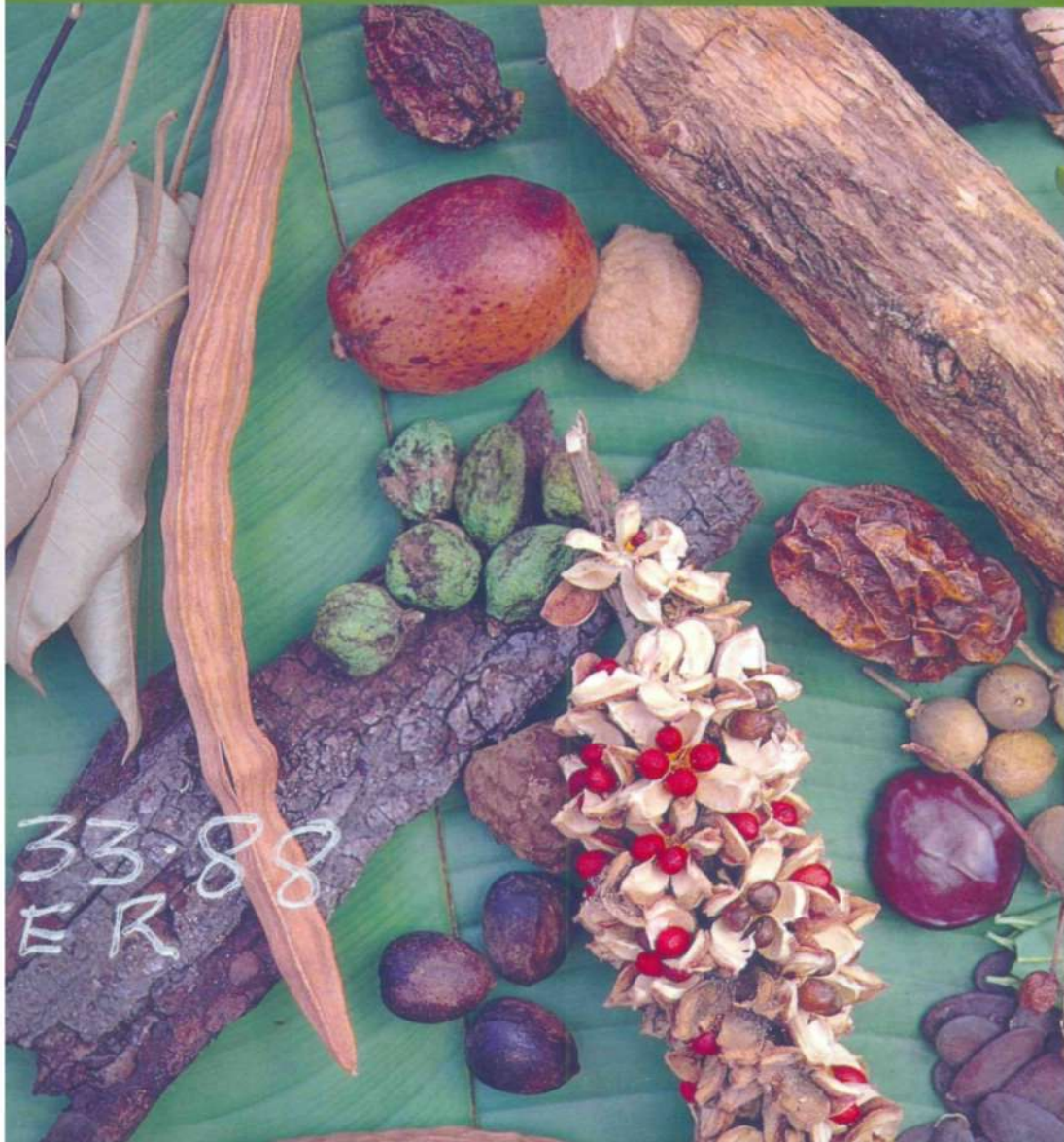
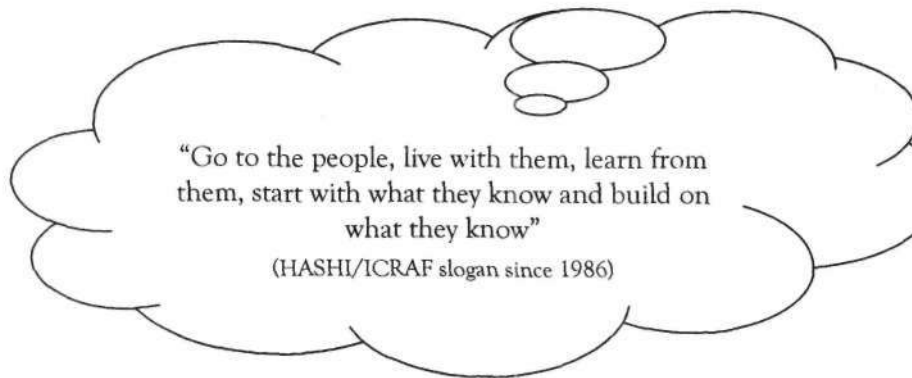


**Indigenous knowledge
of medicinal trees and setting priorities
for their domestication
in Shinyanga Region, Tanzania**

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Executive summary

All too often, researchers do not communicate effectively with local people. ICRAF has recognized the need to make local farmers' experience the focal point in any efforts to improve their use of land and natural resources. This report is about a novel attempt to document, set priorities and determine the availability of tree species used for traditional healing in Shinyanga. It is an initial step towards domesticating medicinal trees that are still looked upon as products of the wild. The study is part of the concerted efforts by ICRAF to domesticate high-value trees in several countries in Africa, South America and Southeast Asia.

Participatory rural appraisal (PRA) tools were used to identify and rank the medicinal trees with each respondent. Parts from over 300 trees were reported as used for the treatment of more than 100 human diseases. Analysis of the respondents' preferences placed the following priority medicinal trees (PMTs) as the top 10 on the list: *Securidaca longipedunculata*, *Zanha africana*, *Cassia abbreviata*, *Entada abyssinica*, *Turraea fischeri*, *Albizia anthelmintica*, *Entandrophragma bussei*, *Combretum zeyheri*, *Zanthoxylum chalybeum* and *Terminalia sericea*. Literature review has revealed that these trees are used widely in traditional medicine on the African continent. The scarcity of the PMTs in 4 of the 5 districts surveyed underscored the urgent need for their domestication. Information was also gathered on propagation and on other uses of the PMTs. The report concludes with an outline of priority research areas identified for domestication work.

Foreword

Few topics in rural development are as surrounded by mysticism and misconception as traditional medicine. This is perhaps surprising even that approximately 80% of people in developing countries still rely on traditional medicines. A few centuries ago all humans were either cured, or not, by herbal remedies as synthetic medicines did not exist. Associated with the healing ingredients of plants is the knowledge of how to prepare and use them. Either alone is useless. This volume addresses both aspects of species and information in a study on medicinal trees in a rural area of Tanzania.

The prescription for a successful grassroots project is the involvement of beneficiaries in framing and carrying out the work. The authors of this study have tackled the sensitive issues surrounding medicinal plants and indigenous knowledge in a progressive way. The farmers have shared their knowledge and experiences in the hope that the scientists and other partners will share their resources and skills to improve the production and availability of medicinal trees.

- As human populations increase and forests recede, the option to harvest medicinal plants from the wild is reduced. It can be further stated that without cultivation some populations of trees will become extinct and likely with them the knowledge on how to use those trees. The process of identifying trees, producing and managing them and encouraging their wide-scale adoption is what ICRAF and its partners term domestication. The participatory way in which the work was carried out ensures high confidence in the priority species and needs identified.

This publication serves to describe the approaches used for the benefit of others working in the area of phytomedicinals. Equally importantly, it documents the current knowledge of about 300 tree species in use in western Tanzania for health of the rural populations of today and tomorrow. It is clear that the aims and comprehensiveness of the study will not be lost when this useful reference is translated into local languages.

Prescription? Magic!

Tony Simons

Leader, Agroforestry Tree Domestication Programme

ICRAF

Chapter 1

Introduction

Background

Since ancient times plants have been an indispensable source of both preventive and curative medicinal preparations for human beings. Despite immense progress in modern medicine, with clinics in rural areas, traditional medicine continues to flourish in Shinyanga. Collecting, trading and utilizing tree medicinal products still are important in the life of most people in the region. It is estimated that over 80% of rural people in Tanzania still depend on traditional healers and traditional herbs for their primary health care needs (Mahunnah 1990).

Unfortunately, the local health traditions are being lost because they are oral and largely undocumented. Most of the trees, which are the main source of medicines, have been neither documented nor studied. These indigenous fruit and medicinal trees are still considered solely as products of the wild (Maghembe and others 1996). The extent of deforestation in the region implies that some of the trees are also disappearing (Buwalda and others 1997). The booming trade in traditional herbs is further diminishing their supplies, and some of these medicinal trees are so overharvested that they will become extinct unless something is done to reverse the situation.

These problems of minimal documentation, diminishing supplies, and unsustainable, unregulated and indiscriminate harvesting of medicinal trees actually provide numerous opportunities for advancing agroforestry, thus bringing about a better environment and rural well-being in the region. It is the rural people who have the most to lose if this priceless indigenous intellectual heritage and some of the trees upon which it is based disappear. It is also the rural people who have the most to gain if this knowledge is documented and programmes are established to domesticate and conserve trees and if new markets are created for the medicinal products from them.

This study is part of a concerted effort by ICRAF to domesticate indigenous tree species. Ongoing work to domesticate indigenous fruit trees in the miombo woodlands of southern Africa has shown the importance of farmer involvement (Maghembe and others 1998).

Documenting indigenous knowledge and determining priorities for medicinal trees in Shinyanga Region is a first step in this direction. This investigation will pave the way for further studies on the PMTs.

Objectives

In response to the reduced occurrence of medicinal trees in the wild, the HASHI/ICRAF¹ project initiated a research programme in 1997. The goal was to document the wealth of knowledge on medicinal trees and to evaluate ways of integrating them into existing farming systems in the miombo woodlands of southern Africa. The overall objective of the programme was to domesticate the identified PMTs and thereby increase the availability of scarce medicinal products to traditional healers and farmers, raising their income, reducing pressure on wild tree populations and contributing to better health care.

The specific objectives of this study were the following:

- to document indigenous knowledge on medicinal trees in Shinyanga Region
- to set priorities on the medicinal trees identified, to determine prime candidates for domestication
- to assess the availability of the PMTs in the region

¹ Hifadhi Ardhi Shinyanga (literally, 'conserve soil in Shinyanga') and the International Centre for Research in Agroforestry

Shinyanga Region

General information on the study area

Shinyanga Region lies south of Lake Victoria in the northwestern part of Tanzania. The region is situated between longitudes 31° and 35° east and latitudes 2° and 5° south. One of 20 administrative regions of mainland Tanzania, Shinyanga covers an area of 50 781 km² and is the 9th largest region in the country. There are 6 administrative districts: Bariadi, Bukombe, Kahama, Maswa, Meatu and Shinyanga (fig. 2.1). The districts are subdivided into 27 divisions, 160 wards and 817 villages.

Shinyanga is occupied mainly by the Wasukuma ethnic group. Other groups include Wanyamwezi, Wataturu, Wasumbwa, Wanyiramba and Wahadzabe. The region had a population of 1 763 960 during the 1988 census and is currently projected at 2 million, based on an annual average growth rate of 2.9%. Population density varies from 18 persons km⁻² in Meatu District to 183 persons km⁻² in Shinyanga Urban District with an average of 35 persons km⁻² (Kileo and others 1995).

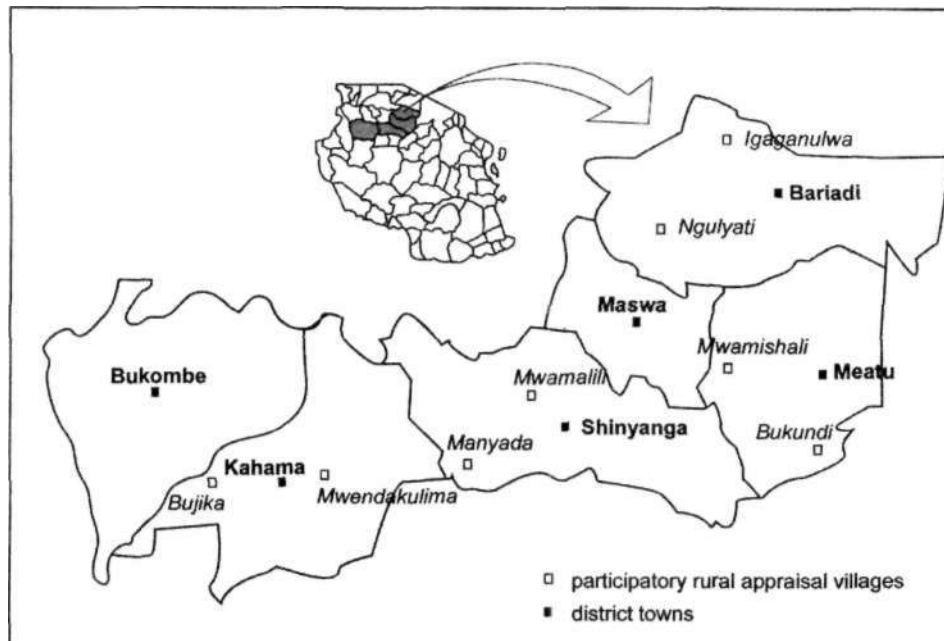


Figure 2.1. Sketch map of Shinyanga Region showing the districts, towns and villages where participatory rural appraisals were conducted.

The annual rainfall in the region varies from about 600 to 900 mm, with a mean of 700 mm; the rainy season begins in November and ends in April-May. Rainfall is erratic and poorly distributed with high variability within and between seasons. The rainy season is characterized by short dry spells, which are often detrimental to crop production. Monthly temperatures vary between 27.6°C and 30.2°C maximum and 15°C to 18.7°C minimum (Kileo and others 1995).

Topography and vegetation

The region is characterized by flat, gently undulating plains interspersed with low ridges, hill blocks and ranges. The general altitude varies from 1000 m in the southeast to 1500 m in the northeast. Soils are mainly clayish but vary tremendously from hilltops to valley bottoms. On hilltops, soils are moderately well drained, greyish brown and sandy (ferric Acrisols and Oxisols). Moderately deep, well-drained, greyish brown sandy loam soils (ferric Luvisols) occur on the slopes (Hathout 1972). On the low-lying bottomlands are the poorly drained black clays (Cambisols and Vertisols). Vertic soils are quite extensive, covering about 47% of all soil types in the region. These are relatively fertile but susceptible to flooding for at least 2 months during the rainy season.

Shmyanga Region was extensively forested with woodland and bushland species such as *Acacia*, *Albizia*, *Brachystegia*, *Commiphora* and *Dalbergia* (Otsyina 1992). However, during the 1920s and 1930s, large areas of land were cleared of bush and trees as part of eradication programmes for tsetse fly and quelea bird. Since then, deforestation and bush clearing have continued to the extent that the forest area today is but a small part of the land surface (fig. 2.2). Currently, much of the cultivated area in the region contains sparsely distributed *Acacia* species and *Adamonia digitata* (baobab) trees.

Land use and agriculture

The potential agricultural land in Shmyanga is estimated at 2 193 500 ha, but the area used for annual crop production scarcely exceeds 10% (fig. 2.2).

As mentioned earlier, the Sukurm people, who are sedentary agro-pastoralists, predominate in the region. Although they are basically cultivators, keeping livestock is important for them for both economic and cultural reasons (Brandstrom 1985). The livestock component provides milk and animal products for household consumption, ox ploughing and transportation. In addition, animals fulfil various social functions and act as

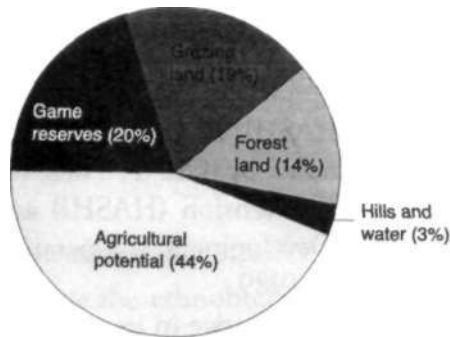


Figure 2.2. Regional land-use distribution (Kileo and others 1995).

a bank or security for individual families. Major crops grown in the region include millet and sorghum on the sandy clay soils, cassava, cotton and maize on the fine sandy soils on the mid-slopes and rice on the clay soils. Cotton, the major cash crop, is grown in monoculture. Maize, sorghum and millet are grown in mixtures with food legumes. Rice production is becoming increasingly important.

The adverse impacts of environmental degradation

The depletion of natural resources and soil cover has led to the following adverse impacts on the socioeconomic development in the region:

- Increasing numbers of livestock and cultivation pressure have resulted in acute fodder shortages during dry seasons. In response to this pressure, owners of large herds usually migrate out of the region to neighbouring districts in search of fodder.
- There is an acute shortage of fuelwood and various wood products (timber, poles, fruits and so on) in the region. Woodfuel is the main energy source in all villages and its scarcity has several consequences. First, rural people are compelled to use crop residue and manure for fuel, with adverse effects on crop production. Second, women and children spend much of their time and effort in gathering cooking fuel. This interferes with children's schooling and increases the work burden on women (Dery 1996).
- Land degradation is triggered when the soil vegetative cover is removed; this leads to water and wind eroding the productive topsoil (Maro 1995). The result is declining soil fertility, which in turn affects crop production and food security in the region (Ngazi 1993). Soil erosion has also caused several dams to silt up. Examples are Sola dam in Maswa District and Ng'hwang'osha dam in Shinyanga District.

The HASH1/ICRAF Project

Land degradation in Shinyanga was the main issue during the conference 'Environmental Conservation through Tree Growing' held in 1984 at the Mwadui diamond mining complex near Shinyanga. Among the partici-

pants was the then president of Tanzania, Julius Nyerere. As a follow-up to one of the resolutions of that conference, a project to improve and protect the environment of Shinyanga from further degradation was initiated in 1986. It was named *Hifadhi Ardhi Shinyanga* or HASHI. As from 1991, the research component of this project has been handled by ICRAF. Thus, the project has become a unique marriage between extension (HASHI) and research (ICRAF). The Norwegian Agency for Development Cooperation (NORAD) has been its main source of funds since 1989.

The HASHI/ICRAF Project has so far proven innovative in its approach to improving land use in Shinyanga through local participation. In addition to developing and disseminating agroforestry technologies, it has been quite successful in creating awareness of tree planting and other environmental issues in the region (HASHI/ICRAF 1998). In line with its motto of going to the people and building on what they know, the project places great emphasis on indigenous knowledge and has adopted some of the Sukuma nature conservation methods such as grazing reserves (*ngitiri*). Tree-planting programmes have also been initiated through various government and non-government projects to improve tree cover and provide people and communities with needed wood products.

Traditional healers and health care in Shinyanga

Health services in the region are provided by the government, the private sector, religious institutions, traditional healers and birth attendants. The government is the main health service deliverer with a regional hospital in Shinyanga Urban and 5 district hospitals. The government also runs over 257 dispensaries and 14 health centres in the region (Kileo and others 1995).

Despite the increasing efforts of government and the private sector to meet health care needs, the health facilities in the region are woefully inadequate. The health situation in the region is still characterized by a high death toll from preventable diseases such as malaria and waterborne diseases, and high rates of infant mortality. Available data also show that there are 78 704 people for every qualified medical doctor in the region. The universal dream of 'health for all by the year 2000' will certainly elude the people of Shinyanga unless present efforts are doubled in the next couple of years.

As revealed in this study, the role of traditional healing can never be overemphasized in the pursuance of health for all in the region.

Chapter 3

Methodology

Reconnaissance studies

Before the ethnobotanical surveys, reconnaissance studies were conducted in 5 of the 6 districts in the region. The purpose was to visit and get acquainted with the study areas, select villages, discuss the project proposal with district and village leaders and build teams for the field investigations (fig. 2.1, appendix 1).

Collaboration with district and local authorities

The intention from the onset was to conduct this research in close partnership with the local people and the authorities in each district. In pursuit of this intent, the district cultural officers were invited to participate in the workshop that reviewed the project proposal. They were also part of the reconnaissance team of 4 in each district who discussed the investigation plan with the authorities in the districts, the wards and the villages (appendix 1). The reconnaissance team visited at least 3 villages in each district. The discussions in all the villages were fruitful and the study-objectives well received. Leaders in all the villages we visited agreed to convene a meeting of the adult residents on a given date for the PRA.

Selection of villages

Two villages in each district were finally selected for the field investigations. Rather than random sampling, village selection was based on a set of criteria. Foremost was the fact that we wanted to do this study in villages in which HASHI/ICRAF has ongoing or earlier research and extension activities. Other criteria included vegetation cover, proximity to forest reserves, environmental awareness, accessibility by road, ease of follow-up, cultural diversity, organized women's groups and response of the village authorities to the study proposal (fig. 2.1, appendix 2).

Selection of respondents

First, it was important to clarify where and from whom we could obtain information on medicinal trees. Second, gender balance in gathering the information had to be considered, as men and women may value and use

trees differently. We know that women are generally responsible for health care in the family and are knowledgeable about medicinal trees. It was therefore important to identify 'women' as a separate user group. Since most of the interviews were to be conducted in groups, another principal reason was to isolate the women from the group of male farmers. Experience has shown that when rural women are in a mixed group, they leave much of the talking to the men. Thirdly, adults often have much more knowledge on medicinal trees and their environment than does the younger generation.

With the above considerations in mind, the most knowledgeable people on traditional medicine were classified in the following groups: *buyers, farmers, sellers, traditional healers* and *women*.

Participatory rural appraisal

Considering that knowledge of traditional medicine is a treasured secret of some individuals, a participatory approach was essential during the field investigations. Participatory rural appraisal was used as the main method for gathering information from the identified user groups. Teams of 7 people with immense local knowledge and with diverse academic backgrounds and disciplines were formed for the field investigations. Before the exercise, the PRA team in each district held a half-day briefing seminar to plan and review the questionnaire and to discuss the PRA tools and any other issues related to the fieldwork. The 2 investigators were the only permanent members in all the reconnaissance and PRA teams (appendixes 1, 2).

Tested PRA techniques applied in the field exercise included the following:

Semi-structured interviews (groups and selected individuals). This entailed open-ended unstructured questioning of respondents in a relaxed atmosphere. Individual interviews were conducted with all the regular sellers of medicinal herbs in Shinyanga, Kahama and Maswa town centres. We also managed to interview a few people who had just purchased tree parts from the sellers. Except for a few selected individuals, interviews with the farmers, women and traditional healers were done in groups. The group size varied from 4 to over 20 people. For all the interviews, we started with an inventory of trees used for medicinal purposes. After the selection and pairwise ranking, we focused the rest of the interview on the first 6 priority species (appendixes 3, 4).

Pairwise ranking with each respondent to set priorities on the identified medicinal trees. The respondent 1st selected 10 most important medicinal tree species from the long list. Each species was then compared with all the others in pairs. The frequency of preference determined the rank of each species.

Matrix scoring was done to compare the major uses of the PMTs and to elicit the criteria that the respondents used in setting their priorities. Diverse uses (medicinal, edibles, firewood timber, handles of farm tools, carvings, poles, fodder, fencing, shade, and so on) of the priority trees were 1st recorded. At the end of each group interview, respondents were given stones that they used in scoring the priority tree species on their major uses—*medicine, food, fuelwood* and of her *uses*'.

Mapping. Respondents sketched a map of their village and located areas where they usually collect herbs from trees.

Transect walk. Researchers walked or drove with respondents along a route determined during the mapping exercise to identify, appraise abundance and collect specimens from the trees used for medicinal purposes. The samples collected from trees available in the village were pressed for botanical identification.

Data analysis and identification of plant specimens

The data analysis started in the field with each respondent through selection, pairwise ranking and matrix scoring, as mentioned earlier. Since

" If the group size was small (4 to 10), each member was given 12 small stones; if there were more than 10 people in the group, each was given 8 stones, to avoid large numbers when counting the results. The important point is that the number of stones given to each person must be the same and must be a multiple of 4 (that is, 4, 8, 12, 16 . . .). We then drew a table of 2 rows and 2 columns (matrix) on the ground as shown here:

medicine	fuelwood
food	other uses

To make the matrix more easily understood, a root was put in the 1st cell to represent 'medicinal uses', an edible fruit in another cell for 'food or other edible uses of the tree', a twig for 'fuelwood' in the 3rd cell and a leaf in the last *cell* to represent 'shade and other uses of the tree'. This exercise was repeated for each of the 6 most preferred trees the respondents had chosen. All the respondents 'voted' at the same time. Example, a tree with no known edible parts is supposed to score 0 for 'food', if this was not the case (an error often made during the 1st voting) respondents queried the results. The person who cast the vote had to explain or recast the vote. After counts were totalled, respondents commented on the results. The exercise was always lively, with very elderly men and women having great fun in taking part.

over 300 tree species were registered as medicinal trees it was essential to narrow the number down to a few prime candidates. We did this in Microsoft Excel by sorting and scoring the top 10 priority species of each respondent with figures ranging from 20 to 11. By filtering and re-sorting the cumulative score and frequency of mention, the rank of each species was determined. The other data (presented in tables 4.6 and 4.7 below) are mainly from frequency counts. All the specimens collected from trees during the transect walk were later identified by a renowned botanist in the country, Mr C. K. Ruffo.

