



**MALAWI AGROFORESTRY
EXTENSION PROJECT:**

**MEDICINAL PLANT USE BY TRADITIONAL HEALERS IN
MALAWI: FOCUS ON NEEM, TEPHROSIA, MORINGA,
JATROPHA, MARULA AND NATAL MAHOGANY**

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**Medicinal Plant Use by Traditional Healers in Malawi:
Focus on Neem, Tephrosia, Moringa, Jatropha,
Marula and Natal Mahogany**

Malawi Agroforestry Extension Project (MAFE)

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OVERVIEW

Established in 1891, the British protectorate of Nyasaland became the independent nation of Malawi in 1964. After three decades of one-party rule, the country held multiparty elections in 1994 under a provisional constitution, which took full effect the following year. National multiparty elections were held again in 1999. Landlocked Malawi ranks among the world's least developed countries. The economy is predominately agricultural, with about 90% of the population living in rural areas. Agriculture accounts for 37% of GDP and 85% of export revenues. The economy depends on substantial inflows of economic assistance from the IMF, the World Bank, and individual donor nations. In late 2000, Malawi was approved for relief under the Heavily Indebted Poor Countries program. The government faces strong challenges, e.g., to fully develop a market economy, to improve educational facilities, to face up to environmental problems, and to deal with the rapidly growing problem of HIV/AIDS.

The purpose of Malawi Agroforestry Extension Project (MAFE) is to improve natural resource management with sustained improvements in smallholder farming by increasing adoption of agroforestry. Since October, 2000, MAFE has run a Marketing and Enterprise Program to investigate the potential of certain agroforestry related plant products to generate returns to farmers and their communities in the form of either cash income or medicinal, nutritional or other consumption benefits.

The utilization of traditional medicine in Malawi is traced back to the stone ages when people used *Ulembe* as a poison to kill animals. It is estimated that currently over 80% of the population rely on traditional medicine for health problems partly because modern health services are inadequate as compared to services offered traditional healers who are easily accessible.[1] The International Traditional Healers Association, based in Blantyre, Malawi, boasts of over 45,000 members, and estimates there may be more than double that number of traditional healers throughout Malawi. The declining supply of indigenous medicinal plants and the associated products is likely to generate significant economic losses considering the large number of people who either consume or trade indigenous medicinal plants.

The purpose of this study was to investigate local availability and actual usage patterns by traditional healers of six targeted species of plants. The species include Neem, Tephrosia, Moringa, Jatropha, Marula, and Natal Mahogany. Also discerned were commonly treated diseases, commonly used medicinal plants, scarce medicinal plants, and attitudes regarding deforestation among traditional healers.

Data collection took place during May, 2002. Traditional healers were selected from diverse areas throughout southern Malawi so regional differences could be considered. Interviews with the healers were arranged by staff members of the Enterprise Development and Training Agency and traditional healer Dr Grant Chipangula, President of the International Traditional Healers Association.

Herein we report our findings, inclusive of recommendations for prioritizing domestic production, and the marketing (export) of raw, or refined product.

BACKGROUND

The purpose of Malawi Agroforestry Extension Project (MAFE) is to improve natural resource management with sustained improvements in smallholder farming by increasing adoption of agroforestry. Since October, 2000, MAFE has run a Marketing and Enterprise Program to investigate the potential of certain agroforestry related plant products to generate returns to farmers and their communities in the form of either cash income or medicinal, nutritional or other consumption benefits. MAFE has introduced this as a strategy to promote and sustain further adoption of agroforestry and soil conservation improvements. An ongoing collaborative study covers six southern African countries, of which Malawi is one. MAFE and its partners hope that by establishing such means to improve rural incomes, the rate of adoption of natural resources management practices covering respective productive species will rise, with consequent benefits to soil stability and fertility.

The utilization of traditional medicine in Malawi is traced back to the stone ages when people used *Ulembe* as a poison to kill animals. It is estimated that currently over 80% of the population rely on traditional medicine for health problems partly because modern health services are inadequate as compared to services offered traditional healers who are easily accessible.[1] The International Traditional Healers Association, based in Blantyre, Malawi, boasts of over 45,000 members, and estimates there may be more than double that number of traditional healers throughout Malawi. The declining supply of indigenous medicinal plants and the associated products is likely to generate significant economic losses considering the large number of people who either consume or trade indigenous medicinal plants.

