AN ETHNOBOTANICAL AND PHYTOCHEMICAL STUDY OF THE MEDICINAL PLANTS OF MAKUENI DISTRICT, KENYA.

BY:

DANIEL PATRICK KISANGAU

BSc. Second Class Honours, (Upper Division)

University of Nairobi.

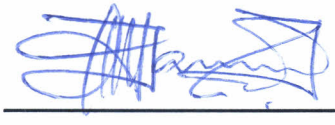
A thesis submitted in partial fulfilment for the degree of Master of Science in Botany of the University of Nairobi.

Department of Botany
Faculty of Science
University of Nairobi.

October, 1999

DECLARATION

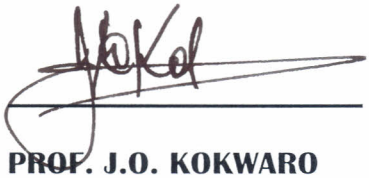
This thesis is my own original work and has not been presented for a degree in any other University



22-11-1999

DANIEL PATRICK KISANGAU — **Date**

This thesis has been submitted for examination with our approval as the University supervisors.



22/11/99

PROF. J.O. KOKWARO
Department of Botany
University of Nairobi — **Date**

22-11-99

PROF. J.O. MIDIWO
Department of Chemistry
University of Nairobi — **Date**

DEDICATION

To my parents, brothers and sisters.

TABLE OF CONTENTS

CHAPTER THREE

CHAPTER FOUR

CHAPTER FIVE

CHAPTER SIX

CHAPTER SEVEN

LIST OF FIGURES

LIST OF PLATES

LIST OF TABLES

ACKNOWLEDGEMENTS

I am deeply indebted to my Supervisor, Professor J.O. Kokwaro for his patience, critical advice, encouragement and sincere guidance through out the period of my study. I would also wish to thank him for exposing me to the field of systematics and plant taxonomy, a career which I would always aspire to develop.

Special gratitudes go to Prof. J.O. Midiwo of Chemistry department for his critical role in introducing me to the field of Natural products chemistry, allowing me to use his laboratory facilities and providing me with the necessary chemicals and reagents. Much adoration for his guidance and academic advice through out the time of preparing this work.

I express my thanks to the Board of Postgraduate Studies (BPS) of the University of Nairobi for granting me a scholarship to undertake my studies and also for extending the same for a period appropriate to complete the work. Thanks so much to Prof. R.K. Mibey, Chairman, Department of Botany, whose benevolent responsibility made many official aspects of preparing the work a success.

Thanks to Dr. J. Owino of Mathematics department (Statistics) for his tireless commitment in analyzing the data; Joseph Kirima of Geography department for his dextrous illustration of maps and R.R. Oswaggo for electronic colour production of the plates.

I am most grateful to Simon Mathenge and Patrick Mutiso of Nairobi University herbarium and Onesmus Mwangangi and Halima Abdillahi of the East African herbarium whose munificent assistance in the classification and identification of plant specimens was remarkable.

Gratitudes go Sara Peterson of University of Illinois , Chicago for sending me a most wanted NAPRALERT Data base information, Prof. Paul Alan Cox of National Tropical Botanic Garden,

Hawaii, USA., Geoffrey Mungai and Geoffrey Kilili (National Museums of Kenya) and Catherine Lukhoba of Botany department , for providing me with vital reference materials. Thanks to Dr. B. Khayota for allowing me to use the East African herbarium and Library. My gratitudes to Mrs. Rita Musyoka and Mr.Peter Kiangi of Kalulini and Kitise health centres respectively, who helped me greatly in the interpretation and translation of Kamba medical terms into English equivalents. Thanks to Dr. J.M. Mwangangi, Department of Animal physiology for confirming some ethnoveterinery terms.

I am grateful to Johnbosco Kilili, Francis Kyumbe, Monicah Agunda, Phillip Were and Patrick Muriuki for their software assistance. Eric Kisilu of Kenya Posts and Telecommunications is appreciated for lending me a camera for the field photography.

Cordial thanks go to all the herbalists of Makueni district who fed me with the precious legacy of herbal medicine and without whom , the study could only have remained a nightmare. Thanks to my colleague Bethwell Owuor whose intimate, touchy company and moral support made hard moments of the study bearable and manageable.

Finally, I am most indebted to my parents and siblings for their long suffering patience and sincere encouragement through out the period of my study, a most tempting one in my life.

ABSTRACT

Of all the uses of African plants, the aspect of medical use has probably attracted the most attention and has also been the most complex and varied. Nearly 70,000 species of higher plants have been used for medical purposes world wide.

Medicinal plants form the key component to traditional medicine which remains the major source of health care for over 70% of the Kenyan population. Over 90% of the population use medicinal plants at one time or another.

The increasing need to develop drugs from indigenous medicinal plants after their approval as potential sources of therapeutics justifies the current area of research.

The study which was carried out in Makueni district, a semi-arid region in the South Eastern part of Kenya reveals 208 plant species in 157 genera and 60 families of ethnomedical interest. Interviews were conducted on open-ended technique in at least 14 divisions of the 7,440 km^2 district. A preference ranking system was used to identify the most authentic and articulate herbalists in every administrative division visited .

Plant collections were made through out the field study and assembled at Nairobi University herbarium (NAI) for confirmation and identification. Those which could not be identified were done at the East African herbarium (EA) where some voucher specimens have been deposited.

88 diseases and conditions in 24 major categories have been documented. The most common category of diseases affecting the population in the study area is skin conditions followed by diseases of the head and gastro-intestinal conditions. Chest complaints, gynaecological and cardiovascular conditions rank fourth. Featuring also is livestock and poultry diseases.

The most prevalent diseases contributing to the high morbidity levels in the area are Malaria, Oedema, Diarrhoea, Stomachache, Gonorrhoea (Urithritis) and Rheumatism/Arthritis in that order.

The plant families with the highest number of of remedies are Leguminosae (25), Compositae (17), Euphorbiaceae (17) and Labiatae (15).The leaves were the most used parts of the herbal remedies; then the bark (stem), roots, whole plant and seeds, fruits and/or flowers respectively. Most herbal remedies are prepared by crushing or pounding. They are then boiled or soaked in water to form decoctions or infusions before being dispensed. Alternatively, they are dried in sun, burnt, chewed or roasted depending on the conditions for which they are used as a remedy.

The concept of cause of diseases in human has been briefly explained and possible implications of doctrine of signatures or similitudes in the conventional medicine mentioned. An attempt to determine the conservation status or threat categories of 10 herbal remedies has been done. *Ex-situ* conservation of herbal remedies realized in the home gardens of the herbalists is also highlighted.

A preliminary phytochemical analysis to test presence or absence of secondary components in 13 plant species was carried out. Results show that sterols are the most abudant group of compounds in the 13 species screened. A general characteristic is the absence of Anthraquinones, Triterpenes and Cardiac glycosides.

A two-way classified log linear model was used to evaluate the likely efficacy of each of the remedy screened. The likely efficacy was expressed in terms of quantitative interaction effects (τ_{ij}) as a measure of consensus or degree of confirmation whose values are arranged in a descending order. Some final conclusions and recommendations on the current area of research and its pertinence to development of science have been put down.

CHAPTER ONE

1.0 INTRODUCTION

1.1 Traditional medicine

At a very early stage of evolution, man discovered, perhaps through survival instincts that there were curative agents (medicines) for the many diseases that afflicted him (Maitai, 1996). For centuries, he has used the gifts of nature to alleviate his suffering and to cure himself of ailments (Kofi-Tsekpo, 1992).

A universal use of plants is the treatment of various diseases, anti-dote against magic and for religious ceremonies (Kokwaro, 1993). Around 35,000 to 70,000 species of higher plants have been used for medicinal purposes (World wide fund for nature- WWF, 1993).

Of all uses of African plants, the aspect of medical use has probably attracted the most attention (Riley & Brokensha, 1988) and has also been the most complex and varied (Cook, 1995). The ethnobotanical utilization of medicinal plants forms the 'back bone' of traditional medicine.

Traditional medicine as defined by by Kokwaro (1993, 1995), World health organization -WHO (1978), Omino (1990) and Kofi-Tsekpo (1995) is the sum total of all the knowledge and practices, whether explicable or not, used in diagnosis, prevention and elimination of physical, mental or social imbalance and relying exclusively on practical, experience and observation, whether verbally or in writing. It might also be considered as a solid amalgamation of dynamic medical know how and ancestral experience.

Traditional medicine is also considered to be the sum total of practices, measures, ingredients and procedures of all kinds, whether material or not, which from time immemorial enabled the

African to guard against diseases, to alleviate his suffering and to cure himself.

While traditional medicine remains the major source of health care for more than two thirds of the world's population (WHO, 1978), 80% of the people in developing countries rely on traditional medicine for primary health care (Given, 1994, Farnsworth, 1994, Karehed & Odhult, 1997).

Primary health care (PHC) as described by the Alma-Ata international conference of 1978 (Maitai, 1996) is the essential health care based on the practical, scientifically sound and socially acceptable methods and techniques made universally accessible to all individuals and families in the community with their own full involvement.

Traditional medicine in Kenya has been practised for many years and continues to play a major role in PHC (Kokwaro, 1988). Over 70% of the Kenyan population rely on traditional medicine as their primary source of health care, while over 90% use medicinal plants at one time or another (Odera, 1997). In this respect, traditional medicines play a vital role towards the well being and development of rural people in Kenya (Baquar, 1995).

The World health assembly unanimously decided that the social target of the governments and international organizations in the coming decades should be the attainments by all citizens of the world by the year 2,000 of a level of health that will permit them to lead a socaially and economically productive life (Maitai, 1996). Therefore, if Kenya has to provide health care for all by the year 2,000 given the financial and manpower constraints and the wide spread spatial and social inequalities, inaccess to modern health services, policy changes must utilize the services of ethnomedicne (Kimani, 1987).

Furthermore, WHO approach on traditional medicine is to promote and support the incorporation of useful elements in national health care (Kokwaro, 1995). The traditional medical practices where their effectiveness and safety have been proven can offer alternative therapies which are

culturally acceptable and readily available to needy individuals (Kokwaro, 1995).

According to Sindiga, (1995a), Kenya's modern health facilities are spatially inequitable and favour urban areas where only 5% of the population lives. Country wide, the ratios of health care to population vary from 1:200,000 to 50,000 against the government's target of 1:20,000 and less (Sindiga 1995a, Karehed & Odhult, 1997).

Besides, there are great regional disparities in the distribution of health facilities in many districts so that majority of the rural population has no access to modern health care (Sindiga, 1995a, Kimani, 1987).

A great percentage of Kenyan population therefore continues to rely on herbal medicines for their primary health care. However, inspite of the prominent role that traditional medicine plays in Kenya, it is the least understood of all medical systems (Sindiga, 1995a).

1.2 Drug development from ethnobotanical leads.

The plant kingdom has for many years provided the first effective agents and first clues for the development of drugs (Kofi-Tsekpo, 1992).

Medicinal plants discovered by traditional societies have proved to be an important source of potentially therapeutic drugs (Cox & Balick, 1994). As a result, over the last 35 years, an intensive effort has been made to uncover new clinically useful anti-biotics from medicinal plants (Chhabra & Uiso, 1995).

The history of conventional medicine is therefore irrevocably tied up with traditional medicine. Most of the drugs discovered today are either plant-related or synthesized from plant-related active principles (Githinji, 1990).

So far, flowering plants (as opposed to microscopic organisms and fungi) have given rise to about 120 commercially sold drugs and account for 25% of all prescriptions issued every year in North America (Cox & Balick, 1994).

In Kenya, ethnomedical information collected has revealed a rich source of agents from which drugs could be developed (Kofi-Tsekpo, 1992).

Table 1 shows examples of fifty one drugs developed from ethnobotanical leads.

The higher plants have so far contributed their fair share as sources of drugs and their potential disappearance of many species should be a matter of concern (Kofi-Tsekpo, 1992). There is therefore an urgent need for ethnomedicinal studies in Kenya, as the possibilities of discovering new drugs from plants are still enormous (Githinji, 1990). Furthermore, many healers from whom a great deal of ethnomedical information is derived are elderly and lack apprentices. As they die, much of their knowledge of local vegetation dies too (Cox & Balick, 1994).

Besides, as there is an alarming rate of destruction of vegetation, coupled with an ever diminishing ethnopharmacological practices, traditional medicine could get lost forever.

According to Kokwaro (1995), there has been a massive exploitation of medicinal plant parts in Africa as a result of uncontrolled harvesting of herbal remedies. This has caused a major concern to conservationists.

Regrettably, very few countries in the region have programmes of replenishing their popular medicinal plants. More specifically, Kenya has no legislation governing production and registration of traditional medicines, some of which have proved to be effective for several ailments. As a result, the medicines are currently being harvested and exported without restriction (Sindiga, 1995a, Nyamwaya, 1995).

It is however worthy noting that drug development from plant-derived medicines or medicinal plants is often expensive and sometimes fruitless. Kofi-Tsekpo (1992), therefore suggests that after the initial leads from plant-derived compounds, it is more economical to synthesize the compound for further development. Also, afew of the compounds exhibiting activity in the laboratory tests will become new drugs. Some will turn out to be identical or less potent than the existing agents. Others will prove too toxic for commercial use (Cox & Balick, 1994).

Table 1:Fifty one drugs developed from ethnobotanical leads.

NOTE: Some plant sources mentioned in the table are not locally found in Kenya.

Drug	Medical use	Plant source
Ajmaline	For heart arrhymia	*Rauvolvia spp.*
Aspirin	Analgesic, Anti-inflammatory	*Filipendula umaria*
Atropine	Pupil dilator	*Atropa belladona*
Benzoin	Oral disinfectant	*Styrax tonkinensis*
Caffeine	Stimulant	*Camellia sinensis*
Camphor	For rheumatic pains	*Cinnamomum camphora*
Cascara	Purgative	*Rhamnus purshiana*
Cocaine	Opthalmic Anaesthetic	*Erythroxylum coca*
Codeine	Analgesic, antitussive	*Papaver somniferum*
Colchicine	For gout	*Colchicium autumnale*
Demecolcine	For leukaemia, Lympomata	*C.autumnale*
Deserpidine	Anti-hypertensive	*Rauvolvia canescens*
Dicoumarol	Anti-thrombotic	*Melilotus officinalis*
Digoxin	For artrial fibrillation	*Digitaris purpurea*
Digitoxin	For artrial fibrillation	*D. purpurea*
Emetin	For amoebic dysentery	*Psychotria ipecuanha*
Ephedrine	Bronchodilator	*Ephedra sinica*
Eugenol	For tooth ache	*Syzygium aromaticum*
Gallotanius	Haemorrhoid suppository	*Hamamelis virginia*
Hyoschyamine	Anti-cholinergic	*Hyoscyamus niger*
Ipecac	Emetic	*Psychotria ipecuanha*
Ipetropium	Bronchodilator	*H. niger*

Morphine	Analgesic	*Papaver somniferum*
Noscapine	Antitussive	*P. somniferum*
Papain	Attenuator of mucus	*Carica papaya*
Papaverine	Anti-spasmodic	*P. somniferum*
Parraquone	Theileriosis (East coast fever)	Source not specified
Physostigmme	For glaucoma	*Physostigma venenosum*
Picrotoxin	Barbiturate antidote	*Anamirta cocculus*
Pilocarpine	For glaucoma	*Pilocarpus jaborandi*
Podopyllotoxine	For candyloma acuminatum	*Podophylum peltatum*
Proscillaridin	For cardiac malfunction	*Drimia maritima*
Protoverastrine	Anti-hypertensive	*Veratrum album*
Pseudoephedrine	For rhinitis	*Ephedra sinica*
Psoralen	For vitiligo	*Psoralea corylifolia*
Quinine	For malaria prophylaxis	*Cinchona pubescens*
Quinidine	For cardiac arrythmia	*C.pubescens*
Rescinnamine	Anti-hypertensive	*Rauvolvia serpentia*
Reserpine	Anti-hypertensive	*R. serpentia*
Sennoside A, B	Laxative	*Cassia angustifolia*
Scopalamine	For motion sickness	*Datura sramonium*
Sigmasterol	Steroidal precursor	*Physostigma venenosum*
Strophanthin	For congestive heart failure	*Strophanthus gratus*
Tubocurarine	Muscle relaxant	*Chondrodendron tomentosum*
Teniposide	For bladder neuplasms	*Podophylum peltatum*
Tetrahydro-cannabinol	Anti-emetic	*Cannabis sativa*
Theophylline	Diuretic, Anti-asthmatic	*Cammlia sinensis*
Toxiferine	Reluxant in surgery	*Strychnos guianensis*
Vinblastine	For hodgkin's disease	*Catharanthus roseus*
Vincristine	For paediatric leukaemia	*C. roseus*
Xanthotoxin	For vitiligo	*Ammi majus*

Sources: Cox (1994), Cox & Balick (1994), Kofi-tsekpo (1992) and Maitai (1996)

1.3 Objectives of the study

1. To carry out an ethnobotanical study of the medicinal plants of Makueni district
2. To interview authentic traditional practitioners to assess their imperical knowledge on herbal medicine
3. To compile a checklist of the medicinal plants of the district
4. To carry out preliminary phytochemical analysis of selected medicinal plants.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Historical perspective of traditional medicine

The history of traditional medicine is rather old and dates back to when the early man became conscious of his surrounding (Baquar, 1995). It is said to be as old as human history (Ayensu, 1978). This relationship between human and plants has been there since the development of all civilizations (Hostettman & Lea, 1987).

All the initial knowledge about the curative properties of plants (as also of mineral products) was the outcome of the early man's observation of birds and animals (Jain, 1994, Kokwaro, 1995).

So far, there is evidence that plant-based medicine goes back at least 100,000 years and probably even longer. The development of systematic pharmacopoeias dates back as far as 3,000BC., when the Chinese were already using over 350 herbal remedies (WWF, 1993). The long history of medicinal plants is therefore known to have resulted in the development of formal systems of medicine, particularly in China and India, and also in Arabia, Egypt and Europe (WWF, 1993).

2.2 Traditional medical practitioners

A traditional medical practitioner, also called traditional healer or simply medicineman, can be described as a person who is recognized by the community in which he lives as competent to provide health care by using plant (vegetable), animal and mineral subsances and certain other methods based on the social, cultural and religious back ground as well as on the knowledge, attitudes and believes, that are prevalent in the community regarding physical, mental and social

well-being and the causation of disease and disability (Sofowora, 1982, Sindiga, 1995b, WHO, 1978, Kokwaro, 1993, 1995, Omino, 1990, Twumasi, 1984).