Chapter 4

Results and discussion

Openness of respondents

Contrary to initial fears that it would not be easy to document knowledge on traditional medicine, most of the respondents turned out to be very open, with straightforward answers. Over 300 tree species were registered as medicinal plants (appendix 5). The local name, parts used and diseases treated were recorded for each tree mentioned by a respondent. Except on 2 occasions in Meatu and Bariadi, all respondents were eager to disclose medicinal details we felt were irrelevant to this study. The openness of respondents should put to rest the common myth that traditional healing is a secret.

Indigenous knowledge

Indigenous knowledge and participation by farmers was the underlying concept of this tree domestication programme. It was therefore essential to base this study on the experience and selection criteria of local people. One of the questions we used to provoke discussions in the field was, 'How did the people of this area treat diseases before the introduction of Western ideas on medicines?' The answers confirmed that rural people treasure an intimate knowledge of their environment, the trees around them and traditional ways of sustaining life with local resources. This knowledge, much of it inherited from past generations, is what we refer to as traditional or indigenous knowledge. Results from the investigation have established that the people of Shinyanga still rely heavily on over 300 tree species for treatment of a variety of diseases (appendix 5).

The prime candidates for domestication

To set priorities on which of the medicinal trees to work on that the respondents identified was another major task. A prime candidate for domestication is a tree that scores high in priority but is scarce in the area (Franzel and others 1996). The investigations revealed that the local people had used trees over generations for healing purposes. They had no doubt as to which of them were of greatest medicinal importance. The top 10 priority medicinal trees (PMTs) from all the data collected in the region are

Table 4.1. The top 10 priority medicinal trees in Shinyanga Region

Local name	Botanical name	Family	Freq ^a ncy"	Score ^b	Rank ^c
Nengonengo	<i>Securidaca longipedunculata</i>	Polygalaceae	42	647	1
Ng'watya (mkalya)	<i>Zanha africana</i>	Sapindaceae	35	515	2
Mlundalunda	<i>Cassia abbreviate</i>	Caesalpinioideae	33	401	3
Ngeng'wambula (mfutwambula)	<i>Entada abyssinica</i>	Mimosoideae	27	319	4
Ningiwe	<i>Turraea fischeri</i>	Meliaceae	28	312	5
Mgada (mkutani)	<i>Albizia anthelmintica</i>	Mimosoideae	24	254	6
Mondo	<i>Entandrophragma bussei</i>	Meliaceae	19	249	7
Msana	<i>Combretum zeyheri</i>	Combretaceae	20	239	8
Mlungulungu (nungubalagiti)	<i>Zonthoxylum chalybeum</i>	Rutaceae	35	206	9
Mzima (njimya)	<i>Terminalia sericea</i>	Combretaceae	15	155	10

a Cumulative results from the number of times each tree species was mentioned in all the interviews.

b Cumulative results from the priority respondents set on each tree species.

c Frequency and score counts were used to rank each species, the species with the highest score ranking 1st

listed in table 4.1. Nengonengo, the local name for *Securidaca longipedunculata*, is without doubt the most sought-after medicinal tree. It tops the priority lists in nearly all the districts and user groups.

Promotion of exotic tree species at the expense of indigenous species

Of the 5 exotic species mentioned, only neem (*Azadirachta indica*) was ranked highly by both farmer and women's groups. Known globally as a medicinal tree and widely propagated in the region, the neem surprisingly rated only 13th in priority. This outcome raised many questions: *Why was the neem tree so ignored by traditional healers?* One traditional healer put it this way: *'My friend, this tree is like the chloroquine you buy in your drug stores. It was brought to us and we were told it cures 40 diseases, as its local name (mwarobaini) implies. They brought the seedlings free of charge and some people were even forced to plant them. Do you expect me to use something I don't know to treat my patients? No, no, no!'*

Practically all the tree seedlings one finds in the nurseries in the region are exotic species. Are development and extension agencies vigorously

promoting the propagation of exotic tree species at the expense of more valuable and more valued indigenous species?

Tree parts and diseases treated with them

Results from the investigation have established that the people of Shinyanga still rely heavily on over 300 tree species for treatment of a variety of diseases. Tree parts reported to have medicinal properties were leaves, flowers, fruits, seeds, stem, wood, roots, even the whole tree in some cases. The root was the part used most frequently (appendix 5). Traditional healers said they peeled stem bark and excavated roots with great care so as not to kill the tree. The harvested parts that were not for immediate usage were usually cut into pieces and sun dried. The dry pieces were then stored by tying them into bundles and hanging them or by pounding them into powder and storing them in plastic or glass bottles, earth pots or gourds. If the parts were well stored, sellers and traditional healers claimed some remained potent for over a year.

Over a hundred human diseases, including AIDS, were reported to be treated effectively with the medicinal trees named and listed (appendix 5). The fact that many traditional healers were eager to release such medicinal details was a great surprise. The most frequently mentioned ailments treated with parts of the PMTs are presented in table 4.2.

How effective is traditional healing? Respondents had no doubt as to the potency of remedies made from PMTs. Cures from traditional healers are often made by mixing parts from several different trees. However, one must remember that to rural people 'medicine' reaches far beyond the tree parts used to treat a disease. Belief in the healer and the healing process is indispensable. We also emphasize that no claims are made as to the effectiveness of the treatments listed in this study. There is no doubt that some of these tree parts can be harmful, and idle experimentation could prove dangerous.

Other uses of priority medicinal trees

The PMTs also provide other useful products such as fuelwood, timber, construction poles and edibles. A single tree part can serve several purposes.

Was it important to weigh the different uses? The main intention of domestication is to intensify the medicinal uses of the identified trees. Propagating a tree for medicinal purposes would be pointless if the species was valued immensely for fuelwood. Matrix scoring as described above

Medicinal trees

Table 4.2. Diseases treated with the PMTs

Local name	Botanical name	Tree parts used	Diseases treated
Nengonengo	<i>Securidaca longipedunculata</i>	roots, bark, leaves	convulsions, abdominal problems, gonorrhoea syphilis, asthma
Ng'watya (mkalya)	<i>Zanha africana</i>	roots, bark, leaves	convulsions, abdominal problems, psychosis
Mlundalunda	<i>Cossia abbreviata</i>	roots, bark	abdominal problems, pain relief, urinary problems
Ngeng'wambula (mfutwambula)	<i>Entada abyssinka</i>	roots, bark, leaves	abdominal problems, coughs, asthma, hernia
Ningiwe	<i>Turraea fischeri</i>	roots, bark, leaves	abdominal problems, hypertension, dysentery
Mgada (mkutani)	<i>Albizia onthelmintica</i>	roots, bark, leaves	abdominal problems, convulsions, infertility
Mondo	<i>Entandropbragma bussei</i>	roots, bark, leaves	abdominal problems, diarrhoea, anaemia
Msana	<i>Combretum zeyheri</i>	roots, bark, leaves	pneumonia, peptic ulcer, coughs, sore throat
Mlungulungu (nungubalagiti)	<i>Zanthoxylum chalybeum</i>	roots, bark, leaves	jaundice, abdominal problem: pain relief
Mzima (njimya)	<i>Terminalia sericea</i>	roots, bark, leaves	fever, anaemia, abdominal problems

under 'Participatory rural appraisal' was therefore used to further bring out what criteria respondents used in naming their priorities. The cumulative matrix scores for the PMTs are given in table 4.3. All the PMTs were preferred for their medicinal products.

Priority medicinal trees in each district

The districts are not uniform; they vary considerably in geography, environment and culture. This diversity called for resorting the data to determine the PMTs in each district. The results are given in table 4.4.

HOW has human settlement influenced the vegetation in the region? As stated earlier, Shinyanga was said to have been extensively forested with woodland and bushland tree species (Otsyina 1992). The almost treeless open bush savannah covering much of the region is mainly from the combined influence of human and livestock populations (Maro 1995). The result of the tsetse fly eradication programme was a dramatic increase in human and livestock populations. Human activities such as clearing bush and forest for settlement, fuelwood and agriculture coupled with overgrazing by livestock

Table 4.3. Matrix scoring of the medicinal and other uses of priority medicinal trees

Local name	Botanical name	Medicinal	Fuel wood	Other uses
Nengonengo	<i>Securidaca longipedunculata</i>	216	56	34
Ng'watya (mkalya)	<i>Zanha africana</i>	162	66	49
Mlundalunda	<i>Cassia abbreviata</i>	162	37	49
Ngeng'wambula (mfutwambula)	<i>Entada abyssinica</i>	237	37	41
Ningiwe	<i>Turraea fischeri</i>	186	47	23
Mgada (mkutani)	<i>Albizia anthelmintica</i>	120	42	36
Mondo	<i>Entandrophragma bussei</i>	34	17	11
Msana	<i>Combretum zeyheri</i>	43	2	3
Mlungulungu (nungubalagiti)	<i>Zonthoxylum chalybeum</i>	59	18	13
Mzima (njimya)	<i>Terminalia sericea</i>	117	43	38

'Food' rated no score for any PMT. Product preference of all PMTs was for medicine.

Table 4.4. The top 10 priority medicinal trees in each of the 5 districts

Bariadi	Kahama	Maswa	Meatu	Shinyanga
<i>Entandrophragma bussei</i>	<i>Securidaca longipedunculata</i>	<i>Securidaca longipedunculata</i>	<i>Securidaca longipedunculata</i>	<i>Securidaca longipedunculata</i>
<i>Zanha africana</i>	<i>Combretum zeyheri</i>	<i>Zanha africana</i>	<i>Zanha africana</i>	<i>Zanha africana</i>
<i>Entada abyssinica</i>	<i>Kigelia africana</i>	<i>Turraea fischeri</i>	<i>Entada abyssinica</i>	<i>Cassia abbreviata</i>
<i>Securidaca longipedunculata</i>	<i>Albizia anthelmintica</i>	Lonneo <i>schweinfurthii</i>	<i>Cassia abbreviata</i>	<i>Acacia nilotica</i>
<i>Turraea fischeri</i>	<i>Zanha africana</i>	<i>Combretum zeyheri</i>	<i>Entandrophragma bussei</i>	<i>Entada abyssinica</i>
<i>Cassia abbreviata</i>	<i>Cassia abbreviata</i>	<i>Cassia abbreviata</i>	<i>Turraea fischeri</i>	<i>Combretum zeyheri</i>
<i>Albizia anthelmintica</i>	<i>Zonthoxylum chalybeum</i>	<i>Zonthoxylum chalybeum</i>	<i>Tamarindus indica</i>	<i>Albizia anthelmintica</i>
<i>Terminalia sericea</i>	<i>Markhamia obtusifolia</i>	<i>Sterculia africana</i>	<i>Azadirochta indica</i>	<i>Turraea fischeri</i>
<i>Zonthoxylum chalybeum</i>	<i>Pterocarpus angulensis</i>	<i>Ficus stuhlmannii</i>	<i>Lannea schweinfurthii</i>	<i>Entandrophragma bussei</i>
<i>Azadirochta indica</i>	<i>Friesodielsia obovata</i>	<i>Entada abyssinica</i>	<i>Harrisonia abyssinica</i>	<i>Zonthoxylum chalybeum</i>

have had profound effects on the environment. The region as a whole is faced with severe deforestation, leading to shortage of fuel, fodder and other tree products. The vegetation cover is denser in Kahama, where miombo woodlands still cover parts of the district.

Priority medicinal trees of the user groups

The identified user groups were indeed knowledgeable on medicinal trees. Many of the trees were mentioned repeatedly by all user groups. There was also little variation in the PMTs for each group (table 4.5). These independent results indicate that the PMTs must have some medicinal properties. *Securidaca longipedunculata* (nengonengo) is without doubt an important medicinal tree. Although virtually ignored by sellers and traditional healers, neem was quite popular among farmers and women's groups.

Where are the healers and sellers of traditional medicine? There were at least 7 registered traditional healers in each of the villages we visited during the reconnaissance and PRA. Population estimates for these villages were between 500 and 2000 inhabitants. The traditional healer is still the only medical practitioner within reach of many rural people. One can hardly fail

Table 4.5. The top 10 priority medicinal trees of the 5 respondent groups

Buyers	Farmers	Sellers	Traditional healers /	Women
<i>Cassia abbreviata</i>	<i>Securidaca longipedunculata</i>	<i>Securidaca longipedunculata</i>	<i>Securidaca longipedunculata</i>	<i>Securidaca longipedunculata</i>
<i>Securidaca longipedunculata</i>	<i>Zanha africana</i>	<i>Zanha africana</i>	<i>Zanha africana</i>	<i>Combretum zeyheri</i>
<i>Acacia nilotica</i>	<i>Turraea fischeri</i>	<i>Albizia anthelmintica</i>	<i>Entada abyssinica</i>	<i>Cassia abbreviata</i>
<i>Entada abyssinica</i>	<i>Cassia abbreviata</i>	<i>Cassia abbreviata</i>	<i>Cassia abbreviata</i>	<i>Turraea fischeri</i>
<i>Friesodielsia obovata</i>	<i>Azadirachta indica</i>	<i>Warburgia ugandensis</i>	<i>Turraea fischeri</i>	<i>Zanha africana</i>
<i>Terminalia sericea</i>	<i>Entada abyssinica</i>	<i>Zanthoxylum chalybeum</i>	<i>Combretum zeyheri</i>	<i>Azadirachta indica</i>
<i>Albizia amara</i>	<i>Entandrophragma bussei</i>	<i>Entandrophragma bussei</i>	<i>Acacia brevispica</i>	<i>Entada abyssinica</i>
<i>Combretum zeyheri</i>	<i>Zanthoxylum chalybeum</i>	<i>Turraea fischeri</i>	<i>Albizia anthelmintica</i>	<i>Kigelia africana</i>
<i>Zanha africana</i>	<i>Erythrina abyssinica</i>	<i>Acacia nilotica</i>	<i>Xylopiya odoratissima</i>	<i>Lannea schweinfurthii</i>
<i>Croton menyhartii</i>	<i>Ximenia caffra</i>	<i>Terminalia sericea</i>	<i>Dkhrostachys glomerata</i>	<i>Tamarindus indica</i>

to find sellers of traditional medicine in all town centres and local markets in Shinyanga Region. Sellers from the Maasai tribe bring their medicines from outside the region. We could identify botanically very few of the Maasai medicinal trees.

Availability of the priority medicinal trees

The urgency of domestication rests squarely on the medicinal value and availability status of the tree species. The first 7 PMTs were difficult to find in Kahama and extremely scarce in all the other districts.

How is it that a popular tree like nengonengo is so scarce in 4 of the 5 districts? Has it never existed in these areas or has it been harvested to extinction? We got both yes and no answers to the latter question. An old man of about 70 years in Mwamishali village in Meatu District said the tree had been available in the village when he was a child. In Igaganulwa village in Bariadi District, another man about the same age said he had never seen the tree in his village. Could it have been harvested to extinction before he was born? It will be interesting to ascertain the truth in subsequent studies.

The frequency count of PMT location is presented in table 4.6. Most PMTs are now found on uncultivated land, with the protected forest reserves as the main source of medicinal trees in the region.

Respondents estimated the distances they had to travel to harvest priority medicinal tree parts. Among 63 respondents, 47 travelled farther than 10 km, 12 travelled up to 10 km, and only 4 travelled less than 1 km.

Table 4.6. Location of priority medicinal trees

Local name	Botanical name	Home- stead	Farm- land	Waste- land	Forest reserve
Nengonengo	<i>Securidaca longipedunculata</i>	—	—	—	16
Ng'watya (mkalya)	<i>Zanha africana</i>	2	2	1	12
Mlundalunda	<i>Cassia abbreviata</i>			2	9
Ngeng'wambula (mfutwambula)	<i>Entada abyssinica</i>	3	—	1	7
Ningiwe	<i>Turraea fischeri</i>	1		1	4
Mgada (mkutani)	<i>Albizia anthelmintica</i>	—	—	—	8
Mondo	<i>Entandrophragma bussei</i>	—	2	1	8
Msana	<i>Combretum zeyheri</i>	—	2	1	3
Mlungulungu (nungubalagiti)	<i>Zanthoxylum cha/ybeum</i>	1	2		3
Mzima (njimya)	<i>Terminalia sericea</i>	—	—	—	—

The long distances confirm the precarious status of PMTs in the region.

Knowledge of propagation

Respondents had intimate knowledge of the medicinal trees they listed. According to the information we gathered on ways to propagate them (table 4.7), it will be easy to propagate the first 4, while others like *Combretum zeyheri* may be difficult.

Propagation constraints

As respondents knew how to propagate some of the PMTs, *what prevented them from propagating these trees in the past?* Our findings are presented in figure 4.1. The overwhelming reason was the lack of skills to raise seedlings in a nursery. Most respondents also blamed the fact that seeds and seedlings were not available for sale (or for free). Few felt that money was a hindrance, and none mentioned labour as a problem. Some said that the lack of title to the land was a constraint.

Species preferred for on-farm planting

To cross-check and consolidate the setting of priorities made earlier, we asked respondents towards the end of each interview to list the 3 medicinal tree species they would want most to plant on their farms. A combination of frequency count and scoring was used to rank these trees. The ranking

Table 4.7. Respondents' knowledge on propagating priority medicinal trees

Local name	Botanical name	Propagation by ¹ —	
		Seed	Cuttings
Nengonengo	<i>Securidaca longipedunculata</i>	9	8
Ng'watya (mkalya)	<i>Zanha africana</i>	6	3
Mlunda	<i>Cassia abbreviata</i>	4	11
Ngeng'wambula (mfutwambula)	<i>Entada abyssinica</i>	8	7
Ningiwe	<i>Turraea ftscheri</i>	0	2
Mgada (mkutani)	<i>Albizia anthelmintica</i>	6	3
Mondo	<i>Entandrophragma bussei</i>	0	0
Msana	<i>Combretum zeyheri</i>	0	11
Mlungulungu (nungubalagiti)	<i>Zanthoxylum chalybeum</i>	1	0
Mzima (njimya)	<i>Terminalia sericea</i>	5	11

¹ Frequency of mention by respondents

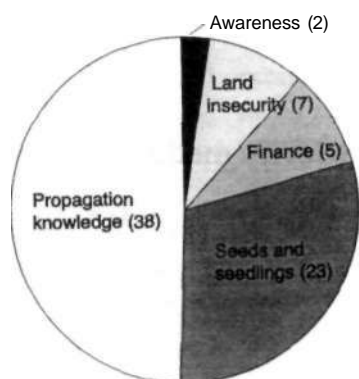


Figure 4.1. Constraints against propagation of the priority medicinal trees. Numbers in parentheses are the number of respondents.

for the first 10 positions was similar to that of table 4.1.

In Maswa District

Our ideas on domestication and conservation of medicinal trees were new to people in the 3 districts we first visited during the reconnaissance studies. This was not the case when we got to Maswa District. The district commissioner said we had come to steal an idea they had nourished for some time. The district cultural officer was more than delighted to discover new partners in a mission he had championed for the last several years. The chairman of the well-organized traditional healers' association

could not believe they had finally found a mouthpiece to express what they had long been hoping for. In short, we were well received and felt at home with our ideas.

The district cultural officer working with the traditional healers had already produced an inventory of medicinal plants in the district. In collaboration with the district authorities, primary schools and the HASHI/ICRAF district office, they had initiated programmes to conserve and propagate some of the medicinal trees they had identified. We were shown 2 sites of approximately 8 and 12 hectares that they had been allocated for in situ conservation of medicinal plants. We were also taken to a nursery site they had acquired close to a water tank. We also visited a ward chairman who was one of the pioneers in promoting the cultivation of medicinal trees. He took us to parts of his farm he had earmarked for establishing medicinal gardens. We have much to learn from Maswa District and have yet to work out how best to collaborate with them.

Profile of the priority medicinal trees

Priority species no. 1³

TAXONOMY

Botanical name	<i>Securidaca longipedunculata</i> The hatchet-like appearance of the fruit is referred to in the generic name; the specific name, <i>longipedunculata</i> , refers to the long, slender stalks of the flowers
Family	Polygalaceae
Common names	nengonengo (Sukuma), African violet tree (English)

DESCRIPTION

Appearance	<i>Securidaca longipedunculata</i> is a semi-deciduous shrub or small tree that grows to 12 m tall, with an often-flattened or slightly fluted bole. It is spiny and much branched, with an open, rather straggly-looking crown. The bark is light grey and smooth.
Leaves	Leaves alternate or clustered on dwarf, lateral branchlets, simple, variable in size and shape, broadly oblong to narrowly elliptic, 1-5 x 0.5-2 cm with very fine hairs when young but losing these by maturity; apex rounded; base narrowly tapering; margin entire; petiole slender, up to 5 mm long.
Flowers	Flowers rather small and held on long slender stalks. About 10 mm long; pink to lilac or purple and sweetly scented. Produced in beautiful profusion in terminal and axillary sprays 3-5 cm long, appearing with the very young leaves. Bisexual; sepals 5, unequal, the lateral 2 being petaloid, large and winglike. Petals: 3 free, the medium petal hooked. Stamens: 8, joined to form a split tube.

Information on the 10 priority species was compiled from the following sources: Abbiw 1990, Coates Palgrave 1988, El Amin 1990, FAO 1986, Friis 1992, Katende and others 1995, Kokwaro 1993, Salim and others 1998, Storrs 1995, Van Wyk and others 1997.

Fruits Fruit is a more or less round nut, somewhat heavily veined, occasionally smooth, bearing a single, oblong, rather curved, membranous wing up to 4 cm long; purplish-green when young, becoming pale, straw-coloured when mature.

ECOLOGY

Natural habitat Found in a wide range of climates, from subtropical, hot and arid climate to equatorial humid. Occurs in a broad range of vegetation, from semi-arid scrub to dense forest, including many woodland and bush habitats and gallery forests. The tree is resistant to bush fires and is frost sensitive.

Distribution Widely distributed in tropical Africa and found in nearly all countries in sub-Saharan Africa. In Tanzania it occurs in the miombo woodland, bushland and forest edges. It is most common in coastal forests.

Biophysical limits Altitude: 0-1800 m. Mean annual rainfall: 600-1000 mm. Soil type: usually acid and sandy or rocky.

PHENOLOGY AND PROPAGATION

Flowering Flowers are in abundance at the beginning of the rainy season.

Fruiting May to June—fruits often hang on the trees for many months, and those that stay the longest are said to germinate best.

Seed treatment As the fruits usually stay on the tree for a year or more, it has been suggested that seed should not be sown until it is 1 year old; but seed seems to lose viability quickly, and germination is erratic. It is best to soak seeds in cold water for 24 hours before sowing. Germination of treated seed is good and fast. Seeds sown directly should be covered with grass and watered until the beginning of the rains.

Seed storage Seed can retain viability for a long period at room temperature if kept dry.

Seed quantity There are about 36 000 seeds per kilogram.

Seedling Seedlings should be well watered in the nursery but are more tolerant to drought in the field.

History of cultivation Difficult to cultivate, largely because germination is poor, seedling growth is slow and planting out is difficult because of the easily broken taproot.

MEDICINAL USES

General	'This tree <i>is perhaps one of the most popular of all traditional medicines in Africa and has been used for almost every conceivable ailment</i> ' (Van Wyk and others 1997). All parts of the tree, especially the roots, carry a risk of toxicity if taken in excess.
Active ingredients, pharmacological effects	A saponin found in the roots can cause haemolysis and severe damage to bone marrow when in contact with blood. The solid portion of the root is said to be the most lethal. The root bark also contains 0.42% methyl salicylate; severe poisoning can result from ingestion of as little as 10-30 ml of methyl salicylate. Roots at 350 ppm are 100% effective as a molluscicide. A systematic examination of roots gathered in Angola indicated 27% lipids and 0.36% protides, tannins and steroids. The plant also produces various saponins, including presenegenin, the toxic indole alkaloid securinine and some ergot alkaloids.
Root	In small doses, the powdered root is a drastic purgative. In Shinyanga, a preparation from the root is a popular remedy for treating convulsions in children. In Zambia, crushed and powdered roots are used as an intravaginal or intrarectal poison, and in Gambia as a fish poison. In South Africa, the roots are used for cough and chest complaints, rheumatism, toothache, headache. The root scraping has the characteristic smell of wintergreen oil, causes violent sneezing and is said to drive away snakes. In Zimbabwe and elsewhere, the root is used to cause abortion and sometimes as a contraceptive, often with very harmful effects. It is used as a taenifuge and anthelmintic in French Guinea and Senegal. Root decoction acts as a sedative and is used to hasten difficult birth.
Bark	The bark is used in Senegal as a crude drug for its anti-inflammatory and antibacterial properties. Bark, roots and seeds are used in arrow poison.
Leaf	The leaves are used to treat snakebite and when pounded with water and salt are taken to relieve coughs.
Seed	The seeds are rich in oil and are given medicinally for febrile and rheumatic conditions.

