
Administration: 1 teaspoonful of extract in 4 teaspoonful of pure water. To be taking every other day.

Recipe 14

Plant	**Botanical Name**	**Part(s) Used**
Ato	*Chasmanthera dependens*	Root
Alubosa elewe	*Allium ascalonicum*	Leaf

Preparation: Steep in cold water
Administration: 1 teaspoonful of extract/day.

Recipe 15

Plant	Botanical Name	Part(s) Used
Isu ogirisako	*Anchomanes difformis*	Tuber
Eru – Alamo	*Xylopia aethiopica*	Fruit
Ose dudu	Traditional black soap	-

Preparation: The plants are ground and mixed with the soap.
Administration: For bath.

Discussion

Although infant protection against health related problems using various methods is as old as mankind; yet there is limited documentation on traditional methods used for the cure and protection of infants in the country. However, similar investigations conducted on medicinal plants used in the treatment of skin diseases have been reported by Adeogun et al. (2014) and Dawid-Pac (2013). According to Erdtsieck (2001), infants under five years of age are more vulnerable to different diseases; and since parents want their wards to survive, grow and mature to adulthood, various measures are taken using both conventional and traditional medicines. Kayombo (2013) pointed out that some illnesses are believed to be caused by witchcraft, evil eye, curse, sorcery, jealousy and also from the cosmic planes - where the gods and ancestors abode and such (inflicted illnesses), cannot be detected or cured with conventional health facilities. He then suggested that those illnesses are better treated using indigenous/traditional knowledge that could protect against or cure such health problems. This present study recognises the fact that traditional medicine (herbal therapies) had an important role to play in health care delivery. Furthermore, some illnesses and diseases are better treated by traditional healing system especially the ones not recognised by conventional medical practiitioners. Mahunnah et al. (2012) stated that some of the scholars who have negative attitude towards traditional medicines are Africans, but have been brought up through this culture, having used traditional remedies as infants and survived. Therefore, the significance of alternative medicine to western medicine cannot be over-proclaimed.

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Table 1: Plants used in the management of infants' illnesses in Ibadan Southwestern Nigeria.

S/N	Local Name (Yor.)	Botanical Name	Family	Part(s) Used
1	Ako igun	*Aritolochia repens*	Aristolochiaceae	Root
2	Abere	*Picralima nitida*	Apocynaceae	Seed
3	Alubosa elewe	*Allium ascalonicum*	Amaryllidaceae	Leaf
4	Agbarin pelebe	*Dioclea reflexa*	Fabaceae	Seed
5	Kanafuru	*Syzygium aromaticum*	Myrtaceae	Fruit
6	Parun pupa,funfun	*Oxytenanthera abyssinica*	Poaceae	Root
7	Apoka pupa,funfun	*Combretum sordidum*	Combretaceae	Root,Leaf
8	Ayoka	*Combretum tomentosa*	Combretaceae	Root,Leaf
9	Okan	*Combretum bracteatum*	Combretaceae	Root,Leaf
10	Oganwo	*Khaya ivorensis*	Meliaceae	Bark
11	Jebo	*Entandrophragma utile*	Meliaceae	Bark
12	Afara	*Terminalia superba*	Combretaceae	Bark
13	Elewekan	*Salacia pallescens*	Celastraceae	Leaf
14	Egbesi	*Nauclea latifolia*	Rubiaceae	Root
15	Arunje eran	*Harrisonia abyssinica*	Rutaceae	Root
16	Tapara	*Griffonia simplicifolia*	Fabaceae	Root
17	Eru – Alamo	*Xylopia aethiopica*	Annonaceae	Fruit
18	Kaasan	*Smilax kraussiana*	Smilacaceae	Root,Leaf
19	Kakansela	*Paullina pinnata*	Sapindaceae	Root,Leaf
20	Oja akoko	*Sanseveria laurentii*	Asparagaceae	Leaf
21	Orokoro	*Mallotus oppositifolius*	Euphorbiaceae	Root
22	Opon	*Lecaniodiscus cupanioides*	Sapindaceae	Root,Bark
23	Atapari obuko	*Clausina anisata*	Rutaceae	Root,Leaf
24	Ewe tea	*Cymbopogon citratus*	Poaceae	Leaf
25	Aidan	*Tetrapleura tetraptera*	Fabaceae	Fruit
26	Opele	*Schrebera arborea*	Oleaceae	Fruit
27	Ogbolo	*Grewia mollis*	Tiliaceae	Fruit
28	Ifon	*Olax subscorpioidea*	Olacaceae	Fruit
29	Emi gidi	*Butyrospermum paradoxum*	Sapotaceae	Bark, Fruit
30	Emi gbegiri	*Pseudocedrela kotschyi*	Meliaceae	Bark
31	Ponpola	*Bombax buonopozense*	Bombacaceae	Bark
32	Banni	*Acacia nilotica*	Fabaceae	Fruit
33	Efinrin oso	*Hoslundia opposita*	Lamiaceae	Leaf
34	Owu	*Gossypium hirsutum*	Malvaceae	seed
35	Ipeta	*Securidaca longepedunculata*	Polygalaceae	Root
36	Oro agogo	*Opuntia* sp.	Euphorbiaceae	Stem
37	Enu opiri	*Euphorbia laterifolia*	Euphorbiaceae	Leaf
38	Ejinrin wewe	*Momordica charantia*	Cucurbitaceae	Leaf
39	Lasangba	*Parkia biglobosa*	Fabaceae	Fruit
40	Obo	*Erythrophleum suavolens*	Fabaceae	Bark
41	Atare	*Aframomum melegueta*	Zingiberaceae	Undergr. stem
42	Gbegbe	*Icacina trichanta*	Icacinaceae	Tuber
43	Ato	*Chasmanthera dependens*	Menispermaceae	Root
44	Epa kun	*Curculigo pilosa*	Hypoxidaceae	Seed
45	Isu baka	*Colocasia esculenta*	Araceae	Undergr. stem
46	Oko ofe	*Barteria nigritiana*	Passifloraceae	Leaf
47	Isu ogirisako	*Anchomanes difformis*	Araceae	Tuber, Root
48	Ogede odo	*Crinum jagus*	Amaryllidaceae	Leaf

