

*Full Length Research Paper*

## **Exploitation and use of medicinal plants, Northern Region, Ghana**

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The rural people in East Mamprusi district heavily depend on the vegetation around them for fuel wood and for medicine. The study identified the number of practicing herbalists in the study area, determined the medicinal plants and parts used in the area and the diseases/sicknesses they treat, identified rare medicinal plants in the study area, determined the forms medicinal plants are processed into for use and finally determined the challenges facing the herbalists. These were achieved through focus group discussion, direct personal observations and the administration of semi-structured questionnaire to 100 herbalists identified in eighteen (18) communities in the district. The study identified fifty-six (56) diseases to be treated by herbalists in the study area. The study also identified forty-seven (47) medicinal plants belonging to twenty-six different families. Plants parts identified to be mostly used for treatment included roots (25 species), leaves (22 species), barks (16 species), seeds (6 species), whole plant (6 species) and fruit (1 species). Twenty-one (21) plants were indicated to be rare in the study area by herbalists since they have to travel longer distances to harvest them for their herbal preparations. Medicinal plants were mostly processed into forms like powder, liquid and solid chips for treatment. Scarcity of some plant species, snakebites during harvesting of medicinal plants and difficulty in obtaining license for their operation were some of the challenges facing the herbalists in the study area. The result shows that there is considerable number of medicinal plants used for treating various diseases but the parts exploited for treatment and the methods used for exploiting them are not sustainable; hence herbalist complained of rareness of certain species. We therefore recommend that herbalists should be helped to establish medicinal plant garden to relief the pressure on the wild plants and also they should be cautious about harvesting techniques which leads to the total death of the plant.

**Key words:** Herbalists, medicinal plants, diseases, health.

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### **INTRODUCTION**

Countries in Africa, Asia and Latin America use traditional medicines to help meet some of their primary health care needs. It is estimated that 80% of the world's population relies entirely on local medicines made almost exclusively from plants (Anna, 1990).

In china, traditional herbal preparations account for 30 to 50% of the total medicine consumption whilst in Ghana, Mali, Nigeria and Zambia, the first line of treat-

ment for 60% of children with fever resulting from malaria is the use of herbal medicine at home (World Health Organization (WHO), 2003). Worldwide, it is estimated that there are an estimated 21,000 medicinal plants. These are concentrated in the global biodiversity 'hot-spots' such as the Amazon rain forest of south America, the eastern Himalayas and Western Ghats in south Asia, the eastern Arc mountains and Coastal Forest of East

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Africa. In tropical Africa, for example, more than 4,000 plants species are used for medicinal purposes and 50,000 tons of medicinal plants are consumed annually (Esenam et al., 2007).

In Ghana, plant medicine abounds in generous quantities and in many instances, it is the only treatment option available. Indeed about 1,000 medicinal plants are known to exist in Ghana, 80% of which have been identified by baseline studies (Cultural News, 2007). It is estimated that about 80% of the Ghanaian populace relies on herbal preparations for primary health care (WHO, 2003).

The high patronage of traditional medicine is either because it is cheaper, more convenient or simply believed to be more effective (VOA News Bulletin, 2006). According to Esenam et al. (2007), there are approximately 45,000 traditional healers in Ghana, most of who are recognized and licensed through various associations that fall under the nationally mandated Ghana Federation of Traditional Medicine Practitioners' Association (GHAFTRAM).

In recognition of the fact that the modern health care system should complement the traditional health care system, WHO has been attempting to incorporate traditional medicine officially into the health care system of developing countries.

In 1988, the International Union for Conservation of Natural Resources (IUCN) and the World Wide Fund for nature (WWF), together with WHO brought health professionals and leading conservationists together in Thailand to produce a set of guide lines for countries wishing to make the best use of their medicinal plants and to conserve them for future generations (Anna, 1990). They stressed the vital importance of these plants in primary health care and the great potential of the plant kingdom to provide new drugs.