OTHER PRODUCTS AND SERVICES

Food	Young leaves are eaten as a vegetable or in sauces.
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Fodder	Game animals browse on the leaves.
Apiculture	Suitable for honey production as bees often frequent the flowers. In Eritrea, for example, the tree is one of the most valuable lowland honey sources, and planting to increase honey production is recommended.
Fuel	Can be burned for firewood and charcoal.
Fibre	Fine-quality fibre is obtained from inner bark of the straight annual shoots, which when retted might be useful for flaxlike textiles. Much appreciated locally in western, central and southern Africa because of its long, durable and tough fibres. Used for making string and rope for fishing net and lines, for bird and animal snares, for thread to sew bark cloth and as bead string for necklaces.
Timber	Wood is pale, soft, spongy, very light and brittle. Used for poles, hut construction, bows and brooms. It is resistant to termites and decay.
Lipids	Flowers yield an oil with many possible uses. Oil expressed from the seeds is used cosmetically and as furniture stain.
Soap	Soap is made from the bark in South Africa.
Ornamental	A beautiful flowering tree with potential as an ornamental in parks and gardens.

Priority species no. 2

TAXONOMY

Botanical name	<i>Zanha africana</i>
Family	Sapindaceae
Common names	ng'watya or mkalya (Sukuma), velvet-fruited zanha (English)

DESCRIPTION

Appearance	A medium-sized tree up to 10 m in height. The bark is dark brown and reticulately scaly, flaking away in about 2-cm sections. Branches are erect to spreading, forming a light, open crown.
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Medicinal trees

Leaves	Leaves with 3 to 5 pairs of opposite to subopposite leaflets. Leaflets elliptic, 4-8 x 2-4 cm. Leathery, with conspicuous netveining, especially visible above. The under surface often masked by tawny hairs. Petiole and rachis covered with yellow thorny hairs. Apex broadly tapering to rounded. Base rounded to lobed; margin entire, scalloped, or bluntly and shallowly toothed. Petioles very short or absent. If present, petioles can be up to 6 cm long and hairy.
Flowers	The creamy yellow male flowers and greenish sepia female flowers appear on separate trees. Flowers are small, inconspicuous and sweetly scented. Produced in dense heads, about 2 cm in diameter, usually on short branches, either axillary or leaf opposed.
Fruits	Ovoid fruits, up to 3 x 2 cm, velvety, fleshy, bright orange when mature, often produced in handsome profusion.

ECOLOGY

Natural habitat	Found at medium to low altitudes, in open woodland, often among rocks and on kojpies or ridges and occasionally in riverine forest.
Distribution	The tree is found in east and southern Africa.

PHENOLOGY AND PROPAGATION

Leaf fall	The tree sheds most of its foliage during the dry season.
Flowering	The flowers appear before the new leaves in October to December.
Fruiting	November to January.
Seed	The single whitish blue-veined seed is embedded in a sticky fibrous flesh that is edible.

MEDICINAL USES

Active ingredients, pharmacological effects	The seed contains 10.5% acid saponin. Various parts of the tree contain saponins and are reputed to be poisonous. Extracts from the plant exhibit antiinflammatory activity.
Root	<i>An infusion of the roots provides a remedy for dysentery, but is reported [in South Africa] to have caused a state of coma and even death in at least one patient. Postmortem investigation showed signs of inflammation of the kidneys.'</i> (Coates Palgrave 1988).

Pounded roots are rubbed on aching legs. Root decoction is used to facilitate childbirth, for constipation, prostatitis and fits.

Seed The seed contains 10.5% acid saponin and has been used as purgative but can be dangerous if given to children.

OTHER PRODUCTS AND SERVICES

Food The fruits are generally reported as being inedible, but they have a pleasant taste and are eaten, at least by birds and monkeys. The seed is said to be edible if first boiled in water.

Apiculture The tree has a good but short-lived nectar flow.

Fuel The wood is of little value as firewood.

Timber The wood is creamy to light brown, moderately durable, and it works and finishes well. It is suitable for door frames and other general woodwork.

Soap Various parts of the tree contain saponin that froths in water and can be used as soap.

Priority species no. 3

TAXONOMY

Botanical name *Cassia abbreviate*.

Family Caesalpinioideae

Common names mlundalunda (Sukuma), long-pod cassia (English)

DESCRIPTION

Appearance A shrub or small to medium-sized tree, 3 to 10 m in height. The bark is reddish when young, becoming brownish grey or blackish with cracks when old. Easily recognized when the long pods are hanging on the tree.

Leaves Leave compound with 5 to 12 pairs of leaflets. The leaflets are ovate elliptic, 3-6 x 1.2-3 cm, thinly textured, dull green. They are finely velvety at first, usually losing these hairs later. Apex rounded; base broadly tapering. Margin is entire; petiolules and petiole present, and slender.

Medicinal trees

Flowers	Flowers are large, up to 4.5 cm in diameter, pale yellow, with long, slender pedicels and peduncles in beautiful, large, loose sprays up to 15 x 20 cm.
Fruits	Fruit is a long, cylindrical pod, 30 to 90 cm, golden brown to brown, velvety. The thick cylindrical section contains many seeds in pulp.

ECOLOGY

Natural habitat	Found at medium to low altitudes, in open woodland or wooded grassland, along rivers, on hillsides and frequently associated with termite mounds.
Distribution	Widespread from Somalia to South Africa.
Biophysical limits	Altitude: 220 to 1520 m.

PHENOLOGY AND PROPAGATION

Flowering	From March to November, usually on bare tree.
Fruiting	Fruits ripen the following year in June-July; pods remain hanging on the tree for months.
Leaf fall	Sheds its leaves in the dry season.
Seed treatment	Germination is good and is fast for fresh seed without treatment. Soak old seed in cold water for 12 hours before planting.
Seed quantity	About 15 000 seeds per kilogram.
Seed storage	Seeds can be stored for a long time if kept dry and free from insects.
Wildings	Can be propagated by wildings.
Tree management	Pruning recommended.

MEDICINAL USES

General	Various parts of the tree feature in African medicine. <i>'Subspecies beareana was named after Dr O'Sullivan Beare [of South Africa] who, in 1902, noted that the Africans used a decoction of the roots to cure blackwater fever. He tried this remedy himself and found that it was effective, so he arranged to have a fluid extract from the roots prepared commercially and placed on the market under the name Cassia beareana. Since then this has been</i>
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used from time to time by medical men for the treatment of blackwater fever.' (Coates Palgrave 1988)

Active ingredients, pharmacological effects	A number of anthraquinones, triterpenoids, alcohols and organic acids were isolated from the flowers, leaves, root bark and stem bark collected from Dar es Salaam.
Root	The roots are used to relieve severe cases of abdominal pain and as a remedy for toothache.
Seed	The seeds are sucked as a tonic.
Stem	The smoke from a burning twig is inhaled to cure headaches. Stem bark is used to treat dysentery, diarrhoea, gonorrhoea, abdominal pains and in the Rusape area of Zimbabwe as an abortifacient.

OTHER PRODUCTS AND SERVICES

Fuelwood	The wood is used as firewood.
Timber	Good for furniture and joinery.
Ornamental	Suitable for ornamental planting.

Priority species no. 4

TAXONOMY

Botanical name	<i>Entada abyssinica</i> The genus name Entada is derived from an East Indian vernacular name. The specific name means 'from Ethiopia'.
Family	Mimosoideae
Common names	ngeng'wambula or mfutwambula (Sukuma), tree entada (English)

DESCRIPTION

Appearance	<i>Entada abyssinica</i> superficially resembles an acacia tree, from which it can be distinguished by its bipinnate leaves and the absence of thorns. A small to medium-sized deciduous tree, 3-15 m high, with a flat, spreading crown. The bark is grey to reddish, smooth or slightly fissured, flaking off in irregular patches.
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Medicinal trees

Leaves	Leaves alternate, bipinnate, stipules absent; pinnae 1-22 pairs; leaflets 15-55 pairs, mostly linear-oblong, 13-14 x 1-4 mm; apex round to slightly obtuse and slightly mucronate.
Flowers	Inflorescence 1-4 axillary racemes, 7-16 cm (including the 4-15 mm peduncle); flowers creamy white or fading yellowish and sweet scented.
Fruits	Fruit a large, flat legume, 15-39 x 3-9 cm, straight or nearly so, with no conspicuous seed segments. Seeds oval, flat, 10-13 x 8-10 mm; pod splitting between each seed, leaving the pod rim and forming a wing for the seeds.

ECOLOGY

Natural habitat	<i>Entada abyssinica</i> is an understorey forest species found in association with <i>filbizia zygia</i> and <i>A. hockii</i> in woodland or wooded grassland. It is usually found in a savannah habitat.
Distribution	Widespread in tropical Africa—found in west, east, central and southern Africa. It is found in all districts of Tanzania.
Biophysical limits	Altitude: 450-2250 m; prefers sandy loam soils.

PHENOLOGY AND PROPAGATION

Flowering	Flowering takes place during the rainy season, and the fruit ripens at the end of the season, extending into the dry season. In Nigeria, it flowers from January to March and May to August. In Sudan, it flowers in June and fruits in November.
Fruiting	The large, conspicuous pods often remain long on the tree.
Seed treatment	Pretreatment of the seed is sometimes necessary because of the hardness of the seed coat. Seed germination without treatment is very high: 70-100%.
Seed quantity	There are 3600-4200 seeds per kilogram.
Seed storage	Seed storage behaviour is orthodox.
Vegetative	Root suckers are produced if the root is wounded.
Seedling	The species regenerates naturally from coppice and seed.
Tree management	Coppicing is a suitable practice. The species prefers open areas, so slashing out herbaceous vegetation in its natural habitat may boost its growth and yield.
Cultivation practice	Intercropping: the tree grows well with crops.

MEDICINAL USES

Active ingredients, pharmacological effects	The root contains a saponin, entada saponin, and an alkaloid.
Root	Traditional healers in Tanzania and Uganda use root bark extract to treat sleeping sickness. An infusion of crushed roots is good for bronchial problems. A root or leaf decoction is used as a fever remedy. Root bark is used as a massage on swellings.
Bark	A decoction of the bark is taken for cough, chronic bronchial engorgement, rheumatic pain and abdominal pain. Juice of the bark and cambium has been used as ordeal poison under the eyelid.
Seed	The seeds treat cataracts and diseases of the back of the eye. Powdered or roasted pulverized seeds is used to induce sneezing as a cure.
Fruit	The raw fruit induces vomiting and is used as an antidote to snake venom.

OTHER PRODUCTS AND SERVICES

Fodder	The leaves are used as fodder.
Soap	Ashes from the wood are suitable for soap making.
Fuelwood	<i>Entada abyssinica</i> is often used as firewood.
Timber	Heartwood is pale brown, occasionally tinged with pink; it is moderately light and easy to work.
Ornamental	A good avenue tree.
Shade	Often conserved around homesteads and in coffee and tea plantations for the light shade it provides.
Nitrogen fixing	Has the ability to fix atmospheric nitrogen and is good for improving the soil.

Priority species no. 5

TAXONOMY

Botanical name	<i>Turraea fischeri</i>
Family	Meliaceae
Common names	ningiwe (Sukuma), honeysuckle tree (English)

DESCRIPTION

Appearance	A deciduous shrub or small tree up to 8 m in height. Bark is grey to brown and rather scaly; the young branchlets are reddish-brown or grey and smooth.
Leaves	Leaves ovate to elliptic, usually less than 5.5 x 3 cm but may reach 10 x 6 cm; lower surface without hairs, apex abruptly attenuate, base broadly tapering; margin entire, rather wavy, petiole slender.
Flowers	Flowers greenish, petals up to 3 x 0.4 cm, staminal tube conspicuous, white up to 2.5 cm long. Solitary or in pairs on the dwarfed lateral branchlets.
Fruits	A reddish brown capsule up to 1.3 m long.

ECOLOGY

Natural habitat	Confined mostly to granite hills.
Distribution	Distribution of the species as a whole is remarkably discontinuous. In southern Africa it is confined to the rocky Matopos hills in Zimbabwe. The Matopos population is separated as subspecies <i>T. /. eylesii</i> . The subspecies <i>T. /. fischeri</i> is known only from rocky hills in the northern and central areas of Tanzania, with an outlying population in Uganda.

Priority species no. 6

TAXONOMY

Botanical name	<i>Albizia anthelmintica</i> Specific name is derived from its anthelmintic properties.
Family	Mimosoideae

Common names mgada or mkutani (Sukuma), worm-cure albizia

DESCRIPTION

Appearance A tree reaching 10 m in height, occasionally bushy. Bark is smooth, pale grey, reddish grey to brown. Branchlets frequently sharply tipped or spine-tipped.

Leaves Leaves with 2 to 4 pairs of pinnae, each bearing 2 to 4 pairs of pinnate opposite leaflets. Leaflets obovate to almost circular, up to 3.6 x 3 cm.

Flowers Flowers usually produced before the leaves, the white stamens forming the half-spherical fluffy head, up to 2.5 cm long.

Fruits A straw-coloured pod up to 18x3 cm.

ECOLOGY

Natural habitat Found in a wide range of habitats.

PHENOLOGY AND PROPAGATION

Flowering July to September.

Fruiting The following September to November.

MEDICINAL USES

Active ingredients, pharmacological effects An extract of the root bark collected from Malawi in 1988 contained saponins (zanhasaponins A, B and C) and showed antiinflammatory activity.

Bark In West Africa, the bark is regarded as an anthelmintic, especially against tapeworms, and has long been used in a similar way in Ethiopia and Somalia, hence the specific name. Extensive tests carried out under controlled conditions have shown that the bark is, in fact, effective against tapeworm infestation. It seems to be more successful in powdered form than as a decoction, and treatment has produced no unpleasant side effects.

Priority species no. 7

TAXONOMY

Botanical name	<i>Entandrophragma bussei</i>
Family	Meliaceae
Common names	mondo (Sukuma), wooden banana (English)

DESCRIPTION

Appearance	Large, spreading deciduous tree, reaching 20 m in height. Bark is scaly.
Leaves	Leaves up to 30 cm long; opposite or subopposite. Apex cuneate to shortly and bluntly acuminate. Base unequally rounded to obliquely subcordate. Venation closely reticulate, scarcely prominent above, and more distinct beneath. Petiolules 0.1 to 0.5 cm long. Petiole not flattened, densely and softly hairy.
Flowers	Small, greenish in small, slender spikes up to 20 cm long. Petals 0.5 cm long.
Fruits	A woody capsule up to 15 cm long. Club-shaped and rounded at the apex. Winged seeds.

ECOLOGY

Natural habitat	An emergent from deciduous Commiphora thicket often associated with <i>Cordyla densiflora</i> and <i>Adansonia digitata</i> . Also found in deciduous woodland and bushland.
Distribution	Found only in Tanzania but closely resembles <i>E. spicatum</i> , which occurs in northern Namibia and southern Angola. They differ chiefly in shape of the leaves.

PHENOLOGY AND PROPAGATION

Flowering	Flowers appear before the leaves in October.
Fruiting	February to September.

OTHER PRODUCTS AND SERVICES

Timber	Esteemed as furniture wood and used for making chairs, beds and windows. It is also used locally for making beehives and milk containers.
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Priority species no. 8

TAXONOMY

Botanical name	Combretum Zeyheri
Family	Combretaceae
Common names	msana (Sukuma), large-fruited combretum (English)

DESCRIPTION

Appearance	Usually a small to medium-sized tree up to 10 m in height, occasionally a shrub. Bark is brownish grey to grey, smooth to finely fissured and flaking in small pieces, giving a mottled appearance. Branchlets very slender and pliant, seeming to droop under the weight of the large leaf. Branchlets often reddish.
Leaves	Leaves are opposite or 3-whorled, clustered towards the ends of the branches. Elliptic to oblong, up to 14 x 9 cm, but usually about 7-10 x 3-5 cm. Dark green, finely hairy when young, losing the hairs by maturity. Net-veining conspicuous below; apex broadly tapering to rounded. Base rounded; margin entire, often wavy. Petiole up to 10 mm long.
Flowers	Flowers are greenish yellow to yellow with orange anthers, in axillary spikes about 3 to 7 cm long, appearing before the leaves or with the first flush. Sweetly scented, quite showy when in profusion.
Fruits	Fruits are 4 winged, probably the largest of the fruits in this genus, up to 6 x 6 cm, pale green when fresh, drying to a pale brown and conspicuous.

ECOLOGY

Natural habitat	Found at medium to low altitudes, in open woodlands, on rocky hillsides and sometimes along rivers, tolerating a wide range of soils including those that are fairly heavily mineralized.
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PHENOLOGY AND PROPAGATION

Flowering	September to November.
Fruiting	February to May, on to October. Fruits remain on the tree until the leaves have fallen.

MEDICINAL USES

Root	The roots, together with other ingredients, are regarded as a remedy for nosebleed; when pounded and mixed to a paste with fat, they form an ointment to relieve haemorrhoids. Also used to cure headache.
Leaf	The dried leaves are smoked by the Bemba tribe of Zambia to cure coughs. The crushed leaves combined with oil are used as a liniment to ease backache, and when mixed with water they provide an eye lotion.

OTHER PRODUCTS AND SERVICES

Indicator	This tree is said to indicate infertile soils that carry poor grasses, not usually palatable to stock and game.
Fibre	The fibrous roots are woven into baskets and fishing traps.

Priority species no. 9

TAXONOMY

Botanical name	<i>Zanthoxylum chalybeum</i> <i>Zantkoxylum</i> means 'yellow wood', from the Greek <i>xantkos</i> (yellow) and <i>xylon</i> (wood).
Family	Rutaceae
Common names	mlungulungu or nungiibalagiti (Sukuma), knobwood (English)

DESCRIPTION

Appearance	<i>Zanthoxylum chalybeum</i> is a spiny shrub or tree up to 12 m, crown rounded but open. Bark pale grey; smooth, dark with scales and prickles. The bole has characteristic large, conical, woody knobs with sharp prickles. The branches also bear scattered thorns with conspicuous dark scales.
Leaves	Leaves compound, usually 3-5 pairs of shiny leaflets plus a terminal leaflet; leaflets oblong to elliptic or lanceolate, 2.5-7 x 1-2.5 cm, with a strong citrus smell when crushed; sparsely dotted with pellucid glands; petiole 1-5 cm long, petiole and rachis with small, hooked prickles scattered along the length.

Flowers	Flowers sweet scented, inconspicuous, yellowish green, in short sprays (racemes or panicles) 5-10 cm long, produced immediately below the leaves at the base of the new branchlets.
Fruits	Fruit spherical, about 5 mm in diameter, reddish brown, splitting to allow the shiny black seeds to partly protrude.

ECOLOGY

Natural habitat	<i>Zanthaxylum chalybeum</i> is a deciduous tree occurring at medium to low altitudes in dry woodland or grassland, often on termite mounds.
Distribution	Eastern and southern Africa.
Biophysical limits	Altitude: up to 1600 m; mean annual rainfall 750-1500 mm.

PHENOLOGY AND PROPAGATION

Flowering	November to December. Male and female flowers are on different trees.
Fruiting	April to June.
Seed treatment	<i>Zanthaxylum</i> seeds exhibit strong dormancy, which appears to be imposed by the seed coat. Scarification with concentrated sulphuric acid has given fair germination results. Sowing seeds immediately after collection is recommended. Germination is epigeal.
Seed quantity	There are approximately 30 000 seeds per kilogram.
Seed storage	Viability is lost within a few weeks.
Vegetative	Propagation by root cutting and suckers is practised.
Tree management	Coppicing and pollarding are recommended.

MEDICINAL USES

Bark	Bark extracts are said to cure malaria.
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OTHER PRODUCTS AND SERVICES

Food	Dried leaves are brewed to make tea or pounded and cooked alone or with groundnuts to make a delicious paste.
Fuel	<i>Zanthoxylum chalybeum</i> is a good firewood tree, burning easily.

Medicinal trees

Timber	Timber is very hard, heavy, elastic and highly durable. It works well, although it is difficult to nail; it finishes and polishes well and has been used for carving, turnery and walking sticks. The twigs are used as toothbrushes.
Fodder	The leaves and fruit are eaten by goats throughout the year. The branches are sometimes lopped for feed.

Priority species no. 10

TAXONOMY

Botanical name	<i>Terminalia sericea</i>
Family	Combretaceae
Common names	mzima or njimya (Sukuma), silver terminalia (English). The English name refers to the very attractive, silvery, silky leaves.

DESCRIPTION

Appearance	A small to medium-sized well-shaped tree, usually 4 to 6 m in height but occasionally reaching 10 m. Bark is dark grey or brownish and deeply vertically fissured. The slender branchlets are dark brown or purplish, peeling and flaking in rings and strips exposing light brown underbark. Young stems are often parasitized and as a result bear round galls often up to 2 to 3 cm in diameter, frequently with leaves growing from them.
Leaves	Leaves are clustered towards the tips of the slender branchlets. Narrowly obovate-elliptic, 5.5-12 x 1.5-4.5 cm, pale green covered with silvery silky hairs that give a characteristic sheen. Lateral veins obscure. Apex broadly tapering to rounded. Base narrowly tapering. Margin entire; petiole up to 10 mm long. The silvery, silky leaves are very attractive.
Flowers	Flowers are small, cream to pale yellow. Heavily and rather unpleasantly scented. In axillary spikes up to 7 cm long. <i>Terminalia</i> is closely related to <i>Combretum</i> species (see above) but the latter have 4 or more wings on the fruit.

Fruits The fruits are about 30 mm long with 2 broad papery wings surrounding the thickened central part. The fruit may be parasitized and develop into deformed tangled masses that are twisted, rusty and hairy.

ECOLOGY

Natural habitat Found in open woodland, frequently on sandy soils. Tree grows well in poor soils that are not suitable for crops.

Distribution Widespread in Tanzania and found in many parts of Africa, from Zaire to South Africa.

Biophysical limits Altitude: 450 to 1300 m.

PHENOLOGY AND PROPAGATION

Flowering September to January.

Seed treatment Wings should be removed before seeds are sown.
Germination is good with fresh seed.

Seed quantity About 1200 seeds per kilogram.

Seed storage Seeds stored in a dry place can remain viable for up to 3 years.

Fruiting January to May, but fruits remain on the tree almost until the next flowering season.

Vegetative Root suckers.

Tree management Pollarding and coppicing. This species hybridizes freely with *T. trichopoda* and other *Terminalia* species.

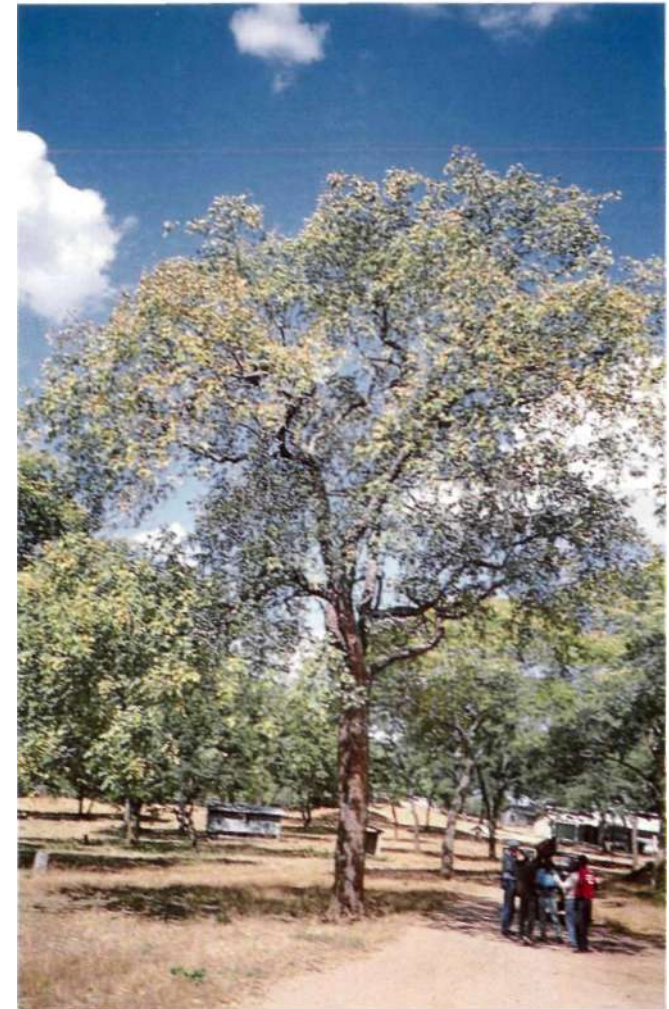
MEDICINAL USES

Active ingredients, pharmacological effects A glucoside, nerifolin, that has been isolated from parts of the plant has been found to have an effect on the heart and pulse rate. Several pentacyclic triterpenoids have also been isolated. Triterpenoids and saponins are well known for their antimicrobial and antiinflammatory activity. The antidiarrhoeal effect may be due to tannins.

