
Medicinal plants used by communities of Ngai Subcounty, Apac District, northern Uganda

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Abstract

An ethnobotanical survey was carried out in Ngai subcounty in Apac District. Three parishes of Ajerijeri, Abok A and Omach were taken as stratified sample areas in which both male and female traditional healers of different ages were interviewed. Information about the medicinal plants and traditional healing was gathered using questionnaires, semi-structured interviews, informal discussion and field excursion which yielded lists of local plant names, names of diseases treated, mode of administration and parts used. To enhance their effectiveness, medicinal plants are used in combinations to treat various ailments and the extent of knowledge of medicinal plant mixing determines the success of a traditional healer. Roots were the most commonly harvested part and this has greatly affected the regeneration of medicinal plants. It was believed that only plants collected from the wild were effective. Though not intentional, plant parts not used for medicinal purposes are sometimes destroyed in the process of harvesting. This practice, coupled with over harvesting, threatens the continued existence of these plants.

Key words: conservation, medicinal plants, traditional healers

Introduction

Less than 1% of all flowering plant species in the world has been exhaustively studied for their potential pharmacological activity (Balick, 1990). Although the use of medicinal plants in developed countries has declined over the years, about 25% of prescriptions from community drug stores still contain materials from higher

plants (WHO, 1977). According to the WHO (2002), as many as 80–85% of the world's people in the tropics depend on traditional medicine for their primary health care.

Worldwide, it is estimated that the number of individuals using medicinal plants is now increasing with increasing population in both developed and developing countries. This in turn has raised doubts concerning the sustainable use of wild resources of medicinal plants – the conservation of their biodiversity, appropriate forms of local cultivation and production of safe and effective natural medicine and the regulation of the environment that should accompany the incorporation of traditional systems of health into health care (Balick & Cox, 1996).

The resolution passed by the World Health Assembly (WHO, 2002) in studying and recognizing the importance of medicinal plants was based on the assumption that plants will always be available. Today, many medicinal plants face extinction or severe genetic loss. Plant species and traditional knowledge are important for the utilization of herbal medicines, either traditionally, through trade or through the pharmaceutical industry (Carlson *et al.*, 2001; Dhillon *et al.*, 2002; Tabuti, Dhillon & Lye, 2003). In this case plants provide the material resource and the traditional knowledge the required information (Tabuti *et al.*, 2003). Medicinal plants are used by people of Ngai subcounty for treating various diseases. The use of traditional medicine by the people of Ngai subcounty can be attributed to the rich indigenous knowledge of herbal medicine, perceived potency of herbal medicine, poverty and inadequate healthcare facilities. However, no effort has been taken to document this information and yet most of the herbalists are elderly people (who may not pass the information wholly to their offspring), and some of the plants used are threatened by over-harvesting. This article presents a list of identified documented medicinal plants and their conservation status.

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Materials and methods

Study area

Apac lies between 32°E–33°E and 2°N–3°N in a largely flat area at an altitude of 3000–4000 ft with few hills (Fig. 1). The vegetation is typically palm savannahs and dry *Combretum* savannahs. It has an average rainfall of 1250 mm falling in 140–170 days per annum and the wet season extends from April to October, with peaks in April–May and August. The area has red ferrallitic soils which are mainly sandy loam (Anonymous, 1967).

The study involved the use of both key informants and local people. Homesteads and individual traditional healers were visited and served with questionnaires or interviewed depending on their level of education. Informal conversation and discourse with the respondents and field excursions were used to obtain ethnobotanical information. Stratified sampling was employed and the selection of the parishes depended on the availability of the elderly people, traditional healers and their accessibility. Three parishes – Ajerijeri, Omach and Abok A – were used as sample areas. In each parish, ten respondents were used in either the interviews or questionnaire responses.

Results

Several traditional healers were interviewed of whom 57% were males and most of them were aged between 70 and



Fig 1 Map of Uganda showing location of Apac District and Ngai subcounty

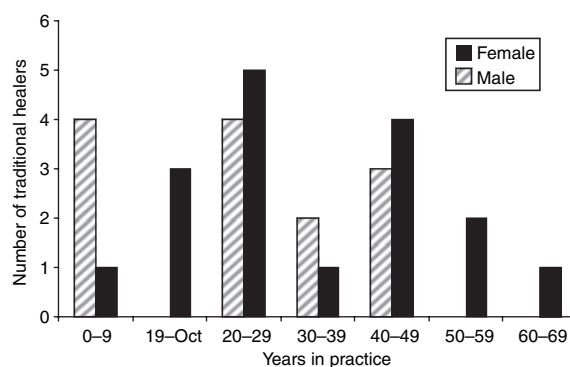


Fig 2 Number of years in traditional healing practice

79 years. Eighty per cent of the traditional healers interviewed were over 50 years old. Most female traditional healers had been in practice for less than 30 years while a majority of males had practised for more than 20 years (Fig. 2). The majority of traditional healers had low levels of education, which was mainly primary education.

