

## Interfacing Traditional/Local Herbalist and Global Biomedical Practitioners in Botswana

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**Abstract:** This paper reports analysis of primary data collected from 16 herbalists and medicines they dispense to their patients to treat different ailments in Maun, Botswana. Maun village is near the Okavango Delta where many different species of plants are found. Data was collected through face-to-face interviews, unobtrusive participant observation and semi structured interviews with key informants. The study found that herbalists in Maun used at least 43 plant species in traditional medicines. Some herbalists considered themselves as general practitioners and others regard themselves as specialists. The study concludes that to some extent, herbalists attempt to 'marry' modern health practices and technology, conversely, their patients are equally pluralistic service consumers of both health care systems. The study recommends that the government put in place a policy framework for official recognition and professionalisation of herbalist, facilitate allocation of resources and set the parameters to facilitate mutually beneficial cooperation between herbalists and biomedicine.

**Keywords:** Ethnobotany, Ethnomedicine, Traditional healers/herbalist, Biomedicine, Medicinal plants, HIV/AIDS, Okavango Delta, Sustainable development

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### 1 Introduction: Traditional and Global Medicine

Cultures worldwide accumulate knowledge through observation/experience. Peoples have notions of causality, are able to interface, rationally interpret, revise and hybridise knowledge traditions according to their value codes (Sillitoe, 2007). In the global knowledge economy, a country's ability to build and mobilize its knowledge capital is equally essential for sustainable development as is the availability of physical and financial capital (World Bank, 1997). In a developing country such as Botswana, local indigenous/traditional knowledge (which encompasses the skills, experiences and insights people apply to maintain their ecosystems and or improve their livelihoods) constitutes one aspect of the country's knowledge systems. Local/traditional knowledge is also the social capital for poor people in rural and urban environments to achieve control of their own lives (Narayan, 1999). Local knowledge systems are frameworks for interacting and constructing meaning based on oral traditions and historical experiences of a given area or social group (<http://www.unesco.org/education/educprog/lwf/doc/portfolio/definitions.htm>).

Local scientific knowledge may not systematically record its experience as does global science, but it is nonetheless a formalized aspect of peoples' science, and a living cultural heritage. The word science comes from Latin "scientia," meaning knowledge. Science, in the broadest sense, refers to any system of knowledge that attempts to model objective reality. The Oxford dictionary defines science as an intellectual and practical pursuit that seeks to further understanding of the physical and natural world through observation and experience. In the context of developing countries, Sillitoe (2007) extends this definition to local contexts and broadly interprets experimentation/observation behaviours to include noting the results of everyday experiences and passing on the accumulated knowledge. Many sources suggest that local knowledge systems in Africa are of particular relevance to a range of development sectors (such as agriculture, animal husbandry and veterinary medicine, management of natural resources, primary health care (PHC), preventive medicine and psychosocial care, saving and lending, community development and poverty alleviation) (<http://www.worldbank.org/afr/ik/basic.htm>).

There are different approaches for discovery of medicines. Plants still remain as one of the best reservoirs of new structural types. It is estimated that up to a quarter of all prescriptions in industrialized countries contain one or more components derived from plants (Runyoro et al., 2006). Local practices may

validate narrowly defined 'modern scientific knowledge' and vice versa, global scientific techniques may corroborate local knowledge as ethno-scientific research has amply demonstrated. Despite purported differences, several studies reveal that local and global science is often comparable. Various plants have been indicated as treating diseases such as headache, blood pressure, anemia, disorders of pregnancy and delivery, skin infections (Salomao et al., 2001; Omolo et al., 1997; Pamplona-Roger, 2001; Roodt, 1998; Anderson et al., 1986 Ellery et al., 1997; Thring et al., 2006). In Botswana, Steen and Mazonde (1998) concluded that there is an apparent resemblance between traditional ideas of disease being caused by pollution (the breaking of taboos) and modern theories of HIV infections via bodily fluids (such blood and semen). Other studies have revealed that traditional healers have skill, knowledge and competence to diagnose and treat, for instance sexually transmitted infections (STIs) and boost the immune system of HIV positive patients (Ndubani and Hojer, 1999; Peltzer, Mngqundaniso and Petros, 2006).