Root In South Africa, a decoction of the root, which has a very bitter taste, is not only taken to cure diarrhoea and relieve colic but is also applied as an eyewash. A hot infusion of the root outer layer makes a fomentation for treating pneumonia.



Securidaca Longipedunculata, priority species no. 1



Zanha africana, priority species no. 2



Fruit of *Cassia abbreviata*, priority species no. 3 (left), and fruit of *Entada abyssinica*, priority species no. 4 (below)



•q



Turraea sp., priority species no. 5



Entandrophragma bussei, priority species no. 7



Combretum zeyheri, priority species no. 8 (left), *Zanthoxylum chaiybeum*, priority species no. 9 (centre), and *Terminalia sericea*, priority species no. 10 (right)



Medicinal trees

Bark	The ground bark mixed with maize flour is taken against diabetes and topically to treat wounds.
Leaf	Leaves are used to treat stomachache, diarrhoea, snake bite, and wounds.

OTHER PRODUCTS AND SERVICES

Pottery	The silky, silvery leaf hairs are used by Tswana potters in south Africa for glazing their wares.
Tools	Used for tool handles.
Fuel	Good as firewood and for making charcoal.
Fencing	Fencing posts cut from these trees will last for many years.
Timber	The wood is yellow and hard. It provides a useful general purpose timber and is suitable for furniture.
Poles	Poles used for housing and fencing are resistant to termite attack and long lasting.

Chapter 6

Conclusions

The importance of traditional medicine in Shinyanga region can never be overstated. This study has confirmed that most people in rural areas still rely heavily on traditional medicine for their health care needs. Above all, this report has proved that local people have a wealth of knowledge that needs to be the focal point in much of agroforestry research. Contrary to initial fears that the local people would be reluctant to share what they knew, they were anxious to have their intellectual heritage documented.

It was also established that this ancient wisdom and some of the trees that form its basis are tragically disappearing. The top 10 priority species are very scarce, and the wild populations have been harvested to near extinction in the region. The species have numerous other products and services with a potential for improvement of these characteristics. Demand for their products and services is high, and there is therefore an urgent need for their domestication. Respondents were zealous to see programmes established that would assist them to replant the priority medicinal trees (PMTs) they had identified.

The findings from this study have paved the way for domestication work on the PMTs. A workshop was convened in October 1998 to review the information gathered and to set priorities for subsequent studies. The wide range of participants included farmers, traditional healers, researchers, extension workers, and district and village authorities. The following questions formed the basis of the workshop deliberations:

- How do we create awareness and full participation of local people in the domestication of the PMTs?
- Do we have in-depth botanical knowledge on the PMTs?
- Since most of PMTs were found on uncultivated land, how suitable are they in farming systems?
- From where and how can we acquire germplasm of the PMTs?
- What are the appropriate propagation techniques for the PMTs?
- How do we raise suitable planting stock?
- Which trials should be done on farm?
- What are the medicinal properties of the PMTs?

- * What are the appropriate techniques for harvesting parts from the PMTs?
- Do some of the PMTs have coppicing abilities?
- What methods can be used for handling, processing and long-term storage of parts from the PMTs (without loss of medicinal properties)?
- " How can we apply indigenous conservation methodologies for in situ and ex situ conservation of the PMTs?
- How can we develop a market-led domestication process?

Through a rigorous selection exercise, collection of germplasm and development of propagation techniques were identified as the top priority research areas. The direct participation of traditional healers and farmers in the domestication process was also emphasized.

Appendix 1 Reconnaissance study trips

Purpose

1. To visit and get acquainted with HASHI/ICRAF research areas, sites and activities.
2. To meet and discuss the field investigation plan, 'Documentation of traditional knowledge on medicinal trees', with HASHI/ICRAF field staff and the district cultural officers.
3. To identify villages, community leaders and agricultural extension workers (in collaboration with HASHI/ICRAF field staff and the district cultural officers) for the field investigations.
4. To identify respondents within the targeted user groups (women, farmers, traditional healers, buyers and sellers, in collaboration with HASHI/ICRAF field staff and the district cultural officers) for participatory rural appraisal (PRA).
5. To form teams for the PRA.

Medicinal treesTravel plan

1998	Reconnaissance team	Village	District	Authorities met
Week 10				
16 Mar	B.B. Dery, C. Ng'atigwa, S.K. Mbegu, J.D. Canisio	Kahama town	Kahama	H/I, CO, DC, Planning Officer
17 Mar	same team	Nyandekwa, Bujika, Ukune, Iboja	Kahama	WEO, VEO, VC, VG ...
18 Mar	same team	Mwendakulima, Mwalugulu, Mwakata, Isaka	Kahama	WEO, VEO, VC, VG ...
Week 11				
24 Mar	B.B. Dery, C. Ng'atigwa, H.H. Msuya, A Salida	Mwanhuzi, Bukundi Mwaishali, Mwabegwa	Meatu	H/I, CO, DC, DAS, WEO, VEO, VC, VG ...
25 Mar	B.B. Dery, C. Ng'atigwa, J.M. Sayi, S. Gululi	Bariadi town, Mhango, Ngulyati	Bariadi	H/I, CO, DED, WEO, VEO, VC
26 Mar	same team	Luguru, Ikungulipu, Igaganulwa, Dutwa	Bariadi	WEO, VEO, VC, VG ...
27 Mar	B.B. Dery, C. Ng'atigwa, S. Mutegeki, H. Talula, Y.S. Kamata	Hinduki, Isagenhe, Ipililo	Maswa	H/I, CO, DC, DAS, WEO ...
Week 12				
31 Mar	B.B. Dery, C. Ng'atigwa, H. Khatibu	Manyada	Shinyanga Rural	WEO, VEO, VC
1 April	C. Ng'atigwa, M. Buhabi	Shagihilu, Ndoleleji	Shinyanga Urban	VEO, VC ...
2 April	same team	Mwamalili	Shinyanga Rural	VEO, VC ...
CO	= district cultural officer	VC	= village chairman	
DAS	= district administrative secretary	VG	= village government	
DC	= district commissioner	VEO	= village executive officer	
DED	= district executive officer	WEO	= ward executive officer	
H/I	= HASHI/ICRAF district staff			

Appendix 2

Travel plan for the participatory rural appraisal and market surveys

1998	Investigation team	District	Village or town	Activity
18 May	B.B. Dery, S. Maduka, S.K. Mbegu, J.D. Canisio, T.M. Wambura, E. Rwegoshora, L.B. Doganii	Kahama	Kahama	Team briefing
19 May	same team	Kahama	Bujika	PRA
20 May	same team	Kahama	Mwenda-kulima	PRA
21 May	same team	Kahama	Kahama	Market survey
22 May	same team	Kahama	Kahama	Market survey
24 May	B.B. Dery, C. Ng'atigwa, R.J. Jikolo, M.W. Nyasebwa, P.P. Mwesiga, H.H. Msuya, J.P. Mfungo	Meatu	Mwanhuzi	Team briefing
25 May	same team	Meatu	Bukundi	PRA
26 May	same team	Meatu	Mwamishali	PRA
27 May	B.B. Dery, C. Ng'atigwa, V. Ngotonie, B.C. Missango, S. Gululi, J. Sayi, C.M. Mazazi, S.S. Mushi	Bariadi	Bariadi	Team briefing
28 May	same team	Bariadi	Ngulyati	PRA
29 May	same team	Bariadi	Igaganulwa	PRA
30 May	B.B. Dery, C. Ng'atigwa, P.A. Mwaimu, S. Mutegeki, H. Talula, Y.S. Kamata	Maswa	Maswa	Market survey
2 June	B.B. Dery, C. Ng'atigwa, T. Bairu, M. Mtani, J.L. Tandu, A. Mbwera, H. Khatibu, H.P.M. Ndui	Shinyanga	Shinyanga	Team briefing
3 June	same team	Shinyanga Rural	Manyada	PRA
4 June	same team	Shinyanga Urban	Shinyanga Town	Market survey
5 June	same team	Shinyanga Rural	Mwamalili	PRA
8 June	same team	Shinyanga Urban	Shinyanga Town	Market survey

Appendix 3

Checklist for participatory rural appraisal with farmers, women and traditional health practitioners

Topics	Key probes
<i>Knowledge and use of medicinal trees in traditional healing</i>	
1. Knowledge of trees used for medicinal purposes	Which trees have you ever harvested for medicinal purposes?
<i>Pairwise ranking should be done to reduce the number to 6 trees</i>	
2. Place of harvesting	Where did you harvest the tree parts?
3. Availability of the tree	How easy is it to find this tree?
<i>Harvesting tree parts for medicinal purposes</i>	
4. Distance to place of harvest	How far did you travel to harvest?
5. Frequency of harvesting	How often do you harvest parts from this tree for medicinal purposes?
6. Harvesting season	In which season is it best to harvest parts from this tree?
<i>Preparation and storage of tree parts harvested for medicinal purposes</i>	
7. Methods of preparation	How do you prepare the plant parts after harvesting?
8. Storage of harvested parts	How do you store the plant parts?
9. Length and methods of storage	How long do you store the plant parts?
<i>Other uses of trees harvested for medicinal purposes</i>	
10. Other uses of the tree	What are the other uses of the mentioned tree species?
<i>Ranking of the mentioned medicinal trees</i>	
11. Ranking based on medicinal importance	How do you rank the medicinal importance of these trees?
<i>Domestication of the priority medicinal trees</i>	
12. Cultivation preferences	Which of these trees will you consider planting on your farm?
13. Tips for propagation	How will you propagate these trees on your farm?
14. Seeking problems	What prevented you from planting these trees in the past?
15. Seeking solutions	What assistance will you need to plant these trees on your farm?

The original checklist had 35 questions but they were reduced to 15 after the pretesting interviews. Topic numbers correspond with the numbers on the summary sheet in appendix 4. The checklist for sellers and buyers was similar to the above.

Appendix 4

Summary sheet for the informal participatory rural appraisal interviews

i. The investigator and location of interviews

Enumerator	Date	Village	Kata	District

ii. Personal data of the respondent

Respondent	Sex (M, F)	Age	Tribe	Category	
				Practitioner	Knowledgeable

1. Names of tree species used for medicinal purposes *(first record the entire list and do pairwise to reduce the number to 6 trees)*

Local name	Botanical name	Part used	Diseases treated			
1						
2						
Name	The first 6 species after pairwise ranking					
	1	2	3	4	5	6
Local						
Botanical						

2. Place of harvest

Place	Tree species					
	1	2	3	4	5	6
Farm						
Home garden						
Farm border						
Wasteland						
Roadside						
Forest						
Other places						

Medicinal trees

3. Availability of the trees

Availability	Tree species					
	1	2	3	4	5	6
Readily						
Difficult						
Very scarce						

4. Distance travelled to harvest tree parts

Distance	Tree species					
	1	2	3	4	5	6
> 10 km						
5 to 10 km						
1 to 5 km						
< 1 km						

5. Frequency of harvesting

No. per year	Tree species					
	1	2	3	4	5	6
> 12 times						
6 to 12 times						
3 to 6 times						
Once						

6. Best season for harvesting

Season	Tree species					
	1	2	3	4	5	6
Dry						
Wet						

7. Preparation of harvested tree parts

Preparation	Tree species					
	1	2	3	4	5	6
Cut to pieces						
Sun drying						
Binding, tying for storage						
Grinding						
Soaking						

8. Storage method of the tree parts

Containers	Tree species					
	1	2	3	4	5	6
Plastic						
Glass						
Clay pot						
Gourd						

9. Storage length of harvested tree parts

Storage	Tree species					
	1	2	3	4	5	6
> 12 months						
6-12 months						
3-6 months						
Direct usage						

10. Other uses of the mentioned tree species

Uses	Tree species					
	1	2	3	4	5	6
Carving						
Fencing						
Firewood						
Fodder						
Food and fruits						
Furniture						
House poles						
Shade						

11. Ranking based on medicinal importance

Priority	Tree species					
	1	2	3	4	5	6
1st choice						
2nd choice						
3rd choice						
No priority						

Medicinal trees

12. Cultivation preferences

Preference	Tree species					
	1	2	3	4	5	6
1st choice						
2nd choice						
3rd choice						
No preference						

13. Propagation knowledge

Propagation	Tree species					
	1	2	3	4	5	6
Seed						
Cutting						
No knowledge						

14. Seeking problems

Availability	Tree species					
	1	2	3	4	5	6
Labour						
Finance						
Seeds						
Seedlings						
Propagation knowledge						

15. Seeking solutions

Availability	Tree species					
	1	2	3	4	5	6
Seeds						
Seedlings						
Propagation knowledge						
Labour						
Nothing						

Appendix 5 Main data list

Local name	Botanical name	Rank	Score	Part used	Disease treated
Bariodi District, Bariattown, seller 1					
Mgada (mkutani)	<i>Albizia anthelmintics</i>				
Mkindwa zagamba	<i>Albizia versicolor</i>				
Lugaka(haruna)	<i>Aloe sp.</i>				
Mayanzani	<i>Antidesma venosum</i>				
Mlundalunda	<i>Cassia abbreviata</i>				
Ntungulu (nsakamkarage)	<i>Senna singueana</i>				
Kaguha	<i>Teclea simplicifolia</i>				
Msana	<i>Combretum zeyheri</i>				
Kumbwambizo (sanzwambeke)	<i>Crossopteryx febrifuga</i>				
Nkulwamhembe (mtunduru)	<i>Dichrostachys glomerata</i>				
Mtuja (ntuja)	<i>Ekebergia benguelensis</i>	4	17		
Ngeng'wambula (mfutwambula)	<i>Entada abyssinica</i>				
Mondo	<i>Entandrophragma bussei</i>	9	12		
Mlungulungu (nungubalagiti)	<i>Zanthoxylum chalybeum</i>				
Mkulungu	<i>Pterocarpus tinctorus</i>	5	16		
Msalasi (msasi)	<i>Friesodielsia obovata</i>				
Msomanjala	<i>Harrisonia abyssinica</i>				
Mbapa	<i>Markhamia obtusifolia</i>				
Mnazipori (mbula)	<i>Porinari curatellifolia</i>				
Nkolomije (mgogondi)	<i>Phyllanthus engleri</i>	6	15		
Nengonengo	<i>Securidaca longpedunculata</i>	2	19		
Nghoja	<i>Sterculia africana</i>				
Msungululu (mbelebele)	<i>Strophanthus eminii</i>				
Mpande	<i>Strychnos potatorum</i>				
Mwage	<i>Strychnos spinosa</i>				
Kasanda	<i>Swatzia madagoscariensis</i>				
Kungu manga	<i>Terminalia catappa</i>	8	13		
Mzima (nijmya)	<i>Terminalia sericeo</i>	10	11		
Ngili (ngiri)	<i>Terminalia stuhlmannii</i>				
Ningiwe	<i>Turraea fischeri</i>				
Luzila	unidentified				
Molu	unidentified				
Ngulyati	unidentified	7	14		
Sebeya	<i>Chrysophyllum bangweolense</i>				
Zenazena	unidentified				
Kasuku	<i>Warburgia ugandensis</i>				
Kasuku	<i>Warburgia ugandensis</i>	1	20		

Medicinal trees

Local name	Botanical name	Rank	Score	Part used	Disease treated
Mtundwa	<i>Ximenia caffra</i>				
Ng'watya (mkalya)	<i>Zanha africana</i>	3	18		
Bariadi District, Bariadown, seller 2					
Mgada (mkutani)	<i>Albizia anthelmintica</i>				
Mwarobaini	<i>Azadirachta indica</i>				
Mlundalunda	<i>Cassia abbreviate</i>	3	18		
Msana	Combretum zeyheri	7	14		
Ngeng'wambula (mfutwambula)	<i>Entada abyssinica</i>				
Mondo	<i>Entandrophragma bussei</i>	4	17		
Mlungulungu (nungubalagiti)	<i>Zanthoxylum chalybeum</i>	10	11		
Mkulungu	<i>Pterocarpus tinctorus</i>				
Msalasi (msasi)	<i>Friesodielsia obovata</i>				
Mnazipori (mbula)	<i>Parinari curatellifolia</i>				
Nkolomije (mgogondi)	Phyllanthus engleri				
Nengonengo	<i>Securidaca bngipedunculata</i>	1	20		
Mzima (njimya)	<i>Terminalia sericea</i>	5	16		
Ngili (ngiri)	<i>Terminalia stuhlmannii</i>	6	15		
Ningiwe	<i>Turraea fischeri</i>	9	12		
Molu	unidentified				
Ngulyati	unidentified				
Zenazena	unidentified				
Ng'watya (mkalya)	<i>Zanha africana</i>	2	19		
Bariadi District, Igaganulwa village, farmers					
Msuha (subosubo)	<i>Acacia sieberiana</i>			root, leaf	psychosis
Mwarobaini	<i>Azadirachta indica</i>			15 root, bark, leaf	malaria
Mlundalunda	Cossia abbreviato			root	backache, urinar problems
Ntungulu (nsakamkarage)	<i>Senna singueana</i>			root	infertility
Ng'ochangoko	<i>Catunaregam spinosa</i>			root, bark, fruit	syphilis
Lweja	<i>Croton menyharui</i>			root	general malaise
Kumbwambizo (sanzwambeke)	<i>Crossopteryx febrifuga</i>			root, bark	birth terminator
Ngeng'wambula (mfutwambula)	<i>Entada abyssinica</i>	4	17	bark, root, leaf	tuberculosis
Mkalalang'huba	<i>Erythrina abyssinica</i>	5	16	bark, root	anaemia
Ninje (mwicha, ng'wicha)	<i>Kigelia africana</i>			root	gonorrhoea
Mnazipori (mbula)	<i>Parinari curatellifolia</i>			root, bark	abdominal probl
Nkolomije (mgogondi)	<i>Phyllanthus engleri</i>			root	gonorrhoea
Nengonengo	<i>Securidaca bngipedunculata</i>	8	13	leaf, root	abdominal probl dizziness
Mlungulungu (nungubalagiti)	<i>Zanthoxylum chalybeum</i>	7	14	root	infertility
Ningiwe	<i>Turraea fischeri</i>	2	19	bark, root, leaf	abdominal probl'
Migongogongo	unidentified			root	abscess
Molu	unidentified	1	20	root	infertility

	Botanical name	Rank	Score	Part used	Disease treated
ku	<i>Warburgia ugandensis</i>			root	pneumonia
lida	<i>Euclea</i> sp.			root	splenomegaly
ku	<i>Warburgia ugandensis</i>	3	18	root	convulsions
ratya (mkalya)	<i>Zanha africana</i>	9	12	leaf, root	abdominal problems, convulsions
ariadi District, Igaganuiwa village, traditional healers					
la (subosubo)	<i>Acacia sieberiana</i>			root	infertility
a (mpaja)	<i>Afzelia quanzensis</i>	9	12	bark, root	yellow fever
igala (ndaja)	<i>Albizia amara</i>			root	epilepsy
ia (mkutani)	<i>Albizia anthelrntica</i>			bark, root	convulsions
ka (haruna)	<i>Aloe</i> sp.			leaf	charm
lola (idobedobe)	<i>Annona senegalensis</i>			root	hypertension
ela	<i>Antidesma venosum</i>			bark, root	backache
10	<i>Azanza garckeana</i>			root	asthma
dalunda	<i>Cassia abbreviata</i>	6	15	root	convulsions
ha	<i>Teclea simplicifolia</i>			root	urinary problems
bwambizo wambeke)	<i>Crossopieryx febrifugo</i>			bark, root	abdominal problems
wamhembe nduru)	<i>Dichrostachys ghmerat</i>			root	infertility
i (ntuja)	<i>Ekebergia benguelensis</i>	3	18	root	psychosis
ig'wambula twambula)	<i>Entada abyssinica</i>	5	16	root	asthma
do	<i>Entandrophragma bussi</i>	4	17	bark, root	toothache, abdominal problems
ungu	<i>Pterocarpus tinctorus</i>			branches, fruit	charm
asi (msasi)	<i>Friesodielsia obovata</i>	8	13	root	asthma
anze	<i>Mimusops fruticosa</i>			root	abdominal problems
Zipori (mbula)	<i>Parinari curatellifolia</i>	7	14	root	abdominal problems
omije (mgogondi)	<i>Phyllartthus engleri</i>			root, leaf	abdominal problems
ga	<i>Pterocarpus angulensis</i>			root	menstrual problems
iki (olremit)	<i>Salvadora persica</i>			root	swellings
onongo	<i>Securidaca hngipedunculata</i>	1	20	root	headache
we	<i>Turraeo fischeri</i>			root	abdominal problems
owi	unidentified	0	11	root	abdominal problems
	unidentified			root	infertility
u	<i>Vitex doniana</i>			bark, leaf	infertility
Ku	<i>Warburgia ugandensis</i>			bark	headache
atya (mkalya)	<i>Zanha africana</i>	2	19	bark	psychosis, pneumonia
unu (oloilalei)	<i>Ziziphus mucronata</i>				schistosomiasis, potency enhancement
viadi District, Igaganuiwa village, women					
a (subosubo)	<i>Acacia sieberiana</i>		18	root, bark, leaf	abdominal problems, backache, cough
a (mkutani)	<i>Albizia anthelrntica</i>		15	root, bark, leaf	abdominal problems, convulsions
dwa zagamba	<i>Albizia versicolor</i>	8	13	root, bark, leaf	swellings

Local name	Botanical name	Rank	Score	Part used	Disease treated
Mwarobaini	<i>Azadirachta indica</i>	9	12	root, bark, leaf	convulsions, schistosomiasis
Myuguyu	<i>Balanites aegyptiaca</i>			root, bark	skin problems
Mlundalunda	<i>Cassia abbreviata</i>			root, bark	abdominal problems, diarrhoea
Ntungulu (nsakamkarage)	<i>Senna singueana</i>			root, leaf	abdominal problems
Kaguha	<i>Teclea simplicifolia</i>			root, leaf	abdominal problems
Kaguha	<i>Teclea simplicifolia</i>			root, bark, leaf	convulsions
Msana	<i>Combretum zeyheri</i>			root, bark	backache, infertility
Kumbwambizo (sanzwambeke)	<i>Crossopteryx febrifuga</i>			root, bark	abdominal problems
Mfubata	<i>Diospyros fischeri</i>			root, bark, leaf	abdominal problems
Ngeng'wambula (mfutwambula)	<i>Entada abyssinica</i>			root, leaf	asthma, abdominal problems
Mondo	<i>Entandrophragma bussei</i>	4	17	root, bark	hypertension
Mkalalang'huba	<i>Erythrina abyssinica</i>			root, bark	abdominal problems, leg pains
Nengonengo	<i>Securidocra longipedunculata</i>	5	16	root, bark	abdominal problems, backache
Mzima (njimya)	<i>Terminalia sericea</i>	1	20	root, bark, leaf	abdominal problems, backache
Ningiwe	<i>Turraea fischeri</i>	2	19	root, bark, leaf	abdominal problems
Molu	unidentified			root, bark, leaf	abdominal problems
Mpulu	<i>Vitex doniana</i>			root	backache
Kasuku	<i>Warburgia ugandensis</i>			root, bark, leaf	pneumonia, hypertension
Ng'watya (mkalya)	<i>Zanha africana</i>	10	11	root, bark	convulsions
Bariadi District, Ngulyati village, fanners					
Migu	<i>Acacia polyacantha</i>			bark	cough, sore throat
Mgada (mkutani)	<i>Albizia anthelmintica</i>	6	15	root, bark	backache, loin pains
Mwarobaini	<i>Azadirachta indica</i>			root, bark	general malaise
Mlundalunda	<i>Cassia abbreviata</i>	7	14	bark	abdominal problems
Ng'ochangoko	<i>Catunaregam spinosa</i>	1	20	root, fruit	potency enhancement
Mfubata	<i>Diospyros fischeri</i>			root	abdominal problems, asthma, snake bite
Ngakama	<i>Elaeodendron stuhlmannii</i>			bark	facial paralysis
Ngeng'wambula (mfutwambula)	<i>Entada abyssinica</i>	4	17	root	cough
Mkalalang'huba	<i>Erythrina abyssinica</i>			root, bark	abdominal problems, infertility
Numbaga	<i>Ficus natalensis</i>			root	gonorrhoea
Msalasi (msasi)	<i>Friesodielsia obovata</i>			root	worms
Msomanjala	<i>Harrisonia abyssinica</i>	8	13	root	abdominal problems, hypertension
Ninje (mwicha, ng'wicha)	<i>Kigelia africana</i>	2	19	bark, root	anaemia, pain relief
Mpera	<i>Psidium guajava</i>			leaf	diarrhoea

