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This masters dissertation is a quantitative ethnobotanical study on the Bapedi of Central Sekhukhuneland. As an attempt to nullify any misinterpretation on the subject matter, the definition of ethnobotany that shall be referred to in this study is that by Balick and Cox (1996) who defined ethnobotany as “the study of the relationships between plants and people” which includes “the influences of plants on human culture”. Noteworthy is that the majority of the work published on the Bapedi is either centred on anthropology or ethnology, or is biased towards medicinal plant use knowledge that is still resonant amongst traditional healers. Although the food plants of the Bapedi have been described in detail, almost no published information is available on the full diversity of indigenous knowledge about plants that are still available and relevant to the local communities and their everyday material needs. Thus, the aim of this research was to accurately record extant indigenous knowledge on all of the most important useful plants within the area considered “the heartland of the Bapedi”. This study included participants from all age groups irrespective of social status.

The three villages (study areas) selected for this study were Frisgewaght, Ga-Moretsele/Tsehlwaneng and Ga-Sekele, all of which fall within the Makhuduthamaga Municipality. Based on the type of information required from the various participants in the villages and data analysis thereof it was determined that the matrix methodology, proposed by De Beer and Van Wyk (2011), would be the most suitable for this study. The matrix method comprises of three phases and ensures that high quality primary data is recorded. The data can be subjected to statistical analysis because of the rigorous way in which it is gathered (all participants are interviewed about all the known useful plants of the study area). Prior to any field survey, including interviews with participants could commence, a plant collection permit was obtained from the South African National Biodiversity Institute (SANBI) and ethical approval was obtained from the University of Johannesburg’s Science Faculty Ethics Committee. A total of 152 useful plant species were identified during the first phase of the study of which 53 (35%) are exotic plant species and 16 (30%) of the exotic plant species are listed on the National Environmental Management: Biodiversity Act (NEM:BA) Act No. 10 of 2004 as invasive plant species. Photographs were taken of each plant species and used to compile a flip file which was a fundamental tool for use in the second phase of the study. After establishing sufficient rapport in each village, the second phase of the study could commence. A total of 27 willing participants were identified, who fell within four distinct age groups [children (7-18 years), young adults (19-35 years), adults (36-54 years) and elders (55+ years)], and were
subjected to semi-structured interviews. A broad spectrum of plant use categories was identified which included food, craft and medicinal plant uses. The information collected from each participant's interview was used to determine the participant's Ethnobotanical Knowledge Index (EKI) and Species Popularity Index (SPI), both of which are the vital relative cultural importance (RCI) indices used in the matrix method. It was discovered that a total of 185 plant use records (107 medicinal, 21 food and 57 other) are recorded here for the first time. Also, 98 vernacular names were documented here for the first time and 38 plant species have been recorded as useful to the Bapedi for the first time. As expected the age group with the highest EKI value was seniors (0.6), followed by young adults (0.57), adults (0.48) and children (0.3). Very important is the number of uses per plant species that each individual shared. Again, elders would share several plant uses but children usually knew of a single plant use per plant. Furthermore, a brief cultural comparison was conducted between the Bapedi, based on this study's findings, with the Southern Sotho. Noteworthy was the similarity in plant use between the two cultures. There were 65 commonly used plant species between the two cultures and 57 plant species that were not only commonly used but also had similar uses.

It is evident that there is a vast array of indigenous knowledge that still resides not only within the selected villages in this study but in Sekhukhuneland and the Bapedi culture as a whole. This indigenous knowledge still needs to be systematically documented before it is lost indefinitely. More research needs to be done in other areas of Sekhukhuneland to have a more comprehensive documentation of the indigenous knowledge of the Bapedi. Furthermore, this study can be broadened and a selection of medicinal plants can be subjected to laboratory protocols to test both the active compounds in the plant species and plant use safety as some plant species (e.g. *Euphorbia* species) are known to be toxic but yet still administered orally. The data presented here may thus be a rich source of information for more detailed studies on individual species and specific plant uses.
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Chapter 1: Introduction

1.1 Ethnobotany

This dissertation is an ethnobotanical study of the Bapedi of Central Sekhukhuneland. The definition of the term ‘ethnobotany’ has been developed over the years since first described by Stephen Powers, between 1873 and 1875, as ‘native botany’ (Balick, 1996; Morris, 2010; Gomez-beloz, 2011). Over the years, plant enthusiasts have been developing and reconstructing the meaning of the discipline, according to their own understanding; Harshberger (1896) described ethnobotany as a study of ‘plants used by primitive and native people’, Berlin (1992) defined ethnobotany as ‘the complex relationship of plants, to present and past societies’, Turner (1995) defined it as the science of people’s interaction with plants and, another definition that stands out is by Cotton (1996) who defined ethnobotany as ‘all studies which concern the mutual relationships between plants and traditional peoples’. For the purpose of this study, which focuses on documenting Bapedi plant uses, I will be using the Balick and Cox (1996) definition of ethnobotany as “the study of the relationships between plants and people”, as elaborated by Bennett (undated): “…including the influences of plants on human culture” (Van wyk, 2002; Kunwar and Bussmann, 2008; Newmaster and Ragupathy, 2010).

The majority of published work on the Bapedi culture is centred on anthropological studies, which have been written by non-Sepedi speaking individuals and therefore raises questions about authenticity due to the language barrier (Makgeru, 2014). The limited published work available on the culture’s ethnobotany is either longstanding as in the thesis published by Quin (1959) on the ‘Feeding habits of the Bapedi’ or, as in the case of the abundant recently published work by Semenya and co-workers, (2013 to 2015), drawing attention only towards a specific plant use category (medicinal use in this case). This factor seems to be resonant amongst the majority of publications on South African ethnobotany where medical plant use takes centre stage. Medicinal plant use by South African ethnic groups has been deemed similar (Kale, 1995). The truth behind this assumption is questionable considering that quantitative ethnobotanical surveys amongst South African ethnic groups are limited. The level of medicinal plant use research conducted amongst South African cultures is not equivalent. The research of Hutchings et al. (1996) on Zulu medicinal plants and Mabogo’s (1990) dissertation on ‘The Ethnobotany of the VhaVenda’ are amongst the rare ethnobotanical publications available that focus on a specific cultures’ plant use. Van Wyk and co-workers have published numerous works on useful plants of southern Africa, including ‘A guide to useful plants of southern Africa’ (Van Wyk and Gericke, 2000, 2018), ‘Medicinal plants of South Africa’ (Van Wyk et al., 1997, 2009) and ‘Poisonous plants of South Africa’ (Van Wyk et al., 2002), all of which cover the broad spectrum of the rich indigenous plant use of South
Africa. According to these and other ethnobotanical reviews, including Liengme (1983) and Van Wyk (2002, 2008), it is clear that there is a vast unexplored pool of indigenous knowledge that is in great need of documentation.

With the economic development of rural areas, the Bapedi culture is rapidly being lost. This research project is thus motivated by the urgent need to document all aspects of Bapedi plant use, including, and not limited to, medicinal, nutritional, crafts, building, ornamental and agricultural plant uses. Bapedi ethics and customs, which play a major role in regulating the above mentioned plant use categories, will also be included, highlighting the transformation in the culture over the years resulting from the advancements of western technologies.

1.2 Aims and objectives

1.2.1 Aim

This study aims to accurately record extant indigenous knowledge on all of the most important useful plants within the area considered ‘The heartland of the Bapedi’, including those used for traditional medicine, food, beverages and various technical purposes which include, amongst others, firewood, thatching, construction and the making of household items. Using quantitative methods, the most popular plant species for various use categories will be determined. The hypotheses is that Bapedi ethnobotany is still extant in Central Sekhukhuneland although not yet systematically and comprehensively recorded across various plant use categories and 2) the Bapedi indigenous knowledge is comparable in plant use to closely related cultures.

1.2.2 Objectives

The specific objectives of the research study are to:

1. Compile a checklist of all useful plants, through field studies and literature data, as well as plant use data from historic herbarium specimens. This will assist in highlighting how many plant species have known traditional and modern-day uses.
2. Capture data on all newly recorded plant uses with the intent to discover how many uses for the various plants and plant parts are not yet scientifically recorded.
3. Compile an inventory of all vernacular names, including literature data and newly recorded data.
4. Compile a data matrix with quantitative data for the level of traditional knowledge in a selection of volunteer participants with the intent to investigate the level of knowledge in the chosen communities and to perhaps get insight into the question whether or not traditional knowledge is being lost or transferred to the younger generation.

5. Compare patterns of plant use by the Bapedi with other ethnic groups at the regional and national levels.

1.3 Structure of dissertation

Chapter 2 gives a brief overview of the general study area, Sekhukhuneland, the geology of the area and a brief look into the history of the Bapedi. Chapter 3 covers the plants and their varied uses as determined during this study, Chapter 4 outlines the method and materials applied in this study. The results are presented in Chapter 5 and discussed, in detail, in Chapter 6. The thesis is concluded in Chapter 7, which summarises the main findings.
Chapter 2: Study area and the history of the Bapedi

2.1 Study area

2.1.1 Sekhukhuneland

Sekhukhuneland is a region located ca. 200 km northeast of Pretoria, in the Limpopo Province (Figure 2.1) (Giuseppe, 2007). After the Bapedi clan received certain rights to the land in terms of the Pretoria Convention in 1881, the area was marked out for the Bapedi on the 31st of May 1885. The region was then called Sekhukhuneland after the chief, Sekhukhune I, who was Chief Sekwati's successor in 1860 and the chief at the time of the declaration of the area (Van Wyk and Smith, 2001). With the creation of the Municipal Structures Act in 1998, new official provincial borders were developed which meant that a portion of Sekhukhuneland was located in Mpumalanga. However, cross-border municipalities were brought to an end with the 2005 municipal elections. From then on, it meant that all five local Sekhukhuneland municipalities namely, Greater Tubatse, Greater Marble Hall, Elias Motsoaledi (formerly known as Greater Groblersdal), Fetakgomo and Makhuduthamaga were all located within the Limpopo Province boundaries (Figure 2.1).
2.1.2 Climate

Sekhukhuneland has a typical Savanna Biome climate. The summers are warm and moist whilst the winters are cool and dry (Victor et al., 2005). Rain is experienced between the months of December and April, which ranges from 350 mm in the dry season to about 650 mm in the wet season (Siebert, 2000). Generally, the warmer northern parts of Sekhukhuneland experience a mean temperature of 24.6°C and the cooler southern areas have a mean temperature of 20.1°C (Siebert, 2001; Rutherford, 2006).

2.1.3 Landscape and geology

The Highveld Escarpment surrounds the area; the Steenkampsberg lies to the south, the Strydpoort Mountains to the north, and the Drakensberg to the east. The Springbok flats occur to the west of Sekhukhuneland (Siebert, 2001; Siebert et al., 2003; Rutherford, 2006). The dominant rock type in the region is ultramafic rock, which mainly consists of norite, pyroxenite and anorthosite (Siebert, 2001). This type of rock produces soils which have less than 45% silica, close to no quartz or feldspar and consists mainly of ferromagnesic silicates, metal oxides and sulphides, a high magnesium-calcium ratio and a high concentration of heavy metals of which several are toxic to non-specialist plants (Proctor, 2003). Favero-Longo et al. (2004) published work on lichens and ultramafic rocks and Siebert (2001) studied the floristic patterns in the Sekhukhuneland region, all of which revealed that the percentage endemism in these types of substrates is significantly positively correlated with the surface cover percentage of norite, pyroxenite and anorthosite (Retief et al., 2008). This serves as an indicator of the importance of the ultramafic rock type for endemism in Sekhukhuneland. The plants found in this type of environment have managed to develop mechanisms which allow them to grow under the geochemically induced stress from the ultramafic rocks and soil (Siebert et al., 2000; Favero-Longo et al., 2004; Damschen, 2012). This makes them of great importance in terms of conservation because they contain a very important gene pool, which could be of use in the rehabilitation of polluted land such as mine dumps (Siebert, 2001). It has not previously been recorded if Sekhukhuneland endemics have been or are still being used by the Bapedi.

The major river that flows through Sekhukhuneland is the Olifants River. One of its main tributaries, the Steelpoort River, is of critical significance to the Bapedi culture. The Steelpoort River is traditionally known
as Tubatše and it marks the place where the first Bapedi village was established. In 1650, the Bapedi first settled at Mogokgomeng, situated south of the current Steelpoort railway station (Sküsel, 2008).

2.2 History of the Bapedi

2.2.1 Origin of a culture

Bapedi origins are deeply rooted in the Sotho tribe, a name derived from ‘batho ba baso’ meaning dark skinned people (Monnig, 1967). It is estimated that the Sotho came from Central Africa and migrated southwards from the Great Lakes region. The Bapedi are part of the Sotho clan made up of several tribes, namely: South Sotho, Western Tswana, Eastern Tswana, Central Sotho, Eastern Sotho, North-Eastern Sotho and Northern Sotho. The Bapedi belong to the Central Sotho tribe (Quin, 1959; Kuper, 1975). Van Warmelo (1935) stated that the tribes belonging to the Sotho were domiciled essentially on the higher plateau of the interior, but large parts of this area were never really favoured by them. The choice in location is a result of the battles that occurred in the region, including the German raid of 1875 and the Bapedi-Boer War of 1876. This forced the Bapedi to retreat up into the hills, building strongholds to keep the intruders at bay. Since that time they have remained in the hills (Monnig, 1967; Küsel, 2008).

2.2.2 Building an empire

The Bapedi and Sekhukhuneland have a complex history. On arrival in Sekhukhuneland in the 1600s, the Bapedi found a few other tribes that had taken refuge in the area (Küsel, 2008). Officially, the land was declared ‘The land of the Bapedi’ in 1881 but Bapedi have been living sustainable lives off the land for hundreds of years prior to the land declaration (Monnig, 1967).

For a prolonged period, between 1650 and 1680, the Bapedi were under the rule of the Bamaroteng (Van Warmelo, 1935). The Maroteng promoted unification, leading to the development of the Bapedi and cultural unity, though not concrete, this was the beginning of a community absent in the past. This unity also led to the adoption of the language spoken in Sekhukhuneland as the standard of written Northern Sotho (Sepedi), what is today one of the main languages used in the Limpopo Province (Monnig, 1967).

Prior to 1824, the Bapedi history is overshadowed by a lack of documentation, making it difficult for historians to accurately date the culture’s origins and great events (Quin, 1959; Makgeru, 2014). The Bapedi Kingdom used to reach as far west as the North West Province including what is today the town known as Rustenburg. On arrival in South Africa, the Sotho established themselves around Rustenburg under the Kgatla, a Setswana speaking clan branching from Bamaroteng. Bakgatla separated with time,
giving rise to the Mogale clan, who stayed in Rustenburg and the Tabane clan, who migrated to Schilpadfontein. Tabane had a son, Liale, a great warrior who overthrew many nations on their journey eastwards from the Kgosana clan. His nation grew in number with every conquered tribe around him. There is uncertainty about the development of the Bapedi clan name but it is thought to come from his people deciding to assume Liale’s other name, ‘Mopeli’ as a sign of devotion to their great warrior king. Another theory is that the name was adopted from one of the VhaVenda iron making clans conquered by Liale, the Vhambezi, which is a phonetic equivalent of Bapedi. As the Bapedi moved further east they travelled down the escarpment along the Tubšte River valley passing the Leolo Mountains and settled south of the Steelpoort River (Tubatše); this occurred around the early 1600’s. The Bapedi were still using their Bakgatla totem, which was ‘kgabo’ (monkey) but, as they passed the Leolo Mountains they came across a porcupine (or it could have been a porcupine quill) which they decided to adopt as their new totem, ‘noko’ (porcupine) (Quin, 1959; Monnig, 1967 and Küsel, 2008).

The first definite date in the history of the Bapedi is documented by the death of Kgoshi Thulare, marked by a solar eclipse occurring in 1824 (Quin, 1959). Thulare’s passing followed the pinnacle in the ‘rise of the Bapedi’ under Kgoshi Mampuru I, who managed to overthrow many Sotho nations. His reign in power marked one of the most important customs in the rise of the Bapedi Empire; the sons of defeated tribes were forced to marry the daughters of a Bapedi chief thus ensuring that future chiefs of those tribes had Bapedi blood running through their veins (Küsel, 2008). The reign of Thobela, the chief before Mampuru I, was one filled with peace and his tribe showed tribute to their chief by using his name as a symbol of salutation which has survived through time. Even today, Bapedi greet one another with the term ‘Thobela’ (Quin, 1959).

Thulare’s death also marked a dark era in the history of Bapedi. On his death Thulare warned his nation that his brother, Makgeru, should reign uncontested else should he be brought to an unnatural death by ‘tsotsane tse ntso’ (black ants, referring to the Zulu nation) and ‘tsotsane tse tsweu’ (white ants, referring to the Europeans) who will invade and overthrow the Bapedi nation. Due to jealousy within the royal household, Makgeru was stoned to death; with his last gasp of air he uttered the words ‘I will take the land with me’ and with a fist full of the soil, he passed on. Upon his death there came a time of envy and jealousy amongst Thulare’s sons, Makgeru, Makopole, Malekutu, Matsebe, Motodi, Sekwati, Phethedi and Sibasa. During this time in 1826, Mzilikazi, one of Shaka Zulu’s generals, was able to raid Sekhukhuneland, killing almost all of Thulare’s sons. Sekwati, the sole surviving son of Thulare, managed to flee with some of the surviving Bapedi villagers and his then wife and first-born son Sekhukhune I (Quin, 1959; Monnig, 1967; Küsel, 2008).
Hereafter, the Bapedi history is marked by a major struggle for power between two of the most decisive Bapedi chiefs. Sekwati was father to Sekhukhune I, who would have been heir to the chieftainship, but before the death of Malekutu, Thulare’s eldest son, he had already married a tribal wife Kgomo-Makatane. Although she had not given birth to children for Malekutu, the rightful heir to the chieftainship was to be her son. According to custom, Sekwati wed Kgomo-Makatane in his brother’s name. Since Sekwati was unable to have children with his newly wedded wife because of old age, he designated a man to have a child on his behalf. As a result, Mampuru II, who was to be chief, was conceived. Although Sekhukhune I developed into a verocious warrior, the tribe and his father, Sekwati, recognised Mampuru II as the rightful heir to the chieftainship. Upon Sekwati’s death, Sekhukhune I with little hesitation, overthrew Mampuru II and killed all his councils; however, Sekhukhune I showed mercy on his half-brother’s life and Mampuru II fled on 17 June 1862 to take refuge with the Tau tribe (Quin, 1959 and Sküsel, 2008).

2.2.3 War in Sekhukhuneland

The reign of Sekhukhune I was marked by war. During his time as chief, he was constantly warding off continuous waves of British, Dutch and Swati invaders. Sekhukhune I fought and won many battles until his capture in 1879.

Sekhukhune I defeated an army of volunteer French, British and Swati soldiers during the Battle at Mafolofolo, managing to kill their leader Conrad Hans von Schlieckmann, a German soldier of fortune who led the raid between 1875 and 1876.

The Bapedi-Boer War occurred during 1876 and the Bapedi army, yet again, managed to avoid defeat though they suffered severe causalities and lost valuable resources, which lead to a time of great starvation.

The Bapedi-British war occurred between 1878 and 1879, marking the end of the Bapedi Empire; their resources had perished and the strain of battle had taken its toll on what was once one of the greatest empires of southern Africa. On 2 December 1879, Sekhukhune I was captured and sent to prison in Pretoria. Sekhukhune I was released from prison on 8 August 1881 and allowed to go home where, under the terms of Article 23 of the Pretoria Convention, the region today known as Sekhukhuneland was allocated to him. His freedom was not long lived as Mampuru II, still bitter from his defeat at the hands of half-brother Sekhukhune I, assassinated him on 13 August 1882 with hopes of regaining his throne. His plan backfired and he was forced to flee. On 11 July 1883, Mampuru II was captured, charged with murder.
and hanged on 22 November 1883 in Pretoria (Quin, 1959; Basadi-ba-Bapedi Cultural Development Trust, 2005; Küsel, 2008; Smith, 2014).

2.3 Influences of the South African government

Sekhukhune’s I half-brother, Kgolokoe, took over as Chief, from 1882 until 1893, because at the time Sekhukhune II, the rightful heir to the throne, was still a young man. Ramoroko, Kgolokoe’s son, succeeded his father as Chief; the Native Commissioner Abel Erasmus influenced this turn in events of the Bapedi chieftainship. His actions caused a great riot, sparking arguments amongst the tribe. At this point General Piet Joubert intervened and split Sekhukhuneland into two regions, the northern portion, which was to be led by the Sekhukhune II chieftainship and the southern portion, which was to be led by the Kgolane chieftainship (Quin, 1959; Monnig, 1967; Packard, 1985; Smith, 2014).

2.4 Current Sekhukhuneland

Over the years the monarchs of both the Kgolane and Sekhukhune II chieftainships slowly lost their power and influence. Currently, Sekhukhuneland is divided into five municipalities: Greater Tubatse, Greater Marble Hall, Elias Motsoaledi, Fetakgomo and Makhuduthamaga. Within each municipality, the Bapedi have, over the years, settled within villages each with their own chief. Although each municipality may have a delineated chief, there is still a high regard for the Sekhukhune and Mampuru chieftainships. The villages selected for the study, Frisgewaght, Ga-Sekele, Ga-Moretsele and Tsehlwaneng, are all located within the Makhuduthamaga municipality which lies within the heart of Sekhukhuneland (Central Sekhukhuneland). All villages are ruled by their own chiefs. The Bapedi chiefs are always men but Phokwane (which includes Frisgewaght) is led by a female Kgosi. The wife of a deceased chief will be in power until a time when the son is considered fit to take over the throne. Ga-Sekele is ruled by Kgosi Sekele and Tsehlwaneng is ruled by Kgosi Makgeru, who has recently published a book based on his rulership which has been referenced in this study (Makgeru, 2014).

2.5 Plant history/culture of the Bapedi

Historically there are a few records of Bapedi plant use. There are some references to the uses of plants in Rampedi’s (2010) thesis on “Indigenous plants in the Limpopo province: potential for their commercial beverage production” and Moeng’s (2010) dissertation on “An investigation into the trade of medicinal plants by muthi shops and street vendors in the Limpopo province, South Africa”. There are also a few references to plants in published books dealing with Bantu ethnography. However, there is little published work done primarily on Bapedi cultural plants. In Quin’s (1959) thesis he has mentioned some of the
important nutritional plants in the Bapedi diet. Semenya and co-workers have recently done extensive work on the Bapedi medical plants as used by traditional healers (Erasmus et al, 2012; Semenya et al., 2012a, 2012b, 2013a, 2013b; Semenya and Potgieter 2013a, 2013b, 2014; Semenya and Maroyi, 2013). No attempts have yet been made to develop an inventory of Bapedi useful plants or to quantify the main patterns of plant use by local communities.
Chapter 3: A review of Bapedi plant use (enriched by personal observations)

3.1 Introduction

Publications on the Bapedi strongly suggest that the culture had an agricultural background (Monnig, 1967). The majority of the Bapedi diet is concentrated on cultivated crops and ownership of livestock but, when needs be, the Bapedi also possess the knowledge and skill to forage wild fruit and hunt wild animals (Quin, 1959). During the course of field surveys for this study it was noted that the Bapedi still practice agriculture as their main source of food with some changes occurring with westernisation. Figure 3.1 shows a typical field in Sekhukhuneland. The plant uses detailed in this chapter were obtained from literature (which will be indicated by references). Non-referenced statements are from personal field observations.

3.1.1 Bapedi land use

The majority of the settlements in Sekhukhuneland are rural settlements and communities are still reliant on the environment for survival (Victor et al., 2005). This is evident in the number of crops still being cultivated today. Large spaces of land, allocated to various households, are reserved for cultivation of a wide variety of crop plants. This is amongst one of the many traditional practices that have persisted throughout this culture’s history. Allocation of land is a duty reserved for the village chief. When a family relocates to a village, or a young man marries a wife and is considered primed to start a family (or simply when a household requests more land), it is up to the chief to decide which section of his land he/she will assign to the family.

3.1.2 Agriculture

When the Bantu peoples arrived in South Africa, they had already acquired the knowledge of farming. The Bapedi are descendants of the original Bantu inhabitants of South Africa and as a result, they were naturally also knowledgable farmers and not primarily dependant on hunting wild animals and foraging edible wild plants (Quin, 1959). Like most tribes, the women were responsible for the tillage of the fields, hence they had the responsibility of choosing the land they wished to cultivate. It was common for the women to have more than one piece of land on which they would grow their crops (Monnig, 1967).

The Bapedi women had excellent agricultural knowledge and they knew that different crops have different soil preferences. Based on this vital piece of knowledge the women would choose lands with varying soil characteristics. There are seven soil categories which were recognised by the Bapedi, based on the...
texture and colour of the soil and the vegetation that grows on them (Monnig, 1967). The seven soil categories were:

i). **Sehlaba**: This is a red soil, known to become exhausted after four seasons of sowing. The crops that are best suited for this type of soil are millet, sorghum, melons, beans and pumpkins.

ii). **Sekuba**: This is a dark grey soil. Crops grow quickly on this soil, but tend to be scorched by heat. Crops that grow well on this type of soil are maize, sweet sorghum, pumpkins, gourds and sorghum.

iii). **Seloko**: This soil is black and heavy. It is considered as one of the best soils. When it is hot it tends to crack, so that rainwater enters deep into the soil through these cracks. As a result, the soil retains moisture for a longer time. This type of soil is good for all crops except watermelons and beans.

iv). **Masu**: This soil type has almost the same characteristics as Sekuba as crops tend to also become scorched in hot weather. Unlike Sekuba, which only the selected range of crops grows well on, all crops grow quickly on this type of soil.

v). **Mahlabane**: This is a sandy, loamy soil and is favoured for growing sorghum.

vi). **Lehlwaliwa**: This is a sandy soil that also becomes exhausted after several seasons but it does not require much rain for the crops to grow well. Although beans grow particularly well, all types of crops are grown on this soil.

vii). **Makura**: This is brackish soil, which is never cultivated. Instead, it is good for grazing.

Ideally, a married women would be assigned a combination of lands to ensure a food supply even during a dry season; if she had a piece of Sehlaba land she would still be assured some crops from this soil type to feed her family because crops grown on this soil requires little water.

Although the men were primarily responsible for the livestock (herding, pastoralizing), they could, depending on availability of space, cultivate a small piece of land within the village as a home garden. With the development of better agricultural tools and the development of the plough, Quin (1959) observed that custom meant men had to plough the land, as women were forbidden to handle cattle and other tools. This is a custom still practiced to this day. Should a woman be caught using an axe to chop firewood in a household where a husband and/or a son is present, that man is accountable for punishment.
either by the chief or by the law. The laws that permit only woman to till fields have been lifted as people can now employ workers to work on their farms regardless of gender.

3.2 Plant use categories

3.2.1 Food and nutrition

The Bapedi have a very specific diet, which like in most cultures, is influenced by their environment. The area occupied by Bapedi is relatively dry and there is little to forage. Bapedi thus depend largely on agriculture (i.e. cultivated crops) as a main source of nutrition (Monnig, 1967).

3.2.1.1 Cultivated crops

Traditionally, women cultivated *mabele* (grain cultivars of *Sorghum bicolor* (L.) Moench and cultivars such as *S. caffrorum* used for traditional beers), *leotša* (*Pennisetum glaucum* (L.) R.Br.), *nyoba* (sweet-stemmed cultivars of *Sorghum bicolor*), *ditloo/monawa* (*Vigna unguiculata*), *moraka* (*Lagenaria siceraria* (Molina) Standl.), *morotse* and *mogapu* (both are cultivars or landraces of *Citrullus lanatus* (Thunb.) Matsum. & Nakai). All of these crop plants are indigenous to South Africa. As the years progressed, the women introduced foreign crop plants into their farms. Plant species such as *mafela* (*Zea mays* L.), *mofodi* (*Cucurbita pepo* L.) and *dihlodi* (*Vigna radiata* (L.) R. Wilczek) were being cultivated along with the indigenous crop plants. The decision to start including exotic plant species into their nutritional lifestyle could have been driven by the ability of these plants to produce higher yields or their capabilities to adapt to the harsh dry savannah climate (Quin, 1959, Ewel et al., 1999).

![Figure 3.1: Veld cleared in preparation of cultivation on land allocated by village chief.](image-url)
Presently, farming is an activity not only reserved for women. In the modern society amongst the rural communities, the extent of land a man can cultivate is symbolic of his wealth. When requesting a women’s hand in marriage, the women’s family will base their judgment on the size of land the man can cultivate, not forgetting that the traditional lobola still needs to be paid. A wealthy man is regarded as one who possesses the resources to produce sufficient food from large pieces of land. This can be in the form of buying or hiring agricultural machinery to aid in farming and/or hiring workers who can tend to his land. This ensures the women’s family that their daughter and grandchildren will be well taken care of. One agricultural practice that is still common today amongst the rural communities is having a home garden that is also cultivated for food crops (Figure 3.2). As in the case of the family farm, the bigger the home garden, the better.

![Figure 3.2: Eie or keye (Allium cepa) growing in a home garden.](image)

### 3.2.2 Food groups

Just as western foods are categorised into various food groups, the Bapedi edible foods are also classified into different groups (Youngblood, 2004; Shewayrga and Sopade, 2011). The data presented here are partly based on the work of Quin (1959) but enriched by own observations and personal experience.

#### 3.2.2.1 Staple foods

This food group mainly consists of starch based foods primarily produced from *Zea mays* and *Sorghum bicolor* crops. Seeds from the crops are ground to fine powder and boiled in water. A wooden spoon is used to mix the contents to various desired states depending on the meal. There are two varieties of
maize meals. The first variety is *motepa* (soft porridge or gruel), eaten as breakfast and also fed to infants. The second variety is *bogobe* (porridge) a firmer state of gruel eaten as part of a staple meal with meat, vegetables and a relish of choice.

Ground *Sorghum bicolor* or *Zea mays* can be fermented to make *bogobe ba ting* (sour porridge), also eaten either as gruel for breakfast or as porridge eaten as part of a staple meal. Fermenting sorghum or maize has been practiced for many generations, as observed by Quin (1959); it changes the taste of the porridge, making it a little sharper.

A special type of grass, *korong* (*Lolium multiflorum* Lam.), which has not been recorded before as being used by the Bapedi, is used to make bread (another important stable food of the Bapedi).

### 3.2.2.2 Relishes/soups

Soups form part of a typical balanced dish but may not be a necessity with every meal. A typical modern day soup is prepared using three ingredients, *eie or keye* (onion), *tamati* (tomato) and a packet of soup concentrate (soup powder), purchased at shops. Traditionally, soups were made by frying the meat in its own juices at low temperature to form a thick liquid soup.

Other forms of staple food supplements include legumes e.g. *dinawa* (*Vigna unguiculata*) is eaten as soup with porridge or bread or alternatively, during winter, enjoyed as winter soup. Seeds from *marotse* (*Citrullus lanatus*) are fried and eaten with porridge. Alternatively, they are ground to fine powder and mixed with porridge to make yellow porridge.

### 3.2.2.3 Fruits and vegetables

Preferably, fruits and vegetables are grown in home gardens and the allocated land is reserved for cultivating larger quantities of crops such as *Zea mays* and *Sorghum bicolor*. The home garden is used to cultivate a wide variety of fruits and vegetables ranging from cabbage (*Brassica oleracea* L.), *moperekisi* (*Prunus persica* (L.) Batsch), *marotse* (*Citrullus lanatus*), *didruiwe* (*Vitis vinifera*), *moswiri* (*Citrus limon*) and *mmoba* (*Saccharum officinarum*) just to mention a few popular examples.

The Bapedi diet is not only limited to cultivated crops but there are wild edible plants which constitute vegetable alternatives such as *morogo wa thëëpë* (*Amaranthus spinosus* L.), *morogo wa lerotho* (*Cleome gynandra* L.) and *morogo wa nthelele* (*Corchorus tridens* L.), all of which are used like spinach. The leaves are cooked and eaten as a vegetable with a starch supplement. Wild fruits and berries are, at times, harvested or enjoyed as a delicacy during field walks when herding, collecting firewood or simply...
travelling long distances between villages. Common edible wild fruits and berries include ditshidi (Ximenia caffra fruit, as shown in Figure 3.3), mmilô (Vangueria infausta), morula (Sclerocarya birrea (A.Rich.) Hochst.), mmupudu (Mimusops zeyheri (Sond.) S.Ortiz). mofaya, mmogo and monokane (wild Ficus species), and mokokotwana, known amongst the youth as mopopotwane (Lantana camara L.).

Figure 3.3: Ditshidi (Ximenia caffra) identified as a popular edible wild fruit.

3.2.2.4 Alcoholic beverages

Alcoholic beverages are an important part of the Bapedi culture. They are enjoyed during kgoro gatherings (gathering of the chiefs and their ndunas), to discuss significant community issues and enjoyed during ceremonies. There are a selective few households, which produce large quantities of traditional beverages to sell as a source of extra income, giving plants used for alcoholic beverages an important economic value. Two types of Bapedi alcoholic beverages are recognised: bjwala ba morula, produced from marula pulp and bjwala ba mabhele, produced from fermented Sorghum bicolor ground powder.

a. Bjwala ba marula

The process to prepare this beverage is shown in Figure 3.4. The marula fruit is split open using a fork and the fruit contents (fruit juice, pulp and seed) are squeezed into a bucket. Enough water just to cover the marula contents is poured into the bucket and the mixture is left to stand for 24 hours. After a day, all
solid contents (seeds, pulp and froth that would have formed) in the bucket float to the top of the mixture. Using the hands, all the solid contents are discarded from the bucket and the bucket is left to stand for another day. More froth would have now formed on the liquid and separation of the froth and liquid mixture is achieved by using a sieve. The alcoholic beverage is then ready to be served. This type of traditional beer is known to cause mild diarrhoea.

Figure 3.4: Items used in the production of bjwala ba marula: a, separating marula skins and seed pulp; b, marula froth and beer mixture and c, metal sieve used to separate marula froth from the beer mixture.
b. *Bjwala ba mabhele*

The instruments used to prepare this beverage are shown in Figure 3.5. Seeds from *Sorghum bicolor* are placed in water for two to three days. The seeds are placed on a cool flat surface, covered and left for two to three days to germinate. The seeds are then placed in the sun to dry. The dry seeds are now ground to fine powder. Water is boiled and poured into a *meta* (traditional bucket) and the ground powder is mixed with the water. The mixture is cooked and placed into containers to cool down. The top layer will harden which is removed to make dikgokgo and the cool mixture is placed back into the *meta*. A small amount of water is poured into the *meta* and the mixture is left to sit and ferment. After fermentation, the mixture is strained using a mohlôtlô (Figure 3.5a). The liquid is now ready for drinking and the solids left in the sieve are laid out to dry. It can be used to make porridge in times of starvation or used as chicken feed.

![Figure 3.5](image_url)

**Figure 3.5**: Instruments used in the production of *bjwala ba mabele*: a, mohlôtlô (beer strainer/traditional sieve); b, *bjwala ba mabhele* (beer made from *Sorghum bicolor* cultivar) and c, *meta*, a traditional earthenware pot used to store *bjwala* (beer).
3.2.3 Medicinal plant use

Traditional medicines have always been an important part of South African cultures and have also had a role in the development of phytomedicines and pharmaceuticals (Grierson and Afolayan, 1999; Heinrich, 2000; Kumbi, 2007; Grierson and Afolayan, 2008). This is in no way different for the Bapedi. The Bapedi consider all plants to have medicinal potential and believe that every plant is used as a medicine by someone. The fact that one person does not have any medicinal use for a plant does not mean that that particular plant does not have any medical properties (Camejo-Rodrigues et al, 2003). An example of such a case is Punica granatum, locally known as garenat. It is commonly known to be an edible fruit (people eat its small fleshy seeds as a snack) but amongst the elderly the outer skin of the fruit is known to be a treatment for stomach cramps and the roots are used to treat diarrhoea. One characteristic traditionally used to differentiate between plants with medicinal potential and those that might be poisonous is the presence of red pigmentation in the bark or root. The red colour is believed to be an indication that the plant can be administered orally as treatment for a particular ailment. Semenya and co-workers (cited above) have made important contributions to our knowledge of Bapedi medicinal plants, especially about how they are used by traditional healers for particular categories of ailments. A complete inventory and synthesis of the medicinal culture and folk medicine as a whole has not yet been attempted.

3.2.3.1 Traditional healers

The population in Sekhukhuneland comprises mainly of rural settlements and the communities are highly dependent on the wild plant biodiversity (Victor et al., 2005). Due to financial constraints, the preferable health care system is traditional medication as compared to western health care systems; the latter is often expensive and may not be easily accessible (Semenya and Potgieter, 2014). The undesirable side effects experienced from long-term administration of western treatment also add to the reasons why most people prefer traditional as compared to western medicines (Semenya et al., 2012b). As in the case of many traditional healthcare systems in other cultures in South Africa, the Bapedi recognise two different health care providers, diviners and herbalists (Semenya and Potgieter, 2014).

Diviners are, according to Truter (2007), the most senior of traditional healers and are known by different names in different South African cultures: sangoma in Zulu, amagqira in Xhosa, selaoli in Southern Sotho, mungome in Vhenda and Tsonga, and ngaka in Northern Sotho/Sepedi. In most cases, diviners are women believed to have the capabilities of interacting with spirits who help them diagnose and trace the origin of an ailment, condition or bad karma in question. Although diviners are
not always experts in medicinal herbs, their ancestors guide them and they can administer medication. One major characteristic of a diviner is that they are selected by the spirits and do not practice voluntarily (Richter, 2003; Sobiecki, 2008; Sobiecki, 2014).

Herbalists are similar to modern day general practitioners; they are normal people who have extensive knowledge or the desire to gain knowledge on medicinal plants. Unlike diviners, anyone in a family can become a herbalist and in most cases they are men. Herbalists are voluntarily mentored by an established practitioner (as depicted in Figure 3.6). Herbalists are trained how to diagnose and prescribe medications for ailments and illnesses, as well as the prevention and relief of misfortune and/or evil, protection from witchcraft and to bring happiness (Truter, 2007; Sobiecki, 2008; Semeny and Potgieter, 2014).

3.2.4 Exotic plant use

Exotic plant species are best described as non-indigenous plant species which have been introduced into an environment apart from the environment they have evolved in i.e. their native environment. This may have occurred either intentionally or unintentionally. There are two types of exotic plant species; cultivated and naturalised. Cultivated exotic plants species are those whose traits are desired and thus cultivated for said traits i.e. crops and/or garden plants. Naturalised exotic plant species have the ability
to survive in a foreign environment outside of cultivation and have the ability to produce a new generation without the need of human intervention. Naturalised exotics may pose a threat to indigenous plant species as they serve as competitors for resources and may spread into other natural areas increasing their distributional areas and population numbers, these are referred to as invasive alien plant species. Thus in most cases the immediate action towards invasive alien plants is to eradicate them or reduce their numbers (Semenya et al., 2012b; Semenya et al., 2013b). The use of exotic plants species has increased in the Limpopo Province (Aphane et al., 2002; Semenya et al., 2012b; Semenya et al., 2013b). The Bapedi of Limpopo have developed many uses for exotic plants. Exotic plants are used extensively in the traditional healthcare sector, and for food, shelter, ecosystem services, aesthetic enjoyment and cultural identity (Semenya et al., 2012b). Thus, the documentation of the medical importance of these ‘problematic’ plants is recommended before they are lost to invasive clearing programmes (Lennox et al., 2012; Semenya et al., 2013b).

The Bapedi have also incorporated exotic plants into their daily lives, e.g. *Agave americana* L. which is used to treat hypertension and *Opuntia ficus-indica* (L.) Mill. used in the treatment of sexually transmitted diseases (Semenya et al., 2013b). Tobacco (*Nicotiana tabacum* L.) is culturally and economically an important plant to the Bapedi. It is used to produce snuff (Figure 3.7 a and b) that the elderly women use both for recreational purposes and for bronchial conditions. In addition, it is of economic value as it is sold for extra income. These examples provide evidence of the importance of exotic plants in Bapedi medicine.

![Figure 3.7 a and b: Snuff produced from tobacco (*Nicotiana tabacum*): a, bulk snuff samples (“cakes”) produced by mixing briefly fermented (cured underground) and powdered tobacco leaf with water and allowing it to dry out; b, details of one snuff “cake”.](image-url)
3.2.5 Crafts and construction

Plant fibres have, and in some cases are still, used worldwide. A number of products are derived from fibrous plant materials either for domestic use or for trading (Mjoli and Shackleton 2015). This practice clearly still persists in southern Africa. Plants play a major role to the Bapedi for construction and crafts. One important construction use still dependent on plants is shelter. The preferred plant material is Hyparrhenia grass. Elders have memory of using two distinctly different grass types in the past, namely matilwana [probably Hyparrhenia hirta (L.) Stapf] (Figure 3.8a), that was used for roofing and lefe (Aristida diffusa Trin. subsp. diffusa) that was used for making brooms (Figure 3.8b). However, with the changing environment and scarcity of plant material, the use of specific grass species has changed and people nowadays mostly use corrugated iron sheets for roofing. Aristida diffusa and Athrixia phyllicoides Sond., however, are still widely used to make brooms (Figure 3.8b).

![Figure 3.8](image_url)

**Figure 3.8:** Examples of the use of grasses and other fibrous materials: a, kitchen with a traditional thatched roof; b, traditional brooms made from letori (Athrixia phyllicoides, top) and lefe (Aristida diffusa, below); c, calabashes on a legogwa (grass mat made from Cyperus sexangularis) and d, sefalanyane (sling shot) woven from Xerophyta retinervis.
Weaving is still being practised and in some cases it is a skill being taught as a profession. Recent development projects use the exotic *Agave americana* to teach people to weave baskets, ropes and other items to sell, adding economic value to the community. Species from the genus *Cyperus* are the preferred plant material for weaving grass mats. An example of a mat woven from *Cyperus sexangularis* Nees is shown in Figure 3.8c. Another fine example of weaving is seen in the use of *Xerophyta retinervis* Baker to make a *sefalanyane* or traditional sling shot (Figure 3.8d). Cooking utensils that most modern people would opt to purchase from shops are still being produced from local plants and traded. These include calabashes (Figure 3.8c) and wooden spoons for cooking. In areas where urbanization is occurring at high rates people tend to purchase handcrafts which have strong cultural meaning rather than spending time to produce them themselves (Mijoli and Shackleton, 2015).

3.3 The need for rigorous and quantitative ethnobotanical data

The broad review given above highlights the Babedi plant use. This emphasises the need for a systematic documentation of the useful plants of the Bapedi culture before this valuable information becomes lost to future generations. There are already indications that most of the traditional knowledge about plants is only found verbally amongst elderly people (Matete and Lorna, 2005). In the next chapters, the details of such a quantitative ethnobotanical survey (albeit for only three villages in Central Sekhukhuneland) are presented.
Chapter 4: Methods and materials

4.1 Site selection

4.1.1 Selection criteria

With the exception of a few scattered Baswati and Ndebele villages resulting from the war-ridden history in Sekhukhuneland, and a few VhaVenda individuals who recently have migrated to the area, the Bapedi still make up the majority of the area’s population. For the purpose of the research study, villages were chosen according to the following criteria: The community should principally be dominated by Sepedi speaking individuals; the location of the villages had to be semi-isolated and have a certain level of dependency on natural resources; there should be knowledgeable individuals willing to assist in guided field walks and community members interested in participating in formal interviews.

4.1.2 Reconnaissance field trip

A preliminary plant checklist was compiled using Sekhukhuneland quarter degree squares (QDS) and the data base of plant collections of the National Herbarium in Pretoria (PRE). The following QDSs that cover Sekhukhuneland were selected using ArcView 3.1: 2429 DA, 2429 DD, 2429 DC, 2429 DB, 2429 BD, 2430 CC and 2430 AC. The Botanical Records and Herbarium Management Systems (BRAHMS) was utilised to compile a preliminary plant checklist obtained by checking all plant specimens collected within the identified QDS. This preliminary plant checklist was used as a guideline during the Rapid Ethnobotanical Appraisal phase (REA), explained by Cunningham (2001) and borrowing certain aspects from Beebe (1995) and McNall and Foster-Fishman (2007), to select the relevant villages where the study was conducted.

The first contact was in Phokwane were the journey began and, as illustrated in Figure 4.1, the direction of travel was in a north easterly direction. Based on the relationships built with individuals willing to assist with this study, the villages which were chosen to conduct the quantitative surveys were Frisgewaght in Phokwane, Ga-Sekele in Schoonoord and Ga-Moretsele/Tsehlwaneng.
The journey began in Phokwane (A), the residential area of our first contact, Mr Kgoputso Mampuru. He is a traditional herbalist, who identified an isolated village, Frisgewaght, as a potential study site. Frisgewaght is home to Mr Joseph Makola who has background training as an herbalist. From there on, the journey headed in a north easterly direction through central Sekhukhuneland. In Jane Furse we met our second contact, Mr Matselane Moretsele, who identified Ga-Moretsele (C) as another potential study site, which was the second village of choice. The third village, Ga-Sekele (D), located in the Leolo Mountains, was traced by randomly conversing with community members along our journey. Ga-Sekele is an ideal study area as it is isolated and community members still actively practice agriculture. The chief of the village still has an inventory of royal artefacts which he presented. Pictures were taken of the royal artefacts which are attached as APPENDIX B. Two villages, Jane Furse (B) and Stocking (E) were also explored but were not considered because of the rapid urban development occurring in these areas. Community members exhibited a lack of interests in plants and were strongly focussed on the expectation of making money from interviews; few people were still dependant on vegetation for their food supply or other material needs. Through the incorporation of the chain referral sampling method, better known as the snowball sampling method (Martin, 1995; Dolores and Tongco, 2007), knowledgeable participants

Figure 4.1: Map showing the route taken for the reconnaissance trip. A = Pokwane; B = Jane Furse; C = Ga-Moretsele; D = Ga-Sekele; E = Stocking. The three villages A, C and D were chosen for the quantitative ethnobotanical surveys.
were identified who would turn out to be valuable assets to the success of the research project. This method was utilised often throughout the research project.

4.2 Matrix Method

4.2.1 Rapid Ethnobotanical Appraisal

During the study area selection phase, knowledgeable participants were identified (Figure 4.2). Walks in the vegetation surrounding selected villages were arranged with the participants (Figure 4.3). Field walks permitted the identification of useful plants which is a standard procedure in an ethnobotanical study (Łuczaj, 2010). Also, plants identified during these surveys allowed for the compilation of an expanded plant checklist. The identified plants were photographed and herbarium voucher specimens were also prepared, where possible, or considered necessary to verify for identifications. Plant use notes (anecdotes) were taken for all plants mentioned during field walks. With the consent of the participant, and adhering to the Code of Ethics of the International Society of Ethnobiology, (http://www.ethnobiology.net/what-we-do/core-programs/ise-ethics-program/code-of-ethics/), personal details (age, place of birth and source of knowledge), were documented and a portrait photograph of the person was taken for record purposes. In most cases, when the interviewees felt they did not possess adequate knowledge, they would nominate another community member whom they believed to be knowledgeable.
Figure 4.2: Mr Matshelane Moretsele (left) sharing his indigenous knowledge with Mahlatse Mogale (the author).

Figure 4.3: Mr Simon Mamosadi demonstrating some plant uses while herding cattle: a, digging up bulbous roots from *mogaba* (*Kirkia wilmssii*) and b, edible fruit from *ditshidi* (*Ximenia caffra*).

Participants’ schedules were considered when arranging field walks. Field surveys were arranged during times when the participants were free from daily tasks. Alternatively, participation in daily activities and customs was encouraged to show sincerity and build rapport with the community members. As a result, most participants were welcoming and shared information freely. The author’s acceptance by the communities was also largely influenced by the fact that the author was from the same culture, with Sepedi as his mother tongue.

4.2.2 Compilation of preliminary plant checklist

A thorough literature study was conducted to capture all existing Sekhukhuneland and Bapedi ethnobotany. Some publications referred to in this study are shown in Figure 4.4 and a list of the literature consulted is given in Table 4.1. These important publications were used to extract all data captured about Bapedi plant uses. The species checklist from Siebert (2001) coupled with all Sekhukhuneland herbarium records in the National Herbarium (PRE) were used as a starting point to compile a preliminary plant checklist of all plants collected in Sekhukhuneland. Two of the most prolific botanists who have explored the Sekhukhuneland region and noted some of the plant uses they discovered were W.G. Barnard and M.O.G. Mogg. These two ethnobotanists explored the region during the 1930’s, occasionally on joint collecting trips. Their herbarium voucher specimens provide anecdotes of folk lore and/or plant use. All their herbarium specimens were checked for notes on Bapedi plant use. The documented information,
together with the data gathered from field surveys were used to compile a more refined preliminary checklist of useful plants. All mentioned plant uses, plant parts used and indigenous names were captured. The plant uses were divided into several categories namely construction, crafts, cultivated crops, ethnoveterinary, firewood, medicine, ornamental and wild edible plants.

Figure 4.4: Important publications consulted on the Bapedi and Bapedi plant uses: a, P.J. Quin (1959), *Foods and feeding habits of the Pedi*; b, H.O. Monnig (1967), *The Pedi*; c, Chief Makgeru (Sefogole) III (2014), *Modu wa Kgoro ya Tšate (Makgeru)* (The roots of the Makgeru chieftainship).

Table 4.1: Literature consulted for the study of Bapedi ethnobotany (arranged alphabetically) (for complete citation see reference list).

| Author                                    | Title                                                                 | Date of publication |
|------------------------------------------|----------------------------------------------------------------------|---------------------|
| Basadi ba Bapedi Cultural Development Trust | Bapedi heritage development project in Sekhukhuneland: Tšate-Report on research and further developments | 2005                |
| Erasmus, L.J.C., Potgieter, M.J., Semenya, S.S., Lennox, S.J. | Phytomedicine versus gonorrhea: The Bapedi experience | 2012                |
| Masoko, P.                               | Ethnobotanical study of some selected medicinal plants used by traditional healers in Limpopo Province, South Africa | 2013                |
| Rasethe, M.T., Semenya, S.S., Potgieter, M.J., Maroyi, A. | The utilization and management of plant resources in rural areas of the Limpopo Province, South Africa | 2013                |
| Author(s) | Title | Reference |
|-----------|-------|-----------|
| Semenya, S.S. and Potgieter, M.J. | Ethnobotanical survey of medicinal plants used by Bapedi traditional healers to treat erectile dysfunction in the Limpopo Province, South Africa | 2013b |
| Semenya, S.S. and Potgieter, M.J. | Bapedi traditional healers in the Limpopo Province, South Africa: Their socio-cultural profile and traditional healing practice | 2014 |
| Semenya, S.S., Potgieter, M.J., Erasmus, L.J.C. | Exotic and indigenous problem plants species used, by the Bapedi, to treat sexually transmitted infections in Limpopo Province, South Africa. | 2013b |
| Semenya, S.S., Potgieter, M.J.*, Erasmus, L. | Ethnobotanical survey of medicinal plants used by Bapedi healers to treat diabetes mellitus in the Limpopo Province, South Africa | 2012b |
| Semenya, S.S., Potgieter, M., Tshisikawe, M., Shava, S., Maroyi, A. | Medicinal utilization of exotic plants by Bapedi traditional healers to treat human ailments in Limpopo Province, South Africa | 2012b |
| Siebert, S.J | Vegetation on the ultramafic soils of the Sekhukhuneland Centre of Endemism. Phd thesis, University of Pretoria | 2001 |
| Siebert, S.J., Wyk, A.E. Van, Bredenkamp, G.J. | Endemism in the flora of ultramafic areas of Sekhukhuneland, South Africa | 2003 |
| Sküssel, U. | Assessment of the cultural heritage resources on the provincial heritage site of Tjate on the Farm Djate 249KT in Sekhukhune, Limpopo Province | 2008 |
| Rampedi, I.T. | Thesis: Indigenous plants in the Limpopo Province: potential for their commercial beverage production. PhD thesis, University of South Africa | 2010 |

4.2.3 Compilation of a flip-file

Using the photographs taken during the field surveys, a flip-file was compiled, as illustrated in Figure 4.5, which was used during formal interviews (quantitative survey). Each page in the flip-file represented a different useful plant species. The photographs taken displayed diagnostic features of the plant in question which the community members familiarised themselves with when identifying the plant species. Where possible each page contained pictures of the whole plant, the bark, leaves, flowers, fruits etc. This was also dependent on the stage and condition the plant in question was in when it was found during the field surveys. Where possible, images of the plant products were also taken which was included in the flip-file alongside the images of the plant species. The flip-file pages are attached as APPENDIX A. Records were made of all vernacular names and all plant uses mentioned, including traditional folklore. However, this information was omitted during the compilation of the flip-file (to avoid giving hints to the participant about the previously recorded names and uses). All previously recorded data were used as reference for the information obtained during formal interviews.
4.2.4 Quantitative survey

When the discipline was first introduced, ethnobotany was merely the collection of a culture’s indigenous knowledge providing ‘uncritical plant use lists’ (De Beer and Van Wyk, 2011). This led to scientific criticism, labelling the discipline as a weak science. The need to produce more rigorous scientific ethnobotanical work resulted in the development of “quantitative ethnobotany” (Phillips & Gentry 1993a, 1993b, 2013). Thus, the term quantitative ethnobotany can be defined as “the application of quantitative techniques to direct analysis of contemporary plant use data” (Höft et al., 1999; De Albuquerque, 2009). Hoffman and Gallaher (2007) outlined the issues involved in quantifying ethnobotanical research (results). It was not until the late 1900s that, by merging certain aspects from social sciences and ecology, relative cultural importance (RCI) indices were developed and implemented. According to Hoffman and Gallaher (2007), RCI indices can be described as “quantitative measures designed to transform the complex, multidimensional concept of ‘importance’ into standardised and comparable numerical scales
or values”. This development meant that ethnobotanical research could include testable hypotheses and statistically measurable variations (Idu, 2009; Gomez-beloz, 2011).

Over the years various quantitative methodologies have been developed to analyse ethnobotanical information, depending on the hypotheses that are to be tested (De Albuquerque, 2009). According to Hoffman and Gallaher (2007), there are four RCI indices categories, based on ethnobotanical quantitative research conducted by various ethnobotanists throughout the years.