Conclusion

Recommendations have been made that the use of herbal therapy in the prevention and cure of infants illnesses should be given significant attention not only because of their potencies but owing to their availability and affordable status. A regulatory measure for both herbal practitioners and the public is encouraged as this will endear herbal therapy to the populace.

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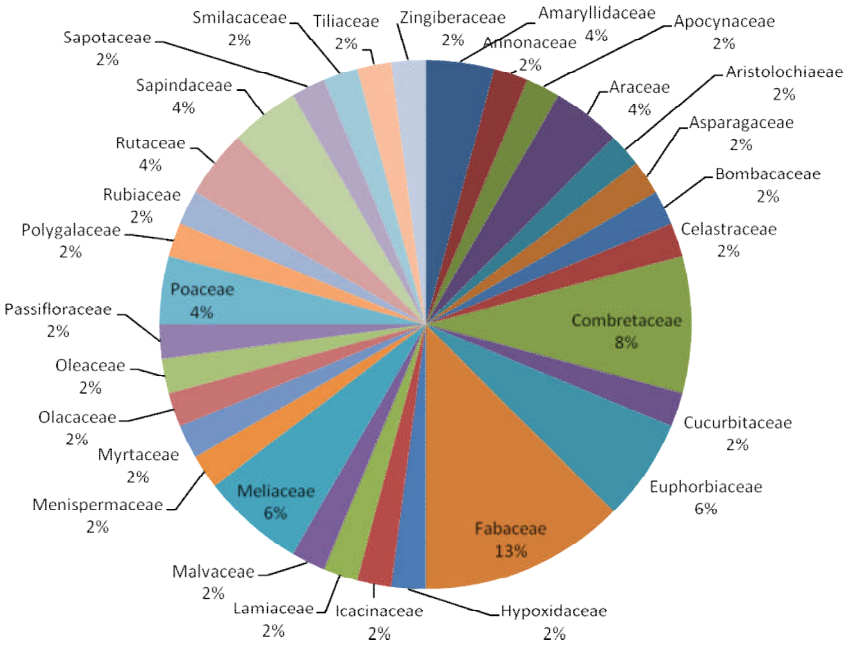

Figure 1: Percentage distribution (according to family) of plants used in the management of infants' ailments in Ibadan.

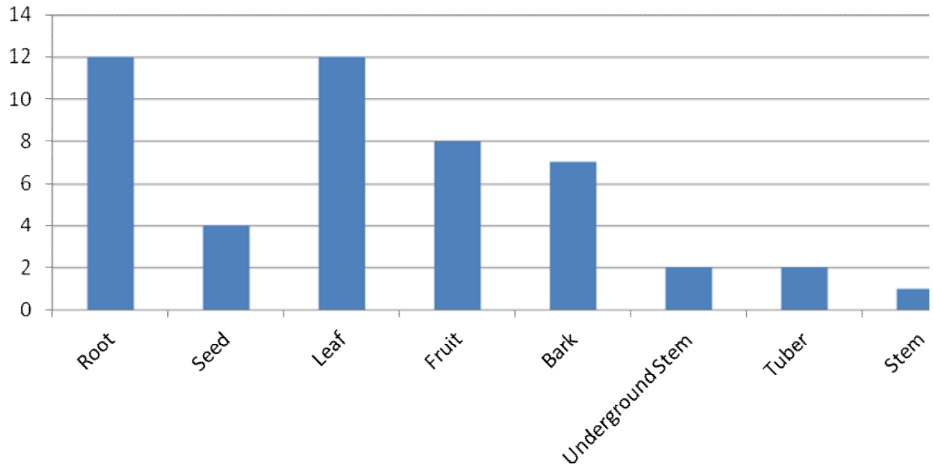

Figure 2: Frequency of plant parts used in the management of infants' ailments in Ibadan.

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