Despite the efforts of government and its development partners to make modern health service accessible, available and acceptable to all people, most of these institutions are distances away from the communities they serve and the road network system linking some of these communities to the health facilities are mainly inaccessible, especially during rainy seasons. These and other factors make it difficult to access quality health care and undoubtedly make traditional medicine an obvious choice for the rural people. In northern Ghana, dependency on traditional medicine as the first recourse is becoming inevitable. Even certain diseases are sometimes referred from hospital and clinics to local treatment, hence the use of medicinal plants.

The study identified the number of herbalist in the study area, determined the medicinal plants used in the area and the diseases/sicknesses they treat, identified the part of the plant use for treat, identified the rare plants in the study area, determined the forms of processing medicinal plants and finally determined the challenges facing the herbalists.

## MATERIALS AND METHODS

Materials used during the data collection were field notebooks, pen and pencils, digital Camera and a pair of wellington boots.

### Study area

The study (Figure 1) was conducted in the East Mamprusi District of Northern Region. The District lies between latitude 10° 030' to 10° 035' N and longitude 025' to 027' W. The annual rainfall is about 800 to 1,200 mm, with the peak of the rains being in August and September. The minimum and maximum temperatures can vary between 20° at the night and 40° during the day. The vegetation type of the area is that of the Guinea savannah woodland zone, and is predominantly grasses of 3 m or more in terms of height and interspersed with woody trees and shrubs. Prominent tree species of economic value and medicinal properties commonly found in the area are Shea (*Vitellaria paradoxa*), Dawadawa (*Parkia biglobossa*), Baobab (*Adansonia digitata*), Nim (*Azadirachta indica*), Mahogany (*Khaya senegalensis*) and Acacia (*Acacia spp.*). The people in the study area are predominantly farmers with some of them as traditional medicine practitioners.

### Experimentals

One hundred and twenty-eight (128) herbalists have been identified in 18 communities in the East Mamprusi District by an NGO called Association Of Church-Based Development (ACDEP). It was the aim of the researcher to interview all the 128 herbalists however, 100 herbalists were available for interview during the research period in the following communities in the district: Zagri, Gbandaa, Sunubuma, Zaratinga, Nanyiiri, Langbina, Kolinvaa, Gambaga, Langbinsi, Yankazia, Tubeshea, Jablajo, Dindani, Kulgona, Sakogu, Nalerigu, La-Atarin and Nagboo. The methods used for the data collection included interviews through the administration of a semi-structured questionnaire, focused group discussions and direct observations.

## RESULTS AND DISCUSSION

### Socio-demographic characteristics

#### *Age distribution of respondents*

One hundred (100) traditional medicine practitioners were interviewed and the results indicated that they are largely elderly people. The survey results showed that 32% of herbalists were above the age of 60 years whilst only 2% were within the age range of 20 to 29 years (Table 1). This is mainly due to the lack of interest of the youth in becoming apprentices to herbalist and for the fact that the practice seems to be the reserve of the aged. It could be because of formal education, civilization and the increasing number of clinics, health centres, hospitals and pharmacies. This makes herbal practice an unattractive venture for the youth. This situation is obviously a threat to herbal practice and a good thing, which ensures the sustainability of medicinal plants resources. However, practitioners who are old and weak regrettably die with their wealth of knowledge that is also unsustainable for