I. Uses Totalled/Researcher Tally
These methods were developed by Boom (1990) and Paz Y Mino et al. (1995) and were amongst the earliest methods developed in quantitative ethnobotany. The researcher conducts simple field walks with participants citing plant uses. This data is recorded in various plant use categories, which is then added up. Minimal time is spent in the field when using these methods.

II. Subjective Allocation/Researcher Score
The method was initially developed by Prance et al. (1987) by improving upon Boom’s (1990) approach. Prance et al. (1987) simply included in their research a degree of plant use importance. Anderson et al. (2001) took it a step further by assigning the degree of importance from the informants’ perception. Turner (1988) explored a different angle by introducing an anthropological aspect, the Cultural Significance Index, which was later improved upon by Stoffle et al. (1990) and Silva et al. (2006). These methods involve the researcher looking at various ‘specific uses’ of a taxon and allocating different scores depending on the degree of importance according to the researcher (not the participants).

III. Informant consensus/Informant Tally
Phillips and Gentry (1993a, 1993b) developed these types of methods in an attempt to eliminate any bias that may exist in data captured on a particular taxon’s use. To achieve this, the data collected exceeds the amount of data collected in other RCI indices methods. Each participant is scored per plant use per plant and the total is divided by the number of taxa in the study. These informant consensus type methods have been more influential then other ethnobotanical methods and many researchers have applied them to their studies (Hoffman and Gallaher, 2007). This is evident in Informant Consensus/Informant Score.
IV. Informant Consensus/Informant Score

These methods were developed on the basis that participants in an ethnobotanical study are more knowledgeable about the subject matter and thus they would naturally have a better understanding of those plants that are culturally important. Throughout the years researchers have developed various methods of conducting this type of research and grouped them into four categories as listed below:

1. The informant Score Method explained by Kvist et al. (1995) and Lykke et al. (2004)
2. The Choice Value Method described by Kremen et al. (1998)
3. The Importance Value described by Byg and Balslev (2001)
4. Rapid Informant Rank described by Lawrence et al. (2005)

A further method is the Matrix Method, this method was developed by De Beer and Van Wyk (2011). The main purpose of the matrix method was to bridge the gap between compiling checklists and quantifying ethnobotanical data. The matrix method involves the use of visuals aids and interviews in an attempt to capture as much information as possible in a practical, rigorous and comparable way. By presenting all participants with a complete set of photographs of all the useful plants, a complete data set (matrix) is achieved. False negative results, typical of most studies, are avoided. This means that the absence of data for a particular participant is due to a lack of knowledge about that plant and not due to a temporary lapse in memory (i.e., a false negative report). The matrix approach calls for a complete inventory of all useful plants (and photographs of all of them) before the quantitative study (the formal interview phase) can commence. To reach this point may take several visits to the study sites at different times of the year and represents a major challenge. However, it is difficult to visualize how incomplete data that has been randomly collected (e.g. with rapid appraisals or freelisting) can be subjected to satisfactory statistical analyses. The analyses can be only as good as the data, and there is a danger that too much emphasis is placed on analyses rather than on recording high quality primary data. The importance of primary data was also highlighted by Verpoorte (2012), who correctly argued that “...primary data are the most important part of any research. When these are available publicly, anyone may try his or her preferred method for extracting further information from these data.”

For the purpose of this study, the matrix method (De Beer and Van Wyk, 2011) was therefore the quantitative method of choice, which calculates two simple indices: the Ethnobotanical Knowledge Index (EKI) and the Species Popularity Index (SPI).
The matrix method of De Beer and Van Wyk (2011) involves the use of a completed flip-file of images of the plants, a questionnaire and conducting formal interviews with community participants. In this study, 27 volunteers were interviewed. As far as possible, a representative sample of participants was selected, spread over various age groups. These were children aged 10−18, young adults aged 19−29, adults aged of 30−54 and senior citizens aged 55 years and above.

The volunteers participated in relatively short interviews (30 minutes to one hour) during which three simple questions were asked about each plant species appearing in the flip-file. They were asked: Whether they recognised the plant, whether they had a name (scientific and/or vernacular) for the plant and whether they knew of any uses for the plant. Each answer was scored in the following way:

1. If the interviewee recognised the plant = score 1 (0 = no)
2. If the interviewee had a name for the plant = score 2 (0 = no)
3. If the interviewee had a use for the plant = score 3 (0 = no)

The highest score an interviewee can obtain is 6 for each plant (1+2+3), indicating that he/she is knowledgeable about the plant in question. The values obtained were then entered into a matrix as explained below.

4.3 Ethics

4.3.1 Ethical clearance

The University of Johannesburg’s Science Faculty Ethics Committee approved this research study. Ethical protocols are enforced because the study involves interaction with community members. The application of ethical rules ensures the safety of participants and eliminates exploitation of the community participants. A formal ethical clearance application was submitted to the ethical committee and a copy of the approval letter is attached as APPENDIX G. Also, a plant collection permit had to be applied for in order to collect any plant material in Sekhukhuneland. The permit for this study was issued by the Department of Economic Development, Environment and Tourism (LEDET) and a copy is attached as APPENDIX F.
4.3.2 Cultural protocol

Ethical clearance alone is not adequate for conducting an ethnobotanical survey. There are cultural conventions a researcher has to abide by in order to obtain unambiguous information without causing misunderstanding, unhappiness, unrealistic expectations or disruption. The village chiefs are high up on the hierarchy and their consent is required prior to any research being conducted on cultural land. This practice is of utmost importance because it not only applies to research but any activity that takes place within the chieftainship boundaries. Failure to abide by this law may even result in prosecution.

As expected of any hierarchy, certain protocols are followed before one can directly communicate with the highest authority. The same applies to Sekhukhuneland. Each village has a nduna (head of council) that is consulted and only he can go to appeal for a gathering with the chief. When a suitable date is agreed upon between the chief and the head of council, only then can the researcher meet and request permission to conduct research on the chief’s land.

The manner in which one introduces oneself to the chief weighs heavily on the decision the chief will take regarding the subject of the meeting. Culturally, women were not permitted to attend such meetings but with the advancement of society, the rules have been relaxed. Attire is one very important aspect; one cannot enter the chief’s household unless appropriate attire is worn, e.g. a formal jacket.

Following the identification of the relevant villages, meetings with various village chiefs were arranged. The purpose of these meetings was to request permission to conduct research on their lands and to interview community members. Certain protocols were similar amongst the chiefs but there were slight variations as well.

In the Phokwane chieftainship (the area where the village of Frisgewagt is situated) the responsibilities of the chief were taken over by the chief’s wife because both the chief and his son have passed on. Before a date was set to meet this chief, the request had to be sent via one of the village ndunas. He had to raise the matter during the upcoming goro meetings. Thereafter a date was set for us (my study supervisor and I) to return and personally meet with the village chief to request permission to conduct our study. According to cultural custom no female was permitted during the meeting, although in this case the only female present was the village chief. A formal jacket had to be worn and a customary gift/honorarium had to be presented to the village chief as a gesture of gratitude and respect. The main aim and objectives of the study were carefully explained to the village chief in the presence of a translator. His role was to ensure that there was no ambiguity in the message being conveyed across the two languages used, namely Northern Sotho and English.
In Sekele the proceedings followed a similar pattern as in Phokwane. A respectable *nduna* was approached to accompany me to the chief’s house to set a date for when I could formally return to ask for permission to conduct my studies (Figure 4.6). On the set date of return a gift was presented and the formal request to conduct the ethnobotanical study in his village commenced. The Chief of Sekele, however, requested time to convey the message to his community in order to select participants who were willing to participate in the research and to exclude persons with personal and cultural beliefs who were uncomfortable of having their photos taken and voices recorded. This chief was very helpful and showed me his collection of royal cultural artefacts. He also expressed appreciation for the fact that a young person is interested in the cultural heritage of the Bapedi.

In Tsehlwaneng and Ga-Moretsele (two villages in close proximity that was regarded as a single unit in this study), customary proceedings were unnecessary because of my blood relation to the families who resided in these villages.
4.3.3 Cultural belief

Considering that the sought after knowledge is part of the people’s culture, it is expected that the relevant plants also have strong cultural significance to the communities. It is possible that the collection and/or photography of some plants are taboo. Forbidden land must, at all times, be respected. Cultural traditions, beliefs and secrets should be taken into consideration when working on traditional land. For these reasons care was taken to honour all cultural laws and common courtesies. Some western technologies, such as the use of a voice recorder and taking photographs, are still considered as acts of witchcraft by some community members. In some instances, participants feared that their voices and souls may be stolen by electronic devices. Although the chiefs may have given their blessings to work around his village, I was advised not to roam too freely around the land and to respect people’s private property and sacred plants. During the course of this study the collection of certain plants was forbidden e.g. marobadigale (Aloe davyana/ A. transvaalensis) that are used during ancestral ceremonies (Figure 4.8) and legogwa (Mariscus or Cyperus sp.) which are sometimes planted in the home garden of a traditional healer. When entering a traditional healers hut (Figure 4.7) shoes had to be taken off. Taking photographs of certain plants were forbidden because of traditional customs and beliefs.
Figure 4.7: The inside of a traditional healer's hut in Ga-Sekele.

Figure 4.8: A spotted aloe called marobadigale (Aloe davyana/ A. transvaalensis) planted in a home garden for ceremonies (as presented by Chief Sekele).
4.3.4 Conducting interviews

During the second phase in this study the participants were subjected to semi-formal interviews. With the assistance of visual aids in the form of two flip-files, the participants shared their indigenous knowledge on each of the various plant species presented to them in the flip-file. The data extracted from the interviews was captured using a specially developed questionnaire, which is attached as APPENDIX E, and transferred to a spreadsheet developed using Microsoft Excel 2010.

4.3.4.1 Participant selection

The first village the author conducted the ethnobotanical survey in was Phokwane (Frisgewaght). Participants were selected at random with the aid of the village nduna Mr Joseph Makola. Together, the nduna and author took walks around the village where participants were selected at random. Although the selection may have been random the only parameter carefully considered was the participants' age. As far as possible, an adequate representative sample from all age groups was desired. The same process was followed in Tsehlwaneng/Ga-Moretsele. In Ga-Sekele, due to unrelated internal disagreements and in fear of the participants’ and author's safety, the chief requested a gathering with his followers. This served as a platform where the author explained clearly the purpose of the visit and conducted individual interviews within the safety of the chief’s land. All the participants who contributed to this study are listed in Table 4.2.

Interviews were conducted with extreme sensitivity taking into account the participant’s history, social hierarchy and, most sensitive of all, educational background. The use of electronic devices may be a common western practice but in rural communities, such practice may have witchcraft connotations thus participants were clearly notified of the use of any electronic devices (voice recorder, camera) for their consent. The majority of the participants were uncomfortable with the use of electronic voice recorders as it is believed that one can capture a person’s soul via the use of voice recordings. The author was advised not to use voice recordings and therefore made written notes to record anecdotes (and took digital photographs of the associated plant or plant parts). Photos were taken of the participants and their birth date and source of knowledge were captured on the consent forms and interview forms. Although all elders are to be highly respected, respect is presented differently according to the elder’s profession; a traditional healer may not require the same honorarium as an nduna. The appropriate honorarium was given to each person interviewed. A consent form, in both English and Sepedi, was presented to the participants and carefully explained to them. Very careful explanations were necessary in cases where
the participants were illiterate. Copies of the consent form are attached as APPENDIX C which is an English translation and APPENDIX D which is a Sepedi translation.

**Table 4.2:** Participants in the ethnobotanical study of Central Sekhukhuneland arranged in alphabetical order by first name. The abbreviation used elsewhere for each of the participants are given (e.g. MMM 1987 stands for Ms Mmabatho Mmakola born in 1987), DOB represents the date of birth and IK indicates where the participant gained their knowledge (source of knowledge, e.g. picked up the knowledge while herding cattle).

| Ms Annah Segolobele Sekele [ASS (1969)] | DOB: 1969-02-03 | IK: Elders teachings | Village: Ga-Sekele |
|------------------------------------------|-----------------|---------------------|--------------------|
| Ms Bridget Namole Mothupi [MBN (1982)]  | DOB: 1982-05-05 | IK: Elders teachings | Village: Ga-Sekele |
| Mr Gift Bostielo [GB (2002)]            | DOB: 2002-09-21 | IK: The community during childhood | Village: Frisgewaght |
| Mr Jankie Choenyana [JC (1961)]         | DOB: 1961      | IK: Elders teachings | Village: Frisgewaght |
| Mr Joseph Mokofane [JM (1997)]          | DOB: 1997-01-09| IK: Childhood/herder | Village: Frisgewaght |
| Mr Kgotutsu Mampuru [KM (1944)]        | DOB: 1944-11-21| IK: Traditional calling | Village: Phokwane |
| Mr Kgaola Matlala [KM (1981)]           | DOB: 1981      | EKI: Family         | Village: Tsehlwaneng |
| Mr Koketso Makabola [KM (1990)]        | DOB: 1990      | IK: During childhood | Village: Tsehlwaneng |
| Ms Letty Mpokwane [LM (1964)]           | DOB: 1964-08-04| IK: Childhood/father was a traditional healer | Village: Tsehlwaneng |
| Mr Mamasele Makola Joseph [MJM (1963)] | DOB: 1963-04-05| IK: Herbalist training | Village: Frisgewaght |
| Ms Marcia Phaphedi [MP (1994)]         | DOB: 1994-12-02| IK: During childhood | Village: Frisgewaght |
| Ms Matshekge Linah Sekele [MLS (1968)] | DOB: 1968-04-29| IK: Tending to crops | Village: Ga-Sekele |
| Name                        | DOB          | Indigenous Knowledge |
|-----------------------------|--------------|----------------------|
| Mr Matshelane Moretsele    | 1957-07-08   | Herding with elders  |
| Ms Mmabatho Mmakola        | 1987-06-23   | The community during childhood |
| Ms Mmathabathe Namule      | 1950s        | Traditional calling  |
| Mr Mogale David Sekele     | 1965-05-06   | Elders teachings     |
| Ms Moname Tiologelo Makola | 1997-03-30   | Community            |
| Mr Monti Seloane           | 1948-06-16   | Childhood/grew up in area |
| Mr Mositsa Moses Sedi      | 1976-04-04   | Agriculturist/farmer |
| Mr Rankwe Simon Madutle    | 1944-08-15   | Taught about plants  |
| Ms Rosilina Morata Mothupi | 1947-02-01   | Tending to crops     |
| Mr Simon Mallekene Mamosadi| 1953         | Herding              |
| Mr Simon Mothupi           | 1951-12-09   | Herding              |
| Mr Thebe Mothapa           | 1984         | From his family      |
| Ms Tiakele Sekele          | 1967-03-06   | Elders teachings     |
| Mr Tseke Kleinbooi Sekele  | 1963-05-03   | Herding              |
| Ms Tswareli Maggy Sekele   | 1976-07-18   | Tending to crops     |
| Mr William Senyane Makua   | 1972         | During childhood     |
| Ms Tiakale Sekele          | 1967-03-06   | Elders teachings     |

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The source of the indigenous knowledge (IK) is an important aspect of these interviews as it serves as a track record for the flow of knowledge within the communities.

4.3.4.2 Interaction with minors

Interviewing minors is a very sensitive issue. As researchers may not engage in any activities with a minor without any parental or guardian consent, minors were not approached during random walks around villages. Rather consent to interact with a minor was formally sought and given in the form of a signed consent form by the parent(s) or guardian.

4.3.5 General respect

It is good etiquette, when staying in the villages, not to disturb and disrupt the participant’s daily life and activities. In the case of this study, on many occasions the author took part in community daily activities as illustrated in Figure 4.9.

Figure 4.9: Using dried tree trunks from monoko (Ozoroa paniculosa) to build a kraal: a, digging a trench to plant the poles; b, planting the poles).

In this manner, a strong relationship was created. A fair honorarium was given to participants at the end of interviews as a kind gesture for their time and knowledge shared. In some cases I gave this at the beginning of the interview, a practise culturally known as ‘bula molomo’, literally translated as ‘mouth opener’.
4.4 Data analysis

A comparative analysis was conducted on historical, recently published literature and own data captured from field surveys and formal and informal interviews. The data also includes vernacular names, scientific names and all plant uses mentioned for each plant species.

The matrix method conceived by De Beer and Van Wyk (2011) was used to calculate the Species Popularity Index (SPI) for each useful plant species and the Ethnobotanical Knowledge Index (EKI) for each participant as shown in Figure 4.10.

I. The Species Popularity Index (SPI)

This index indicates the popularity or importance of a species amongst the community. Participants may have knowledge of the species in question but it may or may not be common knowledge shared amongst community members. People have the tendency to use the same plant for different purposes and use different plant parts, thus this index merely gives an indication of how popular or well known the species is amongst the community. The index value range for 0.00 (meaning that the plant or its uses are totally unknown to all participants) to 1.00 (meaning that the plant, its name and uses are known to all participants). It is calculated by dividing the total score of the species across all participants by the maximum possible value. For 100 species, the calculation would be:

\[
SPI = \frac{\text{sum of all individual scores of all species across all participants (say 300)}}{\text{maximum possible plant score (6 x 100)}} = \frac{300}{600} = 0.5
\]

II. The Ethnobotanical Knowledge Index (EKI)

The main objective of this index is to measure an individual’s indigenous plant knowledge. The average is measured between 1 meaning the individual is highly knowledgeable and 0 meaning the individual has no knowledge of the plants in question.

\[
EKI = \frac{\text{sum of all individual scores for all species for the particular participant (say 300)}}{\text{maximum possible score (6 x 100)}} = \frac{300}{600} = 0.5
\]
| Species name      | RSM | MMS | MS   | SPI |
|------------------|-----|-----|------|-----|
| Mirabilis jalapa | 0   | 1034| 1001 | 0.27|
| Momordica balsamina | 1236 | 1203 | 1236 | 0.83|
| Moringa oleifera | 1236 | 1236 | 0    | 0.66|
| Mundulea sericea | 1001 | 0   | 0    | 0.05|

**Matrix explained**

MS- Initials of interviewee (Monti Seloane)

1001- Score for *Mirabilis jalapa*: 1 – Recognised the plant
                  0 – Does not know plant’s name
                  0 – Does not have any use for plant
                  1 – Total score for plant 1

**EKI** = individual score/maximum possible score

\[ \frac{(1+6)}{(4 \times 6)} = 0.29 \]

**SPI (Mirabilis jalapa)** = Score of all participants / maximum possible value

\[ \frac{0 + 4 + 1}{3 \times 6} = 0.27 \]

**Figure 4.10**: Example of a section of a matrix table and the method for calculation of the Ethnobotanical Knowledge Index (EKI) and the Species Popularity Index (SPI).
4.5 Feedback to participants

Feedback is one of the most important requirements in terms of ethics. Community members can easily get the impression that they have been exploited if they never see the researcher again and do not get any feedback on the data that was collected and the outcome of the study. Regular updates on the progress of this project were communicated to the participants. However, the final and most important feedback will be provided once this dissertation has been examined and the results published. Copies of publications and posters will be presented to the participants during feedback sessions and a summary of the main finding will be communicated to all the participants.

4.6 Comparing the Bapedi traditional knowledge with other cultural groups

The Bapedi are not the only cultural group in South Africa that still utilise natural resources and they are also not the only cultural group in the Limpopo province (Mabogo, 1990 and Rampedi, 2010). Bapedi traditional knowledge was therefore subjected to comparisons with other Limpopo cultural groups, namely the VhaVenda and the Tsonga, to compare traditional plant use between cultures living within relatively close proximity. The Bapedi branched from a much bigger clan, the Sotho (Monnig, 1967), so that the traditional knowledge between these two cultures was also compared. Similar comparisons were made between recent studies of people of Khoi and San descent in the Western Cape province of South Africa. This information was captured together with the traditional names and can be found in summary in Table 5.1 in the next chapter. The literature that was used for the comparisons are also provided.
Chapter 5: Results and Discussion

5.1 Introduction

The following chapter is a complete representation of the results obtained during the study. Table 5.1 represents all the Bapedi plant use data captured during the course of the study including literature, herbarium label information, field work and interviews. The list (Table 5.1) includes 152 plant species of which only two where not recognised by all the participants during the quantification phase (Acanthus montanus and Conyza scabrida) Table 5.2 is the matrix of the 150 useful plant species (excluding the two plants not recognised by all participants) showing their Species Popularity Index (SPI) and the Ethnobotanical Knowledge Index (EKI) values of all participants. The major plant use categories food, medicine and craft are further analysed in Table 5.3, Table 5.4 and Table 5.5, respectively. Figure 5.1 represents the 53 exotic plant species identified in this study. The invasive alien plant species as listed according to NEM:BA Act 10 of 2004 are listed in Figure 5.2 and Table 5.6. The identified exotic species are further analysed in Figure 5.3a (cultivated exotics), Figure 5.3b (wild-harvested exotics), Figure 5.3c (exotics with medicinal uses) and Figure 5.4d (exotics with miscellaneous uses). The average Ethnobotanical Knowledge Index (EKI) values of the participants’ age groups are represented in Figure 5.4 and compared with the average EKI values of the Agter-Hantam in Figure 5.5a and Kamiesberg in Figure 5.5b. Newly recorded plants and plant uses are represented in Figure 5.6. Lastly, the extant Bapedi ethnobotany is compared to the Dikgale community ethnobotany in Table 5.7 and also to the Southern Sotho ethnobotany in Table 5.8 and Figure 5.7.

5.2 Checklist of useful plants in Central Sekhukhuneland

Table 5.1 was populated using the indigenous knowledge data shared by the participants during the fieldwork and interviews stages of the study as described in Chapter 4. The 152 useful plant species listed in the study are spread over 62 families, of which the Asteraceae (14 species), Fabaceae (11 species), Euphorbiaceae (eight species) and Solanaceae (seven species) had the highest frequency. The Apocynaceae, Malvaceae and Poaceae had six species each, the Cucurbitaceae five species and Anacardiaceae, Asphodelaceae and Crassulaceae all four species each. The Alliaceae, Asparagaceae, Combretaceae, Cyperaceae, Moraceae and Verbenaceae families all have three species each while the remaining families each had one or two useful species.
The proportion of useful plant species belonging to each family displays a similar trend to the overall species diversity of the family, as shown by data extracted from the SANBI Botanical Records and Herbarium Management System (BRAHMS) database, on all the plant species collected in the study area. The study area has a high concentration of plant species belonging to the Fabaceae, Asteraceae, Euphorbiaceae, Solanaceae, Apocynaceae and Poaceae families and the majority of useful plants mentioned in the study also belong to these families. It was surprising to see that 53 (35%) of the 152 listed plant species used by the Bapedi in this study were found to be exotic (non-indigenous) plant species, as indicated by an asterix (*). A total of 185 new plant uses and 98 newly recorded vernacular plant names were documented for the first time for the Bapedi. There are also 38 plant species recorded to be used by the Bapedi for the first time. All new records are indicated in bold in Table 5.1.

The participants were deliberately chosen to represent the general rural population of the study area, in order to record the plant species that are used in everyday life. As a result, there is a distinct contrast in plant use between those documented by Semenya and co-workers and those mentioned by participants in this study. The bulk of Semenya and co-worker’s work was aimed at traditional healers who are renowned for treating ailments and have specialised knowledge. Only two traditional healers participated in this study. The first was Mr Kgoputso Mampuru [KM (1944)] who, although initiated as a traditional healer, only practices as a herbalist. The second is Ms Mmathabathe Namule [MN (1950s)] who no longer practices as a traditional healer.

The majority (93%) of the participants in this study are therefore community members who, although they may lack the level of traditional healer’s knowledge regarding medicinal uses of plants, possess other plant use knowledge. Such is the case with Agave americana: Semenya et al. (2012a, 2012b) and Semenya and Potgieter (2014) have documented the plant being used as a treatment for hypertension, whereas community members use it in construction (fencing posts) and weaving (baskets and ropes). Such contrasts are found throughout the listed plants in this study. Another example is Aloe arborescens, used in treatment of HIV/AIDS (Semenya and Potgieter, 2014) but the participants reported its use as a nutritional supplement mixed with porridge, as well as ethnoveterinary uses and as a recreational smoke for the elders. One culturally significant species, Ozoroa paniculosa, has been recorded as an effective medicinal plant being used to treat diarrhoea, measles (Semenya and Potgieter, 2013b, 2014), erectile dysfunction (Semenya and Potgieter, 2013b, 2014; Erasmus et al., 2015) and impotence (Semenya et al., 2013a) but the participants regard it as an ideal and long-lasting material for building kraals, strong enough to contain cattle and other livestock.
Table 5.1: Comprehensive list of all Bapedi useful plants of Central Sekhukhuneland. Newly recorded species, vernacular names and plant uses are given in **bold**; voucher specimen numbers or photographic voucher numbers in square brackets – see APPENDIX A; naturalised exotics are marked with a single asterisk *, crop plants marked *cv. The names of participants are abbreviated, together with their dates of birth, as follows (see portrait photographs in Chapter 4): **Seniors** (55 years and older): Rankwe Simon Madutla – RSM (1944); Kgoputso Mampuru – KM (1944); Simon Mallekene Mamosadi – SMM (1953); Mathabathe Namule – MN (1950’s); Tiakale Sekele – TK (1967); Monti Seloane – MS (1948); Rosilina Morata Mothupi – RMM (1947); Simon Mothupi – SM (1951); **Adults** (36 to 54 years old): Jankie Choenyana – JC (1961); Mositsa Moses Sedi – MMS (1976); Letty Mpolokane – LM (1964); William Senaywe Makua – WSM (1972); Thebe Mthapa – TM (1984); Matshekge Linah Sekele – MLS (1968); Mogale David Sekele – MDS (1965); Mamasele Joseph Makola – MJM (1963); Tswaledi Maggy Sekele – TMS (1976); Tseke Kleinbooi Sekele – TKS (1963); Kgaola Matlala – KM (1981); **Young adults** (19 to 35 years old): Mmabatho Mmakola – MM (1987); Marcia Phaphedi – MP (1994); Koketso Makabola – KM (1990); Mothupi Bridget Namole – MBN (1982); **Children** (7 to 18 years old): Moname Tlologelo Makola – MTM (1997); Gift Bostillo – BG (2002)