Kokwaro (1983, 1995), Omino (1990), and Sofowora (1982), categorize traditional healers as follows: Herbalists, Diviners, Spiritualists, Great therapists, Traditional midwives or birth attendants (TBAs), Traditional surgeons and Traditional psychiatrists.

Kokwaro (1983) notes that traditional medicine men and women have continued to occupy an important position in our societies. From a social dimension, they are used as tool to determine the efficacy of indigenous medicine. This is reflected in the fact that the community refers patients with particular ailments to a specific practitioner (Kaendi, 1997).

Hogle (1990), records an estimated 1990 population of 518 million within sub-saharan Africa with a physician to population ratio at 1:40,000 and the traditional healer to population ratio at 1:500, meaning that there are probably a million traditional healers serving 80-90% of the population.

Miller (1980), observes that the vast majority of the population, perhaps 90% rely on traditional healers as their first line defence against illness. Such healers are abiquitous, often exceptionally skilled and very much needed. They offer a blend of solace, advice and therapy, usually delivered within the understanding of the patient's back ground. The advantage is low cost, an element of self reliance and non-dependancy on government health institutions.

The traditional medical practitioners are said to consider illness to be tied to non-organic, usually supernatural factors and thus do not take into account the existence of microbes, parasites, viruses and other aetiological elements in western thinking (Miller, 1980).

Kimani (1987), suggests that a herbalist should have imperical knowledge of herbs to tell between poisonous and non-poisonous ones and to know their therapeutic potency. To polish his knowledge, the potential herbalist has to attend apprenticeships with an experienced herbalist to

train him how to prepare the medicines.

While there may be practitioners who have mastered small lists of remedies, only a few attain eminence. The whole pharmacopoeia is carried in their heads and this includes the recollection of the dried specimens stored in their houses (Lindsay & Hepper, 1978, Kokwaro, 1983).

Kokwaro (1983) adds that the role of the herbalist is the treasure of the black African and a patrimony which should be preserved, propagated and improved at all costs. Further, he notes that we are currently experiencing rapid disappearance of genuine traditional herbalists and a decline in authentic knowledge in traditional treatment. This is associated with death of many aged healers from whom a great deal of information is derived (Cox & Balick, 1994).

Hostettman & Lea (1987), emphasize that with the advent of 'Western' medicine and disinterest which many people from the third world countries show towards herbal remedies, there is danger that the knowledge of traditional healers will be lost forever if action is not taken to document the particular prescriptions involved.

2.3. Ethnopharmacological documentation of Makueni district.

Quite a substantial work and documentation has been done by various scientists in several communities in Kenya (see table 2).

Table 2: Examples of authors against the communities from which some ethnomedical information has been collected.

Author	Community
Backes *et al.*, (1998)	Bukusu
Gachathi F.N., (1989)	Kikuyu
Githinji C.W., (1990)	Kenya
Glover P.E. *et al* (1966)	Masai, Kipsigis
Johns T. *et al* (1990)	Luo
Kaendi M., (1997)	Tugen
Karehed J. & Odhult E., (1997)	Masai
Kokwaro J.O., (1972)	Luo
Kokwaro J.O., (1993)	East africa
Kokwaro & Johns (1998)	Luo
Lindsay R.S. & Hepper F.N., (1978)	Marakwet
Omino E.A., (1990)	Kenya
Timberlake J., (1987)	Pokot

While the work in table 2 by the mentioned authors must be appreciated, ethnomedical information for Makueni district in particular still remains scanty and far from being exhaustive. This may be partly because the study area is a new district and more so because elaborative ethnobotanical research has not been carried out in the area.

With a more intensive research in the area, coupled with a cross-cultural assessment with other communities, chances are that the ethnomedical leads could give encouranging results towards drug discovery and development. This is because the Kamba community just like any other in Kenya is known to be well polished in its vigor of traditional medicine. The available

ethnomedical information covers the entire Kamba community which is currently composed of four districts: Machakos, Makueni, Kitui and Mwingi.

Maundu *et al.* (1993), indicated that the use of plants in traditional soups and foods is more often than not intended for their medicinal value. Records from the Kamba community are exemplified by *Strychnos henningsii* (Loganiaceae), *Warbugia ugandensis* (Canellaceae) and *Zanthoxylum chalybeum* (Rutaceae).

Kokwaro (1976, 1993) recorded 83 plant species in 41 families of ethnomedical interest in the Kamba community. In his two editions, he gave a generalized view of herbal remedies, highlighting both the benefits and short comings of traditional medicine. He also briefly discussed the major chemical compounds responsible for the treatment of various body ailments.

Githinji (1990), recorded 37 medicinal Labiatae species for Kenya. Of these, 13 species were recorded for three localities in Machakos district: Lukenya, Matiliku and Nzaui. The last two currently lie in Makueni district after the recent new boundary demacation.

Omino (1990), recorded 25 Kenyan medicinal Apocynaceae species. Only three species were recorded for the Kamba community.

Miller (1980), carried a survey of traditional medicine in East africa. One of the areas he visited was Kilungu hills of Makueni district. He also consulted some medical practitioners in the area. Unfortunately, details of herbal remedies used were not given.

In his monograph, Kokwaro (1988), dealt with a total of 117 indigenous drug plants used for treatment of skin diseases. Out of these, only 22 species were recorded for the Kamba community.

A survey carried out by the International Centre for Research in Agroforestry (ICRAF) showed

that 87 plant species of the Kamba community were of ethnobotanical value. 56 of them were medicinal (ICRAF, 1992). Further details are lacking.

In a study on the occurrence and use of indigenous plant species, Maundu (1992 a), recorded only a few medicinal plants out 23 species reported for Kathekani village of Makueni district.

Out of 39 plant species reported from Machakos , Makueni and Kitui districts by Maundu (1992 b), 36 were recorded for Makueni district in particular.

During a preliminary survey conducted by Kilili G., Morimoto Y., and Maundu P., in a bid to determine the status of some traditional forest groves in Kenya, 132 plant species were found associated with sacred groves in Kaiti and Matiliku divisions of Makueni district. Only 15 of these plants were of medicinal value. Their vernacular names were also recorded (Kilili *et al*, 1998).

In their study of Apocynaceae species used in traditional medicine in Kenya , Omino & Kokwaro (1993) revealed that 25 species in 16 genera were of ethnomedical interest. 19 species were medicinal and only 5 of them were recorded for the Kamba community.

In a survey carried out in Kajiado district by the Indigenous Food Plants Programme (IFPP-1989, 1990), the Kamba medicinal uses and vernacular names of two plant species; *Carissa edulis* and *Solanum nigrum* were recorded.

2.4 Chemical aspect

The extraction of bioactive agents from plants is one of the most intensive areas of natural product research today (Omino, 1990, Sofowora, 1982). This is supported by the increasing need of drugs and medicine (Baquar, 1989). The field is however far from being exhausted (Omino, 1990).

Omino (1990), reports that only 10% of all plants have been investigated in detail for bioactive agents, while Mutta *et al* (1994), ascertains that very few Kenyan indigenous plants have been screened for their pharmaceutical potential despite of their richness in chemicals for pharmaceutical industry. Kokwaro (1993) therefore, suggests that it is necessary to further investigate the plants used for direct or specific treatments to determine their reaction to diseases in question.

So far, approximately 119 pure chemical substances have been extracted from plants and used in medicine throughout the world (Baquar, 1989).

Some of the basic compounds associated with plants and reported to have medicinal value are oils, alkaloids and anthraquinones (Kokwaro, 1993). Others are triterpenoids which include triterpenes, sterols, saponins and cardiac glycosides (Harborne, 1984).

Alkaloids which some 5,500 are known are often toxic to human and many have domestic physiological activities hence their wide use in medicine (Harborne, 1973, 1984).

The search for saponins in plants has been stimulated by their value as therapeutic agents and also for their economic importance. They have been ready sources of sapogenins convertible into animal sterols e.g.,Cortisone and contraceptic estrogens. Compounds already used include Hecogenin from *Agave* and Yamogenin from *Dioscorea spp.*

Locally, the use of plants containing cardiac glycosides (Cardenolides) as remedies for heart diseases is not fully recognized (Kokwaro, 1993). Most of them are toxic but known to have pharmacological activity especially on the heart (Harborne, 1973, 1984).

A preliminary phytochemical information has been recorded for some Kenyan medicinal plants. Examples are: Karehed & Odhult (1997), who compiled literature on bioactivity of some Masai

plant species. Anti-bacterial species included *Acacia nilotica* (whole plant), *Asparagus africanus* (root), *Ricinus communis* (whole plant) and *Solanum incanum* (fruit). Anti-virals were *Clerodendrum myricoides* (leaf, root), *Erythrina abyssinica* (leaf, stem, root) and *Leonotis nepetifolia* (fruit). Anti-fungals were *Clerodendrum myricoides* (leaf, root), *Plumbago zeylanica* (root), *Ricinus communis* (whole plant), *Solanum incanum* (root) and *Thunbergia alata* (root).

Githinji (1990), carried out a chemotaxonomic work on selected medicinal Labiatae species. Of the 37 recorded medicinal species, 13 were analyzed for essential oils and the oil yield given for each species.

Omino (1990), reports simple chemical tests to detect presence or absence of compounds in 6 Apocynaceae species. Results showed that most common constituents found in these plants are alkaloids and cardiac glycosides, then triterpenes and saponins, with a general absence of flavonoids and anthraquinones.

CHAPTER THREE

3.0 AREA OF STUDY

3.1 Location and administrative units

3.1.1 Location and size

Makueni district is one of the twelve districts that form Eastern province. It borders Kajiado district to the West, Taita-Taveta to the south, Kitui to the east and Machakos district to the north. (See fig. 1).

The district lies between latitude 135^{o} south and longitude 38^{o} 30^{1} east (Makueni district development plan-MDDP (1997-2001). It is located in K_4 according to the Flora of Tropical East Africa-FTEA (Fig. 6) (Turrill & Miln-Redhead, 1952).

The width of the district in some parts ranges from 100 km in the north and less than 20 km in the south (MDDP, 1997-2001). It extends some 190 km from north west to south east (MDDP, 1994-96).

The district covers an area of 7,440 km^2. Mtito-Andei, Makindu and Kathonzweni divisions are the largest in that order; whereas Tulimani, Mbooni and Mulala are the smallest. The vast divisions are situated in the low potential areas and are sparsely populated; whereas the smaller ones are situated in high potential areas and have higher population densities (MDDP, 1997-2001).

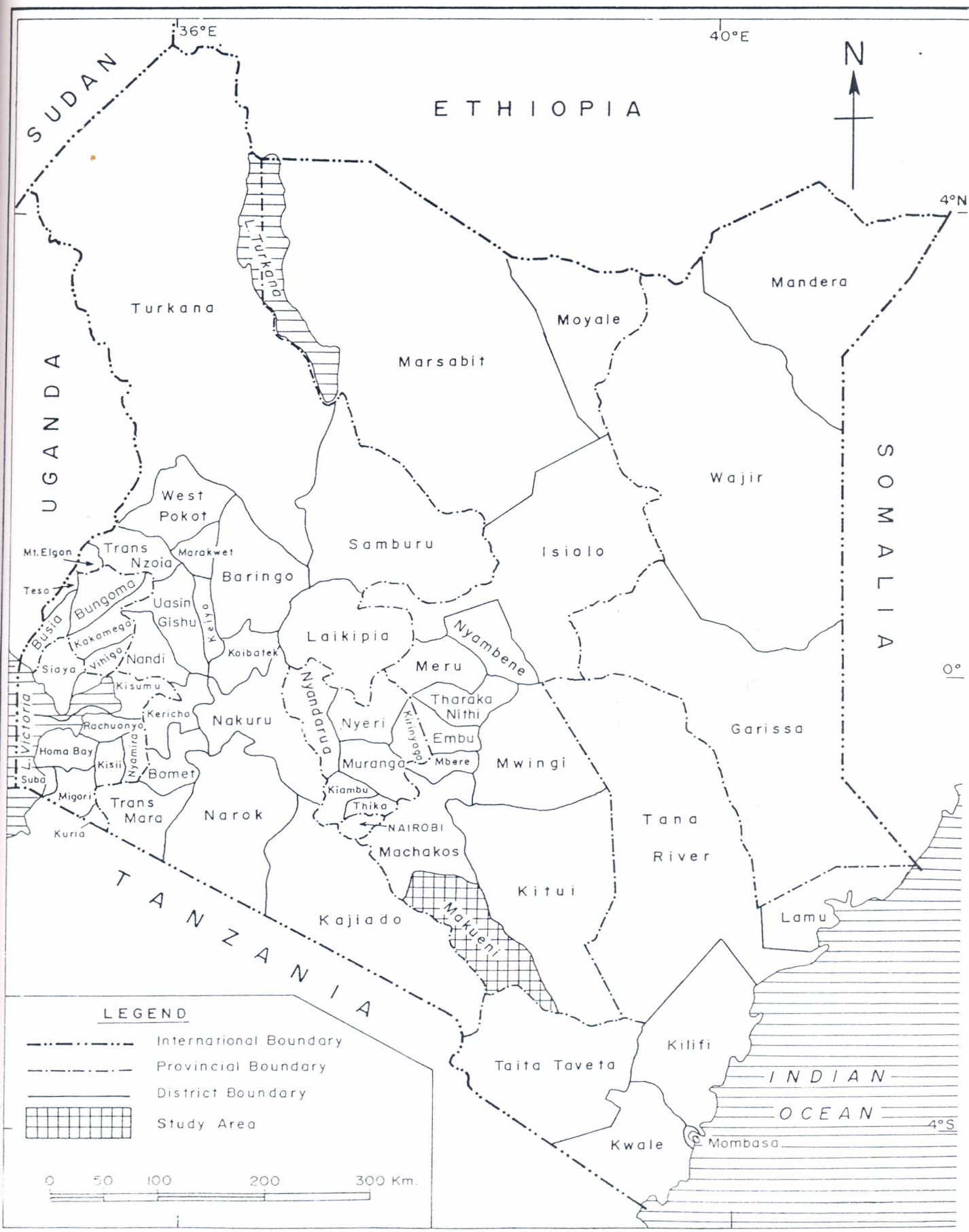


Figure: 1 The location of Makueni District in Kenya.
Source: Makueni District Development Plan (1997-2001)

Figure: 2 The Administrative Boundaries of Makueni District.
Source: Modified from Makueni District Development Plan, (1997-2001)

3.2 Climate

Rainfall in the district which is generally scarce varies with altitude. The average annual rainfall is slightly over 1,000 mm in the highlands (MDDP, 1994-96, 97-2001) to slightly below 500 mm in the low lying south and south east parts of the district (MDDP, 1994-96).

The district has two climatic regions. The hill masses to the north and central are cool and wet with rainfall ranging from 800 to 1,200 mm per year. The lower areas are hot and dry with rainfall ranging from 200-900 mm per year (MDDP, 1994-96, 97-2001).

The rainfall pattern is bimodal with significant differences in distribution during different years (MDDP, 1994-96).

The long rains occur from March to April while the short rains from November to December. Generally, the district experiencies high temperatures during the day and low temperatures at night. Extreme heat is experienced in the low lying parts of district. The high altitude areas experience cool temperatures (MDDP, 1994-96, 97-2001).

3.3 Vegetation

The existing natural vegetation shows that it could have been mixed forest on the higher slopes changing into *Combretum spp.* Woodland and grassland on the lower slopes and *Acacia spp.* Bushland and grassland on the lowest plains (Wahome, 1986).

Generally, the low lying part of the district has low lying savannah grassland with great potential for ranching, while the high altitude northern part has few natural and planted forets.

There are five gazetted forests in the district. Mbooni (247 HA.), Kilungu (2,677 HA.), Kibwezi (5,849 HA.), Nthangu (2,705 HA.), and Makuli (2,677 HA.) (MDDP, 1994-96, 97-2001).

These forests produce 2,650 m3 of timber and 18,916 running metres of fuel wood per year for use in the construction industry and for energy in the homes (MDDP, 1997-2001). Ungazetted forests include Mutula, Kiu, Kitondo, Waia, Tulimani, Kithendu and Utuneni (Survey of Kenya, 1996, MDDP, 1994-96).

3.4 Land and soils

There are three main standard soil types in the district. The red clay occurs on the hill masses and some parts of the low lands; the sandy soils mainly in the central parts of the district including Wote and Kathonzweni divisions and black cotton soils mainly found in the southern divisions of Kibwezi and some parts of Kilome (MDDP, 1994-96, 97-2001).

3.5 Physiography and geology

The district is generally low lying and rises from about 600 m above sea level at Tsavo and reaches 1,900 m on the Kilungu hills. The major land formations are the volcanic Chyulu hills situated along the south western border in Kibwezi division.

Granitic rocks form Mbooni and Kilungu hills and rise up to 1,100 m in Mbooni division (MDDP, 1994-96, 97-2001).

Most rivers and streams are seasonal flowing only during the rain seasons (Wahome, 1986), with Athi river being the only perennial river draining most of the district. Its tributaries are Kambu, Kiboko, Mtito-Andei, Thwake, Kaiti, Kikuu and Kiangini (MDDP, 1994-96, 97-2001). The streams and rivers have high sand deposits along their floor and between crevices (Wahome, 1986).

3.6 Agro-ecological zones

The district is divided into three agro-ecological zones, namely: High potential zone (LM2), medium potential zone (LM3, UM4, LM5) and low potential zone (LM5, LM6, UM5) (MDDP, 1997-2001).

UM5, LM4 and LM5, ecological zones are covered by red clay soils and black cotton soils and used for cotton, sisal and millet production. Livestock rearing is also practised in these zones (MDDP, 1994-96, 97-2001).

The LM6 zone covers most of the lower parts of Wote, Kathonzweni and Kalawa divisions and is suitable for millet growing and livestock rearing. The black soils in LM4 (Wote) are used for Katumani maize growing. UM3 and LM3 which cover Kaiti, Kathonzweni, Kalawa and Wote divisions have high potential for cotton production. Coffee growing and less of sorghum and pigeon peas growing is done on the hill masses of Mbooni and Tulimani (MDDP, 1994-96, 97-2001).

LM3, UM3, LM4 and UM4 (medium potential zones) are suitable for both cash and food crops like coffee, cotton, maize, beans, pigeon peas, sunflower, sorghum and fruits (MDDP, 1997-2001).

LM5, LM6 and UM6 in Wote and Matiliku divisions are suitable for livestock rearing, maize, sorghum, pigeon peas, beans, cotton and sunflower (MDDP,1994-96, 97-2001). Mbooni and Kilungu hills have potential for holticultural crops (MDDP, 1994-96).