Local name	Botanical name	Rank	Score	Part used	Disease treated
Nengonengo	<i>Securidaca longipedunculata</i>			root	abdominal problems
Mchongoma	<i>Senna siamea</i>			leaf	measles, yellow fever, gonorrhoea
Mlungulungu (nungubalagiti)	<i>Zanthoxylum chalybeum</i>	5	16	root, bark	abdominal problems, ulcers
Ningiwe	<i>Turraea fischeri</i>	3	18	root, bark	abdominal problems
Sagunida	<i>Euclea</i> sp.	10	11	bark	abdominal problems, asthma, toothache
Mtundwa	<i>Ximenia caffra</i>	9	12	root	potency enhancement
Ng'watya (mkalya)	<i>Zanha africana</i>			root	headache, pains
Bariadi District, Ngulyati village, traditional healer					
Mhale (mdubilo)	<i>Acacia nilotica</i>			root	
Msuha (subosubo)	<i>Acacia sieberiana</i>			root	
Msuha (subosubo)	<i>Acacia sieberiana</i>			root, leaf	
Ng'wandu	<i>Adansonia digitata</i>			bark	
Mgada (mkutani)	<i>Albizia anthelmintica</i>	4	17	bark, root	
Shishigulu	<i>Albizia brachycalyx</i>			root	
Myuguyu	<i>Balanites aegyptiaca</i>			bark, root, leaf	schistosomiasis, abdominal problems
Mpumbula	<i>Colotropis procera</i>			root	
Mlundalunda	<i>Cassia abbreviata</i>	9	12	root	
Ubani	<i>Casuarina junghuhniana</i>			resin	
Ilumba Iya shimba	<i>Combretum aurpureiflorum</i>			root	
Kaguha	<i>Teclea simplicifolia</i>	7	14	root, leaf	
Kumbwambizo (sanzwambeke)	<i>Crossopteryx febrifuga</i>	2	19	bark, root	general ailments
Ngeng'wambula (mfutwambula)	<i>Entada abyssinica</i>	1	20	root, bark	
Mondo	<i>Entandrophragma bussei</i>	5	16	bark, root	general ailments
Mkalalang'huba	<i>Erythrina abyssinica</i>			bark, root	
Lonzwe	<i>Euphorbia</i> sp.	8	13	bark, root, leaf	asthma
Mlungulungu (nungubalagiti)	<i>Zanthoxylum chalybeum</i>			root	stomach ulcers
Mperemese	<i>Grewia platydada</i>			bark, root	
Ninje (mwicha, ng'wicha)	<i>Kigelia africana</i>			bark, fruit	
Mmale	<i>Lonchocarpus cupassa</i>			root, leaf	
Nengonengo	<i>Securidaca longipedunculata</i>			root, branches	
Motolo	<i>Steganoaenia araliacea</i>			root, leaf	
Nghoja	<i>Sterculia africana</i>			bark	
Msungululu (mbelebele)	<i>Strophanthus eminii</i>			latex	
Msungululu (mbelebele)	<i>Strophanthus eminii</i>			root	
Mlungulungu (nungubalagiti)	<i>Zanthoxylum chalybeum</i>			root	
Kungumanga	<i>Terminalia catappa</i>			fruit	
Mzima (njimya)	<i>Terminalia sericea</i>			bark, root	yellow fever
Ningiwe	<i>Turraea fischeri</i>			bark, root	abdominal problems
Kiroto	unidentified			root	
Mguda	unidentified	10	11	root	
Molu	unidentified			root	

Medicinal trees

Local name	Botanical name	Rank	Score	Part used	Disease treated
Swilaswila	unidentified			root, stem	
Kasuku	<i>Warburgia ugandensis</i>			root	
Mnembu	<i>Ximenia americana</i>			root	
Mtundwa	<i>Ximenia caffra</i>			root, leaf	
Ng'watya (mkalya)	<i>Zanha africana</i>	3	18	root, branches	
Bariadi District, Ngulyati village, women					
Mhale (mdubilo)	<i>Acacia nilotica</i>	10	11	bark	lactation problems
Migu	<i>Acacia polyacantha</i>			bark	cough
Mgada (mkutani)	<i>Albizia anthelmintica</i>			bark	cough
Mwarobaini	<i>Azadirachta indica</i>	7	14	leaf	fever, abdominal problems, measles
Myuguyu	<i>Balanites aegyptiaca</i>	9	12	bark	lactation problems
Mlundalunda	<i>Cassia abbreviata</i>	4	17	root	abscess
Nkulwamhembe (mtundururu)	<i>Dichrostachys gbmerata</i>	7	14	root	convulsions
Ngeng'wambula (mfutwambula)	<i>Entada abyssinica</i>	3	18	root	cough, asthma
Mondo	<i>Entandrophragma bussei</i>	1	20	root, bark	abdominal problems, pain relief
Kllindila	<i>Gardenia ternifolia</i>			root, fruit	diarrhoea
Msomanjala	<i>Harrisonia abyssinica</i>			root, leaf	measles, abdominal problems
Mnyanga	<i>Jatropha curcas</i>			leaf	abscess
Mbono	<i>Jatropha curcas</i>			root, leaf	mouth infections
Ninje (mwicha, ng'wicha)	<i>Kigeia africana</i>			bark, fruit	anaemia
Malula	<i>Acacia drepanolobium</i>			root	pneumonia, abdominal problems
Mwembepori	<i>Ozoroa insignis</i>			bark	yellow fever
Nengonengo	<i>Securidaca longipedunculata</i>			root, bark	convulsions
Mchongoma	<i>Senna siamea</i>	6	15	bark, leaf, flowers	measles, yellow fever
Nghoja	<i>Sterculia africana</i>	8	13	bark	asthma
Mkwaju (mshishi)	<i>Tamarindus indica</i>			root, bark, fruit	anaemia, measles
Ningiwe	<i>Turraea fischeri</i>	2	19	root, bark	abdominal problems
Mgeyegeye	<i>Acacia brevispica</i>			root	menstrual problems
Nhembela	unidentified			root	smallpox, measles
Msungwi (mtalali)	<i>Wtexasombassae</i>	5	16	root	abscess, boils
Sagunida	<i>Euclea sp.</i>			bark	pneumonia
Ng'watya (mkalya)	<i>Zanha africana</i>			root	abdominal problems, convulsions
Mgugunu (oloilalei)	<i>Ziziphus mucronata</i>			bark, leaf, fruit	abscess, eye infections, pain relief
Kahoma District, Bujiko village, farmers					
Msuha (subosubo)	<i>Acacia sieberiana</i>			root	abdominal problems
Mkoia (mpaja)	<i>Azalia quanzensis</i>	10	11	root	potency enhancement
Mlundalunda	<i>Cassia abbreviata</i>	9	12	stem bark	toothache
Kumbwambizo (sanzwambeke)	<i>Crossopteryx febrifuga</i>	8	13	root, bark	mouth sores, fever

Local name	Botanical name	Rank	Score	Part used	Disease treated
Gem be	<i>Dalbergia melanoxylon</i>			leaf	diarrhoea
Mbelambasa	<i>Dalbergia nitidula</i>	4	17	stem bark	anaemia in children
Mlungulungu (nungubalagiti)	<i>Zanthoxylum chalybeum</i>			bark	anaemia
Ninje (mwicha, ng'wicha)	<i>Kigelia africana</i>	6	15	bark	gonorrhoea, anaemia
Mtinje	<i>Lanneo humilis</i>	1	20	root	menstrual problems
Mnuhahala	<i>Premna senensis</i>	7	14	root, bark	convulsions
Mpera	<i>Psidium guajava</i>			bark	diarrhoea
Mninga	<i>Pterocarpus angulensis</i>			bark	anaemia
Nengonengo	<i>Securidaca longipedunculata</i>	3	18	bark	convulsions
Msungululu (mbelebele)	<i>Strophanthus eminii</i>	2	19	stem bark	enhance lactation
Msungululu (mbelebele)	<i>Strophanthus eminii</i>			root	lactation problems
Ng'watya (mkalya)	<i>Zanha africana</i>	5	16	leaf	hernia
Kohomo District, Bujiko village, traditional healer					
Mlugala	<i>Cassipourea mollis</i>	4	17	root	female sterilization
Mlundalunda	<i>Cassia abbreviata</i>	6	15	root	tightened jaws
Gobeko	<i>Combretum obovatum</i>	5	16	root	female sterilization
Mkalalang'huba	<i>Erythrina abyssinica</i>			bark	malaria
Mkuyu	<i>Ficus spp.</i>			root	urinary problems
Ninje (mwicha, ng'wicha)	<i>Kigelia africana</i>	1	20	fruit, root	anaemia, convulsions, laxative
Mtinje	<i>Lannea humilis</i>			root	heart problems
Nengonengo	<i>Securidaca bngipedunculata</i>	2	19	root	convulsions
Pandepande	<i>Strychnos potatorum</i>	8	13	root	abdominal problems
Msungululu (mbelebele)	<i>Strophanthus eminii</i>			root	convulsions
Mwage	<i>Strychnos spinosa</i>			root	abdominal problems
Mzima (njimya)	<i>Terminalia sericea</i>	7	14	root	induce vomiting
Mkamile	unidentified	3	18	branch	psychosis
Nhofunhofu	unidentified			root	charm
Kahama District, Bujika village, women					
Lugaka (haruna)	<i>Aloe sp.</i>	10	11	leaf	burns
Mlundalunda	<i>Cassia abbreviate</i>	4	17	root	abdominal problems
Mulujaminzi	<i>Combretum fragrans</i>			leaf	dislocation of joints
Msana	<i>Combretum zeyheri</i>	1	20	leaf	abdominal problems
Gembe	<i>Dalbergia melanoxylon</i>	5	16	leaf	jaundice
Nkulwamhembe (mtunduru)	<i>Dichrostachys glomerata</i>			leaf	convulsions
Mfubata	<i>Diospyros fischeri</i>	6	15	stem bark	burns
Mlungulungu (nungubalagiti)	<i>Zanthoxylum chalybeum</i>			bark	headache, toothache
Mkuyu	<i>Ficus spp.</i>	7	14	leaf	toothache
Mnyanga	<i>Jatropha curcas</i>			leaf	dislocation of joints
Ninje (mwicha, ng'wicha)	<i>Kigelia africana</i>	2	19	fruit	anaemia
Mmale	<i>Lonchocarpus capossa</i>			root	abdominal problems
Nengonengo	<i>Securidaca bngipedunculata</i>	3	18	root	worms
Ntungulu (nsakamkarage)	<i>Senna singueana</i>	9	12	root	worms
Kahama District, Kahama village, buyer					
Msana	<i>Combretum zeyheri</i>	2	19	root	abdominal problems

Medicinal trees

Local name	Botanical name	Rank	Score	Part used	Disease treated
Msalasi (msasi)	<i>Friesodielsia obovata</i>	1	20	root	abdominal problems, asthma
Mbapa	<i>Markhamia obtusifolia</i>	3	18	root	abdominal problems
Kahama District, Kahamitown, seller 1					
Mgagati	<i>Abrus schimperi</i>			root	abdominal problems
Mlundalunda	<i>Cassia abbreviata</i>	4	17	root, bark	diabetes, abdominal problems
Ntungulu (nsakamkarage)	<i>Senna singueana</i>			root	charm
Ng'ochangoko	<i>Catunaregam spinosa</i>	5	16	fruit	convulsions, induce vomiting
Msana	<i>Combretum zeyheri</i>	8	13	root	anaemia
Mtuja (ntuja)	<i>Ekebergia benguelensis</i>			root	charm
Mlungulungu (nungubalagiti)	<i>Zanthoxylum chalybeum</i>			root	charm
Msomanjala	<i>Harrisonia abyssinica</i>	9	12	root	convulsions
Buma	<i>Isoberlinia angolensis</i>	10	11	root, bark	abdominal problems
Nengonengo	<i>Securidaca longipedunculata</i>	1	20	root, bark	gonorrhoea, syphilis
Mlungulungu (nungubalagiti)	<i>Zanthoxylum chalybeum</i>	6	15	root	abdominal problems, convulsions
Ningiwe	<i>Turraea fischeri</i>	2	19	root	convulsions
Ngulyati	unidentified	7	14	root, bark	convulsions, fever
Ng'watya (mkalya)	<i>Zanha africana</i>	3	18	root, bark	convulsions
Kahama District, Kahamitown, seller 2					
Mhale (mdubilo)	<i>Acacia nilotica</i>	3	18	root	potency enhancement
Mgada (mkutani)	<i>Albizia anthelmintica</i>	4	17	root, stem, bark	body pain
Mgada (mkutani)	<i>Albizia anthelmintica</i>	5	16	root	hernia
Ingitaruo	unidentified	2	19	root	potency enhancement
Injaneleshekwei	unidentified	1	20	root	convulsions
Kaboya	unidentified	6	15	fruit	diarrhoea
Kahama District, Kahama town, seller 3					
Mgada (mkutani)	<i>Albizia anthelmintica</i>	6	15	root	abdominal problems, convulsions
Mpumbula	<i>Calotropis procera</i>	1	20	root	abdominal problems
Mlundalunda	<i>Cassia abbreviata</i>	5	16	root	pain relief, pyomyositis
Mbapa	<i>Markhamia obtusifolia</i>	3	18	root	abdominal problems
Nengonengo	<i>Securidaca hngtpeduncukxa</i>	2	19	root	asthma, headache
Ng'watya (mkalya)	<i>Zanha africana</i>	4	17	root	convulsions, asthma
Kahama District, Kahama town, seller 4					
Mhale (mdubilo)	<i>Acacia nilotica</i>			root	jaundice
Mtanga (olumatanga)	<i>Albizia gummifera</i>	10	11	stem bark	backache, scabies
Esteti	<i>Grewia bicohr</i>	9	12	stem bark	laxative
Nengonengo	<i>Securidaca hngpedunculata</i>	7	14	root	potency enhancement
Mgada (mkutani)	<i>Albizia anthelmintica</i>			stem bark	hernia
Mgada (mkutani)	<i>Albizia anthelmintica</i>	5	16	bark	hernia, worms
Endulele	unidentified	6	15	root	hand infection
Obalwa	unidentified			root	charm
Olangulusia	unidentified	4	17	stem bark	diabetes
Olmongongoi	unidentified	8	13	stem bark	impotence

Local name	Botanical name	Rank	Score	Part used	Disease treated
Olnjani	unidentified			bark, root	constipation, abdominal problems
Olsungai	unidentified	2	19	root	abdominal problems
Kasuku	<i>Warburgia ugandensis</i>	3	18	stem bark	stomach ulcer, asthma
Mlungulungu (nungubalagiti)	<i>Zanthoxylum chalybeum</i>			bark	convulsions, asthma
Kahama District, Kahama town, seller S					
Mkola (mpaja)	<i>Azelia quanzensis</i>			bark	charm
Myuguyu	<i>Botonites oegyptioco</i>			root	joint pains
Mnago (mkuni)	<i>Berchemia discolor</i>	3	18	root	hernia
Mondo	<i>Entandrophragma bussei</i>	9	12	bark	anaemia
Msalasi (msasi)	<i>Friesodielsia obovata</i>	7	14		
Nkonze	<i>Mimusops fruticosa</i>	10	11	root	splenomegaly
Nengonengo	<i>Seairidoca longipeduncukXa</i>	6	15	root	convulsions
Mwage	<i>Strychnos spinosa</i>	4	17	root	pneumonia
Melemele ngosha	unidentified	1	20	root	infertility
Msungwi (mtalali)	<i>Vrtex mombassae</i>	2	19	root	hypertension
Mtundwa	<i>Ximenia caffra</i>	8	13	leaf	convulsions
Ng'watya (mkalya)	<i>Zanha africana</i>	S	16	root	anaemia, hernia
Kahama District, Mwendakulima village, farmer 1					
Mpogolo	<i>Albizia harveyi</i>	8	13	root, bark	schistosomiasis
Myuguyu	<i>Balanites aegyptiaca</i>	2	19	root, bark	schistosomiasis
Msana	<i>Combretum zeyheri</i>	10	11	root	convulsions
Mkalalang'huba	<i>Erythrina abyssinica</i>	9	12	root, bark	charm
Ngubalu (ngubaru)	<i>Canthium burttii</i>	6	15	root	pneumonia
Nkolomije (mgogondi)	<i>Phyllanthus engleri</i>	3	18	root, bark	hernia
Mninga	<i>Pterocarpus angulensis</i>	1	20	root, bark	potency enhancement, anaemia
Nengonengo	<i>Securidaca longipedunculata</i>	7	14	root, bark	hernia
Mlungulungu (nungubalagiti)	<i>Zanthoxylum chalybeum</i>	5	16	root	convulsions
Ng'watya (mkalya)	<i>Zanha africana</i>	4	17	root	hernia
Kahama District, Mwendakulima village, farmer 2					
Mbanga	<i>Afrormosia angolensis</i>	3	18	mushroom	tuberculosis
Mbanga	<i>Afrormosia angolensis</i>	7	14	root	tuberculosis
Mkindwa zagamba	<i>Albizia versicolor</i>	1	20	root	anaemia, asthma
Mlundalunda	<i>Cassia abbreviata</i>	8	13	root	hernia, abdominal problems
Nkulwamhembe (mtunduru)	<i>Dichrostochys glomerata</i>	9	12	root	pneumonia
Mkalalang'huba	<i>Erythrina abyssinica</i>	5	16	leaf	rectal prolapse
Mperemese	<i>Grewia platyclada</i>	2	19	root	menstrual problems
Mbapa	<i>Markhamia obtusifolia</i>			root	asthma, abdominal problems
Ngubalu (ngubaru)	<i>Canthium burttii</i>	10	11	root	infertility
Chang'wambogo	<i>Piliostigma thonningii</i>	4	17	leaf	chronic malaria
Mninga	<i>Pterocarpus angulensis</i>	6	15	stem bark	menstrual problems
Kahama District, Mwendakulima village, traditional healer I					
Mgada (mkutani)	<i>Albizia onthelmintica</i>	1	20	root	epilepsy, pyomyositis

Medicinal trees

Local name	Botanical name	Rank	Score	Part used	Disease treated
Myuguyu	<i>Balanites aegyptiaca</i>	3	18	bark, root	paralysis, schistosomiasis
Mlama	<i>Combretum gueinzii</i>	2	19	root, bark	paralysis, apathy
Gobeko	<i>Combretum obovatum</i>	10	11	root, bark	paralysis, apathy, birth control
Msana	<i>Combretum zeyheri</i>	9	12	root, bark	diarrhoea
Ngeng'wambula (mfutwambula)	<i>Entada abyssinica</i>	5	16	root resins	hernia
Msenene (nsenene)	<i>Xylopi odoratissima</i>	7	14	leaf	epilepsy
Mnyanga	<i>Jatropha curcas</i>	6	15	root	convulsions
Ngubalu (ngubaru)	<i>Canthium burtui</i>	8	13	root	diarrhoea, pneumonia
Kahama District, Mwendakulima village, traditional healer 2					
Nkonola (idobedobe)	<i>Annona senegalensis</i>	10	11	root	dysentery
Mayanzani	<i>Antidesma venosum</i>			root	charm
Mtobo	<i>Azanza garckeana</i>	2	19	root	rectal infection
Myuguyu	<i>Balanites aegyptiaca</i>			root	charm
Mgandokaguba	<i>Albizia antunesiana</i>	7	14	root	epilepsy
Ng'ochangoko	<i>Catunaregam spinosa</i>			root	charm
Msongati	<i>Diplorhynchus condylocarpon</i>	4	17	root	menstrual problems
Kumbwambizo (sanzwambeke)	<i>Crossopteryx febrifuga</i>	9	12	root	bronchitis, cough
Nkulwamhembe (mtunduru)	<i>Dichrostachys glomerata</i>			root	charm
Mondo	<i>Entandrophragma bussei</i>			bark	charm
Msenene (nsenene)	<i>Xylopi odoratissima</i>	5	16	root, bark	menstrual problems
Mbapa	<i>Markhamia obtusifolia</i>	8	13	root	abdominal problems
Nengonengo	<i>Securidaca longipedunculata</i>	3	18	root	convulsions
Pandepande	<i>Srychnos potatorum</i>	6	15	root	abdominal problems
Kahama District, Mwendakulima village, woman 2					
Mbelambasa	<i>Dalbergia nkidula</i>	4	17	bark	anaemia
Mkalalang'huba	<i>Erythrina abyssinica</i>	5	16	bark, root	anaemia
Mlungulungu (nungubalagiti)	<i>Zanthoxylum chalybeum</i>	3	18	root	swellings
Mpunga mbu	<i>Holstundia opposita</i>	1	20	root	convulsions
Ninje (mwicha, ng'wicha)	<i>Kigelia africana</i>	2	19	fruit	anaemia
Kahama District, Mwendakulima village, women 1					
Mlundaunda	<i>Cassia abbreviata</i>			root	stomach
Ng'ochangoko	<i>Catunaregam spinosa</i>			root	charm
Msana	<i>Combretum zeyheri</i>	1	20	root	ulcers, abdominal problems
Nkulwamhembe (mtunduru)	<i>Dichrostachys glomerata</i>			leaf, root	stomach, wounds
Lonzwe	<i>Euphorbia sp.</i>	5	16	leaf	hypertension
Msalasi (msasi)	<i>Friesodielsia obovata</i>			root	abdominal problems
Msalasi (msasi)	<i>Friesodielsia obovata</i>	9	12	root	stomach
Ninje (mwicha, ng'wicha)	<i>Kigelia africana</i>	6	15	fruit	anaemia, blood pressure
Mmale	<i>Lonchocarpus capassa</i>	10	11	root	abdominal problems
Mnene	<i>Ostryoderris stuhlmannii</i>			root	stomach

Local name	Botanical name	Rank	Score	Part used	Disease treated
Mninga	<i>Pterocarpus angulensis</i>	8	13	root	charm
Mninga	<i>Pterocarpus angulensis</i>			bark	anaemia
Nengonengo	<i>Securidaca fongipedunculata</i>	7	14	root, bark	syphilis, epilepsy, convulsions
Mzima (njimya)	<i>Terminalia sericea</i>	4	17	root, leaf	anaemia, abdominal problems
Mgeyegeye	<i>Acacia brevispica</i>	2	19	root	hypertension, convulsions
Sagunida	<i>Euclea</i> sp.	3	18	root	diarrhoea
Mnembu	<i>Ximenia americana</i>			root	eye infection, stomach disorders
Maswa District, Isagenhe village, traditional healer					
Hula lyelu	<i>Acacia burttii</i>			bark, root	anaemia
Sese	<i>Acacia oerfota</i>			root	ear problems
Mtobo	<i>Azanza garckeana</i>	5	16	root	abdominal problems
Mpumbula	<i>Calotropis procera</i>			root	abdominal problems
Papai dume	<i>Carica papaya</i>			root	schistosomiasis
Mayegelele	<i>Senna occidentalis</i>	6	IS	root	gonorrhoea, schistosomiasis
Ng'ochangoko	<i>Catunaregam spinosa</i>			root	epilepsy
Mfubata	<i>Diospyros fischeri</i>			root	diarrhoea
Ngeng'wambula (mfutwambula)	<i>Entada abyssinica</i>	9	12	bark, root	asthma
Mlungulungu (nungubalagiti)	<i>Zanthoxylum chalybeum</i>	7	14	bark, root	toothache, headache
Mgumo	<i>Reus stuhlmannii</i>			bark	abdominal problems
Msomanjala	<i>Harrisonia abyssinica</i>	4	17	root	abdominal problems, pneumonia
Ninje (mwicha, ng'wicha)	<i>Kigelia africana</i>			bark	infertility, backache
Nengonengo	<i>Securidaca hngipedunculata</i>	2	19	root	abdominal problems
Nghoja	<i>Sterculia africana</i>			root	abdominal problems
Ngili (ngiri)	<i>Terminalia stuhlmannii</i>	10	11	root	jaundice
Ningiwe	<i>Turraea fischeri</i>	8	13	root	abdominal problems, dysentery
Mtundwa	<i>Ximenia caffra</i>	1	20	root	dysentery
Ng'watya (mkalya)	<i>Zanha africana</i>	3	18	root	convulsions
Maswa District, Maswa town, seller 2 (Sukuma)					
Mgada (mkutani)	<i>Albizia anthelmintica</i>	7	14	bark	epilepsy
Mluhdalunda	<i>Cassia abbreviate</i>	6	IS	root	schistosomiasis
Mlungulungu (nungubalagiti)	<i>Zanthoxylum chalybeum</i>	1	20	root	abdominal problems
Nengonengo	<i>Securidaca longipedunculata</i>	4	17	root	abdominal problems
Nghoja	<i>Sterculia africana</i>	8	13	root	convulsions
Ningiwe	<i>Turraea fischeri</i>	5	16	bark, root, leaf	infertility, abdominal problems
Kasuku	<i>Warburgia ugandensis</i>	2	19	bark	cough, stomach ulcer
Maswa District, Maswa town, traditional healer					
Mhale (mdubilo)	<i>Acacia nilotica</i>	9	12	root	chills
Mlugala	<i>Cassipourea mollis</i>			root	menstrual problems
Msuha (subosubo)	<i>Acacia sieberiana</i>	5	16	root	pneumonia