| Species (family); [voucher specimen no. and/or photographic voucher no.] | Vernacular names | Bapedi plant use: A = Bapedi plant uses (as recorded during this survey or in the literature); B = uses recorded elsewhere in southern Africa and the rest of the world. |
|---|---|---|
| Acanthus montanus L.* (Acanthaceae) [1a] | A: The root is used to treat stomach complains (Semenya et al., 2012a, 2012b; Semenya and Marooyi, 2013; Semenya and Potgieter, 2014). B: Apparently not used elsewhere. |
| Agapanthus inapertus P. Beauv. (Agapanthaceae) [2a] | leta la phofu (Sepedi) | A: Plant used to treat chest problems, wounds (Moeng, 2010) and tuberculosis (Semenya and Marooyi, 2013; Semenya and Potgieter, 2014). B: Numerous uses have been recorded for *Agapanthus* species (Arnold et al., 2002). |
| Species (family); [voucher specimen no. and/or photographic voucher no.] | Vernacular names | Bapedi plant use: A = Bapedi plant uses (as recorded during this survey or in the literature); B = uses recorded elsewhere in southern Africa and the rest of the world. |
|---|---|---|
| Agave americana L.* (Asparagaceae) [11a] | **segogopha** (Sepedi), **toga** (Sepedi), **mobepi** (Sepedi), **kgopha yapala** (Sepedi) **nswareke ya robeg** (Sepedi) **lekomani** (Sepedi) **tsimanyana** (Sepedi), **garembomo** (South Sotho), **lekgala** (South Sotho), **lekgalaleputswa** (South Sotho) | A: The leaves are boiled to remove the fleshy pulp from the veins, and then the leaf veins are used to make fibres [JC (1961)] for weaving (baskets, ropes for roofing, etc.) [ASS (1969), MM (1987), BG (2002), JC (1961), JM (1997), KM (1944), MLS (1968), KM (1981), KM (1990), MDS (1965), MS (1948), MMS (1976), RMM (1947), SMM (1953), MN (1950's), TM (1984), TKS (1963), TMS (1976), MN (1950's)] and also believed to be used to build car bodies [KM (1944), TM (1984)]. The leaves are also used to treat hypertension (Semenya et al., 2012a, 2012b; Semenya and Potgieter, 2014). The inflorescence stem (mankomane) is used as reinforcement (post) for kraals, walls and roofing [KM (1944), MJM (1963), MS (1948), JM (1997), BG (2002), JM (1997), MP (1994)]. **The plant is also used as medicine for cows** and young men [WSM (1972), LM (1964), MTM (1997), RSM (1944)].  
B: Numerous craft uses and medicinal uses are known (Liengme, 1981; Rankoana, 2000; Arnold et al., 2002; Moffett, 2010). |
| Alepidea setifera N.E.Br. (Apiaceae) [8a] | **lesoko** (Sepedi), **lesokwana** (South Sotho) | A: Used to treat toothache [WSM (1972), RSM (1944)]; flu, colds, and used as charms (Moeng, 2010).  
B: **Alepidea** species are widely used in traditional medicine (Arnold et al., 2000; Moffett, 2010). |
| Allium cepa L.*cv (Alliaceae) [4a] | **eie** (Sepedi, South Sotho), **keye** (Sepedi), **hanyanese** (South Sotho) | A: Edible, ingredient to mix with food (All).  
B: A widely used crop (onion) (Moffett, 2010). |
| Allium schoenoprasum L.*cv (Alliaceae) [4b] | **konofolo** (Sepedi), **eie** (Sepedi), **keie or keye** (Sepedi) | A: Planted in the home garden to ward off snakes [KM (1981), SMM (1953), TM (1984), TKS (1963)] and the bulb is also edible [JM (1997), WSM (1972), KM (1944), MS (1948), MBN (1982), RSM (1944)].  
B: A widely used culinary herb (chives). |
| Aloe arborescens Mill. (Asphodelaceae) [12a] | **sekogopha** (Sepedi), **kgophya fase** (Sepedi), **mothapo** (Sepedi), **kgopana** (Sepedi) | A: Old dry leaves (motabo) [MJM (1963)] are burned and mixed with tobacco to make snuff which elderly women smoke as medicine [MN (1950's), MBN (1982), ASS (1969), MJM (1963), MLS (1968), MS (1948), BG (2002), JC (1961), JC (1961), MP (1994), MM (1987), MDS (1965), MS (1948), MMS (1976), RMM (1947), TMS (1976), TS (1967), MN (1950's), RSM (1944).  
Leaf is mixed with poultry drinking water as medication, and is also used as medicine |
| Species (family); [voucher specimen no. and/or photographic voucher no.] | Vernacular names | Bapedi plant use: A = Bapedi plant uses (as recorded during this survey or in the literature); B = uses recorded elsewhere in southern Africa and the rest of the world. |
|---|---|---|
| **Aloe castanea** Schönland (Asphodelaceae) [12b] | sekgopa sa setswiki (Sepedi) *segafane* (Sepedi) | A: Medicine (All). **Fresh whole leaves are used to make perfumes** [MMS (1976)]. The leaves are boiled and the water drunk as blood medication [KM (1944), ASS (1969), MDS (1965), RMM (1947), SM (1951)] and hypertension (Semenya and Potgieter, 2014). **Leaves are also crushed and ingested** [TKS (1963)] or boiled in water and the decoction is taken orally as treatment for high blood pressure (All). Dry leaves are burned, crushed and the powder is used to treat burns (as first aid kit) [TS (1955), MN (1950's), TS (1967), SM (1951), MBN (1982)] or crushed, burned and mixed with brown pap [MN (1950's), TS (1967)]. B: Numerous medicinal uses are known (Arnold et al., 2002). |
| **Aloe daviana** Schönland, A. *transvaalensis* Kuntze (spotted aloes) (Asphodelaceae) [12c] | sekgopa (Sepedi), *marobadigale* (Sepedi), *thoga* (Sepedi), *lekgala la Lesotho* (South Sotho), *lekgala la quthing* (South Sotho), *lekgala la thaba* (South Sotho), *lekgala le | A: Planted in the home garden and used during ceremonies to communicate with ancestors [ASS (1969), KM (1944), MJM (1963), MS (1948), JM (1997), BG (2002), MDS (1965), RMM (1947)], the leaf is placed in hot water and used to rub over a sprained ankle/joint [(JC (1961), KM (1981), (TKS (1963), TMS (1976), (TS (1967), SM (1951), MN (1950's), MBN (1982)] and benign growths [MDS (1965), TM (1984)] and other medicinal properties [MM (1987), MMS (1976), WSM (1972), RSM (1944)] and whole plant has medicinal properties (Rasethe et al., 2013). B: Widely used in traditional medicine (Arnold, et al., 2002; Moffett, 2010) and for craft purposes (Liengme, 1981). |
| Species (family); [voucher specimen no. and/or photographic voucher no.] | Vernacular names | Bapedi plant use: \( A = \) Bapedi plant uses (as recorded during this survey or in the literature); \( B = \) uses recorded elsewhere in southern Africa and the rest of the world. |
|---|---|---|
| \( \text{Aloe marlothii} \) A. Berger (Asphodelaceae) [12d] | \( \text{sekgopha} \) (Sepedi), \( \text{kgophya go ema} \) (Sepedi), \( \text{hiabo} \) (Sepedi), \( \text{sekgopha sa goema} \) (Sepedi), \( \text{hlatswa} \) (Sepedi), \( \text{bindamutshe} \) (Tshivenda), \( \text{mhanganzi} \) (Tsonga) | \( A: \) The flowers produce sweet edible nectar called \( \text{monupe} \) which people can eat (\text{gonopela}) [\( \text{ASS} \) (1969), \( \text{KM} \) (1990), \( \text{SMM} \) (1953)]. \( \text{Elderly women would burn the old dried up leaves sometimes together with old Opuntia leaves, ground to fine powder (dust) and mix with motshoko (snuff)} \) [\( \text{KM} \) (1981)]. Dried leaves are crushed, boiled, and the decoction is drunk as a remedy for ingested poisons [\( \text{SMM} \) (1953)]. Medicine for blood related ailments (All). \( \text{The thorny leaves are used to clean cow hide} \) [\( \text{KM} \) (1944), \( \text{MJM} \) (1963), \( \text{JM} \) (1997), \( \text{JC} \) (1961), \( \text{MS} \) (1948), \( \text{TMS} \) (1976), \( \text{MBN} \) (1982)]. Leaves are chewed as medicine [\( \text{LM} \) (1964), \( \text{RSM} \) (1944)] or crushed and mixed with cattle drinking water [\( \text{MP} \) (1994)]. The thorns are removed from the leaves and the leaves are mixed with water and drank as remedy for diabetes [\( \text{MN} \) (1950’s), \( \text{TS} \) (1967), \( \text{MN} \) (1950’s)]. The leaves and roots and used to treat diabetes mellitus and chlamydia (Semenya and Potgieter, 2014 and Semenya et al., 2012) and the roots are used to treat gonorrhoea (Erasmus et al., 2012). \( B: \) This \( \text{Aloe} \) species is widely used in traditional medicines (Mabogo, 1990; Rankoana, 2000; Arnold et al., 2002; Luseba, 2006). |
| \( \text{Alternanthera pungens} \) Kunth* (Amaranthaceae) [5a] | \( \text{mosweetswe} \) (Sepedi), \( \text{tšatsu} \) (Sepedi), \( \text{tšehlo ya di gomo} \) (Sepedi), \( \text{bohobe bo naming} \) (South Sotho), \( \text{bohome bo naming} \) (South Sotho), \( \text{bohome bo naming} \) (South Sotho), \( \text{lemanamana} \) (South Sotho) | \( A: \) An enema for constipation to induce bowel movement [\( \text{MJM} \) (1963), \( \text{KM} \) (1944), \( \text{MDS} \) (1965)] and treatment for women with womb problems [\( \text{KM} \) (1944)]. Root tuber is used to treat gonorrhoea and drop (Erasmus et al., 2012; Semenya et al., 2012a, 2012b; Semenya et al., 2013b; Semenya and Potgieter, 2014). \( B: \) Has numerous medicinal uses (Arnold et al., 2002). |
| Species (family); [voucher specimen no. and/or photographic voucher no.] | Vernacular names | Bapedi plant use: A = Bapedi plant uses (as recorded during this survey or in the literature); B = uses recorded elsewhere in southern Africa and the rest of the world. |
|-------------------------------------------------|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| **Amaranthus spinosus** L.* (Amaranthaceae) [5b] | theepe (Sepedi, South Sotho), serepelele (Sepedi), theepe e kgolo (Sepedi), tshithavhamisisi (Tshivenda) | A: **The plant is used as pig fodder** [JM (1959)] and the leaves are harvested and eaten as a morogo [All except JC (1991); Quin, 1959]. B: *Amaranthus* species are widely used as morogo (Liengme, 1931; Mabogo, 1990; Rankoana, 2000; Moffett, 2010). |
| **Anredera cordifolia** (Ten.) Steenis* (Basellaceae) [14a] | | A: **Live fence** [MJM (1963), MDS (1965), MMS (1976), RMM (1947)]. B: No known recorded uses elsewhere. |
| **Arachis hypogea** L.*,cv (Fabaceae) [31a] | peanut (Sepedi), ditloo (Sepedi), tokomane (Sepedi), ditloo marapô (Sepedi), ndu hu, makotomane (South Sotho) (Tshivenda), manga (Tsonga) | A: The underground nuts are boiled [All except MM (1987), MP (1994), MTM (1997), LM (1997)] or fried and eaten as a snack [MDS (1965), MMS (1976), TM (1984)]. B: *Arachis* is widely cultivated and has known medicinal uses (Liengme, 1981, Mabogo, 1990; Moffett, 2010). |
| **Argemone mexicana** L.* (Papaveraceae) [47a] | seja bagekolo (Sepedi) sehlaba magotlwana (Sepedi), ntshwantshwane (South Sotho), sehlabahlabane (South Sotho), sehlohlo se sehlo (South Sotho), sehlohlo se sesweu (South Sotho) | A: The leaves are crushed and used as a plaster over a growth on a limb [KM (1944)]. The roots are cooked and the water used to apply on an injury [MS (1948)]. B: The Sotho use *Argemone* species for various ailments (Moffett, 2010). |
| **Aristida diffusa** Trin. subsp. diffusa (Poaceae) [48a] | matulwane (Sepedi), moswelo (Sepedi), bjwang ba leswelo (Sepedi), bohlanya ba dipere (South | A: The dried grass is used to make maswelo (brooms) [JM (1997), BG (2002), JC (1961), KM (1944), MLS (1968), KM (1981), KM (1990), MJM (1963), MP (1994), MDS (1965), MMS (1976), MTM (1997)], RMM (1947), SMM (1953), TM (1984), TKS (1963), TMS (1976), TS (1967), SM (1951), MN (1950's), MBN (1982), RSM (1944)]. |
| Species (family); [voucher specimen no. and/or photographic voucher no.] | Vernacular names | Bapedi plant use: A = Bapedi plant uses (as recorded during this survey or in the literature); B = uses recorded elsewhere in southern Africa and the rest of the world. |
|---|---|---|
| *Aristida* sp. | | B: *Aristida* sp. has various craft uses (Rankoana, 2000; Moffett, 2010). |
| *Artemisia afra* Jacq. ex Willd. (Asteraceae) | lengana (Sepedi, South Sotho), wildeals (Afrikaans), wilde als (Afrikaans), als (Afrikaans), asem (Afrikaans), umhlonyane (Zulu) | A: Boil the leaves and drink the water [MJM (1963), TMS (1976), JM (1994), BG (2002)] or smoke the dried leaves as treatment for flu [All except MLS (1968), JC (1961), MP (1994), MTM (1997), TMS (1976)] and tuberculosis (Semenya and Potgieter, 2014; Semenya and Maroyi, 2013); roots are used to treat impotence (Semenya et al., 2013a); plant also used to treat colds, flu, stomach problems and malaria (Moeng, 2010). 
B: A widely used medicinal plant (Arnold et al., 2002; Steenkamp, 2003). |
| *Asparagus laricinus* Burch. (Asparagaceae) | leuitautlane (Sepedi), mophatlalatsa maru (Sepedi), sephatlalatsa (Sepedi), mosesele (Sepedi), govhakhanga (Tshivenda) | A: The whole plant is burned to ward off rain clouds during ceremonies (weddings, funerals etc.) [MJM (1963), MS (1948), JM (1997), ASS (1969), JC (1961), SMM (1953), KM (1944), KM (1981), MDS (1965), MMS (1976), RMM (1947), TM (1984), TKS (1963), TMS (1976), SM (1951), MBN (1982), RSM (1944)]. The spines are removed from the stems which are then softened in fire; the smooth stems are then used to make bracelets (KM (1944)). The roots are used to treat a person who has fallen ill from ingesting pregnant women food [TS (1967), MN (1950's)] and as treatment for blood clotting (Rasethe et al., 2013). 
B: *Asparagus* species are widely used medicinally and there are a few craft uses recorded (Liengme, 1981; Mabogo, 1990; Arnold et al., 2002). |
| *Athrixia phylicoides* DC. (Asteraceae) | letori (Sepedi), phefshwana (South Sotho) mutshatshalai (Tshivenda), mutbostee (Tshivenda), mhlonyana (Tsonga), kofi ya nhova (Tsonga) | A: Leaves are used to make tea (Mabogo, 1990; Rampedi, 2010) and the stems are used to make brooms [KM (1944), ASS (1969), MJM (1963), MDS (1965), MMS (1976), TKS (1963), TMS (1976), SM (1951), MBN (1982)]. 
B: *Athrixia* species are well documented for their craft and medicinal uses (Liengme, 1981; Mabogo, 1990; Arnold et al., 2002; Moffett, 2010). |
| Species (family); [voucher specimen no. and/or photographic voucher no.] | Vernacular names | Bapedi plant use: A = Bapedi plant uses (as recorded during this survey or in the literature); B = uses recorded elsewhere in southern Africa and the rest of the world. |
|---|---|---|
| *Bidens pilosa* L.* (Asteraceae) [13c] | *mophodisa* (Sepedi), *mokolonyane* (Sepedi), *mogkoti* (Sepedi), *moloka* (Sepedi), *mogwete* (Sepedi), *mohomenyana* (South Sotho), *mohonyane* (South Sotho), *mokolonyane* (South Sotho), *moonyane* (South Sotho), *mushidzhi* (Venda), *mujixi* (Tsonga) | A: Leaves are cooked and eaten as morogo [KM (1944), KM (1981), KM (1990), MJM (1963), MDS (1965), MMS (1976), RMM (1947), TM (1984), TKS (1963), TMS (1976), MBN (1982)]. The root is used as treatment for high blood pressure [LM (1964), WSM (1972), ASS (1969), SM (1951), RSM (1944)] and to treat menstrual disorders (Semenya et al., 2012 a, 2012b; Semenya et al., 2013 a; Semenya and Potgieter, 2014). B: Has multiple uses including medicinal and food uses (Liengme, 1981; Mabogo, 1990; Arnold et al., 2002). |
| *Boophone disticha* (L.f.) Herb. (Amaryllidaceae) [6a] | *lehwame* (Sepedi), *titikwane* (Sepedi), *kgutana ya naha* (South Sotho), *kgutsana ya noha* (South Sotho), *leshoma*, *thibi* (South Sotho) | A: Bulb leaves are used to cover wounds like a bandage/elastic plaster [MJM (1963), KM (1944), Moeng, 2010] or to cover cooked traditional beer [MS (1948)]. Whole plant is grown in the yard and used to communicate with ancestors during ceremonies [ASS (1969), JC (1961), SM (1951), KM (1944), MDS (1965), MMS (1976), WSM (1972), RMM (1947), TMS (1976)], Moeng, 2010; the bulb is boiled and the decoction drank as treatment for blood circulation [TM (1984), TKS (1963), MN (1950's), MBN (1982), RSM (1944)]; the water is used to bath crying children to soothe pain [LM (1964) (MLS (1968), KM (1981), MDS (1965), SMM (1953), RSM (1944)] and used as medication to keep a person awake [SM (1951), KM (1990)]. B: Though the species is known be toxic it has numerous medicinal use records and religious significances (Rankoana, 2000; Arnold et al., 2002; Moffett, 2010). |
| *Boscia albitrunca* (Burch.) Gilg & Gilg-Ben (Capparaceae) [19a] | *mohlophi* (Sepedi), *mohlopopimolewa* (Sepedi), *muthobi* (Tshivenda) | A: Plant is scarce in the area, it is found long distances from villages and it is edible [MJM (1963), KM (1944)] (MS (1948)]. The ground bark was used to make soft porridge during times of starvation [WSM (1972) LM (1964), SMM (1953), KM (1944), MMS (1976), SM (1951), RSM (1944)]. The plant is used to treat HIV/AIDS and to make beverages (Rampedi, 2010). |
| Species (family); [voucher specimen no. and/or photographic voucher no.] | Vernacular names | Bapedi plant use: A = Bapedi plant uses (as recorded during this survey or in the literature); B = uses recorded elsewhere in southern Africa and the rest of the world. |
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| **Brassica oleracea L. var. capitata L.f. alba DC.** (Brassicaceae) [15b] | **cabbage** (sepedi), **blomkoel** (South Sotho), **kgabetjhe** (South Sotho), **koel** (South Sotho) | B: The species has multiple uses including medicinal, food and ethnoveterinary uses (Mabogo. 1990; Rankoana, 2000; Arnold et al., 2002). A: Nutrition, domestic animal feed (All). B: Widely cultivated crop (Moffett, 2010). |
| **Brassica oleracea L.** *(Brassicaceae) [15a]* | **cabbage ya tabeng** (Sepedi), wild cabbage (English) | A: Nutrition [ASS (1969), KM (1981), LM (1964), MM (1987), MMS (1976), WSM (1972), RMM (1947), SMM (1953)] and as domestic animal feed [WSM, 1972] MJM (1963),SM (1951), JM (1997), ASS (1969), JC (1961), SM (1951), KM (1944), KM (1990), MDS (1965)]. B: Cabbage is a well-known leaf vegetable. |
| **Caesalpinia decapetala** *(Roth) Alston. (Fabaceae) [31b]* | **mokgabane** (Sepedi) | A: The plant is used to treat gonorrhoea (Semenya et al., 2013b; Semenya and Potgieter, 2014) and the root is used to treat drop (Semenya et al., 2012b; Erasmus et al., 2012). B: Used medicinally in Africa (Arnold et al., 2002). |
| **Callilepis laureola** DC. *(Asteraceae) [13d]* | **phelana** (Sepedi), **phela** (Sepedi) | A: **Chicken feed** [SM (1951)]; tuber used to treat gonorrhoea, HIV/AIDS and leukaemia (tuber), colds, flu, intestinal worms in children and ulcers (Moeng, 2010), erectile dysfunction, low sperm count and kidney dysfunction (Erasmus et al., 2012; Semenya and Potgieter, 2013b; Semenya et al., 2013b and Semenya and Potgieter, 2014). B: Has numerous medicinal uses but should be handled with care (Arnold et al., 2002; Steenkamp, 2003). |
| **Cannabis sativa L. var. sativa** *(Cannabaceae) [18a]* | **zol** (Sepedi), **lebakhe** (Sepedi), **mopatse** (Sepedi), **matekwane**, **matakwane** (South Sotho), **matekwane** (South Sotho), **matokwane** (South Sotho), **mnoana** (South Sotho), **moana** (South Sotho), **setekwane** | A: Recreational drug and flu medicine (All). The whole plant is boiled and the decoction is used to treat epilepsy [KM (1944), MBN (1982)] or, one teaspoon of the decoction is administered to ill children to treat coughs/flu [MP (1994)]. The leaves are used to treat tuberculosis (Semenya et al., 2012b; Semenya and Maroyi, 2013; Semenya and Potgieter, 2014). B: Widely used medicinally and for recreational purposes (Arnold et al., 2002; Moffett, 2010). |
| Species (family); 
| [voucher specimen no. 
| and/or photographic 
| voucher no.] | Vernacular names | Bapedi plant use: A = Bapedi plant uses (as recorded during this survey or in the literature); 
| | | B = uses recorded elsewhere in southern Africa and the rest of the world. |
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| Capsicum annuum L.*cv 
| (Solanaceae) [58a] | mopherefere (Sepedi), green pepper (English) | A: Mixed with food for flavour (All) and the roots are used to treat period pains (Semenya et al., 2012b; Semenya et al., 2013a; Semenya and Potgieter, 2014). B: Widely used vegetable. |
| Capsicum frutescens L.*cv 
| (Solanaceae) [58b] | pherefere (Sepedi), chilis (children) (Sepedi), lebela bela (Sepedi), viriviri (Tsonga) | A: Mixed with food for flavour (All). B: Has various medicinal uses in southern Africa and is a well-known cultivated crop (Liengme, 1981, Arnold et al., 2002). |
| Carica papaya L.*cv 
| (Caricaceae) [20a] | mophopho “wapoo” (Sepedi), mopawpaw (Sepedi), mupapawe (Tshivenda) | A: Fruit is eaten (All). The plant is used to treat erectile dysfunction (Semenya and Potgieter, 2014; Lourens et al., 2015) and diabetes mellitus (Semenya and Potgieter, 2012a). The root and tuber are used to treat gonorrhoea (Semenya et al., 2012 a, b). The fruit and root are used to carry out abortions and treat drop (Semenya et al., 2013b) and the leaves used to treat tuberculosis (Semenya and Maroyi, 2013). B: Cultivated in other parts of Limpopo and used medicinally (Mabogo, 1990). |
| Carpobrotus edulis (L.) L. Bolus subsp. edulis 
| (Aizoaceae) [3a] | le blommo (Sepedi), lepolomo la go naba (Sepedi), suurry (Afrikaans), hotnnotsy (Afrikaans), rankvye (Afrikaans), ghaukum (Afrikaans), vyerank (Afrikaans), nautsi amma (Nama) | A: The leaves are used to treat diabetes mellitus and goitre (Semenya et al., 2012a and Semenya and Potgieter, 2014) also, the succulent leaves are chewed on and solid plant material is spat out, only the leaf juices are swallowed as treatment for toothache, sore throat and tummy aches [KM (1981), MDS (1965), MM (1987), TM (1984)], ornamental [WSM (1972), KM (1944), MMS (1976)]. B: Has multiple medicinal uses (Arnold et al., 2002). |
| Catharanthus roseus 
| (L.) G. Don* | lepolomo le le pinki la drop (Sepedi), lilucha | A: Plant has ornamental value [JM (1997), BG (2002), ASS (1969), BG (2002), KM (1981), KM (1990), MP (1994), MMS (1976), TMS (1976)] and used as medication for toothache [LM (1964), |
| Species (family); [voucher specimen no. and/or photographic voucher no.] | Vernacular names | Bapedi plant use: | A = Bapedi plant uses (as recorded during this survey or in the literature); B = uses recorded elsewhere in southern Africa and the rest of the world. |
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| (Apocynaceae) [MM32/9a] | (Tshivenda), *mabobe* (South Sotho), *sebabetsana* | WSM (1972), SMM (1953), RSM (1944)]. The root is used to treat gonorrhoea (Semenya and Potgieter, 2014 and Semenya et al., 2013a) and drop (Semenya et al., 2012b). | B: Has multiple medicinal uses (Arnold et al., 2002; Steenkamp, 2003). |
| *Ceiba speciosa* (A.St.-Hil.) Ravenna * | (Malvaceae) [39a] | A: The tree is used for its shade but also makes good firewood because of its ability to burn slowly for long hours [MS (1948), MJM (1963)]. | B: No known recorded uses elsewhere. |
| *Chenopodium murale* L.* | (Chenopodiaceae) [21a] | A: Leaves are eaten as morogo [WSM (1972), LM (1964), MDS (1965), MMS (1976), RMM (1947), SMM (1953), TKS (1963), SM (1951), MN (1950's), RSM (1944), Quin, 1959]. | B: *Chenopodium* species are widely used for food (*morogo*) and medicinally across southern Africa (Mabogo, 1990; Arnold et al., 2002; Moffett, 2010). |
| *Citrullus lanatus* (Thunb.) Matsum. & Nakai*cv* (Cucurbitaceae) [26a] | *lerotse* (Sepedi), *mokopu* (small)(Sepedi), *moretse* (Sepedi), *legapo* (Sepedi), *mokolotwane* (Sepedi), *morogo wa motsatsa* (Sepedi), *kaate* (South Sotho), *lehapu* (South Sotho), *mokakawane* (South Sotho), *mokopuntja* (South Sotho), *qhomo* (South Sotho), *qhoomo* (South Sotho), *qotho* (South Sotho), *thomo* (South Sotho), *thoomo* (South Sotho), *tjoko* (South Sotho), *tjoto* (South Sotho), *habu* | A: *Lerotse* is eaten as a fruit. The seeds are fried and eaten with a starch supplement (All) or to stimulate appetite (Semenya and Potgieter, 2014), they can also be crushed and mixed with maize powder to make *kgodu* (yellow pap). The fruit pulp is used to make bitter jam [JM (1997), BG (2002), JC (1961), MS (1948)]. The leaves are eaten as *morogo wa motsatsa* [LM (1964), WSM (1972)]. The fruit is also used as domestic animal feed [JM (1997), BG (2002), JC (1961), MS (1948)] and to treat HIV/AIDS (Semenya, 2012b and Semenya et al. 2013b). | B: Recorded to have a variety of medicinal, craft and food uses (Arnold et al., 2002; Moffett, 2010). |
| Species (family); vernacular names | Bapedi plant use: A = Bapedi plant uses (as recorded during this survey or in the literature); B = uses recorded elsewhere in southern Africa and the rest of the world. |
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| Citrus limon (L.) Osbeck. *cv* (Rutaceae) [54a] | moswiri (fruit is swirir) (Sepedi), suurlamani (South Sotho), tshikavhavhe (Tshivenda) |
| | A: The fruit is edible (All). The fruit juice is mixed with boiled water and drank as a treatment for flu or **mixed with glycerine for nourishing the skin** [ASS (1961), SM (1951)]. The root is used to treat malaria (Semenya et al., 2012b; Semenya and Potgieter, 2014) and the leaves are used to treat tuberculosis (Semenya and Maroyi, 2013). |
| | B: Widely cultivated genus and used medicinally in Limpopo (Mabogo, 1990; Moffett, 2010). |
| Cladium mariscus (L.) Pohl subsp. jamaicense (Crantz) Kü.K. (Cyperaceae) [27a] | legogwa (Sepedi) |
| | A: Used to weave the traditional mat known as **legogwa** [BG (2002), MMS (1976), TMS (1976), SM (1951)]. |
| | B: No known recorded uses. |
| Cleome gynandra L. (Capparaceae) [19b] | lerotho (Sepedi), morogo wa lerotho (Sepedi), murudi (Tshivenda) |
| | A: Used as morogo, the leaves are cooked and eaten with pap (All; Quin, 1959). |
| | B: Eaten as morogo in other areas of Limpopo and other species eaten by the Sotho (Mabogo, 1990; Rankoana, 2000; Moffett, 2010). |
| Combretum apiculatum Sond. subsp. apiculatum (Combretaceae) [23a] | mohwelere tsipi (Sepedi), khuditshwane (Sepedi), mpotsa (Tsonga), mpoza (Tsonga), mugarasaka (Tsonga) |
| | A: Wood is tough and it can burn for 24 hrs without the need to reignite [KM (1944)] thus it is excellent firewood [KM (1981), MP (1994), MDS (1965), RMM (1947), TM (1984), TMS (1976), Rashe et al., 2013]. **Branches are stronger than whips and are used as instruments of punishment for criminals and naughty young men** [SMM (1953)]. Stems can also be used to make utensils [MMJ (1963), ASS (1969), MDS (1965), RMM (1947), SMM (1953), SM (1951)]. |
| | B: Used medicinally in other parts of Africa and as firewood (Arnold et al., 2002; Liengme, 1981). |
| Species (family); [voucher specimen no. and/or photographic voucher no.] | Vernacular names | Bapedi plant use: A = Bapedi plant uses (as recorded during this survey or in the literature); B = uses recorded elsewhere in southern Africa and the rest of the world. |
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| *Combretum molle* R.Br. ex G. Don (Combretaceae) [23b] | **mohwelere** (Sepedi), **mokgwethe** (Sepedi), **mugwiti** (Tshivenda) | A: **Firewood** [JM (1997), BG (2002), KM (1981), MJM (1963), MM (1987), MDS (1965), MMS (1976), TM (1984), MBN (1982), RSM (1944)]; the bark is boiled in water and the extract is taken orally as a treatment for body pains [KM, (1994)]; the root is used to treat wounds and general injuries (Semeyna and Potgieter, 2014; Moeng, 2010) and stomach problems (Moeng, 2010). B: Used medicinally in Africa (Arnold et al., 2002). |
| *Commiphora africana* (A.Rich.) Engl. var. *africana* (Burseraceae) [16a] | **mogongoro** (Sepedi) | A: The tree is used as a symbol to lay judgment in the royal yard. When a person's wrong doing are to be discussed, they are discussed under this tree [SMM (1953)]. B: Used medicinally in other parts of Africa (Arnold et al., 2002). |
| *Coryza scabrida* DC. (Asteraceae) [13e] | **mokotedi wa thaba** (South Sotho), **meidebos** (Afrikaans), **perskebos** (Afrikaans), **oondbos** (Afrikaans), **oondbos** (Afrikaans), **oondbesembos** (Afrikaans) | A: The root is used to treat depression (Semeyna and Potgieter, 2014). B: Used medicinally in other parts of Africa (Arnold et al., 2002). |
| *Corchorus tridens* L. (Malvaceae) [39b] | **nthelele** (Sepedi), **delele** (Tshivenda), **guxe** (Tsonga) | A: The leaves are cooked and eaten as morogo *wa thelele* [WSM (1972), ASS (1969), LM (1964), MDS (1965), MMS (1976), RMM (1947), TM (1984), TKS (1963), TMS (1976), RSM (1944)] and sometimes mixed with *morogo wa lerotho* because of *thelele* undesirable slimy nature when cooked [KM (1944), KM (1990), SM (1951), MBN (1982)]. B: Eaten as morogo in the Limpopo Province (Liengme, 1981; Mabogo, 1990). |
| Species (family); [voucher specimen no. and/or photographic voucher no.] | Vernacular names | Bapedi plant use: A = Bapedi plant uses (as recorded during this survey or in the literature); B = uses recorded elsewhere in southern Africa and the rest of the world. |
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| Cotyledon orbiculata L. (Crassulaceae) [25a] | *moshimane wa maratana* (Sepedi), *tsebe ya kolobe* (Sepedi), *moshimane morake* (Sepedi), *tsebe ya fase* (Sepedi), *moshimane wa tabeng* (Sepedi), *beesore* (Afrikaans), *plakkie* (Afrikaans), *varkoor* (Afrikaans) | A: Used as medication [LM (1964), WSM (1972), TKS (1963), RSM (1944)]. The leaf is placed in the sun to dry which can take up to eight months. After drying, the leaf is crushed to powder which is used to awaken fainted patients. People suffering from *lefufunyane* (mentally disturbed patients) are also administered the leaf powder as snuff, believed to enable them to communicate with ancestors [MJM (1963)]. Shepherd boys play with the leaves like frisbees [MJM (1963), SMM (1953), TM (1984)]; fresh leaves are crushed and the juices are sniffed to induce sneezing to cure certain ailments [KM (1944)] or to treat aching feet [TS (1967), MN (1950's)]. The plant is believed to be sold at Faraday muthi market and is used for flu [MMS (1976)] and the root is used to treat gonorrhoea (Erasmus et al., 2012; Semenya and Potgieter, 2014). B: Has various medicinal uses across Africa and the Sotho use it as a children’s toy (Arnold et al., 2002; Moffett, 2010). |
| Crassula sarcocaulis Eckl. & Zeyh. subsp. sarcocaulis (Crassulaceae) [MM28/25b] | *inoni* (Sepedi), *inwame* (Sepedi), *seredilenyana* (South Sotho) | A: Plants can be grown in the yard around rocks, as it is a rock loving plant and the stem is used for tonsil problems [MJM (1963)]. Whole plant is cooked in water and the decoction is used as medication for pregnant women; the plant can also be chewed for constipation [KM, (1944)]. Juice from the leaves can be used to make babies stop suckling [TS (1967), MN (1950's)]. B: Is used in traditional medicines in southern Africa (Arnold et al., 2002). |
| Cryptolepis cryptolepidioides (Schltr.) Bullock (Apocynaceae) [MM11/9b] | *moralala* (Sepedi), *mohlologwetsana* (Sepedi), *moapara* (Sepedi) | A: When an old lady is widowed she carries the plant around as a symbol [WSM 1972], (LM (1964), RSM (1944)]. B: No known use records. |
| Cucumis zeyheri Sond. (Cucurbitaceae) [26b] | *morogo wa monyaku* (Sepedi), *morogo wa motsatsa* (Sepedi), *lerakana* | A: Eaten as morogo; the younger leaves are cooked and eaten with pap as older leaves are too bitter for ingestion [BG (2002), MN (1950's), KM (1944), TM (1984), ASS (1969), KM (1981), KM (1990), LM (1964), MM (1987), MS (1948), MMS (1976), WSM (1972), TMS (1976), TS (1967), SM (1951), MBN (1982), RSM (1944)]. |
| Species (family); [voucher specimen no. and/or photographic voucher no.] | Vernacular names | Bapedi plant use: A = Bapedi plant uses (as recorded during this survey or in the literature); B = uses recorded elsewhere in southern Africa and the rest of the world. |
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| (South Sotho), monyaku (South Sotho) | B: Used medicinally across Africa (Arnold, et al., 2002; Moffett, 2010). |
| Cucurbita moschata Duchesne ex Poir.*cv (Cucurbitaceae) [26c] | lefodi (Sepedi), mpodi (Sepedi) | A: Edible fruit (All). B: *Cucurbita* species are widely cultivated as crops (Liengme, 1981; Moffett, 2010). |
| Cussonia paniculata Eckl. & Zeyh. (Araliaceae) [10a] | motšhetšhe (*Cussonia* spicata) (Sepedi), malebathe (Sepedi), motsetse (Sepedi), motshetshe (South Sotho) | A: Wood can be used to make wooden utensils [KM (1990), SMM (1953), TM (1984), TKS (1963), TMS (1976), SM (1951), MBN (1982)]. The trunk can easily be hollowed to make a drum [ASS (1969), MDS (1965)] sealing the top with cow hide, the hollow trunk is also used as a flower pot [MJJM (1963), MS (1948)]. Like the mopane tree the plant is also home to edible worms [ASS (1969), MJM (19630, JC (1961), TMS (1976), JM (1997), MP (1994), MM (1987), BG (2002), MDS (1965), MS (1948), MMS (1976), WSM (1972), RMM (1947), RSM (1944)]. Plant can be used for traditional medicines [JC (1961), RSM (1944)] and to induce vomiting [KM (1944), MN (1950’s)]. Tree sap can also be mixed with bathing water and the root is used to treat stomach complaints (Semeny and Potgieter, 2014). B: Is used for various medicinal purposes (Arnold et al., 2002; Moffett, 2010). |
| Cyperus austro-africanus C.Archer & Goetgh. (Cyperaceae) [27b] | modula (Sepedi) mohlaka (Sepedi) | A: The stem is used to makes straw mats (all); the whole plant is used to treat menstrual disorders (Semenya et al., 2013a; Semeny and Potgieter, 2014). B: No known use records. |
| Cyperus sexangularis Nees (Cyperaceae) [27c] | mohlaha (Sepedi), mutate (Tshivenda), nhlahle (South Sotho), risama (South Sotho), moseme (South Sotho) | A: Used to weave traditional mats (*legogwa*) using a wooden stand called a *pere* [BG (2002), MLS (1968), ASS (1969), KM (1990), LM (1964), MJM (1963), MDS (1965), MS (1948), MMS (1976), WSM (1972), RMM (1947), SMM (1953), TM (1984), TKS (1963), TMS (1976), TS (1967), SM (1951), MN (1950’s), MBN (1982), RSM (1944)]. Currently strings from orange bags are used to weave the mats but in the olden days *Acacia* species (*mogotho* (S), *lekkeruik peul* (A)) were used: fibres were obtained from the branches and bark to make strings that keep the mats together. The plant is grown in home garden as a sign of presence of a traditional healer [KM (1944), LM (1964), WSM (1972), RSM (1944)]. |
| Species (family); [voucher specimen no. and/or photographic voucher no.] | Vernacular names | Bapedi plant use: A = Bapedi plant uses (as recorded during this survey or in the literature); B = uses recorded elsewhere in southern Africa and the rest of the world. |
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| *Datura stramonium* L. * (Solanaceae) [58c] | **makura or mokura** (Sepedi), *lechoe* (Sepedi) *thoba* (Sepedi), *lethwe* (South Sotho), *lejhoi* (South Sotho), *mohlafotha* (South Sotho), *zavhazavha* (Tshivenda), *olieboom* (Afrikaans) | B: Used to make mats along with other species in the genus (Liengme, 1981; Mabogo, 1990; Moffett, 2010). A: A person who ingests the plant can go crazy/mad within 24 hours [SMM (1953), KM (1990), MDS (1965), MS (1948), MMS (1976), RMM (1947), SM (1951), TM (1984), TKS (1963), TMS (1976), TS (1967), SM (1951), MN (1950's), MBN (1982), (ASS (1969)]. **The leaves are used as Elastoplast** [KM (1944)]. **Seeds are ground to powder, mixed with cattle or pork fat and used to seal wounds** [LM (1964), WSM (1972), RSM (1944)] and to treat aching feet [MJM (1963)]. Traditionally the oil from the seeds was used to polish floors [MSS (1948)] and the plant is used to treat stroke victims (Semenya, 2012b; Semenya and Potgieter, 2014). B: Widely used medicinally (Mabogo 1990; Arnold et al., 2002; Moffett, 2010). |
| *Dodonaea viscosa* Jacq. * (Sapindaceae) [56a] | *mofentse* (Sepedi), *mofenshe* (Sepedi), *mudodivisa* (Tsonga) | A: Used as live fence [KM (1944), ASS (1969), KM (1990), MJM (1963), MP (1994), MDS (1965), MS (1948), MMS (1976), RMM (1947), TM (1984), TMS (1976), TS (1967), SM (1951), RSM (1944)] and the roots are used to treat HIV/AIDS (Semenya and Potgieter, 2014). B: Widely used medicinal plant and used as live fence in Limpopo (Mabogo, 1990; Arnold et al., 2002). |
| *Dombeya rotundifolia* (Hochst.) Planch. * (Malvaceae) [MM47/39c] | *mokgopa* (Sepedi), *mogokobu* (Sepedi), *tshiluvhari* (Tshivenda), *mbikanyaka* (Tsonga), *nsihapukuma* (Tsonga), *xiluvarhi* (Tsonga), *nyangala* (Tsonga) | A: Known to be the first tree to flower after winter*, the wood is used as firewood [KM (1944), TM (1984), KM (1981), MP (1994); Rasethe et al., 2013] and as poultry medication [LM (1964), WSM (1972), RSM (1944)] The root is used to treat diarrhoea and hypertension (Rasethe et al., 2013; Semenya and Potgieter, 2014). B: Widely used medicinally and for craft (Liengme, 1981; Mabogo, 1990; Arnold et al., 2002). |
| *Dovyalis caffra* (Hook.f. & Harv.) Warb. | *Mohlono* (Sepedi) *mutunu* (Tshivenda), *nvisangani* | A: Edible fruit [ASS (1969), MDS (1965)]. |
| Species (family); [voucher specimen no. and/or photographic voucher no.] | Vernacular names | Bapedi plant use: A = Bapedi plant uses (as recorded during this survey or in the literature); B = uses recorded elsewhere in southern Africa and the rest of the world. |
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| (Salicaceae) [55a] | (Tsonga), *hipachipachane* (Tsonga) | B: Fruit is edible, widely used medicinally and has several craft uses (Mabogo, 1990; Rankoana, 2000; Arnold et al., 2002). |
| *Elephantorrhiza praetermissa* J.H.Ross (Fabaceae) [31c] | *motšatsane* (Sepedi), *motshitshane* (Sepedi) | **When boiled the water turns red and the decoction is used to treat stomach pains** [MS (1948), KM (1944), TKS (1963), TMS (1976)]. Plant used in treatments of blood ailments [KM (1944), TS (1967)]. Dry wood used as firewood [KM (1981), MDS (1965), MS (1948), MMS (1976), RMM (1947), MJM (1963), SM (1951)] and **the seeds are used to make beads** [SMM (1953)]. B: No known recorded uses elsewhere. |
| *Englerophytum magalismontanum* (Sond.) T.D. Penn. (Sapotaceae) [57a] | *mohlatswa* (fruit known as mahlatswa) (Sepedi), *mahlatswa a hlateng* (Sepedi) | A: The fruit is edible [BG (2002), JM (1997), KM (1944), KM (1990), MJM (1963), MP (1994), MM (1987), MDS (1965), MS (1948), MMS (1976), RMM (1947), TM (1984), TMS (1976), SM (1951), RSM (1944)] which is also used to make beverages (Rampedi, 2010) and **the wood is used to make wooden utensils** [MJM (1963)]. The bark is used to treat diabetes mellitus (Semenya and Potgieter, 2014). The roots are used to treat HIV/AIDS (Semenya and Potgieter, 2014) and erectile dysfunction (Semenya et al., 2012b). B: Fruit is edible and plant widely used medicinally (Rankoana, 2000; Arnold et al., 2002; Steenkamp, 2003). |
| *Eriobotrya japonica* (Thunb.) Lindl.* (Rosaceae) [52a] | *mohlatswa wa segua* (Sepedi) | A: Edible fruit [JM (1997), KM (1944), ASS (1969), KM (1990), MP (1994), MM (1987), MDS (1965), RMM (1947), TM (1984), TKS (1963), TMS (1976), MN (1950's), MBN (1982)]. The root is used to treat hypertension (Semenya et al., 2012b; Semenya and Potgieter, 2014) and tuberculosis (Semenya and Potgieter, 2014; Semenya et al., 2012b, Semenya and Maroyi, 2013). B: Fruit edible and some known medicinal uses. |
| *Eucalyptus camaldulensis* Dehnh.* cv (Myrtaceae) [44a] | *moplandoas* (Sepedi), *mopilikomo* (Sepedi), *tholodi* (Sepedi), *blukom* (Sepedi), *bloukomo* (South Sotho) | A: Leaves are smoked or placed in hot water and the steam is inhaled to treat flu [MJM (1963), BG (2002), JM (1997), LM (1964), MP (1994), WSM (1972), RMM (1947), TKS (1963), TMS (1976), RSM (1944)]. The wood is used for construction [TKS (1963), KM, (1994), ASS (1969), KM (1990), MM (1987), MDS (1965), MS (1948), RMM (1947), TMS (1976)]. Children play with the fruits [JC (1961)]. The leaves are used to treat tuberculosis (Semenya et al., 2012b; Semenya and Maroyi, 2013; Semenya and Potgieter, 2014). |
| Species (family); [voucher specimen no. and/or photographic voucher no.] | Vernacular names | Bapedi plant use: A = Bapedi plant uses (as recorded during this survey or in the literature); B = uses recorded elsewhere in southern Africa and the rest of the world. |
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| **Euclea crispa** (Thunb.) Gürke subsp. crispa (Ebenaceae) [29a] | *mokwerekwere* (Sepedi), *mohlakola* (South Sotho), *motsetlela* (South Sotho) | A: Edible fruit [TKS (1963), SM (1951)]; root is used to treat HIV/AIDS (Semenya and Potgieter, 2014). B: Widely used medicinal and craft plant (Liengme, 1981; Arnold et al., 2002; Moffett, 2010). |
| **Eucomis pallidiflora** Baker subsp. pole-evansii (N.E.Br.) Reyneke ex J.C.Manning (Asparagaceae) [11c] | *mathuba difala* (Sepedi), *maphuma difala* (Sepedi) | A: Ornamental [MS (1948)], used to treat blood related ailments [MN (1950's)]. The bulb is used to treat tuberculosis (Semenya and Maroyi, 2013), blood clotting as a blood purifier treatment for chlamydia, erectile dysfunction (Erasmus et al., 2015), and the root is used to treat chest problems, STDs, mental illness and mixed with other plants and used as an aphrodisiac (Moeng, 2010). B: Widely used medicinally (Arnold et al., 2002). |
| **Euphorbia excelsa** A.C.White, R.A.Dyer & B.Sloane (Euphorbiaceae) [30a] | *mogkwalangwata* (Sepedi), *mogwangwata* (Sepedi) | A: The plant has a poisonous latex [BG (2002), JM (1997), MLS (1968), KM (1990), LM (1964), MDS (1965), MMS (1976), WSM (1972), RMM (1947), MJM (1963), TM (1984), TMS (1976), TS (1967), SM (1951)] that induces vomiting. The milky latex is also mixed with *bupi* (mealie meal) to make tablets that are taken as a laxatives [KM (1944), RSM (1944)]. B: No known records. |
| **Euphorbia ingens** E. Mey. ex. Boiss. (Euphorbiaceae) [30b] | *mogkwalangwata* (Sepedi), *mogwangwata* (Sepedi) *mohlohlokgomo* (Sepedi), *mukonde* (Tshivenda) | A: Poisonous latex [ASS (1969), KM (1990), LM (1964), MDS (1965), MMS (1976), WSM (1972), MJM (1963), TM (1984), TKS (1963), TMS (1976), TS (1967), SM (1951), MBN (1982)]. Monkeys have been observed to escape into the plant when hunted and it is used as a poison to kill enemies/people [MJM 1963]. The milky latex is mixed with *bupi* (mealie meal) to make tablets that are taken as a laxative [KM (1944), RSM (1944)]. The stem is used to treat breast cancer (Semenya et al., 2013b; Semenya and Potgieter, 2014). B: Widely used medicinally (Mabogo, 1990; Arnold et al., 2002). |
| Species (family); [voucher specimen no. and/or photographic voucher no.] | Vernacular names | Bapedi plant use: A = Bapedi plant uses (as recorded during this survey or in the literature); B = uses recorded elsewhere in southern Africa and the rest of the world. |
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| **Euphorbia maleolens** E. Phillips (Euphorbiaceae) [30c] | *mogkwalangwata* (Sepedi), *mogwangwata* (Sepedi), *rofa bja Tau* (Sepedi) | A: Poisonous latex and the whole plant is used to treat HIV/AIDS (Semenya and Potgieter, 2014). B: No known records. |
| **Euphorbia milii** Des Moul.* (Euphorbiaceae) [30d] | *le blommo* (Sepedi), *malese* (Sepedi) | A: Whole plant is used as a live fence and has ornamental value [ASS (1969), MM (1987), MMS (1976), RMM (1947), TMS (1976), SM (1951), MBN (1982)]. The whole plant is also used to treat patients that have difficulty to urinate [KM (1944), MLS (1968)] or it can be crushed and the powder is thrown into a flame, the radiated heat is used to treat stroke patients [KM (1944), LM (1964)]. B: No known records. |
| **Euphorbia tirucalli** L. (Euphorbiaceae) [30e] | *mohloko* (Sepedi), *mofiwa maswi* (Sepedi), *mutungu* (Tshivenda) | A: The milky latex produced by the plant causes extreme itchiness [MMS (1976), RMM (1947), TKS (1963), TMS (1976)]. The plant was used as a live fence to prevent snakes from coming into the yard and goats from escaping [SMM (1953), MMS (1976)]. B: Widely used medicinally (Mabogo, 1990; Rankoana, 2000; Arnold et al., 2002). |
| **Euphorbia tithymaloides** L.* (Euphorbiaceae) [30f] | *malese* (Sepedi) | A: Plant is poisonous [RMM (1947), TKS (1963), SM (1951), MBN (1982)] and has ornamental value [MLS (1968), MDS (1965)]. It is also used as traditional medicine to treat patients that have difficulty urinating [MP (1994)]. B: No known records. (but a popular garden plant worldwide). |
| **Ficus abutilifolia** (Miq.) Miq. (Moraceae) [MM24/41a] | *mofaya* (Sepedi) | A: Edible fruit [KM (1981), KM (1990), MDS (1965), MMS (1976), RMM (1947), MJM (1963), TM (1984), TKS (1963), TMS (1976), SM (1951), MN (1950's), MBN (1982)]. B: Widely used medicinal plant in southern Africa (Arnold et al., 2002). |
| **Ficus carica** L.*cv* (Moraceae) [41b] | *mofaya* (Sepedi), *mpaya* (Sepedi), *mofeiye* (Sepedi) | A: Plant is cultivated for its edible fruit [ALL, except MM (1987)]. The bark is used to treat tuberculosis (Semenya and Maroyi, 2013; Semenya and Potgieter, 2014) and the roots are used to treat diabetes mellitus (Semenya et al., 2012). B: No other recorded uses. |
| Species (family); [voucher specimen no. and/or photographic voucher no.] | Vernacular names | Bapedi plant use: A = Bapedi plant uses (as recorded during this survey or in the literature); B = uses recorded elsewhere in southern Africa and the rest of the world. |
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| *Ficus ingens* (Miq.) Miq. (Moraceae) [41c] | mofaya (Sepedi), *mpaya* (Sepedi), monokane (Sepedi), *mmogo* (Sepedi), *mokômo* (Sepedi), tshikululu (Tshivenda) | A: Edible fruit [ASS (1969), KM (1981), KM (1990), LM (1964), MJM (1963), MDS (1965), MS (1948), MMS (1976), WSM (1972), RMM (1947), TM (1984), TKS (1963), TS (1967), SM (1951), MBN (1982), RSM (1944), Rasethé et al. (2013)]. B: Veterinary uses (Mabogo, 1990). |
| *Gardenia volkensii* K.Schum. subsp. *volkensii* (Rubiaceae) [53a] | *muthuduntsa* (Sepedi), *tiya motse* (Sepedi), tshiralala (Tshivenda) | A: Traditional doctors are known to harvest the roots for medicine [JC, KM (1944), MJM (1963), MS (1948)]. B: Used for crafts and various traditional medicines in southern Africa (Mabogo, 1990, Arnold et al., 2002). |
| *Gazania krebsiana* Less. subsp. *serrulata* (DC.) Roessler (Asteraceae) [13f] | boyetse (Sepedi), shweshwe (South Sotho), tsikitlane (South Sotho) | A: The thin leaves are used as fibre to make rope [MJM (1963), ASS (1969), MDS (1965), MS (1948)] also to make bracelets [KM (1944)] or string to weave the *lebole* (traditional skirt) [MMS (1976), RMM (1947), TKS (1963), SM (1951), MBN (1982)]. B: Widely used medicinal plant (Arnold et al., 2002; Moffett, 2010). |
| *Gerbera jamesonii* Bolus ex Adlam (Asteraceae) [13g] | mokedikentsana (Sepedi) | A: The flower is worn as decoration during weddings, funerals and Christmas [SMM (1943), ASS (1969), MMS (1976), RMM (1947)]. B: No other uses elsewhere. |
| *Gomphocarpus fruticosus* (L.) Aiton f. subsp. *fruticosus* (=*Asclepias fruticosa* L.) (Apocynaceae) [MM42/9c] | *ileshika nokana* (Sepedi), *lehlanya* (Sepedi), mosotsa poo (Sepedi), kweteleboima (South Sotho), lebajana (South Sotho), lanajana la thaba (South Sotho), lebejane (South Sotho), *modimola* (South Sotho), *modimola wa thaba* (South Sotho), moethimolo (South Sotho), *moethimolo wa* | A: The leaves are boiled in water and the decoction is used as an enema [ASS (1969)] for kidney dysfunctions or taken orally as a headache treatment [KM (1944)]. Some people are known to eat the leaves as morogo [LM (1964), WSM (1972), RSM (1944)]. Birds build their nests with the cotton found in the fruit [KM (1981), SMM (1953), TM (1984)]. The plant is also believed to be used as treatment for epilepsy [TS (1967), MN (1950's)]. The root is used to treat erectile dysfunction (Semenya et al., 2012b; Semenya et al., 2013b; Semenya and Potgieter, 2013b, 2014). B: Widely used in traditional medicines (Mabogo, 1990; Arnold et al., 2002; Moffett, 2010). |
| Species (family); [voucher specimen no. and/or photographic voucher no.] | Vernacular names | Bapedi plant use: A = Bapedi plant uses (as recorded during this survey or in the literature); B = uses recorded elsewhere in southern Africa and the rest of the world. |
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| **Grewia flava** DC. (Malvaceae) [39b] | *thaba* (South Sotho), *moduko* (South Sotho), *moduku* (South Sotho), *moemothatha* (South Sotho), *mosikanoka*, *mosikanokana* (South Sotho), *mutshulwa* (Venda) | A: The small fruits (*digwame*) are edible [BG (2002), KM (1944), JM (1997), ASS (1969), KM (1981), JC (1961), KM (1990), MJM (1963), MP (1994), MDS (1965), MS (1948), MMS (1976), MTM (1997), RMM (1947), SMM (1953), TMS (1976), SM (1951), MBN (1982)] and used to make beverages (Rampedi, 2012). The branches are used to make whips (shamboks) [MSS (1948)]; the root is used to treat diarrhoea (Rasethe et al., 2013; Semenya and Potgieter, 2014). B: Edible fruit and widely used in traditional medicines (Rankoana, 2000; Arnold et al., 2002; Rampedi, 2010). |
| **Grewia sp.** (Malvaceae) [39e] | *mogwame* (Sepedi), *morethwa* (Sepedi), *morethwa* (Sepedi), *mohletlwa* (Sepedi), *nsihani* (Tsonga) | A: Edible fruit [KM (1944), RSM (1944)], the bark is used by traditional healers to tie prescribed medication before handing it to the patient, when the bark dries up it can be placed in water to wet it again for wrapping [KM (1944)]. B: Edible fruit and widely used in traditional medicines (Arnold et al., 2002; Rampedi, 2010). |
| **Helichrysum caespititium** (DC.) Harv. [13h] (Asteraceae) | *mogoto* (Sepedi) | A: Plant is used for various respiratory conditions (cough, asthma), also used as an enema for constipation. [KM (1944)]. The whole pant (*H. caespititium*) can be used to treat diabetes mellitus, epilepsy, hypertension, blood purifier, measles gonorrhoea and diarrhoea (Semenya and Potgieter 2014) and the root (*H. herbaceum*) is used to treat blood problems (Semenya and Potgieter 2014). B: *Helichrysums* have been recorded to be used a traditional medicines (Arnold et al., 2002). |
| **Hypoxis obtusa** Burch. ex Ker Gawl. | *mmona wa maledu* (Sepedi) *titikwane* (Sepedi) *sesogadi* (Sepedi) | A: The tuber can be used as medication [MDS (1965), ASS (1969), MMS (1976), RMM (1947)] for high blood pressure [MJM (1963), TMS (1976), SM (1951), MN (1950's)], erectile dysfunction **|
| Species (family); [voucher specimen no. and/or photographic voucher no.] | Vernacular names | Bapedi plant use: A = Bapedi plant uses (as recorded during this survey or in the literature); B = uses recorded elsewhere in southern Africa and the rest of the world. |
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| (Hypoxidaceae) [MM43/33a] | | (Semenya et al., 2013a; Semenya and Potgieter, 2014; Lourens et al., 2015), female fertility (Semenya et al., 2013a), to treat wounds [KM (1944)] and as an aphrodisiac (Erasmus, 2015). B: Widely used in traditional medicines and the Sotho use other species of Hypoxis in their traditional medicines (Arnold et al., 2002; Moffett, 2010). |
| **Indigofera** cf. *heterotricha* (Fabaceae) [31d] | *morotelashotsi* (Sepedi), *tsha ka lapa* or *cha ka lapa* (Sepedi), *musapelo wa thaba* (South Sotho), *mmusapelo wa thaba* (South Sotho), *qoiqoi* (South Sotho); *mmusapelo wa mafika* (South Sotho), *musapelo wa mafika* (South Sotho); *muswiswa* (Tshivenda), *mualigatsib* (Tshivenda) | **A**: Dried plant material burn rapidly and is used as a fire starter [KM (1944), ASS (1969), MDS (1965), MMS (1976), RMM (1947), TMS (1976), SM (1951)] and has medicinal applications (Rasethe et al., 2013). **B**: *Indigofera* species are widely used in traditional medicines (Mabogo, 1990; Arnold et al., 2002; Moffett, 2010). |
| **Ipomoea batatas** (L.) Lam.*cv* (Convolvulaceae) [24a] | *potata* (Sepedi), *patata* (South Sotho), *gapi* (tuber) (Tsonga); *rityi* (Tsonga) | **A**: Leaves used as morogo and starchy roots used as vegetable (All). **B**: Widely cultivated crop and has several traditional medicine uses (Liengme, 1981; Arnold et al., 2002; Moffett, 2010). |
| **Ipomoea bathycolpos** Hallier f. (Convolvulaceae) [24b] | *morara wa fase* (Sepedi), *maswi a pudi* (Sepedi) | **A**: Leaves used to rub on dissected cattle veins (the veins are tied together and then tied between rocks) to make a musical instrument (*kgwadi*) [KM (1944)]. The plant is edible (Quin, 1959). **B**: No known recorded uses elsewhere. |
| **Jatropha zeyheri** Sond. (Euphorbiaceae) [30g] | *sefapa badia* or *sefapa bodie* (Sepedi) | **A**: The bulb turns water red when cooked and is used in mixtures for blood ailments [MJM (1963), JC (1961), JM (1997)], the decoction is also used as an enema [MS (1948)]. The dried leaves are used to treat feet problems (ailments) and also to make tea [MJM (1963), JC (1961)], and induce vomiting [KM (1944), ASS (1969)]. The root is used as treatment for gonorrhoea (Erasmus et al., 2012). |
| Species (family); [voucher specimen no. and/or photographic voucher no.] | Vernacular names | Bapedi plant use: A = Bapedi plant uses (as recorded during this survey or in the literature); B = uses recorded elsewhere in southern Africa and the rest of the world. |
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| *Kalanchoe brachyloba* Welw. EX Britten (Crassulaceae) [25c] | moratana (Sepedi), tshinyanyu (Tshivenda) | B: Widely used in traditional medicines (Arnold et al., 2002). A: The leaves are crushed and the juices released are sniffed up, this induces sneezing to cure ailments [KM (1944), KM (1990), TKS (1963), MBN (1982)]. Leaves are dried and ground to powder, the powder is then used to wake up feinted patients [MJM (1963)]. The whole plant is used as an ornamental plant [MMS (1976), TM (1984)]. Shepherd boys play with the leaves like frisbees [SMM (1953), TS (1967)]. The plant is also used to treat aching feet, [MN (1950's)]. |
| *Kalanchoe thyrsiflora* Harv. (Crassulaceae) [25d] | moratana (Sepedi), seredi (South Sotho), seredile (South Sotho) | B: Widely used in traditional medicines (Arnold et al., 2002). A: The leaves are crushed and the juices released are sniffed up, this induces sneezing to cure ailments [KM (1944), KM (1990), TKS (1963), MBN (1982)]. Leaves are dried and ground to powder, the powder is then used to wake up feinted patients [MJM (1963)]. The whole plant is used as an ornamental plant [MMS (1976), TM (1984)]. Shepherd boys play with the leaves like frisbees [SMM (1953), TS (1967)]. The plant is also used to treat aching feet, [MN (1950's)]. |
| *Kedrostis leloja* (J.F.Gmel.) C.Jeffrey (Cucurbitaceae) [26d] | makgonatšohle (Sepedi) | B: No known uses but *Kedrostis* species are widely used in traditional medicines and craft (Arnold et al., 2002; Van Wyk et al., 2008; Moffett, 2010). A: The plant can be used for anything depending on a person’s desire i.e. medicine, witchcraft, good and bad luck [MJM (1963), MDS (1965), MMS (1976), RMM (1947), TKS (1963), TMS (1976), SM (1951), MBN (1982)]. *Whole plant can be mixed with bathing water to treat aching body* [KM (1944), ASS (1969)]. |
| *Kirkia wilmsii* Engl. (Kirkiaceae) [34a] | mogaba or legaba (Sepedi), modumela (Sepedi) | A: Once collected the tuber is brought into the yard, it is left outside to dry and a chicken is sacrificed else it is believed that a member of the family shall pass away [LM (1964), RSM (1944)]. The tuberous roots are edible [BG (2002), MJM (1963)] and are eaten as treatment for high blood pressure [ASS (1969), TKS (1963), MBN (1982), MDS (1965), KM (1944), KM (1981), KM (1990), TM (1984), MMS (1976), WSM (1972), RMM (1947), TMS (1976), TS (1967), SM (1951), MN (1950's), RSM (1944), Moeng, 2010] and hypertension (Semenya et al., 2012a; Semenya and Potgieter, 2014). A piece of the branch or the tuber is chewed on to induce thirst |
| Species (family); [voucher specimen no. and/or photographic voucher no.] | Vernacular names | Bapedi plant use: A = Bapedi plant uses (as recorded during this survey or in the literature); B = uses recorded elsewhere in southern Africa and the rest of the world. |
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| Lantana camara L.* (Verbenaceae) [60a] | sebabane (Sepedi), motsholla (Sepedi), tshidzimbambule (Tshivenda) | during herding so the herder can drink maximum water to prevent dehydration [SMM (1953)), MDS (1965), MMS (1976), RMM (1947), MN (1950's), Moeng, 2010]. B: Used in traditional medicines (Rankoana, 2000; Arnold et al., 2002). |
| Lantana rugosa Thunb. (Verbenaceae) [60b] | mokokotwane (Sepedi), mopopotwane (children) (Sepedi), masepa a magotlo (Sepedi), mabelemabutsweapel (South Sotho), mabutsweapel (South Sotho), modutwane (South Sotho), monokotshwai wa makgwaba matona (South Sotho), monokotswai wa makgwaba (South Sotho), tshidzimbambule (Tshivenda) | A. Berries are edible [ASS (1969), MJM (1963), MS (1948), JM (1997), KM (1944), BG (2002), SM (1951), KM (1981), KM (1990), LM (1964), MP (1994), MDS (1965), MMS (1976), WSM (1972), RMM (1947), SMM (1953), TM (1984), TKS (1963), SM (1981), MBN (1982), RSM (1944)] and the root is used to treat hypertension (Semenya et al., 2012b; Semenya and Potgieter, 2014). B: Has various craft uses and widely used in traditional medicines (Arnold et al., 2002). |
| Ledebouria apertiflora (Baker) Jessop (Hyacinthaceae) [32a] | sekanama (Sepedi), sefulanyana (Sepedi), sekunkuru (Sepedi) | A: The bulb is crushed and rubbed on painful areas of the body or alternatively mixed with water and used as soap [KM (1981), MDS (1965), SM (1951), TKS (1963), TS (1967)]. Crushed leaves are rubbed on limbs affected by sefulanyana (stroke) [LM (1964), MMS (1976), WSM (1972), RSM (1944)], or boiled in water and the concoction is applied to infections [KM |
| Species (family); [voucher specimen no. and/or photographic voucher no.] | Vernacular names | Bapedi plant use: A = Bapedi plant uses (as recorded during this survey or in the literature); B = uses recorded elsewhere in southern Africa and the rest of the world. |
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| Lippia rehmannii H.Pearson (Verbenaceae) [60c] | mošukutšwana (Sepedi), mosunkwane (Sepedi) | A: Plant leaves may be boiled as tea [KM (1944), ASS (1969), MDS (1965), MMS (1976), RMM (1947), SM (1951), MBN (1982), RSM (1944)]. Leaves mixed with the blood of a slaughtered animal, cooked and eaten as soup [TKS (1963), TMS (1976), SM (1951)] or used to neutralise pork smell when cooking pork meat [(MJJM (1963), MDS (1965), MMS (1976), RMM (1947)]. Leaves also used to treat chest complaints, tuberculosis (Semenya and Potgieter, 2014) and nose bleeds (Semenya and Potgieter, 2014). The whole plant is hung from the roof, indoors, as a mosquito repellent [KM (1944), MJM (1963), JM (1997), BG (2002)] and can be used as firewood [MMS (1976), RMM (1947)]. B: Widely used in traditional medicines (Arnold et al., 2002). |
| Lolium multiflorum Lam. (Poaceae) [48b] | botsakatsaka (Sepedi), korong (Sepedi) | A: Wild-harvested for bread making [All except TS (1955), MLS (1968), MM (1987), MP (1994), Quin, 1959)]. The whole plant is used to treat kidney problems (Semenya, 2012b; Semenya and Potgieter, 2014). B: No known recorded uses elsewhere. |
| Lopholaena coriifolia (Sond.) E.Philips & C.A.Sm. (Asteraceae) [13i] | morapeus (Sepedi), mokorokorwane (Sepedi), moswikiri (Sepedi) | A: Invasive/bush encroachment plant species good for firewood [MJJM (1963), ASS (1969), MDS (1965), MMS (1976), RMM (1947), MBN (1982)]. Dried branches are burned and the smoke is inhaled to treat headaches [JC (1961), ASS (1969), MDS (1965), WSM (1972), RMM (1947) TKS (1963), TMS (1976), SM (1951), MN (1950's), RSM (1944)]. The branch apices have an edible sugar substance/exudate (nectar) [MM (1987)]. B: Various craft uses and used in traditional medicines (Rankoana, 2000; Arnold et al., 2002). |
| Mangifera indica L.*cv (Anacardiaceae) [7a] | mango (Sepedi), umango (Sepedi) | A: Fruit is edible (nutrition) (All). B: Used in traditional medicines and widely cultivated (Arnold et al., 2002). |
| Medicago sativa L.* (Fabaceae) [31e] | luserene (Sepedi), lesere (South Sotho) | A: Whole plant is used to treat heart problems [(MN (1950's); Semenya, 2012b; Semenya and Potgieter, 2014)]. |
| Species (family); [voucher specimen no. and/or photographic voucher no.] | Vernacular names | Bapedi plant use: A = Bapedi plant uses (as recorded during this survey or in the literature); B = uses recorded elsewhere in southern Africa and the rest of the world. |
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| Melhania prostata DC. (Malvaceae) [39f] | mamshwane (Sepedi) | B: Animal fodder (*lucerne*) and widely used in traditional medicines (Arnold et al., 2002; Moffett, 2010). |
| Melia azedarach L.* (Meliaceae) [40a] | mobidi (Sepedi), morombol (Sepedi), mobidi (Sepedi), morombol (Sepedi), xifiringoma (Tsonga) | A: Used by traditional doctors for various ailments in combination with other plants as a strong potion (*mokeme*) for witchcraft. The red roots are an indication that the plant can be ingested as medicine [MJM (1963)]. **Roots used to weave baskets** [KM (1944)]. B: Not recorded to be used elsewhere. |
| Merwilla plumbea (Lindl.) Speta. (Hyacinthaceae) [32b] | setsusha (Sepedi), kgerere (South Sotho) | A: The whole plant has ornamental value [TMS (1976)] and seeds were used to play with, they were kept afloat just above the lips by gently blowing on them [MMS (1976)] and the wood is used as firewood (Rasethe et al., 2013). B: Fruits are eaten in other parts of Limpopo; timber is used in construction and the plant is widely used in traditional medicines and as an ornamental (Liangme, 1981; Mabogo, 1990; Rankoana, 2000; Arnold et al., 2002). |
| Mimusops zeyheri Sond. (Sapotaceae) [56b] | mmupudu (Sepedi), mobupudu (Sepedi), mibubulu (Tsonga), mpfuxane (Tsonga), nhlantswa (Tsonga), mubulu (Tshivenda) | A: It produces edible fruit [SMM (1953), KM (1944), JM (1997), BG (2002), ASS (1969), KM (1981), JC (1961), KM (1990), MJM (1963), MDS (1965), MMS (1976), RMM (1947), TM (1984), TKS (1963), TMS (1976), SM (1951), RSM (1944)] which is also used to make beverages (Rampedi, 2010); the leaves are used to treat diabetes mellitus (Semenya and Potgieter, 2014; Semenya et al., 2012a). B: Used in traditional medicine and the fruit is edible (Liengme, 1981; Mabogo, 1990; Rankoana, 2000; Arnold et al., 2002). |
| Species (family); [voucher specimen no. and/or photographic voucher no.] | Vernacular names | Bapedi plant use: A = Bapedi plant uses (as recorded during this survey or in the literature); B = uses recorded elsewhere in southern Africa and the rest of the world. |
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| **Mirabilis jalapa** L.* (Nyctaginaceae) [45a] | *lebje* (Sepedi), *masêgasêgane* (Sepedi), *mothwatwa* (sepedi), **mokgapu wa noga** (Sepedi), *tshibavhe* (Tshivenda), *without* (Afrikaans), *duwana* (Afrikaans) | A: Ornamental [MLS (1968), MP (1994), MMS (1976), MTM (1997)]. B: Used in traditional medicine (Arnold et al., 2002). |
| **Momordica balsamina** L. (Cucurbitaceae) [26e] | *lebje* (Sepedi), *mosetla tlou* (Sepedi), *motlou* (Sepedi), *moshisane* (Sepedi), *mukundandou* (Tshivenda), *without* (Afrikaans), *duwana* (Afrikaans) | A: The leaves are cooked and eaten with pap [MJM (1963), KM (1944), SMM (1953), TKS (1963), SM (1951), RSM (1944)]. The fruit is believed to be eaten by snakes [MJM (1963), MM (1987), MDS (1965), MMS (1976), RMM (1947), TMS (1976)] and is also used like steel wool to wash dishes [MS (1948)]. The root is used to treat high blood pressure [RMM (1947), TS (1967), MN (1950's)] and diabetes mellitus (Semenya et al., 2012a; Semenya and Potgieter, 2014). B: Used in traditional medicine (Mabogo, 1990; Arnold et al., 2002; Van Wyk et al., 2008). |
| **Moringa oleifera** Lam.*cv (Moringaceae) [42a] | *moringa* (Sepedi), *makgonatsoholle* (Sepedi) | A: Leaves can be used to make tea [KM (1944), ASS (1969), MDS (1965), MMS (1976), RMM (1947), TKS (1963), SM (1951), MBN (1982)] for an energy boost. Medicinally any part of the plant is used to treat diabetes, high blood, improve nutrition (immune system) and treat burning urine [LM (1964), MDS (1965), WSM (1972), MN (1950's), RSM (1944)]. The seed and leaf are used to treat diabetes mellitus (Semenya et al., 2012a; Semenya and Potgieter, 2014). B: Not recorded as traditional medicine in southern Africa but known to be widely used in many parts of Africa and Asia. |
| **Mundulea sericea** (Willd.) A.Chev. (Fabaceae) [31f] | *mosetla tlou* (Sepedi), *motlou* (Sepedi), *moshisane* (Sepedi), *mukundandou* (Tshivenda) | A: Locusts are known to feed on the flower, so it attracts lots of them making collection easier [MJM (1963), MDS (1965), MMS (1976), RMM (1947), TKS (1963), SM (1951), MBN (1982)]. The dry bark is used as firewood [MJM (1963), MDS (1965), TMS (1976)]. Used to treat epilepsy [KM (1944)] and menstrual disorders (Semenya et al., 2013). B: Widely used in traditional medicine (Mabogo, 1990; Arnold et al., 2002). |
| **Myrothamnus flabellifolius** (Sond.) Welw. (Myrothamnaceae) [43a] | *mahlapaneng* (Sepedi), *boka* (Sepedi), *fenya* (Sepedi), *makgonatsoholle* (Sepedi), *tsoga* (Sepedi), | A: When the leaves and/or flowers are dry the plant material is crushed and smoked or boiled (macerated) and the steam inhaled as a remedy for coughs and flu [JC (1961), MP (1994), MDS (1965), MMS (1976), RMM (1947), SM (1951), MBN (1982)]. The plant is also used to treat men’s fertility and the dry plant material is used as a fire fuel as it burns easily and fast [KM (1944), JM (1997), JC (1961)]. The whole |
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| **moparafin** (Sepedi), **pati yatshwene** (Sepedi) | **Vernacular names** | **Bapedi plant use:** A = Bapedi plant uses (as recorded during this survey or in the literature); B = uses recorded elsewhere in southern Africa and the rest of the world. **moparafin** (Sepedi), **pati yatshwene** (Sepedi) | **Bapedi plant use:** A = Bapedi plant uses (as recorded during this survey or in the literature); B = uses recorded elsewhere in southern Africa and the rest of the world. **moparafin** (Sepedi), **pati yatshwene** (Sepedi) |
| **Nicotiana tabacum** L.*cv (Solanaceae) [58d] | **mopolare** (Sepedi), **motsuku** (Sepedi), **kwane** (South Sotho), **tabak** (South Sotho) | **A:** Leaves used to make motshoko (snuff) and as cattle feed [All except MS (1948), MLS (1968), MTM (1997), ASS (1969), KM (1990)]. **B:** Widely used in traditional medicine (Arnold et al., 2002; Moffett, 2010). | **A:** Leaves used to make motshoko (snuff) and as cattle feed [All except MS (1948), MLS (1968), MTM (1997), ASS (1969), KM (1990)]. **B:** Widely used in traditional medicine (Arnold et al., 2002; Moffett, 2010). |
| **Opuntia ficus-indica** (L.) Mill.* (Cactaceae) [17a] | **mofeie** (Sepedi), **motloro** (Sepedi), **tôrôfeie** (Sepedi), **foie e kubedu** (Sepedi), **mudoro** (Tshivenda) | **A:** The fruit is eaten as a delicacy (All), used to make beverages [MLS (1968), MMS (1976); Rampedi, 2010] and to treat sexually transmitted diseases (Semenya et al., 2012a,b). **Women cannot eat the red fruit as it is believed to induce menstruation** [MS (1948)]. **The roots are used to treat people who have urinary ailments** [TS (1967), MN (1950's)], hypertension (Semenya and Potgieter, 2014), gonorrhoea (Rasethe et al., 2013), diabetes mellitus and drop (Erasmus et al., 2012). **B:** Fruit is edible and is used in traditional medicines (Mabogo, 1990; Arnold et al., 2002; Moffett, 2010). | **A:** The fruit is eaten as a delicacy (All), used to make beverages [MLS (1968), MMS (1976); Rampedi, 2010] and to treat sexually transmitted diseases (Semenya et al., 2012a,b). **Women cannot eat the red fruit as it is believed to induce menstruation** [MS (1948)]. **The roots are used to treat people who have urinary ailments** [TS (1967), MN (1950's)], hypertension (Semenya and Potgieter, 2014), gonorrhoea (Rasethe et al., 2013), diabetes mellitus and drop (Erasmus et al., 2012). **B:** Fruit is edible and is used in traditional medicines (Mabogo, 1990; Arnold et al., 2002; Moffett, 2010). |
| **Ornithoglossum vulgare** B.Nord. (Colchicaceae) [22a] | **monoko** (Sepedi), **momoko** (Sepedi) | **A:** Found one plant after a long walk; it is believed to be used by ba go phahlalatsa matsogo (traditional healers) as a powerful potion [SMM (1953)]. **B:** No known recorded uses elsewhere. | **A:** Found one plant after a long walk; it is believed to be used by ba go phahlalatsa matsogo (traditional healers) as a powerful potion [SMM (1953)]. **B:** No known recorded uses elsewhere. |
| **Ozoroa paniculosa** (Sond.) R.Fern. & A.Fern. (Anacardiaceae) [MM22/7b] | **monoko** (Sepedi), **momoko** (Sepedi) | **A:** The wood lasts long without the use of preservatives thus people use it to build kraals and sometimes use it as fencing posts [All except TS (1955), MLS (1968), TM (1984), MTM (1997), MP (1994), MMS (1976)]. **A piece of the bark can be used to make sour milk (milk from a cow or goat is poured into a hollowed out calabash (or ostrich egg) and a piece of the wood is placed inside the container and left to ferment underground** [MJM (1963), MS (1948), KM (1944)]. **The bark can be ground to a fine powder which is used to treat stomach pains** [KM (1944), TKS (1963), SM (1951), MBN (1982), KM (1944)]; wood used as firewood; the tree sap is edible (BG (2002), (MJM (1963)], leaves used to make mountain tea, [WSM (1972), RSM | **A:** The wood lasts long without the use of preservatives thus people use it to build kraals and sometimes use it as fencing posts [All except TS (1955), MLS (1968), TM (1984), MTM (1997), MP (1994), MMS (1976)]. **A piece of the bark can be used to make sour milk (milk from a cow or goat is poured into a hollowed out calabash (or ostrich egg) and a piece of the wood is placed inside the container and left to ferment underground** [MJM (1963), MS (1948), KM (1944)]. **The bark can be ground to a fine powder which is used to treat stomach pains** [KM (1944), TKS (1963), SM (1951), MBN (1982), KM (1944)]; wood used as firewood; the tree sap is edible (BG (2002), (MJM (1963]], leaves used to make mountain tea, [WSM (1972), RSM | **A:** The wood lasts long without the use of preservatives thus people use it to build kraals and sometimes use it as fencing posts [All except TS (1955), MLS (1968), TM (1984), MTM (1997), MP (1994), MMS (1976)]. **A piece of the bark can be used to make sour milk (milk from a cow or goat is poured into a hollowed out calabash (or ostrich egg) and a piece of the wood is placed inside the container and left to ferment underground** [MJM (1963), MS (1948), KM (1944)]. **The bark can be ground to a fine powder which is used to treat stomach pains** [KM (1944), TKS (1963), SM (1951), MBN (1982), KM (1944)]; wood used as firewood; the tree sap is edible (BG (2002), (MJM (1963]], leaves used to make mountain tea, [WSM (1972), RSM |
| Species (family); [voucher specimen no. and/or photographic voucher no.] | Vernacular names | Bapedi plant use: A = Bapedi plant uses (as recorded during this survey or in the literature); B = uses recorded elsewhere in southern Africa and the rest of the world. |
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| *Pellaea calomelanos* (Sw.) Link (Pteridaceae) [MM25/50a] | *patalewana* (Sepedi), *patalewana* for ferns in general (South Sotho) | (1944)] and the bark and root are used to treat diarrhoea, measles (Semenya and Potgieter, 2013b, 2014), erectile dysfunction (Semenya and Potgieter, 2013b; Semenya and Potgieter, 2014 and Erasmus et al., 2015) and impotence (Semenya et al., 2013a). B: Used in traditional medicine (Arnold et al., 2002). |
| *Peltophorum africanum* Sond. (Fabaceae) [31g] | *mosehla* (Sepedi), *musese* (Venda) | A: Crushed leaves are burned and the smoke inhaled for bronchial ailments [TS (1967)], the plant is also used to treat tuberculosis (Semenya and Maroyi, 2013). B: Widely used in traditional medicines (Arnold et al., 2002; Moffett, 2010). |
| *Pennisetum glaucum* (L.) R.Br. cv. (Poaceae) [48c] | *leotša* (Sepedi), *nyalothe* (South Sotho) | A: Bark is used to treat high blood pressure [JC (1961), KM (1944)], stomach pains [KM (1981), KM (1990), LM (1964), JM (1963), MDS (1965), RMM (1947), TKS (1963), TMS (1976), RSM (1944)] HIV/AIDS, erectile dysfunction, as a postpartum medicine (Semenya et al., 2013a; Semenya and Potgieter, 2013b; 2014) and to treat female fertility (Semenya et al., 2013a). The dry wood makes good firewood [ASS (1969), BG (2002), LM (1964), MP (1994), MDS (1965), MS (1948), MMS (1976), WSM (1972), RMM (1947), TM (1984), TKS (1963), TMS (1976), SM (1951), MBN (1982), RSM (1944); Rasethe et al., 2013] or make utensils used to crush *mabhele* (corn). When a baby has white spots on his face (*sefala*) a needle or razor is used to make short narrow cuts around the eyes and the leaves are rubbed on the baby’s face [TS (1967)]. The leaves are also used to treat *sefeku* (unidentified ailment) [MN (1950’s)]. The plant is also used to treat chest and respiratory problems and external wounds (Moeng, 2010). B: Widely used in traditional medicine (Rankoana, 2000; Arnold et al., 2002; Steenkamp, 2003; Moffett, 2010). |

