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Letters of the Bush: A Case Study of Traditional Setswana Herbal Medicine

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Letters of the Bush: A Case Study of Traditional Setswana Herbal Medicine

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Table of Contents

1. ABSTRACT	3
2. ACKNOWLEDGEMENTS	4
3. INTRODUCTION	5
4. STUDY AREA	7
5. MATERIALS AND METHODS	8
6. RESULTS	10
7. DISCUSSION.....	15
8. CONCLUSION	17
9. RECOMMENDATIONS	19
10. APPENDIX 1: ALPHABETICAL LISTING OF MEDICINAL PLANTS	20
11. APPENDIX II: TREATMENTS	23
12. APPENDIX III: NON-PLANT MATERIALS USED	26
13. APPENDIX IV: BIBLIOGRAPHY	27
14. APPENDIX V: ISP EVALUATION	28

1. Abstract

Traditional medicinal techniques in southern Africa are under-studied, but they continue to play an important role in many people's lives. In addition to its anthropological value, traditional medicine also has the potential to lead to new treatments for diseases. This study proposed to document the plants and methods used by a traditional healer in the village of Goo-Tau, Tswapong Hills region, Central District, Botswana.

The study was conducted over a period of three weeks through a series of interviews. Samples were collected of selected plant species. Plants were identified both during and after the study through field guides and consultation with the Botswana National Herbarium.

The role of a traditional healer was found to be broad, addressing physical and spiritual symptoms as well as a few veterinary treatments. Seventy-six plant species and their uses were documented, and of these, fifty-three were tentatively identified by scientific name. Seventeen plants were used for various forms of pain relief, from headache to stomach pain, and the most common administration method was boiling a root and drinking the decoction. One plant found in villages near Goo-Tau, *Hydnora johannis*, had a documented range that only touched on the northern parts of Botswana, so its presence in the Tswapong Hills region is a significant extension of its range.

The study successfully recorded many traditional medicines and their preparations and began to record the beliefs and reasoning behind the uses. It was by no means comprehensive and does not claim to be representative of healing techniques for the region. The plants and treatments documented in this study should be further tested and screened for medicinal activity, and both survey and in-depth ethnographic studies are needed to adequately record the wealth of cultural, botanical, and medicinal knowledge held by traditional healers.

2. Acknowledgements

First and foremost, I would like to thank Rra Keolebogile Mosweu for accepting me as his student and teaching me tirelessly throughout my period of study. The wealth of knowledge he shared with me was incredible, and without him I would not have had a project.

Thanks also to Mabedi Mosweu for acting as translator (and friend), and to Mma Mosweu for taking me into her house as a daughter. Thanks to the residents of Goo-Tau for welcoming me into their community for three weeks, and to the various people who offered me rides, food, and advice throughout my stay.

Many thanks to Dr. Bruce Hargreaves for sharing his time and experience in identifying plant samples and to the staff of the National Herbarium for the use of their facilities during the morning I spent in identification.

Many thanks go to Jonathan Habarad and Sentele Mosweu for acting as liaisons with Rra Mosweu prior to my arrival and for helping me reach Goo-Tau safely.

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3. Introduction

In much of sub-Saharan Africa, Western medicine continues to be unavailable to many people due both to a shortage in practitioners (with a corresponding high cost of treatment) and to continuing confidence in traditional medical techniques. Practitioners of traditional medicine range from spiritualists to herbalists, and although the vast majority of the population has either consulted or will consult a traditional healer at some point in time (Chipfakacha 1997), research on actual practices is limited.

Traditional medicinal techniques are found in most societies worldwide, and their study has multi-fold purposes, especially as regards herbal medicine. Firstly, many of the techniques are known only to a limited group of practitioners within the given culture. With the increasingly rapid globalization of culture, this knowledge is in danger of being lost. Secondly, traditional herbal medicine has already given rise to important developments in pharmaceuticals, and many researchers feel that indigenous knowledge may hold cures for anything from cancer to mental illness. However, research on these cures cannot begin until the possibilities have been identified. Thirdly, an understanding of plant use is critical to conservational efforts. If a plant is being harvested non-sustainably, the plant could potentially become locally or, if it is an endemic species, even totally extinct. Additionally, many of the world's most bio-diverse regions are both understudied and over-pressured, so species might be lost before they are ever scientifically recorded. Local experts are an as-yet underutilized repository of biological knowledge, and working in conjunction with them could considerably advance understanding of ecosystems and species interactions.

Literature exhibits a lack of studies examining and cataloguing the plants used by traditional healers in sub-Saharan Africa, with only two studies surveying countries adjacent to

Botswana (Zimbabwe and South Africa) and none addressing Botswana itself (Thring and Weitz 2006; Kambizi and Afolayan 2001). Current ethno-botanical efforts in the region include exportation of *Harpagophytum procumbens* (Devil's Claw), and research into the use of *Hoodia gordonii* as an appetite suppressant, but these efforts are extremely specific and do not even attempt to address the diversity of plants used medicinally by local practitioners.