Traditional Medicine Practitioners (TMPs) do not exit or practice in isolation. They have always been, and still are, influenced by a growing international demand for medicinal plants. Conversely, they have influence on policies, programs and interventions of global biomedicine, international development and HIV/AIDS. In addition, TMPs in Botswana, like elsewhere in developing countries, have endured a long history of unequal power relations of marginalization by both colonial and postcolonial governments (Byruhanga-Aiiki and Kealotswe, 1995; Matsepe, 2004; Waite, 2000). Furthermore, forces of globalization (that is, increasing interconnection of people and places as a result of advances in transport, communication and information technologies that causes political, economic and cultural convergence(<http://en.wikipedia.org/wiki/globalization>) has resulted in transnational migrations of skilled and unskilled people from across the African continent to Botswana in search of opportunities (Dijk, 2002). Included among these 'economic' refugees are transnational TMPs and biomedical practitioners.

Data collected in 17 countries on trade patterns, markets source areas and harvest impacts by the Trade Records and Analysis of Flora and Fauna in Commerce (TRAFFIC) in East/Southern Africa and Madagascar revealed that medicinal plants are widely used locally and some are collected for export to the United States of America and Europe (Rukangira, undated). The natural products industry in these countries also puts pressure on the demand for medicinal plants in Africa. Furthermore, pharmaceutical companies consider traditional medicine as a source of extracts and for identification of bioactive agents that can be used in the preparation of synthetic medicine. It is not surprising, therefore, that international organizations have been eager to make funds available for initiating 'collaborative' university based research programs that link traditional and western medicine. Consequently, there have been challenges on the world stage in the arena of intellectual property rights, patenting and products commercialisation (medicines, art, music and rituals) (Sillitoe, 2007).

The interface between traditional medical systems and western biomedicine has been a concern since these systems are based on different cosmologies. This is largely because traditional medical systems take into account mental, social, spiritual, physical and ecological dimension of health and wellbeing. Western biomedicines on the other hand, tend to particularize focus on physical wellbeing. The breaking of this interconnectedness embedded in traditional medical systems vis-à-vis western biomedicine has been a source of concern (Bodeker, 2007).

From the above discussions, local medicinal knowledge systems are developed and adapted continuously to gradually changing environments that are closely interwoven with people's cultural/spiritual values. As Sillitoe (2007) rightfully argues, to suppose that these knowledge systems reflect different cognitive processes, is fallacious. If 'science' refers to a system of acquiring knowledge through observation and experimentation to explain natural phenomena, then all knowledge traditions are complex. There is a need to break from fruitless definitional debates and envisage interventions that interface local and global biomedical knowledge system. In this paper, local/indigenous/traditional knowledge systems will be used interchangeably, and local and global systems will be treated as equal. Both have strengths, weaknesses and opportunities for mutually beneficial interactions. The overall goal of this paper is to profile the activities of

TMPs, particularly herbalist, in providing daily healthcare needs to a significant proportion of Botswana's population especially in rural areas. The paper explores the role of TMP in Botswana through a case study in Maun, an urban village with a population of 43 000 people.

### 1.1 Traditional Medicine Practitioners in Botswana

A traditional medicine practitioner in the African context is somebody who engages in local medical practice. Such practices are considered local because the practitioner invokes African conceptions of cosmology and cosmogony to effect them (Devenish, 2005). Traditional healer services refer to the application of knowledge, skills and practices based on dynamically diverse and innovative local experiences. TMP's services are directed towards diagnosis, treatment, prevention and improvement of physical as well as emotional health.