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| Species (family); [voucher specimen no. and/or photographic voucher no.] | Vernacular names | Bapedi plant use: A = Bapedi plant uses (as recorded during this survey or in the literature); B = uses recorded elsewhere in southern Africa and the rest of the world. |
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| Pentarrhinum insipidum E.Mey. (Apocynaceae) [9d] | morogo wa lebje (Sepedi), leshwe (Sepedi), lefotosane (Sepedi) | A: The leaves are cooked and eaten with a starch supplement [MDS (1965), LM (1964), MLS (1968), MM (1987), MTM (1997), ASS (1969), KM (1981), JC (1961), KM (1990), MJM (1963), MP (1994), MM (1987), MS (1948), MMS (1976), WSM (1972), RMM (1947), TM (1984), TMS (1976), TS (1967); Quin, 1959]. The roots are used in treatments for heart attack and high blood pressure [KM (1944), SM (1951)]. B: A popular traditional vegetable (e.g. Van Wyk and Gericke, 2000). |
| Pergularia daemia (Forssk.) Chiov. subsp. daemia (Apocynaceae) [9e] | mogwapa (Sepedi), lebje (Sepedi), nkusega (Sepedi) | A: Roots used for high blood pressure; the leaves are cooked and eaten with a starch supplement [MJM (1963), BG (2002), KM (1944), ASS (1969), KM (1981), KM (1990), MDS (1965), MS (1948), MMS (1976), RMM (1947), TM (1984), TMS (1976), TS (1967), SM (1951), MN (1950's), RSM (1944)]. B: Widely used in traditional medicine (Arnold et al., 2002). |
| Persea americana Mill.* cv (Lauraceae) [36a] | moafokhathe (Sepedi) | A: Edible fruit (all) and the roots are used to treat diabetes mellitus (Semenya et al., 2012a). B: Edible fruit crop (Rampedi, 2010). |
| Physalis peruviana L.* (Solanaceae) [58e] | mmomodi (Sepedi), murungudane (Tshivenda), kusebere (South Sotho), makusebere (South Sotho), mokusbere (South Sotho) | A: The fruit is edible and is used to make jam [MSS, KM (1944), ASS (1969), KM (1981), JC (1961), MS (1948), MMS (1976), TM (1984), TKS (1963), TS (1967), SM (1951), MBN (1982), RSM (1944)]. B: Edible wild fruit that is also widely used in traditional medicine (Mabogo, 1990; Arnold et al., 2002; Rampedi, 2010). |
| Plectranthus neochilus Schltr. (Lamiaceae) [35a] | lephelephele (South Sotho) | A: Believed to ward off snakes. B: Widely used in traditional medicine and to wash sheepskins (Arnold et al., 2002; Moffett, 2010). |
| Plectranthus venteri Van Jaarsv. & Hankey [35b] (Lamiaceae) | mošikidipela (Sepedi) | A: Crushed stems are boiled and the steam is inhaled to treat flu/blocked nose [TM (1984), KM (1981), TKS (1963)], and high blood pressure [SMM (1953)]. B: Widely used in traditional medicine (Arnold et al., 2002). |
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| **Plumeria alba** L.* (Apocynaceae) [9f] | frangipani (English) | A: Ornamental [BG (2002), JM (1997), MLS (1968), KM (1990), MJM (1963), MP (1994), MM (1987), MMS (1976), TMS (1976)]. B: No known other uses elsewhere. |
| **Populus x canescens** (Aiton) Sm.* (Salicaceae) [MM25/55b] | **poplier** (Sepedi), **papalere** (Sepedi), **popeliri** (South Sotho), **popolere** (South Sotho), **popoliri** (South Sotho) | **A:** Strong wood used as fencing posts and for roofing [RMM (1947), KM (1944), BG (2002), JM (1997), JC (1961), SM (1951), MJM (1963), MDS (1965), MMS (1976)] and firewood [ASS (1969), MDS (1965), KM (1981), KM (1990), MP (1994), MMS (1976), RMM (1947), TM (1984), TKS (1963), TMS (1976), MBN (1982)]. **Unlike monoko** (Ozoroa sp.) it does not get damaged by the soil over time also used for husbandry [MS (1948), RSM (1944)]. **B:** Used in traditional medicine and for firewood ([Arnold et al., 2002; Moffett, 2010]). |
| **Protea caffra** Meisn. subsp. **falcata** (Beard) M.Lötter (Proteaceae) [49a] | **modometa** (Sepedi), **dzungu** (Tshivenda), **tshidzungu** (Tshivenda), **sekila** (South Sotho), **sekile** (South Sotho) | **A:** Used during rain making rituals [MMS (1976), RMM (1947), TKS (1963), TMS (1976), SM (1951)] and the wood is used as firewood [(LM (1964), MDS (1965), WSM (1972), RSM (1944)]. **B:** Used in traditional medicine and as firewood (Arnold et al., 2002). |
| **Prunus persica** (L.) Batsch* cv (Rosaceae) [52b] | **moperekisi** (Sepedi, South Sotho) | **A:** Edible fruit [All except RSM (1944), TS (1955), JC (1961)], when a child is vomiting the outer skin of the fruit is boiled and the extract is fed to the child using a spoon [TS (1967)]; the root is used to treat erectile dysfunction (Semenya, 2012b; Semenya and Potgieter, 2013b; Semenya et al., 2013a and Semenya and Potgieter, 2014; Lourens et al., 2015). **B:** Edible fruit and used in some traditional medicine (Arnold et al., 2002; Moffett, 2010). |
| **Psiadia punctulata** (DC.) Oliv. & Hiern ex Vatke (Asteraceae) [13] | **monotosane** (Sepedi) | **A:** Young children (especially herder boys) use dried plant material to teach themselves how to smoke [SMM, (1953)]; used against flu [MMS (1976), RMM (1947), SMM (1953), TM (1984), TKS (1963)]. **Plant is used to rinse painful eyes** [KM (1990), MJM (1963), WSM (1972), RSM (1944)] and to cast a spell that will invite people to your household during ceremonie** [WSM (1972), KM (1944)]. Also has ornamental value [MS (1948)]. **B:** No known recorded uses elsewhere. |
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| *Psidium guajava* L.*cv* (Myrtaceae) [44b] | moguava (Sepedi), mokwaba (Sepedi), mugwavha (Tshivenda) | A: Edible fruit [All except TS (1955)]. **The leaves are chewed on to treat poisoning** [RSM (1944)]. The plant is used to treat diarrhoea (Semenya and Potgieter, 2014) and the roots are used to treat hypertension (Semenya et al, 2012a). B: Used in some traditional medicine (Mabogo, 1990; Arnold et al., 2002). |
| *Punica granatum* L.*cv* (Lythraceae) [38a] | garenate (Sepedi, South Sotho), Mmokgarenate (Sepedi) | A: The seeds of the fruit are edible and eaten when red (All). **The roots of the tree are used to treat diarrhoea** and the skin of the fruit is used to treat stomach pains [KM (1944), LM (1964), RSM (1944); Semenya and Potgieter, 2014] or boiled and the decoction is spoon fed to a vomiting child [MN (1950's)]. Also, the plant is used to treat diabetes (Semenya et al., 2012b). B: Fruit is edible and it is much used in traditional medicine (Arnold et al., 2002; De Beer and Van Wyk, 2011). |
| *Rhoicissus sekhukhuniensis* Retief, Siebert & A.E.van Wyk (Vitaceae) [61a] | moapara (Sepedi) | A: Edible fruit [SMM (1953), KM (1944), ASS (1969), KM (1981), KM (1990), MDS (1965), MMS (1976), RMM (1947), TM (1984), TKS (1963), TMS (1976), SM (1951), MN (1950's)]. B: No known recorded uses elsewhere. |
| *Ricinus communis* L.* (Euphorbiaceae) [MM33/30h] | mokura (Sepedi), makura (Sepedi), mothoba (Sepedi), mobabo (Sepedi), sebetsa (Sepedi), mokura wa kgomo (Sepedi), mohlafotha (South Sotho), mupfure (Tshivenda) | A: Plant is poisonous and if ingested one can have a mental breakdown [MM (1987), MMS (1976), RMM (1947), SMM (1953), TM (1984), TKS (1963), TMS (1976), MN (1950's)] which is also an ornamental plant [MP (1994)]. **Leaves are used as bandages** [SMM (1953), SM (1951, KM (1944)), the whole plant is also used to treat a swelled up leg (sore) (Semenya and Potgieter, 2014; Semenya et al, 2012b). B: Used in traditional medicine (Liengme, 1981; Mabogo, 1990; Rankoana, 2000; Arnold et al., 2002; Moffett, 2010; De Beer and Van Wyk, 2011). |
| *Saccharum officinarum* L.*cv* (Poaceae) [48d] | momoba (Sepedi), mohlafota (South Sotho), movable (Tsonga) | A: Edible stems (All). The company, Sellati, uses the plant to make sugar [MMS (1976)]. The leaves are used to treat diarrhoea (Semenya and Potgieter, 2014). B: Cultivated (Liengme, 1981). |
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| *Sansevieria trifasciata* Prain (Dracaenaceae) [28a] | segopha (Sepedi), mokgosí (Sepedi), makgotse (Sepedi), *sehlare sa meetsi* (Sepedi) | A: It's an ornamental plant [MN (1950's)]. **When a pregnant woman cannot give birth the plant is boiled and the concoction is administered to the woman orally** [KM (1944), ASS (1969)]. The leaves used in treatments for diarrhoea (Semenya and Potgieter, 2014). The roots used to treat HIV/AIDS and the root is used for crafting (Rasethe et al., 2013). B: Widely used in traditional medicine and also a few craft uses (Arnold et al., 2002). |
| *Schkuhria pinnata* (Lam.) Kuntze ex Thell.* (Asteraceae) [13k] | sebabane (Sepedi), shatume (Sepedi) | A: Decorative [ASS (1969), MMS (1976), RMM (1947), SMM (1953), TKS (1963)]. **Dry plant material is burned and the smoke released is used as eye medication or to ward away mosquitos** [BG (2002), JM (1997)], **plant cooked for livestock as medication** [MS (1948)] and the whole plant is used for hypertension as a blood purifier (Semenya et al., 2012b and Semenya and Potgieter, 2014). B: Widely used in traditional medicine (Arnold et al., 2002). |
| *Schotia brachypetala* Sond. (Fabaceae) [31h] | molope (Sepedi), mulubi (Tshivenda), mununzwu (Tshivenda), *chochela mandleni* (Tsonga) | A: **Used as firewood** [MDS (1965), RMM (1947), MBN (1982), SM (1951), MMS (1976), SMM (1953), TKS (1963), SM (1951)]. **The bark is cooked and ingested to treat high blood pressure** [KM (1944)] and treat colds and flu (Moeng, 2010). The flower produces sweet edible nectar [SM (1951), MMS (1976), SMM (1953), TKS (1963), SM (1951), SMM (1953), MBN (1982)]. B: Used for food, firewood and in traditional medicine (Mabogo, 1990; Rankoana, 2000; Arnold et al., 2002; Rampedi, 2010). |
| *Sclerocarya birrea* (A.Rich.) Hochst. subsp. *caffra* (Sond.) Kokwaro (Anacardiaceae) [7c] | morula (English/Sepedi), *mufula* (Venda), *nkanye* (Tsonga) | A: The fleshy fruit is edible and it can be used to make morula beer (All, Rasethe et al., 2013; Rampedi, 2010; Semenya and Potgieter, 2014), the seed (*koko ya morula*) is edible, it is split open by striking it with a rock/stone and the white nut inside is eaten as a delicacy [MMS (1976), KM (1981), ASS (1969), JM (1997), MJM (1963), BG (2002), JC (1961), WSM (1972), RMM (1947)], the fleshy fruit can also be used to make lotion (dawn) [BG (2002), JM (1997), MJM (1963)], the bark from the male plant is boiled and the water is drank as medication for elderly women [KM (1944)], the bark is used to treat diarrhoea, female infertility (Semenya et al., 2013a) and blood clotting (Semenya and Potgieter, 2014) and the plant is used to treat colds and flu and to determine the gender of a baby (Moeng, 2010). |
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| **Searsia pyroides** (Burch.) Moffett (Anacardiaceae) [MM9/7d] | *mogodiri* (Sepedi), *mohlwehwe* (Sepedi), *koditshana* (South Sotho), *koditshane* (South Sotho), *lerwana* (South Sotho), *lerwane, moodiri* (South Sotho) | A: **Fruit are likened to corn seeds and are edible** [KM (1990), MP (1994), KM (1944), ASS (1969), KM (1981), KM (1990), MDS (1965), MMS (1976), RMM (1947), MN (1950's)]. B: Multipurpose plant (Liengme, 1981; Mabogo 1990; Rankoana, 2000; Arnold et al., 2002; Steenkamp, 2003). |
| **Senecio barbertonicus** Klatt (Asteraceae) [MM30/13l] | *mma pholo* (Sepedi), *sehlare sa sejetso* (Sepedi) | A: **Live fencing and as a cleanser (an enema or induce vomiting)** [MJM (1963), JM (1997), MP (1994), JC (1961), SMM (1953)] in patients struck by lightning [KM (1944)], **ear infections** [ASS (1969), TKS (1963), SM (1951)] and has ornamental value [MP (1994)]; leaf is used to treat sepsis (Semenya and Potgieter, 2014). B: Has magical properties (Rankoana, 2000). |
| **Senna didymobotrya** (Fresen.) H.S. Irwin & Barneby* (Fabaceae) [31i] | *motekele* (Sepedi), *motokomane* (Sepedi) | A: **Used as firewood** [ASS (1969), KM (1981), LM (1964), MDS (1965), WSM (1972), RMM (1947), TM (1984), TKS (1963), SM (1951), MBN (1982), RSM (1944)]. **The roots are boiled and the extract drank as treatment for a painful body** [TS (1967), MN (1950's)] and as treatment for blood clotting (Semenya et al., 2012a and Semenya and Potgieter, 2014). B: No known recorded uses. |
| **Solanum aculeastrum** Dunal (Solanaceae) [58f] | *thola e golo* (Sepedi), *mushulwa* (Tshivenda) | A: **The liquid from the fruit is used to heal ditlapedi (a facial skin condition), rubbed on goats noses and when inhaled kills worms that infect their brain and used as cattle medication** [ASS (1969), MDS (1965), MS (1948), RMM (1947), TKs (1963), SM (1951), MN (1950's), MBN (1982)]. **The fruit is also rubbed on chicken eggs to stop dogs from eating the eggs** [JC (1961)]. **The entire tree is burnt and the radiated heat is believed to heal babies** [KM (1944)] and a decoction of boiled roots is gurgled to treat toothaches [LM (1964), WSM (1972), RSM (1944)]. Plant is generally used as medicine [TMS (1976)]. B: Used in traditional medicine (Mabogo, 1990; Arnold et al., 2002). |
| **Species (family); [voucher specimen no. and/or photographic voucher no.]** | **Vernacular names** | **Bapedi plant use:** A = Bapedi plant uses (as recorded during this survey or in the literature); B = uses recorded elsewhere in southern Africa and the rest of the world. |
|---|---|---|
| **Solanum panduriforme** E. May. (Solanaceae) [MM26/58g] | *thola boreledi* (Sepedi), *thola ye serolwane* (Sepedi), *morollowane* (Sepedi), *tholana* (South Sotho), *ndulwane* (Tsonga), *ndzhuilwane* (Tsonga) *nthuma* (Tsonga) *rinhilwane* (Tsonga) | A: Juice from the seed is rubbed on chicken eggs to stop dogs from eating the eggs [KM (1944), MJM (1963), JC (1961), KM (1981), MDS (1965), TKS (1963), SM (1951)]. **The poisonous seeds are used to treat cows** [MS (1948)]. A decoction of ground roots is gurgled to treat toothaches [LM (1964), RMM (1947), TMS (1976), RSM (1944), KM (1944), MJM (1963), JC (1961), KM (1981), MDS (1965), TKS (1963), SM (1951), ASS (1969), MN (1950's), MBN (1982)]. The fruit is used to treat gonorrhoea and drop [Erasmus et al., 2012; Semenya et al, 2013b and Semenya and Potgieter, 2014]. B: Widely used in traditional medicine (Liengme, 1981; Mabogo; Rankoana, 2000; Arnold et al., 2002; Moffett, 2010). |
| **Sonchus oleraceus** L.* (Asteraceae) [13m] | *lešêšê* (Sepedi), *lekagka* (Sepedi), *bono so lekgwaba* (South Sotho), *leshabe* (South Sotho), *leshashane* (South Sotho), *leshwabe* (South Sotho), *molomo wa lekgwaba* (South Sotho), *tlhaku ya kgomo* (South Sotho) *shashe* (Venda) | A: Leaves are eaten as *morogo* [KM (1981), MP (1994), MDS (1965), MMS (1976), WSM (1972), RMM (1947), SMM (1953), TM (1984), TKS (1963), SM (1951), MN (1950's), MBN (1982), RSM (1944); Quin, 1959]. B: Used as a pot herb and widely used in traditional medicine (Mabogo, 1990; Arnold et al., 2002; Moffett, 2010). |
| **Sorghum bicolor** (L.) Moench* (sweet-stemmed cultivar) (Poaceae) [48e] | *nyoba* (Sepedi), *mabele* (Sepedi), *ntso* (Sepedi), *mabêlêthôrô* (Sepedi) | A: Edible stem (All; Quin, 1959) **Roots sometimes used in conjunction with other plants to make cures** [MLS (1968)]. B: Used in traditional medicine (Arnold et al., 2002). |
| **Tapinanthus cf. oleifolius** (J.C.Wendl.) Danser (Loranthaceae) [37a] | *bolepa* (Sepedi) | A: **Hunters use the sticky flower seed to trap birds** [RMM (1947), SMM (1953), TKS (1963), SM (1951), MBN (1982)]. Birds will eat the seed and deposit their bird droppings on to other trees where the plant will grow [SMM (1953), KM (1944)]. **The leaves used to make tea** [KM (1944)]. B: Used in traditional medicine (Arnold et al., 2002). |
| Species (family); [voucher specimen no. and/or photographic voucher no.] | Vernacular names | Bapedi plant use: A = Bapedi plant uses (as recorded during this survey or in the literature); B = uses recorded elsewhere in southern Africa and the rest of the world. |
|---|---|---|
| *Terminalia sericea* Burch. ex DC. (Combretaceae) [23c] | *mogonono* (Sepedi), *mususu* (Tshivenda), *mugosi* (Tsonga), *nkono* (Tsonga), *nkono* (Tsonga), *kono* (Tsonga) | A: Firewood [ASS (1969), MJM (1963), MDS (1965), MS (1948), MMS (1976), RMM (1947), MBN (1982)], believed to have the power to stop people from becoming suspicious of your intentions or behaviour (*gonono* means to think or grow suspicious) [KM (1944)]; the leaves are used to treat measles (Semenya and Potgieter, 2014). B: Used in traditional medicine, construction and as firewood (Mabogo, 1990; Arnold et al., 2002; Steenkamp, 2003; Lusebe, 2006). |
| *Tribulus terrestris* L. (Zygophyllaceae) [62a] | *tsêhlô* (Sepedi), *mosehlo* (Sepedi), *tsetlwâ* (Sepedi), *hlêswâna* (Sepedi), *tsetwâna* (Tshivenda) | A: Leaves eaten as morogo [KM (1944), JM (1997), ASS (1969), KM (1981), KM (1990), MP (1994), MDS (1965), MMS (1976), RMM (1947), SMM (1953), TM (1984), TK (1963), TMS (1976), TS (1967), SM (1951), MBN (1982); Quin, 1959]. When cows have calving complications a decoction of the plant can be administered to the expectant cow to promote successful calving [MJM (1963)] The whole is used to treat *khutlega* (chlamydia) (Semenya et al., 2013b and Semenya and Potgieter, 2014). B: Used as a pot herb and widely used in traditional medicine (Mabogo, 1990; Rankoana, 2000; Arnold et al., 2002). |
| *Tulbaghia violacea* Harv. (Alliaceae) [4c] | *Konofolo* (Sepedi) | A: The leaves are used as spring onions for cooking (flavour) [ASS (1969), MBN (1982), BG (2002), MJM (1963), MDS (1965), MS (1948), MMS (1976), RMM (1947), TK (1963), TMS (1976), SM (1951), MN (1950's)]. *Bulb is boiled as medicine for blood ailments, flu/colds and the leaves are crushed and placed in warm water which is used as an enema* [KM (1944)], also believed to ward away snakes [KM (1981), (LM (1964), MP (1994), WSM (1972), RSM (1944)]. B: Widely used in traditional medicine in southern Africa (Van Wyk et al., 2009). |
| *Turraea obtusifolia* Hochst. (Meliaceae) [40b] | *motapuri* (Sepedi), *mbhovane* (Tsonga) | A: Plant used to treat high blood pressure [WSM (1972), RSM (1944)] and as a blood purifier (Semenya et al, 2013a; Semenya and Potgieter, 2014). B: Widely used in traditional medicine (Liengme, 1981; Arnold et al., 2002). |
| Species (family); [voucher specimen no. and/or photographic voucher no.] | Vernacular names | Bapedi plant use: A = Bapedi plant uses (as recorded during this survey or in the literature); B = uses recorded elsewhere in southern Africa and the rest of the world. |
|---|---|---|
| *Vachellia nilotica* (L.) P.J.H.Hurter & Mabb. (Fabaceae) [31] | *motolwane* (Sepedi) *moselesele* (Sepedi) *mmôka* (Sepedi) *moshwane* (Sepedi) *mohlwahlwa* (Sepedi) | A: Used as firewood [All except MP (1994)]; goats feed on fallen leaves [MS (1948)]. B: Used for firewood and widely used in traditional medicine (Arnold et al., 2002). |
| *Vangueria infausta* Burch. (Rubiaceae) [53b] | *mmilô* (fruit is known as *mabilô*) (Sepedi), *muzwilu* (Tshivenda), *mpfilwa* (Tsonga), *ntsîlwa* (Tsonga) | A: Edible fruit [All except JC (1961) and MLS (1968); Quin, 1959; Rasethe et al., 2013] also used to make beverages (Rampedi, 2010). **Traditional doctors are known to harvest the roots for medicine, the fruit can be mixed with milk to make yoghurt and the seeds have a laxative property** [KM (1944)]. B: Widely used in traditional medicine and the fruit is edible (Liengme, 1981; Mabogo, 1990; Rankoana, 2000; Arnold et al., 2002). |
| *Vernonia fastigiata* Oliv. & Hiern (Asteraceae) [13n] | *lehlanya* (Sepedi) | A: Leaves used as morogo (Quin, 1959). B: Edible leaves (Rankoana, 2000). |
| *Vigna unguiculata* (L.) Walp. (Fabaceae) [31k] | *monawa* (Sepedi), *dihlodi* (Sepedi), *poontjies* (Sepedi), *dinawa tsa sesotho* (South Sotho), *munawa* (Tshivenda) | A: Edible fruit [All except JC (1961), MM (1987), MP (1994), RSM (1944); Quin, 1959] and the leaves used to treat diarrhoea (Semenya and Potgieter, 2014). B: Cultivated crop and widely used in traditional medicines (Arnold et al., 2002). |
| *Vitis vinifera* L.*cv* (Vitaceae) [61b] | *didruwe* (Sepedi) | A: Edible fruit (All). B: Widely cultivated as a crop plant. |
| *Xerophyta retinervis* Baker (Velloziaceae) [59a] | *thutsê* (Sepedi), *efirwane* (South Sotho), *lethepu* (South Sotho), *mairwane* (South Sotho), | A: Historically the leaves were used to make a sling shot known as *sefalanyana* and the dried stem were used as a torch [JM (1997), MJM 1963, SM (1951)]. The stem of the plant can be used as a splint and the inner fibres of the stem and leaves can be used to make rope for roofing [MJM (1963), JC (1961), KM (1944), ASS (1969), MDS (1965), MMS (1976), RMM (1947), TKS (1963), SM (1951), RSM (1944)]. The stem is also used to make a broom for cleaning lwala (grinding...
| Species (family); [voucher specimen no. and/or photographic voucher no.] | Vernacular names | Bapedi plant use: A = Bapedi plant uses (as recorded during this survey or in the literature); B = uses recorded elsewhere in southern Africa and the rest of the world. |
|---|---|---|
| tshikundandadzi (Tshivenda) | stones) [ASS (1969), KM (1990), MDS (1965), MMS (1976), WSM (1972), RMM (1947), TMS (1976), TS (1967), MN (1950's), MBN (1982); Quin, (1959)]. Dry plants are used to cover meta (clay pot used for storage) which is burned to harden [KM (1944), MJM (1963)]. B: Used for craft purposes and in traditional medicine (Liengme, 1981; Mabogo 1990; Arnold et al., 2002; Moffett, 2010). |
| Ximenia caffra Sond. (Olacaceae) [46a] | ditšidi (Sepedi), Ikgolotsane (Sepedi), ntsengele (Tsonga), mutshili (Tshivenda), muthanzwa (Tshivenda) | A: Edible fruit (All; Quin 1959) which is also used to make beverages (Rampedi, 2010). The seed pulp is used to treat dry lips [LM (1964), JC (1961), SMM (1953), ASS (1969), MMS (1976), TS (1967), MN (1950's), RSM (1944)] and to treat cattle hide [KM (1944), LM (1964), JC (1961), SMM (1953), ASS (1969), MMS (1976), TS (1967), MN (1950's), RSM (1944)]. Recently the dry wood is being used as firewood. The dry fruit is submerged in water and the water is used to make pap and the roots are boiled and the decoction is drank to treat tonsils, burnt seeds are used to fix moeta [ASS (1969), MDS (1965), MMS (1976), SM (1951), MBN (1982)]. [moeta is described as traditional barrel used to store food and alcoholic beverages]. B: Fruit is edible and the species is also used in traditional medicine and various craft uses (Liengme, 1981; Mabogo, 1990; Rankoana, 2000; Arnold et al., 2002). |
| Zanthoxylum capense (Thunb.) Harv. (Rutaceae) [54b] | monokwane (Sepedi), senokomaropa (Sepedi), khinungumorupa (Tsonga), manhungwane (Tsonga), nugani (Tsonga), xirhombelheta (Tsonga) | A: Leaves and roots ground and used to treat flu [WSM (1972), RSM (1944)] or crushed to treat TB [KM (1981)], (Semenya and Maroyi, 2013a), edible fruit [MS (1946)]. Plant is used to treat nose bleeding (Semenya and Potgieter, 2014) and erectile dysfunction (Lourens et al., 2015). B: The species is used in traditional medicine (Liengme, 1981; Arnold et al., 2002; Steenkamp, 2003). |
| Zea mays L.* cv (Poaceae) [48f] | lefela (Sepedi), leheyya (Sepedi), mabele (Sepedi), Poone (South Sotho) | A: The cob is boiled in water and eaten as is, or the seeds (grains) are dried and ground into a fine powder on a grinding stone and turned for cooking soft porridge (All; Quin, 1959). The whole plant is also used to treat malaria (Semenya, 2012a and b; Semenya and Potgieter, 2014). B: Cultivated crop (Liengme, 1981; Moffett, 2010). |
| Species (family); [voucher specimen no. and/or photographic voucher no.] | Vernacular names | Bapedi plant use: A = Bapedi plant uses (as recorded during this survey or in the literature); B = uses recorded elsewhere in southern Africa and the rest of the world. |
|---|---|---|
| *Ziziphus mucronata* Willd. (Rhamnaceae) [51a] | *motalo* (Sepedi), *Mokgalo* (Sepedi), *mokonaona* (Sepedi), *makhalu* (Tshivenda), *nceseni* (Tsonga) | A: Edible fruit [BG (2002), KM (1944), KM (1981), KM (1990), LM (1964), WSM (1972), RMM (1947), SMM (1953), TM (1984), TKS (1963), TMS (1976), SM (1951), RSM (1944)] which is also used to make beverages (Rampedi, 2010). The root is used to treat chlamydia (Rasethe et al., 2013 and Semenya and Potgieter, 2014) and gonorrhoea (Erasmus et al., 2012). B: Fruit is edible and the species is used in traditional medicine (Liengme, 1981; Mabogo, 1990; Rankoana, 2000; Arnold et al., 2002; Rampedi, 2010). |

Quin’s (1959) thesis entitled *Foods and feeding habits of the Bapedi* was one of the first documentations of Bapedi plant use and remains an important historical document. His observations on the culture’s agricultural practices agree closely with the data recorded in this study. *Sonchus oleraceus*, for example, was recorded as an edible morogo (vegetable), still enjoyed today; two different cultivars of *Sorghum bicolor* are still used for making porridge (grain cultivar) and for the edible stem (sweet-stemmed cultivar), eaten like sugar cane. Even though there has been increased levels of westernisation, leading to fruits being freely available at shops, wild edible fruits are still harvested at times, e.g. *Ximenia caffra*. Quin (1959) also noted this species and it is still regarded as a delicacy by all the participants in this study. The same applies for *Vangueria infausta* which has also been recorded as a wild edible plant by other cultures (Quin, 1959; Liengme, 1981; Mabogo, 1990; Arnold et al., 2002).
5.3 Quantification of Central Sekhukhuneland plant uses

The main aim of ethnobotanical studies are typically to compile a plant checklist of the useful plants of a culture and to document the ethnobotanical data as has been done above in Table 5.1. Although this type of data is very interesting and require documenting, it has recently been deemed as not being enough (Hoffman and Gallaher, 2007), especially when no indication is given of the relative importance of each of the species. In the case of the data in Table 5.1, however, it is possible to calculate the importance or popularity of the species simply by adding up the number of community members who knew the plant and could provide information about its uses. With the development of indices used to quantify ethnobotanical data, ethnobotanical surveys have developed more depth in their data representation and provide more opportunities for rigorous comparisons between surveys, cultures and regions. In South Africa, the development and use of the matrix method (De Beer and Van Wyk, 2011) is facilitating comparisons of ethnobotanical studies, something which in the past was not possible. Table 5.2 presents the results of the matrix method applied to this study. The Ethnobotanical Knowledge Index (EKI) of each participant and the Species Popularity Index (SPI) of each utilised plant species is given.

The SPI value of 18 plant species were recorded as 1 (Allium cepa, Brassica oleracea, Cannabis sativa, Capsicum annum, Capsicum frutescens, Carica papaya, Citrullus lanatus, Citrus limon, Cleome gynandra, Cucurbita moschata, Mangifera indica, Opuntia ficus-indica, Punica granatum, Saccharum officinarum, Sorghum bicolor, Vitis vinifera, Ximenia caffra and Zea mays), meaning all participants were well acquainted with these plants. This is not surprising, as most of them are commonly cultivated crop plants. Plant species with an SPI value of 0 were omitted from the table due to lack of their relevance to the participants. The participant with the highest EKI is KM (1944), Kgoputso Mampuru, at 0.75. Mr Mampuru is a local herbalist in Phokwane. He was formally trained as a traditional healer but due to his Christianity background in the family, he prefers to only practice as a herbalist. Most of the knowledge obtained from Mr Mampuru was recorded during long walks in the veld when he was collecting plants for use as medicine. Another knowledgeable participant is MMS (1976), Mr Mositsa Moses Sedi. He is employed by a local farmer who is managing a community project cultivating various crops. He grew up in the area and has a rich knowledge of local useful plants.
Table 5.2: The Matrix of only 150 useful plants of Central Sekhukhuneland (excluding the two plants unrecognised by all the participants), including the calculated Species Popularity Index (SPI) values of the plants and the calculated Ethnobotanical Knowledge Index (EKI) values of the 27 participants.

Participants’ code: Names, surname and year of birth; Senior citizens (55 years and older): Rankwe Simon Madutla – RSM (1944); Kgoputso Mampuru – KM (1944); Simon Mallekene Mamosadi – SMM (1953); Mathabathe Namule – MN (1950’s); Tiakale Sekele – TK (1967); Monti Seloane – MS (1948); Rosilina Morata Mothupi – RMM (1947); Simon Mothupi – SM (1951); Adults (36 to 54 years old): Jankie Choenyana – JC (1961); Mositsa Moses Sedi – MMS (1976); Letty Mpokwane – LM (1964); Senior citizens (age 55+); Adults (age 30–54); Young adults (age 19–29); Children (age 10–18)  

| Species                  | Senior Citizens (age 55+) | Adults (age 30–54) | Young adults (age 19–29) | Children (age 10–18) | SPI |
|--------------------------|---------------------------|-------------------|--------------------------|---------------------|-----|
|                          | KM (1944)                 | RMM (1947)        | SM (1951)                | RSM (1944)          |     |
| Agapanthus inapertus     | 0                         | 0                 | 0                        | 0                   |     |
| Agave americana          | 1236                      | 1236              | 1236                     | 1236                |     |
| Alepidea setifera        | 0                         | 0                 | 1034                     | 0                   |     |
| Allium cepa              | 1236                      | 1236              | 1236                     | 1236                |     |
| Allium schoenoprasum     | 1236                      | 0                 | 1236                     | 0                   |     |

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| Species                          | Senior Citizens (age 55+) | Adults (age 30–54) | Young adults (age 19–29) | Children (age 10–18) |
|---------------------------------|---------------------------|--------------------|--------------------------|----------------------|
| Aloe arborescens                | 1236 1236 1236 1236   | 1236 1236 1236 1236 | 1236 1236 1236 1236   | 1236 1236 1236   |
| Aloe castanea                   | 1236 1236 1236 1236   | 1236 1236 1236 1236 | 1236 1236 1236 1236   | 1236 1236 1236   |
| Aloe davyana/ A. transvaalensis (spotted aloe) | 1236 1236 1236 1236 | 1236 1236 1236 1236 | 1236 1236 1236 1236 | 1236 1236 1236 |
| Aloe marlothii                  | 1236 1236 1236 1236   | 1236 1236 1236 1236 | 1236 1236 1236 1236   | 1236 1236 1236   |
| Alternanthera pungens           | 1236 1236 1236 1236   | 1236 1236 1236 1236 | 1236 1236 1236 1236   | 1236 1236 1236   |
| Amaranthus spinosus             | 1236 1236 1236 1236   | 1236 1236 1236 1236 | 1236 1236 1236 1236   | 1236 1236 1236   |
| Anredera cordifolia             | 0 1034 0 0           | 0 1034 0 0        | 0 1034 0 0              | 0 1034 0 0      |
| Arachis hypogea                 | 1236 1236 1236 1236   | 1236 1236 1236 1236 | 1236 1236 1236 1236   | 1236 1236 1236   |
| Argemone mexicana               | 1236 1236 1236 1236   | 1236 1236 1236 1236 | 1236 1236 1236 1236   | 1236 1236 1236   |
| Aristida diffusa                | 1236 1236 1236 1236   | 1236 1236 1236 1236 | 1236 1236 1236 1236   | 1236 1236 1236   |
| Artemisia afra                  | 1236 1236 1236 1236   | 1236 1236 1236 1236 | 1236 1236 1236 1236   | 1236 1236 1236   |
| Asparagus laricinus             | 1236 1236 1236 1236   | 1236 1236 1236 1236 | 1236 1236 1236 1236   | 1236 1236 1236   |
| Athrixia phylloides             | 1236 0 1236 0         | 0 1034 0 0        | 0 1034 0 0              | 0 1034 0 0      |
| Bidens pilosa                   | 1236 1236 1236 1236   | 1236 1236 1236 1236 | 1236 1236 1236 1236   | 1236 1236 1236   |
| Boophane disticha               | 1236 1236 1236 1236   | 1236 1236 1236 1236 | 1236 1236 1236 1236   | 1236 1236 1236   |
| Boscia albitrunca               | 1236 0 1034 1236      | 1236 0 1034 1236  | 1236 0 1034 1236       | 1236 0 1034 1236 |

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| Species                              | Senior Citizens (age 55+) | Adults (age 30–54) | Young adults (age 19–29) | Children (age 10–18) |
|-------------------------------------|--------------------------|-------------------|--------------------------|---------------------|
| Cladium mariscus                    | 1236 1236 1236 1236     | 1236 1236 1236     | 1236 1236 1236            | 1236 1236 1236      |
| Citrullus lanatus                   | 1236 1236 1236 1236     | 1236 1236 1236     | 1236 1236 1236            | 1236 1236 1236      |
| Chenopodium murale                  | 0 0 0 0 1001 0 0 0 1203 | 1236 1236 1236     | 1236 1236 1236            | 1236 1236 1236      |
| Capsicum frutescens                 | 0 0 0 0 1001 0 0 0 1203 | 1236 1236 1236     | 1236 1236 1236            | 1236 1236 1236      |
| Cannabis sativa                     | 1236 1236 1236 1236     | 1236 1236 1236     | 1236 1236 1236            | 1236 1236 1236      |
| Capsicum annuum                     | 1236 1236 1236 1236     | 1236 1236 1236     | 1236 1236 1236            | 1236 1236 1236      |
| Capsicum frutescens                 | 1236 1236 1236 1236     | 1236 1236 1236     | 1236 1236 1236            | 1236 1236 1236      |
| Carica papaya                       | 1236 1236 1236 1236     | 1236 1236 1236     | 1236 1236 1236            | 1236 1236 1236      |
| Carpobrotus edulis                  | 1236 1236 1236 1236     | 1236 1236 1236     | 1236 1236 1236            | 1236 1236 1236      |
| Catharanthus roseus                 | 1236 1236 1236 1236     | 1236 1236 1236     | 1236 1236 1236            | 1236 1236 1236      |
| Ceiba speciosa                      | 1236 1236 1236 1236     | 1236 1236 1236     | 1236 1236 1236            | 1236 1236 1236      |
| Chenopodium murale                  | 1236 1236 1236 1236     | 1236 1236 1236     | 1236 1236 1236            | 1236 1236 1236      |
| Citrullus lanatus                   | 1236 1236 1236 1236     | 1236 1236 1236     | 1236 1236 1236            | 1236 1236 1236      |
| Citrus limon                        | 1236 1236 1236 1236     | 1236 1236 1236     | 1236 1236 1236            | 1236 1236 1236      |
| Cladium mariscus subsp. jamaicense  | 1236 1236 1236 1236     | 1236 1236 1236     | 1236 1236 1236            | 1236 1236 1236      |
| Cleome gynandra                     | 1236 1236 1236 1236     | 1236 1236 1236     | 1236 1236 1236            | 1236 1236 1236      |
| Species                          | Senior Citizens (age 55+) | Adults (age 30–54) | Young adults (age 19–29) | Children (age 10–18) |
|---------------------------------|--------------------------|-------------------|--------------------------|----------------------|
| *Cyperus sexangularis*          |                          |                   |                          |                      |
| *Cryptolepis cryptolepidioides* |                          |                   |                          |                      |
| *Commiphora africana*           |                          |                   |                          |                      |
| *Corchorus tridens*             |                          |                   |                          |                      |
| *Cotyledon orbiculata*          |                          |                   |                          |                      |
| *Crassula sarcocaulis*          |                          |                   |                          |                      |
| *Cryptolepis cryptolepidioides* |                          |                   |                          |                      |
| *Cucumis zeyheri*               |                          |                   |                          |                      |
| *Cucurbita moschata*            |                          |                   |                          |                      |
| *Cussonia paniculata*           |                          |                   |                          |                      |
| *Cyperus austro-africanus*      |                          |                   |                          |                      |
| *Cyperus sexangularis*          |                          |                   |                          |                      |
| *Datura stramonium*             |                          |                   |                          |                      |
| *Dodonaea viscosa*              |                          |                   |                          |                      |
| *Dombeya rotundifolia*          |                          |                   |                          |                      |
| *Dovyalis caffra*               |                          |                   |                          |                      |

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| Species                                      | Senior Citizens (age 55+) | Adults (age 30–54) | Young adults (age 19–29) | Children (age 10–18) |
|----------------------------------------------|---------------------------|--------------------|--------------------------|---------------------|
| Elephantorrhiza praetemissa                  | 1236 1236 1236 1203 1236 1236 1236 | 1001 1236 1236 0 1236 1203 1001 0 1034 1236 1236 1203 | 1034 0 0 0 | 1001 1001 1001 0.58 |
| Englerophytum magalismontanum                | 1236 1236 1236 1236 1236 1236 0 0 | 0 1236 1236 0 1236 0 0 0 1236 1236 0 1236 | 1236 1236 1236 1236 | 1236 1236 1236 0.7 |
| Enobryta japonica                           | 1236 1236 1236 0 0 0 1236 0 | 0 1236 1236 0 1236 1236 0 1236 1236 0 1236 | 1236 1236 1236 1236 | 1236 1236 1236 0.67 |
| Eucalyptus camaldulensis                     | 1236 1236 1236 1236 1236 1236 0 0 | 0 1236 1236 0 1236 1236 1236 1236 1236 0 | 1236 1236 1236 0 | 1236 1236 1236 0.81 |
| Euclea crispa subsp. crispa                 | 0 0 1236 0 0 0 0 0 | 1236 1236 0 0 0 1236 0 0 0 | 0 0 0 0 | 0 0 0 0.15 |
| Eucomis pallidiflora subsp. pole-evansii    | 0 0 0 0 0 1034 1236 0 | 0 0 0 0 0 1203 0 0 0 | 1203 0 0 1203 | 0 0 0 0.12 |
| Euphorbia excelsa                           | 1236 1236 1236 1236 0 0 1236 1236 1236 0 | 1236 0 1236 1236 1236 1236 0 1236 1236 1236 0 | 1236 1236 1236 0.69 |
| Euphorbia ingens                            | 1236 1236 1236 1236 0 0 1236 1236 1236 0 | 1236 1236 1236 1236 1236 1236 1236 1236 1236 0 | 1236 1236 1236 0.72 |
| Euphorbia maleolens                          | 0 0 0 1236 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 0 0 | 0 0 0 0 | 0 0 0 0.04 |
| Euphorbia milii                             | 1034 1034 1034 0 0 1034 0 0 1001 1034 1034 1034 0 | 1034 0 0 0 1034 1001 1034 0 | 0 0 0 0 | 1001 1001 1001 0.34 |
| Euphorbia trucalli                          | 0 1236 1236 1203 0 1203 0 1203 0 1236 1236 1203 0 | 1203 1236 1203 1236 1236 1203 0 1203 0 | 0 0 0 1203 0 0 1203 0 | 1001 0 1001 0.42 |
| Euphorbia tithymaloides                     | 1236 1236 1236 0 0 0 0 1203 0 1236 1236 1236 1203 0 1236 1001 0 | 0 0 1236 1236 1001 1236 0 1236 1034 0 | 0 1001 0 1001 0 | 0.4 |
| Ficus abutilifolia                          | 1236 1236 1236 0 0 0 1236 1236 | 0 1236 1236 0 1236 1236 0 1236 1236 0 1236 | 1236 0 0 1236 0 | 0 0 0 0.52 |
| Ficus carica                                | 1236 1236 1236 1236 1236 1236 1203 | 1236 1236 1236 1236 1236 1236 1236 1236 1236 1236 1236 | 1236 0 1236 1236 1236 | 1034 1236 1236 0.93 |
| Ficus ingens                                | 1236 1236 1236 1236 1236 1236 0 1236 1236 1236 0 | 0 1236 1236 1236 1236 1236 1236 1236 1236 1236 1236 | 1236 1203 0 1236 0 | 0 1236 0 0.76 |
| Gardenia volkensii                          | 1236 1001 1001 1001 1034 0 1034 0 | 0 1001 1001 1 0 1001 1001 1001 0 1001 1236 0 | 0 1203 0 0 1203 0 1034 0 | 0.23 |
| Species                          | Senior Citizens (age 55+) | Adults (age 30–54) | Young adults (age 19–29) | Children (age 10–18) |
|---------------------------------|--------------------------|-------------------|-------------------------|--------------------|
| Gazania krebsiana                | 1236 1236 1236 0 0 0 0 0| 0 1236 1236 0 1236 1236 0 1236 0 1236 0 0| 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0.33 |
| Gerbera jamesonii                | 0 1236 1236 1001 0 0 0 1236 | 0 1236 1236 0 1034 1203 1001 1203 0 0 0 0| 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0.26 |
| Gomphocarpus fruticosus         | 1236 0 0 1236 0 0 1236 1034| 1236 1236 1001 1001 0 1203 1236 0 1236 0 1034 0| 1203 1001 1001 1203| 1001 1001 1001 0.41 |
| Grewia flava                    | 1236 1236 1236 0 1236 1236 0 1236 | 0 1236 1236 0 1236 1236 0 1236 1236 0 1236| 1236 0 1236 1236| 1236 1236 1236 0.74 |
| Helichrysum caespititum          | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0.03 |
| Medicago sativa                 | 0 0 0 0 0 0 0 1236 0| 0 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0.04 |
| Hypoxis obtusa                  | 1236 1236 1236 0 0 0 1236 1001 | 0 1236 1236 0 1236 0 0 0 0 1236 0 1236| 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0.34 |
| Indigofera cf. heterotricha      | 1236 1034 1236 0 0 0 0 0 0| 0 1034 1034 0 1034 0 0 0 0 0 1034| 0 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0.2 |
| Ipomoea batatas                  | 1236 1236 1236 1236 1236 1236 1236 1236 | 1236 1236 1236 0 1236 1236 1236 1236| 1236 0 0 1236 1236| 1236 1236 1236 0.89 |
| Ipomoea batystolpus.            | 1236 1001 0 0 0 0 0 0 0| 1001 0 0 0 0 1001 0 0 0 0 0 0| 0 0 0 0 0 0 0| 0 0 0 0 0 0 0 0.06 |
| Jatropha zeyheri                 | 1236 1203 1001 1001 1236 1236 0 0 0| 0 1034 1203 0 1203 0 1203 0 0 1236 0 0| 0 0 0 0 0 0 0 0| 1236 0 0 0 0 0 0 0.3 |
| Kalanchoe brachyloba            | 1236 1203 1236 1001 0 1001 1236 1236 | 1001 1203 1236 1034 1236 1236 1001 1236| 1236 0 1236 1236 1236| 1236 0 0 0 0 0 0 0 0.55 |
| Kalanchoe thrysiflora           | 1236 1203 1236 1001 0 1001 1236 1236 | 1001 1203 1236 1034 1236 1236 1001 1236| 1236 0 1236 1236 1236| 1236 0 0 0 0 0 0 0 0.55 |
| Kedrostis leloja                 | 1236 1236 1236 0 0 1001 0 0 0| 0 1236 1236 0 1236 1236 0 1236 0 1236 0| 0 0 1001 0 0 0 0 0| 0 0 0 0 0 0 0 0.38 |
| Kirkia wilmsii                  | 1236 1236 1236 1236 0 0 1236 1236 1236 | 1236 1236 1236 1236 1236 1236 1236 1236| 1236 0 0 1236 1236| 0 1203 1236 0.76 |
| Lantana camara                  | 1236 1034 1034 1236 0 0 0 1034 1034 | 1034 0 1236 0 1034 1034 1034 1236 1034| 1236 0 0 1236 1034| 0 1236 0 0 0.51 |

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| Species                          | Senior Citizens (age 55+) | Adults (age 30–54) | Young adults (age 19–29) | Children (age 10–18) |
|---------------------------------|---------------------------|-------------------|--------------------------|---------------------|
| Lantana rugosa                  | 1236 1236 1236 1236 0    | 1034 1236 1236 1034| 1236 1034 1236           | 0 1236 1236 0.67    |
| Ledebouria apertiflora          | 1236 1236 1236 1236 0    | 1236 0 1236 1236   | 1236 0 1034 0           | 1236 1001 1001 1236 0.58 |
| Lippia rehmannii                | 1236 1236 1236 1236 0    | 1236 0 1236 1236   | 1236 0 1236 0           | 0 1034 1203 0.46    |
| Lolium multiflorum              | 1236 1236 1236 1236 1236 | 1236 0 1236 1236   | 1236 0 1236 0           | 1001 1236 1236 0.82 |
| Lopholaena coronifolia          | 1236 1236 1236 1236 0    | 1034 1236 1236     | 1236 1203 1236 1203    | 0 1203 1203 0.68    |
| Mangifera indica                | 1236 1236 1236 1236 1236 | 1236 1236 1236     | 1236 1236 1236 1236    | 1236 1236 1236 1236 1 |
| Pentarrhinum insipidum          | 1236 1236 1236 1236 1236 | 0 1236 1236 1001   | 1236 1236 1034 1236    | 1001 1034 1034 0.8   |
| Melhania prostata               | 1236 1203 1203 0 0 0 0   | 0 1001 1001 0 0     | 0 1203 1236 0 0        | 0 0 0 0 0.14        |
| Melia azedarach                 | 0 1203 1203 1236 0 0 0   | 1203 1203 1236     | 1203 1236 1203 1203    | 0 1236 1203 0.33    |
| Merwilla plumbea                | 0 0 0 1236 0 0 1236 0    | 1236 0 1236 0 0     | 1236 0 1001 0 0        | 0 0 0 0 0.19        |
| Mimusops zeyheri                | 1236 136 1236 1236 0    | 1236 0 1236 1236   | 1236 1001 1236 1236    | 1236 0 1236 1236 0.72 |
| Mirabilis jalapa                | 1001 1001 1034 0 0 0 0   | 1001 0 1034 0 0     | 0 1203 1236 0 0        | 0 1001 0 0 0.15     |
| Momordica balsamina             | 1236 1236 1236 1236 0    | 1236 0 1236 1236   | 1236 0 1236 1236 1203 | 0 1236 1203 0.61    |
| Moringa oleifera                | 1236 1236 1236 1236 0    | 1236 0 1236 1236   | 1236 0 1236 1236 0     | 0 0 0 0 0.43        |
| Mundulea sericea                | 1236 1203 0 1001 0 0 0   | 1203 1236 1236     | 1236 1236 1236 0 0     | 0 0 0 0 0.21        |
| Myrothamnus flabellifolius      | 1236 1236 1236 1001 1236 | 0 0 1236 0 1236    | 1236 1203 1236 0 0     | 1034 1236 1236 0.51 |
| Species                          | Senior Citizens (age 55+) | Adults (age 30–54) | Young adults (age 19–29) | Children (age 10–18) |
|---------------------------------|---------------------------|--------------------|--------------------------|----------------------|
| Nicotiana tabacum               | 1236 1236 1236 1236 1236 0 1236 1236 | 1236 1236 1236 1236 1236 0 1236 1236 | 1236 1236 1236 1236 1236 0 1236 1236 | 1001 1236 1236 0.9 |
| Opuntia ficus-indica            | 1236 1236 1236 1236 1236 1236 1236 1236 | 1236 1236 1236 1236 1236 1236 1236 1236 | 1236 1236 1236 1236 1236 1236 1236 1236 | 1236 1236 1236 1 |
| Omithoglossum vulgare           | 0 0 0 1001 | 0 0 1001 | 0 1001 | 0 0 0 0 0 | 0 0 0 0 0 | 0 0 0 0 0.03 |
| Ozoara paniculosa               | 1236 1236 1236 1236 1236 1236 1236 1236 | 1034 1236 1236 1001 1236 1236 1236 1236 1236 0 1236 | 1203 1236 1236 1236 | 1001 1236 1236 0.87 |
| Pellea calomelanos              | 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 0 1203 0 1034 0 1203 | 0 0 0 1203 0 | 0 0 0 0 0.08 |
| Peltophorum africanum           | 1236 1236 1236 1236 1236 1236 1236 1236 | 1236 1236 1236 1236 1236 1236 1236 1236 | 1236 0 1236 1236 | 1001 1236 1236 0.88 |
| Pennisetum glaucum              | 1203 1236 1236 1236 1236 1236 1236 1236 | 1236 1236 1236 1236 1236 1236 1236 1236 | 1236 0 1034 1236 | 1001 1236 0 0.79 |
| Pergularia daemia subsp. daemia | 1236 1236 1236 1236 0 1236 1236 1236 | 1236 1236 1236 1001 1236 1236 0 1236 1236 | 1236 0 1034 1236 | 1001 1034 1034 0.73 |
| Persea americana                | 1034 1236 1236 1236 1236 | 1236 1236 1236 1236 | 1236 1236 1236 | 0 1236 1236 0.79 |
| Physalis peruviana              | 1236 1034 1034 1236 1236 1236 1034 1234 | 1034 1034 1236 0 1034 1034 1034 1236 | 0 1236 0 | 1236 1034 1236 0.64 |
| Plectranthus neochilis          | 1034 | 0 0 0 0 0 0 0 0 0 | 0 0 0 0 0 0 0 0 1001 0 0 | 0 0 0 0 0 | 1001 0 0 0.04 |
| Plectranthus venteri            | 0 0 0 0 0 0 0 0 0 1236 | 0 0 0 0 0 1236 | 0 0 1034 0 0 0 0 0 0 0 | 1034 0 0 1001 0 0 0 0.13 |
| Plumeria alba                   | 0 0 0 0 0 0 0 1236 | 0 0 1001 1034 0 0 1236 1034 | 1034 1236 1034 0 1034 1034 1236 | 1001 1236 1236 0.41 |
| Populus x canescens             | 1236 1236 1236 1236 1236 | 0 0 1236 | 0 1236 1236 | 0 1236 1236 | 0 1346 1236 0.7 |
| Protea caffra subsp. falcata    | 0 1236 1236 1236 | 0 0 0 0 0 0 1236 0 | 1236 0 1236 1236 1236 | 0 1236 0 0 0 0 0 0 1236 0 0 0 0.37 |
| Prunus persica                  | 1236 1236 1236 | 0 0 1236 1236 | 1236 1236 1236 | 1236 1236 1236 | 0 1236 1236 1236 | 1236 1236 1236 0.89 |
| Species                        | Senior Citizens (age 55+) | Adults (age 30–54) | Young adults (age 19–29) | Children (age 10–18) |
|-------------------------------|--------------------------|--------------------|----------------------------|-----------------------|
| \( \text{Psiadia punctulata} \) | 1236 1236 0 1034 0 1034 1236 1236 | 1236 1236 1236 0 1236 1034 1203 1236 1203 0 0 | 1236 0 0 1236 | 0 0 0 0.51 |
| \( \text{Psidium guajava} \)     | 1236 1236 1236 1236 1236 1236 1236 1236 | 1236 1236 1236 1236 1236 1236 1236 1236 | 1236 1236 1236 1236 | 1236 1236 1236 0.96 |
| \( \text{Punica granatum} \)     | 1236 1236 1236 1236 1236 1236 1236 1236 | 1236 1236 1236 1236 1236 1236 1236 1236 | 1236 1236 1236 1236 | 1236 1236 1236 1 |
| \( \text{Rhoicissus tridentata} \) | 1236 1236 1236 0 0 0 1236 1236 | 0 1236 1236 0 1236 1236 0 1236 1236 1001 1236 1236 | 1236 0 0 1236 | 0 1001 1001 0.57 |
| \( \text{Ricinus communis} \)    | 1236 1203 1236 1203 0 0 1236 1236 | 1203 1236 1203 1001 1203 1203 1236 1203 0 | 1203 1236 1236 1236 | 1001 0 0 0.57 |
| \( \text{Saccharum officinarum} \) | 1236 1236 1236 1236 1236 1236 1236 1236 | 1236 1236 1236 1236 1236 1236 1236 1236 | 1236 1236 1236 1236 | 1236 1236 1236 1 |
| \( \text{Sansevieria trifasciata} \) | 1236 1203 1203 0 0 0 1236 1203 | 1001 1236 1001 0 1203 1034 0 1001 1001 1203 1203 | 1236 1201 0 | 0 1203 1001 0.32 |
| \( \text{Schkuhria pinnata} \)    | 0 1203 1001 1203 0 1236 0 1034 | 0 1034 1236 0 1001 1236 1203 1203 0 1236 0 1001 | 1203 0 0 | 1203 0 1236 0 1236 0 1236 0.4 |
| \( \text{Schotia brachypetala} \) | 1236 1236 1034 0 0 1001 0 1236 | 1203 1236 1236 1001 1236 1236 | 0 1236 1034 1001 | 1203 0 0 1203 0 | 0 0 0 | 0.44 |
| \( \text{Sclerocarya birrea subsp. caffra} \) | 1236 1236 1236 1236 1236 1236 1236 1236 | 1236 1236 1236 1236 1236 1236 1236 1236 | 0 1236 1236 1236 | 1236 1236 1236 0.96 |
| \( \text{Searsia pyroides} \)     | 1236 1236 0 0 0 0 1236 0 | 0 1236 1236 0 1236 0 0 0 | 1236 0 | 0 0 1236 0 1236 1 0 0 0.37 |
| \( \text{Senecio barbertonicus} \) | 1236 1203 1034 0 1236 1034 0 1236 | 1203 1236 1236 0 1203 1236 1203 1203 1236 0 1203 0 1203 0 | 1236 1203 | 0 1236 1203 0 1236 1236 0.53 |
| \( \text{Senna didymobotrya} \)   | 0 1034 1236 1236 0 1001 1236 1034 | 1236 1034 0 0 1034 1034 1236 1034 1034 0 | 1236 0 | 1034 0 0 | 1001 1001 0 0.44 |
| \( \text{Solanum aculeastrum} \)   | 1236 1236 1236 1236 1236 1236 1236 1236 | 1236 1236 1236 1236 1236 1236 1236 1236 | 1236 1236 1236 1236 | 1203 1236 1203 0 1236 0 | 0 0 1236 0 | 0.69 |
| \( \text{Solanum pandoforme} \)    | 1236 1236 1236 0 1236 1236 1236 1236 | 1236 1236 1236 1236 1236 1236 1236 1236 | 1236 1236 1236 1236 | 1236 1236 1236 1236 1236 0 | 0 | 1001 1236 0.72 |
| \( \text{Sonchus oleraceus} \)     | 0 1236 1236 1236 0 0 1236 1236 | 1236 0 1236 0 1236 1236 1236 1236 | 1001 1236 0 | 0 1236 0 | 1236 1236 0 | 0.6 |
| Species                  | Senior Citizens (age 55+) | Adults (age 30–54) | Young adults (age 19–29) | Children (age 10–18) |
|-------------------------|--------------------------|-------------------|--------------------------|---------------------|
| Sorghum bicolor         | 1236 1236 1236 1236     | 1236 1236 1236    | 1236 1236 1236           | 1236 1236 1236     |
| Grewia sp.              | 1236 1236 1236 1236     | 1236 1236 1236    | 1236 1236 1236           | 1236 1236 1236     |
| Tapinanthus cf. oleifolius | 1236 1236 1236          | 1236 1236 1236    | 1236 1236 1236           | 1236 1236 1236     |
| Terminalia sericea      | 1236 1236 1236 1236     | 1236 1236 1236    | 1236 1236 1236           | 1236 1236 1236     |
| Tribulus terrestris     | 1236 1236 1236 1236     | 1236 1236 1236    | 1236 1236 1236           | 1236 1236 1236     |
| Tulbaghia violacea      | 1236 1236 1236 1236     | 1236 1236 1236    | 1236 1236 1236           | 1236 1236 1236     |
| Turraea obtusifolia     | 1236 1236 1236 1236     | 1236 1236 1236    | 1236 1236 1236           | 1236 1236 1236     |
| Vachellia nilotica      | 1236 1236 1236 1236     | 1236 1236 1236    | 1236 1236 1236           | 1236 1236 1236     |
| Vangueria infausta      | 1236 1236 1236 1236     | 1236 1236 1236    | 1236 1236 1236           | 1236 1236 1236     |
| Vernonia fastigiata     | 1236 1236 1236 1236     | 1236 1236 1236    | 1236 1236 1236           | 1236 1236 1236     |
| Vigna unguiculata       | 1236 1236 1236 1236     | 1236 1236 1236    | 1236 1236 1236           | 1236 1236 1236     |
| Vitis vinifera          | 1236 1236 1236 1236     | 1236 1236 1236    | 1236 1236 1236           | 1236 1236 1236     |
| Xerophyta retinervis    | 1236 1236 1236 1236     | 1236 1236 1236    | 1236 1236 1236           | 1236 1236 1236     |
| Ximenia caffra          | 1236 1236 1236 1236     | 1236 1236 1236    | 1236 1236 1236           | 1236 1236 1236     |
| Zanthoxylum capense     | 1236 1236 1236 1236     | 1236 1236 1236    | 1236 1236 1236           | 1236 1236 1236     |
| Zea mays                | 1236 1236 1236 1236     | 1236 1236 1236    | 1236 1236 1236           | 1236 1236 1236     |
| Species          | Senior Citizens (age 55+) | Adults (age 30–54) | Young adults (age 19–29) | Children (age 10–18) |
|------------------|---------------------------|--------------------|--------------------------|----------------------|
| Ziziphus mucronata | 1236 1236 1236 1236 0 1236 1236 | 1236 1236 1236 1236 0 1236 1236 | 1236 0 0 1236 0 1236 | 1236 0 1236 0.74 |
| Average EKI for age group: | | | | | 0.60 0.57 0.48 0.39 |
| EKI              | 0.75 0.69 0.68 0.63 0.41 0.47 0.58 0.58 | 0.54 0.66 0.71 0.27 0.7 0.65 0.54 0.61 0.6 0.57 0.36 0.62 | 0.62 0.3 0.4 0.6 0.29 0.44 0.44 | |
The question posed in this study is whether the indigenous knowledge is diminishing through the generations with time. The results presented in Table 5.2 do not give clarity that the youth no longer show interest in traditional culture and indigenous plant use. The common perception in Central Sekhukhuneland in that the youth are no longer interested in indigenous knowledge and this has been continuously emphasized by elders during interviews. The fact that a young Bapedi man is compiling a study based on the Bapedi traditional plant use has prompted immense interest from the elders. Thus, identifying and recruiting interested elderly participants proved to be a much easier task than identifying and recruiting younger interested participants. This is apparently reflected in the age groupings in Table 5.2. It should, however, be noted that knowledge is gained from experience and knowledgeable younger persons will have less knowledge than older experienced persons. The Ethnobotanical Knowledge Index (EKI) of the various age groups will be discussed under point 5.6.1 (Average EKI according to age groups).