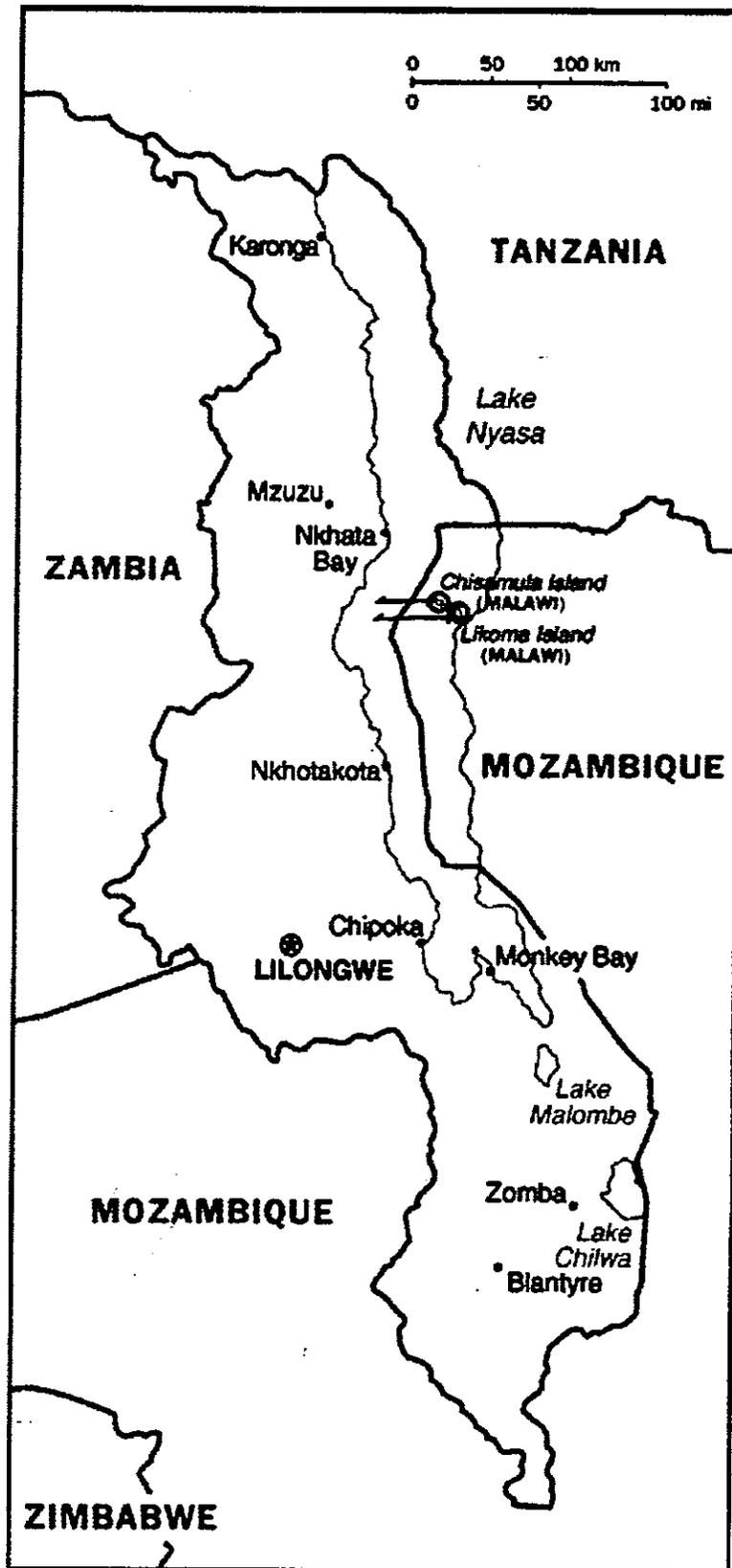
Purpose

The purpose of this study was to investigate local availability and actual usage patterns by traditional healers of six targeted species of plants. The species include Neem, Tephrosia, Moringa, Jatropha, Marula, and Natal Mahogany. We also discerned commonly treated diseases, commonly used medicinal plants, scarce medicinal plants, and attitudes regarding deforestation among traditional healers. Herein we report the findings of field data collection via interviews with traditional healers throughout southern Malawi. To provide readers with a framework of reference the following historical and geographic information is provided.

Malawi

Established in 1891, the British protectorate of Nyasaland became the independent nation of Malawi in 1964. After three decades of one-party rule, the country held multiparty elections in 1994 under a provisional constitution, which took full effect the following year. National multiparty elections were held again in 1999. Landlocked Malawi ranks among the world's least developed countries. The economy is predominately agricultural, with about 90% of the population living in rural areas. Agriculture accounts for 37% of GDP and 85% of export revenues. The economy depends on substantial inflows of economic assistance from the IMF, the World Bank, and individual donor nations. In late 2000, Malawi was approved for relief under the Heavily Indebted Poor Countries program. The government faces strong challenges, e.g., to fully develop a market economy, to improve educational facilities, to face up to environmental problems, and to deal with the rapidly growing problem of HIV/AIDS.[2]

MALAWI



Location:	Southern Africa, east of Zambia
Geographic coordinates:	13 30 S, 34 00 E
Map references:	Africa
Area:	<i>total:</i> 118,480 sq km <i>land:</i> 94,080 sq km <i>water:</i> 24,400 sq km
Area - comparative:	slightly smaller than Pennsylvania
Land boundaries:	<i>total:</i> 2,881 km <i>border countries:</i> Mozambique 1,569 km, Tanzania 475 km, Zambia 837 km
Coastline:	0 km (landlocked)
Maritime claims:	none (landlocked)
Climate:	sub-tropical; rainy season (November to May); dry season (May to November)
Terrain:	narrow elongated plateau with rolling plains, rounded hills, some mountains
Elevation extremes:	<i>lowest point:</i> junction of the Shire River and international boundary with Mozambique 37 m <i>highest point:</i> Sapitwa 3,002 m
Natural resources:	limestone, arable land, hydropower, unexploited deposits of uranium, coal, and bauxite
Land use:	<i>arable land:</i> 34% <i>permanent crops:</i> 0% <i>permanent pastures:</i> 20% <i>forests and woodland:</i> 39% <i>other:</i> 7% (1993 est.)
Irrigated land:	280 sq km (1993 est.)
Environmental issues:	deforestation; land degradation; water pollution from agricultural runoff, sewage, industrial wastes; siltation of spawning grounds endangers fish populations
Population:	10,548,250 <i>note:</i> estimates explicitly take into account the effects of excess mortality due to AIDS; this can result in lower life expectancy, higher infant mortality and death rates, lower population and growth rates, and changes in the distribution of population by age and sex than would otherwise be expected (July 2001 est.)
Age structure:	<i>0-14 years:</i> 44.43% (male 2,348,940; female 2,337,290) <i>15-64 years:</i> 52.78% (male 2,741,622; female 2,825,966) <i>65 years and over:</i> 2.79% (male 119,283; female 175,149) (2001 est.)
Population growth rate:	1.5% (2001 est.)
Birth rate:	37.8 births/1,000 population (2001 est.)
Death rate:	22.81 deaths/1,000 population (2001 est.)
Net migration rate:	0 migrant(s)/1,000 population (2001 est.)
Infant mortality rate:	21.12 deaths/1,000 live births (2001 est.)

