Afr. J. Trad. CAM (2007) **4 (1):** 75 - 86

Research Paper

Afr. J. Traditional,
Complementary and Alternative Medicines
www.africanethnomedicines.net

ISSN 0189-6016©2007

TRADITIONAL MEDICINES AMONG THE EMBU AND MBEERE PEOPLES OF KENYA

[*]Kareru, P. G [a]., Kenji, G. M.[b] ,Gachanja, A. N.[a], Keriko, J. M.[a] ,Mungai, G.[c],
[a] Department of Chemistry, Jomo Kenyatta University of Agriculture and Technology.
[b] Department of Food Science and Post harvest Technology, Jomo Kenyatta University of Agriculture and Technology. [c] East African Herbarium, National Museums of Kenya.
***E-mail:** pgkareru@yahoo.com

Abstract

Ethnobotanical information and traditional medicines were investigated and documented in Embu and Mbeere districts, Eastern Province of Kenya. Oral interviews were obtained from over 100 herbalists, both men and women aged between 40 and 80 years. All the herbalists interviewed were Christians and had little formal education. Non-Christian herbalists were purported to combine herbal medicines with witchcraft and were not interviewed. Of the 40 commonly used herbal plants 25 were used as multi-purpose medicinal plants (mpmp), while 15 were used to treat one disease type. There was a correlation between the outpatient morbidity data at the local District hospital, and the common incident diseases treated by the herbalists. Generally a decoction or infusion of the herb was recommended for the treatment of internal or external condition of the patients. Malaria and typhoid were treatable with a total of 15 and 12 plants respectively and were among the first two commonest diseases found in the study area. *Terminalia brownii* was found to be the most used medicinal plant either alone or in combination with other herbs. The second and third most utilized medicinal plants were *Ovariodendron anisatum* and *Wurbugia ugadensis* respectively.

Key words: Herbalists; Herbal medicine; Terminalia, Decoction

Introduction

Herbal medicines have been used for many years dating back as far as 3000 BC (Ayensu, 1978; WWF, 1993). Despite enormous advances in conventional medicines, traditional medicines have been encouraged by the Word Health Organization (WHO, 1978), partly because some conventional drugs have failed to prove effective, have serious side effects, or cannot cure certain new illnesses such as AIDS.

The World Bank has recently put a strong case for herbal healthcare (Mburu Mwangi, 2005),and recognized vital values of medicinal plants. These values are medicinal, ecological, income generation, cultural, social and religious roles. The World Bank report further pointed out that Kenya[P]'s ministry of Health budget for medicines in 2002 provided for only 30% of the population. This left 70% (21 million) of the population who could not access the conventional drugs. The latter population group was therefore left to rely on traditional medicines for their healthcare needs.

In Africa, 90% of the population relies on traditional healers to meet their primary healthcare needs (Miller, 1990). In sub-Saharan Africa, it is estimated that one Western trained physician treats about 40,000 while one traditional healer treats about 400 patients (Hogle, 1990). This implies that there are many traditional healers serving a large portion of the population. There is need, therefore, to not only carry out ethnobotanical research and healing methods, but also encourage propagation and conservation of herbal plants among the local people. In addition, there is a rapid disappearance of genuine traditional herbalists and decline in authentic knowledge in traditional

treatment (Lindsay and Hepper, 1978). This is due to the Western influence and death of many aged healers from whom a great deal of information is derived. It is imperative therefore to document the indigenous knowledge regarding traditional medicines before it disappears.

In Kenya comprehensive ethnobotanical information and healing methods among the local communities is not completed. However, indigenous information of medicinal plants is recorded by several authors: (Glover, 1966; Lindsay and Hepper, 1978; Kokwaro, 1993; Kaendi, 1997; and Musila, 2000), among others. Elsewhere, herbal medicines research has been recently reported: (Barakat, E., Abu-Irmailum. Fatma U. Afifi. 2003; Joana Camejo-Rodrigues et al., 2003; and Lucia Viegi et al., 2003).

In this publication, ethnobotanical information and traditional medicines of the Mbere and Embu people of Eastern province, Kenya is reported. The local herbalists complement the conventional local doctors in the treatment of the common diseases in the study area (Table 1). Documentation of the practices of these herbalists in Embu and Mbeere districts of eastern Province, Kenya, is reported for the first time. It is important to note that indigenous knowledge is passed orally and therefore there is need for comprehensive documentation. These herbalists use herbs whose available plant biodiversity transverses from the rainforests of Mt Kenya slopes to the semi-arid Mbeere District, availing a wide biodiversity of plants.