Medicinal trees

Local name	Botanical name	Rank	Score	Part used	Disease treated
Msuha (subosubo)	<i>Acacia sieberiana</i>			root	urinary infection
Mkola (mpaja)	<i>Azelia quanzensis</i>			bark, root	leg swelling
Mdulasongo	<i>Antidesma grantii</i>	6	15	latex	diarrhoea, induce vomiting
Myuguyu	<i>Balanites aegyptiaca</i>			root	abdominal problems, menstrual problems
Mlundalunda	<i>Cassia abbreviate</i>			root	abdominal problems, syphilis
Mlundalunda	<i>Cassia abbreviata</i>	2	19	root, bark	fever
Myegeyege	<i>Senna obtusifolia</i>			root	schistosomiasis, gonorrhoea
Ng'ochangoko	<i>Catunaregam spinosa</i>			root	convulsions
Msana	<i>Combretum zeyheri</i>	1	20	bark, root, leaf	abdominal problems, convulsions, abscess
Lweja	<i>Croton menyhartii</i>			root	general malaise
Gembe	<i>Dalbergia melanoxylon</i>			root	abdominal problems
Nkulwamhembe (mtunduru)	<i>Dichrostachys glomerata</i>	1	20	root	convulsions
Ngakama	<i>Elaeodendron stuhlmannii</i>			root, bark	anaemia, sores, scabies
Ngeng'wambula (mfutwambula)	<i>Entada abyssinica</i>	4	17	root	abdominal problems
Mtwaligana	<i>Euphorbia sp.</i>	4	17	bark, root	infertility, potency enhancement
Mlungulungu (nungubalagiti)	<i>Zanthoxylum chalybeum</i>	9	12	bark, root	hypertension
Msomanjala	<i>Harrisonia abyssinica</i>			root	abdominal problems, schistosomiasis
Ninje (mwicha, ng'wicha)	<i>Kigelia africana</i>	10	11	fruit	anaemia
Mtinje	<i>Lansea humilis</i>			root, bark	anaemia, bleeding
Mbapa	<i>Markhamia obtusifolia</i>			leaf	herpes zoster
Minzandimi	<i>Phyllanthus reticulatus</i>			bark	uvula elongation
Nengonengo	<i>Secuhdaca longipedunculata</i>	3	18	root, bark	headache
Nengonengo	<i>Securidaca longipedunculata</i>			root	schistosomiasis
Msungululu (mbelebele)	<i>Strophanthus eminii</i>	7	14	root	abdominal problems
Mkwaju (mshishi)	<i>Tamarindus indica</i>			bark	paraesthesia
Mlungulungu (nungubalagiti)	<i>Zanthoxylum chalybeum</i>			root, bark	abdominal problems
Ningiwe	<i>Turraea fischeri</i>	8	13	root	abdominal problems
Mgeyegeye	<i>Acacia brevispica</i>	2	19	bark	convulsions
Ng'ombu	unidentified			root	dizziness
Ng'watya (mkalya)	<i>Zanha africana</i>	3	18	bark, root	gonorrhoea, AIDS
Ng'watya (mkalya)	<i>Zanha africana</i>	6	15	root	headache
Maswa District, Maswa town, buyer					
Sebeya	<i>Chrysophyllum bangweolense</i>			bark	convulsions
Maswa District, Maswa town, traditional healer					
Ndagwasa	<i>Allophylus griseo-tomentosus</i>	1	20	root	infertility
Mgumo	<i>Ficus stuhlmannii</i>	2	19	bark	sores
Msomanjala	<i>Harrisonia abyssinica</i>	10	11	root	abdominal problems
Msayu (nsayu)	<i>Lansea schweinfurthii</i>	3	18	bark	sores

Local name	Botanical name	Rank	Score	Part used	Disease treated
Mmale	<i>Lonchocarpus capassa</i>	8	13	root	chills
Mbapa	<i>Markhamia obtusifolia</i>	6	15	root	leg swelling
Nengonengo	<i>Securidaca hngipedunculata</i>	9	12	root	lactation problems
Kasanda	<i>Swatzia madagascariensis</i>	4	17	root	abdominal problems, infertility
Ningiwe	<i>Turraea fischeri</i>	7	14	root	abdominal problems
Ng'watya (mkalya)	<i>Zanha africana</i>	5	16	root	convulsions
Maswa District, Shamwa village, seller 1 (Sukuma)					
Ng'ochangoko	<i>Catunaregam spinosa</i>			fruit	induce vomiting
Kaguha	<i>Teclea simplicifolia</i>			leaf	abdominal problems
Mgumo	<i>Ficus stuhlmannii</i>			bark	swellings
Msayu (nsayu)	<i>Lannea schweinfurthii</i>	6	15	bark	anaemia, schistosomiasis
Nengonengo	<i>Securidaca hngipedunculata</i>	1	20	root	headache, convulsions
Nghoja	<i>Sterculia africana</i>	3	18	root	syphilis
Ningiwe	<i>Turraea fischeri</i>	5	16	root	swellings
Sebeya	<i>Chrysophyllum bangweolense</i>			bark	convulsions
Ng'watya (mkalya)	<i>Zanha africana</i>	2	19	root	headache, convulsions
Maswa District, Shamwa village, traditional healer					
Mwarobaini	<i>Azadirachta indica</i>			leaf	
Myuguyu	<i>Balanites aegyptiaca</i>			bark	
Mpumbula	<i>Calotropis procera</i>	7	14	root	
Mtangwa ikingo	<i>Cissus carnifolia</i>	5	16	root	
Kaguha	<i>Teclea simplicifolia</i>			leaf	
Msana	<i>Combretum zeyheri</i>	2	19	bark	
Kumbwambizo (sanzwambeke)	<i>Crossopteryx febrifuga</i>			root	
Ngeng'wambula (mfutwambula)	<i>Entada abyssinica</i>			branches	
Mgumo	<i>Ficus stuhlmannii</i>	10	11	bark	
Msenene (nsenene)	<i>Xylopiya odoratissima</i>	1	20	root	
Msayu (nsayu)	<i>Lannea schweinfurthii</i>	9	12	bark	
Mboyo	<i>Melia azedarach</i>			leaf	
Ngubalu (ngubaru)	<i>Canthium burtii</i>	4	17	root	
Nkolomije (mgogondi)	<i>Phyllanthus engleri</i>	3	18	fruit	
Nengonengo	<i>Securidaca hngipedunculata</i>			bark	
Ikalinga (mkulwa)	<i>Strychnos innocua</i>			bark	
Mkwaju (mshishi)	<i>Tamarindus indica</i>			bark	
Sebeya	<i>Chrysophyllum bangweolense</i>	8	13	bark, root	
Mnembu	<i>Ximenia americana</i>			root	
Meatu District, Bukundi village, farmers					
Mtangala (ndaja)	<i>Albizia amara</i>			bark	backache, loin pain
Nkonola (idobedobe)	<i>Annona senegalensis</i>			stem	pyomyositis
Mwarobaini	<i>Azadirachta indica</i>	1	20	leaf	fever, abdominal problems
Mlundalunda	<i>Cassia abbreviata</i>			root	constipation
Ng'ochangoko	<i>Catunaregam spinosa</i>			root	eyeache

Medicinal trees

Local name	Botanical name	Rank	Score	Part used	Disease treated
Kaguha	<i>Teclea simplicifolia</i>			leaf	venereal diseases, stomach disorder
Melamela	<i>Courbonia edulis</i>			root	potency enhancement
Kumbwambizo (sanzwambeke)	<i>Crossopteryx febrifuga</i>			bark	constipation
Ngeng'wambula (mfutwambula)	<i>Entada abyssinica</i>			root	cough, convulsions
Mondo	<i>Eraandrophragma bussei</i>	4	17	bark	anaemia, body pains
Lonzwe (mtwaligana)	<i>Euphorbia</i> sp.	9	12	stem	constipation
Mlungulungu (nungubalagiti)	<i>Zanthoxylum chalybeum</i>			root, bark	cough, pyomyositis, tonsillitis
Msomanjala	<i>Harrisonia abyssinica</i>	2	19	root	abdominal problems
Mtinje	<i>Lannea humilis</i>			bark	potency enhancement
Msayu (nsayu)	<i>Lannea schweinfurthii</i>	5	16	bark	stomach ulcers
Mkonje	<i>Manilkara mochisia</i>			bark	stomach disorder
Ding'wamimbi	<i>Oldfieldia dactylophylla</i>			bark, root	charm, <i>chemba moyo</i> (heartburn)
Mkondwamhuli	<i>Ormocarpum trachycarpum</i>			root	<i>chemba moyo</i> (heartburn)
Nkolomije (mgogondi)	<i>Phyllanthus engleri</i>			root, bark	potency enhancement
Nengonengo	<i>Securidaco longipedunculata</i>			root, bark	convulsions, impotence
Mchongoma	<i>Senna siamea</i>	8	13	root, leaf	measles
Ikalinga (mkulwa)	<i>Strychnos innocua</i>			root	potency enhancement
Mkwaju (mshishi)	<i>Tamarindus indica</i>	6	15	leaf, fruit	measles
Ningiwe	<i>Turraea fischeri</i>			root	abdominal problems
Ng'ongwa	unidentified			bark	stomach disorder, anaemia
Ngusa nguruwe	unidentified			root, bark, fruit	abdominal problems, syphilis, gonorrhoea
Nkamile	unidentified			stem	headache, chills, fever
Sagunida	<i>Euclea</i> sp.	3	18	bark	pneumonia
Kasuku	<i>Warburgia ugandensis</i>			fruit	worms
Mtundwa	<i>Ximenia caffra</i>	7	14	root	infertility in women
Ng'watya (mkalya)	<i>Zanha africana</i>			root	headache
Meatu District, Bukundi village, traditional healer					
Msuha (subosubo)	<i>Acacia sieberiana</i>			root	sleeping sickness
Mgada (mkutani)	<i>Albizia anthelmintica</i>			root	convulsions, malaria
Mpogolo	<i>Albizia harveyi</i>			root	abdominal problems
Nkonola (idobedobe)	<i>Annona senegalensis</i>			root	swellings
Mlundalunda	<i>Cassia abbreviata</i>	6	15	root	pyomyositis
Ntungulu (nsakamkarage)	<i>Senna singueana</i>			root	swellings
Msana	<i>Combretum zeyheri</i>			root	abdominal problems
Lweja	<i>Croton menyhartii</i>			root	swellings
Kumbwambizo (sanzwambeke)	<i>Crossopteryx febrifuga</i>			root, bark	epilepsy
Nkulwamhembe (mtunduru)	<i>Dichrostachys glomerata</i>	5	16	root	convulsions, miscarriage
Ngakama	<i>Elaeodendron stuhlmannii</i>			root	sores
Ngeng'wambula (mfutwambula)	<i>Entada abyssinica</i>	4	17	root	sores

Local name	Botanical name	Rank	Score	Part used	Disease treated
Mondo	<i>Entandrophragma bussei</i>	7	14	root, bark	abdominal problems
Mlungulungu (nungubalagiti)	<i>Zanthoxylum chalybeum</i>			root	cough, sores, abdominal problems
Msomanjala	<i>Harrisonia abyssinica</i>	1	20	root, leaf	abdominal problems
Msayu (nsayu)	<i>Lannea schweinfurthii</i>			bark	peptic ulcer
Malula	<i>Acacia drepanolobium</i>			root	abdominal problems, cough
Nkolomije (mgogondi)	<i>Phyllanthus engleri</i>			root	asthma, dizziness
Nkolomije (mgogondi)	<i>Phyllanthus engleri</i>	9	12	root	potency enhancement
Mninga	<i>Pterocarpus angulensis</i>			root, bark	anaemia
Nengonengo	<i>Securidaca hngipedunculata</i>	2	19	root	convulsions
Nghoja	<i>Sterculia africana</i>			root	abdominal problems, dizziness
Mzima (njimya)	<i>Terminalia serkea</i>			root, bark	jaundice, cough
Ningiwe.	<i>Turraea fischeri</i>	8	13	root	abdominal problems
Mgeyegeye	<i>Acacia brevispica</i>	10	11	root	convulsions
Ngusa nguruwe	unidentified			root	abdominal problems, loin pain
Kasuku	<i>Warburgia ugandensis</i>			root	peptic ulcer
Mtundwa	<i>Ximenia coffro</i>			root	sores
Ng'watya (mkalya)	<i>Zanha africana</i>	3	18	root	abdominal problems, convulsions, headache
Meato District, Bukundi village, women					
Lugaka (haruna)	<i>Aloe sp.</i>			leaf	constipation
Masagala	<i>Anisotes dumosus</i>			root	abscess
Mtobo	<i>Azanza garckeana</i>			root	labour pains
Mpumbula	<i>Calotropis procera</i>			root	headache
Mlunalunda	<i>Cassia abbreviate</i>	2	19	root	dizziness, pyomyositis
Lweja	<i>Croton menyhartii</i>			leaf	asthma
Mfifi	<i>Dalbergia stuhlmannii</i>	9	12	root	abdominal problems
Ngakama	<i>Elaeodendron stuhlmannii</i>			root	heart problems
Ngeng'wambula (mfutwambula)	<i>Entada abyssinica</i>			root	cough, sores
Mondo	<i>Entandrophragma bussei</i>			root	anaemia
Lonzwe	<i>Euphorbia sp.</i>	1	20	root leaf	charm
Mlungulungu (nungubalagiti)	<i>Zanthoxylum chalybeum</i>			root	convulsions
Msomanjala	<i>Harrisonia abyssinica</i>			root	abdominal problems
Njuguji	<i>Hymenodictyon parvifolium</i>			root	charm
Msayu (nsayu)	<i>Lannea schweinfurthii</i>	7	14	root, bark	anaemia, ulcers, tonsillitis
Mswaki (olremi)	<i>Salvadora persica</i>			root	pyomyositis
Nengonengo	<i>Securidaca hngipedunculata</i>	5	16	root	abdominal problems, infertility
Nghoja	<i>Sterculia africana</i>			root	convulsions
Mkwaju (mshishi)	<i>Tamarindus indica</i>	8	13	leaf	measles
Mzima (njimya)	<i>Terminalia serkea</i>			root	jaundice
Ngili (ngiri)	<i>Terminalia stuhlmannii</i>	6	15	root	jaundice
Ningiwe	<i>Turraea fischeri</i>			root	convulsions
Mkusi	unidentified	4	17	leaf	chest pains

Medicinal trees

Local name	Botanical name	Rank	Score	Part used	Disease treated
Nkanya	unidentified			root	charm
Ntagaswa	unidentified			root	anaemia
Mtundwa	<i>Ximenia caffra</i>			root	abscess
Ng'watya (mkalya)	<i>Zanha africana</i>	3	18	root	convulsions
<i>Meatu District, Mwamishali village, farmers</i>					
Igwata	<i>Acacia Senegal</i>			root	gonorrhoea, abdominal problems
Mwarobaini	<i>Azadirachta indica</i>	7	14	leaf, bark	abdominal problems, fever
Mlundalunda	<i>Cassia abbreviata</i>	2	19	root	abdominal problems
Ntungulu (nsakamkarage)	<i>Senna singueana</i>			root	schistosomiasis
Ng'ochangoko	<i>Catunaregam spinosa</i>			root, fruit	bile infections
Mfubata	<i>Diospyros fischeri</i>			root, stem	toothache
Ngeng'wambula (mfutwambula)	<i>Entada abyssinica</i>	5	16	root, leaf	abdominal problems, cough
Mondo	<i>Entandrophragma bussei</i>	6	15	root, bark	abdominal problems, anaemia
Mtwaligana	<i>Euphorbia</i> sp.			fruit	charm (<i>samba</i>)
Mkulungu	<i>Pterocarpus tinctorus</i>			root, bark	abdominal problems
Mtinje	<i>Lannea humilis</i>			fruit	anaemia
Msayu (nsayu)	<i>Lannea schweinfurthii</i>			bark	anaemia
Myogoyogo	<i>Radio</i> sp.			leaf, root	scabies
Nengonengo	<i>Securidaca longipedunculata</i>	1	20	root	headache
Mchongoma	<i>Senna siamea</i>			leaf	measles
Ikalinga (mkulwa)	<i>Strychnos innocua</i>			latex	chronic sexually transmitted diseases
Mkwaju (mshishi)	<i>Tamarindus indica</i>	8	13	leaf, fruit	measles
Ningiwe	<i>Turraea fischeri</i>	4	17	root, bark	headache, abdominal problems, fever
Ng'watya (mkalya)	<i>Zanha africana</i>	3	18	root, bark	headache
<i>Meatu District, Mwamishali village, traditional healer</i>					
Mhale (mdubilo)	<i>Acacia nilotica</i>			root	
Mlugala	<i>Cassipourea mollis</i>			root	
Sese	<i>Acacia oerfata</i>			root	
Msekela	<i>Antidesma venosum</i>			root	
Kalilila	<i>Cadaba adenotricha</i>			root, bark	
Mlundalunda	<i>Cassia abbreviata</i>	5	16	root	
Ng'ochangoko	<i>Catunaregam spinosa</i>			root, fruit	
Msana	<i>Combretum zeyheri</i>			root, bark	
Mbambachete	<i>Commiphora schimperi</i>			root	
Kumbwambizo (sanzwambeke)	<i>Crossopteryx febrifuga</i>			root	
Gembe	<i>Dalbergia melanoxylon</i>			root, bark	
Mtuja (ntuja)	<i>Ekebergia benguelensis</i>			root	
Ngeng'wambula (mfutwambula)	<i>Entada abyssinica</i>	2	19	root	
Mondo	<i>Entandrophragma bussei</i>	6	15	root	
Mkulungu	<i>Pterocarpus tinctorus</i>			root	

Local name	Botanical name	Rank	Score	Part used	Disease treated
Numbaga	<i>Ficus natalensis</i>			root	
Msalasi (msasi)	<i>Friesodielsia obovata</i>			root	
Msomanjala	<i>Harrisonia abyssinica</i>			root	
Mtinje	<i>Lannea humilis</i>			root	
Mkulo	<i>Ocotea usambarensis</i>			root	
Mnene	<i>Ostryoderris stuhlmannii</i>			root	
Nkolomije (mgogondi)	<i>Phyllanthus engleh</i>			root	
Mwembepori	<i>Ozoroa insignis</i>			root	
Mputuka	<i>Schrebera trichoclads</i>			root	
Nengonengo	<i>Securidaca hngipedunculata</i>	4	17	root	
Nghoja	<i>Sterculia africana</i>	9	12	root, bark	
Mzima (njimya)	<i>Terminalia sericea</i>	10	11	root	
Ningiwe	<i>Turraea fischeri</i>	8	13	root	
Kidwavi	unidentified			root, bark	
Mwavi	unidentified			bark	
Ngulyati	unidentified			root	
Shebasheba	unidentified			root	
Kasuku	<i>Warburgia ugandensis</i>			root, bark	
Mtundwa	<i>Ximenia caffra</i>			root, bark	
Ng'watya (mkalya)	<i>Zanha africana</i>	1	20	root	
Mgugunu (oloilalei)	<i>Ziziphus mucronata</i>			root	
Meatu District, Mwamishali village, women					
Mwarobaini	<i>Azadirachta indica</i>	5	16	leaf	fever, abdominal problems, scabies
Ngeng'wambula (mfutwambula)	<i>Entada abyssinica</i>	2	19	bark	cough, sores
Msayu (nsayu)	<i>Lannea schweinfurthii</i>	3	18	bark	rectal, mouth sores
Nengonengo	<i>Securidaca longipedunculata</i>	1	20	root	abdominal problems
Mchongoma	<i>Senna siamea</i>	9	12	leaf	measles
Mkwaju (mshishi)	<i>Tamarindus indica</i>	8	13	leaf	measles
Ningiwe	<i>Turraea fischeri</i>	10	11	leaf	lactation problems
Mtundwa	<i>Ximenia caffra</i>	7	14	root	mouth sores
Ng'watya (mkalya)	<i>Zanha africana</i>	4	17	root	convulsions, sores
Shinyanga Rural, Manyada village, farmers					
Mkindwa zagamba	<i>Albizia versicolor</i>			root	abdominal problems
Lugaka (haruna)	<i>Aloe sp.</i>			root	gonorrhoea
Mwarobaini	<i>Azadirachta indica</i>	3	18	leaf, bark	fever, anaemia
Mnago (mkuni)	<i>Berchemia discolor</i>			root	hernia
Mlundalunda	<i>Cassia abbreviate</i>	10	11	root	ear problems
Kumbwambizo (sanzwambeke)	<i>Crossopteryx febrifuga</i>			root	fever, coughing
Ngakama	<i>Elaeodendron stuhlmannii</i>	7	14	root	anaemia
Ngeng'wambula (mfutwambula)	<i>Entada abyssinica</i>	6	15	root	abdominal problems, sore throat
Mlungulungu (nungubalagiti)	<i>Zanthoxylum chalybeum</i>			bark	anaemia
Nengonengo	<i>Securidaca hngipedunculata</i>	1	20	root	convulsions
Mkwaju (mshishi)	<i>Tamarindus indica</i>			leaf	measles
Ningiwe	<i>Turraea fischeri</i>	5	16	root	abdominal problems

Local name	Botanical name	Rank	Score	Part used	Disease treated
Mgeyegeye	<i>Acacia brevispica</i>	4	17	root	impotence, convulsions
Ngulyati	unidentified	2	19	root	abdominal problems
Mtundwa	<i>Ximenia caffra</i>			root	abscess
Ng'watya (mkalya)	<i>Zanha africana</i>	9	12	root	fever
Shinyanga Rural, Manyada village, traditional healer					
Migu	<i>Acacia polyacantha</i>			bark	cough
Migunga	<i>Acacia tortilis</i>			root	diarrhoea
Mtangala (ndaja)	<i>Albizia amara</i>	iO	11	bark	abdominal problems
Mgada (mkutani)	<i>Albizia anthelmintka</i>	2	19	root	abdominal problems
Mpogolo	<i>Albizia harveyi</i>	5	16	root	constipation
Mwarobaini	<i>Azadirachta indica</i>			leaf	cough
Idasho	<i>Azima tetracantha</i>			root	anaemia
Myombo	<i>Brachystegia spiciformis</i>			root	charm
Nsheni	<i>Combretum longispicatum</i>			leaf	menstrual problems
Kaguha	<i>Teclea simplicifolia</i>	3	18	root	impotence
Msana	<i>Combretum zeyheri</i>	9	12	root	abdominal problems
Nkulwamhembe (mtunduru)	<i>Dichrostachys glomerata</i>	8	13	leaf	headache, abdominal problems
Mondo	<i>Entandrophragma bussei</i>	6	15	bark	asthma, urinary infection
Ninje (mwicha, ng'wicha)	<i>Kigelia africana</i>			leaf	heart problems
Malula	<i>Acacia drepanolobium</i>			root	abdominal problems
Nengonengo	<i>Securidaca kngipedunculata</i>	1	20	root	impotence
Mkwaju (mshishi)	<i>Tamarindus indica</i>			root, bark, fruit	measles, abdominal problems
Mgeyegeye	<i>Acacia brevispica</i>	7	14	root	abdominal problems
Mhelela	unidentified			bark	anaemia
Ngulyati	unidentified	4	17	root	abdominal problems, convulsions
Shinyanga Rural, Manyada village, women					
Mhale (mdubilo)	<i>Acacia nilotica</i>	3	18	bark	fever, sore throat
Migu	<i>Acacia polyacantha</i>	5	16	bark	toothache, abdominal problems
Migunga	<i>Acacia tortilis</i>			bark	diarrhoea
Mwarobaini	<i>Azadirachta indica</i>	4	17	leaf, bark	fever, leg pains
Myuguyu	<i>Balanites oegyptiaca</i>			root, bark	charm (samba)
Msana	<i>Combretum zeyheri</i>	2	19	root	abdominal problems
Mfubata	<i>Diospyros fischeri</i>			root	convulsions, dysentery
Mkaratusi	<i>Eucalyptus sp.</i>	7	14	leaf	fever
Mtinje	<i>Lansea humilis</i>	8	13	root	diarrhoea
Malula	<i>Acacia drepanolobium</i>			root	convulsions, dysentery
Malula	<i>Acacia drepanolobium</i>	9	12	root	diarrhoea
Mchongoma	<i>Senna siamea</i>	10	11	root, bark, leaf	malaria, jaundice
Mkwaju (mshishi)	<i>Tamarindus indica</i>	6	15	root	lactation problems, anaemia, measles
Mtundwa	<i>Ximenia caffra</i>			root	abscess