Life expectancy at birth:	<i>total population:</i> 37.08 years <i>male:</i> 36.61 years <i>female:</i> 37.55 years (2001 est.)
Total fertility rate:	5.18 children born/woman (2001 est.)
HIV/AIDS	
- adult prevalence rate:	15.96% (1999 est.)
- people living with HIV/AIDS:	800,000 (1999 est.)
-HIV/AIDS - deaths:	70,000 (1999 est.)
Literacy:	<i>definition:</i> age 15 and over can read and write <i>total population:</i> 58% <i>male:</i> 72.8% <i>female:</i> 43.4% (1999 est.)
Population below poverty line:	54% (FY90/91 est.)
Inflation rate (consumer prices):	29.5% (2000)
Labor force:	3.5 million
Labor force - by occupation:	agriculture 86% (1997 est.)

A major problem acknowledged by the Malawi National Health Plan is the shortage of essential drugs, medical supplies, and equipment. The drug budget has not kept up with inflation especially since all drugs are bought with foreign (*hard*) currency. There has also been an increase in pilferage of drugs among health staff.[3] It is widely known that many Malawians rely solely on traditional medicines, or supplement with traditional medicines when conventional drugs are unavailable or unaffordable. The extent of utilization of traditional medicines in Malawi is unknown and needs further investigation.

The reliance of rural communities on traditional medicine is appreciated by the Ministry of Health and Population as exemplified by the formal integration of Traditional Birth Attendants into the National Health Care Services. Similarly, researchers recognizing the importance of traditional medicine to the rural communities have promoted and/or encouraged the use of traditional medicine through documentation, phytochemical analysis and propagation of rare and threatened medicinal plants.[1]

METHODOLOGY

Data collection

The field data collection took place May 12-22, 2002. Traditional healers were selected from diverse areas throughout southern Malawi so regional differences could be considered. Interviews with the healers were arranged by staff members of the Enterprise Development and Training Agency and traditional healer Dr. Grant Chipangula, President of the International Traditional Healers Association.

Twenty-two face-to-face interviews were completed with traditional healers. Two husband and wife teams were interviewed together and reported identical medical practices as reflected in Appendix 1. The interviews generally took 40 to 60 minutes to complete, and were conducted in either English or Chichewa, depending on the preference of the healer. Linda M. Robison M.S.P.H., Washington State University, conducted the interviews with the assistance of MAFE personnel and Dr. Chipangula serving as interpreters when necessary. Interviews were conducted in the healers homes or clinics.

Variables

Standardized information was gathered regarding the following six targeted plant species of interest:

- | | |
|-------------------|---------------------------|
| 1. Neem | <i>Azadirachta indica</i> |
| 2. Tephrosia | <i>Tephrosia vogeli</i> |
| 3. Moringa | <i>Moringa oleifera</i> |
| 4. Jatropha | <i>Jatropha curcas</i> |
| 5. Marula | <i>Sclerocarya birrea</i> |
| 6. Natal Mahogany | <i>Trichilia emetica</i> |

All participants were asked whether they used any of these plants for medicinal purposes, and if so, what they used each one for, and local availability. In addition, data were gathered regarding the most commonly treated diseases and/or conditions, the most commonly used medicinal plants, scarcity of medicinal plants, whether they treated animals, and referral and collaboration patterns between traditional healers and the conventional medical system.

RESULTS

Demographics and geography

The distribution and gender of the traditional healers interviewed is as follows:

<u>Location</u>	<u>N</u>	<u>Male</u>	<u>Female</u>
Balaka	2	2	0
Blantyre	6	3	3
Chapananga	2	2	0
Chikwawa	2	1	1
Lilangwe	1	1	0
Mangochi	2	2	0
Midima	2	1	1
Mulanje	1	1	0
Mwanza	2	1	1
Phalombe	2	1	1
Total	22	15	7

The healers ranged in age from 28 to 82 years old, with a mean age of 43 years. One-third of those interviewed were females. Gender differences were apparent. Upon inquiry as to how each respondent learned to be a doctor, females were more likely to say they learned from the spirits or through dreams and called themselves spiritualists, whereas men consistently learned through family members, generation-to-generation. Women were more secretive when asked to provide specific plant names and remedies utilized. They indicated that because they were guided by *spirits* as to which plant to prescribe, it could well be different for each patient regardless of the disease. The two husband and wife teams were the exception to this, and prescribed uniformly.

Common diseases

Table 1 below presents the most commonly treated diseases as reported by the traditional healers. The top ten diagnoses are ordered by frequency of mention with diarrhea, headache, and venereal diseases leading the list.

TABLE 1. Commonly Treated Diseases/Disorders Reported by Traditional Healers in Malawi

<u>Leading Diagnoses/Disorders</u>	<u>Common Diagnoses/Disorders</u>
1. Diarrhea	Anemia
2. Headache	Backache
3. Venereal disease	Bilharzia
4. HIV related symptoms	Boils
5. HIV	Cervical cancer
6. Witchcraft	Diabetes mellitus
7. Infertility	Encephalitis
8. Tuberculosis	Eye infections
9. General body pain	Fatigue
10. Swollen legs	Hysteria
	Jaundice
Asthma	Leprosy
Hypertension	Luck (needs, usually to help find a husband)
Malaria	Madness
	Muscle ache
	Pneumonia
	Post miscarriage infections
	Potency in men
	Skin infections
	Skin cancer
	Skin rashes
	Stomach ache
	Stroke
	Tonsillitis
	Ulcers
	Vomiting
	Whooping cough
	Wounds

Commonly used medicinal plants

Table 2 is the result of an open-ended question which queried each healer as to the most common medicinal plants utilized.