5.4 Popular plant species per plant use category

All the plants with an SPI value of 1, whether cultivated or harvested from the wild, have a food related plant use. Furthermore, these popular plants often have a diversity of uses. An example is *Punica granatum*: the leaves are used to treat stomach cramps or to stop vomiting in children and the roots are used to treat diarrhoea. Such is also the case with *Opuntia ficus-indica*; the species is not only used for its edible fruits but to treat gonorrhoea, diabetes and induce a woman’s menstrual cycle. A very popular plant species (SPI value 1) that is also popular amongst other cultures in the Limpopo Province is *Ximenia caffra*. This tree is well known for its edible fruits but it is also used to treat dry lips, to soften cattle hides and as medicine to treat tonsils, amongst other things (Mabogo, 1990; Rampedi 2010).

The following three tables list all the plants mentioned in this study, arranged according to the three main plant use categories, namely food (Table 5.3), medicine (Table 5.4) and other uses such as crafts, construction, firewood, etc. (Table 5.5). Each table is further divided into several subcategories within food, medicinal and miscellaneous. Furthermore, the plant species are arranged according to their Species Popularity Index (SPI). As previously explained, there are a number of plant species that have several uses and fall within more than one plant use category. Thus these plant species will occur in more than one of the tables.
Table 5.3: The most popular plant species in Central Sekhukhuneland identified as having food use(s), arranged according to their Species Popularity Index (SPI) values; C = cultivated crops and W = wild-harvested (X indicates the main categories of use). See Table 5.1 for details of the uses.

| Species                      | SPI | C/W | vegetable | fruit | pot herb | cereal | nectar | root, bulb or tuber | tea |
|------------------------------|-----|-----|-----------|-------|----------|--------|--------|---------------------|-----|
| *Allium cepa*                | 1   | C   | X         |       |          |        |        |                     |     |
| *Brassica oleracea* var. capitata | 1   | C   | X         |       |          |        |        |                     |     |
| *Capsicum annuum*            | 1   | C   | X         |       |          |        |        |                     |     |
| *Capsicum frutescens*        | 1   | C   | X         |       |          |        |        |                     |     |
| *Carica papaya*              | 1   | C   | X         |       |          |        |        |                     |     |
| *Citrus limon*               | 1   | C   | X         |       |          |        |        |                     |     |
| *Cleome gynandra*            | 1   | C/W | X         |       |          |        |        |                     |     |
| *Cucurbita moschata*         | 1   | C   | X         |       |          |        |        |                     |     |
| *Mangifera indica*           | 1   | C   | X         |       |          |        |        |                     |     |
| *Opuntia ficus-indica*       | 1   | W   | X         |       |          |        |        |                     |     |
| *Punica granatum*            | 1   | C   | X         |       |          |        |        |                     |     |
| *Saccharum officinarum*      | 1   | C   | X         |       |          |        |        |                     |     |
| *Sorghum bicolor*            | 1   | C   |           |       |          |        |        |                     |     |
| *Vitis vinifera*             | 1   | C   | X         |       |          |        |        |                     |     |
| *Ximenia caffra*             | 1   | W   | X         |       |          |        |        |                     |     |
| *Zea mays*                   | 1   | C   |           |       |          |        |        |                     |     |
| *Aloe arborescens*           | 0.98| W   |           |       | X        |        |        |                     |     |
| *Aloe castanea*              | 0.91| W   |           |       |          |        |        |                     |     |
| *Aloe marlothii*             | 0.96| W   | X         |       |          |        |        |                     |     |
| *Psidium guajava*            | 0.96| C   | X         |       |          |        |        |                     |     |
| *Sclerocarya birrea* subsp. caffra | 0.96| W   | X         |       |          |        |        |                     |     |
| *Amaranthus spinosus*        | 0.95| W   | X         |       |          |        |        |                     |     |
| *Ficus carica*               | 0.93| C   | X         |       |          |        |        |                     |     |
| *Vangueria infausta*         | 0.93| W   | X         |       |          |        |        |                     |     |
| *Ipomoea batatas*            | 0.89| C   | X         |       |          |        |        |                     |     |
| *Prunus persica*             | 0.89| C   | X         |       |          |        |        |                     |     |
| *Ozoroa paniculosa*          | 0.87| W   | X         |       |          |        |        |                     |     |
| *Vigna unguiculata*          | 0.86| C   | X         |       |          |        |        |                     |     |
| *Arachis hypogea*            | 0.85| C   | X         |       |          |        |        |                     |     |
| *Lolium multiflorum*         | 0.82| W   | X         |       |          |        |        |                     |     |
| Species                                | SPI | C/W | vegetable | fruit | pot herb | cereal | nectar | root, bulb or tuber | tea |
|----------------------------------------|-----|-----|-----------|-------|----------|--------|--------|---------------------|-----|
| Pentarrhinum insipidum                 | 0.80| W   |           |       |          |        |        |                     |     |
| Pennisetum glaucum                    | 0.79| C   |           |       |          |        |        |                     |     |
| Persea americana                       | 0.79| C   |           |       |          |        |        | X                   |     |
| Cucumis zeyheri                        | 0.77| C   | X         |       |          |        |        |                     |     |
| Ficus ingens                           | 0.76| W   | X         |       |          |        |        |                     |     |
| Tulbaghia violacea                     | 0.75| C   |           |       |          |        |        | X                   |     |
| Grewia flava                           | 0.74| W   | X         |       |          |        |        |                     |     |
| Ziziphus mucronata                     | 0.74| W   | X         |       |          |        |        |                     |     |
| Mimusops zeyheri                       | 0.72| W   | X         |       |          |        |        |                     |     |
| Brassica oleracea                      | 0.71| W   | X         |       |          |        |        |                     |     |
| Englerophyllum magalismontanum         | 0.70| W   | X         |       |          |        |        |                     |     |
| Lopholaena coriifolia                 | 0.68| W   |           |       |          |        |        | X                   |     |
| Eriobotrya japonica                   | 0.67| W   | X         |       |          |        |        |                     |     |
| Lantana rugosa                        | 0.67| W   | X         |       |          |        |        |                     |     |
| Bidens pilosa                         | 0.65| W   | X         |       |          |        |        |                     |     |
| Physalis peruviana                    | 0.64| W   | X         |       |          |        |        |                     |     |
| Momordica balsamina                   | 0.61| W   | X         |       |          |        |        |                     |     |
| Sonchus oleraceus                      | 0.60| W   | X         |       |          |        |        |                     |     |
| Rhoicissus tridentata                 | 0.57| W   | X         |       |          |        |        |                     |     |
| Corchorus tridens                     | 0.56| C/W | X         |       |          |        |        |                     |     |
| Grewia sp.                            | 0.56| W   | X         |       |          |        |        |                     |     |
| Ficus abutilifolia                    | 0.52| W   | X         |       |          |        |        |                     |     |
| Lantana camara                        | 0.51| W   | X         |       |          |        |        |                     |     |
| Lippia rehmannii                      | 0.46| W   | X         |       |          |        |        | X                   |     |
| Schotia brachypetala                  | 0.44| W   | X         |       |          |        |        |                     |     |
| Allium schoenoprasum                  | 0.41| W   | X         |       |          |        |        |                     |     |
| Gomphocarpus fruticosus               | 0.41| W   |           |       |          |        |        | X                   |     |
| Chenopodium murale                    | 0.39| W   | X         |       |          |        |        |                     |     |
| Boscia albitrunca                     | 0.38| W   | X         |       |          |        |        |                     |     |
| Searsia pyroides                      | 0.37| W   | X         |       |          |        |        |                     |     |
| Athrixia philicoides                  | 0.36| W   | X         |       |          |        |        |                     |     |
| Tapinanthus cf. oleifolius            | 0.25| W   | X         |       |          |        |        |                     |     |
| Species                  | SPI | C/W | vegetable | fruit | pot herb | cereal | nectar | root, bulb or tuber | tea |
|-------------------------|-----|-----|-----------|-------|----------|--------|--------|---------------------|-----|
| *Euclea crispa* subsp. *crispa* | 0.15 | W   | X         |       |          |        |        |                     |     |
| *Dovyalis caffra*         | 0.07 | W   | X         |       |          |        |        |                     |     |
| *Vernonia fastigiata*     | 0.06 | W   | X         |       |          |        |        |                     |     |

In Table 5.3 it is observed that out of the 152 listed plant species, 66 (44%) have been identified as having one or more food uses. From the identified food plants, 24 (36%) are cultivated crops, 40 (61%) are wild-harvested and two (3%) species are both cultivated and wild-harvested plants. The number of wild-harvested plants is very high, a trait that is also observed in the number of recorded food plants by Quin (1959). Quin (1959) has documented 18 edible wild plants harvested and 11 crops cultivated by the Bapedi. As mentioned in Chapter 3, the Bapedi only opted to cultivate those plants which displayed desired traits e.g. drought resistant and producing high yields of the desired product (Monnig, 1967). There are 29 (43%) edible fruits identified in this study, of which 10 are cultivated, and 19 wild-harvested. The majority of these plants are wild-harvested as they usually serve as sustenance during long journeys and/or herding trips. There are 13 (19%) plant species identified as vegetables (seven are cultivated, four are wild-harvested and two are both cultivated and wild-harvested). Although the number of vegetables may seem low when compared to fruits, the majority are cultivated and are important components of the daily diet, used together with a starch supplement. Species such as *Amaranthus spinosus* (SPI value 0.95), *Brassica olecera* (SPI value 1), *Carica papaya* (SPI value 1) and *Cucurbita moschata* (SPI value 1) provide necessary nutrients even in the absence of meat. These plants are sometimes eaten on their own and can be dried and stored for later consumption. Nine (three cultivated and six wild-harvested) plants have been identified as pot herbs. They are merely used to add flavour to food and for making relishes to be used with starch supplements. There are five (8%) cereals plants identified in this study (three cultivated, two wild-harvested). Although these numbers may be small, the cereals are a very important food group as they serve as the main nutrition of almost every meal, from soft porridge in the morning for breakfast to pap (*bokgobe*) for supper, hence almost all cereal is cultivated. The remaining three food groups are edible nectar with five species (9%) (all wild-harvested); roots, bulbs and tubers, with three species (5%) (two cultivated, one wild-harvested) and tea, with four species (6%), all of which are wild-harvested. From the recorded food plant species, 17 (25%) have an SPI value of 1 (14 are cultivated, two wild-harvested and one is both cultivated and wild harvested). The fact that the most popular plants of the Bapedi are cultivated crops should be indicative of the importance agriculture still plays in the culture. Furthermore, 55 (82%) of the plants with food uses have an SPI value above 0.5 meaning that more than half the participants are well acquainted with food plants.
Table 5.4: The most popular plant species in Central Sekhukhuneland identified as having medicinal use(s), arranged according to their Species Popularity Index (SPI) values (X indicates the main categories of use). See Table 5.1 for details of the uses.

| Species                        | SPI  | coughs, flu, bronchial ailments | blood related ailments | enema (body cleaner) | fertility complications | mental complications | pains, injuries, sores, infections, wounds | Other                  |
|-------------------------------|------|---------------------------------|------------------------|----------------------|------------------------|----------------------|-------------------------------------------|------------------------|
| Cannabis sativa               | 1    |                                 |                        |                      |                        |                      |                                           |                        |
| Citrus limon                  | 1    |                                 |                        |                      |                        |                      |                                           |                        |
| Opuntia ficus-indica          | 1    |                                 |                        |                      | X                      |                      |                                           |                        |
| Punica granatum               | 1    |                                 |                        |                      | X                      | X                    | (diarrhoea)                               |                        |
| Sorghum bicolor               | 1    |                                 |                        |                      |                        |                      |                                           |                        |
| Ximenia caffra                | 1    |                                 |                        |                      |                        |                      |                                           |                        |
| Aloe castanea                 | 0.98 | X                               |                        |                      |                        |                      |                                           | X (ethnoveterinary)    |
| Aloe arborescens              | 0.98 | X                               |                        |                      |                        |                      |                                           | X (ethnoveterinary)    |
| Agave americana               | 0.96 | X                               |                        |                      |                        |                      |                                           | X (ethnoveterinary)    |
| Aloe marlothii                | 0.96 | X                               |                        |                      |                        |                      |                                           | X (poison, diabetes)   |
| Psidium guajava               | 0.96 |                                 |                        |                      |                        |                      |                                           | X (poison)             |
| Sclerocarya birrea subsp. caffra | 0.96 |                                 |                        |                      |                        |                      |                                           |                        |
| Vangueria infausta            | 0.93 |                                 |                        |                      |                        |                      |                                           | X                      |
| Prunus persica                | 0.89 |                                 |                        |                      |                        |                      |                                           | X (stop vomiting)      |
| Aloe davyana, A. transvaalensis | 0.89 |                                 |                        |                      |                        |                      |                                           | X (growths)            |
| Peltophorum africanum         | 0.88 | X                               |                        |                      | X                      |                      | X (sefuku)                                |                        |
| Ozoroa paniculosa             | 0.87 |                                 |                        |                      |                        |                      |                                           |                        |
| Artemisia afra                | 0.85 | X                               |                        |                      |                        |                      |                                           |                        |
| Cussonia paniculata           | 0.85 |                                 |                        |                      |                        |                      |                                           |                        |
| Eucalyptus camaldulensis      | 0.81 |                                 |                        |                      |                        |                      |                                           |                        |
| Boophone disticha             | 0.80 |                                 |                        |                      |                        |                      |                                           |                        |
| Species                          | SPI | Coughs, flu, bronchial ailments | Blood related ailments | Enema (body cleaner) | Fertility complications | Mental complications | Pains, injuries, sores, infections, wounds | Other                                      |
|---------------------------------|-----|---------------------------------|------------------------|----------------------|------------------------|----------------------|--------------------------------------------|--------------------------------------------|
| Pentarrhinum insipidum          | 0.80| X                               |                        |                      |                        |                      |                                            |                                            |
| Kirkia wilmsii                  | 0.76| X                               |                        |                      |                        |                      |                                            |                                            |
| Tulbaghia violacea              | 0.75| X                               |                        |                      |                        |                      |                                            |                                            |
| Datura stramonium               | 0.74|                                 |                        |                      |                        |                      |                                            |                                            |
| Pergularia daemia subsp. daemia | 0.73| X                               |                        |                      |                        |                      |                                            |                                            |
| Euphorbia ingens               | 0.72|                                 |                        |                      |                        |                      |                                            |                                            |
| Solanum panduriforme           | 0.72|                                 |                        |                      |                        |                      | X (ethnoveterinary, toothache)             |                                            |
| Solanum aculeastrum            | 0.69|                                 |                        |                      |                        | X                    | X                                          |                                            |
| Euphorbia excelsa              | 0.69| X                               |                        |                      |                        |                      |                                            |                                            |
| Lopholaena coriifolia          | 0.68|                                 |                        |                      |                        |                      |                                            |                                            |
| Xerophyta retinervis           | 0.67|                                 |                        |                      |                        |                      | X (splint)                                 |                                            |
| Bidens pilosa                  | 0.65| X                               |                        |                      |                        |                      |                                            |                                            |
| Cotyledon orbiculata           | 0.65|                                 |                        |                      | X                      |                      |                                            |                                            |
| Momordica balsamina            | 0.61| X                               |                        |                      |                        |                      |                                            |                                            |
| Elephantorrhiza praetermissa   | 0.58| X                               |                        |                      |                        |                      |                                            |                                            |
| Ledebouria apertiflora         | 0.58|                                 |                        |                      |                        | X                    | X (infections)                             |                                            |
| Ricinus communis               | 0.57|                                 |                        |                      |                        |                      | X (bandages)                               |                                            |
| Kalanchoe brachyloba           | 0.55|                                 |                        |                      |                        |                      | X (feinted people)                         |                                            |
| Kalanchoe thyrsiflora          | 0.55|                                 |                        |                      |                        |                      | X (feinted people)                         |                                            |
| Senecio barbertonicus          | 0.53| X                               |                        |                      | X                      |                      | X (lightening struck)                      |                                            |
| Combretum molle                | 0.51|                                 |                        |                      |                        |                      |                                            |                                            |
| Myrothamnus flabellicifolius    | 0.51| X                               |                        |                      |                        |                      |                                            |                                            |
| Psiadia punctulata             | 0.51|                                 |                        |                      |                        |                      |                                            |                                            |
| Schotia brachypetala           | 0.44| X                               |                        |                      |                        |                      |                                            |                                            |
| Species                        | SPI | coughs, flu, bronchial ailments | blood related ailments | enema (body cleaner) | fertility complications | mental complications | pains, injuries, sores, infections, wounds | Other                      |
|-------------------------------|-----|---------------------------------|------------------------|----------------------|------------------------|----------------------|--------------------------------------------|---------------------------|
| Catharanthus roseus           | 0.43|                                 |                        |                      |                        |                      | X (toothache)                              |                           |
| Moringa oleifera              | 0.43|                                 |                        |                      |                        |                      | X (energy boost, STD)                      |                           |
| Dombeya rotundifolia          | 0.41|                                 |                        |                      |                        |                      | X (ethno-veterinary)                       |                           |
| Argemone mexicana             | 0.41|                                 |                        |                      |                        |                      | X (growths)                                |                           |
| Gomphocarpus fruticosus       | 0.41|                                 | X                      |                      | X                      |                      |                                            |                           |
| Schkuhria pinnata             | 0.40|                                 |                        |                      |                        | X (ethno-veterinary) |                                            |                           |
| Euphorbia tithymaloides       | 0.40|                                 |                        |                      |                        |                      | X (bladder)                                |                           |
| Kedrostis leloja              | 0.38|                                 |                        |                      |                        |                      | X                                          |                           |
| Euphorbia milii               | 0.34|                                 |                        |                      | X                      |                      | X (bladder)                                |                           |
| Hypoxis obtusa                | 0.34|                                 | X                      | X                    | X                      |                      |                                            |                           |
| Carpobrotus edulis            | 0.32|                                 | X                      |                      |                        |                      | X (toothache)                              |                           |
| Sansevieria trifasciata       | 0.32|                                 |                        |                      |                        |                      | X                                          |                           |
| Jatropha zeyheri              | 0.30|                                 | X                      | X                    | X                      |                      |                                            |                           |
| Zanthoxylum capense           | 0.26|                                 |                        |                      |                        |                      |                                            |                           |
| Alternanthera pungens         | 0.25|                                 |                        |                      | X                      | X                    |                                            |                           |
| Turraea obtusifolia           | 0.25|                                 |                        |                      |                        |                      |                                            |                           |
| Crassula sarcocaulis subsp. sarcocaulis | 0.23|                                 | X                      | X                    | X                      |                      |                                            |                           |
| Gardenia volkensii            | 0.23|                                 |                        |                      |                        |                      |                                            | X                          |
| Mundulea sericea              | 0.21|                                 |                        |                      |                        |                      |                                            | X                          |
| Merwillia plumbea             | 0.19|                                 |                        |                      |                        |                      |                                            | X                          |
| Melhania prostata             | 0.14|                                 |                        |                      |                        |                      |                                            | X                          |
| Plectranthus venteri          | 0.13|                                 | X                      | X                    |                        |                      |                                            | X                          |
| Alepidea setifera             | 0.12|                                 | X                      |                      |                        |                      |                                            | X (toothache)              |
| Eucomis pallidiflora subsp. pole-evansii | 0.12|                                 |                        |                      |                        |                      |                                            | X                          |
| Pellaea calomelanos           | 0.08|                                 |                        |                      |                        |                      |                                            | X                          |
There are 71 (46%) plants identified which have medicinal uses in this study as listed in Table 5.4. The participants mostly mentioned treatments for common ailments, problems which elders can prescribe treatment for without the need to consult a professional or traditional healer. The use of these home remedies is sometimes due to the inaccessibility of professional healers or financial constraints. Most common treatments mentioned were for pains, injuries, sores, infections, wounds (18 species) followed by blood related ailments (15 species) and bronchial related ailments (12 species). Several plants stand out as having multiple medicinal uses: *Cannabis sativa*, for example, is used for bronchial ailments and for mental complications, *Opuntia ficus-indica* is used for fertility complications and other ailments, *Punica granatum* is used for pains, injuries, sores, infections, wounds and diarrhoea. Note that all these plants have an SPI value of 1 and *O. ficus-indica* and *P. granatum* also have food uses. Another edible plant with multiple medicinal uses and a high SPI value (0.93) is *Vangueria infausta*, which is not only used as an enema but also have other medicinal applications.

As seen in Table 5.5, The Bapedi are also skilful craftsmen. With 62 (40%) plant species identified as having craft uses (and other miscellaneous uses), their creative ability to build structures from natural resources is evident. Livestock is an important commodity to the Bapedi. It symbolises wealth and the more animals a man owns, the greater their symbolic value for indicating his ability to take care of his family (Monnig, 1967). Thus keeping livestock safe is important, making the construction of strong kraals a much-needed skill.

Also, creating wooden spoons and weaving mats not only serve as a means for acquiring useful household tools but also they are sold for extra income. Furthermore, 16 (26%) of the identified miscellaneous plants are used for firewood. Though electricity is being introduced, fire is still the preferred method for cooking and boiling water for bathing.

| Species                  | SPI | coughs, flu, bronchial ailments | blood related ailments | enema (body cleaner) | fertility complications | mental complications | pains, injuries, sores, infections, wounds | Other |
|--------------------------|-----|---------------------------------|------------------------|----------------------|-------------------------|----------------------|--------------------------------------------|-------|
| *Helichrysum caespititium* | 0.03| X                               |                        |                      |                         |                      |                                            |       |

| Helichrysum caespititium | 0.03 | X |
|--------------------------|-----|---|
| songwriter               |     |   |
|翻开字典                |     |   |
Table 5.5: The most popular plant species in Central Sekhukhuneland identified as having value as craft plants and for miscellaneous other use(s), arranged according to their Species Popularity Index (SPI) values (X indicates the main categories of use). See Table 5.1 for details of the uses.

| Species                          | SPI | craft (other) | weaving (basketry, mats etc.) | firewood | construction | ornamental | recreational | utensils |
|----------------------------------|-----|---------------|-------------------------------|----------|--------------|------------|--------------|---------|
| *Vitis vinifera*                 | 1   | X             |                               |          |              |            |              |         |
| *Ximenia caffra*                 | 1   | X             |                               |          |              |            |              |         |
| *Aloe castanea*                  | 0.98|               |                               |          |              |            | X            |         |
| *Agave americana*                | 0.96| X             |                               | X        |              |            |              |         |
| *Aloe marlothii*                 | 0.96|               |                               |          |              |            | X            |         |
| *Sclerocarya birrea subsp. caffra*| 0.96| X             |                               |          |              |            |              |         |
| *Aristida diffusa*               | 0.92|               |                               |          |              |            | X            |         |
| *Vachellia nilotica subsp. kraussiana* | 0.90|               | X                             |          |              |            |              |         |
| *Nicotiana tabacum*              | 0.90|               |                               |          |              |            | X            |         |
| *Peltophorum africanum*          | 0.88| X             |                               | X        |              |            |              |         |
| *Ozoroa paniculosa*              | 0.87| X             |                               |          |              |          X   | X            |         |
| *Cussonia paniculata*            | 0.85|               |                               |          |              |            |              |         |
| *Cyperus sexangularis*           | 0.84|               |                               |          |              |            | X            |         |
| *Cyperus austro-africanus*       | 0.81|               | X                             |          |              |            |              |         |
| *Eucalyptus camaldulensis*       | 0.81|               |                               |          |              |            |              |         |
| *Boophone disticha*              | 0.80| X             |                               |          |              |            |              |         |
| *Asparagus laricinus*            | 0.78| X             |                               |          |              |            |              |         |
| *Datura stramonium*              | 0.74| X             |                               |          | X            |            |              |         |
| *Grewia flava*                   | 0.74|               |                               |          |              |            | X            |         |
| *Englerophytum magalismontanum*  | 0.70|               |                               |          |              |            |              |         |
| *Populus x canescens*            | 0.70| X             |                               |          | X            |            | X            |         |
| Species                     | SPI  | craft (other) | weaving (basketry, mats etc.) | firewood | construction | ornamental | recreational | utensils |
|-----------------------------|------|---------------|-------------------------------|----------|--------------|------------|--------------|---------|
| Lophostena corifolia       | 0.68 |               |                               |          |              |            |              |         |
| Xerophyta retinervis       | 0.67 | X             | X                             | X        |              |            |              |         |
| Cotyledon orbiculata       | 0.65 |               |                               |          |              |            |              |         |
| Momordica balsamina        | 0.61 |               |                               |          |              | X          |              |         |
| Elephantorrhiza praetermissa | 0.58 |               |                               | X        |              |            |              |         |
| Ricinus communis           | 0.57 |               |                               |          |              | X          |              |         |
| Grewia sp.                 | 0.56 |               |                               |          |              |            |              |         |
| Kalanchoe brachyloba       | 0.55 |               |                               |          | X            |            |              |         |
| Kalanchoe thyrsiflora      | 0.55 |               |                               |          | X            |            |              |         |
| Senecio barbortonicus      | 0.53 |               |                               |          | X            |            |              |         |
| Myrothamnus flabellifolius | 0.51 |               |                               |          | X            |            |              |         |
| Psiadia punctulata         | 0.51 |               |                               |          |              | X          |              |         |
| Lippia rehmannii           | 0.46 | X             |                               |          |              |            |              |         |
| Schottia brachypetala      | 0.44 |               |                               |          | X            |            |              |         |
| Senna didymobotrya         | 0.44 |               |                               | X        |              |            |              |         |
| Catharanthus roseus        | 0.43 |               |                               |          |              | X          |              |         |
| Combretum apiculatum       | 0.41 |               |                               | X        | X            |            |              |         |
| Dombeya rotundifolia       | 0.41 |               |                               |          | X            |            |              |         |
| Allium schoenoprasum       | 0.41 |               |                               | X        |              |            |              |         |
| Plumeria alba              | 0.41 |               |                               |          | X            |            |              |         |
| Schkuhria pinnata          | 0.4  |               |                               |          | X            |            |              |         |
| Euphorbia tithymaloide     | 0.4  |               |                               |          | X            |            |              |         |
| Protea caffra subsp. falcata | 0.37 |               |                               | X        | X            |            |              |         |
| Athrixia phyllicoides      | 0.36 |               |                               | X        |              |            |              |         |
| Species                  | SPI  | craft (other) | weaving (basketry, mats etc.) | fire-wood | construction | ornamental | recreational | utensils |
|-------------------------|------|---------------|-------------------------------|-----------|--------------|------------|--------------|---------|
| Euphorbia milii         | 0.34 |               |                               |           | X            |            |              |         |
| Gazania krebsiana       | 0.33 |               |                               | X         |              |            |              |         |
| Melia azedarach         | 0.33 |               |                               | X         | X            |            |              |         |
| Sansevieria trifasciata | 0.32 |               |                               |           | X            |            |              |         |
| Terminalia sericea      | 0.31 |               |                               | X         |              |            | X            |         |
| Gerbera jamesonii       | 0.26 |               |                               |           | X            |            |              |         |
| Cladium mariscus subsp. jamaicense | 0.25 |               |                               | X         |              |            |              |         |
| Tapinanthis cf. oleifolius | 0.25 |               |                               |           | X            |            |              |         |
| Cryptolepis cryptolepidoides | 0.20 |               |                               |           | X            |            |              |         |
| Indigofera cf. heterotricha | 0.20 |               |                               | X         |              |            |              |         |
| Mirabilis jalapa        | 0.15 |               |                               |           | X            |            |              |         |
| Melhania prostrata      | 0.14 |               |                               | X         |              |            |              |         |
| Eucomis palidiflora subsp. pole-evansii | 0.12 |               |                               |           | X            |            |              |         |
| Ceiba speciosa          | 0.06 |               |                               | X         |               | X          |              |         |
| Ipomoea bathycolpos     | 0.06 |               |                               |           | X            |            |              |         |
| Plectranthus neochilus  | 0.04 |               |                               | X         |               | X          |              |         |
| Commiphora africana     | 0.04 |               |                               | X         |              |            |              |         |
5.5 Exotic plant species used in Central Sekhukhuneland

There is a high number of exotic plant species used by the Bapedi in the study area. There is a total of 55 exotic plant species identified in this study used by the Bapedi, however *Acanthus montanus* and *Conyza scabrida* were not recognised by any participants thus only 53 exotic plant species have been identified to be used for at least one plant use category (Figure 5.1); 16 (30%) of these exotics are listed on NEMB:BA Act No. 10 of 2004 as invasive alien plant species (Figure 5.2), 23 (43%) are cultivated crops (Figure 5.3a), 12 (23%) are wild-harvested species for food (Figure 5.3b), 29 (55%) have medicinal uses (Figure 5.3c) and 24 (45%) have miscellaneous uses (Figure 5.3d). This high frequency of exotic plant use has also been noted by Semenya et al. (2012a).

Figure 5.1 is a bar graph that represents all the exotic plant species recorded in the study, sorted according to their Species Popularity Index (SPI) values.

From the identified exotic species, 16 (23%) are regulated by legislation regarding the control of invasive alien plant species (NEM:BA No. 10 of 2004). Over the years, as indigenous plant resources became scarce, people started looking to other solutions to address their needs. Hence the utilisation of exotics became more and more popular (Semenya et al., 2012b). As mentioned in Chapter 3, indigenous crops started being replaced by exotic crops due to higher product yields and better resistance to harsh environments (Quin 1959, Monning 1967). This adoption of exotics to meet cultural needs must be taken into account when proposing the eradication of weeds and invasive aliens. Lennox et al. (2012) caution against the removal of exotics because they have become important natural resources in communities (Semenya et al., 2013). There are species with uses recorded in the literature (e.g. *Acanthus montanus*) that were not mentioned by participants and therefore excluded from Figure 5.1. *Acanthus montanus* and *Conyza scabrida* are included in Table 5.1 but not in Table 5.2 because none of the participants recognised them or had any names or uses for them.

The exotic plant species used by the Bapedi can further be separated into three categories, namely food, medicine and miscellaneous. The food category can further be divided into two subcategories, namely cultivated exotic species and wild-harvested exotic species. An indication of the relative importance of these species is provided in Figure 5.3a-d. These include cultivated exotic species (Figure 5.3a), wild-harvested exotic species (Figure 5.3b), exotic species with medicinal uses (Figure 5.3c) and exotic species with craft and other miscellaneous uses (Figure 5.3d).
Figure 5.1: The 53 exotic species identified and used in Central Sekhukhuneland, arranged according to their Species Popularity Index (SPI) value.
Semenya et al. (2012b) recorded 35 exotic plant species used by traditional healers to treat various ailments and about 12 (34%) where listed on NEM:BA Act No. 10 of 2004. In this study, as pointed out in Figure 5.2, there are 16 (30%) exotic plant species listed on NEM:BA Act No. 10 of 2004. Since their introduction into the Sekhukhuneland environment, these environmentally problematic plant species have become important natural resources to the Bapedi of Central Sekhukhuneland. Furthermore, as pointed out in Table 5.6, 12 (75%) of these NEM:BA Act No. 10 of 2004 listed exotics have medicinal value, 10 (62.5%) are used for miscellaneous uses and four (31.2%) are harvested for food. This further emphasises the ability of the Bapedi to adapt to their changing environment.

The average SPI value of the listed exotic species is 0.7. This means that participants are very familiar with the listed exotic plants and this indicates the important role exotics play. As has been pointed out earlier in this study, the majority of work published on the Bapedi has concentrated on traditional healers. However community members knowledge can also be rich. Table 5.6 indicates that there is extensive extant indigenous knowledge to be documented from community members even with respect to their use of exotic species. This can be seen with *Opuntia ficus-indica*, *Agave americana*, *Populus x canescens* and *Senna didymobotrya* which all have one or more new plant use recorded in Table 5.1.

**Figure 5.2:** The 16 recorded exotic plant species in this Central Sekhukhuneland that are listed on National Environmental Management Biodiversity Act (NEM:BA) Act no. 20 of 2004, arranged by their Species Popularity Index (SPI) values.
Table 5.6: The 16 recorded exotic plant species in Central Sekhukhuneland listed on NEM:BA with their respective categories.

| Species                  | SPI  | Category | Medicinal | Food | Miscellaneous |
|--------------------------|------|----------|-----------|------|---------------|
| *Opuntia ficus-indica*   | 1    | 1b       | X         | X    |               |
| *Agave americana*        | 0.96 | 3 (CT)   | X         | X    |               |
| *Psidium guajava*        | 0.96 | 2        | X         | X    |               |
| *Eucalyptus camaldulensis* | 0.81 | 2        | X         | X    |               |
| *Datura stramonium*      | 0.74 | 1b       | X         | X    |               |
| *Populus x canescens*    | 0.7  | 2        |           | X    |               |
| *Eriobotrya japonica*    | 0.67 | 3        | X         | X    |               |
| *Ricinus communis*       | 0.57 | 1b       | X         | X    |               |
| *Lantana camara*         | 0.51 | 1b       | X         | X    |               |
| *Senna didymobotrya*     | 0.44 | 1b       | X         | X    |               |
| *Catharanthus roseus*    | 0.43 | 1b       | X         | X    |               |
| *Argemone mexicana*      | 0.41 | 1b       |           | X    |               |
| *Melia azedarach*        | 0.33 | 1b and 3 |           | X    |               |
| *Mirabilis jalapa*       | 0.15 | 1b       |           | X    |               |
| *Anredera cordifolia*    | 0.09 | 1b       |           | X    |               |
| *Caesalpinia decapetala* | 0.06 | 1b       |           | X    |               |

There is a wide variety of exotic crop plants identified in this study (Figure 5.3a). These range from cereals (*Zea Mays, Pennisetum glaucum*), vegetables (*Brassica oleracea, Cucurbita moschata, Ipomoea batatas, Arachis hypogea*), pot herbs (*Allium cepa, Capsicum spp., Allium schoenoprasum*) and fruits (*Mangifera indica, Citrus limon, Vitis vinifera, Ficus carica and Persea americana*). Also, though not included here because it is not used for food, *Nicotiana tabacum* is cultivated for recreational purposes. Most of these species are also listed by Quin (1959). To the best of my knowledge there are no recent documentations of cultivated crop plants utilised by the Bapedi.
Figure 5.3a: The 23 exotic species cultivated in Central Sekhukhuneland for food purposes, arranged by their Species Popularity Index (SPI) values. *Sorghum bicolor* and *Pennisetum glaucum* are indigenous species but they are included here because modern, non-indigenous cultivars of unknown origin are grown.
Figure 5.3b: The 12 exotic species wild-harvested in Central Sekhukhuneland for food purposes, arranged by their Species Popularity Index (SPI) values.

As was the case with cultivated exotic plants, Quin (1959) has also recorded the majority of the wild-harvested exotic plants that are documented here (Figure 5.3b). There is a close similarity between Quin’s findings and my own. However, there are a few species not recorded by Quin (1959), such as *Eriobotrya japonica, Lantana camara* and *Brassica oleracea*. *Lantana camara* may have only recently become dominant as an invader and this may explain its absence from the study by Quin (1959). Despite the similarity between the general pattern of plant use recorded by Quin (1959) and the patterns shown here, there are some differences in detail that supports the idea that culture is dynamic and adaptive, and that new useful plants and new uses can readily be adopted when needs arise or when new resources become available.

Semenya et al. (2012b, 2013b) recorded 41 exotic plant species and an additional four indigenous problem plants used by traditional healers to treat various ailments. It is also common for the traditional healers to mix exotics with indigenous plant species in their muthi such as mixing the roots of *Opuntia ficus-indica* and *Ziziphus mucronata* to treat drop (STI) (Semenya et al., 2013b). Not only are exotics used to treat ailments but they have proven to be highly valuable in daily living. In this study, the community participants mentioned 29 (52%) exotic plants with medicinal uses. Medical treatments range from flu to blood related ailments (e.g. diabetes). However, these uses differ markedly from the results presented by Semenya and co-workers. Traditional healers and/or herbalists are more specific in their treatments and can address serious, life-threatening ailments (e.g. HIV, gonorrhoea, syphilis, malaria, strokes etc.) (Semenya et al., 2012b, 2013b), whereas community members tend to treat self-terminating ailments such as influenza, indigestion, constipation, minor wounds, and so on. This shows the gaps that may still exist in the knowledge of Bapedi traditional medicine and undocumented knowledge that potentially could be lost. The utilisation of exotics may partly be the result of indigenous species becoming scare while invasive species represent an abundant and readily available resource. This again shows the dynamic and adaptive nature of Bapedi plant use practises.

Apart from food and medicine, exotic species offer an almost unlimited natural resource for a variety of other miscellaneous uses. These range from weaving (*Agave americana* used to make fibres for making baskets) to construction (*Populus x canescens* used in construction and to make fences) and even recreational uses (*Nicotiana tabacum* used to make snuff). Their ability to withstand the harsh savannah climate and flourish under these conditions means that an abundance of plant material is readily available.
in the wild. Little effort is required and there is no need for time and resources to be invested into cultivation.

Figure 5.3c: The 29 exotic species identified in Central Sekhukhuneland as having medicinal uses, arranged by their Species Popularity Index (SPI) values.
Figure 5.3d: The 24 exotic species in Central Sekhukhuneland with miscellaneous uses (e.g. crafts, construction, firewood, etc.) arranged by their Species Popularity Index (SPI) values.

5.6 Central Sekhukhuneland Ethnobotanical Knowledge Index (EKI)

5.6.1 Average EKI according to age groups

Age affects knowledge levels. As illustrated in Figure 5.4, participants were grouped into four age groups, namely senior citizens (age 55+), adults (age 30–54), young adults (age 19–29) and children (age 10–18). As can be expected, the senior age group had the highest average EKI value (0.6), followed by the adult age group with an average EKI value of 0.57. Young adults have an average EKI value of 0.48, with the children having the lowest average EKI value of 0.39 (Figure 5.4). As expected, there is a gradual and steady increase in EKI with age that is also discussed in Chapter 6.
A recurring trend found in the literature is the lack of quantitative research on Bapedi ethnobotany. Although valuable, it is not enough to simply document plant uses and create plant use checklists without any indication of the relative importance of the plant species. Some species in the list may be the dominant and characteristic species used in the culture, while others may only be used very sporadically by one or a few members of the community. Without some form of quantification, much of the potential value of the data is lost. Quantitative studies offer researchers a chance to analyse the flow and quality of indigenous knowledge that resides within each age group within a community (Reyes-Garcia, 2007). During this study it became evident that the majority of individuals are becoming less interested in culture and cultural ways and are becoming more westernised and financially driven in pursuit of “the good life”. When approached, youth were the least interested in sharing indigenous knowledge and distanced themselves from partaking in the study. Adults and young adults, when available in villages, seemed more knowledgeable about plants and plant uses that directly affected their daily lives (financially or for survival). The elders were generally more open and willing to share. This interest amongst elders seemed to have been sparked by the fact that a young man of same culture was conducting a research study in Bapedi cultural plant uses. The elders seemed to be aware of the fragility of oral-traditional knowledge.

**Figure 5.4:** Average Ethnobotanical Knowledge Index (EKI) values of the participants based on their different age groups.
and the danger that the cultural heritage may be lost if not properly recorded. As shown in Figure 5.4, the expected trend was found, with the youth having the lowest average EKI value (0.39), followed by young adults (EKI value of 0.48), adult (0.57) and the elders, with the highest EKI value of 0.6. However, the low average EKI value of the youth cannot be inferred to conclude that no knowledge is being transferred to the youth. The lower value may simply mean that they are still in the process of learning, as a high school child cannot be expected to possess the same knowledge as a tertiary student or adult. A steep drop from senior citizens to adults or from adults to children would have indicated that knowledge is no longer being transferred from one generation to the next. The gradual and steady increase shown in Figure 5.4 can therefore be interpreted that there is, at least in rural Bapedi communities, still an effective transfer of general plant use knowledge. It is not possible to judge the status of specialised medicinal knowledge, as this would require a different methodology and approach as to what was followed in this general quantitative ethnobotanical survey.

5.6.2 Comparison of Central Sekhukhuneland EKI with Agter-Hantam and Kamiesberg EKI

The matrix method has proven to be an easy yet effective tool in improving the quality of ethnobotanical studies. Not only is it useful to record large amounts of data in short time periods in a consistent and rigorous way, but it is also useful when comparing the level of indigenous knowledge (EKI) and the relative popularity of plants (SPI) between studies that have used the same methodology. Thus the EKI values of Central Sekhukhuneland are here compared with those published by De Beer and Van Wyk (2011) ["Ethnobotany of the Agter Hantam"] and by Nortje and Van Wyk (2015) ["Medicinal ethnobotany of the Kamiesberg"]. The results are shown in Figures 5.5a and 5.5b respectively.

It is observed in Figure 5.5a that in the Agter-Hantam, the interviewed adults have a slightly higher average EKI value (0.67) than the interviewed adults in Central Sekhukhuneland (SKL), with an average EKI value of 0.53. The interviewed seniors in both areas have a similar EKI value (0.6) but the interviewed children in Sekhukhuneland have a slightly higher EKI value (0.39) than those in the Agter-Hantam (0.3).
Factors that may influence the similarities and differences in the EKI trends between the two areas are discussed below. In general, however, the two data sets are remarkably similar.

**Figure 5.5a:** A comparison of the indigenous knowledge (Ethnobotanical Knowledge Index, EKI) of Sekhukhuneland with the Agter-Hantam data of De Beer and Van Wyk (2011).

As illustrated in Figure 5.5a, in both studies the youth has the lowest average EKI values; 0.3 in the Agter-Hantam and 0.39 in Central Sekhukhuneland. The adults in the Agter-Hantam have a slightly higher average EKI value of 0.67 as compared to Central Sekhukhuneland adults with an average EKI value of 0.53. It is interesting that both seniors in the Agter-Hantam and Central Sekhukhuneland have an average EKI value of 0.6. The sudden decrease in EKI value between adults and seniors in Agter-Hantam may be linked with memory loss due to old age (some elders scored exceptionally low) whereas in Central Sekhukhuneland the elders were almost invariably above average in terms of the level of their indigenous knowledge. It is also interesting to note that there are several plant species shared by both studies (and both cultures): *Artemisia afra*, for example, has a Species Popularity Index of 0.85 in Sekhukhuneland (SKL) and 0.69 in the Agter-Hantam (AH). These values are surprisingly similar when considering that the plant is not indigenous to the Agter-Hantam but that it is cultivated in home gardens for medicinal use. In Sekhukhuneland it is readily available in the wild. *Carpobrotus edulis* (respectively 0.32 in SKL and 0.75 in AH) is mostly used as an ornamental plant in Sekhukhuneland and appears to be losing its
popularity. *Cotyledon orbiculata* (0.65 SKL and 0.29 AH) is a popular plant in Sekhukhuneland, especially favoured by traditional healers (but most herder boys and men also know about it). The plant has limited medicinal uses in the Agter-Hantam, as reflected in the low SPI value. *Gomphocarpus fruticosus* (0.41 SKL and 0.53 AH), *Punica granatum* (SPI of 1 in both studies) and *Ricinus communis* (0.57 SKL and 0.75 AH) are interesting examples of plants shared by both cultural groups.

The main objective of this study and that of De Beer and Van Wyk (2011) was different from that of Nortje (2011). The former were aimed at documenting all plants used (and therefore to calculate the EKI value of participants knowledge on all plant use categories), whereas Nortje (2011) solely looked at the medicinal use of the Kamiesberg (KB) species. Hence, non-medicinal plants and plant uses of the Sekhukhuneland study had to be omitted and the EKI values for each participant re-calculated. When the medicinal EKI values of Sekhukhuneland are compared with those of the Kamiesberg, the interviewed participants in Sekhukhuneland are observed to have a relatively higher average EKI value per group than the interviewed participants in the Kamiesberg. This is presented in Figure 5.5b.

**Figure 5.5b:** A comparison of the knowledge on medicinal plants (Ethnobotanical Knowledge Index, EKI) of Sekhukhuneland with the Kamiesberg data of Nortje and Van Wyk (2015).

However, there is a close similarity in the trend between the EKI values of Sekhukhuneland (SKL) and Kamiesberg (KB) age groups. The youth still exhibits the lowest EKI values (0.39 SKL and 0.17 KB) and
the seniors have the highest EKI values (0.62 SKL and 0.55 KB) in both studies. Interestingly, there are also several species that occur in both studies: *Artemisia afa* (0.85 SKL and 0.68 KB) [which is a Bapedi favourite medicinal plant, thus the high SPI value comes as no surprise as participants were well acquainted with this species; in the Kamiesberg it is only available from home gardens where it is cultivated for medicinal use], *Carpobrotus edulis* (0.32 SKL and 0.88 KB) (see notes in the Agter-Hantam comparison above), *Cotyledon orbiculata* (0.65 SKL and 0.61 KB), *Gomphocarpus fruticos* (0.41 SKL and 0.67 KB) and *Ricinus communis* (0.57 SKL and 0.80 KB). *Datura stramonium* (0.74 SKL and 0.26 KB) is a problematic weed occurring in most disturbed areas in Sekhukhuneland, thus participants come across it on a regular basis and have learnt of its use as poison and also its highly effective ethnoveterinary use; in the Kamiesberg the plant is perceived as dangerous and poisonous.

5.7 Newly recorded plant uses

Of the 152 plant species recorded in this study, 73 (47%) are used medicinally, 63 (41%) have miscellaneous uses (e.g. craft, construction, firewood etc.) and 68 (0.44%) have food uses. The majority of new plant uses recorded in this study are medicinal. One of the well-informed participants, Joseph Makola, who has been trained as an herbalist, pointed out that all plants have a medicinal use and the question lies in whether or not an individual knows the use. Aloes have multiple medicinal uses which are widely recognised by all age groups such as the dried leaves of aloes used to make snuff for the elderly. The women in the adult age group were very knowledgeable about plant species which have craft uses such as making grass mats and baskets using grasses. Some individuals, in this case primarily men, had a sound knowledge of wild edible plants. Most of the time, when the men walk or travel in the mountains, they hardly ever carry any food and thus need to know which wild plants are edible or not.

There is a total of 185 newly recorded plant uses in this study. The newly recorded plant use records were grouped according to the three main plant use categories (medicine, food and other uses). Figure 5.6 illustrates which plant use category has the most newly recorded plant uses. There are 107 (58%) new records for medicine, this includes the use of *Asparagus laricinus* in treatments for men believed to be poisoned from pregnant women food, *Cotyledon orbiculata* used to treat people suffering from mental ailments and laxatives made from the poisonous latex of *Euphorbia* species. There are 57 (31%) new plant use records for other plant uses (e.g. craft, construction, firewood etc.), such as the use of seeds
from *Datura stramonium* to make floor polish and *Lippia rehmannii* used as a mosquito repellent. Lastly there are also 21 (11%) newly recorded edible plants such as *Physalis peruviana* and *Searsia pyroides*.