Eighty-eight medicinal plant species were reported during the study. Twenty-eight species were considered morpho-species because they lacked identification characters and were difficult to find during the field excursions because of their rarity. Nevertheless, 60 medicinal plant species belonging to 51 genera and 38 families were identified by the Makerere University Herbarium (Table 1).

Six families – Asteraceae, Malvaceae, Apocynaceae, Euphorbiaceae, Verbenaceae and Fabaceae – had more than one genus represented. In this category, Fabaceae (37%) was more represented followed by Asteraceae (23%), and the least represented were Malvaceae, Apocynaceae, Euphorbiaceae and Verbenaceae each with 10% (Fig. 3).

Most male traditional healers had acquired knowledge from their parents or grandparents while female traditional healers acquired knowledge from in-laws and friends. Medicinal plants are mostly used in mixtures and traditional healers use different plant parts differently. The various proportions of plant parts used (Fig. 4) by traditional healers showed differences in modes of disease treatments.

All the traditional healers interviewed reported that there were changes in the abundance and occurrence of the medicinal plants harvested. However, effort is made to harvest small quantities of the plant parts to use so as to give these plants time to regenerate. This is a traditional way of enhancing sustainable utilization of medicinal

Table 1 Parts of the plants used in the treatment of specific diseases

Scientific name, local name, family	Part used	Disease treated	Mode of preparation	Frequency of citation by healers
<i>Carissa edulis</i> (Forssk) Vahl., Acuga , Apocynaceae	R, Fr	General body swellings	Pounded root smeared on cuts or root infusion drunk in small amount	3
<i>Annona senegalensis</i> Pers., Obwolo , Annonaceae	R (dry & wet)	Diarrhoea	Infusion drunk	4
<i>Combretum collinum</i> , Odugu , Combretaceae	R	Diarrhoea	Infusion drunk	8
<i>Cajanus cajan</i> (L) Mills, Apena , Fabaceae	L	Anal itching & nose blockage in children	Squeezed leaf juice to make nose or anal drops	1
<i>Asparagus africanus</i> Lam., Ogudu , Liliaceae	Fr	Eye problems	Adult swallows 2–4 fruits day until symptom disappears	2
<i>Commelina benghalensis</i> L., Ototo , Commelinaceae	Fl	Nose blockage in children	Crush flower, squeeze in the nose	2
<i>Terminalia glaucescens</i> Benth., Opok , Combretaceae	BD	Cough	Chew the leaves	7
<i>Aonella caulorrhiza</i> Delile, Arere , Asteraceae	Fl, R, L	Toothache, fresh wounds	Place fine crushed leaves on site of pain	9
<i>Fluggea virosa</i> (Wild) Voigt., lakara , Euphorbiaceae	L	Fire burns	Pounded and placed on the wound or poured in bathing water	6
<i>Clematis hirsuta</i> Perr & Guill., Adwe , Ranunculaceae	L	Mental problems (mixed), Influeza	Sniffing flower clears blocked nose. Dip patient's head in steam mixture with <i>Capsicum frutescens</i> L.	10
<i>Vitex medinensis</i> Oliv., Verbenaceae.	R (both dry & wet)	Cough, diarrhoea	Drink root extract	9
<i>Carica papaya</i> L., Apapalo , Caricaceae	R	Cough, diarrhoea	Pounded root decoction drunk	8
<i>Bidens pilosa</i> L., Ononot , Asteraceae	L/R	Toothache & tooth decay	Root infusion smeared on the site of pain or leaf decoction used to wash wounds	6
<i>Hibiscus surattensis</i> L., Gwanyara , Malvaceae	L	Mouth sores	Leaf infusion used to clean sores in mouth of children	1
<i>Erythrina abyssinica</i> Lam., Iwila-kot , Fabaceae	Stem BK, R	Toothache, wounds	Pounded roots or stem decoction used to wash the wound or sick teeth	7
<i>Thunbergia alata</i> Bojer ex Sims, Gwatadek oyo , Acanthaceae	R, L (dry & wet)	Diarrhoea, impotence	Root infusion drunk for stomach problems. Leaf decoction eaten with food to treat impotence	3
<i>Aloe</i> sp., Iwikin , Aloaceae	R, S	Diarrhoea, worms, stomachache, renal problems	Pounded root boiled in water & cold ex tract given to patient	1
<i>Ocimum basilicum</i> L., Alokoli , Labiatae	L	Diarrhoea	Pounded root extract mixed in water is given to the patient	2