TABLE 2. Medicinal Plants Commonly Used by Traditional Healers in Malawi

Chichewa Name

Bongololo	Mtsukamano
Chikumansi	Mtudzitudzi
Chitimbe	Mauankhalamba (for HIV 3 times/day for two months, mixed with other secret herbs)
Chiteta	Mulunguchulu (rashes, boil and drink)
Chombwa	Muluza
Chonya	Murwizi
Futsa	Muwale
Gwafa	Muwawani (for venereal disease with other herbs)
Kakhome (for headache)	Mvunguti
Kandanyalugwe (for headache)	Mwanamphepo (infertility)
Kankhande	Mwabvi
Kapanda	Mwanga
Luni	Mwayi
Masangwa	Nantoli (speeds labor)
Maso ambalame	Napose/chigaga
Mbawa	Ngongomwa
Mdimba	Nthudza
Mnyoka	Nkondachawu
Mkalati	Nkotamo
Mlombwa (anemia, prolonged bleeding)	Nsanju
Mombo	Palibekanthu
Mpinji-pinji	Raka-raka
Mpoloni	Tambe
Msambamfumu	Tanthanyelere (for evil spirits)
Mtope-tope	Thombozi

English Name

Acacia
 Blue gum
 Mango tree
 Marula
 Papaya leaves (for malaria)
 Natal mahogany
 Neem
 Senna (for colon cleansing) (ex-RSA)

Scarce medicinal plants

Similarly, in response to an open-ended question, Table 3 presents the medicinal plants identified as scarce and needed most by the healers.

TABLE 3. Medicinal Plants Identified as Scarce and Most Needed by Traditional Healers in Malawi

<u>Chichewa Name</u>	<u>English Name</u>
Chonya	Fig
Kafumbwafumbwa	Mahogany (blood purifier)
Kakhome (for headache)	Natal Mahogany
Kandanyalugwe (for headache)	Neem
Kapandaphata	Senna
Mbawa	
Mdimba	
Msambamfumu (bathe in for good luck)	
Msangwi	
Muwale	
Muwanga	
Mwabvi	
Mwimbi	
Nkotamo	
Nkungudza	
Nsetanyani (bathe in for good luck)	
Thombozi	

Collaboration between medical systems

A loose two-way referral system exists between the traditional healers and the conventional medical system. Traditional healers reported referring patients to conventional clinics if the illness was too severe for them to treat. The conventional clinics, particularly in the more remote areas, refer patients to the traditional healers when the clinics are full, or when conventional medicine fails. This is especially the case when a patient believes his illness is a result of witchcraft or evil spirits. With the exception of traditional healers working within the Catholic church, all acknowledged treating patients for evil spirits with herbal remedies.

Some traditional healers complained that conventional doctors admonished patients not to take traditional medicines. Several stated that they would welcome the opportunity to work within hospitals and clinics in unison with conventional doctors. One healer encouraged phytochemical

analysis and clinical trials of his medicines in order to document their efficacy, and in turn, enhance his professional credibility.

Deforestation and replanting

All traditional healers acknowledged that deforestation is a major problem and many medicinal plants are becoming scarce requiring the healers to walk very long distances, hire pickers, and/or buy from traders. Although the healers harvest leaves, bark and roots from medicinal trees, they do not harvest the entire tree and are careful not to kill the trees when gathering roots. Most concurred that replanting was the solution. If local farmers would grow the scarce plants the healers would buy locally if they could afford to do so. Their general preference, however, is to be given seeds to plant on their own land. This would be more profitable for them as they could sell more medicine, and reduce their travel time for harvesting scarce plants.

Medicinal plant processing and packaging

None of the traditional healers were aware of any medicinal plant processors in Malawi. All made their own medicines and packaged them in plastic bags or in one instance, plastic bottles. Only one healer reported buying a packaged product (senna leaves) from South Africa. Several stated that even if they bought medicinal plants fresh or dried, they must mix the medicine themselves and would not be interested in buying it processed (value-added).

Animals

None of the traditional healers reported treating animals with the exception of chickens which some treated for diarrhea and typhoid using herbal remedies.

Utilization of Neem, Tephrosia, Moringa, Jatropha, Marula and Natal Mahogany

Table 4 summarizes the reported uses for each of the six targeted plant species. Appendix 1 details the findings by healer. All of the six plants were reported as scarce by at least some of the healers but availability varied by location (Appendix 1).

TABLE 4. Summary of Uses for Neem, Tephrosia, Moringa, Jatropha, Marula, and Natal Mahogany as Reported by Traditional Healers in Malawi

Botanical name → English name → Local name →	<i>Azadirachta indica</i> Neem Nimu	<i>Tephrosia vogeli</i> Tephrosia Mthuthua	<i>Moringa oleifera</i> Moringa Chamwamba, Sangoa	<i>Jatropha curcas</i> Jatropha Nsadsi	<i>Sclerocarya birrea</i> Marula mfula	<i>Trichillia emetica</i> Natal Mahogany
	<p>*Stomach ache *Hypertension</p> <p>Diarrhea General body pain Headache</p> <p>Asthma Backache Cancer Coughing Fever Fungus control HIV HIV related symptoms Malaria Potency Pregnancy related infections Scabies Shingles</p> <p>Tuberculosis Ulcers Uterine problems/ prolonged menstrual bleeding Venereal disease</p>	<p>Evil spirits Constipation Diarrhea Nitrogen for soil Swollen legs(incisions) Typhoid in chickens Ulcers</p>	<p>Aphrodisiac Back itch Eye washing treatment General body pain Heart attack Painful urination Purify water Skin rashes (topically) Stomach ache Swollen legs Vitamin A source</p>	<p>*Induce/speed labor *Speed hardening of baby's skull (topical)</p> <p>Infertility/conception Purgative/induce vomiting</p> <p>Skin rashes Stomach ache</p> <p>Boils Bowel problems in children Diarrhea Eye infections Laxative Stroke Toothache (chew seeds)</p>	<p>AIDS (one of 6 plants) Anemia Diarrhea Distended stomach Evil spirits Headache Madness Stillborn prevention Stomach ache Strengthens babies Swollen legs Tooth ache (mixed with Jatropha oil)</p>	<p>Anemia Arthritis (incision) Colon cleansing Constipation Evil spirits General body pain Good luck Intestinal problems Pneumonia (incision) Potency (enema) Stomach ache</p>

* = Leading uses

Bold = Frequent use

1. NEEM and its uses

Botanical name: *Azadirachta indica*. *A. Juss*

English names: Neem, Margosa tree

Chichewa name: Nimu

Description

The Neem tree is a tropical evergreen of the Mahogany family (*Meliaceae*). Small to medium in size (with height varying between 5 and 20m), it is a fast-growing tree, reaching two-thirds of its full height within 3 to 5 years. Highly drought tolerant, the Neem is reported to survive in rainfall conditions as low as 150mm per year.