Botswana is a country with a small population of 1.7 million, concentrated in the eastern parts of the country, and botanical research has often focused on the Okavango Delta, a unique wetlands habitat in the northwestern part of the country. Some medicinal uses of plants in the Delta region have been recorded in such books as the Shell Field Guide series, but literature on other parts of the country is nonexistent, difficult to locate, or out of date. The Botswana government has a policy "to promote collaboration and co-operation between traditional healers and the formal health sector" (Chipfakacha 1997), so the country fortunately lacks excessive stigmatization of traditional medicine by Western health practitioners, but generally speaking, cooperation between Western and traditional medical practitioners still needs to be improved in most African countries (Puckree, Mkhize, Mgobhozi, and Lin 2002).

This study proposed to perform an ethnographic case study of the practices of a single traditional herbal healer in the Tswapong Hills region of the Central District of Botswana, and as such it took a mixed biological and anthropological approach. The study was exploratory, with the goal of documenting the botanical knowledge of the healer in an effort to preserve traditional knowledge and to indicate plants with potential medicinal value. As such, it makes no claims at being representative of general healing practices for Botswana or even for the Tswapong Hills region. The study sought to identify the plant species used (by both Setswana and scientific names), the symptoms for which they are used, and the preparation of each remedy.

4. Study Area

Goo-Tau is a rural village 30 km southeast of Palapye in the Tswapong Hills area of Central District, Botswana. It is accessible by bus (run by a man in the village) and by car, and travel from Palapye takes between 40 minutes and an hour. Goo-Tau has one tarred road as well as several dirt and gravel roads, and traffic is infrequent. The nearest petrol station is in the village of Ramokgonami, a distance of 18 km by road. Setswana is the primary language, though many residents also speak English.

The village has a primary and a Junior Secondary school, as well as a clinic staffed by one full-time nurse. Any supplies not available in the grocery or bottle stores must be bought in nearby villages or in Palapye. There is limited electricity and cell phone coverage in some parts of the village, and many families have a water tap in the yard that supplies potable water. As is the case in much of Botswana, most if not all residents of Goo-Tau engage in some kind of agro-pastoralism, with the *masimo* (lands) within walking distance of the village, and most families raise chickens and goats in addition to cattle. Staple foods include maize and sorghum meals, supplemented by beef, poultry, *morogo* (green, leafy vegetables), and such fresh fruits as are found locally or imported.

The Goo-Tau area is characterized by red, sandy soils; mixed tree and shrub savannah; and seasonal stream beds. The village is situated right up against several hills, one of which has a Cape Vulture colony, and, according to the Botswana Department of Tourism, Tswapong Hills receives higher rainfall than the surrounding region, which receives approximately 350-400 mm of rainfall annually.

5. Materials and Methods

Study Period: The study was conducted between 14 November and 2 December 2006.

Interviews: All interviews with Rra Mosweu were conducted formally, with notes taken and sketches drawn as the session progressed. Interview lengths ranged from approximately ½ to 3 hours, and the time of day depended entirely on when Rra Mosweu was free from other responsibilities such as plowing or repairs. Rra Mosweu usually brought specimens to the home compound, where he then discussed the uses of each plant, and several sessions included walks out into the nearby bush to locate plant specimens *in vivo*. Mabedi Mosweu, Rra Mosweu's youngest daughter, attended all interview sessions and acted as a translator. Techniques for preparing the plants were usually demonstrated once, and then indicated verbally thereafter. Following each interview, additional comments were recorded if necessary to clarify the interview content, and Rra Mosweu periodically inspected the notebook to correct name spellings and approve drawings and interpretations.

Plant Specimens: Whenever possible, samples of the plants observed were taken for later examination and identification. Leaves, stems, and flowers were pressed between sheets of paper and labeled with their Setswana names; roots, fruits, larger stems, and other plant materials that could not be pressed were tagged and kept loose in a bag.

Species Identification: Species were tentatively identified by their scientific and common names through the use of several field guides and other resources. First, the indexes were searched for the given Setswana name, then, if the name was not found or the plant description did not match, the plants were keyed. The tentative identifications were recorded in a table along with the Setswana names. Plants were occasionally identified in the field and the Field Guide pictures shown to Rra Mosweu for confirmation.

Field Guides/Resources:

Anonymous. Some Medicinal Plants of Botswana.

Ellery, Karen and William. Plants of the Okavango Delta. Tsaro Publishers.

Durban, South Africa: 1997.

Roodt, Veronica. Common Wild Flowers of the Okavango Delta: Medicinal uses and Nutritional value. Shell Oil Botswana (Pty) Ltd. Gaborone, Botswana: 1998.

Roodt, Veronica. Trees & Shrubs of the Okavango Delta: Medicinal uses and Nutritional value. Shell Oil Botswana (Pty) Ltd. Gaborone, Botswana: 1998.