*Bongaka* is a word used to refer to Tswana practice of healing. Currently, there are approximately 3,100 TMPs in Botswana. About 95% of these reside and provide health care services in rural areas. There are two main categories of *dingaka* in Botswana, (*dingaka.pl*, *ngaka. sing*) *Ngaka ea dingaka* (divine healer) and *ngaka ea tshotswa* (herbalist). Other categories have emerged over time as a result of cross-cultural interaction with other Bantu speaking people in southern Africa. These are *isangoma*, a divine healer and faith healer or 'prophet' (*baporofiti*) that result as an encounter with Christian religious tradition. Divine and faith healers appeared in Botswana primarily through migrant workers returning from South Africa.

In Botswana, the government has had more than twenty years of actively promoting cooperation between modern biomedicine and traditional medicine. The Medical, Dental, and Pharmacy (Amendment) Act of 1987 outlines registration requirements for chiropractors, osteopaths, naturopaths, acupuncturists, and other complementary/alternative medical professionals. Unlike in South Africa and Zimbabwe, Botswana's legal framework appears to subsume traditional medicine practitioners under complementary/alternative medical professionals. However, TMPs are required to officially register with the Ministry of Home Affairs through Botswana Dingaka Association.

In Botswana, very few published studies on local herbal medicine exist and there is no comprehensive study on indigenous plants in general (Setshogo, 2007). However, ethnobotanical/ethnomedical surveys have emerged as a very rich, time- and cost-effective and successful approach in identifying safe, affordable and effective medicines or drug lead compounds (Patwardhan, 2004). The few ethnomedical studies of traditional medicine in Botswana that are available (Chipfakacha, 1997; Link, 2007; Motlhanka et al., 2006; Majinda and Motswaledi, 1998; Larson, 1981; Kanyenvu, 2006) seem to confirm traditional healer's medical knowledge and the effectiveness of their prescribed medicines for a number of conditions including anemia (Kanyenvu, 2006) or the general promotion of good health (Motlhanka et al., 2006). The newly established Center for Scientific Research and Indigenous Knowledge and Innovation (CeSRIKI) in the Faculty of Science at the University of Botswana, is also currently conducting a national ethnobotanical survey project and is likely to make a significant contribution to the country's local knowledge base. The paper builds on existing research on local medicinal plants used by traditional medicine practitioners. The paper also recognizes that the transformation of traditional medicine taking place in southern Africa today is part of the deeper historical legacy of dynamism and ingenuity within the traditional healing community (Chavunduka and Last, 1986). Furthermore, TMPs in Botswana are the embodiment of the country's medical knowledge traditions and they have been officially acknowledged as an important element in the country's primary health care (PHC) strategy (Ingstad, 1989).

## 2 Methodology

### 2.1 Study Area

The research was carried out in the urban village of Maun, the headquarters of the North West district. There are various developments taking place in Maun. As a result of inward migration of people from different parts of the country, the village population has been growing steadily at the rate of 3.4% per annum.

The village is located at the lower edge of the Okavango Delta where biodiversity of plant and animal life is abundant. TMPs of different background from within and outside the country are found in Maun.

### 2.1.1 Specific objectives of the study

The specific of the paper is to

- develop an inventory of medicinal plants and health conditions commonly treated by herbalists.
- investigate the health conditions herbalists claim to treat better.
- investigate health condition herbalists claim biomedicine practitioners treat better.
- investigate inter practitioner relation between TMP and biomedicine practitioners.

## 2.2 Sampling Procedure

There is a local Dingaka Association, which currently has thirty registered members in Maun and surrounding localities. A list of members was obtained from the chairperson of the Association and was used to identify herbalists. The list included both the herbalists and spiritual healers. Only herbalists (not spiritual or divine healers) were selected. Knowledgeable community members (chiefs, members of Village Development Committees, community health workers and village elders) identified and recommended herbalists who were not members of the Association. A snowball technique was also used to locate members and non-members of Dingaka association. Street vendor herbalist traders, although an important sub-group, were not interviewed. A total of sixteen herbalists were interviewed.