Table 1 (Continued)

Scientific name, local name, family	Part used	Disease treated	Mode of preparation	Frequency of citation by healers
<i>Cussonia</i> sp., Araliaceae	L, R	Back hump, worms, stomachache	Warm leaves to massage the swollen back or its early symptoms	3
<i>Astripomoea malvacea</i> (Klotzsch) Meuse, local name NA, Convolvulaceae	R	Dysmenorrhoea	Pounded root extract of the plant mixed with the roots of <i>Vernonia grantii</i> Oliv. and <i>Momordica foetida</i> Schumacher, drunk	3
<i>Momordica foetida</i> Schumacher., Bomo , Cucurbitaceae	R	Diarrhoea, syphilis & gonorrhoea	The pounded cooled root extract of the plant mixed with that of <i>Trichilia ematica</i> Vahl. is administered through the anus or vagina of an STD patient	4
<i>Senecio discifolius</i> Oliv., Awie-obok , Asteraceae	L	Gastrointestinal problems	The boiled leaf mixed with that of <i>Thumbigia alata</i> Bojer ex Sims is eaten in food by the patient	3
<i>Cissampelos mucronata</i> A Rich, local name NA, Menispermaceae	R	Worms	Pounded boiled root extract is given when cold in 1/2 glass a day for 2–3 days	7
<i>Trichilia ematica</i> Vahl., Akwirakwir , Meliaceae	R	Worms, heart problems, syphilis, gonorrhoea, snake bite, body pain, impotence	Root extract mixed with that of <i>Momordica foetida</i> Schumacher. Treats sexually transmitted diseases (STDs) and relieves pain in AIDS patient, dysentery, worms. Root extract of this plant mixed with that of <i>Vernonia grantii</i> Oliv. is drunk to treat impotence	2
<i>Sesuviera</i> sp., Yat-twol , Agavaceae	R	Snake bites & poison antidote	Pounded root extract induces immediate vomiting	4
<i>Harrisonia occidentalis</i> (Eng) L., Akere , Simaroubaceae	R	Placenta removal	Pounded root extract in about 1/2 glass of water quickens expulsion of placenta	1
<i>Celosia trigynna</i> L., Ocobolyec , Amaranthaceae	R	Eye problems (cataract), tuberculosis	Chew the bark of the root or drink pounded extract	5
<i>Margaritaria discoridea</i> , (Baill) Webster, Ategu , Euphorbiaceae	R	General body swelling and pain, headache	Pound root extract and smear on cuts on the site of pain	5
<i>Echinops amplexicaulis</i> Oliv., Icuru-atino , Asteraceae	R	Fasten expulsion of placenta, hernia	Pounded root extract mixed in water and given to patient to drink	4
<i>Ficus vallis chaudi</i> , Olam , Moraceae	Stem bark, R	Diarrhoea	Pounded extract with the roots of <i>Mangifera indica</i> L. is drunk twice a day	3
<i>Mangifera indica</i> L., Aeme , Anacardiaceae	R, S, L	Diarrhoea, cough	Pounded extract with the roots of <i>Ficus vallis</i> is drunk twice a day	7

Table 1 (Continued)