**Figure 5.6:** New species records and new plant use records for Central Sekhukhuneland, arranged according to the main plant use categories: Medicine, Food and other including craft and miscellaneous uses.

Given the fact that Semenya and co-workers have done extensive research work on Bapedi medicinal plant use, it is surprising to see the large number of 107 new use records in the medicinal plant category. However, almost all previously published information on Bapedi medicinal plant uses were supplied by traditional healers. It therefore seems that the high number of new records reflects the fact that many Bapedi “house remedies” or “everyday medicines for common ailments” are recorded here for the first time. There are relatively few new food use records (21), mostly due to the extensive study of Quin (1959). Through the years only a few new crop plants have been introduced. However, invasive species such as *Lantana camara* and weedy herbs such as *Amaranthus* species are introducing new potential food sources to the Bapedi culture, adding to the already identified food plants documented by Quin (1959).
5.8 Comparison of ethnobotanical data between the Bapedi of Central Sekhukhuneland and the Dikgale community

The Dikgale community is a group of North Sotho origin that shortly after 1700 settled in the Munnik area, about 50 km northeast of the present-day Polokwane (Rankoana, 2000). Conquered Venda and North Ndebele groups were incorporated into the tribe, and this cultural fusion distinguishes the Dikgale from the pure Bapedi. The vegetation of the Dikgale area also differs markedly from that of Central Sekhukhuneland, so that the available plant species may be an additional factor that contributes to the differences between Bapedi and Dikgale ethnobotany. Although not yet published, the dissertation of Rankoana (2000) may provide interesting insights into the cultural changes that can be expected when two groups of common culture are geographically separated for a considerable period of time. Although Rankoana (2000) offered ethnobotanical data on 80 plant species, she did not present any quantitative data, so that the importance of the various plant species used by the Dikgale community cannot be evaluated. However, the species and their uses show many similarities, as shown in Table 5.7.

Table 5.7: Comparison of all Bapedi useful plants recorded in this survey and in the literature, for the Limpopo Province as a whole, with all Dikgale useful plants as recorded by Rankoana (2000). Species (or related species) used by both cultural groups are shown in **bold**.

| Bapedi species          | Bapedi uses                       | Dikgale species | Dikgale uses |
|-------------------------|----------------------------------|-----------------|--------------|
| *Agave americana*       | medicine, craft, construction, ethnoveterinary |                 | craft        |
| *Aloe marlothii*        | food, craft, medicine            |                 | craft, medicine |
| *Amaranthus spinosus*   | food                             | *Amaranthus sp. as A. hybridus* | medicine, magical |
| *Amaranthus thunbergii* | food                             |                 | food, ethnoveterinary |
| *Aristida diffusa*      | craft                            | *Aristida diffusa* (as *Aristida congesta*) | craft, construction, ethnoveterinary |
| *Boophone disticha*     | medicine, craft (magic)          | *Boophone disticha* (as “Hypoxis villosa”) | medicine, craft |
| *Boscia albitrunca*     | food                             |                 | food, ethnoveterinary |
| Bapedi species               | Bapedi uses                  | Dikgale species                        | Dikgale uses                      |
|-----------------------------|------------------------------|----------------------------------------|-----------------------------------|
| *Citrullus lanatus*         | food, medicine               | *Citrullus vulgaris*                   | food                              |
| *Cleome gynandra*           | food                         | *Cleome gynandra* (as *Gynandropsis pentaphylla*) | food, ethnoveterinary             |
| *Coccinia rehmannii*        | food                         |                                       | food, ethnoveterinary             |
| *Commiphora marlothii*      | medicine                     |                                       | magical                           |
| *Cucumis zeyheri*           | food                         | *Cucumis africanus*                   | food, magical, ethnoveterinary    |
| *Cucurbita moschata*        | food                         | *Cucurbita pepo*                      | food                              |
| *Dicoma anomala*            | medicine                     | *Dicoma gerrardii*                    | medicine                          |
| *Dombeya rotundifolia*      | medicine, firewood           |                                       | no recorded use                   |
| *Dovyalis caffra*           | food                         |                                       | food, magical, ethnoveterinary    |
| *Drimia elata*              | medicine                     | *Drimia sanguinea* (as "Urginea sorguinea") | medicine                          |
| *Englerophytum magalismontanum* | food, medicine, craft     | *Englerophytum magalismontanum* (as *Chrysophyllum magalismontanum*) | food                              |
| *Euclea natalensis*         | food                         |                                       | magic                             |
| *Euphorbia tirucalli*       | medicine                     |                                       | medicine                          |
| *Grewia flava*              | food, medicine, craft        |                                       | food, ethnoveterinary, craft, firewood, magical |
| *Gymnosporia senegalensis*  | medicine                     |                                       | firewood, ethnoveterinary         |
| *Hypoxis hemerocallidea*    | medicine                     | *Hypoxis sp.*                         | medicine                          |
| *Ipomoea batatas*           | food                         |                                       | no recorded use                   |
| *Ipomoea bathycolpos*       | craft                        |                                       | no recorded use                   |
| Bapedi species | Bapedi uses | Dikgale species | Dikgale uses |
|----------------|-------------|-----------------|--------------|
| *Kirkia wilmsii* | medicine | craft, medicine | |
| *Kleinia longiflora* | medicine | medicine | |
| Lagenaria siceraria (=L. vulgaris) | food, crafts | food | |
| *Lippia javanica* | medicine | medicine | |
| Lopholaena coriifolia | food, medicine, firewood | craft | |
| Melia azedarach | craft, firewood | craft | |
| *Mimusops zeyheri* | food, medicine | food | |
| Opuntia ficus-indica | food, medicine | Opuntia megacantha | food, ethnoveterinary |
| *Ozoroa sphaerocarpa* | medicine | medicine, craft, ethnoveterinary | |
| *Pappea capensis* | medicine | multipurpose | |
| *Peltophorum africanum* | medicine, firewood, craft | multipurpose | |
| *Pennisetum glaucum* | food | Pennisetum spicatum | food |
| Rhoicissus tridentata | food | no recorded use | |
| *Ricinus communis* | medicine, ornamental | medicine | |
| Senecio barbertonicus | medicine, construction, ornamental | magical | |
| *Sorghum bicolor* | food, medicine | Sorghum bicolor (as Sorghum vulgare, Andropogon sorghum) | food |
| Syzygium cordatum | medicine | medicine | |
| *Tribulus terrestris* | food, medicine | food, ethnoveterinary | |
| Vangueria infausta | food, medicine | food, medicine | |
| Vernonia fastigiata | food | food | |
Although the data for the Dikgale community (80 useful species) is less comprehensively documented than for the Bapedi in general (229 species), it seems worthwhile to make some comparisons. There are 37 species that are used in both areas, with an additional 13 closely related species, giving a total of 50 shared useful plants. It is also not surprising to discover that some traditional names are shared between the two areas for the same and/or similar species. There are a total of 25 traditional names used for the same and/or similar species between the two areas. Further examination of Table 5.7 shows that there are 31 species used by the community in Dikgale that have not been recorded before for the Bapedi (nor have they been observed during the course of this study). These useful plant species, apparently unique to the Dikgale community, are *Amaranthus hybridus*, *Berchemia zeyheri*, *Carissa bispinosa*, *Crotalaria capensis*, *Cyathula uncinulata*, *Cynodon dactylon*, *Dicerocaryum eriocarpum*, *Dichrostachys cinerea*, *Ehretia rigida*, *Euclea schimperi*, *Fadogia tetraquetra*, *Faidherbia albida*, *Ficus burkei*, *Gnaphalium helichrysum*, *Illex mitis*, *Ipomoea albivenia*, *Lycium* sp., *Phragmites communis*, *Pyrenacantha grandiflora*, *Rothmannia capensis*, *Scirpus validus*, *Searsia leptodictya*, *Secamone frutescens*, *Secamone parvifolia*, *Senegalia burkei*, *Senegalia mellifera*, *Senegalia permixta*, *Senegalia tortilis*, *Spirostachys africana*, *Sporobolus pyramidalis* and *Trichilia emetica*. It should be noted that neither the vegetation nor the cultural association of the Dikgale are strictly comparable to Central Sekhukhuneland. Also notable is the lack of diversity of uses in certain genera, such as *Aloe*. In Sekhukhuneland, several *Aloe* species were recorded to be useful (*Aloe angolensis*, *Aloe arborescens*, *Aloe castanea*, *Aloe marlothii* and spotted aloe) whereas Rankoana (2000) only recorded *A. marlothii*. On the other hand, some genera have a wider diversity of use by the Dikgale community, such as *Senegalia* (they use *Senegalia burkei*, *Senegalia millifera*, *Senegalia permixta*, *Senegalia tortilis*, *Spirostachys africana*, *Sporobolus pyramidalis* and *Trichilia emetica*).
Senegalia mellifera, Senegalia permixta and Senegalia tortilis). Another difference is the choice of material for building kraals: Ozoroa paniculata was the main building material in Sekhukhuneland, while the Dikgale use several species, including Dichrostachys cinerea, Senegalia burkei, Senegalia mellifera, Senegalia permixta, Vachellia erioloba, Vachellia karroo and Ziziphus mucronata.

5.9 Comparison of ethnobotanical data between the Bapedi and the Southern Sotho

Comparisons in a wider context may also be useful. There are a number of ethnobotanical studies which have been conducted on other South African cultures. Some cultures have been extensively studied for example the Zulu (e.g. Du Toit, 1971; Hutchings et al., 1996; Faber et al, 2007; Faber et al., 2010; Corrigan et al., 2011) and Khoi-San (e.g. Van Wyk and Gericke, 2000; Van Wyk, 2008; De Beer and Van Wyk, 2011; Nortje and Van Wyk, 2015). Also, recently, Moffett (2010) has published a detailed ethnobotanical review of Sotho plants and animals. In contrast, the Bapedi have not yet had their indigenous knowledge documented in depth. Considering the literature, it seems that different cultures across South Africa tend to use similar plants for similar uses.

To test this idea, an attempt is made here to compare, for the first time, the differences and similarities between Bapedi and Southern Sotho useful plants and plant uses (Table 5.8). Plant use records for the Bapedi came from this study but also from several references (Quin, 1959; Rampedi, 2010; Erasmus et al., 2012; Semenya et al., 2012a, 2012b, 2013a, 2013b; Semenya and Maroyi, 2013; Semenya and Potgieter, 2013a, 2013b, 2014). The data for the Sotho (Southern Sotho) came from the review of Moffett (2010), which incorporates several earlier papers. For further reading on the Basotho, refer to “Sesotho: Plant and animal names and plants used by the Basotho” (Moffett, 2010) and the more recent “Basotho medicinal plants” (Moffett, 2016).
Table 5.8: Comparison of all Bapedi useful plants recorded in this survey and in the literature, for the Limpopo Province as a whole, with all Southern Sotho useful plants as recorded by Moffett (2010). Species (or related species) used by both cultural groups are shown in **bold**.

| Species                        | Bapedi uses                  | Sotho uses                                      |
|--------------------------------|------------------------------|-------------------------------------------------|
| *Agapanthus inapertus*         | medicine                     | *[A. campanulatus]* medicine                    |
| *Agave americana*              | medicine, craft, construction, ethnoveterinary | medicine, food, craft, constructions            |
| *Alepidea setifera* (A. amatymbica, A. cordifolia) | medicine, craft, magical | medicine, magical                               |
| *Allium schoenoprasum*         | food, craft                  | *[A. sativum]* food                             |
| *Aloe davyana / A. transvaalensis* (spotted aloes) | medicine, magic             | *[A. maculata]* medicine                        |
| *Amaranthus spinosus*           | food                         | food                                            |
| *Amaranthus thunbergii*         | food                         | medicine                                       |
| *Ammocharis coranica*          | medicine                     | craft                                           |
| *Arachis hypogaea*             | food                         | food                                            |
| *Aristida diffusa subsp. diffusa* | craft                      | craft, magical                                  |
| *Artemisia afra*               | medicine                     | medicine                                       |
| *Athrixia phyllicoides*         | food, craft                  | *[A. angustissima]* food, medicine              |
| *Boophone disticha*            | medicine, craft (magic)      | medicine, craft                                |
| *Brassica oleracea*            | food                         | food                                            |
| *Brassica oleracea var. capitata* | food                      | food                                            |
| *Cannabis sativa var. sativa*  | medicine                     | medicine                                       |
| *Capsicum frutescens*          | food                         | *[C. annuus]* food                              |
| *Carpobrotus edulis*           | medicine                     | medicine                                       |
| *Centella asiatica*            | medicine                     | medicine                                       |
| *Chenopodium murale*           | food                         | food                                            |
| *Cinnamomum verum*             | food                         | food                                            |
| *Citrullus lanatus*            | food, medicine               | food, craft (magic)                            |
| *Citrus limon*                 | food, medicine               | *[C. aurantium]* food; *[C. medica]* food       |
| *Cleome gynandra*              | food                         | *[C. monophylla]* medicine                      |
| *Commelina africana*           | medicine                     | medicine                                       |
| *Cotyledon orbiculata*         | medicine, magic, craft       | medicine, craft                                |
| *Cucumis myriocarpace subsp. leptodermis* | medicine                      | medicine                                       |
| *Cucumis zeyheri*              | food                         | medicine                                       |
| *Cucurbita moschata*           | food                         | *[C. pepo]* magic                              |
| *Cussonia paniculata subsp. paniculata* | medicine, craft              | medicine                                       |
| *Cyperus sexangularis*         | craft                         | craft*                                          |
| *Datura stramonium*            | medicine, craft              | medicine, firewood                             |
| Species                                      | Bapedi uses          | Sotho uses                  |
|---------------------------------------------|----------------------|-----------------------------|
| *Dicoma anomala* subsp. *anomala*           | medicine             | medicine                    |
| *Elephantorhiza elephantina*                | medicine             | food, medicine, craft       |
| *Eucalyptus camaldulensis*                  | medicine, craft, construction | medicine, craft             |
| *Euclea crispa* subsp. *crispa*             | food, medicine       | medicine, (magic)           |
| *Ficus carica*                              | food, medicine       | food                        |
| *Gazania krebsiana* subsp. *serrulata*      | craft                | medicine                    |
| *Gomphocarpus fruticosus* subsp. *fruticosus* (synonym *Asclepias fruticosa*) | medicine             | medicine, craft             |
| *Helichrysum caespititum*                   | medicine             | medicine                    |
| *Helichrysum herbaceum*                     | medicine             | craft                       |
| *Hypoxis hemerocallidea*                    | medicine             | medicine                    |
| *Indigofera cf. heterotricha*               | firewood, medicine   | [l. *dimidiata*] medicine, craft, [l. *hedyantha*] medicine, craft |
| *Ipomoea batatas*                           | food                 | craft/food                  |
| *Kalanchoe thyrsiflora*                     | medicine, craft, ornamental | medicine, magic             |
| *Kedrostis leloja*                          | medicine, magic      | [K. *capensis*] medicine, magic |
| *Lantana rugosa*                            | food                 | craft                       |
| *Leonotis leonurus*                         | medicine             | medicine                    |
| *Medicago sativa*                           | medicine             | medicine                    |
| *Mentha spp.*                               | medicine             | medicine                    |
| *Merwillia plumbea*                         | medicine             | medicine                    |
| *Nicotiana tabacum*                         | food, craft          | craft                       |
| *Olea europaea* subsp. *africana*           | medicine             | medicine, craft             |
| *Opuntia ficus-indica*                      | food, medicine       | [O. *megacantha*] food      |
| *Osyris lanceolata*                         | medicine             | craft                       |
| *Pellaea calomelanos*                       | medicine             | [ferns in general] medicine |
| *Pennisetum glaucum*                        | food                 | food, ethnoveterinary       |
| *Physalis peruviana*                        | food                 |                             |
| *Plectranthus ciliatus*                     | medicine             | medicine, craft             |
| *Plectranthus neoclitus*                    | craft, ornamental    | craft                       |
| *Polygala hottentotta*                      | medicine             | medicine                    |
| *Populus x canescens*                       | construction, firewood | [Populus sp.] construction, firewood |
| *Protea caffra*                              | firewood, magic      | firewood                    |
| *Prunus persica*                            | food, medicine       | food, medicine              |
| *Punica granatum*                           | food, medicine       | food                        |
| *Rhoicissus tridentata*                     | food                 | medicine, magic             |
| *Ricinus communis*                          | medicine, ornamental | medicine                    |
| *Salix mucronata*                           | medicine             | medicine                    |
| Species                  | Bapedi uses           | Sotho uses          |
|-------------------------|-----------------------|---------------------|
| Sarcostemma vimenale    | medicine              | medicine            |
| Searsia pyroides        | food                  | multipurpose        |
| Solanum panduriforme    | medicine              | medicine            |
| Sonchus oleraceus       | food                  | food                |
| Tarchonanthus camphoratus | medicine          | medicine            |
| Tribulus terrestris     | food, medicine        | food, medicine      |
| Tulbaghia violacea      | food, medicine        | [T. leucantha] food, magic |
| Vachellia nilotica      | firewood              | [Acacia spp.] medicine, firewood, craft |
| Vigna unguiculata       | food, medicine        | food                |
| Xerophyta retinervis    | craft, medicine       | craft               |
| Zantedeschia aethiopica | medicine              | medicine            |
| Zea mays                | food, medicine        | food                |

| Bapedi (Semenya, Mogale) | Southern Sotho (Moffett) |
|--------------------------|--------------------------|
| Total Plant species recorded | 229                      |
|                          | 1516                     |

It appears that Southern Sotho useful plants (1516 species) are much more comprehensively documented than Bapedi useful plants (229 species). Many of the useful plants of the Bapedi are not used by the Southern Sotho simply because the biomes of the two cultures are very different (tropical or subtropical savannah vs temperate grassland). There is a total of 144 species documented to be used exclusively by the Bapedi and not the Southern Sotho. Of the 144 plant species, 72 (50%) species do not occur in Lesotho. Many Bapedi useful plants therefore do not occur in Lesotho and the Free State. Despite this important difference, Table 5.8 shows that there are a number of overlapping plant species that are being used by both the Bapedi and the Southern Sotho (Aristida diffusa, Chenopodium murale, Ricinus communis, Searsia pyroides, and several more). Also, there are those plants that may be used by both cultures but for different purposes (Amaranthus thunbergii is used as food by the Bapedi and for medicine by the Southern Sotho). In addition, some plant species are used by the Bapedi and, for one reason or another, Southern Sotho do not utilise the same species but rather a closely related species (i.e. Kedrostis leloja [Bapedi] and K. capensis [Southern Sotho] are both used for medicine). Below is a graphical representation of the numbers of shared species, shared species with shared uses, similar species with shared uses, shared species with dissimilar uses and similar species with dissimilar uses.

It should be noted that this study was conducted in three villages and although the data is enhanced by the work done by Semenya and co-workers, it is still incomplete when compared to the synthesis published by Moffett (2010). Despite this obvious short-coming, the analysis clearly shows that there are considerable overlap and similarities between Bapedi and Southern Sotho plant uses.
The Bapedi and Southern Sotho have common ancestors tracing back thousands of years (Quin, 1959, Moteetee, 2011). It is thus not surprising for the two cultures to share similar plants (65) and plant uses (57) though, even in the absence of modern day transportation, travelling long distances by foot was not uncommon. Another point to keep in mind is the difference in geographical areas the two cultures occupy, so some species used would be different (16) due to species distribution patterns. Nonetheless, there are similar species which are used for similar plant uses (13). Of course as time went by some traditions would be dropped and new traditions adopted, as the Bapedi also incorporated other technologies from conquered cultures. This may have resulted in the same plant species being used differently (29) and also similar species used differently (9).

The above-mentioned results probably represent a small fragment of the knowledge that still resides in Sekhukhuneland. More data could be collected given the time and resources and more analyses could be conducted both in the field and also by introducing laboratory protocols (Bisi-Johnson et al, 2011; Dold...
and Cocks, 2001). Thus these results should in no way be perceived as a complete synthesis of the Bapedi ethnobotany but rather should be regarded as a starting point and an indication of the work that still needs to be done to ensure the accurate documentation of the indigenous plant knowledge of the culture.

Once more data become available, a similar comparison in the future with traditional Zulu and Xhosa plant uses may provide a better understanding of the level and significance of the similarities between Bapedi and Southern Sotho in a wider cultural context (i.e. similarities and differences between Sotho and Nguni plant use patterns). The results presented and discussed above nevertheless give some first insights into the diversity and complexity of Bapedi ethnobotany and will hopefully serve as a starting point for more comprehensive studies in the future.
Chapter 6: General discussion

6.1 Introduction

This dissertation focuses on quantitatively documenting the Bapedi ethnobotany, where the delineation of the term ethnobotany used was that defined by Balick and Cox (1996). Central Sekhukhuneland was the focal point of interest where semi-isolated villages where selected with communities still highly dependent on natural resources for their daily needs. Field work revealed that the majority of the communities practice subsistence farming, an activity that has been documented in other publications and is still being practiced (Quin, 1959 and Monnig, 1967). As transportation is a commodity difficult and expensive to acquire, most families opt to cultivate their own food for survival rather than spending money on transport to purchase food, which is expensive, to feed their large families. Some Bapedi agricultural techniques and choice of cultivated crops are similar to other cultures in the Limpopo province, such as the VhaVenda. Cultivation similarities may be a consequence of the Bapedi migration route as they managed to conquer a number of clans from other cultures, and in the process learning their technologies and absorbing their knowledge (Quin, 1959; Monnig, 1967; Mabogo 1990). The influence of the environment is clearly reflected in the Bapedi culture. The plant species that are at their disposal almost dictates the Bapedi lifestyle. Unlike the nomadic Khoi-San who would travel long distances to hunt while chewing on the hoodia plant to suppress their thirst and hunger, the sedentary Bapedi use Kirkia wilmsii for a similar purpose. The Bapedi mainly use plants that are readily available in the immediate vicinity of their villages. It has been observed in this study (and has previously been documented) that the Bapedi would chew on the commonly available Kirkia wilmsii branches to induce thirst and to thus promote maximum water intake (Moeng, 2010). Wild-harvested vegetables and fruits are an important component of the traditional diet, showing that some elements of the original lifestyle of the nomadic Khoi-San are still present today.

The data presented here is expected to be the starting point for a comprehensive synthesis of Bapedi ethnobotany in the future. As such it may provide the basic plant use knowledge that would be needed for detailed comparisons in the future. Such a comparison (with the most closely related culture, the Southern Sotho) has been attempted here. It showed numerous similarities but also important differences. Comparing the useful plants of the Bapedi with the useful plants of other ethnic groups in Limpopo (e.g. VhaVenda) or more distantly related groups in Africa may lead to interesting new insights into the extent to which indigenous knowledge has been exchanged between cultures over the centuries.
The practise of burning Asparagus plants to ward off stormy weather, for example, is also commonly found with descendants of the Khoi-San in the Great Karoo region of South Africa (Van Wyk et al., 2009).

6.2 Bapedi plant use

The matrix method as described by De Beer and Van Wyk (2011) served as an effective and practical tool to generate quantitative data allowing for the descriptive statistical analysis of the Bapedi ethnobotanical data. The matrix method involved the systematic and rigorous quantification of multiple components of traditional plant use in Central Sekhukhuneland. There was a total of 152 plant species identified in the study, with uses spread over a diversity of plant use categories. The extent to which this data represent the Bapedi culture as a whole is unknown but it is reasonable to expect that there would be regional variation due to geographical variations. However, it is likely that the basic patterns of plant use typical for the Bapedi have been captured.

According to the SPI values calculated in the matrix, the most popular plants in Sekhukhuneland (SPI value 1) are Allium cepa, Mangifera indica, Brassica oleracea, Opuntia ficus-indica, Cannabis sativa, Cleome gynandra, Carica papaya, Citrullus lanatus, Cucurbita moschata, Punica granatum, Ximenia caffra, Saccharum officinarum, Sorghum bicolor, Citrus limon, Capsicum annuum, Capsicum frutescens, Vitis vinifera and Zea mays, all edible plants. Noteworthy is the fact that the popular plants are not just edible but the majority are cultivated plants. Food security is an important aspect to any group of people and thus this should in no way be different for the Bapedi. Zea mays, which is currently an important staple food for the Bapedi, is also used by the other southern African cultures and has become an important international commodity (Perera and Weerasinghe, 2014). Interestingly, the only popular edible indigenous species recorded in this study are Cleome gynandra, Citrullus lanatus and Ximenia caffra. Cleome gynandra is widely eaten as a leafy vegetable in a number of African countries i.e Botswana, Cameroon, Ghana, Kenya, Malawi, Namibia, Nigeria, Zimbabwe, South Africa, Swaziland, Uganda, Tanzania, Zambia and Zaire and in India Cleome gynandra is eaten as a pot herb. In addition to its nutritional values, Cleome gynandra is also used in treatments for several medicinal conditions in other countries whereas the Bapedi only utilise it for its nutritional values (Mishra et al., 2011). Also, in Kenya Cleome gynandra is used as an insecticide. Intercropping Cleome gynandra amongst roses was reported to reduce the populations of red spider mites (Silué, 2009). In other areas of southern Africa (northern Namibia, Botswana and Zimbabwe, the ripe fruits of X. caffra along with the nuts are enjoyed as delicacies and like the Bapedi the oil from the seeds are known to be suitable for softening leather (Van Wyk et al., 2014). A large number (53) of the identified plants are exotics, of which 23 species are cultivated as
crops and 12 are wild-harvested for food. It seems that the Bapedi have over the years adopted many exotic plant species into their diet. It is important to note that Quin (1959) also observed the importance of *Sorghum bicolor*, *Zea mays*, *Cleome gynandra* and *Ximenia caffra* in the Bapedi diet, indicating the persisting popularity and nutritional value of these species.

There are a number of other popular plant species (with SPI values just below 1) that are still regarded as important nutritional sources by the communities. The flowers of various aloes [Aloe arborescens (0.98), *A. marlothii* (0.96) and *A. castanea* (0.91)] produce sweet nectar which is enjoyed as a delicacy especially by children and herder boys. *Theepe* (*Amaranthus spinosus*, (0.95)] is another favoured morogo (vegetable) which is usually mixed with nthelele (*Corchorus tridens* (0.56)) and eaten with porridge made from ground *Zea mays* or *Sorghum bicolor*. One surprising observation is the declining popularity of *Athrixia phylicoides* (0.36) – it was only mentioned by some of the elders. The tea made from the leaves of *Athrixia phylicoides* was once highly favoured, present-day people prefer to purchase the readily available commercial teas such as rooibos and black (Chinese) tea.

Some species have multiple plant uses which fall under different plant use categories. This is not uncommon in ethnobotanical studies (Emmanuel and Didier, 2012). One such species is *Cussonia paniculata* (0.85). Participants explained how *C. paniculata* can be used medicinally, the roots can be used to treat nausea or, alternatively, the hallowed tree trunk can be used to make drums. Such a wide variety of uses are not uncommon as *C. paniculata* has been documented to be used for wagon brake blocks, has ornamental value and the leaves are also palatable providing fodder for livestock (Van Wyk and Gericke 2000). An interesting species with multiple uses is *Boophone disticha* (0.80). Though highly regarded as a traditionally important plant used during ancestral ceremonies, the leaves are also used as bandages. This plant exhibits a perfect example of the transformation in culture where the elderly would never dare touch or disturb the plant in fear of infuriating the ancestors, while the younger generations seem to have no reservations in excavating the bulb and using it medicinally.

With the development of civilisation and the spread of western technologies, many plant uses have been replaced by western technology. This is exemplified by the construction of roofs. The traditional use of thatching grass has been replaced by steel roofing, locally known as lezenke (plural mazenke) or the more common tiled roofs. Improvements such as the introduction of electricity have lifted the weight off the burden of collecting firewood for cooking and heating. Since western developments, medicinal plant use has also diminished, though traditional medicines are still locally popular. There are, however, taboos around the use of traditional healers and practitioners that have recently started to develop. Also, most
of the participants mentioned that with the increasing scarcity of some plant materials, they find themselves turning to western medicines.

Despite this clear shift towards adopting western culture and technologies, this study still documents a high number of new plant use records (185) which have not previously been recorded. This is due to the fact that plant use by the Bapedi has been very poorly studied in the past. It has been highlighted throughout the study that Semenya and co-workers have done extensive work in documenting the Bapedi traditional healers medicinal plant uses of the Bapedi. This has caused a gap in the knowledge still extant amongst community members. In this study it was observed that most newly recorded medicinal plant uses were recorded from village elders. The elders still have vivid memories of using plant material as treatment for certain everyday ailments which they now treat with pharmaceutical products, e.g. headaches, high blood pressure, diabetes, diarrhoea, and sexually transmitted disease.

The most popular species within the medicinal plant use category are Cannabis sativa, Ximenia caffra, Punica granatum and Citrus limon, all with SPI values of 1. When evaluating the popularity of the species, with the exception of Cannabis sativa, one can correlate the SPI values of these multi-purpose plants in the medicinal category to how popular they are as edible plants to the communities. Also, Cannabis sativa is an internationally recognised species with multiple medicinal uses. Aloes are also popular medicinal plants. Their popularity amongst the communities can be attributed to the wide spectrum of uses they provide to all age groups. There are a number of medicinal uses recorded for aloes by other cultures which include treatment for wounds, various skin ailments and in Asia they are popular as first aid treatments (Van Wyk, et al., 2009). All four Aloe species are important medications for blood related ailments such as diabetes and high blood pressure. Aloe arborescens and Aloe marlothii are favoured by elderly women as they use the dried leaves to make snuff or mix with their tobacco snuff. The men mix the sap from the Aloe leaves with livestock drinking water, to either strengthen the animal’s immune system or to cure various ailments.

Sclerocarya birrea (SPI of 0.96), Ximenia caffra (1.00) and K. wilmsii (0.76) locally known as morula, ditshidi and mogaba, respectively, are all very popular amongst herders. Mogaba is vital to herders to stimulate maximum water intake during long walks. The significance of this traditional practise may not be easily recognised, especially in a savanna climate but this is a valuable plant use when water sources are scarce and maximum water needs to be taken in during each stop. This helps to prevent dehydration. The majority of young adult females who participated in this study are mostly stay-at-home mothers, wives and unemployed daughters. Their knowledge of craft plants is highlighted as they would usually
practice crafts as a means of passing time and as an extra source of income. During the course of the fieldwork, I would visit the community during holidays to try and find participants who have grown up in the villages but have since moved to the cities for job opportunities and education. A lack of interest in indigenous knowledge was detected amongst most of these individuals. Most individuals acknowledged to having lost touch with their culture due to city life. As a result, they had forgotten most of the plant names. In some cases, however, selected plant use knowledge still persists. In this study, only two individuals, Ms Moname Tlologelo and Ms Marcia Phaphedi who moved due to education opportunities, agreed to participate in the study although they no longer lived in the villages.

6.3 The status of traditional knowledge and sustainability of the plant resources

The main hypothesis in this study was that “indigenous knowledge is incompletely recorded”. This hypothesis is supported, as the study revealed 38 new species records and 185 new plant uses that are still part of everyday rural life in Central Sekhukhuneland. The main aim of this study was to capture the data in a systematic way so as to allow for future comparisons. In an attempt to achieve this aim, interviews were structured in a manner that ensured accuracy and rigour. Pre-prepared questionnaires were typed, printed out and used for every participant’s interview session, thus the same questions were used for all participants. Interview prompts were also used during interviews, i.e. a flip-file with photos and, where possible or necessary, a live specimen. This eliminated the need for old people to walk long distances to point out useful plants and it also provided a means of doing field work in the dry season when the plants were not in flower. The ethnobotanical data was then scored according to the index calculations described for the matrix method (De Beer and Van Wyk, 2011). As expected, the children were found to have the lowest EKI values. In theory one may conclude that ethnobotanical data is being lost and not passed on to the younger community members. However, it is more reasonable to conclude that the children are still in the process of learning and with time their EKI may increase. JM (1997) and BG (2002) are both herder boys and share an EKI of 0.4. Given the time and learning from the elders, their knowledge of the culture and the uses of plants may easily expand. MTM (1997), a young lady who has moved to Gauteng in search of a better education, has an EKI of 0.28. Her current interests lie mainly in western education and building a career and she is less interested in traditional knowledge and cultural beliefs. This is a recurring trend amongst community members, whether they still live in the villages or not. The interests in traditional knowledge are overshadowed by the need for a better life and financial security. Furthermore, although some individuals may know many species and therefore have a high score, further analysis could be conducted to determine the depth of knowledge about the species and the diversity of their uses. On more than one occasion, participants may know the name and use of a
plant but there are some outstanding individuals such as KM (1944) whom regularly mentioned several uses for the same plant species. This richness and depth of indigenous knowledge of participants is not reflected in the EKI values but the raw data is available for further detailed analyses of this dimension of traditional knowledge (Emmanuel and Didier, 2012).

The use of a simple but practical quantitative approach (the matrix method) has laid the foundations for comparing plant use patterns between ethnobotanical studies that have used the same methodology. The EKI values from this study were compared with the EKI values from De Beer and Van Wyk (2011). It was surprising to find how similar these values were. It must be noted that in Sekhukhuneland there is a lot of developments occurring in the area. The population is highly focused on financial security and improving their lifestyles. The communities are relying less on cultural ways of life and are adopting a more western lifestyle. Hence, elders will have more knowledge than the younger generations. Young people are gradually becoming less dependent on natural resources and less interested in cultural ways of life. In the Agter-Hantam, senior citizens had an EKI value slightly lower than adults. This indicates a high probability that some of the elders in the Hantam community may have been losing their memory due to old age. An inspection of the data shows this to be true, as some aged individuals had exceptionally high scores (above 0.9), while some had exceptionally low scores. In the Sekhukhuneland survey, all senior citizens still had good memories.

From an ecological point of view, it is evident that the changes from traditional to modern plant use patterns are partly the result of environmental degradation. The population numbers in Sekhukhuneland are growing exponentially and this has an adverse effect on the flora of the area. Large areas of land are being cleared to accommodate housing developments, and an increasing number and volume of plants are being harvested for medicine, or for use in construction or as firewood. It is also likely that the intensity of grazing by cattle and goats will increase as available areas for grazing decrease in size, leading to ongoing habitat degradation. Despite the shift to western medications and technologies there is evidence that the rate of use in Sekhukhuneland is higher than the capacity of the vegetation to regenerate the resource. Encroacher species such as Lopholaena coriifolia are also causing vegetation degradation. This competitive species is also transforming the mixed species savanna biome into simpler Lopholaena coriifolia dominated vegetation where almost nothing but this invasive species thrives. All these threats mean that the communities have fewer resources to survive on and they are increasingly looking for alternatives to traditional materials such as substitution of thatching grass with steel and tile roofing, and harvesting any available woody plants for firewood. This results in changes to the indigenous plant use practices that is likely to accelerate in future. Sekhukhuneland is an important centre of plant endemism.
According to Vosa et al., (2011), *Plectranthus venteri* is endemic to Sekhukhuneland, growing isolated on the Leolo Mountains. The degradation and transformation of vegetation observed during this study indicate the need to evaluate the threat status of endemic plant species in Sekhukhuneland. Currently red list assessments on Sekhukhuneland endemics included on SANBI's Red List (http://redlist.sanbi.org/index.php) have either not been assessed or if assessed, their assessments may be outdated. Of the 152 plant species identified in this study as useful plants in central Sekhukhuneland, six are endemic plant species in South Africa of which three (*Rhoicissus sekhukhuniensis*, *Plectranthus venteri*, *Elephantorrhiza praetermissa*) are endemic in Sekhukhuneland. It is suggested that more ethnobotanical research be done in the area and field surveys be conducted on highly utilised species in order to improve the Red List assessments for utilised species. Ideally, a comprehensive study of all ecosystem services needs to be done for managing and improving the long term sustainable use of the environment (Williams et al., 2013).

6.4 Comparing the Bapedi in Central Sekhukhuneland and the Dikgale community

The conspicuous differences in plant use between the Bapedi in Central Sekhukhuneland and Dikgale community may be ascribed to several reasons. The overall environment and vegetation of the two areas differ considerably, with a larger diversity of woody elements in the latter. The Sekhukhuneland area experiences relatively drier environmental conditions and higher temperatures than the Dikgale area and has a more dominant grass component with fewer trees. The geology of the two areas also differ, giving rise to different soil types. Furthermore, there are noteworthy cultural differences. Though the Dikgale community has origins strongly rooted in the Bapedi of Sekhukhuneland, they have also assimilated some of the knowledge of the Venda and Ndebele whom they have defeated during their journey to the current location. Their interrelations between the various tribes could have also resulted in the transfer of indigenous knowledge. There is also a high possibility of plant material substitution, such as plant materials used to build kraals. The desired species may simply not have been available locally, resulting in alternative source plants to fulfil the same purpose.

Further comparisons between the two areas would most certainly reveal more interesting findings. There are however, certain limitations between the two studies that prevent further comparisons. The study in Dikgale is essentially an anthropological study and the indigenous knowledge was not quantified. There is also a certain bias towards cultivated plant species such as *Zea mays*, *Arachis hypogea* and *Sorghum bicolor* which have not been included into the Dikgale checklist but have been mentioned in other chapters (Chapter 2) of Rankoana (2000).
6.5 Comparing the Bapedi and the Southern Sotho

Plants have (and still are) providing the bulk of materials needed for survival amongst the three communities surveyed for this study. Although exotic crops and manufactured goods have become dominant, many rural communities in southern Africa still rely on indigenous plants for their everyday needs. With a plant species diversity of more than 20 500 plant species, South Africa provides a rich diversity of natural resources to sustain the livelihood of the different ethnic groups (Van Staden, 2008). A substantial volume of data has become available on the ethnobotany of the VhaVenda, Khoi-San and, the closely related cultural group to the Bapedi, the Southern Sotho. Table 5.8 and Figure 5.7 summarise the similarities and differences between Bapedi and Sotho ethnobotany. Although there are obvious differences in vegetation types and available species, there are several species (or closely related species) which are used by both cultures. *Amaranthus spinosus* and *Chenopodium murale* are enjoyed by both cultures as a vegetable. Though the Basotho may not use *Cleome gynandra* as a vegetable they use *Cleome aurantium* and *C. medica*. *Pennisetum glaucum* is an interesting food plant of both cultures as it is also used for ethnoveterinary purposes in both cultures. Not only do Bapedi and Basotho share food similarities but also have similarities in other plant use categories. *Populus x canescens* is used for construction and firewood, while *Agave americana* has numerous uses in both cultures (commonly used for its fibres for basketry and making ropes, just as *Xerophyta retinervis*). There are also close similarities in medicinal plants, e.g. the use of *Carpobrotus edulis* and *Gomphocarpus fruticosus*. These similarities, coupled by the similarities in vernacular plant names e.g. *Alepidea setifera* (lesoko in Sepedi, lesokwana in South Sotho), *Amaranthus spinosus* (theepe in both Sepedi and South Sotho) and *Cucumis zeyheri* (*morogo wa monyaku* in Sepedi, *monyaku* in South Sotho) may be viewed as evidence of a common origin or of cultures interacting in the past and indigenous knowledge being transferred across the different cultural groups.
Chapter 7: Conclusions

This study documented 152 plant species that are of value in Central Sekhukhuneland for several uses as shown in the listed plant use categories (construction, crafts, cultivated crops, ethnoveterinary, firewood, medicine, ornamental and wild edible plants). Furthermore, 151 plants were scientifically identified to their species level. A comprehensive checklist of the identified plants, together with their vernacular names and uses, was successfully compiled and can serve as a starting point for further ethnobotanical studies in Sekhukhuneland. Also, with 53 (35%) plants identified as exotics (Figure 5.1) falling within four plant use categories (Figures 5.2. a-d), it can be observed how the Bapedi are adapting to the changing environment by introducing foreign natural resources.

It has been highlighted in Chapter 3 that there are several recent publications on the Bapedi medicinal plant uses. Nonetheless, in this study 107 new medicinal plant uses were recorded. Also, there were 21 and 57 new food and other plant uses, respectively, recorded in this study. These new documentations should serve to show just how much more indigenous knowledge probably still resides in rural parts of Sekhukhuneland which needs to be documented with urgency.

Furthermore, as indicated in Figure 5.3, the Ethnobotanical Knowledge Index (EKI) values were observed to increase with age. It could be argued that children are expected to be less knowledgeable than their elderly counterparts but even so that should not warrant for their lack of interests in tradition ways, as observed in this study. This diminishing interest in culture has also been observed in some adults. The need for a better education and money has negatively influenced individuals interests in traditional cultural ways and most are starting to relocate, leaving behind their traditions. People have started to develop selective interests in those plant uses which are currently useful in their daily lives (e.g. weaving for trade purposes and farming for survival).

The matrix method has proved to be a practical and useful methodology to generate high quality comparative data in ethnobotanical studies. A comprehensive plant use comparison between Central Sekhukhuneland and other studies (Nortje, 2011 and De Beer, 2011), which have used the same quantitative method, was achieved. This has added value to this study and the discipline as a whole. Furthermore, comparing the Bapedi with other cultures has shown similarities in plant uses within the
“Sotho” cultures indicating a common origin. Also, even though some species are not readily available in other areas due to geographic difference and species distributional patterns, similar species have been used as replacements for similar purposes. Further anthropological studies could be done to trace the Sotho culture further back into Africa, thus linking more cultures and plant uses.

In conclusion, this study was only conducted in three villages in Central Sekhukhuneland. It should in no way be considered a complete plant use synthesis of the Bapedi. However, it serves as an indication of the extant indigenous knowledge that still resides in Sekhukhuneland, which is in urgent need of documentation. People are rapidly deviating from cultural ways and opting for the easier ways of the western lifestyle and the comforts technology brings with it. Thus there is an urgent need for more similar studies in other gap areas in Sekhukhuneland in an attempt to produce a complete synthesis of Sekhukhuneland (Bapedi) ethnobotany.
Acknowledgements

I would like to extend my utmost gratitude to my supervisors, Professor Ben-Erik van Wyk from the University of Johannesburg (UJ) and Ms Domitilla Claudia Raimundo from the South African National Biodiversity Institute (SANBI) for the motivation and support throughout my study. You have really pushed me to new heights and encouraged me to reach levels in my life I never thought I could ever reach. I am now equipped with the knowledge to face any obstacle that I may encounter in life and attack it head on.

I am also greatly appreciative to the community of Sekhukhuneland for accepting me as part of their family and offering me safe accommodation during my time spent living in Sekhukhuneland and partaking in the study. I am thankful to Mr Mamasele Joseph Makola and Mr Kgoputso Mampuru for accompanying me on the numerous knowledge-filled field walks and Mr Matselane Moretsela for the knowledgeable cultural lessons and steering me in the right direction to successfully complete my study.

I am also grateful to my family for helping me during the tough times. Thank you to my mother, Ms Sehlabanelo Hunadi Mogale for all the support and long talks especially during the difficult times when there was no one else I could talk to. Thank you to my little sister Disego Mogale for all the laughs when times got difficult. Thank you to my cousin Bauba Mampuru and his wife Mahlako Mampuru for the support during the write-up phase of the study.

Lastly, thank you to all my fellow colleagues and friends at the University of Johannesburg for sharing the hardships and good times in the lives of being a student.
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APPENDIX A

Sekhukhuneland useful plants (Listed alphabetically by family)

i. Newly recorded traditional names in bold.

ii. Red list status (SANBI): LC – Least concern; NT – Near threatened; V – Vulnerable; EN – Endangered; CR – Critically endangered; CR PE – Critically endangered, possibly extinct; EX – Extinct; NE – Not evaluated; NA – Not assessed.

iii. Exotic and invasive species categorised according to Conservation of Agricultural Resources Act (CARA) No. 43 of 1983 listings.

iv. Newly recorded uses (for North Sotho culture/Sekhukhuneland) in bold.
1. ACANTHACEAE

a. *Acanthus montanus* L.  [Exotic not listed on CARA]

A: The root is used to treat stomach complaints (Semenya et al., 2012a, 2012b; Semenya and Maroyi, 2013; Semenya and Potgieter, 2014).

B: No known recorded uses elsewhere.
2. AGAPANTHACEAE

a. *Agapanthus inapertus* P. Beauv. [LC]
   - Common names: *leta la phofu* (Sepedi)

*Pictures: Anthony Walton and Kate Braun (www.inaturalist.org)*

A: Plant used to treat chest problems, wounds (Moeng, 2010) and tuberculosis (Semenya and Maroyi, 2013; Semenya and Potgieter, 2014).

B: Numerous uses have been recorded for *Agapanthus* species (Arnold et al., 2002).
3. **AIZOACEAE**

   a. *Carpobrotus edulis* (L.) L. Bolus subsp. *edulis* [LC]

   - Common names: *le blommo* (Sepedi), *lepolomo la go naba* (Sepedi), *suurvy* (Afrikaans), *sotnotsvy* (Afrikaans), *rankvye* (Afrikaans), *ghaukum* (Afrikaans), *vyerank* (Afrikaans), *nautsi amma* (Nama)

   ![Images of Carpobrotus edulis](//)

   *Pictures: Jon Sullivan, Arthur Chapman and Stacey Byers (www.inaturalist.org)*

A: The leaves are used to treat diabetes mellitus and goitre (Semenya et al., 2012a and Semenya and Potgieter, 2014) also, **the succulent leaves are chewed on and solid plant material is spat out, only the leaf juices are swallowed as treatment for toothache, sore throat and tummy aches** [KM (1981), MDS (1965), MM (1987), TM (1984)], ornamental [WSM (1972), KM (1944), MMS (1976)].

B: Has multiple medicinal uses (Arnold et al., 2002).
4. ALLIACEAE

a. Allium cepa L.  [Exotic not listed on CARA, cultivated]

- Common names: *eie* (Sepedi, South Sotho), *keye* (Sepedi), *hanyanese* (South Sotho)

A: Edible, ingredient to mix with food (All).

B: A widely used crop (onion) (Moffett, 2010).
b. *Allium schoenoprasum* L.  [Exotic not listed on CARA]

- Common names: *konofolo* (Sepedi), *eie* (Sepedi), *keie* or *keye* (Sepedi)

A: Planted in the home garden to ward off snakes [KM (1981), SMM (1953), TM (1984), TKS (1963)]
and the bulb is also edible (JM (1997), WSM (1972), KM (1944), MS (1948), MBN (1982), RSM (1944)].

B: A widely used culinary herb (chives).
c. *Tulbaghia violacea* Harv. [LC, South African endemic]

- Common names: *Konofolo* (Sepedi)

A: The leaves are used as spring onions for cooking (flavour) [ASS (1969), MBN (1982), BG (2002), MJM (1963), MDS (1965), MS (1948), MMS (1976), RMM (1947), TKS (1963), TMS (1976), SM (1951), MN (1950's)]. **Bulb is boiled as medicine for blood ailments, flu/colds and the leaves are crushed and placed in warm water which is used as an enema** [KM (1944)], also believed to ward away snakes [KM (1981), (LM (1964), MP (1994), WSM (1972), RSM (1944)].

B: Widely used in traditional medicine in southern Africa (Van Wyk et al., 2009).
5. AMARANTHACEAE

a. *Alternanthera pungens* Kunth  [Exotic not listed on CARA]

- Common names: *mosweetswe* (Sepedi), *tšatšu* (Sepedi), *tsehlo ya di gomo* (Sepedi), *bohobe bo naming* (South Sotho), *bohome bo naming* (South Sotho), *bohome bo naming* (South Sotho), *lemanamana* (South Sotho)

A: An enema for constipation to induce bowel movement [MJM (1963), KM (1944), MDS (1965)] and treatment for women with womb problems [KM (1944)]. Root tuber is used to treat gonorrhoea and drop (Erasmus et al., 2012; Semenya et al., 2012a, 2012b; Semenya et al., 2013b; Semenya and Potgieter, 2014).

B. Has numerous medicinal uses (Arnold et al., 2002).
b. *Amaranthus spinosus* L. [Exotic not listed on CARA]

> Common names: *theepe* (Sepedi, South Sotho), *serepelele* (Sepedi), *theepe e kgolo* (Sepedi), *tshithavhamisisi* (Tshivenda)

A: **The plant is used as pig fodder** [JM (1959)] and the leaves are harvested and eaten as a morogo [All except JC (1991); Quin, 1959].

B: *Amaranthus* species are widely used as morogo (Liengme, 1931; Mabogo, 1990; Rankoana, 2000; Moffett, 2010).
6. AMARYLLIDACEAE

a. Boophone disticha (L.f.) Herb. [LC]

- Common names: lehwame (Sepedi), titikwane (Sepedi), kgutana ya naha (South Sotho), kgutsana ya noha (South Sotho), leshoma, thib (South Sotho)

A: Bulb leaves are used to cover wounds like a bandage/elastic plaster [MJM (1963), KM (1944), Moeng, 2010] or to cover cooked traditional beer [MS (1948)]. Whole plant is grown in the yard and used to communicate with ancestors during ceremonies [ASS (1969), JC (1961), SM (1951), KM (1944), MDS (1965), MMS (1976), WSM (1972), RMM (1947), TMS (1976)], Moeng, 2010); the bulb is boiled and the decoction drank as treatment for blood circulation [TM (1984), TKS (1963), MN (1950's), MBN (1982), RSM (1944)]; the water is used to bath crying children to soothe pain [LM (1964) (MLS
and used as medication to keep a person awake [SM (1951), KM (1990)].

B: Though the species is known be toxic it has numerous medicinal use records and religious significances (Rankoana, 2000; Arnold et al., 2002; Moffett, 2010).

7. ANACARDIACEAE
   a. *Mangifera indica* L. [Exotic not listed on CARA, cultivated]
      - Common names: mango (Sepedi), umango (Sepedi)

A: Fruit is edible (nutrition) (All).

B: Used in traditional medicines and widely cultivated (Arnold et al., 2002).
b. *Ozoroa paniculosa* (Sond.) R.Fern. & A.Fern. [LC]

- Common names: *monoko* (Sepedi), *momoko* (Sepedi)

A: The wood lasts long without the use of preservatives thus people use it to build kraals and sometimes use it as fencing posts [All except TS (1955), MLS (1968), TM (1984), MTM (1997), MP (1994), MMS (1976)]. A piece of the bark can be used to make sour milk (milk from a cow or goat...
is poured into a hollowed out calabash (or ostrich egg) and a piece of the wood is placed inside the container and left to ferment underground [MJM (1963), MS (1948), KM (1944)]. The bark can be ground to a fine powder which is used to treat stomach pains [KM (1944), TKS (1963), SM (1951), MBN (1982), KM (1944)], wood used as firewood; the tree sap is edible (BG (2002), (MJJM (1963)), leaves used to make mountain tea, [WSM (1972), RSM (1944)] and the bark and root are used to treat diarrhoea, measles (Semenya and Potgieter, 2013b, 2014), erectile dysfunction (Semenya and Potgieter, 2013b; Semenya and Potgieter, 2014 and Erasmus et al., 2015) and impotence (Semenya et al., 2013a).

B: Used in traditional medicine (Arnold et al., 2002).

c.  *Sclerocarya birrea* (A.Rich.) Hochst. subsp. *caffra* (Sond.) Kokwaro [LC]

- Common names: *morula* (English/Sepedi), *mufula* (Venda), *nkanye* (Tsonga)

A: The fleshy fruit is edible and it can be used to make morula beer (All, Rasethe et al., 2013; Rampedi, 2010; Semenya and Potgieter, 2014), the seed (*koko ya morula*) is edible, it is split open by striking it with a rock/stone and the white nut inside is eaten as a delicacy [MMS (1976), KM (1981), ASS (1969), JM (1997), MJM (1963), BG (2002), JC (1961), WSM (1972), RMM (1947)], the fleshy fruit can also be used to make lotion (dawn) [BG (2002), JM (1997), MJM (1963)], the bark from the male plant is boiled...
and the water is drank as medication for elderly women [KM (1944)], the bark is used to treat diarrhoea, female infertility (Semenya et al., 2013a) and blood clotting (Semenya and Potgieter, 2014) and the plant is used to treat colds and flu and to determine the gender of a baby (Moeng, 2010).

B: Multipurpose plant (Liengme, 1981; Mabogo 1990; Rankoana, 2000; Arnold et al., 2002; Steenkamp, 2003).

d. **Searsia pyroides** (Burch.) Moffett [LC]
   - mogodiri (Sepedi), mohlwehlwe (Sepedi), koditshana (South Sotho), koditshane (South Sotho), lerwana (South Sotho), lerwane, moodiri (South Sotho)

A: Fruit are likened to corn seeds and are edible [KM (1990), MP (1994), KM (1944), ASS (1969), KM (1981), KM (1990), MDS (1965), MMS (1976), RMM (1947), MN (1950's)].

B: Widely used in traditional medicine.
8. **APIACEAE**
   
a. *Alepidia setifera* N.E.Br.  
   - Common names: *lesoko* (Sepedi), *lesokwana* (South Sotho)

A: Used to treat toothache [WSM (1972), RSM (1944)]; flu, colds, and used as charms (Moeng, 2010).
B: *Aleptidea* species are widely used in traditional medicine (Arnold et al., 2002; Moffett, 2010).

9. APOCYNACEAE
   a. *Catharanthus roseus* (L.) G. Don [Exotic/invasive listed under Category 3]
      - Common names: *lepolomo le le pinki la drop* (Sepedi), *lilucha* (Tshivenda), *mabobe* (South Sotho), *sebabetsoana*

   A: Plant has ornamental value [JM (1997), BG (2002), ASS (1969), BG (2002), KM (1981), KM (1990), MP (1994), MMS (1976), TMS (1976)] and used as medication for toothache [LM (1964), WSM (1972),...
SMM (1953), RSM (1944)]. The root is used to treat gonorrhoea (Semenya and Potgieter, 2014 and Semenya et al., 2013a) and drop (Semenya et al., 2012b).