## 2.3 Data Collection

A structured questionnaire was used to collect information. The questionnaire had both close and open-ended questions to collect quantitative and qualitative data. Face to face interviews were conducted. Data was collected on the knowledge and skill characteristics of the herbalists, collection and storage of medicinal plants, medicinal plants commonly used and conditions commonly treated by herbalists and plant parts they use, including their modes of preparation and administration perceptions herbalists claim to treat better and those they think are better treated by biomedical doctors in modern health facilities. Additional information was collected through participant observation, from informal interviews and from published and non-published secondary sources.

# 3 Results and Discussion

## 3.1 Social Identity, Knowledge and Skill

Results indicate that herbalist in Maun were predominantly men. Out of the 16 participants interviewed, 11 were males and 5 were females. Of the 11 males, eight were from a radius of 100 km from Maun, one was a ChiChewa speaking Malawian and the other Ndebele speaking Zimbabwean. The three female herbalists were from Botswana. Botswana herbalists also belong to different ethnic groups. The majority, about 43%, are Basarwa, 25% are Bayei and 13% are Banajwa. Notably, the Malawian and Zimbabwean herbalist spoke Setswana (the local language). Although they still claim to maintain kin relations in their home countries, these 'foreign' herbalist have been 'localized'. These 'foreign' herbalists emphasized that they collect herbs from countries of origin and or from other parts of Botswana. They make clear commitment to their clients that they are prepared to make an explicit effort to travel long distances to get the appropriate medicinal plants to meet their medical needs.

Most of the herbalists were more than 54 years old. Herbalists developed knowledge of the use of medicinal plants through apprenticeship training from their parents and grandparents as part of a family tradition. One herbalist, in addition to apprentice training in his home village in Botswana, received training in South Africa and went to Mozambique for a month for further training. All herbalist courtyards had a special, cleanly kept consultation room, some were fully furnished (with sitting chairs/stools/benches and table)

and others were partially furnished (with stools/bench or sitting mat/skin). Some also had a well organized dispensary. One herbalist had a hand washing sink, towels and an electric lamp. Observation of the diagnosis and treatment room revealed a range of medicines, and a highly syncretic picture of medicines, herbs and roots which demonstrate a vast knowledge and skill. There are those herbalists who considered themselves as general practitioners and those who regard themselves specialists. General practitioners treated health conditions presented to them by the general public such as such as body pains, stomach or headaches, body de-toxification and so on. Those with specific areas of expertise include paediatrics (*malwetsi a bana*), gynaecological conditions and infertility, diagnosis and treatment of STIs (*malwetsi a dikobo*), cardiac and psychiatric conditions, and so on. As members of Dingaka Association, these herbalists had attended several workshops especially on HIV/AIDS, organized by the District Medical Office in Maun.