Materials and Method

The main objective of this research was to document indigenous knowledge of the Mbeere and Embu peoples of the Eastern Province, Kenya. This involved documentation of the medicinal plants traditionally used in healthcare, the herbal drugs preparations, the diseases treated, and collection of plant specimens. Preliminary visits were done to identify and select the herbalists to who took part in this study. The Provincial Director, Ministry of Gender, Sports, Culture, and Social Services provided a list of authentic herbalist groups. These groups were selected to cover most of the area under our study. The initial selection was based on the willingness of herbalists to give voluntary information and interaction with researchers during consultative meetings. These meetings were participatory in nature, with researchers as facilitators. The common agenda was to produce a pharmacopoeia of herbal drugs for use by the herbalists in the study area.

Ethnobotanical data was collected during a 12-month period from 110 herbalists practicing in the study area. They were both men and women aged 40 to 80 years. All the herbalists interviewed were Christians. Non-Christian herbalists were said to combine herbal medicines with witchcraft and were therefore avoided.

The indigenous knowledge was collected using Participatory Rapid Appraisal method (PRA). This involved driving around to the identified herbalists. An expert in PRA from the National Museums of Kenya participated in this research. Formal interviews through questionnaires were avoided as it was found to be intimidating to the herbalists, majority of whom were semi- illiterate. A record of responses from individual and groups of herbalists were documented immediately during consultative meetings.

Plant materials were authenticated by comparison with herbarium specimens. Each plant specimen collected was given a herbarium specimen number and the voucher samples kept in the East African Herbarium, and in the Faculty of Science (Botany Department), Jomo Kenyatta University of Agriculture and Technology (J.K.U.A.T.).

Results

The results are provided in Tables 1 - 3.

Table 1: Outpatient morbidity data for Embu District Hospital*

Year / %	2000	%	2001	%	2002	%
Disease type						
Malaria	87898	29.1	128682	31.9	139985	29.4
Respiritory. system	68392	23	93742	23.2	97500	20.5
Intestinal worms	25385	8.4	33796	8.4	36268	7.6
Skin infection	22850	6	25972	6.4	29468	6.2
Pneumonia	14771	5	16515	4.1	18576	4
Diarrhea	10525	3.5	12714	3.2	10913	2.3
Rheumatism	5882	2	9756	2.4	10873	2.3
Eye infection	5333	2	7274	2	12762	2.7
Urinary tract infections	4513	1.5	5644	1.4	6681	1.4
Total new cases	271181		371668		437781	

*__Source: Embu district Health Annual report__.

Table 2: Plant species and the healing methods used by the Mbeere and Embu people

Key: (m)=Mbeere; (e)= Embu

Condition/Local Names	**Plant species**	**Part used**
1 Allergy		
Muuti (m)	*Erythrina abyssinica*	Roots
Mururuku (m)	*Terminalia brownii*	Roots
Gatukia (m)	*Emilia discifolia*	Roots
The roots are boiled in water and the decoction taken		
2. Abortion (persons)		
Mururuku (m)	*Terminalia brownii*	Leaves
The leaves are boiled in water and the decoction taken		
3. Anthrax		
Mukengeta (m)	*Senna singuana*	Roots
Muthunthi (m)	*Maytenus senegalensis*	Leaves
The parts are boiled and the decoction taken by the patient		
4. Asthma		
Muthiga (e)	*Warburgia ugandensis*	Leaves/bark
Mwaraka (e)	*Plectranthus barbatus*	Roots
Kieha kia Murangi (m)	*Engleromyces goetzei*	Inner fresh
The parts are boiled in water and given to the patient		

5. Back-ache and Joint-ache

Muthira (e)	*Gnidia glauca*	Roots
Murangare (m)	*Acacia ataxacantha*	Roots
Muthigira (e)	*Acacia mellifera*	Roots
Muvaa (m)	*Pappea capensis*	Roots
Mutagataga (e)	*Harrisonia abyssinica*	Leaves/Roots
Mubindithindi (e)	*Fagaropsis angolensis*	Leaves
Muvingo (m)	*Dalbergia melanoxylon*	Bark
Muura (m)	*Landolphia buchananii*	Leaves
Muugu (e)	*Landolphia buchananii*	Leaves