National Herbarium: All loose and pressed samples were brought to the Botswana National Herbarium at the end of the data collection period. Over a period of three and a half hours, Dr. Bruce Hargreaves provided tentative identifications for all sampled plants by comparing them with various published resources and to the herbarium's collection of specimens.

6. Results

Anthropological

In Setswana tradition, “medicine” is a term that applies both to relief of physical symptoms and to meta-physical purposes, such as protection or good luck. The duties of a traditional healer range from treatment of illnesses to ritual cleansing of widows or widowers, and often symptoms are tied in with ritual meaning. For instance, a symptom of swelling legs was described as associated only with widows and widowers, so the medicine used was specific to those people. Rra Mosweu also had knowledge of veterinary medicine, and some of the treatments he described were designed to aid in the care of cattle or goats. Additionally, healer was not Rra Mosweu’s only occupation, as he also raised both crops and cattle. As the study took place at the beginning of the rainy season, sessions were often arranged around trips to the lands for plowing and preparation of the ground prior to planting.

From personal observation, the relationship of the healer and patients is informal. In fact, I was usually unable to distinguish between visiting patients and other visitors unless I was told explicitly that someone was seeking treatment. Both groups were usually offered refreshment and sat for at least half an hour talking with Rra Mosweu out in the open under a tree in the yard. Rra Mosweu also explained that he has a “boss” in another village, and the two men exchange supplies, consult on treatments, and even treat each other when one falls ill.

Rra Mosweu diagnosed illness primary on the basis of symptoms. He acknowledged that many healers use tools known as *ditaola*, patterned objects usually made of wood or bone, and he showed me a set that he inherited from his father, who was also a traditional healer. However, he did not learn the use of the *ditaola*, which are supposed to reveal the cause of illnesses by the

way they land on the ground when thrown. As a result, he instead gave specific symptoms (e.g. pain, diarrhea, or rash) for which each of the treatments was to be used.

Biological/Medical

A total of seventy-six plant species were documented as having medicinal value in Setswana traditional medicine, as well as seventeen non-plant materials (see Appendix III). Fifty-three of these species were able to be identified through the use of field guides, other references, and consultation at the National Herbarium, and forty-eight samples were collected in total. Some samples were not collected because the plant was positively identified in the field due to easily recognizable characteristics (e.g. the *Mosuu*, or Leadwood tree). Others were not collected because the plants were found at a distance of some kilometers from Goo-Tau, and Rra Mosweu was not able to physically collect fresh specimens. In such cases, names were recorded and dried samples were examined; these plants represent the bulk of the unidentified species.

Presenting every plant and every remedy is impractical for the scope of this study, so pain relief was chosen as the primary result to be presented in detail. A list of all plant identifications is found in Appendix I, and an index of symptoms and their treatments is found in Appendix II.

Sixteen plant species were used to treat sicknesses for which the primary symptom was pain in some part of the body (e.g. headache), and twelve were identified by scientific name (Table 6.1). All but two of the remedies utilized the root or bulb of the plants. When a tree was used, only part of the root was taken, thus allowing the tree to keep growing; when an herb was used, it was usually entirely uprooted and the stem and leaves discarded. One plant, *Morobe*, was used for two separate remedies, each with distinct preparation and administration methods; similarly, *Mokgalo* was indicated both for general pain relief and for menstrual pain, though it was prepared identically for both symptoms.

Table 6.1 Species used for pain relief

Setswana name	Scientific name	Common name	Description
Kgalamela	<i>Hirpicium bechuanense</i>	-	Herb
Makgolela	-	-	Tree
Mofalatsa maru	<i>Asparagus officinalis</i>	Wild asparagus	Herb
Mokgalo	<i>Ziziphus mucronata</i>	Buffalo thorn	Tree
Monepenepe	<i>Cassia abbreviata</i>	Long pod cassia	Tree
Monnamontsu	<i>Cadaba aphylla</i>	Leafless cadaba	Herb
Morobadiepe	-	-	Tree
Morobe	<i>Ehrentia rigida</i>	Puzzle bush	Shrub
Morolwa	<i>Solanum incanum</i>	-	Shrub
Moselesele	<i>Dichrostachys cinerea</i>	Sickle bush	Shrub
Mosetlha	<i>Peltophorum africanum</i>	Weeping Wattle	Tree
Mosu	<i>Acacia tortilis</i> subsp. <i>Heteracantha</i>	Umbrella thorn	Tree
Motsididi	<i>Hibiscus calyphyllus</i>	Wild Hibiscus	Herb
Motsitsane	-	-	Tree
Phekolola	<i>Zehneria marlothii</i>	Creeping wild cucumber	Herb
Setswenyakawena	-	-	Herb

The most common preparation for medicine was decoction, in which the root was boiled and discarded, then the water from boiling was drunk when cool; in most cases, the root did not have to be peeled before it was boiled. This preparation was used for nine of the eighteen remedies. The other preparations for pain relief medicines were direct ingestion, in which the root was dried, powdered, and either eaten or mixed into cold water and drunk (3/18); smoke inhalation, in which the tip of the root was touched to a hot coal until it began to smoke, then the smoke was inhaled (3/18); and smoke perfusion, in which the root or branch was pounded into small pieces, dried, placed on a hot coal, and the smoke allowed to contact the painful area (3/18) (see Table 6.2 for summary).