### 3.2 Collection, Timing and Storage of the Medicinal Plants

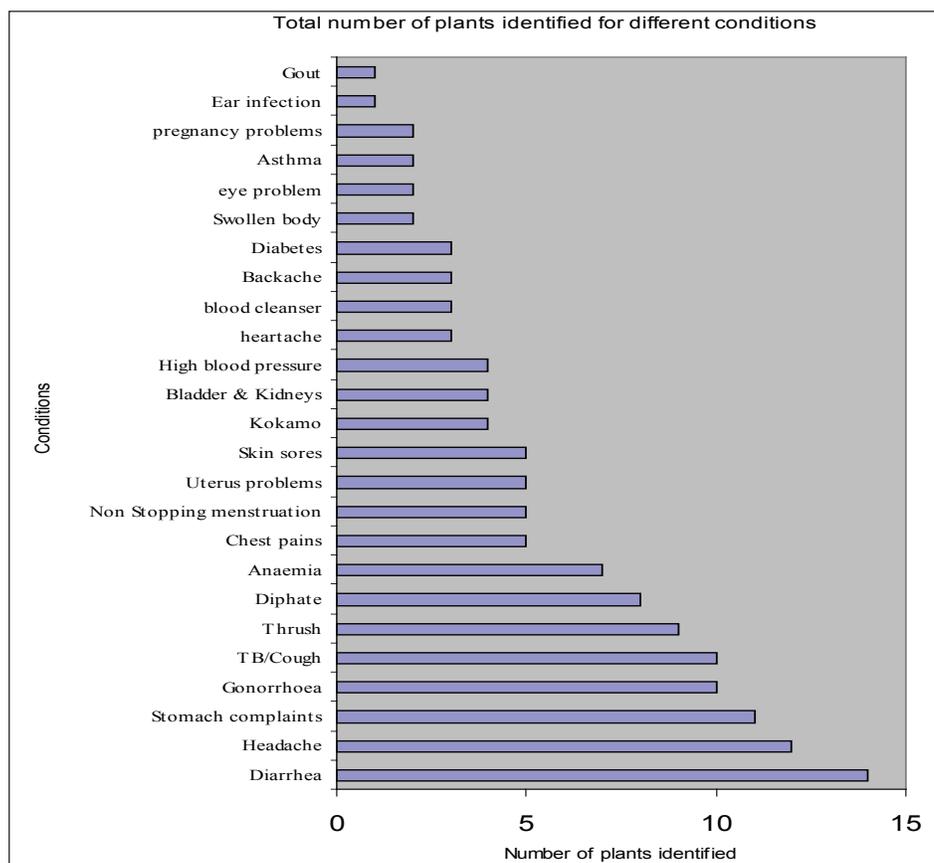
Sources of traditional medicinal plants and knowledge of treatment vary within herbalist groups (including their understanding of health issues in the community). Herbalists travel to different places to collect the medicinal plants they use. About 20% of the plants they use are found in Maun and 60% are found within 100 - 300 km range in villages such as Shorobe, Samedupi, Toteng and Shakawe. Herbalists often times have to go to far away places such as Kasane in the northwest, Gantsi in the west and Kanye in southern district. Informal interviews indicate that herbalists' harvest of medicinal plants depends on the biodiversity of different ecosystems and seasons. In addition to collecting their medicinal plants locally, Malawi and Zimbabwe herbalists take occasional trips home to collect special herbal plants for their patients and also to check on family members. Herbalists also claim that they treat clients from different districts in Botswana as well as from neighboring countries such as Namibia, South Africa, Zimbabwe, Zambia and Angola. The fame of a healer is usually spread by word of mouth by ex-patients locally or across the border. Furthermore, herbalists claim that they pay regular homes visits to their patients. Once these get well, they are likely to pass the information to neighbors, relatives or friends in the community about their health status.

All plants are collected during the months of January to April. Medicinal plant harvesting time thus coincides with they rainy season. About 70% of herbalists collected plants in pre-flowering stage, considered as the most potent. The majority of herbalists said that the use either the leaf color or smell as indicators of plant maturity. Some herbalist, about 44% said that they chew the leaves to taste plant readiness, however others (about 56%) said that this is a risky health practice because some plant leaves have a high poison concentration. Fennel et al., (2004) also point out that, although medicinal plants are used widely and are assumed to be safe, many are potentially toxic.

Herbalists claimed that herbal plants found locally were easily available and therefore the problem of scarcity did not arise. Collected medicinal plants were generally sun-dried and stored in clearly labeled plastic bags, bottles, containers and boxes for easy identification. Dried medicine is crushed into powder and stored in labeled bottles as well. The majority (80%) of herbalists store their dried medicine for up to one year and a few (20%) for up to six months after which they dispose of them and stock up fresh supply.

### 3.3 Medicinal Plants Commonly Used and Conditions Treated

Herbalists identified a total of 43 medicinal plants they use to treat a range of conditions. About 77% of the medicinal plants have local Setswana names and 23% either Shona or ChiChewa. The conditions mentioned by herbalists affect different groups. Some of the conditions are associated with the general population (84%) and others are associated with either children (about 4%) or women (about 12%). These include non-stopping menstruation and uterus, infertility and pregnancy problems. Figure 1 shows medicinal plants commonly used to treat commonly known health conditions. These include headache, diarrhea, stomach complaints, gonorrhoea, TB/cough, thrush, *diphate* (STIs) and anemia Among these, the five most popular plants are *Moithimodiso* (*Kalanchoe lanceolata*), *Monoga* (*Albizia anthelmintica*), *Mogonono* (*Terminalia sericea*) *Masigomabe* (*Plumbago zeylanica*) and *Thothamadi* (*Jatropha erythropoda*). These plants share



**Figure 1** Commonly treated conditions

many of the same uses. They commonly treat headache, diarrhea, anemia, stomach pains, tuberculosis and sexually transmitted infections such as gonorrhoea.