Fig. 3 shows land use patterns of the district.

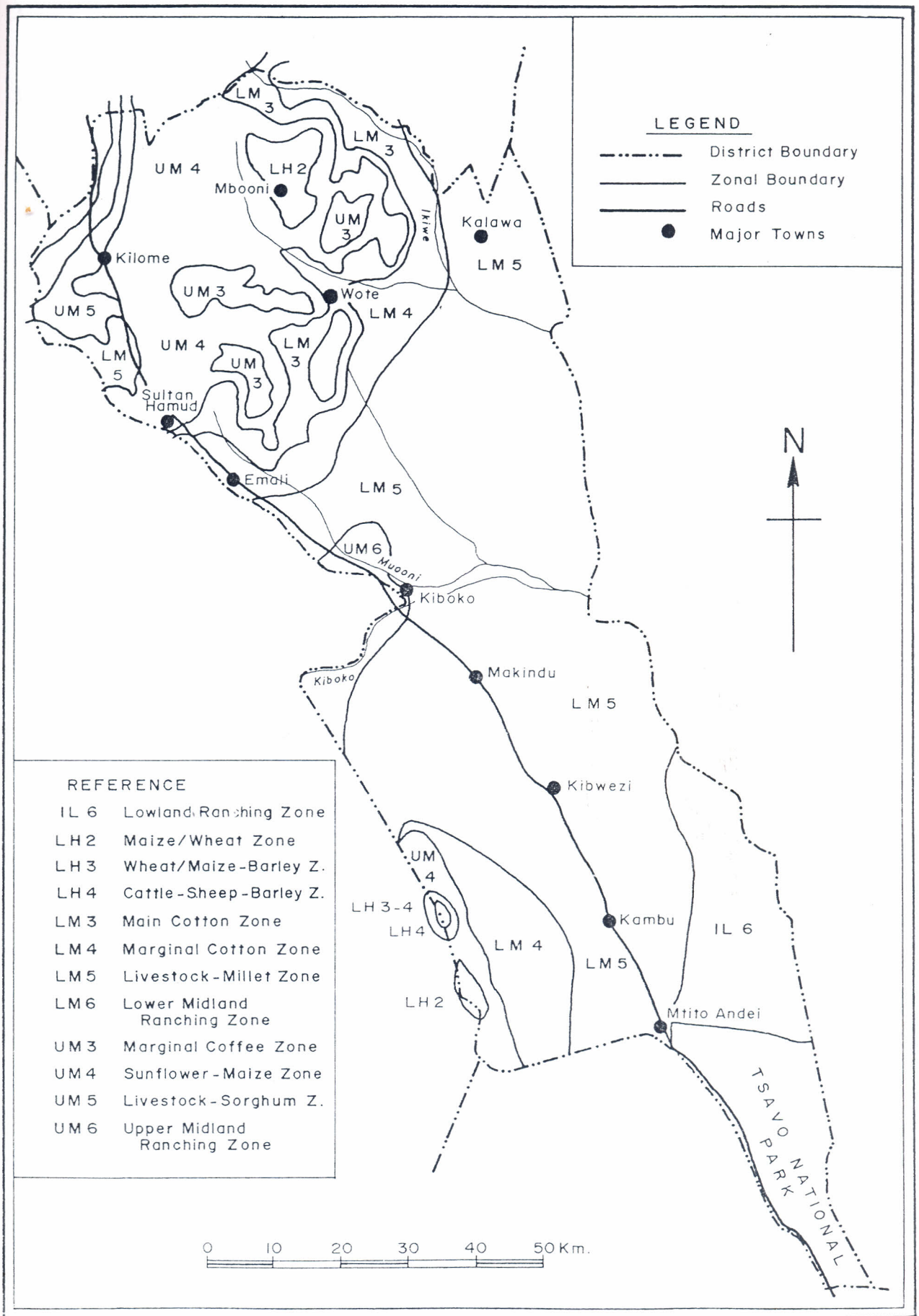


Figure: 3 Makueni District: Agro-Ecological Zones.
Source: Modified from Makueni District Development Plan, (1997-2001)

3.7 Population and health

3.7.1 Population size and distribution

In 1989, the district had a population of 636,994. Projections for 1997, 1999 and 2001 are 815,607, 867,596 and 922,902 respectively. These projections are based on population growth rate of 3.09% per year and is expected to continue for the next three years (MDDP, 1997-2001).

Attributed to the rapid increase of the district's population is the immigration of people from neighbouring districts onto the settlement schemes in the district.

In 1989, Mtito-Andei had the highest population, followed by Kilome, Kaiti and Kathonzweni. Wote and Kalawa had the least population. The high population in Kilome and Kaiti divisions is due to high soil potentials (MDDP, 1997-2001).

Fig. 4 shows the population distribution per division.

3.7.2 Health facilities

The provision of health facilities in Makueni district is inadequate compared to the large population they serve (MDDP, 1994-96). The district has 60 established health facilities out of which 5 are hospitals, 30 dispensaries and 25 health centres.

Most health facilities lack personnel like doctors and are over utilized (MDDP, 1994-96, 97-2001).

There are 5 doctors in the district against a population of 810,000 people. The doctor-patient ratio stands at 1:162,000, a clear indication that the health services in the district are far from being adequate.

The district hospital (Makueni) has a bed capacity of 144 and 15 cots and normally accommodates about 300 in-patients resulting in patients sharing beds and other facilities (MDDP, 1997-2001).

It must also be emphasized that patients have to travel over long distances to get medical attention from the nearest health facility (MDDP, 1994-96).

Fig. 5 shows the distribution of health facilities in the district.

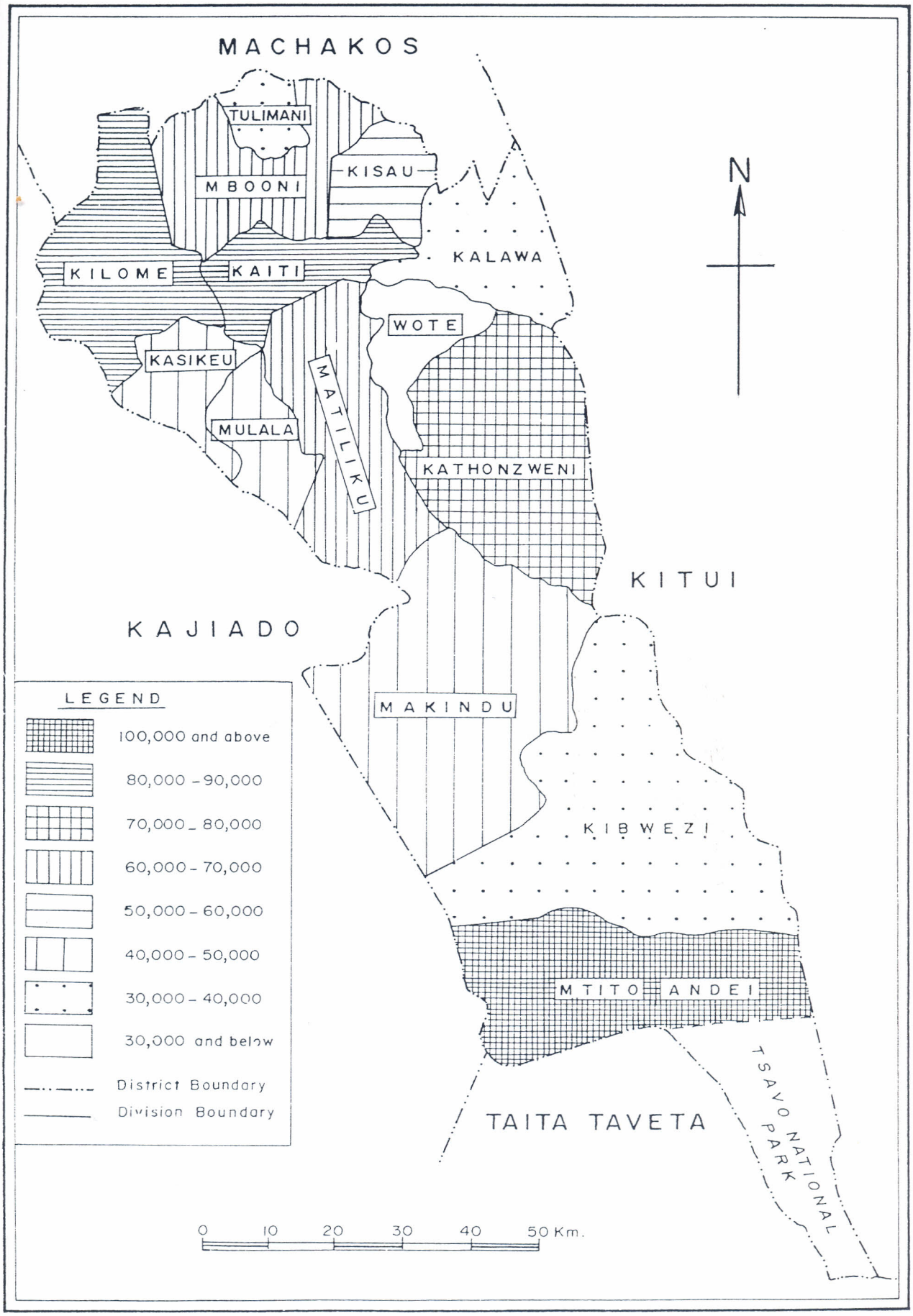


Figure: 4 Makueni District: Population Distribution per Division.
Source: Author

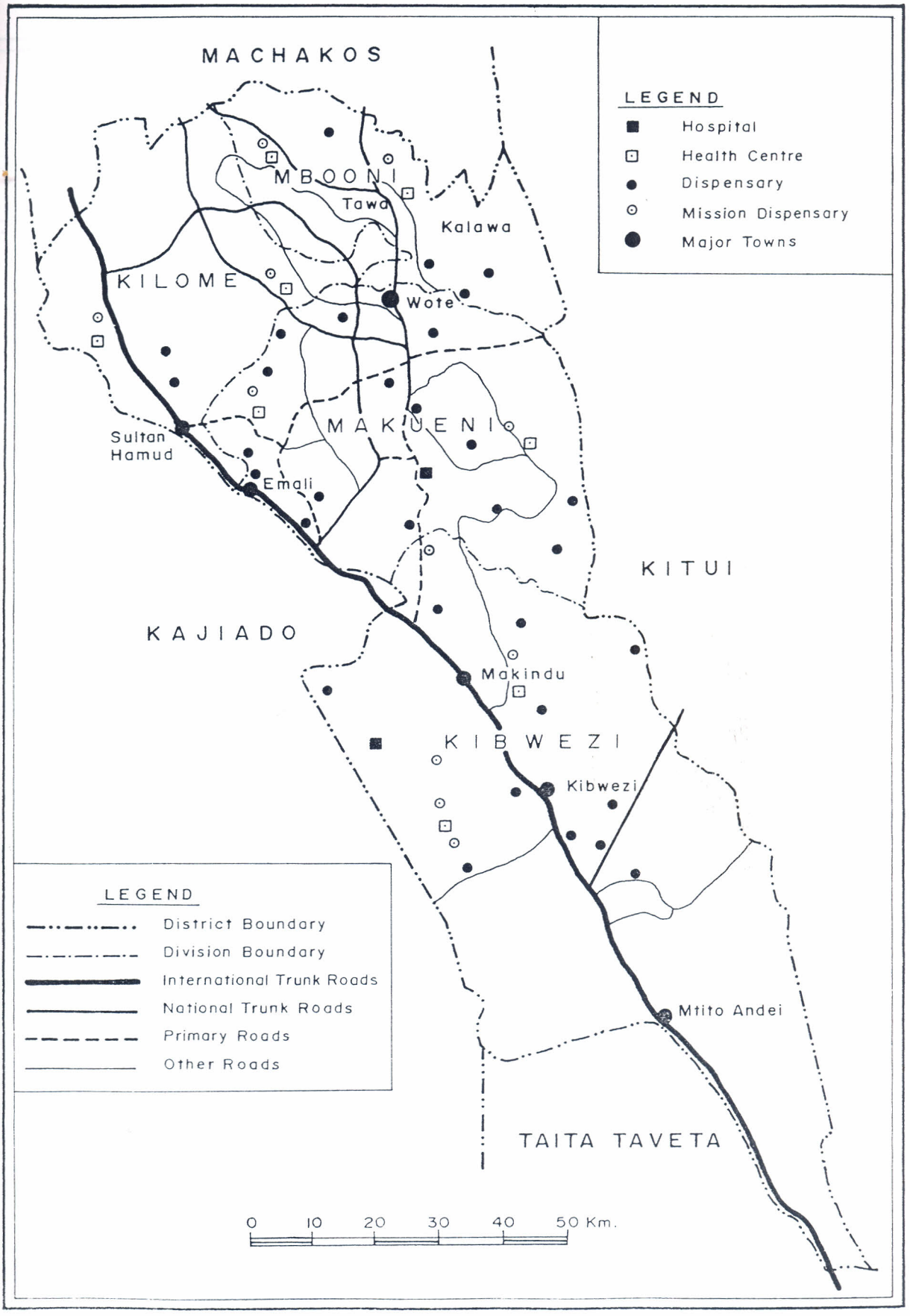


Figure: 5 Makueni District: Health Facilities and Roads Network.
Source: Modified from Makueni District Development Plan, (1997-2001)

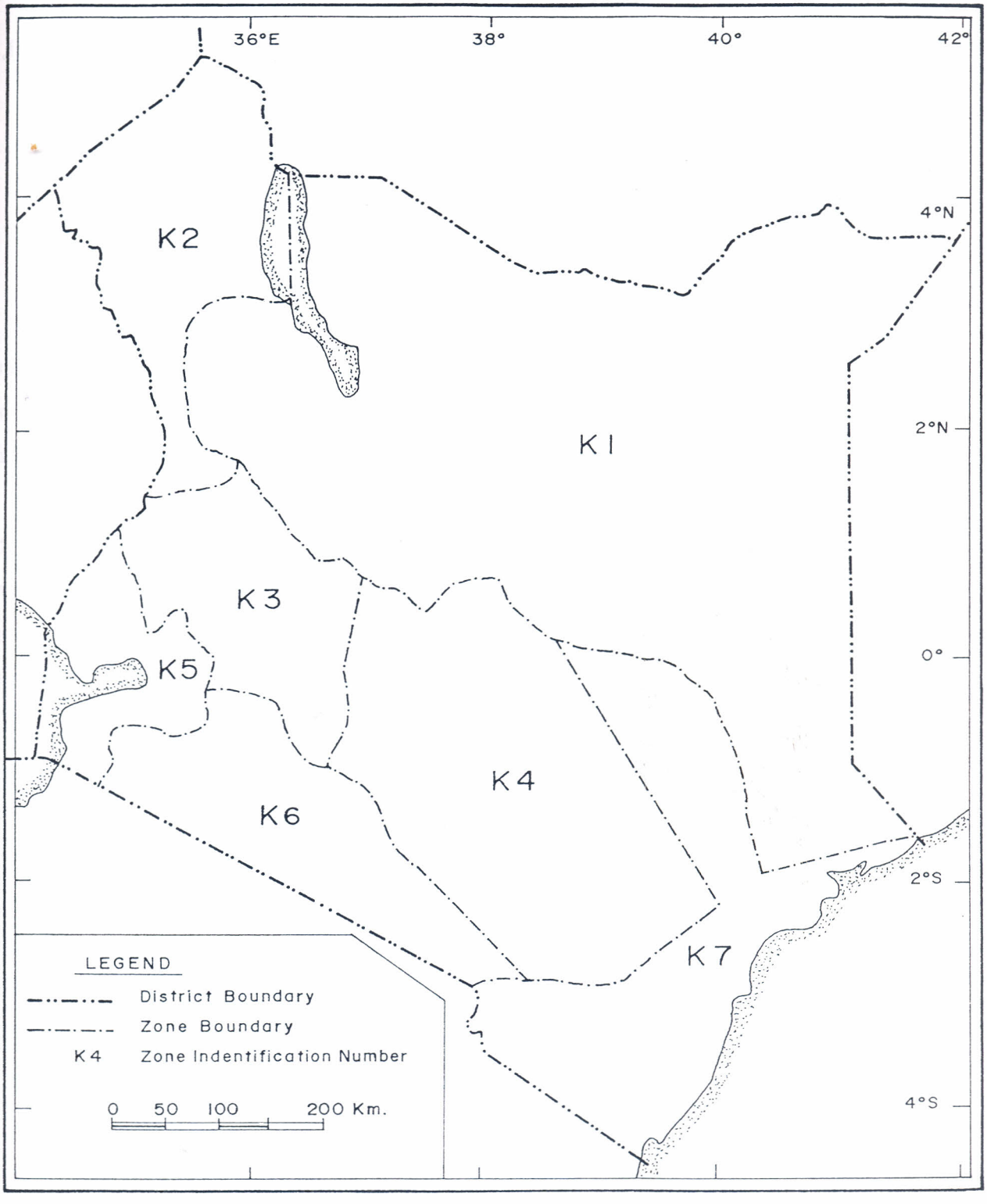


Figure: 6 Geographical divisions of Kenya as used in the Flora of Tropical E. Africa
Source: Modified from Omino and Kokwaro (1993), Journal of Ethnopharmacology.

CHAPTER FOUR

4.0 ETHNOBOTANY AND TAXONOMIC DESCRIPTIONS

4.1 Methods of study

4.1.1 Field work

A feasibility study was carried out between November and December 1997. Consultations to gather ethnomedical information for the study area were made with the East African and Nairobi University herbaria as well as literature. Results showed that very little ethnomedical information on the study area is available.

Intensive field work on the current study took 7 months, January - July, 1998. Field study involved plant collections and interviews in at least 11of the 14 divisions of the 7, 440 km^2 district .A total of 119 people were interviewed . 41of them were herbalists of whom 23 were men and 18 women.

An open ended interviewing technique applied by Johns *et al.* (1990, 1994) was employed. This technique was conducted along the lines of a Participatory rural appraisal (PRA), mentioned and described by Maundu (1995) and Martin (1995) respectively.

Informants were interviewed randomly but independently from home to home during pre-arranged appointments. Prospective informants (preferably aged above 30) were also interviewed at any other place apart from their homes, like on the way, market places and chief camps. Group interviews were also conducted either at chief camps or at homes.

Most young people proved unresourceful as they are not versed in herbal medicine or they are simply ignorant. Efforts to reach the informants were successful through permission granted by local chiefs and their assistants. Of all the herbalists interviewed, 19 of them were locally recognized as the most authentic and articulate. These were interviewed using questionnaires. Their average age was 55 years.