Documented Medicinal Uses

Although there is insufficient reliable information available about the effectiveness of Neem, many medicinal uses have been reported. Orally, Neem is used for fever, upset stomach, respiratory conditions, and infectious diseases. The bark is used for malaria and skin diseases. The leaves are used for worm infections, ulcers, cardiovascular disease, diabetes and gingivitis. The stem, root bark, and fruit are used as a tonic and astringent. Topically, Neem is used to treat head lice, for skin diseases, and as a mosquito repellent. Intravaginally, Neem is used as a contraceptive. Neem is also used as an insecticide.[4]

Malawi Traditional Healer Reported Uses

Neem is widely used and in demand by traditional healers in Malawi for a variety of conditions. Availability of Neem varies by location, but nearly all of the healers reported using it (see Appendix 1). Common uses of Neem reported by traditional healers include:

- *Stomach ache
- *Hypertension
- Diarrhea
- General body pain
- Headache

Additional uses include:

- | | |
|----------------------|---|
| Asthma | Potency |
| Backache | Pregnancy related infections |
| Cancer | Scabies |
| Cough | Shingles |
| Fever | Tuberculosis |
| Fungus control | Ulcers |
| HIV | Uterine problems/prolonged menstrual bleeding |
| HIV related symptoms | Venereal disease |
| Malaria | |

The consistent reporting of Neem as a remedy for stomach ache, fever, respiratory conditions, malaria, ulcers, infectious disease, and as an antifungal warrants further investigation of its efficacy and potential for pharmaceutical marketing.

2. TEPHROSIA and its uses

Botanical name: *Tephrosia Vogeli*

English name: Tephrosia

Chichewa name: Mthuthua

Description

Tephrosia is a short-lived, herbaceous, frost-susceptible perennial.

Documented medicinal uses

There are no medicinal uses documented in the scientific literature. Tephrosia is a potential source of rotenone, an important nonresidual insecticide, and a material useful in killing undesirable fish. It is also used for erosion control and for mulch.[5,6]

Malawi traditional healer reported uses

Reported use of Tephrosia by the traditional healers was rare, and the plant was reported to be scarce. Although there is no documented medicinal use in the literature, Malawi traditional healers reported the following uses, which include fertilizer and animal use:

- Evil spirits
- Constipation
- Diarrhea
- Nitrogen for soil
- Swollen legs(incisions)
- Typhoid in chickens
- Ulcers

3. MORINGA and its uses

Botanical name: *Moringa Oleifera* Lam.

English names: *Moringa*

Drumstick tree (because of the shape of the pods, which are long and thin)

Horse-radish tree (due to the taste of its roots)

Chichewa name: Chamwamba, Sangoa

Moringaceae is a single genus family with 14 known species. Of these *Moringa oleifera* (*Moringa*) is the most widely known and utilized species, and is believed to have originated in the sub-Himalayan regions of north west India. It is a small, fast-growing, deciduous tree, rarely exceeding 8m in height, and is particularly associated with drier areas of less than 500mm rainfall, although it will grow in moister conditions. *Moringa* is now found in many countries in Africa, the Middle East, South-East Asia and South America.[7]

Documented Medicinal Uses

Moringa is reported to be an important food source for humans and livestock. Laboratory analysis has shown the leaves to be rich in protein, vitamins A and C, iron, and calcium.[7] Documented but untested medicinal applications include the treatment of diarrhea, bacterial skin infections, hypertension, diabetes mellitus, arthritis, back pain, tumors, ulcers, sores and boils. [8-11] Root bark is described as a source of *moringinine* with applications as a cardiac stimulant and bronchiole relaxant.[8] Roots are reported to have carminative and purgative/laxative actions.[8] It is considered to be an aphrodisiac in men, to increase semen, and to prevent eye disorders.[12] It is also documented that water from unprotected sources, as well as turbid water, can be cleaned and treated using crushed seeds of the *Moringa*. [13,14]

Malawi Traditional Healer Uses

Reported uses of *Moringa* by traditional healers in this study include:

- Aphrodisiac
- Back itch
- Eye washing treatment
- General body pain
- Heart attack
- Painful urination
- Purify water
- Skin rashes (topically)
- Stomach ache
- Swollen legs
- Vitamin A source

Little use of *Moringa* was reported by traditional healers in this survey. The plant was reported to be generally scarce, but in demand. However, reported uses by traditional healers in Malawi were in concordance with uses documented by others.

4. JATROPHA and its uses

Botanical name: *Jatropha curcas*
English names: *Jatropha*, physic nut, purge nut, black vomit nut
Chichewa name: Nsatsi

Description

Jatropha is a small hedge-like tree belonging to the family *Euphorbiaceae*. Although native to tropical America, Jatropha is now common throughout Africa and Asia. It is a multipurpose, drought resistant tree and can be cultivated in areas of low rainfall and infertile soils.[15]

Documented Medicinal Uses

Jatropha is used for a variety of medicinal purposes, however, its efficacy is currently unsupported by the scientific literature. All parts are considered toxic but in particular the seeds.[16] The latex, oil, twigs, wood, and leaves are used externally for healing wounds, to stop bleeding, and to treat rheumatism and skin diseases.[17] Orally it is used as a strong purgative, laxative, cough remedy, relief for toothaches, and to strengthen the gums.[15] Other traditional uses of the plant include treatment of diarrhea, jaundice, cardiovascular problems, fever, cancer, venereal disease, infertility, stomach ache and scabies.[16]

Malawi Traditional Healer Uses

Jatropha, particularly the oil from the seeds, was widely used by the traditional healers in this study. Of interest was the consistent reporting of Jatropha taken orally to induce labor, and the topical use on babies to "harden skulls". Healers reported after ingestion of Jatropha women will give birth "within a few minutes."