Shinyanga Urban, Mwamalili village, farmers

Local name	Botanical name	Rank	Score	Part used	Disease treated
Mhale (mdubilo)	Acocio nilotico			stem	anaemia, malaria
Mgada (mkutani)	<i>Albizia anthelmintica</i>	4	17	root, bark, leaf	chest problems
Mtobo	<i>Azanza gorckeana</i>				chest problems
Myuguyu	<i>Balanites aegyptiaca</i>			root, bark	abdominal problems, charm
Mlunalunda	<i>Cassia abbreviata</i>			root	abdominal problems
Ng'ochangoko	<i>Catunaregam spinosa</i>			root	potency enhancement
Mlobashi	<i>Combretum parvifolium</i>			root	pneumonia
Msana	<i>Combretum zeyheri</i>	8	13	root	abdominal problems
Mondo	<i>Entandrophragma bussei</i>	3	18	bark	chest problems
Mlungulungu (nungubalagiti)	<i>Zonthoxylum cholybeum</i>			root	abdominal problems
Mkulungu	<i>Pterocarpus tinctorus</i>			root	charm
Msomanjala	<i>Harrisonia abyssinica</i>			root	diarrhoea
Nengonengo	<i>Securidaca longipedunculata</i>	1	20	root	psychosis, convulsions
Mzima (njimya)	<i>Terminalia sericea</i>	9	12	root, bark	abdominal problems, headache
Ningiwe	<i>Turraea fischeri</i>	5	16	root, bark	abdominal problems
Njolwa mbogo	<i>Uapaca niuda</i>			leaf	anaemia
Mgeyegeye	<i>Acacia brevispica</i>	6	15	root	chest problems, asthma
Mtundwa	<i>Ximenia caffra</i>	7	14	root	abdominal problems
Ng'watya (mkalya)	<i>Zanha africana</i>	2	19	root	psychosis
<i>Shinyanga Urban, Mwamalili village, traditional healer</i>					
Mkindwa zagamba	<i>Albizia versicolor</i>	5	16	root	psychosis
Nkonola (idobedobe)	<i>Annona senegalensis</i>			root	laxative
Buyo	<i>Anselia africana</i>			root	anaemia
Mnago (mkuni)	<i>Berchemia discolor</i>	2	19	root	laxative
Mgandokaguba	<i>Albizia antunesiana</i>			root	psychosis, snake bite
Mlunalunda	<i>Cassia abbreviata</i>			root	pyomyositis
Ngeng'wambula (mfutwambula)	<i>Entada abyssinica</i>	3	18	root	cough
Mondo	<i>Entandrophragma bussei</i>			root, bark	laxative
Mkaratusi	<i>Eucalyptus sp.</i>	9	12	bark	anaemia
Mlungulungu (nungubalagiti)	<i>Zonthoxylum cholybeum</i>			root, bark	abdominal problems
Mkulungu	<i>Pterocarpus tinctorus</i>			bark	disinfectant
Ding'wamimbi	<i>Oldfieldia docycophylla</i>	8	13	root	impotence
Nengonengo	<i>Securidaca longipedunculata</i>	1	20	root	convulsions
Nghoja	<i>Sterculia africana</i>	10	11	root	abdominal problems, convulsions
Mwage	<i>Strychnos spinosa</i>			root	laxative
Mzima (njimya)	<i>Terminalia sericea</i>			root	anaemia
Ningiwe	<i>Turraea fischeri</i>			root	abdominal problems
Mgeyegeye	<i>Acacia brevispica</i>	7	14	root	impotence
Ng'watya (mkalya)	<i>Zanha africana</i>	4	17	root	convulsions, psychosis
<i>Shinyanga Urban, Mwamalili village, women</i>					
Mhale (mdubilo)	<i>Acacia nilotica</i>			bark	bronchitis, malaria
Mlunalunda	<i>Cassia abbreviata</i>	4	17	root	abscess
Ntungulu (nsakamkarage)	<i>Senna singueana</i>	9	12	root	schistosomiasis

Medicinal trees

Local name	Botanical name	Rank	Score	Part used	Disease treated
Msana	<i>Combretum zeyheri</i>	6	15	root, bark	abdominal problems, jaundice
Lweja	<i>Croton menyhartii</i>	0	11	root, leaf	abdominal problems, convulsions
Ngeng'wambula (mfutwambula)	<i>Entada abyssinica</i>	3	18	root	cough
Mkaratusi	<i>Eucalyptus sp.</i>			leaf	fever
Msayu (nsayu)	<i>Lannea schweinfurthii</i>	8	13	bark	sore throat
Nengonengo	<i>Securidaca bngipedunculata</i>	2	19	root	convulsions
Mchongoma	<i>Senna siameo</i>			leaf	measles
Msungululu (mbelebele)	<i>Strophantus eminii</i>	7	14	root	measles
Ningiwe	<i>Turraea fischeri</i>	1	20	root	convulsions
Ng'watya (mkalya)	<i>Zanha africana</i>	5	16	root	convulsions
Shinyanga Urban, Shinyanga town, buyer 1 (Sukuma)					
Mhale (mdubilo)	<i>Acacia nilotica</i>	8	13	root	jaundice
Mwarobaini	<i>Azadirachta indica</i>	9	12	leaf	fever
Mlunalunda	<i>Cassia abbreviate</i>	6	15	root	hypertension
Ngeng'wambula (mfutwambula)	<i>Entada abyssinica</i>	4	17	root	hypertension
Nengonengo	<i>Securidaca bngipedunculata</i>	2	19	root	abdominal problems
Mkwaju (mshishi)	<i>Tamarindus indica</i>	7	14	fruit	measles
Mzima (njimya)	<i>Terminalia sericea</i>	1	20	root	jaundice
Ningiwe	<i>Turraea fischeri</i>	5	16	root	hypertension
Ng'watya (mkalya)	<i>Zanha africana</i>	3	18	root	headache
Shinyanga Urban, Shinyanga town, buyer 2 (Sukuma)					
Mhale (mdubilo)	<i>Acacia nilotica</i>	3	18	leaf	
Msuha (subosubo)	<i>Acacia sieberiana</i>			root	
Mtangala (ndaja)	<i>Atbizia amara</i>	2	19	leaf	
Mtobo	<i>Azanza garckeana</i>			root	
Mlunalunda	<i>Cassia abbreviate</i>	1	20	root	
Ntungulu (nsakamkarage)	<i>Senna singueana</i>			root	
Lweja	<i>Croton menyhartii</i>	5	16	root	
Nkulwamhembe (mtunduru)	<i>Dichrostachys gbmerata</i>			root	
Ngeng'wambula (mfutwambula)	<i>Entada abyssinica</i>	8	13	root	
Ngeng'wambula (mfutwambula)	<i>Entada abyssinica</i>			root	
Malula	<i>Acacia drepanolobium</i>			root	
Mwembepori	<i>Ozoroa insignis</i>	4	17	root	
Nengonengo	<i>Securidaca bngipedunculata</i>	7	14	root	
Mlungulungu (nungubalagiti)	<i>Zanthoxylum chalybeum</i>	6	15	root	
Mnembu	<i>Ximenia americana</i>			root	
Ng'watya (mkalya)	<i>Zanha africana</i>			root	
Shinyanga Urban, Shinyanga town, seller 1 (Maasai)					
Achasarage	<i>Hagenia abyssinica</i>			bark	anaemia, hernia
Lokunonoi	<i>Ozoroa insignis</i>			root	headache

Local name	Botanical name	Rank	Score	Part used	Disease treated
Mgada (mkutani)	<i>Albizia anthelmintica</i>	5	16	root	joint pains
Engilelo	unidentified	10	11	root	potency enhancement
Janirongera	unidentified			bark	diarrhoea
Janironglshu	unidentified	7	14	bark	joint pains
Kinuakitaruo	unidentified			root, leaf	frontal headache
Lekitolya	unidentified			root	body pains
Leshekue	unidentified	2	19	root	worms
Ngoponi	unidentified	8	13	bark	hernia
Omudaula	unidentified			root	potency enhancement
Orobukoy	unidentified	6	15	bark	hepatitis
Osengwai	unidentified	4	17	bark	diarrhoea
Rungunya	unidentified	9	12	root	painful menstruation
Kasuku	<i>Warburgia ugandensis</i>	3	18	bark	peptic ulcer
Mlungulungu (nungubalagiti)	<i>Zanthoxylum chalybeum</i>	1	20	bark	enteritis
Shinyanga Urban, Shinyanga town, seller 2 (Nyamwezi)					
Mgada (mkutani)	<i>Albizia anthelmintica</i>			root	psychosis
Mkindwa zagamba	<i>Albizia versicolor</i>			root	anaemia, worms
Mpogolo	<i>Albizia harveyi</i>			root	infertility
Mlundalunda	<i>Cassia abbreviata</i>	3	18	root, bark	pyomyositis
Ntungulu (nsakamkarage)	<i>Senna singueana</i>			root	abdominal problems
Ng'ochangoko	<i>Catunaregam spinosa</i>			root	urinary infection
Msana	<i>Combretum zeyheri</i>	8	13	root	diarrhoea
Melamela	<i>Courbonia edulis</i>			root	lactation problems
Kumbwambizo (sanzwambeke)	<i>Crossopteryx febrifuga</i>			root	cough
Mfifi	<i>Dalbergia stuhlmannii</i>			root	induce vomiting
Nkulwamhembe (mtunduru)	<i>Dichrostachys glomerata</i>			root	abdominal problems
Mtuja (ntuja)	<i>Ekebergia benguelensis</i>			root	stomach, heart problems
Ngakama	<i>Elaeodendron stuhlmannii</i>			root	abdominal problems
Ngeng'wambula (mfutwambula)	<i>Entada abyssinica</i>	5	16	root	bronchitis
Mondo	<i>Entandrophragma bussei</i>	7	14	root, bark	abdominal problems
Mlungulungu (nungubalagiti)	<i>Zanthoxylum chalybeum</i>			root, bark	gonorrhoea
Mlungulungu (nungubalagiti)	<i>Zanthoxylum chalybeum</i>			root	internal sores, toothache
Msenene (nsenene)	<i>Xylopi odoratissima</i>			root	menstrual problems
Msalasi (msasi)	<i>Friesodielsia obovata</i>			root	abdominal problems
Msomanjala	<i>Harrisonia abyssinica</i>			root	stomach disorders
Ninje (mwicha, ng'wicha)	<i>Kigelia africana</i>			root, fruit	anaemia
Msayu (nsayu)	<i>Lannea schweinfurthii</i>			root	anaemia
Mnazipori (mbula)	<i>Parinari curatellifolia</i>			root	stomach disorders
Nkolomije (mgogondi)	<i>Phyllanthus engleri</i>	10	11	root	potency enhancement
Mwembepori	<i>Ozoroa insignis</i>	6	15	root	heart problems
Nengonengo	<i>Securidaca longipedunculata</i>	1	20	root	abdominal problems, convulsions
Nghoja	<i>Sterculia africana</i>			root	diarrhoea
Mlungulungu (nungubalagiti)	<i>Zanthoxylum chalybeum</i>			root	abdominal problems

Local name	Botanical name	Rank	Score	Part used	Disease treated
Mzima (njimya)	<i>Terminalia sericea</i>	4	17	root	jaundice
Ningiwe	<i>Turraea fischeri</i>	9	12	root	stomach disorders
Mgeyegeye	<i>Acacia brevispica</i>			root	convulsions'
Mswilaswila	unidentified			root	gonorrhoea
Kasuku	<i>Warburgia ugandensis</i>			root	anaemia
Kasuku	<i>Warburgia ugandensis</i>			root	cough
Mtundwa	<i>Ximenia caffra</i>			root	abdominal problems
Ng'watya (mkalya)	<i>Zanha africana</i>	2	19	root	urinary infection
Mgugunu (oloilalei)	<i>Ziziphus mucronata</i>			root	abdominal problems
Shinyanga Urban, Shinyanga town, seller 3 (Nyamwezi)					
Mnago (mkuni)	<i>Berchemia discolor</i>	8	13	root	prevent vomiting
Mlundalunda	<i>Cassia abbreviate</i>	5	16	root	malaria
Msana	<i>Combretum zeyheri</i>			root	diarrhoea
Mfifi	<i>Dalbergia stuhlmannii</i>	10	11	root	abdominal problems
Ngeng'wambula (mfutwambula)	<i>Entada abyssinica</i>	3	18	root	sores
Mlungulungu (nungubalagiti)	<i>Zanthoxylum chalybeum</i>			root	toothache
Msenene (nsenene)	<i>Xylopia odoratissima</i>	4	17	root	impotence
Msomanjala	<i>Harrisonia abyssinica</i>	6	15	root	constipation
Nengonengo	<i>Secudhaca hngipeduncuhta</i>	1	20	root	abdominal problems
Ningiwe	<i>Turraea fischeri</i>			root	abdominal problems
Mmelamela	unidentified			root	potency enhancement
Mtundwa	<i>Ximenia caffra</i>	7	14	root	fever
Ng'watya (mkalya)	<i>Zanha africana</i>	2	19	root	convulsions
Shinyanga Urban, Shinyanga town, seller 4 (Maasai)					
Mang'wai	<i>Acacia mearnsii</i>	7	14	bark	anaemia
Mhale (mdubilo)	<i>Acacia nilotica</i>	3	18	root, bark	convulsions, abdominal problems
Mtanga (olumatanga)	<i>Albizia gummifera</i>	8	13	root, bark	infertility
Mgada (mkutani)	<i>Albizia anthelmintka</i>	2	19	root, bark	chronic malaria
Melolai	unidentified	1	20	bark	potency enhancement
Nishekue	unidentified	5	16	bark	convulsions
Singuai	unidentified	6	15	bark	diarrhoea
Kasuku	<i>Warburgia ugandensis</i>	9	12	bark	sore throat
Mlungulungu (nungubalagiti)	<i>Zanthoxylum chalybeum</i>	4	17	root	asthma
Shinyanga Urban, Shinyanga town, seller 5 (Maasai)					
Mhale (mdubilo)	<i>Acacia nilotica</i>	6	15	root, bark	hernia
Mkola (mpaja)	<i>Azelia quanzensis</i>	2	19	bark	abdominal problems, pneumonia
Mlungulungu (nungubalagiti)	<i>Zanthoxylum chalybeum</i>	3	18	root, bark	heartburn
Achararage	<i>Hagenia abyssinica</i>			bark	anaemia, abdominal problems
Engilelo	unidentified	7	14	root	lactation problems
Leshekue	unidentified	5	16	root	convulsions
Ngulyati	unidentified			root, bark	potency enhancement
Okitargo	unidentified	8	13	bark	headache, frontal headache
Orbukoyi	unidentified	9	12	root, bark	jaundice

Local name	Botanical name	Rank	Score	Part used	Disease treated
Orkung (mchaaka)	unidentified			bark	painful menstruation
Osagararani	unidentified	4	17	root	urinary infection
Singuai	unidentified	10	11	root, bark	hernia
Mpulu	<i>Vitex doniana</i>	1	20	root, bark	malaria
Shinyanga Urban, Shinyanga town, seller 6 (Maasai)					
Mhale (mdubilo)	<i>Acacia nilotica</i>			root	convulsions
Mgada (mkutani)	<i>Albizia anthelmintica</i>			root, bark	malaria
Lugaka (haruna)	<i>Aloe sp.</i>	3	18	root	epilepsy
Mondo	<i>Entandrophragmo bussei</i>	6	15	root, bark	anaemia, worms
Achasarage	<i>Hagenia abyssinica</i>			root	itching
Mswaki (olremit)	<i>Salvadora persica</i>	7	14	root	syphilis
Mgada (mkutani)	<i>Albizia anthelmintica</i>	1	20	root	schistosomiasis, malaria
Kitaluo	unidentified	5	16	root	scabies
Mengulusyei	unidentified	10	11	root	schistosomiasis
Mkoyi	unidentified			root	diarrhoea
MLugweti	unidentified			root	scabies
Ngulyati	unidentified	9	12	root	potency enhancement
Olubukoi	unidentified	8	13	root	heart problems, diabetes
Osagararani	unidentified	4	17	root	urinary infection
Kasuku	<i>Warburgia ugandensis</i>	2	19	root	pneumonia
Mlungulungu (nungubalagiti)	<i>Zonothoxylum cholybeum</i>			root	asthma
Shinyanga Urban, Shinyanga town, seller 7 (Sukuma)					
Mlugala	<i>Cassipourea mollis</i>	7	14	root	leg pains
Mlundalunda	<i>Cassia abbreviata</i>	4	17	root	hernia
Msana	<i>Combretum zeyheri</i>	2	19	root	abdominal problems
Mtuja (ntuja)	<i>Ekebergia benguelensis</i>	8	13	root	heart problems
Ngeng'wambula (mfutwambula)	<i>Entada abyssinica</i>			root	backache
Mondo	<i>Entandrophragmo bussei</i>	6	15	root	anaemia
Msalasi (msasi)	<i>Friesodielsia obovata</i>			root	hiccups
Nengonengo	<i>Securidaca longipedunculata</i>	1	20	root	abdominal problems
Msungululu (mbelebele)	<i>Strophantus eminii</i>	9	12	root	measles
Mzima (njimya)	<i>Terminalia sericea</i>			root	measles
Mrenazena	unidentified			root	abdominal problems
Ng'ombe ya hasi	unidentified	10	11	root	rectal prolapse
Kasuku	<i>Warburgia ugandensis</i>	5	16	bark	cough
Mtundwa	<i>Ximenia caffra</i>			root	anaemia
Ng'watya (mkalya)	<i>Zonho africana</i>	3	18	root	abdominal problems
Shinyanga Urban, Shinyanga town, seller 8 (Nyamwezi)					
Lugaka (haruna)	<i>Aloe sp.</i>	5	16	leaf	laxative
Mlundalunda	<i>Cassia abbreviata</i>	3	18	root	malaria
Lweja	<i>Croton menyhartii</i>	9	12	root	asthma
Kumbwambizo	<i>Crossopteryx febrifuga</i>	7	14	bark	sore throat
(sanzwambeke)					
Mlungulungu (nungubalagiti)	<i>Zonothoxylum cholybeum</i>			root	pyomyositis
Mwembepori	<i>Ozoroa insignis</i>	6	15	root	heart problems

Medicinal trees

Local name	Botanical name	Rank	Score	Part used	Disease treated
Nengonengo	<i>Securidoxo bngipedunculata</i>	1	20	root	convulsions
Mwage	<i>Strychnos spinosa</i>			root	abscess
Mzima (njimya)	<i>Terminalia sericea</i>	4	17	root	jaundice
Ningiwe	<i>Turraea fischeri</i>			root	abdominal problems
Mzenazena	unidentified	10	11	root	potency enhancement
Kasuku	<i>Warburgia ugandensis</i>			bark	pneumonia
Ng'watya (mkalya)	<i>Zanha africana</i>	2	19	root	headache
Shinyanga Urban, Shinyanga town, seller 9 (Maasai)					
Mhale (mdubilo)	<i>Acacia nilotica</i>	1	20	root	schistosomiasis
Olokonyili	<i>Euclea d'mnorum</i>	9	12	root	urinary infection
Ninje (mwicha, ng'wicha)	<i>Kigelia africana</i>	2	19	fruit	gonorrhoea
Olodimigomi	<i>Pappea capensis</i>			root	potency reduction
Mswaki (olremi)	<i>Salvadora persica</i>			root	asthma
Mgada (mcutani)	<i>Alpizia anthelmintica</i>			root, bark, fruit	hernia, syphilis
Eneshekue	unidentified			bark	convulsions
Nguisikiranjoi	unidentified	4	17	root	infertility
Oleimurunyai	unidentified	8	13	root	skin problems
Olmidaula	unidentified	5	16	bark, root	potency enhancement
Oloepurusala	unidentified			root	constipation
Olojanilalash	unidentified	6	15	bark of branches	asthma
Olokiputaraswa	unidentified			root	recurrent fever
Olokitaru	unidentified			bark, root	pains
Olokokola	unidentified			root	gum infection
Olungulusue	unidentified			bark	hernia
Olupande	unidentified	10	11	bark	sores
Osukurututi	unidentified			root	epilepsy
Mlungulungu (nungubalagiti)	<i>Zonothoxylum chalybeum</i>			root, fruit	cough, asthma
Mgugunu (oloilalei)	<i>Ziziphus mucronata</i>	7	14	bark	pyomyositis

Appendix 6

Priority medicinal trees of Shinyanga Region

Local name	Botanical name	Freq'ncy	Score	Rank
Nengonengo	<i>Securidaca tongipedunculata</i>	42	647	1
Ng'watya (mkalya)	<i>Zanha afrkana</i>	35	515	2
Mlundalunda	<i>Cassia abbreviata</i>	33	401	3
Ngeng'wambula (mfutwambula)	<i>Entada abyssinica</i>	27	319	4
Ningiwe	<i>Turraea fischeri</i>	28	312	5
Mgada (mkutani)	<i>Albizia anthelmintica</i>	24	254	6
Mondo	<i>Entandrophragma bussei</i>	19	249	7
Msana	<i>Combretum zeyheri</i>	20	239	8
Mlungulungu (nungubalagiti)	<i>Zanthoxylum chalybeum</i>	35	206	9
Mzima (njimya)	<i>Terminalia sericea</i>	15	155	10
Mhale (mdubilo)	<i>Acacia nilotica</i>	15	143	11
Kasuku	<i>Warburgia ugondensis</i>	19	140	12
Mwarobaini	<i>Azadirachta Mica</i>	13	138	13
Ninje (mwicha, ng'wicha)	<i>Kigelia afrkana</i>	14	137	14
Mgeyegeye	<i>Acacia brevispica</i>	9	109	15
Msomanjala	<i>Harrisonia abyssinica</i>	14	107	16
Msayu (nsayu)	<i>Lannea schweinfurthii</i>	10	106	17
Mtundwa	<i>Ximenia caffra</i>	16	101	18
Mkwaju (mshishi)	<i>Tamarindus indica</i>	11	83	19
Ngulyati	unidentified	8	76	20
Nkulwamhembe (mtunduru)	<i>Dichrostachys glomerata</i>	12	75	21
Nkolomije (mgogondi)	<i>Phyllanthus engleri</i>	11	74	22
Nghoja	<i>Sterculia afrkana</i>	12	67	23
Msenene (nsenene)	<i>Xylopi odoratissima</i>	5	67	24
Mbapa	<i>Markhamia obtusifolia</i>	7	64	25
Lonzwe	<i>Euphorbia</i> spp.	4	61	26
Mkalalang'huba	<i>Erythrina abyssinica</i>	8	60	27
Msalasi (msasi)	<i>Friesodi/sia obovata</i>	11	59	28
Msungululu (mbelebele)	<i>Strophanthus eminii</i>	9	59	29
Kumbwambizo (sanzwambeke)	<i>Crossopteryx febrifugo</i>	14	58	30
Ngubalu (ngubaru)	<i>Canthium burtii</i>	4	56	31

Medicinal trees

Local name	Botanical name	Freq'ncy	Score	Rank
Mchongoma	<i>Senna siamea</i>	7	51	32
Mnago (mkuni)	<i>Berchemia discolor</i>	4	50	33
Myuguyu	<i>balanites aegyptiaca</i>	II	49	34
Lweja	<i>Croton menyhartii</i>	7	49	35
Mkindwa zagamba	<i>Albizia versicolor</i>	6	49	36
Mninga	<i>Pterocarpus angulensis</i>	7	48	37
Mtuja (ntuja)	<i>Ekebergia benguelensis</i>	6	48	38
Sagunida	<i>Euclea sp.</i>	5	47	39
Mwembepori	<i>Ozoroa insignis</i>	5	47	40
Mtinje	<i>Lannea humilis</i>	8	46	41
Lugaka (haruna)	<i>Aloe sp.</i>	7	45	42
Mkola (mpaja)	<i>Atzelia quanzensis</i>	5	42	43
Ngili (ngiri)	<i>Terminalia stuhimannii</i>	4	41	44
Ng'ochangoko	<i>Catunaregam spinosa</i>	13	36	45
Mtobo	<i>Azanza garckeana</i>	6	35	46
Msuha (subosubo)	<i>Teclea simplicifolia</i>	10	34	47
Mpumbula	<i>Calotropis procera</i>	5	34	48
Kaguha	<i>Combretum malle</i>	9	32	49
Mlugala	<i>Cassipourea mollis</i>	4	31	50
Ngakama	<i>Baeodendron stuhimannii</i>	7	30	51
Mdubilo	<i>Acacia bethamii</i>	4	30	52
Mtangala (ndaja)	<i>Albizia amara</i>	4	30	53
Mgumo	<i>Ficus stuhimannii</i>	4	30	54
Mpogolo	<i>Albizia harveyi</i>	4	29	55
Pandepande	<i>Strychnos potatorum</i>	2	28	56
Mkaratusi	<i>Eucalyptus spp.</i>	3	26	57
Ntungulu (nsakamkarage)	<i>Senna singueana</i>	10	24	58
Mmale	<i>Lonchocarpus capassa</i>	4	24	59
Mfifi	<i>Dalbergia stuhimannii</i>	3	23	60
Molu	unidentified	6	20	61
Mpulu	<i>Vitex doniana</i>	3	20	62
Mwage	<i>Strychnos spinosa</i>	5	17	63
Mkulungu	<i>Pterocarpus tinctorus</i>	7	16	64
Gembe	<i>Dalbergia melanoxylon</i>	5	16	65
Migu	<i>Acacia polyacantha</i>	4	16	66
Mnyanga	<i>Jatropha curcas</i>	3	15	67