A preference ranking system illustrated by Martin (1995) was used to identify such herbalists in every administrative division visited. A prior list of the names of the herbalists was tentatively prepared with the assistance of either the local chiefs, their assistants or more so the general public who are conversant with their 'doctors'. The top one or two in the list were selected and then visited individually.

They were then used as field guides. Plants were discussed as they were met in the field. Alternatively, informants were asked to collect samples and assemble them in chief camps for discussion.

In all the cases, information regarding therapeutic values, preparation of various remedies, parts of the plant used and vernacular names were recorded along with other field notes from personal observations. Remedies with 2 or more independent reports were regarded significant. A bias of soliciting information on particular plants or diseases was avoided. 19 'patients' were also interviewed using questionnaires in a bid to determine a general status of the use of herbal medicine in the study area. All interviews were conducted in Kamba language.

4.1.2 Herbarium work

Plant materials of all the reported remedies were collected and herbarium specimens prepared using a field plant press. Preparation of the herbarium specimens was done in duplicates to ensure availability of voucher specimens.

An attempt was made to identify some plant specimens in the field. Fresh material was put in the drier for 3 to 4 days.

All collected plant material was assembled at Nairobi University Herbarium for confirmation and identification of those specimens which were not positively identified in the field.

Identification was achieved by comparison with permanently prepared herbarium specimens and also by use of identification keys such as Beentje (1994), Agnew & Agnew (1994) and the Flora of Tropical East Africa (FTEA) by Gillett *et al.*, (1971), Verdcourt (1992, 1993). Also, of great assistance in the identification process was the List of East African plants, Data base by the National Museums of Kenya (1996).

Voucher specimens were prepared and deposited in the Nairobi University (NAI) and if available East African (EA) Herbaria. Attached to them were field notes.

A checklist was prepared of all the identified specimens and arranged in a card index. The cards were arranged alphabetically according to families. Each card contained the ethnomedical information, botanical name, vernacular name and collection number of each of the reported remedy.

4.2 TAXONOMIC DESCRIPTIONS AND USES

The plants have been arranged alphabetically according to families and species. Each species has its vernacular equivalent. A brief description of each plant is followed by a detailed ethnobotanical account. Voucher specimens are quoted at the end, and the herbarium where deposited.

NOTE: The term 'Hypertensive-like conditions' used in the text applies to those disease conditions which as described by the herbalists could seemingly be linked with hypertension though with a lot of uncertainity due to lack of diagnosis

ACANTHACEAE.

***Barleria eranthemoides* C.B.CL.**

Thangila, Uthangila (Kamba).

Small much branched spiny shrub with almost stalkless broadly elliptic leaves. **Use:** Whole plant burnt in a pot or sufuria, crushed in to fine powder and licked 2-3 times a day for hypochondriasis, a psychosomatic condition. It is also licked for spleenomegally. Incase of the latter, the powder is applied on to cuts made with a razor blade on the left hand side of the abdomen.

DP Kisangau KD 524 (NAI)

***Dyschoriste depressa* Nees**

Mututi, Kituti, Ututi (Kamba).

An erect shrub with blue-purple flowers; leaves elliptic to obovate. **Use:** Roots burnt, crushed into fine powder and licked for oral thrush and hypochondriasis (a psychosomatic condition).

DP Kisangau KD 498 (NAI)

***Thunbergia alata* Sims**

Kaungu (Kamba)

Twining perennial herb with triangular to lanceolate or ovate leaves; flowers orange with a dark throat. **Use:** Root chewed and sap swallowed for sore throat.

DP Kisangau KD362 (NAI)

ADIANTACEAE

***Actinopteris semiflabellata* Pic.Serm.**

Mwii wa ivia (Kamba).

A fern whose fronds extend to 30 cm long. **Use:** Whole plant crushed, soaked in water and infusion drunk for infertility in women, amenorrhoea, menorrhagia, depressed fontanelle (dehydration) and miscarriage. Dosage: 1 glass 3 times a day.

DP Kisangau KD 399 (NAI)

***Pallaea adiantoides* (Willd.) J.Sm.**

Mwii wa ivia (Kamba).

A fern whose fronds reach 50 cm long with segments usually 1-2 cm long. **Use:** Whole plant pounded, soaked in water and infusion drunk for infertility in women, amenorrhoea, menorrhagia, miscarriage and depressed fontanelle (dehydration).

DP Kisangau KD344 (NAI, EA).

AGAVACEAE

***Agave sisalana* Perr. ex Engelm.**

Ikonge Kamba)

A rosette with great stiff persistent leaves mostly with spiny edges; inflorescence to 12 ft. **Use:** Leaf crushed, soaked in water, and infusion drunk for pneumonia. Sap from the leaves is mixed with little paraffin and the liniment rubbed hard with fingers onto the affected part. Incase of hypochondriasis (epigastric pains), some warm jelly or fat is used to massage the abdomen. Then a leaf is roasted on fire and placed hard, but gently several times onto the abdomen for poulticing. Leaf sap used as astrigent or haemostatic in case of fresh wounds or cuts. It also acts as a pain reliever for the same conditions and as an embrocation for bruised parts. The plant is an example of non-indigenous herbal remedy.

DP Kisangau KD441 (NAI)

ALLIACEAE

Allium cepa L.

Kitunguu (Kamba)

An erect single-stemmed herb to 30 cm; leaves hollow, lanceolate; cultivated. **Use:** Leaves or root tuber pounded and sap applied for tetanus or snake bite. It is an example of non-indigenous herbal remedy.

DP Kisangau KD 422 (NAI)

ALOACEAE

Aloe secundiflora Engl.

Kiluma (Kamba)

A large stemless rosette; usually solitary, of green, unspotted, more or less glossy leaves. **Use:** Leaf sap is squeezed in to a glass of water and drunk for pneumonia.The leaf is used as a poultice onto the affected part. Leaf infusion also drunk for abscess, malaria, hepatomegally, and diarrhoea. Leaves crushed, boiled and decoction drunk for oedema and convulsions (high fever). It is also heated on fire and used as a poultice in case of nailbed (cellulitis). A leaf decoction is given orally to livestock for diorrhoea.

DP Kisangau KD 345 (NAI)

Aloe turkanensis Christian

Kiluma (Kamba)

A stemless rosette, leaves spotted, glossy. **Use:** Leaves roasted on fire and used as a poultice incase of pneumonia and nail bed (cellulitis). Leaf infusion is drunk for malaria.

DP Kisangau KD 428 (NAI)

AMARANTHACEAE.

***Achyranthes aspera* L.**

Uthekethe munini (Kamba).

An annual or perennial short- or long-hairy herb or weak shrub with ovate to lanceolate leaves. **Use:** Stem or roots burnt, mixed with sodium carbonate (magadi soda), crushed in to powder and licked for spleenomegally. A tea spoonful of the powder is put in porridge, stirred and drunk 2 times a day for the same condition. A razor blade is used to make slight cuts on the left hand side of the abdomen (spleen site) and the powder applied on to the cuts. Stem and leaves are burnt and the powder licked for hypochondriasis.

DP Kisangau KD 383 (NAI)

***Celosia schweinfurthiana* Schinz.**

Vuya (Kamba)

A hairless or almost so, scrambler on trees and shrubs with stalked ovate leaves, flowers white. **Use:** Whole plant crushed, soaked in water and infusion used as a vermifuge in human and livestock.

DP Kisangau KD 255 (NAI)

***Pupalia lappacea* (L.) A.Juss.**

Kiaamata, Ikwata (Kamba).

Annual or perennial, usually sprawling, hairy herb with elliptic to ovate rounded leaves; inflorescence terminal with hooked pale bristles. **Use:** Inflorescence bristles are used to scratch the tongue 2-3 times, after which powder made from the roots of the same plant is applied on to the scratches. Application of the powder is believed to bring good luck or victory in individual life, business affairs and social relationships. It is locally used as an ingredient of 'love potion'. Powder made from parts of other plants (e.g *Evolvulus alsinoides* and *Vitex strickeri*) used for the same condition is always applied after scratches have been made on the tongue using bristles of *Pupalia lappacea*. Powder made from any part of this plant is mixed with honey and the lotion applied as an anti-witchcraft on to cuts made with a razor blade at body joints and the rear and fore parts of the head. Root decoction is drunk for malaria.

DP Kisangau KD 456 (NAI)

ANACARDIACEAE

***Lannea schimperi* (A.Rich.) Engl.**

Muusya, Kiusya (Kamba)

Tree 3.5-7 m with spreading crown; bark grey, usually fissured. **Use:** Terminal leaves (buds), mixed with *Cissus aphyllantha* (root tuber), crushed, soaked in water and concoction drunk for diarrhoea and amoebic dysentery. Leaves chewed and sap swallowed for hiccup (singultus).

DP Kisangau KD 480 (NAI)

***Lannea schweinfurthii* (Engl.) Engl.**

Kyuasi, Muasi (Kamba).

Shrub or tree 3-15 (24) m, with spreading crown; bark grey, fissured. **Use:** bark boiled and decoction drunk for anaema and gonorrhoea. Terminal leaves used as emetic in case of snake bite. They are soaked in water and the infusion drunk. The patient is expected to vommit violently to let out the venom. Bark plus that of *Plectranthus comosus* (roots) and *Solanum incanum* (roots) crushed, soaked in water and the concoction drunk for diarrhoea. Bark plus that of *Sclerocarya birrea* and *commiphora baluensis* boiled and concoction drunk 3 times a day for high blood pressure.

DP Kisangau KD 445 (NAI)

***Lannea triphylla* (A.Rich.) Engl.**

Muthaalwa, Kithaalwa (Kamba).

Shrub or tree 2-6 (10) m with spreading crown; bark grey, smooth; leaves crowded on fat spurs. **Use:** String from the bark chewed and sap swallowed for cough and chest pains.

DP Kisangau KD 482 (NAI)

***Mangifera indica* L.**

.Muembe, Kiembe (Kamba).

A large much branched bushy tree up to 10 m high. **Use:** Leaves boiled and decoction drunk for malaria. An infusion of the leaves is drunk for stomach ache. Leaves plus *Hydnora abyssinica* (whole plant) are crushed, soaked in water and infusion drunk for amoebic dysentery. It is an example of non-indigenous herbal remedy.

DP Kisangau KD 353 (NAI)

***Rhus natalensis* Kraus**

Mutheu, Kitheu (Kamba)

Shrub or tree 1.5-6 m; bark of branchlets pale grey or whitish, leaflets elliptic or obovate. **Use:** Leaves crushed, soaked in water and infusion drunk for stomach problems.

DP Kisangau KD372 (NAI)

***Sclerocarya birrea* (A.Rich.)Hochst.**

Muua, Kiua (Kamba)

Tree 3.5-15 m; bark grey, cracked; branchlets thick, flowers whitish-purple to red. **Use:** Bark plus that of *Commiphora baluensis* and *Lannea schweinfurthii* boiled and concoction drunk for menorrhagia and high blood pressure. Psychosomatically, the tree is believed to treat mumps. The patient ties pieces of broken calabash or gourd ("isengula") onto the ears. Then dances around the tree trunk 7 times with spells and incantations and leaves immediately without turning or looking backwards. Recovery is expected in 3-4 days.

DP Kisangau KD 443 (NAI)

ANNONACEAE

***Uvaria scheffleri* Diels**

Mukukuma (Kamba)

Tree or more often a liana, 1-4 m; leaves elliptic. **Use:** Root crushed, boiled and decoction drunk 2 times a day for cough, tuberculosis (T.B) and asthma. Roots may also be dried, pounded and powder taken in soup for the same conditions. Root decoction mixed with some honey and drunk for sore throat.

DP Kisangau KD 324 (NAI, EA)

APOCYNACEAE

***Acokanthera schimperi* A.DC.**

Muvai, Kivai (Kamba).

Shrub or tree 2-12 m; crown dense, rounded, bark corky, deeply fissured, leaves shinny. **Use:** Roots are boiled overnight to remove poison. They are dried in sun, burnt and ash applied onto chronic wounds. The roots are crushed, soaked in water and boiled for 3-4 hours; evaporated and the remaining 'syrup' applied on arrows as arrow poison.

DP Kisangau KD 426 (NAI)

***Carissa edulis* (Forssk.) Vahl.**

Mukawa, Kikawa (Kamba)

Shrub, occasionally scrambling, 1-6 (-14) m; bark grey, spines simple, leaves ovate or elliptic. **Use:** Roots boiled and decoction drunk for malaria. Root decoction is also drunk in soup for general body pains. Dosage: 1 glass a day.

DP Kisangau KD 404 (NAI)

ASCLEPIADACEAE

***Calotropis procera* (Ait.) Ait.f.**

Itulumbu (Kamba)

Shrub or tree , 1-4 (6) m with much latex. Leaves obovate. **Use:** Milky latex from the stem is applied on to the part of the body pierced by a splinter. The latex is said to have a "pulling power", so that within 2-3 days, the splinter is exposed to the skin periphery and can now be removed easily.

DP Kisangau KD 431 (NAI)

***Edithcolea grandis* N.E.Br.**

Kawala (Kamba).

A trailing much branched succulent from a woody root stock with yellow, horny conical knobs

on the stem. **Use:** Stem roasted, juice squeezed out and put drop wise into an aching ear. Roots boiled and decoction drunk for gonorrhoea. They are pounded, soaked in water and infusion drunk for oral sores in children, "Mutata".

DP Kiangau KD 257 (NAI)

***Kanahia laniflora* (Forsk.) R.Br.**

Muema manzi (Kamba).

A hairless shrub (except for inside the flowers) with many erect stems and linear leaves. **Use:** Any part of the plant burnt ,crushed in to powder and licked as an appetiser. Powder may alternatively be taken in porridge for the same condition. It is also licked for kidney pains.

DP Kisangau KD 478 (NAI)

***Secamone punctulata* Decne.**

Mulali (Kamba).

Climber 2-6 (15) m; old stems warty. Leaves very variable from elliptic to almost linear. **Use:** Stems or leaves crushed, soaked in water and infusion used as "Ng'ondu" during cleansing rites, ("Kuusya").

DP Kisangau KD403 (NAI)

ASPARAGACEAE

***Asparagus africanus* Lam.**

Uusya (Kamba)

Scrambling woody shrub with brown spines from a fibrous root stock; stems smooth or grooved, grey brown, twisted. **Use:** Leaves when mixed with those of *Oxygonum sinuatum* are crushed, soaked in little water and a paste made, which is applied onto a boil (abscess) to accelerate its bursting. Leaves dried, crushed in to fine powder, put in to a glass with warm water and drunk 3 times a day for gonorrhoea. Stem burnt in a pot, pounded and powder taken in warm water or local beer for menorrhagia. Dosage: 2 table spoonfuls a day.

DP Kisangau KD 351 (NAI)

***Asparagus flagellaris* (Kunth) Bak.**

Kauusya, uusya (Kamba)

Struggling or erect shrub with strong spines, stems twisted, hairless, bearing long cylindrical branches. **Use:** Leaves are boiled and decocion drunk for gonorrhoea.A paste made from leaves is applied on to boils (Abscesses).

DP Kisangau KD 318 (NAI)

***Asparagus setaceus* (Kunth) Jessop**

Uusya (Kamba)

A hairless herb with twining greenish to brown stems from a fibrous root stock. **Use:** A decoction of the leaves is drunk for gonorrhoea . Stem burnt, powder stirred in warm water and drunk for menorrhagia.

DP Kisangau KD 350 (NAI)

BIGNONACEAE

***Kigelia africana* (Lam.) Benth.**

Kiatine, Muatine (Kamba)

Tree 4.5-15 m; bark brown, usually rough, leaves with 7-9 leaflets; flowers red. **Use:** Bark crushed, soaked in water and infusion drunk for diarrhoea. Dry bark burnt and powder licked for oral thrush.

DP Kisangau KD 447 (NAI)

BOMBACACEAE

***Adansonia digitata* L.**

Muamba, Kiamba (Kamba).

Tree to 18 m with enormously wide trunk; bark smooth, grey or reddish brown. **Use:** Seeds burnt, crushed in to fine powder and licked for oral thrush and kidney pains. Some powder is applied and rubbed hard on to slight cuts made with a razor blade on the left and right hand side of the abdomen for the same condition. String from the bark is chewed and juice swallowed for cough.

DP Kisangau KD 418 (NAI)

BORAGINACEAE

***Heliotropium zeylanicum* (Burmf.f.) Lam.**

An erect coarsely hairy annual with lanceolate-elliptic almost stalkless leaves, flowers pale blue to white. **Use:** Roots boiled and decoction drunk for boils and abscesses.

DP Kisangau KD 471 (NAI)

***Trichodesma zeylanicum* (Burm.f.) R.Br.**

Mukuutu, Kikuutu (Kamba)

An erect coarsely hairy annual with lanceolate elliptic leaves. **Use:** Leaves burnt and powder licked for oral thrush. The powder mixed with some oil or ghee and the ointment applied onto ring worms. Roots crushed, soaked in water and infusion given orally to livestock with pneumonia.

DP Kisangau KD 523 (NAI)

BURSERACEAE

***Commiphora africana* (A.Rich.) Engl.**

Ikuu, Itungu, Kitungu, Mutungu (Kamba).

Spiny shrub or tree up to 8 or 10 m tall; trunk cylindrical, flowers red. **Use:** Milky exudate from unripe fruits applied for tooth ache and gum sores.Alternatively, the unripe fruits may be chewed and sap held in the mouth for some time.

DP Kisangau KD 481 (NAI)

***Commiphora baluensis* Engl.**

Itula, Mutula (Kamba)

Tree 6-20 m; leaves 3-5 foliate, almost glabrous or pubescent. **Use:** Bark boiled and decoction drunk for peptic ulcers, malaria, oedema, jaundice, fever, diarrhoea, heart burn and high blood pressure. Incase of malaria, oedema and jaundice, the patient baths with the decoction and is covered with a blanket to inhale the vapor. Root decoction is drunk for rheumatism, arthritis and general body pains. Dosage: 1 cup 3 times a day. Infusion of the bark is put in a piece of broken pot, ("Kilio") and chicken let to drink from it in case of pneumonia or newcastle.

DP Kisangau KD 446 (NAI)

***Commiphora habessinica* (O.Berg) Engl.**

Mutungati, Kitungati (Kamba)

Spiny shrub or tree up to 4 (-6) m tall; almost glabrous, outer bark yellowish, peeling from the green under bark. **Use:** Exudate from the bark applied as ointment on to old wounds and ring worms. It is known to be antiseptic.