Most herbalists were willing to disclose general aspects of medicinal knowledge widely used and even give samples, but some were reluctant to divulge specialized treatment medicine, healing techniques and plant properties. In Kenya, Ng'etich (2005) also found that a significant proportion of specialized traditional medicine knowledge remain relatively undisclosed and uncoded. About 56% of the conditions were treated using a single plant and 44% with a combination of plants.

Only 13 of the most commonly used medicinal plants are combined with others to treat conditions such as diarrhea, gynecological, sexually transmitted infections, diabetes, high blood pressure and so on (Table 1). Herbalists felt that medicine prepared using a combination of two or more plants was more effective than that using a single plant. Roots are commonly used and a daily dose is prescribed. Treatment varies from two to three months, depending on the disease. Water is used to prepare medicine for the patients. A patient can use a medicinal mixture for up to three days; thereafter it loses its potency. Herbalists say they are able to tell that the medicine has lost its potency from its taste. In most cases, the decoction of the plant in water is taken as tea and in some instances, the powdered form is mixed with soft sorghum or maize porridge. For treatment of skin conditions, the mode of application is topical, confined to the affected portion of the body but in certain cases the medicine is also administered orally.

About 94% of the herbalists denied treating HIV/AIDS patients and claimed that they refer them to the hospital right away. However some of the conditions herbalists claim they treat are closely associated with known opportunistic infections related to the AIDS virus such as diarrhea, tuberculosis, thrush, and