One painful area, called *diphilo* in Setswana, was described as being located on both sides of the body in the lower abdomen, close to the hips. I was unable to determine the English

Table 6.2 Pain Remedies

Type of Pain/Name	Part Used	Administration Method
<i>1. Headache</i>		
Makgolela	Root	Burned and smoke inhaled
Monnamontsu	Root	Burned and smoke inhaled
Morobe	Root	Burned and smoke inhaled
<i>2. Stomach</i>		
Kgalamela	Bulb	Pounded and eaten
Phekolola	Root	Boiled and decoction drunk
<i>3. Menstrual</i>		
Mofalatsa maru*	Bulb	Pounded, burned, and area exposed to smoke
Mokgalo	Root	Boiled and decoction drunk
Moselesele*	Branch and leaves	Pounded, burned, and area exposed to smoke
Mosu*	Branch and leaves	Pounded, burned, and area exposed to smoke
<i>4. Kidneys (diphilo)</i>		
Morobe	Root	Boiled and decoction drunk
Motsitsane	Root	Powdered and drunk in water
<i>5. Stabbing Pains (dithabe)</i>		
Monepenepe	Root	Powdered and drunk in water
Setswenyakawena	Root	Boiled and decoction drunk
<i>6. During pregnancy</i>		
Motsididi	Root	Boiled and decoction drunk
Morolwa	Root	Boiled and decoction drunk
<i>7. General</i>		
Mokgalo	Root	Boiled and decoction drunk
Morobadiepe	Root	Boiled and decoction drunk
Mosetlha	Root	Boiled and decoction drunk

*Plants used together simultaneously for remedy

translation in discussion with Rra and Mabedi Mosweu, but a staff member at the National Herbarium later translated it as kidneys. Another symptom, *dithabe*, could only be translated as “stabbing pains,” and is apparently a distinct, recognized phenomenon that does not appear to be confined to a specific part of the body. One headache remedy, a mixture known as *Bofitha*, was

not included in consideration for these results as its use for headaches was indicated only indirectly by the translator after a family member was observed using it' the purpose originally stated for it was cough in infants, so it was excluded from this summary. None of the remedies for pain was indication as more effective than any of the others or as being used in sequence. The headache remedies, in particular, were described as completely interchangeable.

Species Identification

One species, *Lethole*, was identified at the National Herbarium as *Hydnora johannis*, a parasitic plant. The part collected was a section of the rhizome. The plant grows underground and has no aboveground stem; it flowers briefly with part of the flower showing aboveground, and the fruit develops entirely underground. *Hydnora johannis* has a published distributing that starts in the north of Botswana (in the Okavango Delta region), and has never before been documented as appearing anywhere close to the Tswapong Hills region.

7. Discussion

Low level pain relief in the Western world usually consists of taking a Tylenol or an aspirin, both high processed drugs that seem to be far from the botanical world. However, salicylic acid, the active ingredient in aspirin, was first isolated from willow bark used as a traditional medicine with methods that were probably much like those documented in this study (i.e. boiling/decoction). Quite possibly, some of the plants listed in the results contain active compounds that combat pain when ingested; however, although the main symptom of each sickness presented in the results is pain, the treatments should not be considered to be only pain relievers. Stomach pain can be a symptom of a gastrointestinal tract infection, and side pain could indicate anything from muscle cramps to appendicitis, so the medicines might also have antibiotic activity. Additionally, relief of stomach discomfort by tannin-containing plants is documented, and tannin is a chemical found in the roots and bark of many of the trees documented in this study (Roodt, Trees and Shrubs). Of course, no assumptions can be made without testing, and some of the remedies might turn out to be inactive and used mainly for a placebo effect.

Dr. Bruce Hargreaves of the National Herbarium also suggested in conversation that some plants that are burned might have psychoactive compounds; for instance, *Mphaphama*, or the Paper-barked corkwood, contains a resin that has long been used as incense in many parts of the world, a use that closely parallels its inclusion in a cough remedy. Additionally, *Mofalatsa maru*, which is used for relieving menstrual pains, has long been thought to have possible hallucinogenic properties due to its inclusion in spirit possession rituals in some of the countries bordering Botswana; it is not inconceivable, then, to think that its smoke might affect nerves to relieve pain.