DP Kisangau KD 479 (NAI)

***Commiphora ovalifolia* J.B. Gillett**

Muny'wa manzi (Kamba).

Spiny shrub or tree up to 6 m tall, bark peeling. **Use:** Bark mixed with roots of *Salvadora persica,* crushed, boiled and decoction drunk for oedema and malaria. Decoction bathed with and patient covered with a blanket to inhale the vapor. Dry bark is pounded into fine powder, little water added and stirred to make a paste. The paste is then applied in case of nail bed (cellulitis) or boils.

DP Kisangau KD 448 (NAI)

CAPPARACEAE

***Boscia angustifolia* A.Rich.**

Mululi, Kiluli (Kamba)

Shrub or tree 0.9-5 m, evergreen, trunk massive, with silver-grey smooth bark. **Use:** Bark burnt, crushed into powder and licked for oral thrush. A decoction of the bark mixed with chicken soup is drunk for jaundice and diarrhoea. Dosage: ½ a glass 2 times a day.

DP Kisangau KD 423 (NAI)

***Boscia coriacea* Pax**

Muema nzou, Kisivu, Musivu (Kamba)

Shrub or tree 1-6 m, evergreen, leaves elliptic, flowers white or yellow. **Use:** The bark is boiled and decoction drunk for malaria and general body pains.

DP Kisangau KD 278 (NAI, EA)

***Cadaba farinosa* Forssk.**

Muthitu (Kamba)

Shrub 1-4 m (rarely tree to 7.5 m), occasionally climbing. **Use:** Roots are crushed, soaked in water, sieved with a clean cloth and infusion put drop wise into an eye with conjuctivitis.

DP Kisangau KD 429 (NAI)

***Capparis tomentosa* Lam.**

Kitanda mboo, Mutanda mboo (Kamba).

Scrambling shrub or woody climber 0.5-12 m; evergreen. **Use:** Roots boiled and decoction drunk for oedema. Root decoction or infusion used as emetic and purgative. NOTE: This plant is known to have occultic or mystical powers so that only certain professional herbalists make use of it. Otherwise, if wrongly prepared, it is highly poisonous.

DP Kisangau KD 451 (NAI)

***Gynandropsis gynandra* (L.) Briq.**

Mwianzo (Kamba)

A glandular or almost hairless annual, leaves with 3-7 obovate to elliptic leaflets. **Use:** leaves boiled and decoction drunk for malaria.

DP Kisangau KD 437 (NAI)

***Maerua decumbens* (Brongn.) De Wolf**

Munatha, Kinatha, Muthonoe, Kithonoe (Kamba).

Shrub or woody herb 0.5-3 m, with a large swollen root. Leaves blue green, elliptic to broadly ovate. **Use:** Roots boiled and decoction drunk for oedema.The patient is covered with a blanket together with the hot decoction to inhale the vapor. Some decoction also bathed with. Root decoction drunk for gonorrhoea, bilharzia, haematuria, general body pains and malaria. Root tuber crushed, soaked in water and infusion drunk for diarrhoea.

DP Kisangau KD 520 (NAI)

***Maerua kirkii* (Oliv.) F.White**

Muvombotwe, Kivombotwe, Ivombotwe, Mulavutwa, Kilavutwa (Kamba).

Shrub or tree 1-6 m, evergreen, leaves stiff and brittle (slightly) obovate. **Use:** Roots boiled and decoction drunk for malaria, oedema, rheumatism, arthritis and general body pains. They are mixed with those of *Salvadora persica,* crushed, boiled and decoction drunk for chest pains. Dosage: ½ cup, 3 times a day.

DP Kisangau KD 177 (NAI)

CARICACEAE

***Carica papaya* L.**

Muvavai, Kivavai (Kamba)

Tree 3-4 m high with long stalked and palmately and deeply lobed leaves, cultivated. **Use:** Roots of male plant crushed, soaked in water and infusion drunk for gonorrhoea. It is an example of non-indigenous herbal remedy.

DP Kisangau KD 414 (NAI)

CELASTRACEAE

***Maytenus putterlickioides* (Loes.) Exell & Mendonca**

Muthunthi, Kithunthi (Kamba)

Shrub or small tree 1-6 m, occasionally flowering when leafless, bark slight grey. Roots boiled and decoction drunk for oedema. Decoction bathed with and patient covered with a blanket to inhale the vapour. Root decoction drunk for diarrhoea, general body pains, malaria, hypertensive-like conditions, rheumatism and pneumonia. Leaves pounded, soaked in water and infusion drunk for stomach ache.

DP Kisangau KD 485 (NAI)

COMBRETACEAE

***Combretum collinum* Fres.**

Mutiithi, Itiithi, Kitiithi (Kamba).

Shrub or more often tree, 2.5-10 m, crown flat or rounded, bark smooth and grey when young. **Use:** Roots crushed, soaked in water and infusion drunk for stomacha ache.
DP Kisangau KD 419 (NAI)

***Combretum exalatum* Engl.**

Mukokola (Kamba)

Shrub or tree 1-5 m; young branches peeling, flowers white or yellow. **Use:** Roots burnt andcrushed in to powder. Licking of the powder every morning is believed to establish good relationships or luck in working places e.g Promotion. Roots chewed and sap swallowed for cough. Infusion or decoction is drunk for tachycardia.

DP Kisangau KD 442 (NAI)

***Combretum molle* G.Don**

Muama, Kiama (Kamba)

Tree, less often shrub, 2-8 (12) m, bark greyish, rough, fissured, flowers yellow. **Use:** Root or bark pounded, soaked in water and infusion drunk at 2 glasses 2 times a day for snake bite.

DP Kisangau KD 501 (NAI)

***Combretum schumannii* Engl.**

Mwaa wosi, Kyaa kyosi (Kamba).

Shrub or more often a tree, 3-20 (-30) m, bark brown, peeling or flaking to show paler under bark. **Use:** Roots boiled and decoction drunk for conditions related to high blood pressure, rheumatism and arthritis. Root decoction also drunk for oedema.It is also bathed with for the same condition.

DP Kisangau KD 444 (NAI)

***Terminalia brownii* Fresen.**

Muuku, Kiuuku (Kamba).

Shrub or tree 2.5-20 m, bark fissured, greyish-brown. **Use:** Bark and /or leaves boiled and decoction drunk for jaundice, oedema, rheumatism, arthritis, stomach ache, severe head ache and malaria. Patient bathed with the decoction and covered with a blanket to inhale the vapor.

DP Kisangau KD 513 (NAI)

COMMELINACEAE

***Commelina benghalensis* L.**

Mukengesya (Kamba)

Herb with ascending or erect branches; leaves usually shortly stalked and oblique-based. **Use:** stem crushed, soaked in water and infusion drunk as emetic. The slightly viscous juice from the fruit cap is put drop wise into an aching ear. Leaf or stem infusion used for cleansing.

DP Kisangau KD 047 (NAI)

COMPOSITAE (ASTERACEAE).

***Achyrothalamus marginatus* O.Hoffm.**

Mukununi, Kamukununi (Kamba)

An erect rhizomatous herb or weak shrub with white woolly stems and underside of leaves. **Use:** An infusion of the roots is drunk for stomach ache. Roots boiled and decoction drunk for malaria. Dosage: 1 glass 3 times a day

DP Kisangau KD 226 (NAI)

***Acmella calirhiza* Del.**

Mutata, Kamutata (Kamba)

A trailing herb with ovate-lanceolate leaves under 5 cm long. Heads small of rather bright orange-yellow florets. **Use:** Leaves crushed, soaked in water and infusion given to children with oral sores "Mutata".

DP Kisangau KD 303 (NAI)

***Aspilia pluriseta* Schweinf.**

Muti, Wuti (Kamba)

A woody herb or shrub, usually much branched with stalked rough-hairy elliptic-lanceolate to ovate leaves, flowers yellow. **Use:** Leaves rubbed between palms and sap squeezed out and applied drop wise in to eyes with conjuctivitis or into ears in case of ear ache . Sap from the leaves is applied as astringent or haemostatic for fresh wounds or cuts. It also acts as embrocation on bruised parts. Leaves are pounded, little water added, sieved with a clean cloth and infusion put into the ear for severe head ache. An infusion or decoction of the leaves is drunk for back ache, kidney ache, gonorrhoea, bilharzia and haematuria. Leaf infusion is an ingredient for cleansing.

DP Kisangau KD 392 (NAI)

***Bidens pilosa* L.**

Munzee (Kamba)

An erect annual, often branching above with pinnate, mostly trifoliate leaves and white rayed or rayless flowers. **Use:** Leaves pounded, soaked in little water, sieved with a clean cloth and infusion applied drop wise in to an aching ear. Leaves may also be chewed slightly and the resulting juice applied in to the ear.

DP Kisangau KD 9 (NAI)

***Conyza sumatrensis* (Retz.) E.H.Walker**

Uluki (Kamba)

Short lived herb from a rosette of oblanceolate toothed leaves, heads very numerous. **Use:** Leaves crushed, soaked in water and infusion applied dropwise on to an aching tooth. Alternatively,

leaves chewed and sap held in the mouth for some time.

DP Kisangau KD 356 (NAI)

***Emilia discifolia* (Oliv.) C.Jeffrey**

Kalaa-muti (Kamba)

Annual to short-lived perennial with spoon-shaped, obovate-oblong, shallowly toothed leaves; heads orange-yellow. **Use:** Leaves crushed, soaked in water and infusion given to children with oral sores.

DP Kisangau KD 269 (NAI)

***Kleinia squarrosa* Cuf.**

Mung'endya nthenge, Ivonzoo (Kamba).

A hairless loose shrub or scrambler with fleshy stems with obovate or oblong deciduous leaves. **Use:** Stem boiled and decoction drunk for peptic ulcers. The decoction is mixed with mutton and drunk for oedema, malaria and jaundice. The stem is heated and used as poultice incase of oedema. It is mixed with *Plectranthus cylindraceus* (stem/leaves) and *Sphaeranthus gomphrenoides* (stem/leaves), boiled and concoction drunk for dysuria. A stem decoction is drunk for pneumonia. Infusion is drunk for dizziness, depressed fontanelle, head ache and stomach problems. Dry stem is pounded and powder taken in warm water for gonorrhoea, bilharzia haematuria, menorrhagia, hypertensive-like conditions, rheumatism, arthritis, back ache and kidney ache. It is also given orally to livestock for pneumonia.

DP Kisangau KD 347 (NAI)

***Launaea cornuta* (Oliv & Hiern) C.Jeffrey**

Uthunga (Kamba)

A rhizomatous perennial with erect stems from a rosette of leaves; leaves linear, lanceolate to elliptic. **Use:** Leaves or stem crushed, soaked in water and infusion drunk for malaria, stomach ache, gonorrhoea, infertility in women, bilharzia, haematuria, rheumatism and arthritis. Root infusion is drunk for fever. Leaves plus roots of *Achyranthes aspera* boiled and decoction drunk for spleenomegally. Leaves and stems are mixed with *Acalypha ciliata* (stem), and *Ocimum kilimandscharicum* (leaves), crushed, soaked in water and concoction drunk for miscarriage, menorrhagia and amenorrhoea. Decoction is drunk for jaundice, dizziness, depressed fontanelle (dehydration) and head ache. Infusion of the whole plant is put in an open vessel from which chicken drink incase of new castle.

DP Kisangau KD 483 (NAI)

***Microglossa pyrifolia* (Lam.) O.Kuntze**

Mukutu (Kamba)

A scrambling shrub, softly hairy but not cob webby, leaves stalked, ovate-elliptic. **Use:** Roots boiled and decoction drunk for abscesses and boils. Roots burnt, powder stirred in water and infusion drunk for tachycardia.

DP Kisangau KD 370 (NAI)

***Solanecio angulatus* (Vahl) C.Jeffrey**

Kitanyuka mwene (Kamba)

A hairless thinly succulent climber with hanging panicals of yellow heads. **Use:** Roots chewed and juice swallowed for cough. They are boiled and decoction drunk for rheumatism and arthritis.

DP Kisangau KD 331 (NAI)

***Sphaeranthus bullatus* Mattf.**

Nzonzoia, Musonzoia (Kamba).

A woody annual with oblong leaves and globose inflorescence. **Use:** Leaves crushed; soaked in water and infusion drunk for oedema and malaria.Incase of oedema, a paste made from the leaves is used as a poultice.

DP Kisangau KD 387 (NAI)

***Sphaeranthus gomphrenoides* O.Hoffm.**

Nzonzoia, Musonzoia (Kamba)

A weak ascending hairless scented herb with lanceolate leaves and interrupted stem wings. **Use:** Leaves boiled and decoction drunk for malaria, oedema and jaundice. Leaf infusion is drunk for dysuria.

DP Kisangau KD 275 (NAI)

***Sphaeranthus ukambensis* Vatke & O.Hoffm.**

Nzonzoia, Musonzoia (Kamba)

An erect , rough-hairy woody herb with lanceolate leaves and pink inflorescence. **Use:** Leaves and stem boiled and decoction drunk for oedema. Some decoction is bathed with and patient covered with a blanket to inhale the vapor. Leaf and stem decoction is drunk for malaria, jaundice, dizziness, depressed fontanelle, head ache, rheumatism, arthritis, hypertensive-like conditions and stomachache.

DP Kisangau KD 521 (NAI)

***Tagetes minuta* L.**

Muvangi (Kamba)

An erect strong smelling annual with creamy yellow heads. **Use:** Leaves crushed, soaked in water and infusion drunk for tetanus and applied onto wounds and snake bites.

DP Kisangau KD 468 (NAI)

***Tithonia diversifolia* (Hemsl.) Gray**

Mulaa (Kamba)

A soft shrub with simple 3-lobed mostly opposite leaves; head orange yellow. Use: Leaves crushed in water and infusion drunk for indigestion.

DP Kisangau KD 379 (NAI)

***Tridax procumbens* L.**

Mumela, Kavete (Kamba)

Plant trailing, coarsely hairy with yellow heads on long naked erect stalks. **Use:** Leaves either crushed, soaked in water and infusion applied, or simply chewed and sap squeezed out and applied on to wounds. Leaf sap put in to aching ears.

DP Kisangau KD 515 (NAI)

***Vernonia lasiopus* O.Hoffm.**

Muvatha (Kamba)

Woody herb or (semi scundent) shrub 0.9-3m. Leaves ovate or elliptic. **Use:** Roots burnt, powder stirred in water and infusion drunk for stomachache. Stem used in cleansing.

DP Kisangau KD516 (NAI)

CONVOLVULACEAE

***Evolvulus alsinoides* (L.) L.**

Uthuko, Kauthuko (Kamba)

A very variable annual or perennial herb, erect to 60 cm or trailing. **Use:** Usage of this plant is psychosomatic or magical. It is believed to bring fortune or victory in individual life and business affairs. It is socially used as a "love potion". Whole plant dried , pounded and powder applied on to scarifications made on the tongue using bristtles of *Pupalia lappacea*. Application of the

powder onto the tongue is accompanied by spells on all the wishes and good things one would want to achieve e.g education, money and life partiner.

DP Kisangau KD 192 (NAI)

***Ipomoea batatas* (L.) Lam.**

Ukwasi (Kamba)

A cultivated creeping plant, flowers purple-white, root tubes edible. **Use:** stem and leaves boiled and decoction given orally to cattle with diarrhoea or gall sickness.

DP Kisangau KD 476 (NAI)

Ipomoea kituiensis* Vatke var. *kituiensis

Kiungu kinene (Kamba)

(Climbing) shrub 1-8 m. Leaves broadly ovate to reniform; flowers cream to pale yellow with mauve or purple centre. **Use:** Stem boiled and decoction drunk for bilharzia, haematuria, anaemia and as aphrodisiac.

DP Kisangau KD 248 (NAI)

CRASSULACEAE

***Kalanchoe densiflora* Rolfe**

Ivonzoo (Kamba)

An erect annual plant perennating from innovations on the root stock; leaves ovate to circular. **Use:** Leaves roasted and used as poultice incase of oedema.They are, crushed, soaked in water and infusion bathed with for dermatitis.

DP Kisangau KD 477 (NAI)

CUCURBITACEAE

***Cucumis dipsaceus* Sach**

Kikungi (Kamba)

An annual herb with stiff, almost prickly spreading hairs. **Use:** Fruits roasted for a few minutes, cut and contents squeezed out in to a glass with water and infusion drunk as emetic. Fruits broken, boiled and decoction drunk for hook worms and asthma. Treatment for asthma is done in 3 stages. At each stage, the decoction is given 4-5 times with a one-week lapse between each time. The patient rests for 1 or 2 months. Stage 2 and 3 are done in the same manner. NOTE: The patient is expected to be vomitting violently each time the decoction is given. It is therefore advisable that the treatment be always carried out near a physician.

DP Kisangau KD 450 (NAI)

***Kedrostis foetidissima* (Jacq.) Cogn.**

Kiwii (Kamba)

Usually densely hairy nasty-smelling, perennial climber with simple tendrils. **Use:** Leaves rubbed between fingers, sap sqeezed out and put dropwise in to an aching ear. An infusion is put in to the ear incase of severe headache, dizziness and depressed fontanelle.

DP Kisangau KD 305 (NAI, EA)

***Kedrostis pseudogijef* (Gilg) C.Jeffrey**

Mukauwi (Kamba)

Climber to 12 m; leaves 3-foliate. **Use:** Stem cut in to small pieces, boiled and decoction drunk for bilharzia or haematuria.

DP Kisangau KD 314 (NAI,EA)

EBENACEAE

***Euclea divinorum* Hiern**

Mukinyei, Mumbaume (Kamba)

Shrub or tree 1-9 (-15) m, evergreen, bark dark grey, fissured, flowers whitish. **Use:** Roots dried, pounded and powder taken in soup, tea or milk 3 times a day for cough and chest pains.

DP Kisangau DP 253 (NAI)

***Euclea racemosa* Murr.**

Mukuthi (Kamba)

Shrub or tree 1-10 m. Leaves alternate, opposite or verticillate, elliptic or obovate. **Use:** Bark boiled and decoction drunk 2 times a day for gonorrhoea. Root decoction is drunk for malaria, rheumatism and arthritis. Dried bark pounded and powder sniffed for head ache.

DP Kisangau KD 459 (NAI)

EUPHORBIACEAE

***Acalypha ciliata* Forsk.**

Ungunyali (Kamba)

An erect unbranched annual to 50 cm tall with short dense spikes. **Use:** Stem crushed, soaked in water and infusion drunk for infertility in women, menorrhagia, amenorrhoea and miscarriage. Dosage: 1 glass 3 times a day.