Scientific name, local name, family	Part used	Disease treated	Mode of preparation	Frequency of citation by healers
<i>Conyza floribunda</i> H.B.K., Adilong-atar , Asteraceae	R, L	Syphilis, gonorrhoea	Extract diluted with water is drunk in small quantities. The grounded leaves are plastered on the wound	4
<i>Conyza</i> sp., Adilong-acol , Asteraceae	R	Epilepsy, HIV/AIDS-related abdominal pains, worms, constipation, fresh wound	The extract is given to the patient regularly until the patient recovers	1
<i>Securidaca longipedunculata</i> Fres., Elila , Polygalaceae	R	Body pain, headache, diarrhoea, epilepsy	Pounded root mixed with roots of <i>Maytenus senegalensis</i> (Lam.) Exell. is smeared at the razor blade cut for body pain. Root extracts of <i>Sarcocephalus latifolius</i> (Smith) Bruce, <i>Hoslundia opposita</i> Vahl. and that of the plant is drunk to treat epilepsy	4
<i>Vernonia macrocephala</i> D.C., Alete , Asteraceae	L	Back hump	Warm pounded roots and leaves to massage the hump	2
<i>Cassia nigricans</i> Vahl., Ayebi , Fabaceae	R, L	Tuberculosis	Decant the pounded extract and drink	2
<i>Indigofera arrecta</i> A. Rich., Awe-arema , Fabaceae	R	Stomachache, nose blockage	Pounded extract is drunk	2
<i>Gynandropsis gynandra</i> L Briq., akeo , Capparidaceae	R, L	Stomachache, ringworm	Chew or pound the bark of the root and drink the extract for stomachache. Leaves are rubbed at the site of infection on the skin to treat ring worms	6
<i>Sida ovata</i> Forsk., Awe-apwaka , Malvaceae	L	Sickle cell anaemia	Leaves of the plant mixed with that of <i>Ocimum basilicum</i> L. and the steamed vapour is introduced to the patient twice a day	2
<i>Combretum molle</i> G.Don., Ioro , Combretaceae	R, BD	Cough	Chew or drink mixed extract	9
<i>Sarcocephalus latifolius</i> (Smith) Bruce, Ibele , Rubiaceae	Wh (dry)	Enema	Smear the anus with the fine powder mixed in oil	3
<i>Hoslundia opposita</i> Vahl., Iutu , Labiatae	L	Fresh wound	Squeeze extract on fresh wound	7
<i>Vernonia amygdalina</i> Delile, Okelokelo-adongo , Asteraceae	Wh	Stomachache & anal itching	Drink extract for stomach ache. Squeeze the leaves to make anal drops	3
<i>Vernonia grantii</i> Oliv., Okelokelo-atino , Asteraceae	R, L	Abdominal pain during menstruation, impotence	Extract is drunk for abdominal problems. Mixed root extract and that of <i>Trichilia ematica</i> Vahl. treats impotency	2
<i>Clerodendrum umbellatum</i> Poir., Acer , Verbenaceae	BD	Stomachache, headache	Chew fresh	7

Table 1 (Continued)

Scientific name, local name, family	Part used	Disease treated	Mode of preparation	Frequency of citation by healers
<i>Butyrospermum paradoxum</i> (Gaertn. F.) Hepper, Yao , Sapotaceae	SD	Boils, skin rash	Smear using the oil extract	2
<i>Steganotaenia</i> sp., Iputu , Apiaceae	R, L	Buck hump	Warm leaf massage the hump or drink root extract twice a day	3
<i>Maytenus senegalensis</i> (Lam) Excell., Iterka , Celastraceae	R, L	Boils, general body pain	Dried fine leaves are plastered at the site of bite. Pounded roots are smeared on the body cuts to treat body pains	7
<i>Piliostigma thomningii</i> , Ogali , Fabaceae	R	Dysentery	Pounded root extract in 3/4 glass of water is drunk once a day	5
<i>Kigelia africana</i> (Lam) Benth., Yago , Bignoniaceae	R, Fr	Diarrhoea, wounds	Drink root extract twice a day. Inner fruit tissue is plastered on the wound	4
<i>Rhynchosia densiflora</i> (Roth.) D.C., Aremono , Fabaceae	R	Dysentery	Pounded root extract is drunk 2–3 times a day	6
<i>Ocimum basilicum</i> L., Mida , Labiatae	L	Sickle cell, fever	Leaves of the plant and that of <i>Sida ovata</i> Forsk. are steamed in a little amount of water and the patient is covered with a blanket in the steam	4
<i>Pancovia</i> sp., local name NA, Sapindaceae	S, R	Diarrhoea, worms, impotence, heart-related problems	Pounded root extract is drunk in small amount for several days	10
<i>Indigofera garkeana</i> Varke., Cukulac , Fabaceae	R	Evil spirits, prevent harmful lightning/thunder	Pounded extract is mixed with food and eaten. Sprinkle extract around the compound	3
<i>Setaria sphacelata</i> (Schumacher) Moss, Acananya , Poaceae	L	Fresh wounds	The infusion is squeezed onto the wound	9
<i>Eucalyptus camadulensis</i> Dehn., Kalatuc , Myrtaceae	L	Cough	Chew or boil in tea and drink two times a day	7
<i>Lonchocarpus laxiflorus</i> Guill. & Perr., Olwedo , Fabaceae	L	Evil spirits	Sprinkle water around the home	3
<i>Adenium</i> sp., Atura-paco , Apocynaceae	Sp	Ringworm	Apply sap on the site of infection on the skin	3
<i>Capsicum frutescens</i> L., Alyera , Solanaceae	L	Mental problems	Inhale the steamed vapour of the plant mixed with <i>Clematis hirsuta</i> Perr. & Guill.	