Many of the treatments recorded in the study differed in small or large ways from the uses in the references used to identify the plants. For instance, “Some Medicinal Plants of Botswana” listed *Phekolola* (*Zehneria marlothii*, or the creeping wild cucumber) as being used only to “chase away evil spirits” (8), while Rra Mosweu used it both for the ritual cleansing of widows and widowers, and for relief of stomach pain. If a researcher just heard of the “evil spirit” or cleansing approach, he or she might ignore the plant as irrelevant to Western medicine, when it should really be screened for antibiotic or pain relief activity. Multiple uses of plants, especially when the uses are deeply connected to the worldview of the culture (as in ritual use), make the need for survey and in-depth research all the more evident. When *Phekolola* was first presented, it was in ritual context, and only through prolonged discussion as the alternate, medical use described. Clearly, assumptions as to which plants are important and which are simply “superstitions” cannot be based on one study or one healer’s description of uses.

Rra Mosweu evidence wide-ranging knowledge of plants in the region, both those found directly around Goo-Tau and those found only at a distance of some kilometers away. He also frequently indicated relationships among plant species—such as common names applied to all parasitic plants that live in trees—that have the potential to reveal a lot about his understanding of the natural world, and how it may differ from the Western understanding. Additionally, Rra Mosweu’s knowledge of plants such as *Lethole* is invaluable, as the plants are extremely difficult to locate due to their limited above-ground visibility; in the case of *Lethole*, Tswapong Hills is so far outside the published range that no one would look for it there, so documentation would have to depend entirely on the chance event of a researcher stumbling upon a plant when it is flowering. Local expertise such as that of traditional healers has the potential to reveal many details of local flora that a researcher working independently might take years to discover.

8. Conclusion

Current literature on medicinal plant use in Botswana is either non-existent or out of date, contained in hard-to-locate tomes, and even plant distribution in Botswana is under-researched. The fact that I, a student-researcher working on a three-week project, could record a plant in a previously undocumented range indicates that documentation is seriously lacking.

The traditional medicines documented in this study were primarily based on recognizable symptoms that could be described in concrete terms relating to the body, and the administration often involved methods that could actually deliver some form of chemical to the body. In that light, there is a good possibility that some of the remedies actually have active components that can bring about the effect claimed, or some related effect. Pain relief with herbal medicine is nothing new, and it is not unreasonable to postulate that some of the remedies listed here might prove to be potent and applicable even outside of their original cultural context. However, without research to screen and test the activity of extracts of the plants, their potential uses can not be realized outside of traditional medicine. Clearly, this study can make no conclusions about the efficacy of any of the treatments.

The study was also limited in that it focused only on the knowledge of one healer. Uses for plants probably vary across regions, and the highly individual nature of knowledge transfer among traditional medical practitioners makes it likely that each healer has an overlapping but unique repertory of medicinal plants. Three weeks was by no means long enough to exhaust Rra Mosweu's knowledge of plants, so the study does not even definitely document the entire range of plants he uses; also, additional uses for various plants in isolation or in combination often emerged some time after the plants were first mentioned, so further uses for the plants listed probably exist.

During one session early in the study period, Rra Mosweu made an interesting metaphor. He described trees as being like letters: used alone, they may mean (or do) one thing, but used together, they can form whole new words and treatments. Continuing his imagery, I consider Rra Mosweu to be both highly literate and willing to teach others (such as myself) to read the bush. Any researcher who really wants to get a unique perspective on the native plants of Botswana should talk to those people who have made it their life's work to know and understand them, people such as Rra Mosweu. Traditional medicine has the unique position of bridging the worlds of physical and spiritual, community and individual, and modern and historical. As a result of this position, it has the potential to reveal a wealth of information about the beliefs, attitudes, and knowledge systems of the culture in which it operates.

9. Recommendations

From an anthropological perspective, the field of traditional medicine has a lot of potential for revealing cultural attitudes and beliefs. From my observations (e.g., Rra Mosweu himself had not yet chosen a successor to his traditional healing practice), I believe that the knowledge of healers such as Rra Mosweu is in danger of being lost if it is not recorded soon. Such a loss would be incalculable, and thus further interviews with traditional healers should be conducted. An area that seemed particularly promising but which I could not pursue due to my limited time and linguistic capabilities is the belief system behind the use of each material or mixture.

The limited scope of my study did not allow me to conduct any biological testing of the plants I recorded, so I cannot make any conclusions about the effectiveness of any of the remedies. However, an ethno-botanical study in Zimbabwe tested plants repeatedly mentioned by traditional healers as useful for STDs, and found that two of the six plants tested were active in inhibiting bacterial growth (Kambizi and Afolayan 2001), indicating that some plants used traditionally could be useful even in Western medicine. I recommend that survey studies be undertaken in Botswana to create a generalized list of medicinal plants; the chemical properties of these plants should subsequently be tested both against the diseases for which they are used traditionally and against a wide range of disease-causing organisms.