DP Kisangau KD 194 (NAI)

***Acalypha fruticosa* Forsk.**

Mukulwa (Kamba)

Shrub 1-3 m.Leaves ovate, flowers yellow-green. **Use:** String from the stem chewed and sap swallowed for heart burn. A stick of this plant is believed to relieve cattle from bloat. The animal is tapped 7 times on the bellies after which it is believed to recover in 4-5 hours.

DP Kisangau KD 412 (NAI)

***Bridelia taitensis* Vatke & Pax**

Mwaanthia, Muanthia (Kamba).

Shrub or tree 1.5-4.5 m.Leaves ovate or broadly elliptic. **Use:** Leaves boiled and decoction drunk

for malaria, headache, general body pains, oedema and jaundice. While the decoction is still hot, the patient sits besides it and both are covered with a heavy clothing for about 10 minutes. The patient sweats terribly and also inhales the vapour. A supernatant of the leaf decoction is used as a poultice incase of oedema.

DP Kisangu KD 407 (NAI)

***Croton dichogamus* Pax**

Muthinia, Kithinia, Mwalula (Kamba)

Shrub or small tree 1-7 m. Leaves silvery beneath, turning orange before dropping, aromatic, elliptic or ovate. **Use:** Leaves boiled and decoction drunk and bathed with for jaundice and oedema. Root decoction is drunk for malaria, cough and stomach ache. Dosage: ½ a glass 2 times a day. Leaves soaked in water and infusion used for cleansing. Cleansing is a reconciliation rite carried out when the victim has broken social norms or faced the wrath of ancestors.

DP Kisangau KD 461 (NAI)

***Croton macrostachyus* Del.**

Mutundu, Kitundu (Kamba)

Tree 3-25 m, bark grey or brown, finely reticulate. Leaves turning orange before falling, ovate. **Use:** Sap from the bark applied on to wounds. Leaves boiled and decoction bathed with for measles. Bark burnt, crushed in to powder, stirred in water and infusion drunk for tachycardia.

DP Kisangau KD 365 (NAI)

***Croton megalocarpus* Hutch.**

Muthulu, Kithulu (Kamba)

Tree 6-36 m, bole straight, crown flat, bark grey or pale-brown, longitudinally fissured, leaves silvery beneath, ovate or elliptic. **Use:** Bark boiled and decoction drunk for oedema, convulsions, high blood pressure, pneumonia and stomach ache. Bark decoction may be drunk, or dried bark pounded and one table spoonful of the powder put into a glass with warm water, stirred and drunk for malaria or jaundice. Dry seeds crushed into powder, put into a bottle with warm water, shaken well and administered orally to livestock with tape worms. A leaf infusion is drunk for tetanus.

DP Kisangau KD 368 (NAI)

***Euphorbia candelabrum* Kotschy**

Kyaa (Kamba).

Tree 6-18 m with candelabra-like branching from the top of the trunk, branches succulent, 4-5-angled. **Use:** Stem boiled and decoction drunk for pneumonia, bilharzia or haematuria.A stem decoction also drunk as an aphrodisiac.

DP Kisangau KD 460 (NAI)

***Euphorbia gossypina* Pax**

Ndau ntheke, ndau ya kithekani (Kamba).

Succulent scrambler, 1-10 m long. Branches cylindrical, 4-10 mm across, unarmed. **Use:** Stem

boiled and decoction drunk and bathed with for oedema. Stem decoction also drunk for anaemia, bilharzia, haematuria, high blood pressure and menorrhagia. Infusion of the stem is drunk for gonorrhoea. Stem roasted in hot ash, chewed and sap swallowed for sore throat. It is dried, burnt and powder licked for oral thrush. Milky latex from the stem is applied onto warts (verrucae).

DP Kisangau KD 449 (NAI)

***Euphorbia hirta* L.**

Mutata, Kamutata (Kamba)

An annual or perennial with prostrate hairy branches, leaves assymetrically lanceolate-elliptic. **Use:** Milky latex given to children for oral sores. Leaves or stem chewed and the sap held in the mouth for some time in case of toothache. The milky latex may also be applied directly on to the affected tooth.

DP Kisangau KD 462 (NAI)

***Euphorbia matabelensis* Pax**

Mwilia, Mumeno (Kamba).

Shrub or small tree 2.5-5 m, with 3-forked branching, the branching ending in spines; bark smooth. **Use:** Roots boiled and decoction drunk 2 times a day for bilharzia or haematuria. It is dried in sun, crushed into powder, stirred in water and infusion drunk 2 times a day for gonorrhoea. Two tea spoonfuls of the powder are put into a cup of soup or porridge and drunk 2 times a day as an aphrodisiac. Roots burnt, pounded and powder soaked in water. The infusion is drunk by women or given orally to cows to increase lactation.

DP Kisangau KD 320 (NAI,EA)

***Euphorbia scheffleri* Pax**

Kilembwa, Mulembwa (Kamba).

Shrub 1-4 m or more, rarely a tree up to 12 m, leaves tufted at branch ends, obovate. **Use:** Stem burnt and powder licked for epigastric pains and oral thrush. The powder also put in porridge, stirred and drunk for peptic ulcers and tachycardia. It is put in water and infusion drunk for depressed fontanelle (dehydration).

DP Kisangau KD 463 (NAI)

***Euphorbia tirucalli* L.**

Ndau (Kamba).

Shrub or tree 3-6 m. Branches succulent, cylindrical, unarmed. **Use:** leaves boiled and decoction drunk at 3 tea spoonfulls a day for asthma. Milky exudate from the stem applied onto warts (verrucae) or aching tooth. Stem roasted, sap squeezed out onto a spoon and drunk for oral thrush. Roots pounded, soaked in water and infusion put in an open vessel from which chicken drink in case of pneumonia.

DP Kisangau KD 378 (NAI)

***Flueggea virosa* (Willd.) Voigt.**

Mukuluu (Kamba)

Shrub, (rarely tree) 1-6 m. Leaves obovate; flowers yellow-green or cream. **Use:** Roots boiled and decoction drunk for anaemia. They may be dried or burnt, crushed and powder drunk in warm water for diarrhoea. The powder is also drunk in milk for amoebic dysentery. It is used as an anti-witchcraft for bewitched persons. Infusion of roots given orally to cattle, goats or sheep for intestinal worms

DP Kisangau KD 386 (NAI)

***Manihot esculenta* Crantz.**

Muanga, Kianga (Kamba).

A cultivated plant to 1.5 m with fleshy elongated tuberous roots; leaves 3-5 deeply lobed. **Use:** Leaves crushed, soaked in water and infusion applied dropwise for general ear ache. Leaves may be chewed gently and the resulting sap squeezed dropwise into the ear.

DP Kisangau KD 388 (NAI)

***Ricinus communis* L.**

Mwaiki, Kyaiki (Kamba).

A tall annual or perennial herb sometimes branching above with large glossy 5-9 lobed leaves. **Use:** Roots plus those of *Carica papaya* (male) and *Launaea cornuta* (leaves) crushed, soaked in water and infusion drunk for gonorrhoea. Stem and leaves burnt and ash applied on to burns. Leaves pounded, soaked in water and infusion drunk for stomach ache. Seeds plus leaves of *Ipomoea batatas* are crushed, boiled and decoction given to diarrhoearing cattle.

DP Kisangau KD 391 (NAI)

***Synadenium compactum* N.E.Br.**

Kyatha (Kamba)

Shrub or tree 2-7 m; leaves elliptic to obovate, flowers reddish-purple. **Use:** Stem burnt and powder put in porridge and drunk for diarrhoea. Powder applied on to old wounds. Leaves roasted and sap squeezed out gently and applied dropwise into an aching ear. Leaves plus root tuber of *entada leptostachya* boiled and decoction given orally to diarrhoaring cattle. Dosage: 300 ml for calves and 1 litre for adult cattle, 2 times per week.

DP Kisangau DP 374 (NAI)

***Tragia brevipes* Pax**

Kinyeelia, Kinyelelia (Kamba)

A climbing herb with stinging hairs especially on the fruits. **Use:** Roots dried, crushed in to powder, applied on to cuts made on the head with a razor blade and rubbed hard with fingers to treat head ache. Application of the powder on to cuts made at all the joints of the body is believed to be anti-witchcraft and to bring victory in business.

DP Kisangau KD 13 (NAI)

GRAMINEAE (POACEAE)

***Aristida kenyensis* Henr.**

Lamuyu (Kamba)

Grass to 40 cm high; inflorescence purple green. **Use:** Whole plant burnt and ash licked for hypochondriasis (Epigastric pains) and spleenomegally. Incase of the latter, slight cuts are made at the left-hand side of the abdomen (spleen site) using a razor blade and the ash applied.

DP Kisangau KD 424 (NAI)

***Cynodon dactylon* (L.) Pers.**

Ikoka (Kamba)

A perennial grass to 30 cm high; stoloniferous. **Use:** Stolons crushed, soaked in water and infusion used for cleansing.

DP Kisangau KD 432 (NAI)

***Eleusine coracana* (L.) Asch. & Gr.**

Wimbi (Kamba)

A cultivated annual to 40 cm high, leaves linear.**Use:** Flour made from the grains of this plant is stirred with some little water and paste applied for ringworms. The flour is mixed in 1:1 ratio with wood ash and applied on to the mouth and between the hooves of cattle with foot and mouth disease.

DP Kisangau KD 457 (NAI)

***Sorghum bicolor* L.**

Muvya (Kamba)

Strong, erect annual grass to 3 m high, cultivated. **Use:** Flour made from the grains of this plant is mixed with flour of *Eleusine coracana* and wood ash. The mixture is applied on to the gums and between the hooves of cattle with foot and mouth disease. The mixture is stirred in water and given orally to cattle with liver fluke infestation.

DP Kisangau KD 507 (NAI)

HYDNORACEAE

***Hydnora abyssinica* Schweinf.**

Kimela, Ndonga (Kamba)

An evil-smelling flower, to 20 cm long from a completely warty pseudo-rhizome. **Use:** Dry plant crushed and powder licked for sore throat and oral thrush. Powder stirred in water and infusion drunk for diarrhoea, amoebic dysentery and stomach ache.

DP Kisangau KD 473 (NAI)

LABIATAE (LAMIACEAE)

***Ajunga remota* Benth.**

Mukununi (Kamba)

An erect herb from a creeping rhizome to 35 cm tall. Leaves oblanceolate; coarsely toothed. **Use**: Leaves or stem crushed, soaked in water and infusion drunk for malaria. The patient may simply chew the stem or leaves and swallow the sap.

DP Kisangau KD 3 (NAI)

***Becium obovatum* (Emey.) N.E.Br.**

Mutaa munene (Kamba)

An erect or trailing herb or wiry shrub from a woody root stock. Leaves oblong, flowers white and pink. **Use:** Leaves pounded, soaked in water and infusion drunk for head ache. Sap from the leaves is applied on to fresh wounds.

DP Kisangau KD 427 (NAI)

***Englerastrum scandens* (Guerke) Alston**

Mutetema (Kamba)

Trailing or scrambling woody herb, with rather fleshy square stems. **Use:** Stem pounded, soaked in water and infusion drunk for malaria. Stem may simply be chewed and the very bitter sap swallowed for the same condition.

DP Kisangau KD 311 (NAI, EA)

***Erythrochlamys spectabilis* Guerke**

Muumba (Kamba).

Shrub 0.5 m.Leaves subsessile, elliptic, flowers mauve or whitish with purple markings. **Use:** Leaves crushed, soaked in water and infusion drunk for convulsions. Infusion bathed with after drinking it.

DP Kisangau KD 271 (NAI,EA)

***Fuerstia africana* T.C.E.Fr.**

Kalaku (Kamba).

An erect branching shrub or herb, with long or short white hairs. **Use:** Leaves crushed, mixed with some oil and lotion applied on to ring worms. Infusion or decoction of the leaves is drunk for menorrhagia, peptic ulcers, gonorrhoea, rheumatism and arthritis. Leaves chewed and sap swallowed for oral thrush.Infusion of the leaves is drunk for malaria. Leaves may be dried, pounded and powder drunk in warm water for high blood pressure. Leaf decoction is drunk for oedema, abscesses and diarrhoea. It is also given to livestock with diarrhoea.

DP Kisangau KD 466 (NAI)

***Hoslundia opposita* Vahl.**

Musovi, Kisovi (Kamba)

An erect or rarely prostrate hairy shrub to 1.7 m; Leaves elliptic-lanceolate, flowers white. **Use:** Leaves boiled and decoction drunk for malaria and jaundice. They are dried, pounded and powder drunk in warm water for kidney ache, back ache, peptic ulcers, rheumatism, arthritis, oedema, diarrhoea, menorrhagia, hypertensive-like conditions and bilharzia or haematuria. A decoction of the leaves is administered orally to cattle, sheep or goats with pneumonia.

DP Kisangau KD 506 (NAI)

***Hyptis pectinata* (L.) Poit.**

Mungaimu (Kamba).

An erect hairy some times large and straggling annual herb with long-stalked ovate leaves.**Use:** Leaves or stems burnt and powder applied on to burns.Sap from the leaves squeezed out on to an aching tooth.Leaves may also be chewed and sap held in the mouth for the same condition.

DP Kisangau KD 329 (NAI)

***Leonotis nepetifolia* (L.) R.Br.**

Uthekethe munene (Kamba)

Woody herb or shrub 0.7-3 m, leaves ovate, flowers cream, orange or red. **Use:** Roots burnt and powder licked for spleenomegally. Some powder is applied on to some small cuts made made on the left hand side of the abdomen (spleen site).

DP Kisangau KD 354 (NAI)

***Leucas grandis* Vatke**

Museve, Museveseve (Kamba).

Shrub 0.5-2 m.Leaves ovate, densely pubescent to white-tomentose, flowers white in 2-6 dense clustes. **Use:** Leaves crushed, soaked in water and infusion drunk for stomachache and diarrhoea. They are chewed and juice swallowed for cough. The juice is also put in to the nostrils incase of nose blockage due to severe colds. Leaves crushed together with those of *Bidens pilosa*, soaked in little water, sieved with a clean cloth and infusion put drop wise in to an aching ear.

DP Kisangau KD 363 (NAI)

***Ocimum basilicum* L.**

Yenye, Mwenye (Kamba).

An erect branching annual, some times woody at base, with long and short hairs and long-stalked, lanceolate to ovate leaves. **Use:** Leaves boiled or soaked in water and drunk for malaria. Leaf decoction given to children with oral sores.

DP Kisangau KD 494 (NAI)

***Ocimum gratissimum* L.**

Mukandu (Kamba).

Woody herb or shrub 0.3-2.5 m; leaves ovate or elliptic. **Use:** Leaves boiled and decoction drunk for malaria, dizziness and depressed fontanelle (dehydration). An infusion is drunk or applied on to the head for severe headache and also given for infant's stomach ache ("Kiumati"). Leaves rubbed between palms and juice put drop wise in to blocked nose. A leaf infusion is bathed with for measles.

DP Kisangau KD381 (NAI)

***Ocimum kilimandscharicum* Guerke**

Mutaa (Kamba).

An erect or ascending hairy branching shrub, occasionally herb; leaves ovate to elliptic. **Use:** Leaves plus those of *Clerodendrum eriophyllum* boiled and decoction drunk for malaria. A decoction of the leaves is drunk for chest pains, peptic ulcers, dizziness, depressed fontanelle and headache. An infusion or decoction of the leaves is drunk for stomachache. Leaves plus stem of *Acalypha ciliata* and stem or leaves of *Launaea cornuta* are crushed, soaked in water and infusion drunk for menorrhagia, infertility in women, amenorrhoea and miscarriage. Leaf infusion sieved with a clean cloth and applied dropwise into an aching ear and for severe headache. Whole plant rubbed against walls of houses and beds and kept in the house overnight

as a mosquito repellant. Whole plant infusion used for cleansing

DP Kisangau KD 384 (NAI)

***Plectranthus barbatus* Andr.**

Muvou (Kamba).

Woody herb or shrub (0.3) 1-4 m, often somewhat succulent; leaves elliptic to ovate. **Use:** Leaves or roots soaked in water and infusion drunk or simply chewed and juice swallowed for stomachache and hiccups. Stem or leaf decoction or infusion is drunk for peptic ulcers and diarrhoea. Stem and/or root decoction or infusion is drunk for anaemia while root infusion alone is drunk for amoebic dysentery. Roots burnt or dried, pounded, mixed with some oil or ghee and the lotion applied on to ring worms.

DP Kisangau KD 493 (NAI)

***Plectranthus comosus* Sims**

Mwoya (Kamba).

An erect softly hairy shrub, sometimes tree-like, with ovate or ovate-elliptic leaves; flowers blue. **Use:** Roots boiled or soaked in water and the decoction or infusion drunk for malaria or intestinal worms. An infusion of the root is drunk for stomachache or diarrhoea. Stem decoction is drunk for peptic ulcers.

DP Kisangau KD273 (NAI)

***Plectranthus cylindraceus* Benth.**

Kio kinini (Kamba).

A low hairy trailing fleshy herb or soft shrub; leaves ovate, elliptic or obovate, flowers white, liliac or blue. **Use:** Stems boiled and decoction drunk 2 times a day for oedema, hypertensive-like conditions jaundice, malaria and convulsions (high fever). Stems and/or leaves boiled or crushed in water and drunk for peptic ulcers, rheumatism, arthritis, bilharzia or haematuria. Leaf infusion or sap is applied drop wise in to ears for earache and severe headache. Stem or root infusion drunk for stomachache, constipation or flatulence and dysuria. Stem and leaves plus roots of *Zanha africana* and *Ximenia americana* boiled and concoction drunk for gonorrhoea, menorrhagia and abscesses. Dried leaves or stem pounded and powder applied on to cuts made at the abdomen and back for kidney and back ache respectively.

DP Kisangau KD 328 (NAI)

LEGUMINOSAE Sub-family CAESALPINIOIDEAE

***Bauhinia taitensis* Taub.**

Mulima, Mwisa (Kamba).

Shrub 0.5-2.5 (4) m. Leaves bilobed for half or three fifths. **Use:** Roots crushed, soaked in water and the infusion ("Ng'ondu") used for cleansing.

DP Kisangau KD 317 (NAI)

***Cassia abbreviata* Oliv.**

Mwelandathe, Mwathandathe (Kamba).