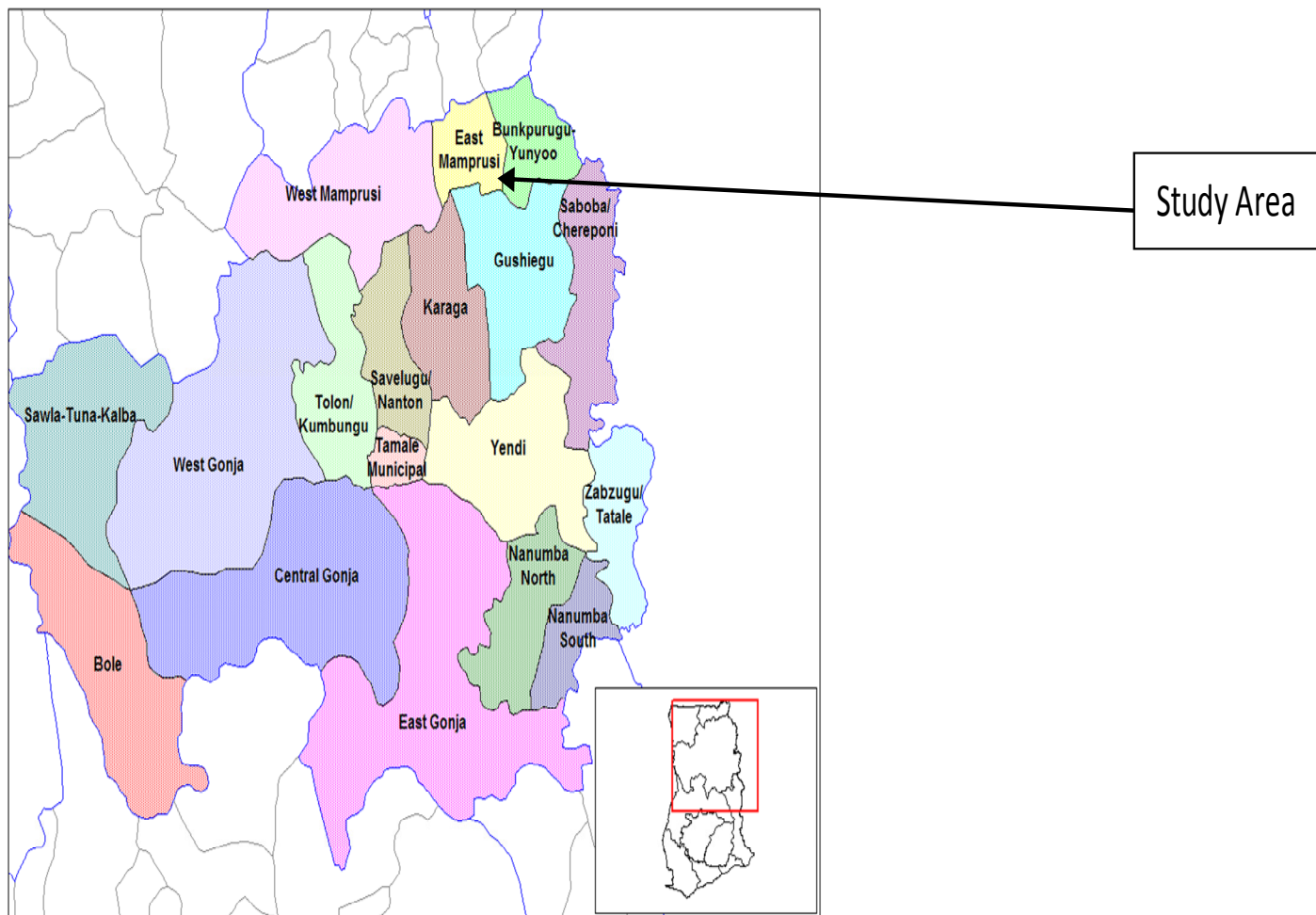


Figure 1. Study area.

Table 1. Age distribution of herbalist.

Age of respondent (years)	Percent
20-29	2.0
30-39	16.0
40-49	22.0
50-59	28.0
60 and above	32.0
Total	100.0

human survival.