Common uses of Jatropha reported by traditional healers include:

- *Induce/speed labor (oral)**
- *Speed hardening of baby's skull (topical)**
- Infertility/conception
- Purgative/induce vomiting
- Skin rashes
- Stomach ache

Additional uses include:

- Boils
- Bowel problems in children
- Diarrhea
- Eye infections
- Laxative
- Stroke
- Toothache (chew seeds)

5. MARULA and its uses

Botanical name: *Sclerocarya birrea*
English names: Marula, elephant tree, cider tree
Chichewa name: Mfula

Description

Marula is a deciduous tree about 10m high with a thick bole and wide branches forming a light rounded crown.

Documented Medicinal Uses

Laboratory studies recently confirmed antibacterial applications using Marula bark and leaves. [18] Reported to be astringent, Marula is a folk remedy for diarrhea, dysentery, malaria, and proctitis. The bark decoction is used for diarrhea, dysentery, and malaria, and to clean out wounds. The leaf juice is applied to gonorrhea. Europeans in South Africa take the bark decoction both for the cure and prevention of malaria, but experiments have not confirmed antimalarial activity. Zulu use the bark decoction to prevent gangrenous rectitis. Fruits are believed to serve both as an aphrodisiac and contraceptive for females. [16] Use of Marula for the treatment for menorrhagia, cough, schistosomiasis, general body weakness, sore eyes, heart pains, toothache, rheumatism, constipation, and stomach trouble, as an antiemetic, to arouse spirits, and to protect from evil spirits has been reported. [19] It is also believed that the bark has antihistamine properties. [19]

Malawi Traditional Healer Reported Uses

Marula was reported to be scarce and in high demand among Malawi traditional healers. One half of the healers reported using Marula. Reported uses include:

AIDS (one of 6 secret plants)	Madness
Anemia	Stillborn prevention
Diarrhea	Stomach ache
Distended stomach	Strengthens babies
Evil spirits	Swollen legs
Headache	Toothache (mixed with Jatropha oil)

Concordance is noted between documented medicinal uses of Marula and reported uses by the traditional healers to include the treatment of diarrhea, evil spirits, stomach ache and toothache.

6. NATAL MAHOGANY and its uses

Botanical name: *Trichilia emetica*
English name: Natal Mahogany
Chichewa name: Msikitzi

Description

Trichilia emetica (subsp. *emetica*) is an angiosperm belonging to the family *Meliaceae* (the mahogany family). The Natal Mahogany is a relatively slow-growing hardwood (15 years from germination to first fruiting), commonly reaches 20m in height, and is known for its colorful, bright red seeds.[20]

Documented Medicinal Uses

Limited research has been undertaken on the medicinal properties of Natal Mahogany. A large number of liminoids have been isolated from the seed-oil, including the Trichilins A-D, and dregeanin. Some antimicrobial and anti-inflammatory properties have been observed in some of these liminoids.[20] The plant is used as a general tonic for bronchial inflammation, kidney problems, indigestion, and as an antiepileptic. An infusion of the bark or of the leaf has been used as an enema and as treatment for sore backs and hot pain in the back, lumbago and for rectal ulceration in children. The bark can also be used as a purgative enema for dysentery. An infusion of pounded bark is used to cure pneumonia and the pounded bark can be soaked in water and the paste rubbed on itch, ringworm and other parasitic skin diseases. It is also used for the treatment of gonorrhoea, syphilis, leprosy, gastritis, amenorrhoea, sterility, as a powder in dressings and as a poison antidote. The juice from the bark is used to treat hypertension. The seed is known to be emetic and purgative. The oil is used as a basis of a leprosy remedy, for rheumatism, cuts, and to treat skin diseases. The roots are used as a remedy for fever and colds, as an anthelmintic, a diuretic, a purgative, and to induce labor.[20]

Malawi Traditional Healer Uses

Traditional healers in this study reported Natal Mahogany to be a useful but rarely used plant because of its scarcity. Reported uses include:

- Anemia
- Arthritis (incision)
- Colon cleansing
- Constipation
- Evil spirits
- General body pain
- Good luck (bathe)
- Intestinal problems
- Pneumonia (incision)
- Potency (enema)
- Stomach ache

FUTURE DIRECTIONS

The purpose of this study was to investigate local availability and actual usage patterns by traditional healers of six targeted species of plants. The species include Neem, Tephrosia, Moringa, Jatropha, Marula, and Natal Mahogany. Also discerned were commonly treated diseases, commonly used medicinal plants, scarce medicinal plants, and attitudes regarding deforestation among traditional healers.

Based on the findings reported herein, we offer the following recommendations with regard to the production (cultivation) of specific species for domestic consumption, and/or export, and the required information requisite to meeting international regulatory standards.

Domestic production

Of the six species for which data were collected, three have significant usage and perceived /potential clinical utility. In rank order these species are: Neem; Jatropha; and Moringa.

1. Neem, while readily available in some regions, is deemed a rare species. Owing to its use as a treatment for diarrhea and general body pain, Neem affords the indigenous population with a multipurpose species; one that addresses two leading clinical problems. It is hypothesized that Neem can be readily cultivated.

2. Jatropha is utilized to induce labor, to harden the skull of newborns, as a purgative, and for stomach ache and skin rashes. Jatropha is readily available.

3. Moringa is utilized in the purification of water, and holds promise as a source of essential vitamins and minerals. Moringa, while readily available in some regions, is often deemed as scarce.

In each of the cases outlined above, formal (randomized) clinical trials are required to establish safety, efficacy, and stability (potency over time).