Shrub or more often tree, 3-10 m; crown rounded, bark cracked, brown (grey). **Use:** Bark boiled and decoction drunk for malaria, oedema, rheumatism, arthritis, fever and general body pains. The patient bathes with the decoction and is covered with a blanket to inhale the vapor. Bark dried, pounded and powder taken in porridge for chest pains.
DP Kisangau KD 421 (NAI)

***Delonix elata* (L.) Gamble**

Muange, Kiange (Kamba).
Tree 2.5-15 m, with a spreading crown, bark yellow brown, smooth, sometimes flaking and shinny. **Use:** Bark burnt, crushed and powder applied on to wounds. Infusion of the bark is drunk for peptic ulcers.

DP Kisangau KD465 (NAI)

***Senna didymobotrya* (Fresen.) Irwin & Barneby**

Muthaa, Ithaa (Kamba).

Shrub or tee 1-7.5 m, leaves with8-18 pairs of leaflets, leaflets elliptic, flowers yellow. **Use:** Leaves crushed, soaked in water and infusion bathed with for scabies.

DP Kisangau KD359 (NAI)

***Senna occidentalis* (L.) Link**

Muselesele, Muvutavuti (Kamba).

An annual or perennial, often robust, hairless shrub, leaflets in 4-7 pairs, ovate. **Use:** Leaves boiled and decoction drunk for oedema. Some decoction bathed with. Leaves plus those of *Plectranthus cylindraceus* and *Clerodendrum eriophyllum* boiled and concoction drunk for hypertensive-like conditions, severe headache, dizziness and depressed fontanelle.

DP Kisangau KD 502 (NAI)

***Senna singueana* (Del.) Lock**

Mukengeta, Mukengeka (Kamba).

Shrub or tree 1.5-7.5 m, often flowering when leaf less. Leaves with 6-10 pairs of leaf lets; leaflets
elliptic or obovate, flowers yellow. **Use:** Leaves dried, pounded and powder applied on to cuts made at the back and abdomen for back and kidney aches respectively. A decoction of the leaves is drunk for peptic ulcers, rheumatism, arthritis, oedema, bilharzia or haematuria, jaundice, menorrhagia, malaria and hypertensive-like conditions. Root Infusion is drunk for chest pains while a decoction is drunk for gonorrhoea and snake bite. Some dry powder of the root is applied on to the snake bite. Stem burnt and powder licked or stirred in water and infusion drunk as emetic. Sap from the terminal leaves applied into ears for ear ache . Leaf decoction bathed with for measles. Decoction of the leaves or roots given to livestock for pneumonia.

DP Kisangau KD 491 (NAI)

***Tamarindus indica* L.**

Muthumula, Kithumula, Mukwasu, Kikwasu (Kamba).

Tree 4-15 m, with thick bole and spreading crown; fruits rusty brown, edible. **Use:** Leaves boiled and decoction drunk for measles, oedema, malaria and jaundice. Decoction also bathed with. Patient covered with a blanket to inhale the vapor. Fruits chewed for oral thrush.

DP Kisangau KD 512 (NAI)

LEGUMINOSAE Sub-family MIMOSOIDEAE

***Acacia brevispica* Harms**

Mukuswi, Kikuswi (Kamba).

Shrub or small tree 1-7 m high, often semi-scandent. **Use:** Leaves dried, pounded and powder applied on to old wounds. The powder is mixed with some oil or ghee and the lotion smeared and rubbed on to ring worms. String from the bark is chewed and sap swallowed for heart burn. Leaf decoction drunk for oedema. Dosage: 1 cup 3 times a day for 3 days.

DP Kisangau KD 430 (NAI)

***Acacia mellifera* (Vahl.) Benth.**

Muthiia, Kithiia (Kamba).

Shrub or tree 1.5-9 m; bark brown or light grey, smooth or reticulate. Prickles in pairs just below the nodes, recurved, black, 2.5-6 mm long. **Use:** Bark boiled and decoction drunk, or a piece of

the bark chewed and sap swallowed for cough and chest pains. Decoction also drunk for anaemia. Bark crushed, soaked in water and infusion drunk for diarrhoea and malaria. Bark or leaves dried, crushed in to powder and licked. Licking of the powder is believed to bring good luck in working places, e.g. Promotion.

DP Kisangau KD 411 (NAI)

***Acacia nilotica* (L.) Del.**

Musemei, Kisemei (Kamba).

Tree 1.5-12 m with flat or umbrella-shaped crown; bark fissured in narrow 'strips', blackish, grey or brown. Spines 8 cm long. **Use:** Bark may be boiled and decoction drunk, or few particles of sodium carbonate (magadi soda) wrapped with string from the bark, chewed and sap swallowed for cough, chest pains and colds.

DP Kisangau KD 416 (NAI)

***Acacia senegal* (L.) Willd.**

Mung'ole, King'ole (Kamba)

Shrub or tree 1.2-12 m, crown round or flat, bark peeling, yellow brown.Prickles just below the nodes,3-7 mm. **Use:** bark crushed, soaked in water and infusion drunk for oedema.

DP Kisangau KD 413 (NAI)

***Acacia tortilis* (Forssk.) Hayne**

Muaa, Mulaa, Kilaa (Kamba)

Tree 2-18 m, occasionally a shrub; crown spreading, flat or umbrella-shaped; bark grey to black, fissured, straight and long spines 3-8 cm. **Use:** String from the bark together with few particles of sodium carbonate (magadi soda) chewed and juice swallowed for cough, colds and oral thrush. Root decoction when mixed with honey is remedy for sore throat.
DP Kisangau KD 434 (NAI)

***Acacia xanthophloea* Benth.**

Musewa, Mulela (Kamba).

Tree 4.5-25 m, with a flat crown and greyish-yelow or pale yellow bark, smooth and powdery. **Use:** Bark boiled and decoction drunk for oedema.

DP Kisangau KD 415 (NAI)

***Albizia amara* (Rox b.) Boiv.**

Muundua, Kiundua (Kamba)

Tree 2-13 m, deciduous, with rough furowed bark. **Use:** Leaves boiled and decoction drunk for malaria.

DP Kisangau KD 420 (NAI)

***Albizia anthelmintica* Brongn.**

Mwowa, Kyowa (Kamba).

Shrub or tree 3-7 (11) m, deciduous; bark grey, smooth or deeply reticulate. **Use:** Bark burnt to charcoal, pounded and powder applied on to old wounds. The powder is licked for oral thrush. Bark used as anthelmintic and for constipation. It is boiled, decoction mixed with soup and drunk at 1 glass 2 times a day. The decoction also mixed with sheep's soup, meat or intestines and drunk for oedema. Care should be taken as overdose may cause purgation of the bowels. An infusion of the bark is given orally to livestock for intestinal worms, while a decoction is given for diarrhoea.

DP Kisangau KD 435 (NAI)

***Dichrostachys cinerea* (L.) Wight & Arn.**

Munoa mathoka (Kamba).

Shrub or tree 1-8 (12) m, some times thicket forming. Bark rough, spines terminating lateral twigs. **Use:** String from the bark chewed and juice swallowed for oral thrush and cough. A decoction of the root is drunk at 1 glass 3 times a day for stomach ache. An infusion is drunk for chest pains.

DP Kisangau KD 455 (NAI)

***Entada leptostachya* Harms**

Mwaitha (Kamba).

Climbing shrub to 6 m; bark smooth, grey. **Use:** Stem crushed, sap squeezed out and applied on to a snake bite. Stem cut and sap blown out gently on to a hurt eye. A decoction of the root tuber is drunk for boils and abscesses while an infusion is drunk for chest ache. Dried root tuber is pounded and powder taken in porridge for menorrhagia and oedema. Root heated and used as a

poltice incase of the latter. Root decoction given orally to livestock with diarrhoea while sap from the stem is put in to eyes of cattle with eye blindness.

DP Kisangau KD 458 (NAI)

LEGUMINOSAE sub-family PAPILIONOIDEAE

***Cajanus cajan* (L.) Millsp.**

Musuu, Nzuu (Kamba).

A leguminous cultivated shrub to 1.5 m high. Flowers greenish yellow. **Use:** String from the bark chewed and sap swallowed for heart burn. Stem burnt, crushed in to fine powder and applied for burns and old wounds.

DP Kisangau KD 410 (NAI)

***Dolichos sericeus* E.Mey.**

Kutu kumwe, Kakutu (Kamba).

A climbing herb with pinnately trifoliate leaves. Flowers yellow. **Use:** Root chewed and sap swallowed for stomachache. An infusion of the roots is drunk for the same condition.

DP Kisangau KD 312 (NAI)

Erythrina abyssinica* DC ssp. *abyssinica

Muvuti, Kivuti (Kamba).

Tree 3-15 m, deciduous; bark yellow brown, thick and corky, fissured, usually with thick spines. Flowers bright red. **Use:** Bark boiled and decoction drunk at ½ a glass 3 times a day for bilharzia or haematuria, oedema, amoebic dysentery, menorrhagia and syphilis. A root decoction is drunk for abscesses. Roots pounded and powder applied on to old wounds. Psychosomatically the plant is known to treat mumps. The patient ties pieces of broken calabashes or gourd ("Isengula") on to the ears; then dances with spells around the tree trunk 7 times, leaves the "Isengula" at the base of the tree trunk and then goes away immediately without turning or looking backwards. Treatment is expected in 3-4 days. Bark decoction is a remedy for pneumonia in livestock.

DP Kisangau KD371 (NAI)

***Indigofera lupatana* Bak.f.**

Muthika (Kamba).

Woody herb to 2.5 m; leaf lets mostly 7-9, raceme many flowered. **Use:** Roots crushed, soaked in water and infusion drunk for stomach ache and malaria. Decoction of the roots is drunk for oedema.

DP Kisangau KD 511 (NAI)

***Indigofera spicata* Forssk.**

Musuusuu (Kamba)

Prostrate or ascending perennial with sparsed appressed hairs and ridged, flattened stems. **Use:** Roots crushed, soaked in water and infusion drunk for cough. Roots may simply be chewed and sap swallowed for the same.

DP Kisangau KD 272 (NAI, EA)

***Ormocarpum kirkii* S.Moore**

Muthingii, Kithingii (Kamba).

Shrub or tree 1-5 m, often with white twigs; leaves usually in tufts, leaf lets elliptic. **Use:** Leaves mixed with those of *Acacia brevispica*, dried, crushed into powder, mixed with some oil or ghee and the lotion applied onto ring worms. Powder from dry leaves is stirred in little water to make a paste. The paste is then smeared onto the head and rubbed hard with fingers in case of severe headache. Leaf decoction is drunk for the same condition and also for malaria and oedema.

DP Kisangau KD 490 (NAI)

***Stylosanthes fruticosa* (Retz.) Alston**

Kamulaa (Kamba).

A small wiry hairy shrublet or herb with elliptic, pointed leaflets and almost stalkless yellow flowers. **Use:** Leaves crushed in water and infusion drunk for diarrhoea.

DP Kisangau KD 239 (NAI)

***Vigna unguiculata* (L.) Walp.**

Nthooko, Ithooko (Kamba).

Annual or perennial, erect or trailing woody herb, with sperse or absent hairs; cultivated. **Use:** Dry seeds mixed with some particles of sodium carbonate (magadi soda) and crushed in to fine powder. Little water is added in to the powder and stirred to make a paste. The paste is applied

on to boils to accelerate bursting.

DP Kisangau KD 484 (NAI)

LOGANIACEAE

***Strychnos henningsii* Gilg**

Muteta (Kamba)

Shrub or tree 2.5-12 (rarely up to 20) m; leaves glossy. **Use:** Leaves or bark boiled and decoction drunk with sheep's soup, meat or intestines for oedema, malaria, general body pains, chest pains, rheumatism, arthritis, hypertensive-like conditions, stomach ache and pneumonia. Leaves or bark dried, crushed in to powder and taken in porridge for cough. Leaves plus *Euphorbia matabelensis* (roots) and *Erythrina abyssinica* (bark) boiled and concoction drunk for gonorrhoea, menorrhagia, asthma and TB. A leaf or stem decoction is given orally to livestock with pneumonia.

DP Kisangau KD250 (NAI)

***Strychnos madagascariensis* Poir.**

Mumee, Kimee (Kamba).

Shrub or tree 2.5-12 m, often with arching branches. **Use:** Roots boiled and decoction drunk in soup for asthma and tuberculosis (TB).

DP Kisangau KD 220 (NAI)

LORANTHACEAE

***Emelianthe panganensis* (Engl.) Danser**

Kyeva (Kamba).

Shrub from a single attachment; leaves, broad, wavy at margins, petals pink. **Use:** Stem crushed, boiled and decoction drunk for gonorrhoea, syphilis, bilharzia, haematuria and menorrhagia.

DP Kisangau KD 300 (NAI)

MALVACEAE

***Sida ovata* Forssk.**

Uvyaiyo, Uthundu (Kamba).

A densily hairy, shrubby, short-lived perennial or woody annual 0.5 m tall. **Use:** Stem and / or leaves burnt into powder and licked for hypochondriasis. Stem plus that of *Asparagus flagellaris* are burnt in a pot, pounded, stirred in water or local beer and infusion drunk for menorrhagia.

DP Kisangau KD 505 (NAI)

MELIACEAE

***Azadirachta indica* A.Juss.**

Muluvaini (Kamba).

A medium-sized evergreen tree with white flowers; leaves pinnate. **Use:** Leaves boiled and decoction drunk for malaria and severe head ache. Decoction also bathed with for the same condition

DP Kisangau KD 425 (NAI)

***Melia volkensii* Guerke**

Mukau, Kikau (Kamba).

Tree 6-20 m, deciduous, bark reticulately flaking. **Use:** Bark boiled and decoction drunk for oedema, general body pains, malaria and stomach ache. Incase of oedema, the patient bathes with the decoction and is covered with a blanket to inhale the vapor. Bark decoction also given orally to diarrhoearing goats. NOTE: Usage of this plant for human diseases is reported to be declining as it has been associated with liver complications.

DP Kisangau KD 487 (NAI)

***Turraea robusta* Guerke**

Mutunene, Kitunene (Kamba).

Shrub or tree 2-15 m; bark rough, brown, flowers white. **Use:** Leaves boiled and decoction bathed with for measles.

DP Kisangau KD 408 (NAI, EA)

MORACEAE

***Ficus ingens* (Miq.)Miq.**

Mumbiliili, Kyumbiliili (Kamba).

Tree to 15 m; leaves broadly elliptic or broadly (ob-)ovate. **Use:** Usage is similar to that of *Evolvulus alsinoides*. Bark dried, pounded and powder applied on to cuts made on the tongue using bristles of *Pupalia lappacea*. Application of the powder is believed to bring good luck or victory in individual life, business affairs and social relationships.

DP Kisangau KD 249 (NAI)

***Ficus sur* Forssk.**

Mukuyu, Kikuyu (Kamba).

Tree 4.5-25 m, sometimes epiphytic; buttresses may be present, bark grey or whitish, leaves ovate or ellipic. **Use:** Bark boiled and decoction drunk for oedema and stomach ache. Milky exudate from any part of the plant is applied for toothache.

DP Kisangau KD 464 (NAI)

***Ficus thonningii* Bl.**

Muumo, Kiumo (Kamba).

Tree 6-21 m, sometimes, epiphytic, evergreen, bark grey; aerial roots often present, leaves elliptic or obovate. **Use:** Bark boiled and decoction drunk for oedema. Milky latex from the bark

or branches applied drop wise in to ailing eyes. This tree is culturally treated as ritual as it is associated with sacred groves. Hence only those plants not found in sacred groves are used, but very rarely.

DP Kisangau KD 454 (NAI)

MUSACEAE

***Musa paradisiaca* L.**

Iiu (Kamba).

Plant tall, 3-10 m, stoloniferous, leaves erect, spike drooping. **Use:** The drooping male spike is cut, burnt and powder licked for tachycardia. NOTE: This may suggest application of 'Doctrine of signatures' as the male spike resembles human heart .

DP Kisangau KD 385 (NAI)

MYRSINACEAE

***Embelia schimperi* Vatke**

Mukalati, Kikalati (Kamba).

Shrub or climber; leaves obovate to lanceolate. **Use:** Leaves boiled and decoction drunk for oedema. Fruits crushed into powder, stirred in water and infusion drunk or administered orally in human beings and livestock respectively for intestinal worms (tape worms).

DP Kisangau KD 258 (NAI)

MYRTACEAE

***Eucalyptus botryoides* Sm.**

Musanduku (Kamba).

A cultivated tree to10m high flowers attractive white . **Use:** leaves crushed, soaked in water and infusion bathed with for small pox . Infusion also drunk at ½ a glass each day. It is an example of non-indigenous herbal remedy.

D P Kisangau K D 366 (NAI)

***Psidium guajava* L.**

Muvela, Kivela (Kamba)

A much branched cultivated tree to 5 m high; flowers whitish. **Use:** Leaves crushed, soaked in water and infusion drunk for diarrhoea, stomach ache and amoebic dysentery. It is an example of non-indigenous herbal remedy.

DP Kisangau KD 352 (NAI)

OLACACEAE

***Ximenia americana* L.** (See plate 1)

Mutula, Kitula (Kamba).

Tree or shrub to 6 m, usually with axillary spines. **Use:** Roots boiled and decoction drunk for

gonorrhoea, bilharzia, haematuria, rheumatism, arthritis, oedema, jaundice, menorrhagia, abscesses and syphilis. They are dried, pounded and powder stirred in warm water and drunk for diarrhoea and malaria. A root infusion is drunk for amoebic dysentery. A leaf decoction is bathed with for measles and also drunk at ½ a glass 2 times a day for the same condition. Root decoction is a remedy for pneumonia in livestock.

DP Kisangau KD 522 (NAI)

OPILIACEAE

***Opilia amentacea* Roxb.**

Mutonga (Kamba).

Liana to 15 m, occasionally shrubby; ever green, bark grey brown, splitting longitudinally, with corky lenticels forming ridges. **Use:** Roots burnt, crushed in to powder and applied on to snake bite. Burnt powder licked for oral thrush and sore throat.

DP Kisangau KD 503 (NAI)

PASSIFLORACEAE

***Adenia gummifera* (Harv.) Harms**

Musoka (Kamba).

A woody climber 20-30 m. Leaves entire or 3-lobed, round or ovate. Flowers greenish, in long-stalked cymes. **Use:** Stem or leaves crushed, boiled and decoction drunk at ½ a glass 3 times a day for menorrhagia and peptic ulcers. The roots are boiled and decoction drunk for gonorrhoea

and severe headache. Leaves, stem or roots are crushed, soaked in water and infusion drunk for diarrhoea and round worms. Stem and leaves mixed with *Kleinia squarrosa* (stem), crushed, soaked in water and infusion drunk stomach ache.

DP Kisangau KD 336 (NAI, EA)

PEDALIACEAE

***Pedalium murex* L.**

Ikongo ya nzou (Kamba).