**Sex, educational background and other occupations of the respondents**

The survey showed that 89% of the respondents were males while 11% of them were females. It can be seen that the practice of traditional herbal medicine is purely

male dominated. The male domination of this occupation could be linked to gender roles. Clearly most of the plants used in curing diseases are in the bush or wild. Thus, considering the time and effort involved in harvesting medicinal plants, most women cannot be actively involved in the practice. However, some communities refer to the few women involved in the practice as “witches”. The result from the survey indicated that majority, 91% of the respondents were not formally educated, 4% were formally educated and 5% were in the non-formal education. The herbalists in the study area do not only depend on the income from the sales of medicine and treatment of diseases for their livelihood but also are involved in alternative occupations. Majority (94%) of the respondents was farmers, 2% were traders and the rest were student, teacher, businessperson and blacksmith with each recording 1%. This totally conforms to Maja (2001) who also observed that most traditional healers earn their main income from farming and not from the treatment of diseases.

### Identified medicinal plants used by respondents in the study area

Table 2 shows the local names, scientific names and family names of medicinal plants, the diseases they treat and the part of the plant used for the treatment. The survey identified 56 different diseases or ailments been treated in the study area and 47 plants species used for treating different diseases. These plant species belong to 26 different families majority of which belonging to Fabaceae (10 species), Combretaceae (5 species), Malvaceae (3 species) and Poaceae (3 species). The first 10 common sicknesses/disease treated are; headache (6 species), stomach pain (5 species), food poison (4 species), snake bites (4 species), stroke (4 species), mental illness (3 species), diarrhoea (3 species), anaemia (3 species), hernia (2 species) and malaria (2 species). Plants parts mostly used for treatment included; roots (25 species), leaves (22 species), bark (16 species), seeds (6 species), whole plant (6 species) and fruit (1 species).

Bussmann et al. (2011) reported that in most cases of medicinal applications, the leaves (26 species) or roots (15 species) were employed, while fruits (4 species), flowers (1 species) and bark (1 species) did not play a significant role. The root being the commonest part used for treatment in the study area could be a threat to the sustainability of these medicinal plants as the survival rate of those harvested will be very low likewise the exploitation of the bark. Cunningham (1993) reported that ring barking or uprooting of plants is the commonest method of collection use by commercial gatherers of medicinal plants. Majority of the herbalists treated more than one disease and more than one part of the plant used to treat various diseases and ailments. Ayitey-smith (1986) found that most orthodox medicines have their origin from herbs and in Ghana, there are thousands of useful plants that can cure a wide spectrum of diseases ranging from common catarrh to gastro-intestinal troubles. Abbiw (1990) also revealed that the skill of healing with herbs is acquired informally and improved with practice.

### Rare plants in the study area

Table 3 and Figure 3 show plants that were identified by the herbalist as being rare and is difficult finding them in the study area. It was revealed that most of the herbalists knew the consequences of over exploitation of which was the major cause of plant disappearance in the district. They also realized that the plants they use in their work are now distant from them and they have to walk long distances for these plants. The other main causes identified were farming, search for fuel wood, bush burning, charcoal burning, buildings for settlements, deforestation, mining of sand and stones and harvesting

of medicinal plants as sources of feed for livestock. Some also said that increasing population in the area was a problem as every individual needed shelter to house their families as their numbers were increasing, hence plants are destroyed to provide available land for building settlements. In addition, increasing population means increase health care needs of the people, and hence their reliance on herbal medicines. It was also realized that herbalist have to boil their plant medicine using fire wood collected in the wild, thereby causing greater losses.

### Forms of processing medicinal plants

Herbalists in the study area process the medicinal plants in three forms namely the powdered, liquid and solid chip forms. However, majority of herbalists processed their herbal products in solid chip form followed by those who produced in powdered and liquid forms, respectively. Herbalist in the district burn, boil or pound leaves, root or stems of plants collected from the wild. Some usually burn and pound while others only boil depending on the type of plant or the degree of the ailment being treated. Some herbalists in the district also abide by taboos, norms and rituals. Some claimed they have taboos they give to their patients to abide by and therefore, the success of treatment depends on how a patient obeys the taboos they give them. Some herbalists also perform rituals before they administer any herbal preparation for a patient. Pictures of the various forms in which herbal medicines are processed is represented in Figures 2.