B: Has multiple medicinal uses (Arnold et al., 2002; Steenkamp, 2003).

b. *Cryptolepis cryptolepidioides* (Schltr.) Bullock [LC]
- Common names: *moralala* (Sepedi), *mohlologwetsana* (Sepedi), *moapara*

A: *When an old lady is widowed she carries the plant around as a symbol* [WSM 1972], (LM (1964), RSM (1944)].

B: No known use records.
c. *Gomphocarpus fruticosus* (L.) Aiton f. subsp. *fruticosus* (=*Asclepias fruticosa* L.)  [LC]

- Common names: *leshika nokana* (Sepedi), *lehlanya* (Sepedi), *mosotsa poo* (Sepedi), *kweteleboima* (South Sotho), *lebajana* (South Sotho), *lanajana la thaba* (South Sotho), *lebejane* (South Sotho), *modimola* (South Sotho), *modimola wa thaba* (South Sotho), *moethimolo* (South...
A: The leaves are boiled in water and the decoction is used as an enema [ASS (1969)] for kidney dysfunctions or taken orally as a headache treatment [KM (1944)]. Some people are known to eat the leaves as morogo [LM (1964), WSM (1972), RSM (1944)]. Birds build their nests with the cotton found in the fruit [KM (1981), SMM (1953), TM (1984)]. The plant is also believed to be used as treatment for epilepsy [TS (1967), MN (1950's)]. The root is used to treat erectile dysfunction (Semenya et al., 2012b; Semenya et al., 2013b; Semenya and Potgieter, 2013b, 2014).

B: Widely used in traditional medicines (Mabogo, 1990; Arnold et al., 2002; Moffett, 2010).

d. Pentarrhinum insipidum E.Mey. [LC]
   - Common names: morogo wa lebje (Sepedi), leshwe (Sepedi)
A: The leaves are cooked and eaten with a starch supplement [MDS (1965), LM (1964), MLS (1968), MM (1987), MTM (1997), ASS (1969), KM (1981), JC (1961), KM (1990), MJM (1963), MP (1994), MM (1987), MS (1948), MMS (1976), WSM (1972), RMM (1947), TM (1984), TMS (1976), TS (1967); Quin, 1959]. The roots are used in treatments for heart attack and high blood pressure [KM (1944), SM (1951)].

B: A popular traditional vegetable (e.g. Van Wyk and Gericke, 2000)

e. *Pergularia daemia* (Forssk.) Chiov. subsp. *daemia* [LC]

- Common names: *mogwapa* (Sepedi), *lebje* (Sepedi), *nkusega* (Sepedi)
A: **Roots used for high blood pressure**; the leaves are cooked and eaten with a starch supplement [MJM (1963), BG (2002), KM (1944), ASS (1969), KM (1981)), KM (1990), MDS (1965), MS (1948), MMS (1976), RMM (1947), TM (1984), TMS (1976), TS (1967), SM (1951), MN (1950's), RSM (1944)].

B: Widely used in traditional medicine (Arnold et al., 2002).

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f. **Plumeria alba** L.  
   [Exotic not listed on CARA]

   - Common names: frangipani (English)
A: Ornamental [BG (2002), JM (1997), MLS (1968), KM (1990), MJM (1963), MP (1994), MM (1987), MMS (1976), TMS (1976)].

B: No known other uses elsewhere.

10. ARALIACEAE
a. *Cussonia paniculata* Eckl. & Zeyh. [LC]
   - Common names: *motšhetšhe* (*Cussonia spicata*) (Sepedi), *malebathe* (Sepedi), *motsetse* (Sepedi), *motshetshe* (South Sotho)

A: **Wood can be used to make wooden utensils** [KM (1990), SMM (1953), TM (1984), TKS (1963), TMS (1976), SM (1951), MBN (1982)]. **The trunk can easily be hollowed to make a drum** [ASS (1969), MDS (1965)] **sealing the top with cow hide, the hollow trunk is also used as a flower pot** [MJM (1963), MS (1948)]. Like the mopane tree the plant is also home to edible worms [ASS (1969), MJM (19630), JC (1961), TMS (1976), JM (1997), MP (1994), MM (1987), BG (2002), MDS (1965), MS (1948), MMS (1976), WSM (1972), RMM 1947], RSM (1944)]. Plant can be used for traditional medicines [JC (1961), RSM (1944)] and to induce vomiting [KM (1944), MN (1950's)]. **Tree sap can also be mixed with bathing water** and the root is used to treat stomach complaints (Semenya and Potgieter, 2014).

B: Is used for various medicinal purposes (Arnold et al., 2002; Moffett, 2010).

### 11. ASPARAGACEAE
a. *Agave americana* L. [Exotic/invasive listed under Category 1b in Cape Town]

- Common names: *segogopa* (Sepedi), *toga* (Sepedi), *mobepi* (Sepedi), *kgopha yapala* (Sepedi) *nswareke ya robeg* (Sepedi) *lekomani* (Sepedi) *tsimanyana* (Sepedi), *garembomo* (South Sotho), *lekala* (South Sotho), *lekgalaleputswa* (South Sotho)

A: The leaves are boiled to remove the fleshy pulp from the veins, then the leaf veins are used to make fibres [JC (1961)] for weaving (baskets, ropes for roofing, etc.) [ASS (1969), MM (1987), BG (2002), JC (1961), JM (1997), KM (1944), MLS (1968), KM (1981), KM (1990), MDS (1965), MS (1948), MMS (1976), RMM (1947), SMM (1953), MN (1950’s), TM (1984), TKS (1963), TMS (1976), MN (1950’s)] and also believed to be used to build car bodies [KM (1944), TM (1984)]. The leaves are also used to treat hypertension (Semenya et al., 2012a, 2012b; Semenya and Potgieter, 2014). The inflorescence stem (*mankomane*) is used as reinforcement (post) for kraals, walls and roofing [KM (1944), MJM (1963), MS (1948), JM (1997), BG (2002), JM (1997), MP (1994)]. The plant is also used as medicine for cows and young men [WSM (1972), LM (1964), MTM (1997), RSM (1944)].

B: Numerous craft uses and medicinal uses are known (Liengme, 1981; Rankoana, 2000; Arnold et al., 2002; Moffett, 2010).
b. *Asparagus laricinus* Burch. [LC]

- **Common names:** *leutlaутlane* (Sepedi), *mophatlalatsa maru* (Sepedi), *sephatlalatsa* (Sepedi), *moseele* (Sepedi), *govhakhanga* (Tshivenda)

Pictures: Andrew Deacon and Nicola van Berkel (www.inaturalist.org)

**A:** The whole plant is burned to ward off rain clouds during ceremonies (weddings, funerals etc.) [MJM (1963), MS (1948), JM (1997), ASS (1969), JC (1961), SMM (1953), KM (1944), KM (1981), MDS (1965), MMS (1976), RMM (1947), TM (1984), TKS (1963), TMS (1976), SM (1951), MBN (1982), RSM (1944)]. The spines are removed from the stems which are then softened in fire; the smooth stems are then used to make bracelets (KM (1944)). The roots are used to treat a person who has fallen ill from ingesting pregnant women food [TS (1967), MN (1950's)] and as treatment for blood clotting (Rasethe et al., 2013).

**B:** *Asparagus* species are widely used medicinally and there are a few craft uses recorded (Liengme, 1981; Mabogo, 1990; Arnold et al., 2002).
c. *Eucomis pallidiflora* Baker subsp. *pole-evansii* (N.E.Br.) Reyneke ex J.C.Manning [LC]

- Common names: *mathuba difala* (Sepedi), *maphuma difala* (Sepedi)

Pictures: www.ispot.org (website closed)

A: **Ornamental** [MS (1948)], used to treat blood related ailments [MN (1950's)]. The bulb is used to treat tuberculosis (Semenya and Maroyi, 2013), blood clotting as a blood purifier treatment for chlamydia, erectile dysfunction (Erasmus et al., 2015), and the root is used to treat chest problems, STDs, mental illness and mixed with other plants and used as an aphrodisiac (Moeng, 2010).

B: Widely used medicinally (Arnold et al., 2002).
12. ASPHODELACEAE

a. *Aloe arborescens* Mill. [LC]

- Common names: sekgophá (Sepedi), kgophá ya fase (Sepedi), mothapo (Sepedi), kgopana (Sepedi)

A: **Old dry leaves** (*motabo*) [MJM (1963)] are burned and mixed with tobacco to make snuff which elderly women smoke as medicine [MN (1950's), MBN (1982), ASS (1969), MJM (1963), MLS (1968), JM (1997), KM (1944), BG (2002), JC (1961), (JC (1961), MP (1994), MM (1987), MDS (1965), MS (1948), MMS (1976), RMM (1947), TMS (1976), TS (1967), MN (1950's), RSM (1944). **Leaf is mixed with poultry drinking water as medication**, and is also used as medicine for high blood pressure (All). Dry leaves are burnt, crushed and the powder is mixed with *bupi ba mabhele* (porridge made from sorghum) [TS, (1955)]; the leaves can also be chewed or licked as medicine [WSM (1972), LM (1964), SM (1951)]; the nectar is edible [KM (1990)] and can be used to make jam [SMM (1953), TM (1984)]; the plant is also used in treatments of HIV/AIDS (Semenya and Potgieter, 2014).

B: Numerous medicinal uses are known (Arnold et al., 2002).

b. *Aloe castanea* Schönland [LC]
Common names: *sekgopha sa setswiki* (Sepedi) *segafane* (Sepedi)

A: Medicine (All). **Fresh whole leaves are used to make perfumes** [MMS (1976)]. The leaves are boiled and the water drank as blood medication [KM (1944), ASS (1969), MDS (1965), RMM (1947), SM (1951)] and hypertension (Semenya and Potgieter, 2014). **Leaves are also crushed and ingested** [TKS (1963)] or boiled in water and the decoction is taken orally as treatment for high blood pressure (All). Dry leaves are burned, crushed and the powder is used to treat burns (as first aid kit) [TS (1955), MN (1950’s), TS (1967), MN (1950’s)], the edible nectar is known as *monupe* [(WSM (1972), KM (1981), KM (1990), LM (1964), MP (1994), SMM (1953), TM (1984), RSM (1944))]. **The leaf sap is used as livestock medication** [KM (1944), MLS (1968), MMS (1976)] and also to treat stomach pains. Dry leaves are mixed with *snuff* [MSS (1948), TMS (1976), SM (1951), MBN (1982)] or crushed, burned and mixed with *brown pap* [MN (1950’s), TS (1967)].

B: *Aloe* species are widely used medicinally (Mabogo, 1990; Arnold et al., 2002; Luseba, 2006; Moffett, 2010).

c. *Aloe davyana* Schönland, *Aloe transvaalensis* Kuntze (spotted aloes) [LC]
Common names: sekgopha (Sepedi), marobadigale (Sepedi), thoga (Sepedi), lekgala (South Sotho), lekgala la Lesotho (South Sotho), lekgala la quthing (South Sotho), lekgala la thaba (South Sotho), lekgala le leholo (South Sotho), lekgalana la Lesotho (South Sotho)
A: Planted in the home garden and used during ceremonies to communicate with ancestors [ASS (1969), KM (1944), MJM (1963), MS (1948), JM (1997), BG (2002), MDS (1965), RMM (1947)], the leaf is placed in hot water and used to rub over a sprained ankle/joint [(JC (1961), KM (1981), (TKS (1963), TMS (1976), TS (1967), SM (1951), MN (1950's), MBN (1982))] and benign growths [MDS (1965), TM (1984)] and other medicinal properties [MM (1987), MMS (1976), WSM (1972), RSM (1944)] and whole plant has medicinal properties (Rasethe et al., 2013).

B: Widely used in traditional medicine (Arnold, et al., 2002; Moffett, 2010) and for craft purposes (Liengme, 1981)

d. *Aloe marlothii* A. Berger  

- Common names: sekgopa (Sepedi), kgopa ya go ema (Sepedi), hlabo (Sepedi), sekgopa sa goema (Sepedi), hlatswa (Sepedi) bindamutshe (Tshivenda), mhangani (Tsonga)

A: The flowers produce sweet edible nectar called monupe which people can eat (gonopela) [ASS (1969), KM (1990), SMM (1953)]. Elderly women would burn the old dried up leaves sometimes together with old *Opuntia* leaves, ground to fine powder (dust) and mix with motshoko (snuff) [KM
Dried leaves are crushed, boiled, and the decoction is drunk as a remedy for ingested poisons [SMM (1953)]. Medicine for blood related ailments (All). The thorny leaves are used to clean cow hide [KM (1944), MJM (1963), JM (1997), JC (1961), MS (1948), TMS (1976), MBN (1982)]. Leaves are chewed as medicine [LM (1964), RSM (1944)] or crushed and mixed with cattle drinking water [MP (1994)]. The thorns are removed from the leaves and the leaves are mixed with water and drank as remedy for diabetes [MN (1950's), TS (1967), MN (1950's)]. The leaves and roots and used to treat diabetes mellitus and chlamydia (Semenya and Potgieter, 2014 and Semenya et al., 2012) and the roots are used to treat gonorrhoea (Erasmus et al., 2012).

B: This Aloe species is widely used in traditional medicines (Mabogo, 1990; Rankoana, 2000; Arnold et al., 2002; Luseba, 2006).

13. ASTERACEAE
a. *Artemisia afra* Jacq. ex Willd. [LC]
   - Common names: lengana (Sepedi, South Sotho), wildeals (Afrikaans), wilde als (Afrikaans), als (Afrikaans), alsem (Afrikaans), umhlonyane (Zulu)
A: Boil the leaves and drink the water [MJM (1963), TMS (1976), JM (1994), BG (2002)] or smoke the dried leaves as treatment for flu [All except MLS (1968), JC (1961), MP (1994), MTM (1997), TMS (1976)] and tuberculosis (Semenya and Potgieter, 2014; Semenya and Maroyi, 2013); roots are used to treat impotence (Semenya et al., 2013a); plant also used to treat colds, flu, stomach problems and malaria (Moeng, 2010).

B: A widely used medicinal plant (Arnold et al., 2002; Steenkamp, 2003).

b. **Athrixia phylicoides** DC. [LC]

- Common names: *letori* (Sepedi), *phefshwana* (South Sotho) *mutshatshila* (Tshivenda), *mubostee* (Tshivenda), *mhlonyana* (Tsonga), *kofi ya nhova* (Tsonga)
A: Leaves are used to make tea (Mabogo, 1990; Rampedi, 2010) and the stems are used to make brooms [KM (1944), ASS (1969), MJM (1963), MDS (1965), MMS (1976), TKS (1963), TMS (1976), SM (1951), MBN (1982)].

B: *Athrixia* species are well documented for their craft and medicinal uses (Liengme, 1981; Mabogo, 1990; Arnold et al., 2002; Moffett, 2010).

c. *Bidens pilosa* L. [Exotic not listed on CARA]

- Common names: *mophodisa* (Sepedi), *mokolonyane* (Sepedi), *mokgoti* (Sepedi), *moloka* (Sepedi), the seed is known as *Seloka* (Sepedi) *monyane* (Sepedi), *mogwete* (Sepedi),
mohomenyana (South Sotho), mohonyane (South Sotho), mokolonyane (South Sotho), moonyane (South Sotho), mushidzh (Venda), muxiji (Tsonga)

A: Leaves are cooked and eaten as morogo [KM (1944), KM (1981), KM (1990), MJM (1963), MDS (1965), MMS (1976), RMM (1947), TM (1984), TKS (1963), TMS (1976), MBN (1982)]. The root is used as treatment for high blood pressure [LM (1964), WSM (1972), ASS (1969), SM (1951), RSM (1944)] and to treat menstrual disorders (Semenya et al., 2012 a, 2012b; Semenya et al., 2013a; Semenya and Potgieter, 2014).

B: Has multiple uses including medicinal and food uses (Liengme, 1981; Mabogo, 1990; Arnold et al., 2002).

d. Callilepis laureola DC. [LC]
   ➢ Common names: phelana (Sepedi), phela (Sepedi)
A: **Chicken feed** [SM (1951)]; tuber used to treat gonorrhoea, HIV/AIDS and leukaemia (tuber), colds, flu, intestinal worms in children and ulcers (Moeng, 2010), erectile dysfunction, low sperm count and kidney dysfunction (Erasmus et al., 2012; Semenya and Potgieter, 2013b; Semenya et al., 2013b and Semenya and Potgieter, 2014).

B: Has numerous medicinal uses but should be handled with care (Arnold et al., 2002; Steenkamp, 2003).

e. **Conyza scabrida** DC. [LC]

- Common names: *mokotedi wa thaba* (South Sotho), *meidebos* (Afrikaans), *perskebos* (Afrikaans), *oondbos* (Afrikaans), *oondbesembos* (Afrikaans)
A: The root is used to treat depression (Semenya and Potgieter, 2014).

B: Used medicinally in other parts of Africa (Arnold et al., 2002).
f. *Gazania krebsiana* Less. subsp. *serrulata* (DC.) Roessler [LC]

- Common names: *boyetse* (Sepedi), *shweshwe* (South Sotho), *tsikitlane* (South Sotho)

A: The thin leaves are used as fibre to make rope [MJM (1963), ASS (1969), MDS (1965), MS (1948)] also to make bracelets [KM (1944)] or string to weave the *lebole* (traditional skirt) [MMS (1976), RMM (1947), TKS (1963), SM (1951), MBN (1982)].

B: Widely used medicinal plant (Arnold et al., 2002; Moffett, 2010).
g. *Gerbera jamesonii* Bolus ex Adlam [LC]

- Common names: *mokedikentsana* (Sepedi)

A: The flower is worn as decoration during weddings, funerals and Christmas [SMM (1943), ASS (1969), MMS (1976), RMM (1947)].

B: No other uses elsewhere.
h. *Helichrysum caespititium* (DC.) Harv.

- Common name: *mokgata* (Sepedi)

A: Plant is used for various respiratory conditions (cough, asthma), also used as an enema for constipation. [KM (1944)]. The whole pant (*H. caespititium*) can be used to treat diabetes mellitus, epilepsy, hypertension, blood purifier, measles gonorrhoea and diarrhoea (Semenya and Potgieter 2014) and the root (*H. herbaceum*) is used to treat blood problems (Semenya and Potgieter 2014).

B: *Helichrysums* have been recorded to be used a traditional medicines (Arnold et al., 2002).
i. *Lopholaena coriifolia* (Sond.) E.Phillips & C.A.Sm. [LC]

- Common names: *morapeus* (Sepedi), *mokorokorwane* (Sepedi)

A: Encroacher plant species good for firewood [MJM (1963), ASS (1969), MDS (1965), MMS (1976), RMM (1947), MBN (1982)]. Dried branches are burned and the smoke is inhaled to treat headaches [JC (1961), ASS (1969), MDS (1965), WSM (1972), RMM (1947) TKS (1963), TMS (1976), SM (1951), MN (1950's), RSM (1944)]. The branch apices have an edible sugar substance/exudate (nectar) [MM (1987)].

B: Various craft uses and used in traditional medicines (Rankoana, 2000; Arnold et al., 2002).
j. *Psiadia punctulata* (DC.) Oliv. & Hiern ex Vatke [LC]
   - Common name: *monotosane* (Sepedi)
A: Young children (especially herder boys) use dried plant material to teach themselves how to smoke [SMM, (1953)]; used against flu [MMS (1976), RMM (1947), SMM (1953), TM (1984), TKS (1963)]. Plant is used to rinse painful eyes [KM (1990), MJM (1963), WSM (1972), RSM (1944)] and to cast a spell that will invite people to your household during ceremonies [WSM (1972), KM (1944)]. Also has ornamental value [MS (1948)].

B: No known recorded uses elsewhere.

k. Schkuhria pinnata (Lam.) Kuntze ex Thell. [Exotic not listed on CARA]
➢ Common name: sebabane (Sepedi), shatume (Sepedi)
A: Decorative [ASS (1969), MMS (1976), RMM (1947), SMM (1953), TKS (1963)]. **Dry plant material is burned and the smoke released is used as eye medication or to ward away mosquitos** [BG (2002), JM (1997)], **plant cooked for livestock as medication** [MS (1948)] and the whole plant is used for hypertension as a blood purifier (Semenya et al., 2012b and Semenya and Potgieter, 2014).

B: Widely used in traditional medicine (Arnold et al., 2002).

I. *Senecio barbertonicus* Klatt [LC]

▷ Common names: *mma pholo* (Sepedi), *sehlare sa sejetso* (Sepedi)
A: Live fencing and as a cleanser (an enema or induce vomiting) [MJM (1963), JM (1997), MP (1994), JC (1961), SMM (1953)] in patients struck by lightning [KM (1944)], ear infections [ASS (1969), TKS (1963), SM (1951)] and has ornamental value [MP (1994)] leaf is used to treat sepsis (Semenya and Potgieter, 2014).

B: Has magical properties (Rankoana, 2000).

m. *Sonchus oleraceus* L. [Exotic not listed on CARA]
➢ Common names: lešēšē (Sepedi), lekgakga (Sepedi), bono so lekgwaba (South Soth), leshabe (South Sotho), leshahane (South Sotho), leshwabe (South Sotho), molomo wa lekgwaba (South Soth), tlhaku ya kgomo (South Soth) shashe (Venda)

Pictures: Chris Cook, Kevin Hintsa and Verdur Bano (www.inaturalist.org)

A: Leaves are eaten as morogo [KM (1981), MP (1994), MDS (1965), MMS (1976), WSM (1972), RMM (1947), SMM (1953), TM (1984), TKS (1963), SM (1951), MN (1950's), MBN (1982), RSM (1944); Quin, 1959].

B: Used as a pot herb and widely used in traditional medicine (Mabogo, 1990; Arnold et al., 2002; Moffett, 2010).
n. *Vernonia fastigiata* Oliv. & Hiern [LC]

- Common name: *lehlanya* (Sepedi)

*Pictures: Peter R. Warren*

A: Leaves used as morogo (Quin, 1959).

B: Edible leaves (Rankoana, 2000).
14. BASELLACEAE

a. *Anredera cordifolia* (Ten.) Steenis [Exotic/invasive listed under Category 1b]

A: **Live fence** [MJM (1963), MDS (1965), MMS (1976), RMM (1947)].

B: No known recorded uses elsewhere.
15. BRASSICACEAE

a. *Brassica oleracea* L.  [Exotic not listed on CARA,]

- Common names: *cabbage ya tabeng* (Sepedi), *wild cabbage, kale* (English)

A: Nutrition [ASS (1969), KM (1981), LM (1964), MM (1987), MMS (1976), WSM (1972), RMM (1947), SMM (1953)] and as domestic animal feed [WSM, 1972) MJM (1963),SM (1951), JM (1997), ASS (1969), JC (1961), SM (1951), KM (1944), KM (1990), MDS (1965)].

B: Cabbage is a well-known leaf vegetable.
b. *Brassica oleracea* L. var. *capitata* L.f. *alba* DC  [Exotic not listed on CARA, cultivated]

- Common names: *cabbage* (sepedi), *blomkoel* (South Sotho), *kgabetjhe* (South Sotho), *koel* (South Sotho)

A: Nutrition, domestic animal feed (All).

B: Widely cultivated crop (Moffett, 2010).
16. BURSERACEAE

a. *Commiphora africana* (A.Rich.) Engl. var. *africana* [LC]
   
   ➢ Common name: *mogongoro* (Sepedi)

A: The tree is used as a symbol to lay judgment in the royal yard. When a person’s wrong doing are to be discussed, they are discussed under this tree [SMM (1953)].

B: Used medicinally in other parts of Africa (Arnold et al., 2002).
17. CACTACEAE

a. *Opuntia ficus-indica* (L.) Mill [Exotic/invasive listed under Category 1b]

- Common names: *mofeie* (Sepedi), *motloro* (Sepedi), *tôrôfeie* (Sepedi), *foie e kubedu* (Sepedi), *mudoro* (Tshivenda)

A: The fruit is eaten as a delicacy (All), used to make beverages [MLS (1968), MMS (1976); Rampedi, 2010]] and to treat sexually transmitted diseases (Semenya et al., 2012a, 2012b). **Women cannot eat the red fruit as it is believed to induce menstruation** [MS (1948)]. **The roots are used to treat people who have urinary ailments** [TS (1967), MN (1950's)], hypertension (Semenya and Potgieter, 2014), gonorrhoea (Rasethe et al., 2013), diabetes mellitus and drop (Erasmus et al., 2012).

B: Fruit is edible and is used in traditional medicines (Mabogo, 1990; Arnold et al., 2002; Moffett, 2010).
18. CANNABACEAE  
a. *Cannabis sativa* L. var. *sativa*  [Exotic species not listed on CARA, cultivated] 
   ➢ Common names: *zol* (Sepedi), *lebakhe* (Sepedi), *mopatse* (Sepedi), *matekwane*, *matakane* (South Sotho), *matekwane* (South Sotho), *matokwane* (South Sotho), *mmoana* (South Sotho), *moana* (South Sotho), *setekwane* (South Sotho), *tekwane* (South Sotho), *dagga* (Afrikaans)  

A: Recreational drug and flu medicine (All). The whole plant is boiled and the decoction is used to treat epilepsy [KM (1944), MBN (1982)] or, one teaspoon of the decoction is administered to ill children to treat coughs/flu [MP (1994)]. The leaves are used to treat tuberculosis (Semenya et al., 2012b; Semenya and Maroyi, 2013; Semenya and Potgieter, 2014).  

B: Widely used medicinally and for recreational purposes (Arnold et al., 2002; Moffett, 2010).
19. CAPARACEAE

a. *Boscia albitrunca* (Burch.) Gilg & Gilg-Ben [LC]
   - Common names: *mohlophi* (Sepedi), *mohlopimolelwa* (Sepedi), *muthobi* (Tshivenda)

Pictures: www.ispot.org (website closed)

A: Plant is scarce in the area, it is found long distances from villages and it is edible [MJM (1963), KM (1944)] (MS (1948)]. The ground bark was used to make soft porridge during times of starvation [WSM (1972) LM (1964), SMM (1953), KM (1944), MMS (1976), SM (1951), RSM (1944)]. The plant is used to treat HIV/AIDS and to make beverages (Rampedi, 2010).

B: The species has multiple uses including medicinal, food and ethnoveterinary uses (Mabogo. 1990; Rankoana, 2000; Arnold et al., 2002).
b. **Cleome gynandra L.** [LC]
   - Common names: lerotho (Sepedi), morogo wa lerotho (Sepedi), murudi (Tshivenda)

A: Used as *morogo*, the leaves are cooked and eaten with pap (All; Quin, 1959).

B: Eaten as morogo in other areas of Limpopo and other species eaten by the Sotho (Mabogo, 1990; Rankoana, 2000; Moffett, 2010).
20. CARICACEAE

a. *Carica papaya* L.  [Exotic not listed on CARA, cultivated]

- Common names: *mophopho* “wapoo” (Sepedi), *mopawpaw* (Sepedi), *mupapawe* (Tshivenda)

*Pictures: Alexis Busque, Mauricio Mercadante and Pedro (www.inaturalist.org)*

A: Fruit is eaten (All). The plant is used to treat erectile dysfunction (Semenya and Potgieter, 2014; Lourens et al., 2015) and diabetes mellitus (Semenya and Potgieter, 2012a). The root and tuber are used to treat gonorrhoea (Semenya et al., 2012 a, b). The fruit and root are used to carry out abortions and treat drop (Semenya et al., 2013b) and the leaves used to treat tuberculosis (Semenya and Maroyi, 2013).

B: Cultivated in other parts of Limpopo and used medicinally (Mabogo, 1990).
21. CHENOPODIACEAE

a. *Chenopodium murale* L. [Exotic not listed on CARA]

- Common name: *serua* (Sepedi), *thumana* (South Sotho), *thumane* (South Sotho)

*Pictures: James Bailey (www.inaturalist.org)*

A: Leaves are eaten as morogo [WSM (1972), LM (1964), MDS (1965), MMS (1976), RMM (1947), SMM (1953), TKS (1963), SM (1951), MN (1950's), RSM (1944), Quin, 1959].

B: *Chenopodium* species are widely used for food (morogo) and medicinally across southern Africa (Mabogo, 1990; Arnold et al., 2002; Moffett, 2010).
22. COLCHICACEAE

a. *Ornithoglossum vulgare* B.Nord. [LC]

- Common names: Unknown

A: Found one plant after a long walk; it is believed to be used by *ba go phahlalatsa matsogo* (traditional healers) as a powerful potion [SMM (1953)].

B: No known recorded uses elsewhere.
23. COMBRETACEAE

a. *Combretum apiculatum* Sond. subsp. *apiculatum* [LC]

- Common names: *mohwelere tsipi* (Sepedi), *khuditshwane* (Sepedi), *mpotsa* (Tsonga), *mpoza* (Tsonga), *mugarasaka* (Tsonga)

A: Wood is tough and it can burn for 24 hrs without the need to reignite [KM (1944)] thus it is excellent firewood [KM (1981), MP (1994), MDS (1965), RMM (1947), TM (1984), TMS (1976), Rasethe et al.,
Branches are stronger than whips and are used as instruments of punishment for criminals and naughty young men [SMM (1953)]. Stems can also be used to make utensils [MJM (1963), ASS (1969), MDS (1965), RMM (1947), SMM (1953), SM (1951)].

B: Used medicinally in other parts of Africa and as firewood (Arnold et al., 2002; Liengme, 1981).

b. *Combretum molle* R.Br. ex G. Don  [LC]
   - Common names: *Combretum molle* R.Br. ex G. Don

A: Firewood [JM (1997), BG (2002), KM (1981), MJM (1963), MM (1987), MDS (1965), MMS (1976), TM (1984), MBN (1982), RSM (1944)]; the bark is boiled in water and the extract is taken orally as a treatment
for body pains [KM, (1994)]; the root is used to treat wounds and general injuries (Semenya and Potgieter, 2014; Moeng, 2010) and stomach problems (Moeng, 2010).

B: Used medicinally in Africa (Arnold et al., 2002).

c. *Terminalia sericea* Burch. ex DC. [LC]

- Common names: *mogonono* (Sepedi), *mususu* (Tshivenda), *mugosi* (Tsonga), *nkonolo* (Tsonga), *nkonola* (Tsonga), *nkohono* (Tsonga), *konono* (Tsonga)

A: Firewood [ASS (1969), MJM (1963), MDS (1965), MS (1948), MMS (1976), RMM (1947), MBN (1982)], believed to have the power to stop people from becoming suspicious of your intentions or behaviour (*gonono* means to think or grow suspicious) [KM (1944)]; the leaves are used to treat measles (Semenya and Potgieter, 2014).
B: Used in traditional medicine, construction and as firewood (Mabogo, 1990; Arnold et al., 2002; Steenkamp, 2003; Lusebe, 2006).

24. CONVOLVULACEAE
a. *Ipomoea batatas* (L.) Lam. [Exotic/invasive not listed on CARA, cultivated]
   - Common names: *potata* (Sepedi), *patata* (South Sotho), *gapi* (tuber) (Tsonga); *ritiyi* (Tsonga)
A: Leaves used as morogo and starchy roots used as vegetable (All).

B: Widely cultivated crop and has several traditional medicine uses (Liengme, 1981; Arnold et al., 2002; Moffett, 2010).

b. *Ipomoea bathycolpos* Hallier f. [LC, South African endemic]
   - Common names: *morara wa fase* (Sepedi), *maswi a pudi* (Sepedi)

A: Leaves used to rub on dissected cattle veins (the veins are tied together and then tied between rocks) to make a musical instrument (*kgwadi*) [KM (1944)]. The plant is edible (Quin, 1959).
B: Leaves are edible and various ethnoveterinary uses (Rankoana, 2000).

25. CRASSULACEAE

a. *Cotyledon orbiculata* L. [LC]

- Common names: *moshimane wa maratana* (Sepedi), *tsebe ya kolobe* (Sepedi), *moshimane morake* (Sepedi), *tsebe ya fase* (Sepedi), *moshimane wa tabeng* (Sepedi), *seredile* (South Sotho), *beesore* (Afrikaans), *plakkie* (Afrikaans), *varkoor* (Afrikaans)
A: Used as medication [LM (1964), WSM (1972), TKS (1963), RSM (1944)]. The leaf is placed in the sun to dry which can take up to eight months. After drying, the leaf is crushed to powder which is used to awaken fainted patients. People suffering from lefufunyane (mentally disturbed patients) are also administered the leaf powder as snuff, believed to enable them to communicate with ancestors [MJM (1963)]. Shepherd boys play with the leaves like frisbees [MJM (1963), SMM (1953), TM (1984)]; fresh leaves are crushed and the juices are sniffed to induce sneezing to cure certain ailments [KM (1944)] or to treat aching feet [TS (1967), MN (1950's)]. The plant is believed to be sold at Faraday muthi market and is used for flu [MMS (1976)] and the root is used to treat gonorrhoea (Erasmus et al., 2012; Semenya and Potgieter, 2014).

B: Has various medicinal uses across Africa and the Sotho use it as a children’s toy (Arnold et al., 2002; Moffett, 2010).

b. *Crassula sarcocaulis* Eckl. & Zeyh. subsp. *sarcocaulis* [LC]

- Common names: *inoni* (Sepedi), *inwame* (Sepedi), *seredilenyana* (South Sotho)
A: Plants can be grown in the yard around rocks, as it is a rock loving plant and the stem is used for tonsil problems [MJM (1963)]. Whole plant is cooked in water and the decoction is used as medication for pregnant women, the plant can also be chewed for constipation [KM, (1944)]. Juice from the leaves can be used to make babies stop suckling [TS (1967), MN (1950's)].

B: Is used in traditional medicines in southern Africa (Arnold et al., 2002).

c. *Kalanchoe brachyloba* Welw. EX Britten [LC]
- Common names: moratana (Sepedi), tshinyanyu (Tshivenda)

A: The leaves are crushed and the juices released are sniffed up, this induces sneezing to cure ailments [KM (1944), KM (1990), TKS (1963), MBN (1982)]. Leaves are dried and ground to powder, the powder is then used to wake up feinted patients [MJM (1963)]. The whole plant is used as an ornamental plant [MMS (1976), TM (1984)]. Shepherd boys play with the leaves like frisbees [SMM (1953), TS (1967)]. The plant is also used to treat aching feet, [MN (1950's)].

B: Widely used in traditional medicines (Arnold et al., 2002).
d. *Kalanchoe thyrsiflora* Harv. [LC]

- Common names: *moratana* (Sepedi), *seredi* (South Sotho), *seredile* (South Sotho)

A: The leaves are crushed and the juices released are sniffed up, this induces sneezing to cure ailments [KM (1944), KM (1990), TKS (1963), MBN (1982)]. Leaves are dried and ground to powder, the powder is then used to wake up feinted patients [MJM (1963)]. The whole plant is used as an ornamental plant [MMS (1976), TM (1984)]. Shepherd boys play with the leaves like frisbees [SMM (1953), TS (1967)]. The plant is also used to treat aching feet, [MN (1950's)].

B. Widely used in traditional medicines (Arnold et al., 2002).
26. CUCURBITACEAE

a. *Citrullus lanatus* (Thunb.) Matsum. & Nakai [Exotic not listed in CARA, cultivated]

- Common names: **lerotse** (Sepedi), **mokopu** (small) (Sepedi), **moretse** (Sepedi), **legapo** (Sepedi), **mokolotwane** (Sepedi), **morogo wa motsatsa** (Sepedi), **kaale** (South Sotho), **lehapu** (South Sotho), **mokakawane** (South Sotho), **mokopuntja** (South Sotho), **qhomo** (South Sotho), **qhoomo** (South Sotho), **qootho** (South Sotho), **gotoh** (South Sotho), **thomo** (South Sotho), **thoomo** (South Sotho), **tjoko** (South Sotho), **tjoto** (South Sotho), **habu** (Tshivenda), **khalavatla** (Tsonga)

A: **Lerotse** is eaten as a fruit. The seeds are fried and eaten with a starch supplement (All) or to stimulate appetite (Semenya and Potgieter, 2014), they can also be crushed and mixed with maize powder to make **kgodu** (yellow pap). The fruit pulp is used to make bitter jam [JM (1997), BG (2002), JC (1961), MS (1948)]. The leaves are eaten as **morogo wa motsatsa** [LM (1964), WSM (1972)]. The fruit is also used as domestic animal feed [JM (1997), BG (2002), JC (1961), MS (1948)] and to treat HIV/AIDS (Semenya, 2012b and Semenya et al. 2013b).

B: Recorded to have a variety of medicinal, craft and food uses (Arnold et al., 2002; Moffett, 2010).
b. *Cucumis zeyheri* Sond. [LC]

- Common names: *morogo wa monyaku* (Sepedi), *morogo wa motsatsa* (Sepedi), *lerakana* (South Sotho), *monyaku* (South Sotho)

A: Eaten as morogo; the younger leaves are cooked and eaten with pap as older leaves are too bitter for ingestion [BG (2002), MN (1950's), KM (1944), TM (1984), ASS (1969), KM (1981), KM (1990), LM (1964), MM (1987), MS (1948), MMS (1976), WSM (1972), TMS (1976), TS (1967), SM (1951), MBN (1982), RSM (1944)].

B: Used medicinally across Africa (Arnold, et al., 2002; Moffett, 2010).
c. *Cucurbita moschata* Duchesne ex Poir. [Exotic not listed on CARA, cultivated]

- *lefodi* (Sepedi), *mpodi* (Sepedi)

A: Edible fruit (All).

B: *Cucurbita* species are widely cultivated as crops (Liengme, 1981; Moffett, 2010).
d. *Kedrostis leloja* (J.F.Gmel.) C.Jeffrey [LC]

- **Common name:** *makgonatšohle* (Sepedi)

A: The plant can be used for anything depending on a person’s desire i.e. medicine, witchcraft, good and bad luck [MJM (1963), MDS (1965), MMS (1976), RMM (1947), TKS (1963), TMS (1976), SM (1951), MBN (1982)]. **Whole plant can be mixed with bathing water to treat aching body** [KM (1944), ASS (1969)].

B: No known uses but *Kedrostis* species are widely used in traditional medicines and craft (Arnold et al., 2002; Van Wyk et al., 2008; Moffett, 2010).
e. *Momordica balsamina* L.

- Common names: *lebje* (Sepedi), *masêgasêganê* (Sepedi), *mothwatwa* (sepedi), *mokgapu wa noga* (Sepedi), *tshibavhe* (Tshivenda), *without* (Afrikaans), *duwana* (Afrikaans)

A: The leaves are cooked and eaten with pap [MJM (1963), KM (1944), SMM (1953), TKS (1963), SM (1951), RSM (1944)]. The fruit is believed to be eaten by snakes [MJM (1963), MM (1987), MDS (1965), MMS (1976), RMM (1947), TMS (1976)] and is also used like steel wool to wash dishes [MS (1948)]. The root is used to treat high blood pressure [RMM (1947), TS (1967), MN (1950's)] and diabetes mellitus (Semenya et al., 2012a; Semenya and Potgieter, 2014).

B: Used in traditional medicine (Mabogo, 1990; Arnold et al., 2002; Van Wyk et al., 2008).
27. CYPERACEAE

a. *Cladium mariscus* (L.) Pohl subsp. *jamaicense* (Crantz) Kük. [LC]

- Common name: *legogwa* (Sepedi)

*A*: Used to weave the traditional mat known as *legogwa* [BG (2002), MMS (1976), TMS (1976), SM (1951)].

*B*: No known recorded uses.

*Pictures: Hans Hillewaert and Meneerke bloem (www.inaturalist.org)*
b. *Cyperus austro-africanus* C.Archer & Goetgh. [LC]

- Common names: *modula* (Sepedi) *mohlaka* (Sepedi)

Pictures: www.ispot.org (website closed)

A: **The stem is used to makes straw mats** (all); the whole plant is used to treat menstrual disorders (Semenya et al., 2013a; Semenya and Potgieter, 2014).

B: No known use records.
c. *Cyperus sexangularis* Nees [LC]

- Common names: *mohlahla* (Sepedi), *mutate* (Tshivenda), *nhlahle* (South Sotho), *risama* (South Sotho), *moseme* (South Sotho)

A: Used to weave traditional mats (*legogwa*) using a wooden stand called a *pere* [BG (2002), MLS (1968), ASS (1969), KM (1990), LM (1964), MJM (1963), MDS (1965), MS (1948), MMS (1976), WSM (1972), RMM (1947), SMM (1953), TM (1984), TKS (1963), TMS (1976), TS (1967), SM (1951), MN (1950's), MBN (1982), RSM (1944)]. Currently strings from orange bags are used to weave the mats but in the olden days *Acacia* species (*mogotho* (S), *lekkeruiik peul* (A)) were used: fibres were obtained from the
branches and bark to make strings that keep the mats together. The plant is grown in home garden as a sign of presence of a traditional healer [KM (1944), LM (1964), WSM (1972), RSM (1944)].

B: Used to make mats along with other species in the genus (Liengme, 1981; Mabogo, 1990; Moffett, 2010).

28. DRACENACEAE

a. Sansevieria trifasciata Prain [LC]

- Common names: segopha (Sepedi), mokgosi (Sepedi), makgotse (Sepedi), sehlaresa meetsi (Sepedi)

A: It’s an ornamental plant [MN (1950's)]. When a pregnant woman cannot give birth the plant is boiled and the concoction is administered to the woman orally [KM (1944), ASS (1969)]. The leaves

Pictures: Alfredo Dorantes Euan and Jaguar Viviendo Selva (www.inaturalist.org)
used in treatments for diarrhoea (Semenya and Potgieter, 2014). The roots used to treat HIV/AIDS and the root is used for crafting (Rasethe et al., 2013).

B: Widely used in traditional medicine and also a few craft uses (Arnold et al., 2002).

29. EBENACEAE

a. *Euclea crispa* (Thunb.) Gürke subsp. *crispa*

- Common names: *mokwerekwere* (Sepedi), *mohlakola* (South Sotho), *motsetlela* (South Sotho)
A: Edible fruit [TKS (1963), SM (1951)]; root is used to treat HIV/AIDS (Semenya and Potgieter, 2014).

B: Widely used medicinal and craft plant (Liengme, 1981; Arnold et al., 2002; Moffett, 2010).

30. EUPHORBIACEAE

a. *Euphorbia excelsa* A.C.White, R.A.Dyer & B.Sloane [LC]

- Common names: *mogkwalangwata* (Sepedi), *mogwangwata* (Sepedi)
A: The plant has a poisonous latex [BG (2002), JM (1997), MLS (1968), KM (1990), LM (1964), MDS (1965), MMS (1976), WSM (1972), RMM (1947), MJM (1963), TM (1984), TMS (1976), TS (1967), SM (1951)] that induces vomiting. The milky latex is also mixed with *bupi* (mealie meal) to make tablets that are taken as laxatives [KM (1944), RSM (1944)].

B: No known records.

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b. *Euphorbia ingens* E. Mey. ex. Boiss. [LC]

- Common names: *mogkwalangwata* (Sepedi), *mogwangwata* (Sepedi) *mohlohlokgo* (Sepedi), *mukonde* (Tshivenda)

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A: Poisonous latex [ASS (1969), KM (1990), LM (1964), MDS (1965), MMS (1976), WSM (1972), MJM (1963), TM (1984), TKS (1963), TMS (1976), TS (1967), SM (1951), MBN (1982)]. Monkeys have been observed to escape into the plant when chased and it is used as a poison to kill enemies/people [MJM 1963]. The milky latex is mixed with *bupi* (mealie meal) to make tablets that are taken as a laxative.
[KM (1944), RSM (1944)]. The stem is used to treat breast cancer (Semenya et al., 2013b; Semenya and Potgieter, 2014).

B: Widely used medicinally (Mabogo, 1990; Arnold et al., 2002).

c. *Euphorbia maleolens* E. Phillips [LC]
   - Common names: *mogkwalangwata* (Sepedi), *mogwangwata* (Sepedi), *rofa bja Tau* (Sepedi)
A: Poisonous latex and the whole plant is used to treat HIV/AIDS (Semenya and Potgieter, 2014).

B: No known records.

d. *Euphorbia milii* Des Moul. [Exotic not listed on CARA]
Common names: mogkwalangwata (Sepedi), mogwangwata (Sepedi), rofa bja Tau (Sepedi)

A: Whole plant is used as a live fence and has ornamental value [ASS (1969), MM (1987), MMS (1976), RMM (1947), TMS (1976), SM (1951), MBN (1982)]. The whole plant is also used to treat patients that have difficulty to urinate [KM (1944), MLS (1968)] or it can be crushed and the powder is thrown into a flame, the radiated heat is used to treat stroke patients [KM (1944), LM (1964)].

B: No known records.
e. *Euphorbia tirucalli* L. [LC]  
- Common names: *mohloko* (Sepedi), *mofiwa maswi* (Sepedi), *mutungu* (Tshivenda)

A: The milky latex produced by the plant causes extreme itchiness [MMS (1976), RMM (1947), TKS (1963), TMS (1976)]. The plant was used as a live fence to prevent snakes from coming into the yard and goats from escaping [SMM (1953), MMS (1976)].

B: Widely used medicinally (Mabogo, 1990; Rankoana, 2000; Arnold et al., 2002).
f.  *Euphorbia tithymaloides* L.  [Exotic not listed on CARA]

- Common names: *malese* (Sepedi)

A: Plant is poisonous [RMM (1947), TKS (1963), SM (1951), MBN (1982)] and has ornamental value [MLS (1968), MDS (1965)]. It is also used as traditional medicine to **treat patients that have difficulty urinating** [MP (1994)].

B: No known records (but a popular garden plant worldwide).
g. *Jatropha zeyheri* Sond. [LC]

- Common names: *sefapa badia* or *sefapa bodie* (Sepedi)

A: The bulb turns water red when cooked and is used in mixtures for blood ailments [MJM (1963), JC (1961), JM (1997)], the decoction is also used as an enema [MS (1948)]. The dried leaves are used to treat feet problems (ailments) and also to make tea [MJM (1963), JC (1961)], and induce vomiting [KM (1944), ASS (1969)]. The root is used as treatment for gonorrhoea (Erasmus et al., 2012).

B: Widely used in traditional medicines (Arnold et al., 2002).
h. *Ricinus communis* L. [Exotic/invasive listed under Category 1b]

- Common names: *mokura* (Sepedi), *makura* (Sepedi), *mothoba* (Sepedi), *mobabo* (Sepedi), *sebetsa* (Sepedi), *mokura wa kgomo* (Sepedi), *mohlafotha* (South Sotho), *mupfure* (Tshivenda)
A: Plant is poisonous and if ingested one can have a mental breakdown [MM (1987), MMS (1976), RMM (1947), SMM (1953), TM (1984), TKS (1963), TMS (1976), MN (1950’s)] which is also an ornamental plant [MP (1994)]. Leaves are used as bandages [SMM (1953), SM (1951), KM (1944)], the whole plant is also used to treat a swelled up leg (sore) (Semenya and Potgieter, 2014; Semenya et al, 2012b).

B: Used in traditional medicine (Liengme, 1981; Mabogo, 1990; Rankoana, 2000; Arnold et al., 2002; Moffett, 2010; De Beer and Van Wyk, 2011).

31. FABACEAE
   a. **Arachis hypogea** L. [Exotic not listed on CARA, cultivated]
   - Common names: peanut (Sepedi), ditloo (Sepedi), tokomane (Sepedi), ditloo marapô (Sepedi), nduhu, makotomane (South Sotho) (Tshivenda), manga (Tsonga)
A: The underground nuts are boiled [All except MM (1987), MP (1994), MTM (1997), LM (1997)] or fried and eaten as a snack [MDS (1965), MMS (1976), TM (1984)].

B: *Arachis* is widely cultivated and has known medicinal uses (Liengme, 1981, Mabogo, 1990; Moffett, 2010).

b. *Caesalpinia decapetala* (Roth) Alston. [Exotic/invasive listed under Category 1b]
   - Common name: *mokgabane* (Sepedi)
A: The plant is used to treat gonorrhoea (Semenya et al., 2013b; Semenya and Potgieter, 2014) and the root is used to treat drop (Semenya et al., 2012b; Erasmus et al., 2012).

B: Used medicinally in Africa (Arnold et al., 2002).

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c. *Elephantorrhiza praetermissa* J.H.Ross  [LC, Sekhukhuneland endemic]

- Common names: motšatšane (Sepedi), motshitshane (Sepedi),
A: Tuber is known to be eaten by baboons [MS (1948), KM (1944), TKS (1963), TMS (1976)]. When boiled the water turns red and the decoction is used to treat stomach pains [MS (1948), MN (1950's)]. Plant used in treatments of blood ailments [KM (1944), TS (1967)]. Dry wood used as firewood [KM (1981), MDS (1965), MS (1948), MMS (1976), RMM (1947), MJM (1963), SM (1951)] and the seeds are used to make beads [SMM (1953)]. The root is used to treat HIV/AIDS (Semenya and Potgieter, 2014), blood clotting and as a blood purifier (Semenya and Potgieter, 2013b); also used for erectile dysfunction (Semenya et al., 2013b).

B: Used medicinally across southern Africa (Mabogo, 1990; Arnold et al., 2002).

d. *Indigofera cf. heterotricha* [LC]
Common names: morotelashotsi (Sepedi), tsha ka lapa or cha ka lapa (Sepedi), musapelo wa thaba (South Sotho), mmusapelo wa thaba (South Sotho), qoiqoi (South Sotho); mmusapelo wa mafika (South Sotho), musapelo wa mafika (South Sotho); muswiswa (Tshivenda), mualigatsib (Tshivenda)

A: Dried plant material burn rapidly and is used as a fire starter [KM (1944), ASS (1969), MDS (1965), MMS (1976), RMM (1947), TMS (1976), SM (1951)] and has medicinal applications (Rasethe et al., 2013).

B: Indigofera species are widely used in traditional medicines (Mabogo, 1990; Arnold et al., 2002; Moffett, 2010).
e. *Medicago sativa* L. [Exotic not listed on CARA]

- Common name: *luserene* (Sepedi), *lesere* (South Sotho)

*Pictures: Jon Sullivan and Peter (Anemone projectors) (www.inaturalist.org)*

A: Whole plant is used to treat heart problems [MN (1950's); Semenya, 2012b; Semenya and Potgieter, 2014].

B: Animal fodder (*lucerne*) and widely used in traditional medicines (Arnold et al., 2002; Moffett, 2010).
f. *Mundulea sericea* (Willd.) A.Chev. [LC]

- Common names: *mosetla tlou* (Sepedi), *motlou* (Sepedi), *moshisane* (Sepedi), *mukundandou* (Tshivenda)

A: Locusts are known to feed on the flower, so it attracts lots of them making collection easier [MJM (1963), MDS (1965), TMS (1976)]. The dry bark is used as firewood [MJM (1963), MDS (1965), TMS (1976)]. **Used to treat epilepsy** [KM (1944)] and menstrual disorders (Semenya et al., 2013).

B: Widely used in traditional medicine (Mabogo, 1990; Arnold et al., 2002).
g. *Peltophorum africanum* Sond. [LC]

- Common names: *mosehla* (Sepedi), *musese* (Venda)

A: Bark is used to treat high blood pressure [JC (1961), KM (1944)], stomach pains [KM (1981), KM (1990), LM (1964), JM (1963), MDS (1965), RMM (1947), TKS (1963), TMS (1976), RSM (1944)] HIV/AIDS, erectile dysfunction, as a postpartum medicine (Semenya et al., 2013a; Semenya and Potgieter, 2013b; 2014) and to treat female fertility (Semenya et al., 2013a). The dry wood makes good firewood [ASS (1969), BG (2002), LM (1964), MP (1994), MDS (1965), MS (1948), MMS (1976), WSM (1972), RMM (1947), TM (1984), TKS (1963), TMS (1976), SM (1951), MBN (1982), RSM (1944); Rasethe et al., 2013] or make utensils used to crush *mabhele* (corn). When a baby has white spots on his face (*sefala*) a needle or razor is used to make short narrow cuts around the eyes and the leaves are rubbed on the baby's face [TS (1967)]. The leaves are also used to treat *sefeku* (unidentified ailment) [MN (1950's)]. The plant is also used to treat chest and respiratory problems and external wounds (Moeng, 2010).

B: Widely used in traditional medicine (Rankoana, 2000; Arnold et al., 2002; Steenkamp, 2003; Moffett, 2010).
h. *Schotia brachypetala* Sond.  [LC]

- **Common names:** *molope* (Sepedi), *mulubi* (Tshivenda), *mununzwu* (Tshivenda), *chochela mandleni* (Tsonga)

A: **Used as firewood** [MDS (1965), RMM (1947), MBN (1982), SM (1951), MMS (1976), SMM (1953), TKS (1963), SM (1951)]. **The bark is cooked and ingested to treat high blood pressure** [KM (1944)] and treat colds and flu (Moeng, 2010). The flower produces sweet edible nectar [SM (1951), MMS (1976), SMM (1953), TKS (1963), SM (1951), SMM (1953), MBN (1982)].

B: Used for food, firewood and in traditional medicine (Mabogo, 1990; Rankoana, 2000; Arnold et al., 2002; Rampedi, 2010).
i. *Senna didymobotrya* (Fresen.) H.S. Irwin & Barneby  [Exotic/invasive listed under Category 1b]

- Common names: *mothekele* (Sepedi) *motokomane* (Sepedi)

A: **Used as firewood** [ASS (1969), KM (1981), LM (1964), MDS (1965), WSM (1972), RMM (1947), TM (1984), TKS (1963), SM (1951), MBN (1982), RSM (1944)]. **The roots are boiled and the extract drank as treatment for a painful body** [TS (1967), MN (1950's)] and as treatment for blood clotting (Semenya et al., 2012a and Semenya and Potgieter, 2014).

B: No known recorded uses.
j. **Vachellia nilotica** (L.) P.J.H. Hurter & Mabb. [LC]

- Common names: *motolwane* (Sepedi) *moselesele* (Sepedi) *mmôka* (Sepedi) *moshwane* (Sepedi) *mohlwahlwa* (Sepedi)

A: Used as firewood [All except MP (1994)]; goats feed on fallen leaves [MS (1948)].