The parts are boiled in water and taken with goat's soup

6. Bone-setting (fracture)

Muthata (e)	*Olea europaea ssp. africana*	Sap
Karura (e)	*Asparagus racemosus*	Roots

Apply sap or root decoction and bandage

7. Boils:

Ikothokotho (m)	*Cissus rotundifolia*	Fruits

Sap from the fruit applied on the boil

8. Bronchitis

Makandu (e)	*Ocimum gratissimum*	Leaves
Mucuki wa ngig (e)i	*Ageratum conyzoides*	Roots
Mumonjore (e)	*Solanecio sp.*	Roots

The parts are boiled and the vapour inhaled

9. Bleeding (Blood clotting)

Mutagataga (e)	*Harrisonia abyssinica*	Leaves
Mucuki wa Ngigi (e)	*Ageratum conyzoides*	Ashes
Mutundu (e)	*Croton macrostachyus*	Juice

The decoction of bark is taken, while ashes and the juice are applied to stop bleeding

10. Colds and Flu

Mucobi (m)	*Hoslundia opposita*	Leaves
Mutongu (m)	*Solanum incanum*	Fruits
Muthuguni (m)	*Clerodendron myricoides*	Leaves
Gitunguru (e)	*Allium ampeloprassum*	Leaves
Muratina (m)	*Kigelia africana*	Bark
Mugaa (1) (e)	*Acacia abyssinica*	Tea from the bark
Mugaa (2) (e)	*Acacia hockii*	Bark
Munyua-mai (e)	*Eucalyptus globulus*	Leaves
Muringamu (e)	*Eucalyptus saligna*	Leaves
Ndania (e)	*Coriandrum sativa*	Leaves
Mucururi (m)	*Trichodesma zeylanicum*	Whole plant

Parts are boiled in water. The patient inhales the vapour or washes face with the decoction

11. Cancer (of Breast and Prostrate Glands)

Muburu (m)	*Vitex doniana*	Leaves
Mukururu (m)	*Flueggea virosa*	Roots
Ndonga (m)	*Ovariodendron anisatum*	Root tuber
Muthunga (e)	*Launea cornuta*	Whole plant
Mubuu (m)	*Grewia villosa*	Roots
Muraga (m)	*Maytenus obscura*	Roots
Muiria (e)	*Prunus africana*	Bark

Concoction of the boiled parts is drunk by the patient

12. Calf-rejection

Ndonga (m)	*Ovariodendron anisatum*	Root tuber

Concoction given to animal

13. Dog-poison

Mwakia (m)	*Zanha africana*	Root tuber
Root powder mixed with	**food**	

14. Dog-bite

Kianduri (m)	*Xerophyta spekei*	Ashes

Ashes applied to the bitten part

15. Diabetes

Mucege (m)	*Bidens pilosa*	Ashes
Mutegenye (m)	*Cyathula polycephala*	Ashes
Kianduri (m)	*Xerophyta spekei*	Ashes

Add water to ashes and drink

Ndonga(m)	*Ovariodendron anisatum*	Ashes

Add water to the ashes and give to the patient

Karuria-Tatha (m)	*Schkuhria pinnata*	Whole plant

Boil the whole plant and drink the decoction to reduce sugar levels

Muthunga (m)	*Launea cornuta*	Whole plant
Muthigiriri (m)	*Lonchocarpus eriocalyx*	Bark

The decoction reduces the sugar levels when drunk

Mwembe (e)	*Mangifera indica*	Leaves (shoot)

Dry young shoots of Mangifera indica. Dry Launea cornuta. Mix one teaspoonful of each powder in a cup of water, drink 3 times a week, and repeat if necessary.

16. Diarrhea

Mutagataga (m)	*Harrisonia abyssinica*	Roots
Murerema (e)	*Basella alba*	Leaves

Mix the parts with water, boil and drink.