10. Appendix 1: Alphabetical listing of medicinal plants

	Setswana	Scientific	Common	Reference
1	Boletso	<i>Erianthamum virescens</i>		BNH
2	Bogogobafatshe (female)	<i>Portulaca quarifida</i>		BNH
3	Bogogobafatshe (male)	<i>Portulaca kermesina</i>		BNH
4	Dieboso			
5	Kgalamela	<i>Hirpicium bechuanense</i>		SMPB
6	Kgotshane	<i>Sanseveria aethiopica</i>	Bowstring hemp	POD, WOD
7	Legalatshwene/Moswarulwa	<i>Myrothamnus flabellifolius</i>	Resurrection Plant	SMPB
8	Lesitangwetsi			
9	Lengangale	<i>Tribulus terrestris</i>	Devil's Thorn	WOD
10	Lethole	<i>Hydnora johannis</i>		BNH
11	Mabofe	<i>Cissus quadrangularis</i>	Wild grape	BNH
12	Madiaphalama			
13	Magorometsa	<i>Eulophia hereroensis</i>	Orchid	BNH
14	Maime			
15	Makgolela			
16	Mokoyo			
17	Masigomabe	<i>Plumbago zeylanica</i>	White Plumago	SMPB, WOD
18	Mathaolole			
19	Mhera			
20	Mmaba			
21	Moatepele			
22	Modisakwana	<i>Steganotaenia araliacea</i>	Carrot tree	BNH
23	Mogaga	<i>Urginea altissima</i>		BNH
24	Mogaganeng	<i>Pellaea calomelanos</i>		BNH
25	Mofalatsa maru (fine)	<i>Asparagus africanus</i>	Wild Asparagus	BNH
26	Mogalatsa maru (longer)	<i>Asparagus exuvialis</i>		BNH
27	Mogato			
28	Mogoleri	<i>Combretum hereroense</i>	Russet Bushwillow	TSOD, POD
29	Mogota	<i>Lannea schweinfurthii</i>		BNH
30	Mohetola	<i>Indigofera tinctora</i>	Indigo dye plant	BNH
31	Mohubu	<i>Cyphostemma puberulum</i>		BNH
32	Mohupe			
33	Mokaikai			

	Setswana	Scientific	Common	Reference
34	Mokapane	<i>Cucumis anguria</i>	Wild Cucumber	WOD, BNH
35	Mokgalo	<i>Ziziphus mucronata</i>	Buffalo Thorn	TSOD, POD
36	Mokoba	<i>Acacia nigrescens</i>	Knob Thorn	TSOD, POD
37	Monamane	<i>Cassine transvaalensis</i>	Transvaal Saffronwood	POD
38	Monepenepe	<i>Cassia abbreviata</i>	Long pod cassia	SMPB, BNH
39	Monnamontsu	<i>Cadaba aphylla</i>	Leafless cadaba	SMPB, BNH
40	Monoko			
41	Monokwana			
42	Moologa	<i>Croton gratissimus</i> var. <i>gratissimus</i>	Lavender Croton	TSOD, BNH
43	Moragangaka	<i>Pittosporium viridiflorum</i>	Cheesewood	SMPB
44	Morala	<i>Gardenia volkensii</i>	Transvaal Gardenia	POD, TSOD
45	Moreba	<i>Pousolzia mixta</i>	Velcro plant	BNH
46	Morerwana	<i>Marsdenia macrantha</i>		BNH
47	Moretwa	<i>Grewia flava</i>	Brandy bush	TSOD
48	Morobadiepe			
49	Morobe	<i>Ehrentia rigida</i>	Puzzle bush	TSOD
50	Morolwa	<i>Solanum incanum</i>		BNH
51	Morolwanatladi	<i>Solanum tettense</i>	Lightning plant	BNH
52	Moselesele	<i>Dichrostachys cinerea</i>	Sickle Bush	TSOD, POD
53	Mosetlha	<i>Peltophorum africanum</i>	Weeping Wattle	TSOD, POD
54	Mosifawapoo	<i>Optera burchelli</i>		SMPB
55	Masimama	<i>Senecia longiflora</i>		BNH
56	Mosu	<i>Acacia tortilis</i> subsp. <i>Heteracantha</i>	Umbrella Thorn	TSOD, POD
57	Motawana	<i>Capparis tormentosa</i>	Wooly Caper bush	TSOD, POD
58	Motetane			
59	Mothagala	<i>Clematis brachiata</i>		BNH
60	Motsididi	<i>Hibiscus calyphyllus</i>	Wild Hibiscus	POD, WOD
61	Motsitsane	<i>Elephantorrhiza goetzei</i>		BNH
62	Motswere	<i>Combretum imberbe</i>	Leadwood	TSOD, POD
63	Mphaphama	<i>Commiphora marlothii</i>	Paper-barked corkwood	BNH
64	Mphethe	<i>Abrus precatorius</i>	Lucky Bean	WOD
65	Mphetike			
66	Phekolola	<i>Zehneria marlothii</i>	Creeping wild cucumber	SMPB
67	Seboana	<i>Pterodiscus ngamicus</i>		BNH