**Table 1** Conditions treated by a combination of medicinal plants

Condition	Medicinal plants	Part used	Method of preparation
Diarrhea	<i>Monoga</i> ( <i>Albizia anthelmintica</i> ) <i>Mogonono</i> ( <i>Terminalia sericea</i> ) <i>Thothamadi</i> ( <i>Jatropha erythropoda</i> ) <i>Letlhajwa</i> ( <i>Diospyros lycioides</i> ) <i>Moporota</i> ( <i>Kigelia Africana</i> )	Roots	An infusion of the roots mixed with the fruits is taken orally, ½ a cup twice a day.
		Fruits	
Uterus problems	<i>Monoga</i> ( <i>Albizia anthelmintica</i> ) <i>Letlhajwa</i> ( <i>Diospyros lycioides</i> )	Roots	The root powder is boiled and the decoction is taken orally, ½ a cup daily
Gonorrhea	<i>Monoga</i> ( <i>Albizia anthelmintica</i> ) <i>Thothamadi</i> ( <i>Jatropha erythropoda</i> ) <i>Letlhajwa</i> ( <i>Diospyros lycioides</i> ) <i>Mogonono</i> ( <i>Terminalia sericea</i> ) <i>Mmupudu</i> ( <i>Mimusops zeyheri</i> )	Roots	The mixture of the dried roots is boiled and the infusion is taken daily orally, ½ a cup daily
Stomach complaints	<i>Monoga</i> ( <i>Albizia anthelmintica</i> ) <i>Mogonono</i> ( <i>Terminalia sericea</i> ) <i>Thothamadi</i> ( <i>Jatropha erythropoda</i> )	Roots	The roots are boiled and the decoction is taken orally, ½ a cup once in a day
Backache	<i>Monoga</i> ( <i>Albizia anthelmintica</i> ) <i>Thothamadi</i> ( <i>Jatropha erythropoda</i> ) <i>Mokgalo</i> ( <i>Ziziphus mucronata</i> )	Roots	The mixture of the dried roots is boiled and the infusion is taken orally daily, ½ a cup daily
Bladder & kidney	<i>Monoga</i> ( <i>Albizia anthelmintica</i> ) <i>Mmupudu</i> ( <i>Mimusops zeyheri</i> ) <i>Moretologa</i> ( <i>Ximenia africanus</i> )	Roots	The roots are boiled and the decoction is taken orally, ½ a cup once in a day A mixture of the powdered roots can be used in porridge, ½ a teaspoon.
Tuberculosis	<i>Mmupudu</i> ( <i>Mimusops zeyheri</i> ) <i>Monoga</i> ( <i>Albizia anthelmintica</i> ) <i>Mogonono</i> ( <i>Terminalia sericea</i> ) <i>Masigomabe</i> ( <i>Plumbago zeylanica</i> )	Roots	½ teaspoon of powder from dried roots of each plant and the bark is boiled and the decoction is taken orally, ½ a cup every morning.
		Bark	
Anemia	<i>Moretologa</i> ( <i>Ximenia africanus</i> ) <i>Mogonono</i> ( <i>Terminalia sericea</i> ) <i>Thothamadi</i> ( <i>Jatropha erythropoda</i> ) <i>Mogwadibe</i> ( <i>Cassine transvaalensis</i> ) <i>Tshikadithata</i> ( <i>Abutilon angulatum</i> )	Roots	The infusion of the dried roots is taken orally, ½ a cup daily. A mixture of the powdered roots can be used in porridge, ½ a teaspoon daily
Diabetes	<i>Mokgalo</i> ( <i>Ziziphus mucronata</i> ) <i>Monoga</i> ( <i>Albizia anthelmintica</i> )	Roots	The root powder is boiled and the decoction is taken orally, ½ a cup daily
Diphate	<i>Monoga</i> ( <i>Albizia anthelmintica</i> ) <i>Letlhajwa</i> ( <i>Diospyros lycioides</i> ) <i>Mmupudu</i> ( <i>Mimusops zeyheri</i> )	Roots	The mixture of the dried roots is boiled and the infusion is taken orally daily, ½ a cup daily
High blood pressure	<i>Moporota</i> ( <i>Kigelia Africana</i> ) <i>Thothamadi</i> ( <i>Jatropha erythropoda</i> )	Fruits Roots	An infusion of the roots mixed with the fruits is taken orally, ½ a cup twice a day.

sexual transmitted infections. One of the herbalists admitted that some AIDS patients come to see him when they are really in bad shape. His fear was that if they die in his care, he is likely to be prosecuted by the government (a situation which he considered unfair because patients die on the operation tables of biomedical doctors, but these have state protection). As members of the Dingaka Association, herbalists have attended several AIDS awareness workshops organized the District Public Health Office in Maun. Herbalists are eager to participate in these seminars and workshops for different reasons. As such, each

herbalist brings a specific perspective on emerging health issues, a personal agenda and seeks to manipulate those in powerful positions to protect and recognize the herbal medical practice. But in general, they desire to be recognized as legitimate health providers, and to be protected by law and have access to government resources. These seminars enable them not only to share knowledge among themselves and with biomedical doctors, but also to have different interpretation about emerging health challenges (including AIDS).

### 3.4 Publicity and Perception of Competency

Herbalists generally advertise their services through client self report in the community. However, some herbalists advertise their services by erecting signboards outside their practice. Other studies have also observed that herbalists in rural and urban settings advertise their services by erecting signboards outside their practice, street vending display, through mailing lists and by distributing leaflets (Devenish, 2005 and Dijk, 2002).

Each herbalist claimed competence in treating health conditions presented to him or her. Herbalists possess individual specialized knowledge of medicinal plants (for instance those used to treat mental illness, infertility and so on) some of which they were not willing to disclose and general or shared knowledge they were willing to share. All herbalists claim that they are better at treating diarrhea, stomach complaints and headache (Table 2). A few of them claim to treat anemia, diabetes and eye problems. Good indicators of skill in treating these diseases include, verbal feedback, willingness to settle treatment payment and non-reports on adverse side effects of prescribe medicine from patients. Herbalists also claimed that their patients admitted to have consulted several herbalists prior to consulting them without success.