17. Erectile Dysfunction (Impotence)

Managu (e)	*Solanum nigrum*	Whole plant
Iviuviu (e)	*Sonchus asper*	Whole plant
Kungumanga (e)	*Punica granatum*	Seeds
Ndonga (e)	*Ovariodendron anisatum*	Whole plant
Mugeta (e)-Muthiga	*Warburgia ugandensis*	Leaves
Muramba (e)	*Adansonia digitata*	Bark

The decoction of parts drunk

18. Eye Problem (infection)

Mururuku (m)	*Terminalia brownii*	Leaves
Muringa (m)	*Cordia africana*	Bark

Wash eye with decoction

19. Elephantiasis

Mwerere (Kirembo) (e)	*Euphorbia peudograntii*	Bark
Mukengeta (e)	*Senna singuana*	Bark

Drink decoction of bark

20. Fungal Infection and Ring Worm

Gatukia (e)	*Emilia discifolia*	whole plant
Mucii (m)	*Leucas mollis*	Leaves
Mwinu (m)	*Senna didymobotrya*	Leaves
Mukorwe (e)	*Albizia gummifera*	Bark
Mururuku (m)	*Terminalia brownii*	Leaves

Apply decoction from boiled parts on the body

21. Family Planning (persons)

Mururuku (m)	*Terminalia brownii*	Leaves

Boil leaves in water and drink before action

22. Gout

Murangare (m)	*Acacia ataxacantha*	Roots

Decoction from boiled roots taken

23. Gonorrhoea

Murangare (m)	*Acacia ataxacantha*	Roots
Mwogoya (m)	*Plectranthus barbatus*	Roots
Kithunju (m)	*Aloe kendongensis*	Leaves

Decoction of the boiled roots taken

Makongo (m)	*Agave sisalana*	Roots
Mutura (e)	*Ximenia americana*	Bark
Cong'e (e)	*Oxygonum sinuatum*	Leaves
Muruva (m)	*Grewia tembensis*	Roots

Decoction from mixture of the parts taken, two cups daily for three days

Mukungumanga (m)	*Punica granatum*	Seeds
Mubabai (male) (m)	*Carica papaya*	Roots
Gikwa kia ngima (e)	*Dioscorea minutifolia*	Tuber

The above parts are boiled together in three cups of water (teaspoon each), one cup of Decoction taken daily for three days.

24. Insecticide

Muthiringo (m)	*Strombosia scheffleri*	Powder of the dry leaves
Murema muthua (m)	*Carphalea glaucescens*	Leaves
Muthira (m)	*Gnidia glauca*	Leaves

Apply dry powder of the leaves

25. Kidney Problems

Mururi (e)	*Trichilia emetica*	Bark
Mukururu (m)	*Flueggea virosa*	Roots
Muthaguta (e)	*Securinega virosa?*	Bark

Boil parts in water and give to the patient

26. Malaria

Mubindithindi (e)	*Fagaropsis angolensis*	Leaves
Mwinu (e)	*Senna didymobotrya*	Leaves
Wanjiru-wa-Rurii (e)	*Ajuga remota*	Whole plant
Mukurwe (e)	*Albizia gummifera*	Bark
Mumonjora (e)	*Solanecio sp.*	Leaves
Muuti (e)	*Erythrina abyssinica*	Roots

Decoction of the above mixture in boiled water is taken

Mururuku (m)	*Terminalia brownii*	Leaves
Mukunyi (m)	*Cardiospermum corindum*	Roots
Mutagataga (m)	*Harrisonia abyssinica*	Roots
Mugirimura (m)	*Pentas zanzibarica*	Roots
Muvovo (m)	*Leonotis mollissima*	Roots
Murumbawe (m)	*Withania somnifera*	Leaves/Roots
Muterendu (m)	*Teclea nobilis*	Leaves
Mataa (m)	*Ocimum basilicum*	Leaves
Karuria-tatha (m)	*Schkuhria pinnata*	Whole plant
Mukenia (m)	*Lantana camara*	Leaves
Mucatha (m)	*Vernonia lasiopus*	Leaves
Kithunju (m)	*Aloe balyi*	Leaves
Mubuthi (m)	*Caesalpinia volkensii*	Leaves
Mutambi (m)	*Strychnos henningsii*	Stem
Kivia (e)	*Engleromyces goetzei*	Whole fruit

Mugegeti (e)	*Pistacia aethiopica*	Bark
Mwarobaine (e, m)	*Azadirachta indica*	All parts
Mukandu (m)	*Ocimum gratissimum*	Leaves
Njugu (e)	*Cajanus cajan*	Leaves

Parts indicated are boiled in water and drunk two times a day for a week.