Export potential

Of the six species for which data were collected, three have potential for export. In rank order these species are: Neem; Moringa, and Jatropha. While export within Africa may not require quantitative evidence stemming from formal (randomized) clinical trials (safety, efficacy, and stability (potency over time)), regulatory bodies in the European Union, North America, and Asia will require such documentation.

Export potential internal and external to Africa

1. Neem, while readily available in some regions, is deemed a rare species. Owing to its use as a treatment for diarrhea and general body pain, neem affords the indigenous population with a multipurpose species; one that addresses two leading clinical problems. It is hypothesized that Neem can be readily cultivated.

2. Moringa is utilized in the purification of water, and holds promise as a source of essential vitamins and minerals. Moringa, while readily available in some regions, is often deemed as scarce.

Export potential within Africa

3. Jatropha is utilized to induce labor, to harden the skull of newborns, as a purgative, and for stomach ache and skin rashes. Jatropha is readily available.

Further consultation with the Malawi Ministry of Health and Population, the Malawi Ministry of Agriculture, the World Bank, and the World Health Organization is advised.

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Appendix 1. Uses for Neem, Tephrosia, Moringa, Jatropha, Marula, and Natal Mahogany by Traditional Healer

Botanical name → English name → Local name →	<i>Azadirachta indica</i> Neem Nimu	<i>Tephrosia vogellii</i> Tephrosia Mthuthua	<i>Moringa oleifera</i> Moringa Chamwamba, Sangoa	<i>Jatropha curcas</i> Jatropha Nsadsi	<i>Sclerocarya birrea</i> Marula mfula	<i>Trichilia emetica</i> Natal Mahogany Mskitzi
1. TH Dr. Chipangula Blantyre (Ndirande) Male 82 yrs old	1. Stomach pain 2. Ulcers. Uses alone in tea 3. Potency in men Dx1-3, uses neem alone; 1/4 tbsp in black tea 2 X day 4. HIV. Mixes with other herbs. Must take for 6 weeks. SCARCE buys from others in Chiwawa	1. Bad spirits. Boil leaves. Inhale the steam. Duration = 5 days.	No SCARCE . Does not use because scarce and hard to get. Would use for: 1. Eye washing treatment 2. Back itch Needs to be planted.	1. Induce labor. 2. Bowel problems in children. Makes oil drink. 3. Infertility. Leaves are mixed with sweet potato. Given after menstrual period to help conception. SCARCE . Buys seeds and leaves. Needs to be planted.	1. AIDS. One of the six species used in his treatment for AIDS. Picks himself. Has adequate supply.	1. Arthritis. Makes incision and implants powder under skin. 2. Pneumonia. Incisions. 3. Potency in men(enema) Use bark and roots.
2. TH Dr. Matimati Blantyre Trade Fair Grounds Male 43 yrs old	1. Uterine problems. Stops continual bleeding. Drink for 7 days as tea. 2. Controls fungus	No	1. Aphrodisiac. Mixed with other herbs as a drink.	1. Stroke. Increases blood flow. Use oil to massage stroke area. 2. Prolonged labor. Boil roots.	No	No
3. TH Dr. Miles Mayawa Blantyre (Ndirande) Male 28 yrs old	No	No	No	1. Rubs oil on baby's soft spot to speed hardening of skull.	No	Mixes with other herbs for a variety of conditions. SCARCE
4. TH Dr. Mai Ntonyo Blantyre (Chilimba) Female 39 yrs old	No SCARCE Needs seeds	No	No	1. Induce labor. Boil roots and drink. SCARCE . Needs seeds	No	No SCARCE Spirits will tell her what to do with it.
5. TH Sister Elizabeth Blantyre (Chinyonga) Female 58 yrs old	1. Breast cancer remission. Mix 7 leaves with 2 cups boiling water. Reduce to one cup. Drink as tea, 1/3 cup, 3 times/day for three months. 2. Hypertension. Mix 7 leaves with one cup water and boil 2-3 minutes. 3. Scabies. Same as above. Will improve or be better in 3 days. ADEQUATE SUPPLY	No	No	No	No	No
6. Herbalist, Mrs. Kanikie Blantyre Female 45 yrs old	1. HIV related 2. Headache 3. Asthma 4. Pregnant use to fight infection Mixes neem with other plants. Cannot say what they are.	No	No	No	No	No