### Challenges facing the herbalist in their work

Herbalists during the course of their work, both on the field collecting medicinal plants and at home, preparing the medicine, encountered several challenges. These challenges include snake bites, injuries from tree stumps, scorpion stings, bee stings, wasp stings, accidents from sharp tools, thorns piercing their feet, hitting legs on stones, blindness as a result of fluid from poisonous plants, tiredness due to walking or riding bicycle long distances and lack of means of transport. Inadequate accommodation for patients to stay, difficulty in processing medicines into finished products, effects of dwarfs and difficulty in acquisition of practicing license were some of the problems facing the herbal medicine practitioners. They stated scarcity of herbal plants as a major challenge as they have to travel long distance by foot or on bicycles to search for some of the medicinal plants. This is an indication that some plant species have been over exploited thereby making them scarce in the study area. According to Busia (2005), some orthodox practitioners in Ghana still look down upon herbal medicine and therefore forbid their patients to patronize them.

**Table 2.** Medicinal plants and their families, diseases treated and parts of the plant used.

No.	Local Name/common name	Scientific name	Family name	Diseases plants treat	Part of plant used
1	Kinkanga	<i>Ficus gnaphalocarpa</i>	Moraceae	Headache, eye problems, stroke, menstrual pains	Bark, roots, seeds
2	Baangu/Baarma	<i>Piliostigma thonningii</i>	Fabaceae	Leprosy, rip pains, Chest pains, headache	Bark, leaves, roots
3	Mwangpuhiga	<i>Blighia sp</i>	Sapindaceae	Barrenness, food poison	Roots
4	Paliga	<i>Securidaca longepedunculata</i>	Polygalaceae	Liver troubles, food poison, eye troubles	Bark, roots
5	Tizua (mistle toe)	<i>Tapinanthus bangwensis</i>	Loranthaceae	Snake bite, epilepsy, menstrual disorder, asthma	Bark, leaves
6	Tua (Boobab)	<i>Adansonia digitata</i>	Malvaceae	Pregnancy complication, mental illness	Bark, whole plant
7	Kpasoka	<i>Isobertinia doka</i>	Fabaceae	Anaemia	Root
8	Dua/Dawadawa	<i>Parkia biglobosa</i>	Fabaceae	Piles, blood pressure, barrenness, gum bleeding	Bark, root, leaves
9	Spear grass	<i>Imperata cylindrica</i>	Poaceae	Headache	Leaves
10	Kuka (Mahogany)	<i>Khaya senegalensis</i>	Meliaceae	Stomach pains, diarrhoea, stroke, hernia	Bark, leaves, seeds