27. Pneumonia

Mwokia (m)	*Zanha africana*	Roots
Mucigara (m)	*Uvaria scheffleri*	Roots
Murangare (m)	*Acacia ataxacatha*	Roots
Mukumbi (m)	*Abrus schimperi*	Roots
Muthigira (m)	*Acacia mellifera*	Bark
Kigurugua (m)	*Commiphora africana*	Roots
Kithunju (m)	*Aloe ballyi*	Leaves
Mugirimura (m)	*Vernonia brachycalyx*	Roots
Mucatha (m)	*Vernonia lasiopus*	Leaves
Munjuga-iria (e)	*Clerodendrum myricoides*	Roots

Decoction of mixture drunk

28. Rheumatism (Joint Pains)

Mubingo (m)	*Dalbergia melanoxylon*	Roots
Muthinia (m)	*Croton dichogamus*	Roots
Mutiru (m)	*Lonchocarpus eriocalyx*	Bark
Mukenenga (m)	*Zanthoxylum chalybeum*	Roots

29. Stomach Pains

Mwirungwa (e)	*Leonotis mollissima*	Roots
Mucuki (m)	*Epilobium hirsutum*	Roots
Muthunthi (m)	*Maytenus senegalensis*	Roots
Mutegenye (m)	*Cyathula polycephala*	Leaves
Muga-Nthegu (m)	*Albizia amara*	Roots
Kirurite (e)	*Tithonia diversifolia*	Leaves
Thina (e)	*Cuscuta kilimanjari*	Whole plant
Muthaata (m)	*Olea europaea*	Leaves

Parts boiled in water and the decoction drunk

30. Shampoo (Hair)

Karundu (m)	*Hermannia sp.*	Leaves

Mix the leaves of the plant with water, apply to hair then rinse with water

31. Skin Lashes

Mung'endia Nthenge (m)	*Senecio succulent*	Stem

Apply the stem ash

Ikothokotho (m)	*Cissus rotundifolia*	Fruits
Mururi (e)	*Trichilia emetica*	Sap

Apply sap or fruit juice to lashes or pimples

32. Snake-bite

Ndonga (m)	*Ovariodendron anisatum*	Ashes
Kianduri (m)	*Xerophyta spekei*	Ashes

Apply ashes to the bite

33. Soup

Muthinia (m)	*Croton dichogamus*	Roots
Mukenenga (m)	*Zanthoxylum chalybeum*	Roots
Mugeta (m)	*Warburgia ugandensis*	Leaves

Boil the parts in water and take with goat's bone soup

34. Tooth-ache

Mwokia (e)	*Zanha africana*	Roots
Gakurue (e)	*Phyllanthus sepialis*	Roots
Mutongu (m)	*Solanum incanum*	Fruits
Mutegenye (e) white	*Achyranthes aspera*	Roots

Either apply powdered parts to the tooth or boil the parts and gaggle the decoction

35. Typhoid

Muthithi (e)	*Osyris abyssinica*	Leaves/Roots
Mutathi (e)	*Clausena anisata*	Roots
Mwiria (e)	*Prunus africana*	Bark
Mukambura (m)	*Dovyalis abyssinica*	Friuits
Cong'e (e)	*Oxygonum sinuatum*	Whole plant
Kiruma (m)	*Aloe lateritia*	Leaves

Mixture of parts boiled in water and then drunk

Mwonge (m)	*Periploca linearifolia*	Roots
Kirurite (e)	*Tithonia diversifolia*	Leaves
Mutootoo (m)	*Dombeya rotundifolia*	Bark
Munjuga-iria (m)	*Clerodendrum myricoides*	Roots
Murembu (e)	*Ehretia cymosa*	Bark
Murava (m)	*Combretum molle*	Leaves

Individual parts are boiled in water and drink

36. Ulcers

Gatukia (e)	*Emilia discifolia*	Whole plant
Mugere (e)	*Hibiscus micranthus*	Roots
Mukeu (e)	*Dombeya burgessiae*	Roots

Powder of the parts is mixed with water and boiled, then given to the patient

37. Vitamins Supplement

Muburu (m)	*Vitex doniana*	Fruits
Muthigiu (m)	*Rhus natalensis*	Tea from bark

Tea or fruits is taken

38.Worms (Human/animals

Mubarwa (e)	*Albizia anthelmintica*	Bark/roots
Mwinu (e)	*Senna didymobotrya*	Leaves
Muvovo (m)	*Leonotis mollissima*	Leaves
Mucaritha (m)	*Entada leptostachya*	Roots
Mugeta (m)	*Warburgia ugandensis*	Bark
Mururuku (m)	*Terminalia brownii*	Bark
Terere (e)	*Amaranthus hybridus*	Leaves
Mubera (m)	*Psidium guajava*	Leaves
Mubiru (m)	*Vangueria madagascariensis*	Leaves

The parts are boiled in water and given to the patient

39. Skin burns

Mwembe (e)	*Mangifera indica*	Leaves

Decoction applied

40. Blood pressure

Muthigiriri (e)	*Lonchocarpus eriocalyx*	Bark
Muterendu (e)	*Teclea simplicifolia*	Leaves
Mukura (e)	*Piliostigma thonningii*	Bark

Drink decoction

Table 3: Medicinal plant species ranking.