	Setswana	Scientific	Common	Reference
68	Seditshwane			
69	Sekaname	<i>Urginea sanguinea</i>		SMPB, BNH
70	Seretwane	<i>Waltheria indica</i>	Sleepy Morning	POD
71	Setswenyakawena			
72	Thakulammotana			
73	Thetele			
74	Thotamadi	<i>Jatropha erythropoda</i>		SMPB
75	Tlharesemakokoma			
76	Tsuku ya poo	<i>Hypoxis hemerocallida</i>	African Potato	SMPB

References: BNH—Botswana National Herbarium
 POD—Plants of the Okavango Delta
 SMPB—Some Medicinal Plants of Botswana
 TSOD—Trees and Shrubs of the Okavango Delta
 WOD—Wild Flowers of the Okavango Delta

11. Appendix II: Treatments

Symptom/Name	Part Used	Administration Method
<i>Barrenness</i>		
Mohetola	Root	Boiled and decoction drunk
<i>Blood in Urine</i>		
Mmaba	Root	Pounded, put in water, and drunk
Monepenepe	Root	Pounded, put in water, and drunk
<i>Boils</i>		
Makgolela	Root	Powdered and applied with Vaseline
Monnamontsu	Root	Powdered and applied with Vaseline
<i>Cough</i>		
Mmaba	Root	Boiled and decoction drunk
Modisakswana	Bark	Boiled and decoction drunk
Monoko	Root	Boiled and decoction drunk
<i>Diarrhea</i>		
Monokwana	Root	Powdered and drunk in water
<i>General Sickness Prevention</i>		
Monamane	Root	Powdered and drunk in water
Mosetlha	Root	Boiled and decoction drunk
Mphethe	Root	Boiled and decoction drunk
<i>Gonorrhea/STDs</i>		
Kgotshane	Root/Tuber	Boiled and decoction drunk
Masigomabe	Root	Boiled and decoction drunk
Mogalatsa maru	Root	Boiled and decoction drunk
Mokgalo	Root	Boiled and decoction drunk
Morala	Root	Boiled and decoction drunk
Morobe	Root	Boiled and decoction drunk
Morolwanatladi	Root	Boiled and decoction drunk
Seretswane	Root	Boiled and decoction drunk
<i>Heart Palpitation</i>		
Moreba	Root	Boiled with Noto and decoction drunk
Morobe	Root	Boiled and decoction drunk
<i>High Blood Pressure</i>		
Lethole	Rhizome	Powdered and drunk in water
Mogato	Root	Powdered and drunk in water

Symptom/Name	Part Used	Administration Method
<i>High Blood Pressure continued</i>		
Monamane	Root	Powdered and drunk in water
Monepenepe	Root	Powdered and drunk in water
Moswarulwa	Entire plant	Powdered and drunk in water
Motsitsane	Root	Powdered and drunk in water
<i>Impotency</i>		
Tshuku ya poo	Tuber	Powdered and drunk in water
<i>Malnutrition</i>		
Magorometsa	Root	Boiled in milk and decoction drunk
Seboana	Root/Stem	Boiled in milk and decoction drunk
<i>Mental Illness</i>		
Bolebatsa	Fungus?	Burned and smoke inhaled
Moologa	Leaves	Burned and smoke inhaled
<i>Open Cuts</i>		
Monnamontsu	Root	Powdered and sprinkled on wound
<i>Pubic Sores/Rash</i>		
Mabofe	Stem	Burnt and ashes spread on sores
Tlharesemakokoma	Bulb	Burnt and area exposed to smoke; powdered, put in tea or milk and drunk
<i>Stomach Sores</i>		
Makgolela	Roots	Boiled and decoction drunk
Monnamontsu	Roots	Boiled and decoction drunk
<i>Stroke</i>		
Sekaname	Bulb	Boiled and decoction drunk
<i>Swollen/painful glands in neck</i>		
Monnamontsu	Root	Chewed
Mothagala	Root	Boiled and water held in mouth (not drunk)
<i>Swollen Legs</i>		
Lengangale	Root	Boiled and decoction drunk
Thotamadi	Root/tuber	Boiled and decoction drunk
<i>Vomiting</i>		
Magorometsa	Root	Boiled and decoction used to make porridge
Mohubu	Root	Boiled and decoction used to make porridge
Mogaga	Bulb	Pounded, put in water, and used to bathe
Mokapane	Root	Boiled and decoction used to make porridge

Symptom/Name	Part Used	Administration Method
<i>Vomiting continued</i>		
Mokoba	Bark	Put into cold water and drunk
Momano wa koro	Non-plant	Powdered and drunk in water
Tsuku ya poo	Root/tuber	Powdered and drunk in water
<i>Womb Pain</i>		
Mothagala		