B: Used for firewood and widely used in traditional medicine (Arnold et al., 2002).
k. *Vigna unguiculata* (L.) Walp. [Cultivated]

- Common names: *monawa* (Sepedi), *dihlodi* (Sepedi), *poontjies* (Sepedi), *dinawa tsa sesotho* (South Sotho), *munawa* (Tshivenda)

A: Edible fruit [All except JC (1961), MM (1987), MP (1994), RSM (1944); Quin, 1959] and the leaves used to treat diarrhoea (Semenya and Potgieter, 2014).

B: Cultivated crop and widely used in traditional medicines (Arnold et al., 2002).
32. HYACINTHACEAE

a. *Ledebouria apertiflora* (Baker) Jessop [LC]

- Common names: sekanama (Sepedi), *sefulanyana* (Sepedi), sekunkuru (Sepedi)

A: The bulb is crushed and rubbed on painful areas of the body or alternatively mixed with water and used as soap [KM (1981), MDS (1965), SM (1951), TKS (1963), TS (1967)]. Crushed leaves are rubbed on limbs affected by *sefulanyane* (stroke) [LM (1964), MMS (1976), WSM (1972), RSM (1944)], or boiled in water and the concoction is applied to infections [KM (1944)]. Treat blisters and *gala* (issues associated with the bile duct) [MS (1948), RMM (1947), MN (1950's)].

B: No known recorded uses.
b. *Merwilla plumbea* (Lindl.) Speta. [NT]

- Common names: *setsusha* (Sepedi), *kgerere* (South Sotho)

A: The bulb is mixed with bananas and taken orally to improve sexual performance in men [LM (1964), WSM (1972), MN (1950’s), RSM (1944)] and used in the same way to treat *gala* (ailments related to heart burn and/or acid reflux). The leaves are used to treat diabetes mellitus (Semenya and Potgieter, 2014). The bulb is used to treat tuberculosis (Semenya and Maroyi, 2013). The plant is also used to treat chest and respiratory problems, to induce vomiting (purifier) and as an aphrodisiac (Moeng, 2010).

B: Used in traditional medicine by the Sotho (Moffett, 2010).
A: The tuber can be used as medication [MDS (1965), ASS (1969), MMS (1976), RMM (1947)] for high blood pressure [MJM (1963), TMS (1976), SM (1951), MN (1950's)], erectile dysfunction (Semenya et al., 2013a; Semenya and Potgieter, 2014; Lourens et al., 2015), female fertility (Semenya et al., 2013a), to treat wounds [KM (1944)] and as an aphrodisiac (Erasmus, 2015).

B: Widely used in traditional medicines and the Sotho use other species of Hypoxis in their traditional medicines (Arnold et al., 2002; Moffett, 2010).
34. KIRKIACEAE

a. *Kirkia wilmsii* Engl. [LC]

- Common names: *mogaba* or *legaba* (Sepedi) *modumela* (Sepedi)

A: Before collected tuber is brought into the yard, it is left outside to dry and a chicken is sacrificed else it is believed that a member of the family shall pass away [LM (1964), RSM (1944)]. The tuberous roots are edible [BG (2002), MJM (1963)] and are eaten as treatment for high blood pressure [ASS (1969), TKS (1963), MBN (1982), MDS (1965), KM (1944), KM (1981), KM (1990), TM (1984), MMS (1976), WSM (1972), RMM (1947), TMS (1976), TS (1967), SM (1951), MN (1950's), RSM (1944), Moeng, 2010] and hypertension (Semenya et al., 2012a; Semenya and Potgieter, 2014). A piece of the branch or the tuber is chewed on to induce thirst during herding so the herder can drink maximum water to prevent dehydration [SMM (1953)), MDS (1965), MMS (1976), RMM (1947), MN (1950's), Moeng, 2010].

B: Used in traditional medicines (Rankoana, 2000; Arnold et al., 2002).
35. LAMIACEAE

a. *Plectranthus neochilus* Schltr. [LC, South African endemic]
   ➢ Common name: *lephelephele* (South Sotho)

A: Believed to ward off snakes.

B: Widely used in traditional medicine and to wash sheepskins (Arnold et al., 2002; Moffett, 2010).
b. *Plectranthus venteri* Van Jaarsv. & Hankey  [Rare, Sekhukhuneland endemic]
- Common name: *mošikidipela* (Sepedi)

A: Crushed stems are boiled and the steam is inhaled to treat flu/blocked nose [TM (1984), KM (1981), TKS (1963)], and high blood pressure [SMM (1953)].

B: Widely used in traditional medicine (Arnold et al., 2002).
36. LAURACEAE

a. *Persea americana* Mill. [Exotic not listed on CARA, cultivated]
   - Common name: *moafokhathe* (Sepedi)

A: Edible fruit (all) and the roots are used to treat diabetes mellitus (Semenya et al., 2012a).

B: Edible fruit crop (Rampedi, 2010).
37. LORANTHACEAE

a. *Tapinanthis cf. oleifolius* (J.C.Wendl.) Danser [LC]
   ➢ Common name: *bolepa* (Sepedi)

A: Hunters use the sticky flower seed to trap birds [RMM (1947), SMM (1953), TKS (1963), SM (1951), MBN (1982)]. Birds will eat the seed and deposit their bird droppings on to other trees where the plant will grow [SMM (1953), KM (1944)]. The leaves used to make tea [KM (1944)].

B: Used in traditional medicine (Arnold et al., 2002).
38. LYTHRACEAE

a. *Punica granatum* L.  [Exotic not listed on CARA, cultivated]
   - Common names: *garenate* (Sepedi, South Sotho), *Mmokgarenate* (Sepedi)

A: The seeds of the fruit are edible and eaten when red (All). **The roots of the tree are used to treat diarrhoea** and the skin of the fruit is used to treat stomach pains [KM (1944), LM (1964), RSM (1944); Semenya and Potgieter, 2014)] or **boiled and the decoction is spoon fed to a vomiting child** [MN (1950’s)]. Also, the plant is used to treat diabetes (Semenya et al., 2012b).

B: Fruit is edible and it is much used in traditional medicine (Arnold et al., 2002; De Beer and Van Wyk, 2011).
39. MALVACEAE

a. *Ceiba speciosa* (A.St.-Hil.) Ravenna [Exotic species not listed on CARA]
   - Common name: Silk floss tree (English)

A: The tree is used for its shade but also makes good firewood because of its ability to burn slowly for long hours [MS (1948), MJM (1963)].

B: No known recorded uses elsewhere.
b. *Corchorus tridens* L. [Exotic not listed on CARA, cultivated]

- Common names: *nthelele* (Sepedi), *delele* (Tshivenda), *guxe* (Tsonga)

A: The leaves are cooked and eaten as morogo *wa thelele* [WSM (1972), ASS (1969), LM (1964), MDS (1965), MMS (1976), RMM (1947), TM (1984), TKS (1963), TMS (1976), RSM (1944)] and sometimes mixed with *morogo wa lerotho* because of *thelele* undesirable slimy nature when cooked [KM (1944), KM (1990), SM (1951), MBN (1982)].

B: Eaten as morogo in the Limpopo Province (Liengme, 1981; Mabogo, 1990).
c. *Dombeya rotundifolia* (Hochst.) Planch. LC

- Common names: *mokgopa* (Sepedi), *mogokobu* (Sepedi), *tshiluvhari* (Tshivenda), *mbikanyaka* (Tsonga), *nsihapukuma* (Tsonga), *xiluvarhi* (Tsonga), *nyangala* (Tsonga)

A: Known to be the first tree to flower after winter*, the wood is used as firewood [KM (1944), TM (1984), KM (1981), MP (1994); Rasethe et al., 2013] and as poultry medication [LM (1964), WSM (1972), RSM (1944)] The root is used to treat diarrhoea and hypertension (Rasethe et al., 2013; Semenya and Potgieter, 2014).

B: Widely used medicinally and for craft (Liengme, 1981; Mabogo, 1990; Arnold et al., 2002).
d. *Grewia flava* DC. [LC]

- Common names: *mogwame* (Sepedi), *moretlwa* (Sepedi), *morethwa* (Sepedi), *nsihani* (Tsonga)

**A:** The small fruit (*digwame*) are edible [BG (2002), KM (1944), JM (1997), ASS (1969), KM (1981), JC (1961), KM (1990), MJM (1963), MP (1994), MDS (1965), MS (1948), MMS (1976), MTM (1997), RMM (1947), SMM (1953), TMS (1976), SM (1951), MBN (1982)] and used to make beverages (Rampedi, 2012). **The branches are used to make whips (shamboks)** [MSS (1948)]; the root is used to treat diarrhoea (Rasethe et al., 2013; Semenya and Potgieter, 2014).

**B:** Edible fruit and widely used in traditional medicines (Rankoana, 2000; Arnold et al., 2002; Rampedi, 2010).
e. *Grewia retinervis* Burret

- Common name: *mogoto* (Sepedi)

A: Edible fruit [KM (1944), RSM (1944)], the bark is used by traditional healers to tie prescribed medication before handing it to the patient, when the bark dries up it can be placed in water to wet it again for wrapping [KM (1944)].

B: Edible fruit and widely used in traditional medicines (Arnold et al., 2002; Rampedi, 2010).
f. *Melhania prostata* DC. [LC]

- Common names: *mamshwane* (Sepedi)

A: **Used by traditional doctors for various ailments in combination with other plants as a strong potion (mokeme) for witchcraft.** The red roots are an indication that the plant can be ingested as medicine [MJM (1963)]. **Roots used to weave baskets** [KM (1944)].

B: Not recorded to be used elsewhere.
40. MELIACEAE
   a. *Melia azedarach* L. [Exotic/invasive listed under Category 1b]

   - Common names: *mobidi* (Sepedi), *morombol* (Sepedi), *mobidi* (Sepedi), *morombol* (Sepedi), *xifiringoma* (Tsonga)

A. The whole plant has ornamental value [TMS (1976)] and seeds were used to play with, they were kept afloat just above the lips by gently blowing on them [MMS (1976)] and the wood is used as firewood (Rasethe et al., 2013).

B. Fruits are eaten in other parts of Limpopo; timber is used in construction and the plant is widely used in traditional medicines and as an ornamental (Liengme, 1981; Mabogo, 1990; Rankoana, 2000; Arnold et al., 2002).
b. *Turraea obtusifolia* Hochst. [LC]

- Common names: motapuri (Sepedi), mbhovane (Tsonga)

A: Plant used to treat high blood pressure [WSM (1972), RSM (1944)] and as a blood purifier (Semenya et al, 2013a; Semenya and Potgieter, 2014).

B: Widely used in traditional medicine (Liengme, 1981; Arnold et al., 2002).
41. MORACEAE

a. *Ficus abutilifolia* (Miq.) Miq. [LC]

A: Edible fruit [KM (1981), KM (1990), MDS (1965), MMS (1976), RMM (1947), MJM (1963), TM (1984), TKS (1963), TMS (1976), SM (1951), MN (1950's), MBN (1982)].

B: Widely used medicinal plant in southern Africa (Arnold et al., 2002).
b. *Ficus carica* L. [Exotic not listed on CARA, cultivated]

- Common names: *mofaya* (Sepedi), *mpaya* (Sepedi), *mofeiye* (Sepedi)

A: Plant is cultivated for its edible fruit [ALL, except MM (1987)]. The bark is used to treat tuberculosis (Semenya and Maroyi, 2013; Semenya and Potgieter, 2014) and the roots are used to treat diabetes mellitus (Semenya et al., 2012).

B: No other recorded uses.
c. *Ficus ingens* (Miq.) Miq. [LC]

- Common name: mofaya (Sepedi), *mpaya* (Sepedi), *monokane* (Sepedi), *mmogo* (Sepedi), *mokômo* (Sepedi), *tshikululu* (Tshivenda)

A: Edible fruit [ASS (1969), KM (1981), KM (1990), LM (1964), MJM (1963), MDS (1965), MS (1948), MMS (1976), WSM (1972), RMM (1947), TM (1984), TKS (1963), TS (1967), SM (1951), MBN (1982), RSM (1944), Rasethe et al. (2013)].

B: Veterinary uses (Mabogo, 1990).
42. MORINGACEAE

a. *Moringa oleifera* Lam. [Exotic not listed on CARA, cultivated]
   - Common names: *moringa* (Sepedi), *makgonatsohle* (Sepedi)

A: Leaves can be used to make tea [KM (1944), ASS (1969), MDS (1965), MMS (1976), RMM (1947), TKS (1963), SM (1951), MBN (1982)] for an energy boost. Medicinally any part of the plant is used to treat diabetes, high blood, improve nutrition (immune system) and treat burning urine [LM (1964), MDS (1965), WSM (1972), MN (1950's), RSM (1944)]. The seed and leaf are used to treat diabetes mellitus (Semenya et al., 2012a; Semenya and Potgieter, 2014).

B: Not recorded as traditional medicine in southern Africa but known to be widely used in many parts of Africa and Asia.
43. MYROTHAMNACEAE

a. *Myrothamnus flabellifolius* (Sond.) Welw.

- Common names: *mahlapaneng* (Sepedi), *boka* (Sepedi), *fenya* (Sepedi), *makgonatsohle* (Sepedi), *tsoga* (Sepedi), *moparafin* (Sepedi), *pati ya tshwene* (Sepedi)

A: When the leaves and/or flowers are dry the plant material is crushed and smoked or boiled (macerated) and the steam inhaled as a remedy for coughs and flu [JC (1961), MP (1994), MDS (1965), MMS (1976), RMM (1947), SMM (1953), TM (1984), TKS (1963), TMS (1976), SM (1951), MBN (1982)]. The plant is also used to treat men's fertility and the dry plant material is used as a fire fuel as it burns easily and fast [KM (1944), JM (1997), JC (1961)]. The whole plant is used to treat erectile dysfunction (Semenya and Potgieter, 2013b; Semenya et al., 2013a; Erasmus et al., 2015; Lourens et al., 2015), tuberculosis (Semenya and Maroyi, 2013b) and nose bleeding (Semenya and Potgieter, 2014).

B: Widely used in traditional medicine (Mabogo, 1990; Arnold et al., 2002).
44. MYRTACEAE

a. *Eucalyptus camaldulensis* Dehnh. [Exotic/invasive listed under Category 2 unless stated otherwise by NEM:PA or NEM:BA]

- Common names: *moplanaaas* (Sepedi), *moplilikoumo* (Sepedi), *tholodi* (Sepedi), *blukom* (Sepedi), *bloukomo* (South Sotho)

*Pictures: www.ispot.org (website closed)*
A: Leaves are smoked or placed in hot water and the steam is inhaled to treat flu [MJM (1963), BG (2002), JM (1997), LM (1964), MP (1994), WSM (1972), RMM (1947), TKS (1963), TMS (1976), RSM (1944)]. The wood is used for construction [TKS (1963), KM, (1994), ASS (1969), KM (1990), MM (1987), MDS (1965), MS (1948), RMM (1947), TMS (1976)]. Children play with the fruits [JC (1961)]. The leaves are used to treat tuberculosis (Semenya et al., 2012b; Semenya and Maroyi, 2013; Semenya and Potgieter, 2014).

B: Widely used for construction and several medicinal uses (Arnold et al., 2002; Moffett, 2010).

b. *Psidium guajava* L. [Exotic listed under Category 2]

- Common name: *muguava* (Sepedi), *mokwaba* (Sepedi), *mugwavha* (Tshivenda)

Pictures: [www.ispot.org (website closed)]

A: Edible fruit [All except TS (1955)]. **The leaves are chewed on to treat poisoning** [RSM (1944)]. The plant is used to treat diarrhoea (Semenya and Potgieter, 2014) and the roots are used to treat hypertension (Semenya et al, 2012a).

B: Used in some traditional medicine (Mabogo, 1990; Arnold et al., 2002).
45. NYCTAGINACEAE

a. *Mirabilis jalapa* L. [Exotic listed under Category 1b]

- Common name: Unknown

A: Ornamental [MLS (1968), MP (1994), MMS (1976), MTM (1997)].

B: Used in traditional medicine (Arnold et al., 2002).
46. OLACACEAE

a. *Ximenia caffra* Sond. [LC]

- Common names: *ditšidi* (Sepedi), *Ikgolotsane* (Sepedi), *ntsengele* (Tsonga), *mutshili* (Tshivenda), *muthanzwa* (Tshivenda)

A: Edible fruit (All; Quin 1959) which is also used to make beverages (Rampedi, 2010). The seed pulp is used to treat dry lips [LM (1964), JC (1961), SMM (1953), ASS (1969), MMS (1976), TS (1967), MN (1950's), RSM (1944)] and to treat cattle hide [KM (1944), LM (1964), JC (1961), SMM (1953), ASS (1969), MMS (1976), TS (1967), MN (1950's), RSM (1944)]. Recently the dry wood is being used as firewood. The dry fruit is submerged in water and the water is used to make pap and the roots are boiled and the decoction is drank to treat tonsils, burnt seeds are used to fix *moeta* [ASS (1969),...
MDS (1965), MMS (1976), SM (1951), MBN (1982)]. [moeta is described as traditional barrel used to store food and alcoholic beverages].

B: Fruit is edible and the species is also used in traditional medicine and various craft uses (Liengme, 1981; Mabogo, 1990; Rankoana, 2000; Arnold et al., 2002).

47. PAPAVERACEAE
a. *Argemone ochroleuca* Sweet [Exotic listed under Category 1b]

- Common name: *seja bagekolo* (Sepedi) *sehlaba magotlwana* (Sepedi), *ntshwantshwane* (South Sotho), *sehlabahlabane* (South Sotho), *seholo se sehlo* (South Sotho), *seholo se sesweu* (South Sotho)
A: The leaves are crushed and used as a plaster over a growth on a limb [KM (1944)]. The roots are cooked and the water used to apply on an injury [MS (1948)].

B: The Sotho use Argemone species for various ailments (Moffett, 2010).

48. POACEAE

a. *Aristida diffusa* Trin. subsp. *diffusa* [LC]
   - Common names: matulwane (Sepedi), moswelo (Sepedi), bijwang ba leswelo (Sepedi), bohlanya ba dipere (South Sotho), lefielo (South Sotho), mohlolohadi (South Sotho), monya (South Sotho), bohlanya ba pere (South Sotho), sebonyane (South Sotho)
A: The dried grass is used to make maswelo (brooms) [JM (1997), BG (2002), JC (1961), KM (1944), MLS (1968), KM (1981), KM (1990), MJM (1963), MP (1994), MDS (1965), MMS (1976), MTM (1997)), RMM (1947), SMM (1953), TM (1984), TKS (1963), TMS (1976), TS (1967), SM (1951), MN (1950's), MBN (1982), RSM (1944)].

B: Aristida sp. has various craft uses (Rankoana, 2000; Moffett, 2010).

b. *Lolium multiflorum* Lam. [Exotic not listed on CARA]

- Common names: *botsakatsaka* (Sepedi), *korong* (Sepedi)
A: Wild-harvested for bread making [All except TS (1955), MLS (1968), MM (1987), MP (1994)], Quin, 1959)]. The whole plant is used to treat kidney problems (Semenya, 2012b; Semenya and Potgieter, 2014).

B: No known recorded uses elsewhere.

c. *Pennisetum glaucum* (L.) R.Br. [Exotic not listed on CARA, cultivated]

- Common names: *leotša* (Sepedi), *nyalothe* (South Sotho)
A: Grains used as chicken feed and making bokgobe (porridge) [All except (BG (2002), MTM (1997) MM (1987), MLS (1968); (Quin, 1959)].

B: The species is used in traditional medicine and the Sotho uses it in ethnoveterinary medicine and to make alcoholic beverage (Arnold et al., 2002; Moffett, 2010).

d. Saccharum officinarum L. [Exotic not listed on CARA, cultivated]
   ➢ Common names: momoba (Sepedi), mohlafota (South Sotho), mova (Tsonga)
A: Edible stems (All). The company, Sellati, uses the plant to make sugar [MMS (1976)]. The leaves are used to treat diarrhoea (Semenya and Potgieter, 2014).

B: Cultivated (Liengme, 1981).

e. *Sorghum bicolor* (L.) Moench [Exotic not listed on CARA, cultivated]
- Common names: *nyoba* (Sepedi), *mabele* (Sepedi), *ntso* (Sepedi), *mabêlêthôrô* (Sepedi), sweet-stemmed cultivar (English)

A: Edible stem (All; Quin, 1959) **Roots sometimes used in conjunction with other plants to make cures** [MLS (1968)].

B: Used in traditional medicine (Arnold et al., 2002).
f. *Zea mays* L. [Exotic not listed on CARA, cultivated]

- Common names: *lefela* (Sepedi), *leheya* (Sepedi), *mabele* (Sepedi)

A: The cob is boiled in water and eaten as is, or the seeds (grains) are dried and ground into a fine powder on a grinding stone and turned for cooking soft porridge (All; Quin, 1959). The whole plant is also used to treat malaria (Semenya, 2012a and b; Semenya and Potgieter, 2014).

B: Cultivated crop (Liengme, 1981; Moffett, 2010).
49. PROTEACEAE

a. *Protea caffra* Meisn. subsp. *falcata* (Beard) M.Lötter [LC]
   - Common names: *modometa* (Sepedi), *dzungu* (Tshivenda), *tshidzungu* (Tshivenda), *sekila* (South Sotho), *sekile* (South Sotho)

Pictures: Lesley Starke (www.inaturalist.org)

A: Used during rain making rituals [MMS (1976), RMM (1947), TKS (1963), TMS (1976), SM (1951)] and the wood is used as firewood [(LM (1964), MDS (1965), WSM (1972), RSM (1944)].

B: Used in traditional medicine and as firewood (Arnold et al., 2002).
50. PTERIDACEAE

a. *Pellaea calomelanos* (Sw.) Link

- Common names: *patalewana* (Sepedi), *patalewana* for ferns in general (South Sotho)

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*Crushed leaves are burned and the smoke inhaled for bronchial ailments* [TS (1967)], the plant is also used to treat tuberculosis (Semenya and Maroyi, 2013).

B: Widely used in traditional medicines (Arnold et al., 2002; Moffett, 2010).
51. RHAMNACEAE

a. *Ziziphus mucronata* Willd. [LC]

- Common names: *motalo* (Sepedi), Mokgalo (Sepedi), *mokonaona* (Sepedi), *makhalu* (Tshivenda), *nceseni* (Tsonga)

A: Edible fruit [BG (2002), KM (1944), KM (1981), KM (1990), LM (1964), WSM (1972), RMM (1947), SMM (1953), TM (1984), TKS (1963), TMS (1976), SM (1951), RSM (1944)] which is also used to make beverages (Rampedi, 2010). The root is used to treat chlamydia (Rasethe et al., 2013 and Semenya and Potgieter, 2014) and gonorrhoea (Erasmus et al., 2012).

B: Fruit is edible and the species is used in traditional medicine (Liengme, 1981; Mabogo, 1990; Rankoana, 2000; Arnold et al., 2002; Rampedi, 2010).
52. ROSACEAE

a. *Eriobotrya japonica* (Thunb.) Lindl.  [Exotic/invasive listed as Category 3]

- Common name: *mohlatswa wa segua* (Sepedi)

Pictures: [www.ispot.org](http://www.ispot.org) (website closed)

A: Edible fruit [JM (1997), KM (1944), ASS (1969), KM (1990), MP (1994), MM (1987), MDS (1965), RMM (1947), TM (1984), TKS (1963), TMS (1976), MN (1950's), MBN (1982)]. The root is used to treat hypertension (Semenya et al., 2012b; Semenya and Potgieter, 2014) and tuberculosis (Semenya and Potgieter, 2014; Semenya et al., 2012b, Semenya and Maroyi, 2013).

B: Fruit edible and some known medicinal uses.
b. **Prunus persica** (L.) Batsch [Exotic not listed on CARA, cultivated]

- Common name: *moperekisi* (Sepedi, South Sotho)

A: Edible fruit [All except RSM (1944), TS (1955), JC (1961)], **when a child is vomiting the outer skin of the fruit is boiled and the extract is fed to the child using a spoon** [TS (1967)]; the root is used to treat erectile dysfunction (Semenya, 2012b; Semenya and Potgieter, 2013b; Semenya et al., 2013a and Semenya and Potgieter, 2014; Lourens et al., 2015).

B: Edible fruit and used in some traditional medicine (Arnold et al., 2002; Moffett, 2010).
53. RUBIACEAE

a. *Gardenia volkensii* K.Schum. subsp. *volkensii* [LC]

- Common names: *muthuduntša* (Sepedi), *tiya motse* (Sepedi), *tshiralala* (Tshivenda)

A: **Traditional doctors are known to harvest the roots for medicine** [JC, KM (1944), MJM (1963), MS (1948)].

B: Used for crafts and various traditional medicines in southern Africa (Mabogo, 1990, Arnold et al., 2002).
b. *Vangueria infausta* Burch.

- Common names: *mmilô* (fruit is known as *mabilô*) (Sepedi), *muzwilu* (Tshivenda), *mpfilwa* (Tsonga), *ntswila* (Tsonga)

A: Edible fruit [All except JC (1961) and MLS (1968); Quin, 1959; Rasethe et al., 2013] also used to make beverages (Rampedi, 2010). **Traditional doctors are known to harvest the roots for medicine, the fruit can be mixed with milk to make yoghurt and the seeds have a laxative property** [KM (1944)].

B: Widely used in traditional medicine and the fruit is edible (Liengme, 1981; Mabogo, 1990; Rankoana, 2000; Arnold et al., 2002).
54. RUTACEAE

a. *Citrus limon* (L.) Osbeck. [Exotic not listed on CARA, cultivated]

- Common name: *moswiri* (fruit is swirir) (Sepedi) *suurlamani* (South Sotho), *tshikavhavhe* (Tshivenda)

A: The fruit is edible (All). The fruit juice is mixed with boiled water and drank as a treatment for flu or mixed with glycerine for nourishing the skin [ASS (1961), SM (1951)]. The root is used to treat malaria (Semenya et al., 2012b; Semenya and Potgieter, 2014) and the leaves are used to treat tuberculosis (Semenya and Maroyi, 2013).

B: Widely cultivated genus and used medicinally in Limpopo (Mabogo, 1990; Moffett, 2010).
b. *Zanthoxylum capense* (Thunb.) Harv. [LC]

- Common names: *monokwane* (Sepedi), *senokomaropa* (Sepedi), *khinungumorupa* (Tsonga), *manhungwane* (Tsonga), *nugani* (Tsonga), *xirhombehleta* (Tsonga)

Pictures: www.ispot.org (website closed)

**A:** *Leaves and roots ground and used to treat flu* [WSM (1972), RSM (1944)] or crushed to treat TB [KM (1981)], [Semenya and Maroyi, 2013a], edible fruit [MS (1948)]. Plant is used to treat nose bleeding [Semenya and Potgieter, 2014] and erectile dysfunction [Lourens et al., 2015].

**B:** The species is used in traditional medicine [Liengme, 1981; Arnold et al., 2002; Steenkamp, 2003].
55. SALICACEAE
   a. *Dovyalis caffra* (Hook.f. & Harv.) Warb. [LC]
      ➢ Common names: *mutunu* (Tshivenda), *nvisangani* (Tsonga), *hipachipachane* (Tsonga)

A: Edible fruit [ASS (1969), MDS (1965)].

B: Fruit is edible, widely used medicinally and has several craft uses (Mabogo, 1990; Rankoana, 2000; Arnold et al., 2002).
b. *Populus x canescens* (Aiton) Sm  [Exotic/invasive listed under Category 2]

- Common names: *pukler* (Sepedi), *papalere* (Sepedi), *papeliri* (South Sotho), *popeliri* (South Sotho), *popolere* (South Sotho), *pololiri* (South Sotho)

A: **Strong wood used as fencing posts and for roofing** [RMM (1947), KM (1944), BG (2002), JM (1997), JC (1961), SM (1951), MJM (1963), MDS (1965), MMS (1976)] and firewood [ASS (1969), MDS (1965), KM (1981), KM (1990), MP (1994), MMS (1976), RMM (1947), TM (1984), TKS (1963), TMS (1976), MBN (1982)]. Unlike *monoko* (*Ozoroa sp.*) it does not get damaged by the soil over time also used for husbandry [MS (1948), RSM (1944)].

B: Used in traditional medicine and for firewood (Arnold et al., 2002; Moffett, 2010).
56. SAPINDACEAE

a. *Dodonaea viscosa* Jacq. [LC]
   - Common names: *mofentse* (Sepedi), *mofenshe* (Sepedi), *mudodivisa* (Tsonga)

A: Used as live fence [KM (1944), ASS (1969), KM (1990), MJM (1963), MP (1994), MDS (1965), MS (1948), MMS (1976), RMM (1947), TM (1984), TMS (1976), TS (1967), SM (1951), RSM (1944)] and the roots are used to treat HIV/AIDS (Semenya and Potgieter, 2014).

B: Widely used medicinal plant and used as live fence in Limpopo (Mabogo, 1990; Arnold et al., 2002).
57. SAPOTACEAE
a. *Englerophytum magalismontanum* (Sond.) T.D. Penn. [LC]
   - Common names: *mohlatswa* (fruit known as mahlatswa) (Sepedi), *mahlatswa a hlateng* (Sepedi)

   A: The fruit is edible [BG (2002), JM (1997), KM (1944), KM (1990), MJM (1963), MP (1994), MM (1987), MDS (1965), MS (1948), MMS (1976), RMM (1947), TM (1984), TMS (1976), SM (1951), RSM (1944)] which is also used to make beverages (Rampedi, 2010) and the wood is used to make wooden utensils [MJM (1963)]. The bark is used to treat diabetes mellitus (Semenya and Potgieter, 2014). The roots are used to treat HIV/AIDS (Semenya and Potgieter, 2014) and erectile dysfunction (Semenya et al., 2012b).

   B: Fruit is edible and plant widely used medicinally (Rankoana, 2000; Arnold et al., 2002; Steenkamp, 2003).
b. *Mimusops zeyheri* Sond. [LC]

- Common names: *mmupudu* (Sepedi), *mibubulu* (Tsonga), *mpfuxane* (Tsonga), *nhlantswa* (Tsonga), *mubulu* (Tshivenda)

A: It produces edible fruit [SMM (1953), KM (1944), JM (1997), BG (2002), ASS (1969), KM (1981), JC (1961), KM (1990), MJM (1963), MDS (1965), MMS (1976), RMM (1947), TM (1984), TKS (1963), TMS (1976), SM (1951), RSM (1944)] which is also used to make beverages (Rampedi, 2010); the leaves are used to treat diabetes mellitus (Semenya and Potgieter, 2014; Semenya et al., 2012a).

B: Used in traditional medicine and the fruit is edible (Liengme. 1981; Mabogo, 1990; Rankoana, 2000; Arnold et al., 2002).
58. SOLANACEAE

a. *Capsicum annuum* L. [Exotic not listed on CARA, cultivated]

- Common names: *mopherere* (Sepedi), *green pepper* (English)

A: Mixed with food for flavour (All) and the roots are used to treat period pains (Semenya et al., 2012b; Semenya et al., 2013a; Semenya and Potgieter, 2014).

B: Widely used vegetable.
b. *Capsicum frutescens* L. [Exotic listed under CARA, cultivated]

- Common names: *pherefere* (Sepedi), *chilis* (children) (Sepedi), *lebela bela* (Sepedi), *viriviri* (Tsonga)

A: Mixed with food for flavour (All).

B: Has various medicinal uses in southern Africa and is a well-known cultivated crop (Liengme, 1981, Arnold et al., 2002).
c. *Datura stramonium* L.  [Exotic/invasive listed under Category 1b]

- Common names: **makura or mokura** (Sepedi), **lechoe** (Sepedi) **thoba** (Sepedi), **letjhoi** (South Sotho), **letjhowe** (South Sotho), **lethwe** (South Sotho), **letjoi** (South Sotho), **mohlafota** (South Sotho), **zavhazavha** (Tshivenda), **olieboom** (Afrikaans)

A: A person who ingests the plant can go crazy/mad within 24 hours [SMM (1953), KM (1990), MDS (1965), MS (1948), MMS (1976), RMM (1947), SMM (1953), TM (1984), TKS (1963), TMS (1976), TS (1967), SM (1951), MN (1950's), MBN (1982), (ASS (1969)]. **The leaves are used as Elastoplast** [KM (1944)]. **Seeds are ground to powder, mixed with cattle or pork fat and used to seal wounds** [LM (1964), WSM (1972), RSM (1944)] and to **treat aching feet** [MJM (1963)]. **Traditionally the oil from the seeds was used to polish floors** [MSS (1948)] and the plant is used to treat stroke victims (Semenya, 2012b; Semenya and Potgieter, 2014).

B: Widely used medicinally (Mabogo 1990; Arnold et al., 2002; Moffett, 2010).
d. *Nicotiana tabacum* L.  [Exotic not listed on CARA, cultivated]

- Common names: *mopolare* (Sepedi), *motsuku* (Sepedi), *kwane* (South Sotho), *tabak* (South Sotho)

A: **Leaves used to make motshoko (snuff) and as cattle feed** [All except MS (1948), MLS (1968), MTM (1997), ASS (1969), KM (1990)].

B: Widely used in traditional medicine (Arnold et al., 2002; Moffett, 2010).
e. *Physalis peruviana* L. [Exotic not listed on CARA]

- Common names: *mmomodi* (Sepedi), *murungudane* (Tshivenda), *kusebere* (South Sotho), *makusebere* (South Sotho), *mokusbere* (South Sotho)

A: The fruit is edible and is used to make jam [MSS, KM (1944), ASS (1969), KM (1981), JC (1961), MS (1948), MMS (1976), TM (1984), TKS (1963), TS (1967), SM (1951), MBN (1982), RSM (1944)].

B: Edible wild fruit that is also widely used in traditional medicine (Mabogo, 1990; Arnold et al., 2002; Rampedi, 2010).
f. *Solanum aculeastrum* Dunal [LC]

- Common names: *thola e golo* (Sepedi), *mushulwa* (Tshivenda)

A: The liquid from the fruit is used to heal *ditlapedi* (a facial skin condition), rubbed on goats noses and when inhaled kills worms that infect their brain and used as cattle medication [ASS (1969), MDS (1965), MS (1948), RMM (1947), TKS (1963), SM (1951), MN (1950's), MBN (1982)]. The fruit is also rubbed on chicken eggs to stop dogs from eating the eggs [JC (1961)]. The entire tree is burnt and the radiated heat is believed to heal babies [KM (1944)], a decoction of boiled roots is
gurgled to treat toothaches [LM (1964), WSM (1972), RSM (1944)]. Plant is generally used as medicine [TMS (1976)].

B: Used in traditional medicine (Mabogo, 1990; Arnold et al., 2002).

g. **Solanum panduriforme** E. May. [LC]
   - Common names: **thola boreledi** (Sepedi), **thola ye serolwane** (Sepedi), **morolwane** (Sepedi), **tholana** (South Sotho), **ndulwane** (Tsonga), **ndzhulwane** (Tsonga) **nthuma** (Tsonga) **rirhulwane** (Tsonga)

A: **Juice from the seed is rubbed on chicken eggs to stop dogs from eating the eggs** [KM (1944), MJM (1963), JC (1961), KM (1981), MDS (1965), TKS (1963), SM (1951)]. **The poisonous seeds are used to treat cows** [MS (1948)]. A decoction of ground roots is gurgled to treat toothaches [LM (1964), RMM (1947), TMS (1976), RSM (1944), KM (1944), MJM (1963), JC (1961), KM (1981), MDS (1965), TKS (1963), SM (1951), ASS (1969), MN (1950's), MBN (1982)]. The fruit is used to treat gonorrhoea and drop (Erasmus et al., 2012; Semenya et al, 2013b and Semenya and Potgieter, 2014).

B: Widely used in traditional medicine (Liengme, 1981; Mabogo; Rankoana, 2000; Arnold et al., 2002; Moffett; 2010).
59. VELLOZIACEAE
a. *Xerophyta retinervis* Baker [LC]
   - Common names: *hutsê* (Sepedi), *efirwane* (South Sotho), *lethepu* (South Sotho), *mafirwane* (South Sotho), *tshikundandadzi* (Tshivenda)

A: Historically the leaves were used to make a sling shot known as *sefalanyana* and the dried stem were used as a torch [JM (1997), MJM 1963, SM (1951)]. The stem of the plant can be used as a splint and the inner fibres of the stem and leaves can be used to make rope for roofing [MJM (1963), JC (1961), KM (1944), ASS (1969), MDS (1965), MMS (1976), RMM (1947), TKS (1963), SM (1951), RSM (1944)]. The stem is also used to make a broom for cleaning *lwala* (grinding stones) [ASS (1969), KM (1990), MDS (1965), MMS (1976), WSM (1972), RMM (1947), TMS (1976), TS (1967), MN (1950's), MBN (1982); Quin, (1959)]. Dry plants are used to cover *meta* (clay pot used for storage) which is burned to harden [KM (1944), MJM (1963)].
B: Used for craft purposes and in traditional medicine (Liengme, 1981; Mabogo 1990; Arnold et al., 2002; Moffett, 2010).

60. VERBENACEAE
   a. Lantana camara L. [Exotic/invasive listed as Category 1b]
      ➢ Common names: sebabane (Sepedi), motsholla (Sepedi), tshidzimbambule (Tshvenda)

Pictures: www.ispot.org (website closed)

A: The berries are edible [MJM (1963), MS (1948), JM (1997), KM (1944), BG (2002), SM (1951), KM (1981), KM (1990), LM (1964), MP (1994), MDS (1965), MMS (1976), WSM (1972), RMM (1947), SMM (1953), TM (1984), TKS (1963), SM (1951), MBN (1982), RSM (1944)] and the root is used to treat hypertension (Semenya et al., 2012b; Semenya and Potgieter, 2014).

B: Widely used in traditional medicines (Arnold et al., 2002).
b. *Lantana rugosa* Thunb. [LC]

- Common names: *mokokotwane* (Sepedi), *mopopotwane* (children) (Sepedi), *masepa a magotlo* (Sepedi), *mabelemabutswapele* (South Sotho), *mabutswapele* (South Sotho), *modutwane* (South Sotho), *monokotshwai wa makgwaba matona* (South Sotho), *monokotswai wa makgwaba* (South Sotho), *tshidzimbambule* (Tshivenda)

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A. Berries are edible [ASS (1969), MJM (1963), MS (1948), JM (1997), BG (2002), KM (1944), SM (1951), KM (1981), LM (1964), MP (1994), MDS (1965), MMS (1976), WSM (1972), RMM (1947), SMM (1953), TKS (1963), TMS (1976), SM (1951), MBN (1982), RSM (1944)].

B: Widely used in traditional medicines and the Sotho use it for cultivation (Arnold et al., 2002; Moffett, 2010).
c. *Lippia rehmannii* H.Pearson [LC]

- Common names: *mošukutšwana* (Sepedi), *mosunkwane* (Sepedi)

A: **Plant leaves may be boiled as tea** [KM (1944), ASS (1969), MDS (1965), MMS (1976), RMM (1947), SM (1951), MBN (1982), RSM (1944)]. **Leaves mixed with the blood of a slaughtered animal, cooked and eaten as soup** [TKS (1963), TMS (1976), SM (1951)] or **used to neutralise pork smell when cooking pork meat** [(MJM (1963), MDS (1965), MMS (1976), RMM (1947)]. Leaves also used to treat chest complains, tuberculosis (Semenya and Potgieter, 2014) and nose bleeds (Semenya and Potgieter, 2014). **The whole plant is hung from the roof, indoors, as a mosquito repellent** [KM (1944), MJM (1963), JM (1997), BG (2002)] and can be used as firewood [MMS (1976), RMM (1947)].

B: Widely used in traditional medicines (Arnold et al., 2002).
61. VITACEAE

a. *Rhoicissus sekhukhuniensis* Retief, Siebert & A.E. van Wyk [LC, Sekhunkhuneland endemic]

- Common names: *moapara* (Sepedi)

A: Edible fruit [SMM (1953), KM (1944), ASS (1969), KM (1981), KM (1990), MDS (1965), MMS (1976), RMM (1947), TM (1984), TKS (1963), TMS (1976), SM (1951), MN (1950's)].

B: *Rhoicissus sekhukhuniensis*. 
b. *Vitis vinifera* L. [Exotic not listed on CARA, cultivated]

- Common name: *didruiwe* (Sepedi)

A: Edible fruit (All).

B: Widely cultivated as a crop plant.
62. ZYGOPHYLLACEAE

a. Tribulus terrestris L. [LC]
   - Common name: tsêhlô (Sepedi), mosehlo (Sepedi), tsetlwa (Sepedi), hletswana (Sepedi), 
etswana (Tshivenda)

A: Leaves eaten as morogo [KM (1944), JM (1997), ASS (1969), KM (1981), KM (1990), MP (1994), MDS  
(1965), MMS (1976), RMM (1947), SMM (1953), TM (1984), TKS (1963), TMS (1976), TS (1967), SM  
(1951), MBN (1982); Quin, 1959]. **When cows have calving complications a decoction of the plant  
can be administered to the expectant cow to promote successful calving** [MJM (1963)] The whole is used to treat **khutlega** (chlamydia) (Semenya et al., 2013b and Semenya and Potgieter, 2014).

B: Used as a pot herb and widely used in traditional medicine (Mabogo, 1990; Rankoana, 2000; Arnold  
et al., 2002).
APPENDIX B

The Bapedi cultural catalogue

A. Bapedi Clothing
Figures i a and b: The Bapedi traditional initiation clothing: a, ntēpa (back cover of women initiation skirt) and b, lebole with beads covering (front cover of women’s initiation skirt) and legeswa (men’s initiation wear).

Figure ii: Pink semabejana (women traditional shirt) laid out on legogwa (grass mat).

Figure iii: Bapedi ladies dancing group wearing traditional Bapedi women clothing
B. Bapedi inventory
Figure iv: Royal weaponry: *Semamajane* (white hammer-like stick), *lerumo* (spear), *phalafala* (horn) is used to call for reinforcements when enemies are approaching, *molamu* (knopkiri) used to hit enemies, *sefoka sa ga moshate* (feathered stick) chiefs holds it in the army frontline during battle.

Figure v a and b: Fire making tools: a, *ditshana* (fire making sticks) with *dibi* (donkey doung) and b, *mosikidipela* and *mohlatswa* (fire making tools) being used to start a fire (*go fehla setjana*).
**Figure vi a-d:** Material and products used by the Bapedi for crafting: a and b, side and top view of traditional drums covered in cow hide cleaned using *hlabo* (*Aloe marlothii*); c, dried *Cyperus* stems to be weaved into legogwa (grass mat) and d, *pere* a grass mat weaving tool.
ETNObOTANICAL SURVEY: ………(Study area / Community)       Date ……………

Researcher: Mahlatse Maromo Paul Mogale, South African National Biodiversity Institute Tel: 012-843-5196; 082-800-4134

Principle of “educated informed prior consent”: This project is an academic study by the University of Johannesburg that is aimed at conserving all traditional knowledge about plants and the uses of plants for future generations. You are requested to participate voluntarily by answering questions about plants and their uses. The process may last anything between 10 minutes and about two hours. You can stop participating at any moments if you lose interest or if you have other important work to do.

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Living at ...........................................................................................................................................................................................................................................................................................................(home address)

Born on (date) ………………….; origin of knowledge: ............................................................

Hereby give permission that the information about plants and plant uses that I have provided can be used for academic purposes (scientific publications, books, conference proceedings and post-graduate studies). I am fully informed about the aim of the research project, namely to preserve cultural-historical indigenous knowledge about plants so that it will not be lost to future generations. I also understand that the project is of academic and cultural value only and that the researchers have absolutely no profit motive. I also understand that the researchers are not interested in personal information or secrets (such as family secrets or family recipes). I hereby also give permission that my name and date of birth, the origin of my knowledge as well as my portrait (photo) may be used in the above-mentioned publication(s). I also understand that the scientists are committing themselves to inform me fully about the outcome of the study and that they will supply me with a copy of the publications(s) when published or at least a summary of the main findings. The whole process from start to finish (when the articles or books have been completed and when the final feedback can be done) typically takes between two and five years.
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Monyakišiši: Mahlatse Maromo Paul Mogale, South African National Biodiversity Institute Mog: 012-843-5196; 082-800-4134

Motheo wa “go rutwa, go sedimošwa pele ga tumelo”: Protšeke ye ke ya dithuto ka Yunibesithing ya Johannesburg yeo maikemišetšo a yona e lego go boloka tsebo ka moka ya setšo ka ga dimela le tšhomišo ya dimela go mabaka a lešika/moloko wa ka moso. O kgopelwa go kgatha tema ka boithaopo ka go araba dipotšišo ka ga dimela le tšhomišo ya tšona. Tshepedišo e ka tš ea metsotso ya magareng ga ye 10 le diiri tše pedi. O emiša ga kgathatemato nako efe goba efe ge o ka lahlegela ke kgahlese goba ge o ka ba le mošomo o mongwe o bohlokw o wo o dirago.

Nna , ……………………………………………………………………………………………………………(leina)

Ke dulago ………………………………………………………………………………..……. (atrese ya ka gae)

Ke belegwe ka la (Letšatšikgwedi) ………………………….; botšo bja tsebo:
……………………………………………………………………………………………………………

Ka gona ke fa tumelelo ya gore tshedošo ka ga dimela le tšhomišo ya dimela yeo ke e filego gore e ka šomišwa go mabaka a dithuto (dikgatišo tša saense, dipuku, ditshedišo tša khonferense le dithuto tša ka morago ga tikrii ya mathomo). Ke tsēbišišwe ka botlalo ka ga maikemišetšo a protšeke ye ya dinyakišio, mohlala, go boloka tsebo ya thago ya setšo le histori ka ga dimela gore e se ke ya lahlegela lešika/moloko wa ka moso. Gape ke a kwešiša gore protšeke ke ya boleng bja dithuto le setšo fela le gore banyakišiši ga ba na le lebaka la go hwetša poelo. Gape ke a kwešiša gore banyakišiši ga ba na kgahlese goba boletšwego tšo tšo tša gago yeo e lego ya gago goba diphibiri tša gago (bjalo ka diphibiri tša lapa goba metswako ya lapa). Gape ke fa tumelelo ya gore leina la ka le letšatšikgwedi la matswalo, botšo bja tsebo ya ka mmogo le seswantšho sa ka (senepe) di ka no šomišwa ka go dikgatišo tšeo go boletšwego ka tšona ka moo goudimo. Gape ke a kwešiša gore boramahlale ba ikgafile gore ba tla ntsebiša ka botlalo ka ga dipelo tša dinyakišišo le gore ba tla mphe khophi ya di/kgatišo ge e šetše e gatišišwe goba bonnyane bja kakarešo ya dikutollo tše bohlokw. Tshepedišo ye ka moka go tloja mathomong go fihla mafelelong (ge diathekhele goba dipuku di feditšwe le ka nako ya ge diphetolo tša mafelelo di dirilwe) ka tšwaelo di tšea sebaka sa magareng ga mengwaga e mebedi le ye mehlano.
TSHAENO (MOKGATHATEMA) goba MOTSWADI/MOHLOKOMEDI (ba bannyane)
LETŠATŠIKGWEDI ……………

TSHAENO (MONYAKIŠIŠI): LEGATONG LA UJ Mahlatse Maromo Paul Mogale
LETŠATŠIKGWEDI ……………

Ka gona ke a dumela gore ke hweditše tšelele yeo e latelago:

DITSHENYELELO TŠA SENAMELWA R …………………
TEFO R …………………
PALOMOKA (go akaretša le VAT): R …………………

E HWEDITŠWE KA KHEŠE GO TŠWA YUNIBESITHING YA JOHANNESBURG:

TSHAENO (MOKGATHATEMA) Leina:
LETŠATŠIKGWEDI ……………

TSHAENO (MONYAKIŠIŠI) Mahlatse Maromo Paul Mogale
LETŠATŠIKGWEDI ……………

APPENDIX E

Questionnaire

MSc Dissertation Mogale M.M.P The Ethnobotany of Central Sekhukhuneland, South Africa
A. English questionnaire

Three questions are asked about each plant:

(1) Do you know this plant?

(2) Do you recall any vernacular names for the plant?

(3) Do you know of any uses for this plant?

B. Sepedi questionnaire

Dipotšišo tše tharo di a botšišwa ka ga semela se sengwe le se sengwe:

(1) O tseba semela se?

(2) O gopola maina afe goba afe ka leleme la ka gae a semela se?

(3) O tseba tšhomišo efe goba efe ya semela se?

| No. | Species                      | vernacular name(s) | main use(s) | 1) know the plant? | 2) know a name for the plant? | 3) know any use(s) for the plant? |
|-----|------------------------------|--------------------|-------------|--------------------|-----------------------------|---------------------------------|
| 1.  | *Allium cepa* L.             |                    |             |                    |                             |                                 |
| 2.  | *Allium schoenoprasum* L.    |                    |             |                    |                             |                                 |
| 3.  | *Aloe aborescens* Mill.      |                    |             |                    |                             |                                 |
| 4.  | *Aloe castanea* Schönland    |                    |             |                    |                             |                                 |
| 5.  | *Aloe marlothii* A. Berger  |                    |             |                    |                             |                                 |
APPENDIX F

Permit issued by South African National Biodiversity Institute (SANBI) for collection of plant material in the study area (Sekhukhuneland).

| Permit Holder | | |
|---|---|---|
| Full Name: | Mr. M.M. Mogale | |
| Postal Address: | Private bag x101 | |
| Postal Suburb: | Silvertown | |
| Postal State: | Gauteng | |
| Postal Country: | South Africa | |
| Postal Code: | 0184 | |

| ID No.: | 88090562030582 |
| Physical Address: | 2 Constancia Ave Brummeria |
| Physical Suburb: | Pretoria |
| Physical State: | Gauteng |
| Physical Country: | South Africa |
| Permit No.: | ZA0914031426 |

| Permit Details |
|---|---|
| Effective Date: | 2015-07-24 |
| Valid Until: | 2016-07-24 |
| Paid: (ZAR) | 52.00 |
| Receipt No.: | 1071135 |

| Stamp: |
|---|
| CITES & PERMIT MANAGEMENT ENVIRONMENTAL AFFAIRS Limpopo Province |

| Farm Name / Organization | District | Province | Country |
|---|---|---|---|
| Sekhukhune | Limpopo | South Africa | |

Issued by: Signature Of Permit Holder

The heartland of southern Africa - development is about people!
GENERAL CONDITIONS AND REQUIREMENTS OF THE PERMIT / LICENCE / CERTIFICATE

This permit, license or certificate shall be subject to the following conditions and requirements:

1. This permit, licence or certificate shall not be transferable.

2. Any unauthorized alterations to this permit, licence or certificate shall invalidate it.

3. This permit, licence or certificate shall be subject to the provisions of any law in force during the period of validity of the permit, licence or certificate, in the area to which the permit, licence or certificate to such person.

4. The holder of this permit, licence or certificate shall, at the request of a person authorized in terms of the relevant legislation so to demand, forthwith produce such permit, licence or certificate to such person.

5. The holder of this permit, licence or certificate shall return this permit, licence or certificate to the Senior Manager: Wildlife Trade and Regulation, Limpopo Province, P.O. Box 55464, Polokwane, 0700

6. This permit, licence or certificate shall be invalid until the signature of the holder thereof has been appended thereto.

7. This permit, licence or certificate shall lapse when it is lost or destroyed and no copy thereof shall be issued.

8. The holder of this permit, licence or certificate who contravenes or fails to comply with any one of the conditions or requirements to which this permit, licence or certificate is subject, shall be guilty of an offence.

9. An officer authorized thereto by the M.E.C may cancel this permit, licence or certificate at any time.

10. This permit, licence or certificate does not absolve the holder thereof from the necessity of obtaining such other permits and/or documents as may be required by law from the relevant province or country.

SPECIAL CONDITIONS

1. THIS PERMIT MUST BE SIGNED BY THE PERMIT HOLDER AND MUST BE IN HIS/HER POSSESSION FOR THE DURATION OF THE PROJECT.

2. THE PROJECT LEADER MUST OBTAIN THE WRITTEN PERMISSION OF THE LANDOWNER ON WHOSE PROPERTY THE ANIMALS WILL BE COLLECTED PRIOR TO THE COLLECTION THEREOF.

3. THIS PERMIT ALSO Authorizes THE Holder THEREOF TO CONVEY WITHIN THE PROVINCE, OR EXPORT FROM THE PROVINCE THE COLLECTED SPECIES REFER TO ON THIS PERMIT, TO ANY OTHER PROVINCE WITHIN THE COUNTRY. SUCH ACTION WILL BE SUBJECT TO IMPORT PERMITS FROM SUCH PROVINCE.

4. COPIES OF PUBLICATIONS EMANATING FROM THIS RESEARCH PROJECT SHOULD ALSO BE FORWARDED TO THE ADDRESS STATED UNDER POINT 6.

5. A DASHBOARD ACCORDING TO THE ATTACHED DATA FORMAT MUST BE COMPLETED FOR EACH SPECIMEN COLLECTED AND BE RETURNED TO THE BIODIVERSITY OFFICE FOR THE PROVINCIAL BIOBASE PROJECT.

6. ALL REQUESTED INFORMATION OR ENQUIRIES MUST BE DIRECTED TO THE LIMPOPO ENVIRONMENTAL MANAGEMENT AUTHORITY, P.O. BOX 55464, POLOKWANE, 0700.

7. INDIGENOUS SPECIES TO BE COLLECTED IN THE FOLLOWING VILLAGES: PHOKWANE, GA-MORELENG, TSISHE, KWANE & SCHOORNDORFia-Shechle WITHIN GREATER SEKHUKHUNE AREA, AS PER APPLICATION.

8. PROF BEN-ERIK VAN WYK & DOMITILLA C. RAMONDO ARE AUTHORIZED TO UTILIZE & BE IN POSSESSION OF THE PERMIT.
Ethical clearance approval letter issued by the Ethics Committee of the Faculty of Science at the University of Johannesburg.

Dear Sir/Madam,

APPLICATION FOR RESEARCH ETHICS CLEARANCE

Thank you for submitting your proposal for ethics clearance.

The Faculty Ethics Committee of the Faculty of Science, University of Johannesburg reviewed the application and concluded that the project is approved.

Species: indigenous plants
Number of individuals: Matrix method, 15 persons per village
Period of study approval: Two years
Notes: Approved

Sincerely,

Chairperson-Faculty Ethics Committee
Faculty of Science