Species Name	**Ranking**	**No of Times Used**	**Diseases Treated**
Terminalia brownii	1	6	Allergy, Abortion, Eye problems Family planning, Kidney, Worms
Ovariodendron anisatum	2	5	Cancer, Calf rejection, Diabetes, Erectile Dysfunction
Warburgia ugandensis	3	4	Asthma, Erectile Dysfunction, Soup, Worms.
Acacia ataxacantha	3	4	Back-ache, Gout, Gonorrhea, Pneumonia.
Harrisonia abyssinica	3	4	Back-ache, Joints, Bleeding, Diarrhea, Malaria.
Olea europaea	4	3	Bone-setting, Stomach pains.
Emilia discifolia	4	3	Allergy, Fungal infection, Ulcers.
Leonotis mollissona	4	3	Malaria, Stomach pains, Worms.
Acacia mellifera	5	2	Backache, Pneumonia.
Fagaropsis angolensis	5	2	Backache, Malaria.

Dalbergia melanoxylon	5	2	Backache, Pneumonia.
Ocimum gratissimum	5	2	Bronchitis, Malaria.
Clerodendrum myricoides	5	2	Cold and Flu, Typhoid.
Prunus africana	5	2	Cancer, Typhoid
Schkuhria pinnata	5	2	Diabetes, Malaria
Flueggea virosa	5	2	Cancer, Kidney problems
Trichilia emetica	5	2	Kidney problems, Skin rashes.
Senna singueana	5	2	Anthrax, Elephantiasis
Tithonia diversifolius	5	2	Stomach pains, Typhoid
Vitex doniana	5	2	Cancer, Vitamins suppliment
Mangifera indica	5	2	Diabetes, Skin burns
Ageratum conyzoides	5	2	Bronchitis, Bleeding
Xerophyta spekei	5	2	Dog bite, Diabetes
Erythrina abyssinica	5	2	Allergy, Malaria
Engleromyces goetzei	5	2	Asthma, Malaria.
Maytenus obscura	6	1	Cancer
Plectranthus barbatus	6	1	Gonorrhoea
Aloe kendongensis	6	1	Gonorrhea
Vernonia lasiopus	6	1	Malaria
Croton macrostachyus	6	1	Bleeding
Grewia virosa	6	1	Cancer
Lonchocarpus eriocalyx	6	1	Diabetes
Cordia africana	6	1	Eye problems
Senna didymobotrya	6	1	Fungal Infection, Ring worms
Albizia gummifera	6	1	Fungal Infection, Ring worms
Ximenia americana	6	1	Gonorrhea
Ajuga remota	6	1	Malaria
Cardiospermum corindum	6	1	Malaria
Zanthoxylum chalybeum	6	1	Rheumatism
Maytenus senegalensis	6	1	Stomach pains

Ranking: 1= Commonly used; 6= Used for only one disease

Discussion

Herbal medicines played an important role in the provision of health care for the rural poor within the communities under our study. The advantages are clearly low cost of herbal drugs and an element of self - reliance and non-dependency on government health institutions, some of which were located far away from the communities. Traditional health practitioners or herbalists treat patients using the indigenous knowledge acquired over generations, down family lines. This information is usually stored in human pharmacopoeia and hence the need for documentation for posterity. It is also prudent to document the indigenous knowledge due to the rapid disappearance of herbalists with authentic knowledge majority of who are advanced in age.

The herbalists were able to identify poisonous plants, by observing the foliage which domestic animals avoided while grazing. In addition, birds and bees avoided nectar from flowers of toxic plants, and through this “traditional taxonomy” plants with thorny leaves were regarded as “male”, that is, naturally poisonous. On the other hand, plants without thorny leaves were regarded as non-poisonous.