11	Potiri	<i>Terminalia avicennioides</i>	Combretaceae	Stomach pains, vomiting, diarrhoea, nose bleeding	Root
12	Nualiga	<i>Pterocarpus erinaceus</i>	Fabaceae	Diabetes, leprosy, yellow fever	Bark, leaves, root
13	Zeegori	<i>Maytenus senegalensis</i>	Celastraceae	Anthrax	Whole plant
14	Sigtiri	<i>Anogeissus leiocarpus</i>	Combretaceae	Food poison, stomach pains	Root
15	Purinkpanga	<i>Imperata cylindrica</i>	Poaceae	Inability to walk, joint pains	Root, whole plant
16	Puhiga	<i>Tamarindus indica</i>	Fabaceae	Snake bite, asthma	Root
17	Dankuringa	<i>Pericopsis laxiflora</i>	Fabaceae	Body weakness	Leaves
18	Taanga (shea)	<i>Vitellaria paradoxa</i>	Sapotaceae	Diabetes, stroke, waist pain, fracture	Bark, leaves, seeds
19	Gaa (Ebony Tree)	<i>Diospyros mespiliformis</i>	Ebenaceae	Mental illness, headache, epilepsy, convulsion	Bark, root
20	Kpaliga	<i>Detarium microcarpum</i>	Fabaceae	Swollen body,	Root
21	Pukpariga	<i>Borassus aethiopum</i>	Arecaceae	Headache	Leaves, root
22	Gumpuuwa	<i>Calotropis procera</i>	Apocynaceae	Circumcision, hernia, bloody stool	Root
23	Tokorigbari (false Yam)	<i>Icacina senegalensis</i>	Icacinaceae	Piles, swollen hands	Root
24	Za(millet)	<i>Pennisetum glaucum</i>	Poaceae	Skin rashes, jaundice	Seeds
25	Guunga (kapok)	<i>Ceiba pentandra</i>	Malvaceae	Ear problems, stroke, stomach pains	Leaves, seeds
26	Banwurifu	<i>Anona senegalense</i>	Annonaceae	Mental illness, Iodosis, HIV aids,	Root
27	Naasiri	<i>Prosopis Africana</i>	Fabaceae	Stomach pains	Root
28	Shishiibiga	<i>Lannea acida</i>	Anacardiaceae	Convulsion	Whole plant
29	Vobiga	<i>Bombax spp</i>	Bombacoideae	Headache, malaria	Leaves, root
30	Poraa	<i>Terminalia avicennioides</i>	Combretaceae	Bed wetting	Bark, root
31	Mushroom	<i>Agaricus spp</i>	Agaricaceae	Rheumatism	Whole plant
32	Sindezure (Jatropha)	<i>Jatropha curcas</i>	Euphorbiaceae	Typhoid fever	Leaves
33	Pawpaw	<i>Carica papaya</i>	Caricaceae	Worms	Leaves
34	Dazuuri	<i>Gardenia imperialis</i>	Rubiaceae	Headache, body pain, impotency, boils	Bark, leaves, root
35	Guazia	<i>Acacia hockii</i>	Fabaceae	Coughing	Root
36	Calabash tree	<i>Crescentia cujete</i>	Bignoniaceae	Snake bite	Leaves
37	Famaga	<i>Combretum ghazalensis</i>	Combretaceae	Anaemia,	Leaves
38	Arizandatia (Moringa)	<i>Moringa oleifera</i>	Moringaceae	Blood pressure, malaria, gum bleeding	Bark, leaves
39	Eucalyptus	<i>Eucalyptus spp.</i>	Myrtaceae	Headache, cold, flue, catarrh	Leaves
40	Lemon tree	<i>Citrus limon</i>	Rutaceae	Loss of appetite	Fruits