Decumbent to erect herb to 30 cm; flowers pale yellow. **Use:** Leaves crushed, soaked in water and infusion drunk or simply chewed and sap swallowed for stomach ache. Leaf infusion is drunk for amoebic dysentery.

DP Kisangau KD 301 (NAI)

***Sesamum calycinum* Weiw. *var. angustifolium* (Oliv.) Ihlenf. & Siedenst.**

Luta (Kamba).

Erect herb; only strong plants branched and then sometimes woody at base , to 90 cm tall. **Use:** Leaves crushed, soaked in little water, sieved with a clean cloth and the slender infusion applied in to ears for earache and in to eyes for general high eye problems. An infusion of the leaves and/or stem is drunk for peptic ulcers and diarrhoea.

DP Kisangau KD 504 (NAI)

PLUMBAGINACEAE

***Plumbago zeylanica* L.**

Wala, Mung'atha, Mukela ivai (Kamba).

A trailing hairless shrub with white flowers, leaves ovate with wedge-shaped base. **Use:** Roots boiled and decoction drunk in soup for oedema, gonorrhoea, chest ache, cough and malaria. A lone decoction is drunk as an abortifacient. Roots burnt and powder licked for oral thrush and hypochondriasis . Powder also applied onto burns. An infusion of the roots is drunk in local beer or soup for boils or abscesses.

DP Kisangau KD 489 (NAI)

POLYGALACEAE

***Polygala sphenoptera* Fres.**

Mukenia (Kamba).

A perennial or annual shrubby herb, sometimes trailing. **Use:** Leaves chewed and sap swallowed, or crushed , soaked in water and infusion drunk for colds and cough. An infusion of crushed leaves is sieved with a clean cloth and applied drop wise in to eyes for conjuctivitis. Whole plant dried, pounded and powder applied on to scratches made on the tongue using bristles of *Pupalia lappacea*. Some powder is also rubbed between the palms. The application usually accompanied by spells or incantations is believed to bring victory in individual life, business affairs and social relationships. It is actually used as a 'love potion'.

DP Kisangau KD 495 (NAI)

***Securidaca longipedunculata* Fres.** (See plate 2)

Muuka (Kamba).

Shrub or small tree, 2-7.5 m, bark grey and smooth or flaking in regular patches, leaves narrowly ovate. **Use:** Roots boiled and decoction drunk in soup for chest problems, cough, malaria and oedema. A decoction of the root also drunk for insanity (general mental disturbance). This may however act only to suppress the condition. Roots crushed, soaked in water and infusion drunk for general body pains. They are mixed with those of *Zanha africana* and *Zanthoxylum chalybeum* or put in water and infusion drunk for asthma, stomachache, rheumatism and arthritis. Bark dried in sun, pounded and powder applied on to cattle wounds.

DP Kisangau KD 313 (NAI, EA)

POLYGONACEAE

***Oxygonum sinuatum* (Meisn.) Dammer**

Song'e (Kamba).

An almost hairless annual with elliptic to oblanceolate or obovate leaves. **Use:** Whole plant boiled and decoction drunk for internal absecesses, gonorrhoea, syphilis and dizziness. Whole plant mixed with roots of *Ricinus communis* and *Carica papaya* (male), boiled and decoction drunk for menorrhagia and bilharzia. Leaves and fruits crushed, soaked in little water and a paste made from this mixture applied to boils and nail bed (cellulitis or whitlow). Leaf decoction is drunk for severe headache and depressed fontanelle (dehydration). Incase of severe headache, some cold decoction is put in to the ears. Dry, mature fruits are pounded and powder applied to remove splinters.

DP Kisangau KD 492 (NAI)

***Rumex abyssinicus* Jacq.**

Kyuvi (Kamba).

A large almost hairless , perennial herb with triangular leaves; flowers green. **Use:** Root tuber crushed, soaked in water or boiled and infusion or decoction drunk for malaria and gonorrhoea. The tuber is dried, pounded, powder stirred in hot water and drunk for intestinal worms.

DP Kisangau KD 499 (NAI)

***Rumex usambarensis* (Dammer) Dammer**

Kinyonywe (Kamba).

A hairless weak shrub or scrambler often with leaves in clusters. **Use:** Leaves plus those of *Agave sisalana* crushed, soaked in water and infusion drunk for pneumonia.

DP Kisangau KD 361 (NAI)

PORTULACACEAE

***Portulaca oleracea* L.**

Kinyikwi (Kamba).

A hairless annual with many prostrate branches and alternate obovate to spoon-shaped leaves, flowers yellow. **Use:** Whole plant boiled and decoction drunk for amoebic dysentery and

gonorrhoea. Stems and/or leaves chewed and sap swallowed, or crushed, soaked in water and infusion drunk for stomach ache.Infusion also drunk for diarrhoea.
DP Kisangau KD 486 (NAI)

***Portulaca quadrifida* L.**

Kinyikwi (Kamba).

A prostrate annual or stoloniferous perennial herb, stems to 30 cm long, mostly with tufts of brownish hairs covering the nodes. **Use:** Stem and leaves boiled and decoction drunk for gonorrhoea, haematuria or bilharzia. Whole plant crushed, soaked in water and infusion drunk for diarrhoea. Stem and/or leaves chewed and sap swallowed, or crushed, soaked in water and infusion drunk for stomachache.

DP Kisangau KD 343 (NAI)

***Talinum portulacifolium* (Forssk.) Schweinf.**

Ndata kivumbu (Kamba)

A hairless, loosely rooted, perennial herb or small shrub with purple-pink flowers. **Use:** Roots crushed, soaked in water and infusion used for cleansing victims believed to have broken social norms or have faced the wrath of ancestors.

DP Kisangau KD 475 (NAI)

ROSACEAE

***Rubus apetalus* Poir.**

Kitae kya kithekani (Kamba).

Scrambling shrub 1-2.5 m, stems reddish. **Use:** Roots crushed, soaked in water and infusion drunk for stomach ache in children, ("Kiumati").

DP Kisangau KD 390 (NAI)

RUBIACEAE

Hymenodictyon parvifolium* Oliv. *ssp. parvifolium

Mulinditi (Kamba)

Shrub or tree (rarely some what climbing), 1-5 m; bark smooth, grey, leaves elliptic, flowers greenish white. **Use:** Leaves crushed and sap applied drop wise in to eyes incase of conjuctivitis. Infusion of the root is drunk and bathed with for oedema. It is also drunk for diarrhoea, amoebic dysentery, intestinal worms and stomach ache. Root decoction drunk at ½ a glass 2 times a day for rheumatism. Root infusion used for cleansing.

DP Kisangau KD 474 (NAI)

***Pentas lanceolata* (Forssk.) Deflers**

Muti mukuu, Mumemeti (Kamba).

An erect branched shrub or woody herb, softly hairy, to 1 m tall; leaves ovate-lanceolate, flowers mauve to white. **Use:** Roots boiled and decoction drunk for back and kidney aches.

DP Kisangau KD 377 (NAI)

***Psychotria kirkii* Hiern *var. hirtella* (Oliv.) Verd.**

Muthumba (Kamba)

Shrub 1-3 m.Leaves elliptic or (ob) ovate. Flowers white to yellow-green. **Use:** Leaves boiled and decoction bathed with for scabies. A hot paste of leaves may be made and smeared on the whole body for the same condition.

DP Kisangau KD 335 (NAI, EA)

***Tapiphyllum schumannianum* Robyns *ssp.mucronulatum* (Robyns) Verd.**

Mutootoo, Kitootoo, Muvu, Kivu (Kamba)

Shrub 1.5-4 m. Leaves elliptic or almost round; flowers white to yellow. **Use:** Stem cut in to small pieces, boiled and decoction drunk for oedema and rheumatism or arthritis. Leaf infusion used in cleansing rites.

DP Kisangau KD 322 (NAI)

***Vagueria madagascariensis* Gmel.**

Mukomoa, Kikomoa (Kamba).

Shrub or tree 3-10 m; bark brown, scaly, leaves elliptic or ovate. **Use:** Leaves boiled and decoction drunk for malaria. Decoction also drunk and bathed with for oedema and measles.

DP Kisangau KD 517 (NAI)

RUTACEAE

***Citrus limon* Burm.f.**

Kitimu, Mutimu (Kamba)

A much branched shrub or tree to 2.5 m high. Stems hard with sharp harmful spines; cultivated. **Use:** Dry leaves mixed with few particles of sodium carbonate (magadi soda), pounded and powder applied onto gums of infants for plastic teeth. The mixture may also be boiled and decoction given to the infant. The decoction also applied onto ring worms. The plant is an example of non-indigenous herbal remedy.

DP Kisangau KD 349 (NAI)

***Fagaropsis hildebrandtii* (Engl.) Milne-Redh.** (See plate 3)

Muvindavindi (Kamba).

Shrub or tree 2-6 m, deciduous. Leaves with 5-9 leaflets, these ovate, glandular along the margin. **Use:** Roots boiled and decoction drunk for general body pains, oedema, pneumonia, hypertensive-like conditions, chest ache, rheumatism, arthritis, bilharzia or haematuria, gonorrhoea, menorrhagia and malaria. Root decoction also drunk with soup for chronic coughs or pulmonary Tuberculosis (TB). Dried roots is pounded and powder drunk in porridge for asthma and ordinary coughs. The powder is stirred in warm water and drunk for internal abscesses. Root

decoction is given orally to livestock for pneumonia and liver fluke infestation.

DP Kisangau KD409 (NAI)

***Teclea simplicifolia* (Engl.) Verdoorn**

Mutuiu, Kituiu (Kamba).

Shrub or tree 2-9 m, evergreen, bark smooth, grey. **Use:** Roots boiled and decoction drunk 2 times a day for general body pains. Roots dried, pounded and powder drunk in warm water or porridge for chest complaints and TB.

DP Kisangau KD 325 (NAI)

***Zanthoxylum chalybeum* Engl.** (See plate 4)

Mukenea, Kikenea (Kamba).

Shrub or tree 1.5-10 m, evergreen; trunk furrowed, with corky knobs or ridges crowned with spines. **Use:** Roots boiled and decoction drunk for menorrhagia, malaria, oedema, rheumatism, arthritis, general body pains, colds, cough, jaundice, dizziness, depressed fontanelle and hypertensive-like conditions. Leaves plus those of *Bridelia taitensis* and *Clerodendrum eriophyllum* boiled and concoction drunk for peptic ulcers and headache. A root infusion is drunk for amoebic dysentery. Roots dried, pounded and powder drunk in soup or porridge for chest ache and cough. Leaves used as tonic in tea. A leaf infusion is bathed with incase of convulsions (high fever). A decoction of the root is administered orally to livestock with diarrhoea.

DP Kisangau KD 346 (NAI, EA)

***Zanthoxylum usambarense* (Engl.) Kokwaro**

Muvuu, Kivuu (Kamba)

Tree 2.5-15 m; bark furrowed, brown with corky bosses and spiny branches. **Use:** Bark boiled and decoction drunk, or dried , pounded and powder put in tea for colds, cough and also as tonic.The powder also licked or drunk in soup for chest ache. A decoction of the bark is drunk for rheumatism, arthritis and general body pains.

DP Kisangau KD 380 (NAI)

SALVADORACEAE

***Salvadora persica* L.**

Mukayau, Kikayau (Kamba)

Tree or shrub (occasionally semi-scandent) 1-9 m, evergreen; bark rough, grey brown, leaves slightly succulent, narrowly elliptic. **Use:** Roots boiled and decoction drunk for oedema, peptic ulcers, pneumonia, general body pains, cough, malaria, chest problems and internal abscesses. Dosage: 1 glass 3 times a day. Incase of oedema and malaria, decoction is bathed with and patient covered with a blanket to inhale the vapor.

DP Kisangau KD 526 (NAI)

SANTALACEAE

***Osyridicarpos schimperianus* (A.Rich.) A.DC.**

Mwonia (Kamba).

Trailing shrub to 3 m, leaves elliptic to obovate. **Use:** Roots dried in sun, crushed in to powder , stirred in tea or soup and drunk 3 times a day for chest ache.
DP Kisangau KD 334 (NAI, EA)

SAPINDACEAE

***Pappea capensis* Eckl. & Zeyh.**

Muva, Kiva (Kamba).

Shrub or tree 2-9 m. Bark smooth and grey or somewhat corrugated; leaves elliptic. **Use:** Bark boiled and decoction drunk for gonorrhoea.

DP Kisangau KD 227 (NAI, EA)

***Zanha africana* (Radlk.) Exell** (see plate 5)

Mukolekya, Kikolekya (Kamba).

Tree to 8 m; bark grey, peeling in flakes, leaflets elliptic. **Use:** Root dried, pounded and powder drunk in soup, or boiled and decoction drunk for TB, asthma, chest ache and general body pains. Root or bark dried, crushed in to powder, stirred in warm water and drunk for menorrhagia, bilharzia, haematuria, hypertensive-like conditions and stomach ache. A root decoction is drunk for gonorrhoea, rheumatism, arthritis, oedema, malaria, diarrhoea and internal abscesses. The decoction is drunk in soup for constipation or flatulence. A bark decoction is drunk for jaundice and headache while root or bark infusion is drunk for peptic ulcers. A decoction of the root is given orally for liverfluke infestation in cattle.

DP Kisangau KD 514 (NAI)

SIMAROUBACEAE

***Harrisonia abyssinica* Oliv.**

Mukiliulu (Kamba).

Shrub or tree (sometimes climbing) 2-6 m, evergreen, bark armed, flowers cream or yellow. **Use:** Root boiled and decoction drunk for oedema, rheumatism, arthritis, hypertensive-like conditions, stomachache and pneumonia. Leaves dried, crushed into fine powder and applied into eyes of cattle with eye blindness.

DP Kisangau KD 221 (NAI)

SOLANACEAE

***Capsicum annuum* L.**

Ndulu (Kamba).

A cultivated Shrub 2-3 m, wood very hard, leaves various. **Use:** Fruits taken with food or alone. May be dried, crushed into powder and taken with food for flatulence or constipation. Powder soaked in little water and stirred to make a paste. The paste is wrapped with a clean cloth on a finger with nail bed (cellulitis). Powder also applied on to cuts made on the abdomen for spleenomegally.

DP Kisangau KD 433 (NAI)

***Datura stramonium* L.**

Muvongolo (Kamba).

An erect hairless annual to 1m tall, with ovate coarsely toothed leaves and dichotomously branched stem; flowers white. **Use:** Leaves dried, crushed and smoked for asthma.

DP Kisangau KD 453 (NAI)

***Lycopersicon esculentum* Mill.**

Kinyaanya, Munyaanya (Kamba).

A cultivated spreading hairy-pubescent and more or less glandular strong-smelling plur-annual or perennial to 1 m high. **Use:** Fruits broken and contents smeared onto the affected part incase of nail bed (cellulitis). It is an example of non-indigenous herbal remedy.

DP Kisangau KD 369 (NAI)

***Nicotiana tabacum* L.**

Mbaki, Kumbatu (Kamba).

A cultivated healthy green herb to 1m. high; stems hairy, flowers diurnal. **Use:** Incase of headache, scarifications are made on both sides of the forehead, using a razor blade. Then snuff is mixed with little paraffin and the liniment applied on to the cuts, rubbing hard with fingers. Snuff sniffed for blocked nostrils due to severe colds. Sniffing initiates violent sneezing and this clears up the nostrils. The herb is an example of non-indigenous herbal remedy.

DP Kisangau KD 488 (NAI)

***Solanum incanum* L.**

Mukondu, Kikondu (Kamba).

An erect felty-hairy woody herb or shrub, occasionally trailing or scrambling. **Use:** Roots chewed and juice swallowed, or crushed, soaked in water and infusion drunk for stomachache, diarrhoea and amoebic dysentery. Two parallel transverse sections are made on to the ovoid or roundish fruit to form a 'ring'. The 'ring' is clipped onto a finger with nail bed (cellulitis) for 3-4 days after which recovery is expected. Leaf infusion is given orally to diarrhoearing goats.

DP Kisangau KD 393 (NAI)

***Solanum renschii* Vatke**

Mutongatongu, Kitongatongu (Kamba).

An erect usually prickly-stemmed shrub with blue to mauve flowers. **Use:** Roots pounded, soaked in water and infusion drunk for boils, internal abscesses and stomachache. They are burnt and powder licked for hypochondriasis. An infusion is used for cleansing.

DP Kisangau KD 472 (NAI)

STERCULIACEAE

***Melhania velutina* Forsk.**

Kamutootoo (Kamba).

A rusty-hairy erect woody annual or short -lived perennial to 1 m with ovate-elliptic leaves; flowers yellow. **Use:** Leaves crushed, soaked in little water, sieved with a clean cloth and infusion put dropwise into an aching ear. The leaves may be slightly chewed and the resulting sap applied.

DP Kisangau KD 496 (NAI)

***Triumfetta rhomboidea* Jacq.**

Muinda nguue (Kamba).

An erect hairy herb or under shrub with ovate to lanceolate often 3-lobed leaves. **Use:** Roots crushed, soaked in water and infusion drunk or applied for snake bite. Root chewed and juice swallowed for flatulence.

DP Kisangau KD 519 (NAI)

***Waltheria indica* L.**

Mulelema (Kamba)

An erect star-haired woody annual or short-lived perennial herb, with ovate-oblong broadly toothed leaves. **Use:** Leaves crushed, soaked in water and infusion drunk for diarrhoea.

DP Kisangau KD 382 (NAI)

TILIACEAE

***Grewia bicolor* Juss.**

Mulawa, Kilawa, Ulawa, Ilawa (Kamba).

Shrub or tree 1-8 m; bark purple-brown, deeply fissured and peeling, leaves elliptic or slightly obovate. **Use:** Leaves or stem bark soaked in water and the slender infusion used for bathing incase of skin rashes.

DP Kisangau KD 467 (NAI)

***Grewia tembensis* Fres.**

Mutuva, Kituva (Kamba).

Shrub 0.5-4 m. Leaves slightly obovate, elliptic or almost round, flowers white, pink or pale liliac. **Use:** String from the bark chewed and sap swallowed for heart burn. Root burnt, pounded and powder licked for hypochondriasis.

DP Kisangau KD 510 (NAI)

***Grewia villosa* Willd.**

Muvu, Kivu (Kamba).

Shrub 1-3.5 m, rarely a tree to 4.5 m. Leaves round or broadly elliptic; flowers yellowish to roundish. **Use:** Roots pounded, soaked in water and infusion drunk for diarrhoea, amoebic dysentery and stomachache.