The commonest diseases within the study area were malaria, respiratory disorder, intestinal worms, skin diseases, and pneumonia, rheumatism, diarrhea and eye infections. Their incidences increased in that order. This was confirmed by the Embu District hospital morbidity data covering a three-year period from year 2000 to 2002 (Table 1). These diseases were treatable by the herbalists using common medicinal plants found in the study area. The report shows malaria was the commonest and the most commonly addressed disease by both herbalists and by the doctors at the local hospital. There was a correlation between the number of plants used to treat the most common diseases and the prevalence of diseases found in the study area (Table 2). Thus, the herbalists knew many herbal plants that were used in the treatment of the most prevalent ailments.

Medicinal plants species documented in the study area were ranked by the number of times they were used to treat different diseases (Table 3). The ranking ranged from 1 to 6. Rank 1 represented multi-purpose herbs and rank 6 denoted those herbs used to treat one type of ailment without combination with other medicinal plants.

Terminalia brownii was a multi-purpose medicinal plant and among the most used herbal plant for various conditions. It was used as a multi-purpose medicinal plant and was used either alone or in combination with other plants. The second and third most utilized medicinal plants were *Ovariodendron anisatum* and *Warbugia ugadensis* respectively. For this reason, these plants should be encouraged for propagation and conservation. In addition, proper methods of harvesting should be used as means of conservation of such multi-purpose medicinal plants.

Conclusions

The herbalists were active in the provision of primary and secondary healthcare in the study areas. Malaria was the commonest disease in Mbeere and Embu districts and could be treated with at least twenty-five medicinal plants, either singly or in combination with other medicinal plants. Respiratory ailments were treated with 21 herbs; Intestinal worms with 9 herbs; Pneumonia with 10 plants; Diarrhea with 23 plants; Rheumatism with 9 herbs and urinary tract infections with 11 herbs. The most used medicinal plants were *Terminilia brownii* and *Ovariodendron anisatum*, which treated six and five conditions respectively.

Acknowledgements

This work was supported by a grant from African institute for Capacity Development (AICAD), situated at JKUAT, and is greatly appreciated. The authours wish to appreciate the information given to them by the Provincial Health Officer at the Embu Hospital. We would also like to thank the Provincial Director, Ministry of Gender, Sports, Culture, and Social Services for identification of authentic herbalists from whom information in this study was obtained. Finally, we thank Geoffrey Mungai of the National Museums of Kenya for helping in PRA work in this research.

References

1. Ayensu, E.S., (1978). Medicinal plants of West Africa, Reference Publications Inc. Algonac.
2. Barakat, E. Abu-Irmaileh, Fatma, U. Afifi, (2003). Herbal medicine in Jordan with special emphasis on commonly used herbs, Journal of Ethnopharmacology, **89**: 193-197.
3. Glover, P. E. et al. (1966). Maasai and Kipsigis notes on East African Plants Parts (ii) E.A.A.F. jnl. Xxxxii (2) pp 200-207
4. Hoggle, J., (1990). The role of African traditional healers in ORT Promotion, Nairobi.
5. Joan Camejo-Rodrigues, Lia Ascensao, M. Angels Bonet, Joan Valles, 2003, Journal of Ethnopharmacology, **89:** 199-209
6. Kaendi, M., (1997). Indigenous knowledge in the management of malaria and visceral leishmaniasis among the Tugen of Kenya; Indigenous knowledge and development monitor, **(5):** 1-27.
7. Kokwaro, J. O., (1993). Medicinal plants of East Africa, (2nd Edition), East African Literature Bureau, Nairobi.
8. Lindsay, R.S., & Hepper, F.N., (1978). Medicinal plants of Marakwet, Kenya, Royal Botanical Gardens, Kew.
9. Lucia Viegi, Andrea Pieron, Paolo, M. Guarrera, Roberta Vangelisti, (2003). Journal of Ethnopharmacology, **89**: 221-224
10. Mburu Mwangi, (2005) Daily Nation Newspaper No. 14345 p 11: A Publication of Nation Media Group Nairobi, Kenya, Website: www.nationmedia.com
11. Miller, N.N., (1990). Traditional medicine in East Africa, America Universities field staff report, **22,** pp 1-15.
12. Worldwide Fund for Nature, (WWF 1993). Vital Wealth of plants, Gland, Switzerland.
13. World Health Organization (WHO, 1978). The promotion and development of traditional medicine, Technical report series, 622, Geneva.