Local name	Botanical name	Freq'ncy	Score	Rank
Mnazipori (mbula)	<i>Parinori curotellifo/ia</i>	5	14	68
Mswaki (olremit)	<i>Salvadora persica</i>	4	14	69
Sebeya	<i>Chrysophyllum bangweolense</i>	4	13	70
Malula	<i>Acacia drepanolobium</i>	6	12	71
Nkonola (idobedobe)	<i>Annona senegalensis</i>	5	11	72
Mnembu	<i>Ximenia americana</i>	5	0	73
Msekela	<i>Antidesma venosum</i>	4	0	74
Achararage	<i>Hagenia abyss'mica</i>	4	0	75
Mgugunu (oloilalei)	<i>Ziziphus mucronata</i>	4	0	76
Ikalinga (mkulwa)	<i>Strychnos innocua</i>	3	0	77

Priority medicinal trees of each district:
Bariadi, Kahama, Maswa, Meatu and Shinyanga

The PMTs of Bariadi District

Local name	botanical name	Freq'ncy	Score	Rank
Mondo	<i>Entandrophragma bussei</i>	6	99	1
Ng'watya (mkalya)	<i>Zanha africana</i>	8	97	2
Ngeng'wambula (mfutwambula)	<i>Entada abyssinica</i>	8	88	3
Nengonengo	<i>Securidaca longipedunculata</i>	8	88	4
Ningiwe	<i>Turraea fischeri</i>	8	87	5
Mlundalunda	<i>Cassia abbreviata</i>	8	76	6
Mgada (mkutani)	<i>Albizia anthelmintica</i>	6	47	7
Mzima (njimya)	<i>Terminalia sericea</i>	4	47	8
Mlurigulungu (nungubalagiti)	<i>Zanthoxylum chalybeum</i>	6	41	9
Mwarobaini	<i>Azadirachta indica</i>	5	41	10
Kasuku	<i>Warburgia ugandensis</i>	7	38	11
Mtuja (ntuja)	<i>Ekebergia benguelensis</i>	2	35	12
Kumbwambizo (sanzwambeke)	<i>Crossopteryx febrifuga</i>	5	19	13
Ninje (mwicha, ng'wicha)	<i>Kigelia africana</i>	4	19	14
Msuha (subosubo)	<i>Acacia sieberiana</i>	5	18	15
Myuguyu	<i>Balanites aegyptiaca</i>	3	18	16
Mkalalang'huba	<i>Erythrina abyssinica</i>	4	16	17
Mkulungu	<i>Pterocarpus tinctorus</i>	3	16	18
Nkolomije (mgogondi)	<i>Phyllanthus engleri</i>	4	15	19
Kaguha	<i>Teclea simplicifolia</i>	5	14	20
Mnazipori (mbula)	<i>Parinari curatellifolia</i>	4	14	21
Msana	<i>Combretum zeyheri</i>	3	14	22
Nkulwamhembe (mtunduru)	<i>Dichrostachys glomerata</i>	3	14	23
Msalasi (msasi)	<i>Friesodielsia obovata</i>	4	13	24
Msomanjala	<i>Harrisonia abyssinica</i>	3	13	25
Mtundwa	<i>Ximenia caffra</i>	2	12	26
Sagunida	<i>Eudea</i> sp.	3	11	27
Mhale (mdubilo)	<i>Acacia nilotica</i>	2	11	28
Mgugunu (oloilalei)	<i>Ziziphus muaonata</i>	2	0	29

The PMTs of Kahama District

Local name	Botanical name	Freq'ncy	Score	Rank
Nengonengo	<i>Securidaca longipedunculata</i>	10	169	1
Msana	<i>Combretum zeyheri</i>	6	95	2
Ninje (mwicha, ng'wicha)	<i>Kigelia africana</i>	5	88	3
Mgada (mkutani)	<i>Albizia anthelmintica</i>	6	84	4
Ng'watya (mkalya)	<i>Zanha africana</i>	5	84	5
Mlundalunda	<i>Cassia abbreviata</i>	7	78	6
Mlungulungu (nungubalagiti)	<i>Zanthoxylum chalybeum</i>	7	49	7
Mbapa	<i>Morkhamia obtusifolia</i>	4	49	8
Mninga	<i>Pterocarpus angulensis</i>	5	48	9
Msalasi (msasi)	<i>Friesodielsia obovata</i>	4	46	10
Mkaliaiang'huba	<i>Erythrina abyssinica</i>	4	44	11
Ngubalu (ngubaru)	<i>Canthium burtii</i>	3	39	12
Myuguyu	<i>Balanites aegyptiaca</i>	4	37	13
Mbanga	<i>Afrormosia angolensis</i>	2	32	14
Gobeko	<i>Combretum obovatum</i>	2	31	15
Mzima (njimya)	<i>Terminalia sericea</i>	2	31	16
Msenene (nsenene)	<i>Xylopi odoratissima</i>	2	30	17
Mtinje	<i>Lannea humilis</i>	2	20	18
Msungululu (mbelebele)	<i>Strophanthus eminii</i>	3	19	19
Mhale (mdubilo)	<i>Acacia nilotica</i>	2	13	20
Mwage	<i>Strychnos spinosa</i>	2	17	21
Ng'ochangoko	<i>Catunaregam spinosa</i>	3	16	22
Nkulwamhembe (mtunduru)	<i>Dichrostachys glomerata</i>	4	12	23
Mondo	<i>Entandrophragma bussei</i>	2	12	24
Mkola (mpaja)	<i>Azelia quanzensis</i>	2	11	25
Mmale	<i>Lonchocarpus capassa</i>	2	11	26
Mnembu	<i>Ximenia americana</i>	2	0	27

The PMTs of Maswa District

Local name	Botanical name	Freq'ncy	Score	Rank
Nengonengo	<i>Securidaca longipedunculata</i>	7	86	1
Ng'watya (mkalya)	<i>Zanha africana</i>	5	86	2
Ningiwe	<i>Turraea ftscheri</i>	5	72	3
Msayu (nsayu)	<i>Lannea schweinfurthii</i>	3	45	4
Msana	<i>Combretum zeyheri</i>	2	39	5

Medicinal trees

Local name	Botanical name	Freq'ncy	Score	Rank
Mlundalunda	<i>Cassia abbreviate</i>	3	34	6
Mlungulungu (nungubalagiti)	<i>Zanthoxylum chalybeum</i>	5	32	7
Nghoja	<i>Sterculia africana</i>	3	31	8
Mgumo	<i>Reus stuhlmannii</i>	4	30	9
Ngeng'wambula (mfutwambula)	<i>Entada abyssinica</i>	3	17	10
Msuha (subosubo)	<i>Acacia sieberiana</i>	2	16	11
Mbapa	<i>Markhamia obtusifolia</i>	2	15	12
Sebeya	<i>Chrysophyllum bangweolense</i>	3	13	13
Msomanjala	<i>Harrisonia abyssinica</i>	3	11	14
Ninje (mwicha, ng'wicha)	<i>Kigelia africana</i>	2	11	15
Ng'ochangoko	<i>Catunaregam spinosa</i>	3	0	16
Myuguyu	<i>Balanites aegyptiaca</i>	2	0	17
Mkwaju (mshishi)	<i>Tamarindus indica</i>	2	0	18
Kaguha	<i>Tedeo simplicifolia</i>	2	0	19

The PMTs of Meatu District

Local name	Botanical name	Freq'ncy	Score	Rank
Nengonengo	<i>Securidaca longipedunculata</i>	6	92	1
Ng'watya (mkalya)	<i>Zanha africana</i>	6	91	2
Ngeng'wambula (mfutwambula)	<i>Entada abyssinica</i>	6	71	3
Mlundalunda	<i>Cassia abbreviata</i>	5	69	4
Mondo	<i>Entandrophragma bussei</i>	5	61	5
Ningiwe	<i>Turraea fischeri</i>	6	54	6
Mkwaju (mshishi)	<i>Tamarindus indica</i>	4	54	7
Mwarobaini	<i>Azadirachta indica</i>	3	50	8
Msayu (nsayu)	<i>Lannea schweinfurthii</i>	5	48	9
Msomanjala	<i>Harrisonia abyssinica</i>	4	39	10
Lonzwe	<i>Euphorbia</i> sp.	3	32	11
Mtundwa	<i>Ximenia caffra</i>	5	28	12
Mchongoma	<i>Senna siamea</i>	3	25	13
Nkolomije (mgogondi)	<i>Phyllanthus engleri</i>	4	12	14
Nghoja	<i>Sterculia africana</i>	4	12	15
Mzima (njimya)	<i>Terminalia sericea</i>	3	11	16
Ng'ochangoko	<i>Catunaregam spinosa</i>	3	0	17
Kumbwambizo (sanzwambeke)	<i>Crossopteryx febrifugo</i>	3	0	18
Kasuku	<i>Warburgia ugandensis</i>	3	0	19

Local name	Botanical name	Freq'ncy	Score	Rank
Mlungulungu (nungubalagiti)	<i>Zanthoxylum chalybeum</i>		0	20
Nkonola (idobedobe)	<i>Annona senegalensis</i>		0	21
Msana	<i>Combretum zeyheri</i>		0	22

The PMTs of Shinyanga District

Local name	Botanical name	Freq'ncy	Score	Rank
Nengonengo	<i>Secuhdaca longipedunculata</i>	11	212	1
Ng'watya (mkalya)	<i>Zanha africana</i>	11	157	2
Mlundalunda	<i>Cassia abbreviata</i>	10	121	3
Mhale (mdubilo)	<i>Acacia nilotica</i>	9	102	4
Ngeng'wambula (mfutwambula)	<i>Entada abyssinica</i>	9	100	5
Msana	<i>Combretum zeyheri</i>	7	91	6
Mgada (mkutani)	<i>Aibizia anthelmintica</i>	9	90	7
Ningiwe	<i>Turraea fischeri</i>	8	80	8
Mondo	<i>Entandrophragma bussei</i>	6	77	9
Mlungulungu (nungubalagiti)	<i>Zanthoxylum chalybeum</i>	14	70	10
Mzima (njimya)	<i>Terminalia sericea</i>	6	66	11
Kasuku	<i>Warburgia ugandensis</i>	7	65	12
Mgeyegeye	<i>Acacia brevispica</i>	5	60	13
Ngulyati	Unidentified	4	48	14
Mwarobaini	<i>Azadirachta indica</i>	4	47	15
Mwembepori	<i>Ozoroa insignis</i>	4	47	16
Lweja	<i>Croton menyhartii</i>	3	39	17
Mkaratusi	<i>Eucalyptus</i> sp.	3	38	18
Lugaka (haruna)	<i>Aloe</i> sp.	3	34	19
Mtangala (ndaja)	<i>Aibizia amara</i>	2	30	20
Mkwaju (mshishi)	<i>Tamarindus indica</i>	4	29	21
Msungululu (mbelebele)	<i>Strophantus eminii</i>	2	26	22
Ntungulu (nsakamkarage)	<i>Senna singueana</i>	4	23	23
Ninje (mwicha, ng'wicha)	<i>Kigelia africana</i>	3	19	24
Msenene (nsenene)	<i>Xylopiya odoratissima</i>	2	17	25
Mkindwa zagamba	<i>Aibizia versicolor</i>	3	16	26
Migu	<i>Acacia polyacantha</i>	2	16	27
Mpogolo	<i>Aibizia harveyi</i>	2	16	28
Msomanjala	<i>Harrisonia abyssinica</i>	3	15	29

Medicinal trees

Local name	Botanical name	Freq'ncy	Score	Rank
Ngakama	<i>Elaeodendron swheimannii</i>	2	14	30
Mswaki (olremit)	<i>Salvadora persica</i>	2	14	31
Mgugunu (oloilalei)	<i>Ziziphus mucronata</i>	2	14	32
Nkulwamhembe (mtunduru)	<i>Dichrostachys glomerata</i>	3	13	33
Mtuja (ntuja)	<i>Ekebergia benguelensis</i>	2	13	34
Malula	<i>Acacia drepanolobium</i>	4	12	35
Mchongoma	<i>Senna siamea</i>	2	11	36
Ng'ochangoko	<i>Catunaregam spinosa</i>	2	0	37

Appendix 8

Priority medicinal trees of user groups interviewed

The PMTs of buyers

Local name	Botanical name	Freq'ncy	Score	Rank
Mlundalunda	<i>Cassia abbreviata</i>	2	35	1
Nengonengo	<i>Securidaca longipedunculata</i>	2	33	2
Mhale (mdubilo)	<i>Acacia nilotica</i>	2	31	3
Ngeng'wambula (mfutwambula)	<i>Entada abyssinica</i>	3	30	4
Msalasi (msasi)	<i>Friesodië/sia obovota</i>	1	20	5
Mzima (njimya)	<i>Terminate sericea</i>	1	20	6
Mtangala (ndaja)	<i>Albizia amara</i>	1	19	7
Msana	<i>Combretum zeyheri</i>	1	19	8
Ng'watya (mkalya)	<i>Zanha africana</i>	3	18	9
Lweja	<i>Croton menyhartii</i>	1	16	10
Ningiwe	<i>Turraea fischeri</i>	1	16	11
Mlungulungu (nungubalagiti)	<i>Zanthoxylum chalybeum</i>	1	15	12
Mkwaju (mshishi)	<i>Tamarindus indica</i>	1	14	13

The PMTs of farmers

Local name	Botanical name	Freq'ncy	Score	Rank
Nengonengo	<i>Securidaca longipedunculata</i>	8	105	1
Ng'watya (mkalya)	<i>Zanha africana</i>	8	94	2
Ningiwe	<i>Turraea fischeri</i>	6	86	3
Mlundalunda	<i>Cassia abbreviata</i>	6	69	4
Mwarobaini	<i>Azadirachta indica</i>	5	67	5
Ngeng'wambula (mfutwambula)	<i>Entada abyssinica</i>	5	65	6
Mondo	<i>Entandrophragma bussei</i>	3	50	7
Mlungulungu (nungubalagiti)	<i>Zanthoxylum chalybeum</i>	7	46	8
Mkalalang'huba	<i>Erythrina abyssinica</i>	4	44	9
Mtundwa	<i>Ximenia caffra</i>	4	40	10
Mninga	<i>Pterocarpus angulensis</i>	3	35	11
Ninje (mwicha, ng'wicha)	<i>Kjgelia africana</i>	3	34	12
Msomanjala	<i>Harrisonia abyssinica</i>	3	32	13
Mgeyegeye	<i>Acacia brevispica</i>	2	32	14

Medicinal trees

Local name	Botanical name	Freq'ncy	Score	Rank
Mgada (mkutani)	<i>Albizia anthelmintica</i>	2	32	15
Sagunida	<i>Euclea</i> sp.	3	29	16
Mkwaju (mshishi)	<i>Tamarindus indica</i>	3	28	17
Ngubalu (ngubaru)	<i>Canthium burttii</i>	2	26	18
Msana	<i>Combretum zeyheri</i>	2	24	19
Ng'ochangoko	<i>Catunaregam spinosa</i>	5	20	20
Mtinje	<i>Lannea humilis</i>	3	20	21
Mkindwa zagamba	<i>Albizia versicolor</i>	2	20	22
Myuguyu	<i>Balanites aegyptiaca</i>	2	19	23
Kasuku	<i>Warburgia ugandensis</i>	3	18	24
Nkolomije (mgogondi)	<i>Phyllanthus engleri</i>	2	18	25
Ngakama	<i>Elaeodendron stuhlmannii</i>	2	14	26
Kumbwambizo (sanzwambeke)	<i>Crossopteryx febrifuga</i>	4	13	27
Mchongoma	<i>Senna siamea</i>	3	13	28
Lonzwe (mtwaligana)	<i>Euphorbia</i> sp.	2	12	29

The PMTs of people selling traditional herbs

Local name	Botanical name	Freq'ncy	Score	Rank
Nengonengo	<i>Securidaca longipedunculata</i>	12	224	I
Ng'watya (mkalya)	<i>Zanha africana</i>	10	182	2
Mgada (mkutani)	<i>Albizia anthelmintica</i>	15	151	3
Mlundalunda	<i>Cassia abbreviata</i>	9	135	4
Kasuku	<i>Warburgia ugandensis</i>	11	122	5
Mlungulungu (nungubalagiti)	<i>Zanthoxylum cbalybeum</i>	16	101	6
Mondo	<i>Entandrophragma bussei</i>	6	85	7
Ningiwe	<i>Turraea fischeri</i>	8	75	8
Mhale (mdubilo)	<i>Acacia nilotica</i>	6	71	9
Mzima (njimya)	<i>Terminalia sericea</i>	5	61	10
Msana	<i>Combretum zeyheri</i>	6	59	II
Ngulyati	unidentified	5	40	12
Ngeng'wambula (mfutwambula)	<i>Entada abyssinica</i>	5	34	13
Lugaka (haruna)	<i>Aloe</i> sp.	3	34	14
Osagararani	unidentified	2	34	15
Nghoja	<i>Sterculia africana</i>	4	31	16
Mnago (mkuni)	<i>Berchemia discolor</i>	2	31	17
Mtuja (ntuja)	<i>Ekebergia benguelensis</i>	4	30	18

Local name	Botanical name	Freq'ncy	Score	Rank
Mtundwa	<i>Ximenia caffra</i>	5	27	19
Msomanjala	<i>Harrisonia abyssinica</i>	4	27	20
Nkolomije (mgogondi)	<i>Phyllanthus engleri</i>	3	26	21
Mtanga (olumatanga)	<i>Albizia gummifera</i>	2	24	22
Ninje (mwicha, ng'wicha)	<i>Kigelia africana</i>	2	19	23
Mbapa	<i>Markhamia obtusifolia</i>	2	18	24
Mwage	<i>Strychnos spinosa</i>	3	17	25
Msenene (nsenene)	<i>Xylopi odoratissima</i>	2	17	26
Ng'ochangoko	<i>Catunaregam spinosa</i>	3	16	27
Msayu (nsayu)	<i>Lannea schweinfurthii</i>	2	15	28
Mwembepori	<i>Ozoroa insignis</i>	2	15	29
Ngili (ngiri)	<i>Terminalia stuhlmannii</i>	2	15	30
Msalasi (msasi)	<i>Friesodielsia obovata</i>	5	14	31
Mgugunu (oloilalei)	<i>Ziziphus mucronata</i>	2	14	32
Msungululu (mbelebele)	<i>Strophanthus eminii</i>	2	12	33
Mfifi	<i>Dalbergia stuhlmannii</i>	2	11	34
Achararage	<i>Hagenia abyssinica</i>	4	0	35
Mnazipori (mbula)	<i>Parinari curatellifolia</i>	3	0	36

The PMTs of traditional healers

Local name	Botanical name	Freq'ncy	Score	Rank
Nengonengo	<i>Securidaca longipedunculata</i>	13	182	1
Ng'watya (mkalya)	<i>Zanha africana</i>	9	159	2
Ngeng'wambula (mfutwambula)	<i>Entada abyssinica</i>	9	135	3
Mlundalunda	<i>Cassia abbreviata</i>	8	92	4
Ningiwe	<i>Turraea fischeri</i>	8	66	5
Msana	<i>Combretum zeyheri</i>	6	63	6
Mgeyegeye	<i>Acacia brevispica</i>	4	58	7
Mgada (mkutani)	<i>Albizia anthelmintica</i>	5	56	8
Msenene (nsenene)	<i>Xylopi odoratissima</i>	3	50	9
Nkulwamhembe (mtunduru)	<i>Dichrostachys glomerata</i>	5	49	10
Msomanjala	<i>Harrisonia abyssinica</i>	5	48	11
Mtobo	<i>Azanza garckeana</i>	3	35	12
Kaguha	<i>Teclea simplicifolia</i>	4	32	13
Kumbwambizo (sanzwambeke)	<i>Crossopteryx febrifuga</i>	6	31	14
Ninje (mwicha, ng'wicha)	<i>Kigelia africana</i>	5	31	15

Medicinal trees

Local name	Botanical name	Freq'ncy	Score	Rank
Mgumo	<i>Ficus stuhlmannii</i>	3	30	16
Msayu (nsayu)	<i>Lannea schweinfurthii</i>	3	30	17
Ngubalu (ngubaru)	<i>Canthium burttii</i>	2	30	18
Mbapa	<i>Markhamia obtusifolia</i>	3	28	19
Mlungulungu (nungubalagiti)	<i>Zanthoxylum chalybeum</i>	8	26	20
Mzima (njimya)	<i>Terminate sericea</i>	5	25	21
Nghoja	<i>Sterculia africano</i>	6	23	22
Mtundwa	<i>Ximenia caffra</i>	4	20	23
Mlugala	<i>Cassipourea mollis</i>	3	17	24
Ngulyati	unidentified	2	17	25
Msuha (subosubo)	<i>Acacia sieberiana</i>	6	16	26
Ngakama	<i>Elaeodendron stuhlmannii</i>	3	16	27
Mpogolo	<i>Albizia harveyi</i>	2	16	28
Mbapa	<i>Markhamia obtusifolia</i>	2	15	29
Msungululu (mbelebele)	<i>Strophantus eminii</i>	4	14	30
Mpumbula	<i>Calotropis procera</i>	3	14	31
Mtinje	<i>Lannea humilis</i>	4	13	32
Msalasi (msasi)	<i>Friesodielsia obovata</i>	2	13	33
Mmale	<i>Lonchocarpus capassa</i>	2	13	34
Mhale (mdubilo)	<i>Acacia nilotica</i>	3	12	35
Mkola (mpaja)	<i>Azalia quanzensis</i>	2	12	36
Nkonola (idobedobe)	<i>Annona senegalensis</i>	4	11	37
Mtangala (ndaja)	<i>Albizia amara</i>	2	11	38
Mkulungu	<i>Pterocarpus tinctorus</i>	3	0	39

The PMTs of women

Local name	Botanical name	Freq'ncy	Score	Rank
Nengonengo	<i>Securidaca longipedunculata</i>		103	1
Msana	<i>Combretum zeyheri</i>		74	2
Mlundalunda	<i>Cassia abbreviate]</i>		70	3
Ningiwe	<i>Turraea fischeri</i>		69	4
Ng'watya (mkalya)	<i>Zanha africana</i>		62	5
Mwarobaini	<i>Azadirachta indica</i>		59	6
Ngeng'wambula (mfutwambula)	<i>Entada abyssinica</i>		55	7
Ninje (mwicha, ng'wicha)	<i>Kigelia africana</i>		53	8
Msayu (nsayu)	<i>Lannea schweinfurthii</i>		45	9

Local name	Botanical name	Freq'ncy	Score	Rank
Mkwaju (mshishi)	<i>Tamarindus indica</i>	4	41	10
Mchongoma	<i>Senna siamea</i>	4	38	11
Mondo	<i>Entandrophragma bussei</i>	3	37	12
Mzima (njimya)	<i>Terminalia sericea</i>	3	37	13
Lonzwe	<i>Euphorbia</i> sp.	2	36	14
Mhale (mdubilo)	<i>Acacia nilotica</i>	3	29	15
Mgeyegeye	<i>Acacia brevispica</i>	2	19	16
Mlungulungu (nungubalagiti)	<i>Zanthoxylum chalybeum</i>	3	18	17
Sagunida	<i>Euclea</i> sp.	2	18	18
Migu	<i>Acacia polyacantha</i>	2	16	19
Mfubata	<i>Diospyros fischeri</i>	3	15	20
Mgada (mkutani)	<i>Albizia anthelmintica</i>	2	15	21
Nkulwamhembe (mtunduru)	<i>Dichrostachys glomerata</i>	3	14	22
Mtundwa	<i>Ximenia caffra</i>	3	14	23
Mkaratusi	<i>Eucalyptus</i> sp.	2	14	24
Mninga	<i>Pterocarpus angulensis</i>	2	13	25
Nghoja	<i>Sterculia africana</i>	2	13	26
Malula	<i>Acacia drepanolobium</i>	3	12	27
Myuguyu	<i>Balanites aegyptiaca</i>	3	12	28
Msalasi (msasi)	<i>Friesodielsia obovata</i>	2	12	29
Lugaka (haruna)	<i>Aloe</i> sp.	2	11	30
Lweja	<i>Croton menyhartii</i>	2	11	31
Mmale	<i>Lonchocarpus capassa</i>	2	11	32
Msomanjala	<i>Harrisonia abyssinica</i>	2	0	33

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