Botanical name → English name → Local name →	Azadirachta indica Neem Nimu	Tephrosia vogeli Tephrosia Mthuthua	Moringa oleifera Moringa Chamwamba, Sangoa	Jatropha curcas Jatropha Nsadsi	Sclerocarya birrea Marula mfula	Trichilia emetica Natal Mahogany Msikitzi
7. TH Dr. Maria Midima Female 40 yrs old	1. Hypertension. Leaves and bark. Boil and drink 1-2 weeks. 2. Stomach ache. Leaves and bark. Boil and drink 3 times/day 3. Tuberculosis. Take 3-4 months.	No SCARCE Would use it. Spirits guide what to use it for.	No. SCARCE. Would use it. Spirits guide what to use it for.	1. Prolonged labor. Drink oil. 2. Boils. Drink to open boils.	No Can't get. Would use.	No. Can't get. SCARCE Would use.
8. TH Dr. Mathew Chikhomo Midima Male 50 yrs old	1. Hypertension. 2. Stomach ache. SCARCE. Walks to get leaves and buys from others.	No SCARCE	No SCARCE	1. Prolonged labor 2. Boils Drink oil.	No Can't get. Would use.	No. Can't get. SCARCE Would use.
9. TH Dr. Nampuluma Mulanje Male 39 yrs old	1. Stomach ache 2. Hypertension SCARCE Travels long distances to pick.	No Wants seeds. Spirits direct use.	No Wants seeds Spirits direct use	1. Prolonged labor 2. Tooth ache Chew seeds	No Wants seeds. Spirits direct use.	No
10. TH Dr. Khozomba Phalombe Male 32 yrs old	No	No	No	1. Rubs oil on baby's soft spot to speed hardening of skull. 2. Stomach ache. Burn seeds and mix in drink.	No Would use if available for witchcraft.	1. Anemia
11. TH Dr. Mnandisombula Phalombe Female 40 yrs old	1. General body pain 2. Diarrhea	No Unavailable. Would use for hysteria.	No	1. Speeds labor 2. Skin rashes ADEQUATE SUPPLY	1. Headache Uses leaves. ADEQUATE SUPPLY	No UNAVAILABLE Spirits will direct use
12. TH Sebastianian Gustino Catholic Dioceses Balaka Male 35 yrs old	1. Malaria 2. Headache 3. Fever 4. General body ache Has five trees, needs more.	1. Provides nitrogen for soil. Needs more seeds to plant.	1. Vitamin A source (leaves) 2. Purify water. 3. Skin rashes (use topically) ADEQUATE SUPPLY	1. Purgative(orally) 2. Laxative (orally) 3. Skin rashes (topically) ADEQUATE SUPPLY	1. Diarrhea 2. Headache Use roots and bark. Put a small amount in porridge; take up to 3 days. Recovery or improvement will be seen the first day. UNAVAILABLE HERE Must travel long distance.	No UNAVAILABLE AND SCARCE Would use for intestinal problems and colon cleansing. Wants seeds.
13. TH Dr. Kademu Balaka Male 40 yrs old	1. Headache 2. Asthma 3. Backache SCARCE Buys but not locally. Can't afford to buy all he needs.	1. Diarrhea 2. Ulcer Drink 1/4 tsp in porridge every hour. Do not eat sweets, banana or tea with it. Gets it from the bush.	No	1. Stomach ache 2. Laxative Uses seeds and leaves. Pound. Put in water. Will induce a bowel movement. 3. Hardens babies skulls. Rub oil on soft spot for 3 months. Buys from market in distant village. Needs seeds to plant.	1. To protect women from having stillborn baby. Uses bark and roots. SCARCE Walks long distance to bush to pick.	No UNAVAILABLE AND SCARCE.

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14. TH Dr. R.K. Jamu Lilangwe Male 28 yrs old	1. General body pain 2. Shingles UNAVAILABLE Walks long distances	1. Typhoid in chickens SCARCE but uses. Walks long distance to get.	1. Swollen legs Mix 1 tsp in one cup of porridge. SCARCE Walks to upland areas to pick.	1. Skin rashes 2. Hardens babies skulls. Rub oil from seeds on soft spot. Only uses on skin. ADEQUATE SUPPLY	1. Tooth pain Mixes with jatropha oil and rubs on teeth. SCARCE Tree not found here.	1. Stomach ache Uses straight. Put a few leaves or bark in warm water.
15. TH Drs. Yohane Husband and wife team Chikwawa Male & Female 38 & 39 yrs old	1. Stomach pain Uses alone in porridge. ADEQUATE SUPPLY Uses a lot.	No	No	No	1. Anemia Mix with mlombwa. Boil bark and drink 3/day for one week.	No
16. TH Dr. Muona Chapananga Male 50 yrs old	1. Diarrhea 2. Malaria 3. Venereal disease Mixes with other herbs. ADEQUATE SUPPLY	1. Constipation Take orally. 2. Edema Incision and insert. SCARCE Goes to bush	No	1. Stomach pain Uses leaves and seeds 2. Infertility Mixes with other herbs and drinks. ADEQUATE SUPPLY	1. Distention of stomach Uses bark and root. ADEQUATE SUPPLY	1. General body pain 2. Evil spirits SCARCE Needs more
17. TH Dr. Robert Sampson Chapananga Male 38 yrs old	1. Stomach ache 2. Diarrhea Mix with papaya 3. Cancer Uses bark and leaves. Puts powder in porridge.	No	No	1. Hardens babies skulls. Rub oil from seeds on soft spot. 2. Diarrhea Uses leaves only. Boil and drink 2-3 / day. ADEQUATE SUPPLY	1. Swollen legs Uses bark in water to bathe. ADEQUATE SUPPLY	No UNAVAILABLE Would use if the spirits tell him to.
18. TH Dr. Marial Mangochi Male 59 yrs old	1. Stomach ache SCARCE Needs trees	No SCARCE	1. Stomach ache 2. General body pain. Boil and drink 5 times/day.	1. Induce vomiting 2. Hardens babies skulls. Rub oil from seeds on soft spot. SCARCE	1. Stomach ache Uses roots. 2. Madness Mixed with other herbs SCARCE	1. Good luck Boil bark and wash/bathe. ADEQUATE SUPPLY
19. TH Dr. Chome Chikopa Mangochi Male 42 yrs old (same answers as Dr. Marial. They work close together)	1. Stomach ache SCARCE Needs trees	No SCARCE	1. Stomach ache 2. General body pain. Boil and drink 5 times/day.	1. Induce vomiting 2. Hardens babies skulls. Rub oil from seeds on soft spot. SCARCE	1. Stomach ache Uses roots. 2. Madness Mixed with other herbs SCARCE	1. Good luck Boil bark and wash/bathe. ADEQUATE SUPPLY
20. TH Drs. Chiduleni Husband & wife team Mwanza Male & Female 47 & 45 yrs old	1. Stomach ache 2. Coughing 3. Ulcers Uses leaves. Pounds and makes powder. Mixes with porridge or boils leaves and drinks. Take for five days, three times/day, ¼ tsp.	No SCARCE	No SCARCE Wants for: 1. Heart attack 2. Painful urination Put roots in warm water.	1. Prolonged labor Pound seeds, mix with water. Baby will come in minutes. 2. Eye infections Use oil straight 3. Infertility (seeds) SCARCE Walks very far and buys from farmers	1. Keeps baby strong 2. Diarrhea Mixes with other herbs. Uses bark only. Drink 1 tsp. ADEQUATE SUPPLY	1. Constipation Boil bark and drink. ADEQUATE SUPPLY