About 80% of herbalists claimed they have referred patients to hospitals/clinics. Some of the referred patients had uncontrolled high blood pressure, diabetes, cardiac complications and others were anemic. Herbalists make referrals on health conditions that either they believed biomedical doctors are well trained to handle or they are afraid that the patient's critical conditions could be fatal. They readily admit that biomedical doctors are effective in treating some health conditions while herbalists are good in treating other diseases. To this extent, herbalists interface or 'marry modern health practices and technology (Bruce, 2002) with patients who are equally pluralistic service consumers of both health care systems.

## 4 Discussions and Conclusion

Herbalists are knowledgeable and skilled about treating a range of health problems, including what medicinal plant to use, methods of preparation, dosage and treatment duration. In Maun, as elsewhere in southern Africa, a wide range of plants species are used as medicines for treating a wide range of diseases except illness requiring a major surgical intervention. Herbalists not only know which part of the plant should harvest, but also when and how best to harvest it in a sustainable manner. They are also conscious about where to store the medicine and for how long (expiration time). In some cases, herbalists use some or all parts of a plant that has different properties or active components (Pamplona-Roger, 2001). Since active ingredients

**Table 2** Conditions herbalists claim can treat better

Conditions	Number of herbalists	%
Diarrhea, headache and stomach ailments	16	100
Skin sores	13	81.2
TB/cough	11	68.7
STIs, gynecological problems, thrush	10	62.5
Bladder & kidneys	9	56.2
Menstruation	5	31.2
High blood pressure	4	25.0
Anemia, diabetes	3	18.7
Cardiac and eye conditions	2	12.5

in leaves, roots or bark are often quite different and one part may be very toxic and another quite harmless, the whole plant is therefore rarely used for medicine (Fennell, et al. 2004).

Although herbalists shy away from treatment of AIDS related conditions, some of the conditions herbalists claim to treat are closely associated with known AIDS related opportunistic infections such as tuberculosis, thrush and diarrhea. Studies in Zimbabwe and Nigeria suggest that intervention by some herbalists have been found to boost the immune system of people infected with the HIV virus (Chigodo, 2001; WHO/AFRO, 2001). In general, herbalists in Maun see themselves in a complementary rather than adversarial position in relation to biomedicine treatment. Their perspective helps us understand why some healers view mutual referral systems as something that they can benefit from and also as a way to enrich both systems of health care for the benefit of their patients.

Equally important is that herbalists view their engagement with the formal health establishment as part of their quest for recognition and exchange of resources between TMP and the formal health care system. Unlike in China and Vietnam, where traditional and modern medicine have been integrated at the level of education and practice, African governments generally, have not done much legislatively to promote and protect research and practice of traditional herbal medicine. Although recognition of the role of TMPs in Botswana's health care, especially in the face of the HIV/AIDS pandemic, has led governments to call for professionalisation of traditional medicine, however, insufficient resources have been directed toward improving service provision. Consequently, without clear legal and policy framework, TMPs in the country still operate in relatively unregulated public health space. This means that unscrupulous herbalist are likely to emerge to address, in particular, increasing social anxieties around the AIDS pandemic. Local and national Dingaka Associations in the country have no legal authority to monitor and prevent herbalist malpractice in the same way as the regulatory structures of global biomedicine. This legal discrepancy needs to change in order to integrate traditional and modern medicine at the level of service delivery.

**In conclusion**, herbalists in Maun demonstrate generalized and specialize knowledge about a range of health conditions including remarkable competencies in treating these conditions. But as Moahi (2007) argues, by transforming their knowledge to be part of the 'global commons', it is vulnerable to commercial exploitation. There is urgent need for legal and policy framework to regulate, protect and support TMPs in Botswana. In Botswana, Kiggundu (2007) has suggested how intellectual property rights legislation can be put in place, *sui generis*, to govern the use and flow of knowledge systems in order to guard against misappropriation and bio-piracy.

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