R, roots; L, leaves; S, stems; BK, bark; Sp, sap; Fl, flowers; Fr, fruits; BD, buds; Wh, whole plant.

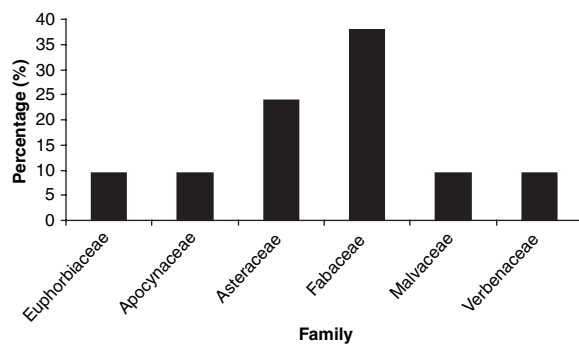


Fig 3 Most frequently used families of medicinal plants

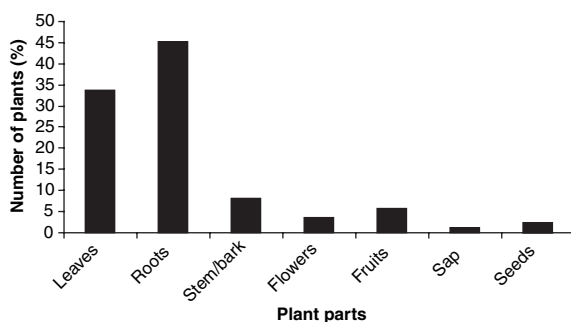


Fig 4 Plant parts used for treatment of ailments

plants given the decreased abundance of medicinal plants. Twenty per cent of those interviewed had not passed on knowledge of medicinal plants to their offspring and were unwilling to do so. Eighty per cent had shared the knowledge with at least one or two members of the family. Only 6.7% had at least one medicinal plant cultivated at home or farmland while 93.3% collected all their medicinal plants from the wild.

Discussion

Despite the low levels of educational, all the traditional healers recommend sound hygiene practices during the preparation, handling and administration of the medicines. It was noted that all medicinal plants used had 'medicinal names' meant to disguise their identities and also for psychological treatment. According to traditional healers, spouses are not preferred as helpers because they are of equal age and would put the knowledge at risk of extinction for those willing to share their knowledge. This shows some concern by the traditional healers towards conservation of knowledge of medicinal plants. This practice has

also been observed in West African countries including Ghana (Abbiw, 1990; FAO, 1990).

Elderly traditional healers are interested in young healers who can acquire more knowledge from other sources to improve their success. A traditional healer serving as a 'consultant' to the young plays an important role as a living library. In some areas, for example eastern Uganda, many traditional healers acquire their knowledge through apprenticing with senior traditional healers (Tabuti *et al.*, 2003).

According to traditional healers, plants when used in mixtures are more effective due to their combined effects and this contributes to the degree of success. Some families of plants were found to have more potential medicinal plant species than others. Some of these families, for example Fabaceae, are known to be important sources of medicinal plants (Kakudidi, Bukenya-Ziraba & Kasenene, 2000).

During the survey, it was noticed that the frequency at which the medicinal plants were harvested depended on the number of alternative plants that could treat the same sickness, the level of accessibility of plants and the method of extraction. In addition, the number of patients and sickness to be treated determined the frequency at which medicinal plants were harvested. From the habitats of the medicinal plants, it was evident that plants used for the treatment of both humans and domestic animals had been over-harvested, particularly the reproductive parts and roots, with no measures for their conservation being taken. Though not intentional, some unwanted parts of the plants were found to be seriously damaged because of poor harvesting methods. This affects the regeneration and may cause death if sufficient time is not given for their regeneration. Rare medicinal plants, which are also too vital, are collectively protected by both local people and local leaders. According to them, such plants are at a great risk of extinction.

Most of the traditional healers did not cultivate or preserve medicinal plants on their gardens because they did not want people to know them. Besides, according to the respondents, cultivated medicinal plants are not as potent as those that are picked from the wild.

In conclusion, there are many medicinal plants and immense traditional knowledge on medicinal plants utilized by the people of Ngai subcounty. However, ethnomedicinal surveys are needed to identify more medicinal plants and also initiate both *in situ* and *ex situ* medicinal plant conservation programmes. This will enhance

regeneration and increase the availability of medicinal plants in the long run. Furthermore, pharmacological studies should be carried out to ascertain the validity of the medicinal plants for the diseases they reportedly treat.

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