Table 2. Contd.

41	Bira	<i>Hibiscus sabdariffa</i>	Malvaceae	Snake bite	Roots
42	Nim tree	<i>Azadirachta indica</i>	Meliaceae.	High fever	Leaves
43	Gbiriga	<i>Combretum molle</i>	Combretaceae	Diarrhoea	Whole plant
44	Guava	<i>Psidium guajava</i>	Myrtaceae	Diarrhoea, catarrh	Bark, leaves
45	Atizoo	<i>Tapinanthus bangwensis</i>	Loranthaceae	Menstrual disorder	Bark
46	Chincheenga	<i>Entada abyssinica</i>	Fabaceae	Food poisoning	Leaves, root
47	Zuumbiengu	<i>Haematostaphis barteri</i>	Anacardiaceae	Swollen body parts	Root

Table 3. Rare plants in the study area.

No.	Local name plants	Scientific names of plants
1	Baangu/ Baarma	<i>Piliostigma thonningii</i>
2	Banwurifu	<i>Anona senegalense</i>
3	Dazuuri	<i>Gardenia imperialis</i>
4	Gaa	<i>Diospyros mespiliformis</i>
5	Guunga	<i>Ceiba pentandra</i>
6	Kankanga	<i>Ficus gnaphalocarpa</i>
7	Kpieriga	<i>Detarium microcarpum</i>
8	Kpikpaliga	<i>Borassus aethiopum</i>
9	Kpiliga	<i>Pericopsis laxiflora</i>
10	Kuka	<i>Khaya senegalensis</i>
11	Lienga	<i>Ximenia Americana</i>
12	Mwankpiehiga	<i>Blighia sp</i>
13	Nualiga	<i>Pterocarpus erinaceus</i>
14	Paliga	<i>Securidaca longepedunculata</i>
15	Pokpariga	<i>Borassus aethiopum</i>
16	Potiri	<i>Terminalia avicennioides</i>
17	Puhiga	<i>Tamarindus indica</i>
18	Sabisabi	<i>Lannea acida</i>
19	Sigra/ Sigtiri	<i>Anogeissus leiocarpus</i>
20	Vobiga	<i>Bombax spp</i>
21	Zuumbiengu	<i>Haematostaphis barteri</i>

Source: Field survey (2011).

## Conclusion

From the results of the survey, it was realized that

majority of the herbalists were illiterates (91%) and farmers (94%) as well, and hence they harvested medicinal plants on daily basis and at

any time of the day or season. Herbalists in the study area treated fifty-six different diseases using forty-seven plant species. These plants belong to



(a) Exploitation of plant barks.



(b) Exploitation of plant roots.



(c) Exploitation of plant leaves.



(d) Exploitation of whole plant by uprooting or stem cutting it.



(e) Powdered, liquid and solid chip forms of processing herbal medicines

**Figure 2.** Different parts of plant exploited for medicinal use.



*Diospyros mespiliformis* (whole plant)



*Diospyros mespiliformis* (fruit and leaves)



*Khaya senegalensis*



*Anona senegalensis* (whole plant)



*Anona senegalensis* (leaves with flowers)



*Bombax spp* (whole plant)



*Bombax spp* (leaves and branch with thorns)



*Ceiba pentandra* (whole plant)

**Figure 3.** Some rare plants in the study area.





*Ceiba pentandra* (leaves and branch)



*Lannea acida* (whole plant)



*Lannea acida* (leaves and fruits)

**Figure 3.** Contd.

twenty-six (26) different families of which majority belong to fabaceae (10 species). The roots of the plants were the mostly used part in the preparation of the herbal medicine followed by the leaves, bark, seeds, the whole plant and the fruits. The root being the mostly used part in the treatment of diseases is a threat to sustainability of the medicinal plants. The herbalist do not always use the raw plants for treatment but also process them into powder, liquid and solid chips for treatment of the various diseases, ailments or conditions. This means they can be stored for longer period and there will be no need to go into the forest for fresh harvesting any time a particular plant species is needed for treatment. The herbalist in the study area are also confronted with challenges such as scarcity of medicinal plants as they have to travel a long distance before getting a particular species they wanted to use for treatment. Difficulties in obtaining license for their operation, snakebites among others were the challenges they face in the study area. The method used in the harvesting of plant such as uprooting the whole plant, cutting of roots and barks has led to the death of several plants. These activities have led to some plants species becoming rare in the study area. Conservation methods should be put in place by conservationist to ensure sustainable harvest of medicinal plants. There are

quite a good number of gifted herbalists out there and a considerable number of plants that can be tapped for our health needs. The exploitation of these gifts can help to reduce the pressure in our hospitals, clinics, health centres and other medical centres while generating job opportunities and income to people.

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#### ABBREVIATIONS

**WHO**, World Health Organization; **VOA**, Voice of America; **GHAFTRAM**, Ghana Federation of Traditional Medicine Practitioners' Association; **IUCN**, International Union for conservation of natural resources; **WWF**, World Wide Fund; **ACDEP**, Association of Church- Based Development Association of Church-Based Development; **NGO**, Non-Governmental Organization.

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