12. Appendix III: Non-plant materials used

1. *Khudu* shell (tortoise)
2. *Masepa a thakadu* (feces of an aardvark)
3. *Pala* (skin from the back of impala ankle joint)
4. Goat fat
5. Paraffin
6. Sugar
7. Tea (5 Roses)
8. Elephant feces
9. Hyena vomit
10. *Momano wa koro* (cow feces shaped by the *koro* bird)
11. *Bolebatsa* (material growing underground on *Mogota* root)
12. *Sekokolwana* (a beetle-like insect)
13. Human fingernail clippings
14. *Noto* (slag from iron smelting)
15. *Thari ya Tonki* (dried afterbirth from a donkey)
16. *Legakwa* (white stones from the top of a hill)
17. *Ntsho ya Noko* (stomach contents of a porcupine)

13. Appendix IV: Bibliography

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14. Appendix V: ISP Evaluation

1. Did the process of doing the ISP modify your learning style? How was this different from your previous style and approaches to learning?

The ISP process definitely modified my learning style, as I am used to being able to sit, focus on a problem or task, and count it as completed by the time I stop working. I'm also accustomed to the convenience of working near reference materials, whereas during the ISP I had to accept that I might not be able to identify plants immediately, and that I needed to record as much information as possible to aid in later identification. I also had to develop patience in that I did not usually have much control over the content of each day's session, and attempts on my part to change topics often led to confusion and limited useful information. Instead, I learned to accept each plant and treatment as it was presented, and to ask question about the plants while they were available. I also learned to be much more assertive when I needed more time to complete notes or a drawing, as filling in notes after the fact proved to be very difficult.

2. What were the principal problems you encountered while doing the ISP? Were you able to resolve these? How?

My principal problem was communication, as working through translation is very difficult. At times, I gave up asking questions because I couldn't ask any questions that made sense when translated into Setswana, and the answers I was getting didn't make sense when taken out of their cultural context. I mainly resolved the problem by learning to rephrase questions multiple times and to write down the translated phrasing as closely as possible, as the descriptions often were easier to understand in retrospect. My other problem was a lack of proper materials for gathering plant samples, which I remedied by improvising a press out of an old notebook and my backpack, and labels out of strips of paper looped around the loose samples.

3. What general methods did you use? How did you decide to use such methods?

My general method was observation and interview. I really didn't have much of a choice of method, as I was working within a relationship with Rra Mosweu. The interview style developed gradually over the course of the study period, with both Rra and I learning how to accommodate the other' for instance, he learned that I needed time to draw/write and samples that included leaves instead of just roots, and I learned that he preferred to have me record all of the plant names before he started to explain their uses. I also eventually decided to take samples of every plant I encountered if possible, instead of just those I thought would be difficult to describe or identify.

4. Comment on your contact with your advisor. Indispensable? Occasionally helpful? Not helpful? At what point was your advisor most helpful? Were there cultural differences which influenced your relationship? Differences in understanding the educational processes and goals?

As my advisor was Rra Mosweu, contact was of course indispensable. At the beginning of the project, both of us were unsure as to how we should proceed, so the initial interviews were very formal and less informative; as we both became comfortable around each other, Rra felt comfortable explaining a wider range of uses and taking his time presenting plants, while I felt comfortable asking for more information and requesting visits to the plants out in the bush to see them growing. We did have several discussions about my interest in Setswana medicine and what I was going to do with what he taught me, in which I had to make clear that I was interested solely from an educational perspective and had no plans to publish, open up my own practice, or show the results to other traditional doctors. I also learned to accept that interviews might not always happen exactly when I wanted them, but that, if I allowed him to, Rra Mosweu always taught me something new.

5. *Did you reach any dead ends? Hypotheses which turned out not to be useful?*

Interviews or visits that had no application?

I was unable to identify nearly 20 species, either because they were found too far away from Goo-Tau to make collecting new samples feasible, or because I learned about them in their dried form too late to request samples. I also feel unable to appropriately present those ritual or cultural “medicine” uses that I learned (e.g. cleansing of a widow or widower), as they were outside of the scope of my planned project.

6. *What insights did you gain into the culture as a result of doing the ISP that you otherwise might not have taken?*

Through personal conversations with family members and friends, I learned that many of the traditional medicines are still widely used and believed in, even those that have no direct physical purpose. I also began to learn about the view of the natural world, in which related plants may be “male” or “female” when they would be scientifically classified as separate but related species, and in which names may indicate purpose or status (e.g., all hemi-parasitic plants that grow in trees are called *Boletso*) rather than precise identification.

7. *Given what you know now, would you have undertaken the same project?*

Information-wise, I’m thrilled with the project. I learned an incredible amount of material in a short period of time, and I feel that the hands-on approach taught me much quicker than any amount of reading out of books would have, assuming books on my topic existed. However, I was not really prepared for the emotional drain of being isolated from everything familiar during the study period, so I might have hesitated before choosing to undertake it. In the end, though, I definitely would still have undertaken the project.