



ISSN (E): 2320-3862
ISSN (P): 2394-0530
NAAS Rating: 3.53
www.plantsjournal.com
JMPS 2020; 8(3): 127-135
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Received: 18-03-2020
Accepted: 20-04-2020

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An inventory of some medicinal plants used by abagusii traditional healers of South West Kenya

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Abstract

An ethnomedical survey of plants used by Abagusii traditional healers of South West Kenya was carried out and 72 plant species representing 68 genera and 48 families were botanically identified. From the taxonomic consideration of the medicinal plant drugs, the Mimosaceae family had the highest number of medicinal plant species (6) followed by Papilionaceae (5). Four families, namely the Graminae, the Palmae, the Liliaceae and the Zingiberaceae represented the Monocotyledonae. The rest of the medicinal plants came from the Dicotyledoneae. It was also found that in this ethnic group there were a great variety of healing practices, for example, steam inhalation techniques, fumigations like incense, bloodletting, hydrotherapy and many other beliefs. This study also revealed that there is rapid disappearance of many indigenous herbal medicinal plants, hence the need for conservation measures to be taken.

Keywords: Decoction, Herbalists, Oedema, Maceration, Eczema, Gusii

Introduction

The use and commercialization of non-timber forest products which include medicinal plants has been found to be an important livelihood strategy in developing countries where rural people are economically vulnerable [17]. This brings about improvement of incomes and living standards [10, 18]. Plants have served as the basis of sophisticated medicine systems for thousands of years in countries such as China and India. The plant based systems continue to play an essential role in Primary Health Care (PHC). Plant products also play an important role in the health care systems of the remaining 20% of the population who reside in both developed and developing countries.

In Kenya, the use of herbal medicine and the so-called complementary and alternative therapies is increasing dramatically. A large proportion of people, both in the urban and rural areas rely on traditional medicine for their health care [7]. This is because of the many constraints limiting access to modern medicine as well as cultural and social reasons that have contributed to the persistence of traditional medicine even with the advent of modern medicine [4]. Medicinal plants form the backbone of traditional medicine and their importance is not only limited to their direct use as therapeutic agents but also as starting materials for the synthesis of drugs as models for pharmaceutically active compounds. Diminishing economic resources due to high poverty levels and increased disease burdens have made allopathic medicine prohibitively expensive, thus positioning the harvesting of medicinal plants for personal use a less expensive alternative.

In 2010 the Convention on Biological Diversity (CBD) targeted to achieve significant reduction in the rate of biological loss. Unfortunately, there is a critical shortage of biological data essential for implementation of strategic conservation strategies in order to address objectives such as these. It is unfortunate that in some cases motivation for short term profits neglects consideration for sustainability [15], leading to resource degradation, loss of selective medicinal plant populations, unstable economic enterprises and loss of livelihoods for those involved [17, 7]. Consequently, it is being realised that the main constraints impeding the success of enterprises based on these biological resources is resource supply and sustainability [19]. Further, medicinal plant loss is expected to lower the quality of healthcare for the people who depend on them [11]. In Kenya the number of studies based on screening traditional medicinal plants has increased drastically. This has led to formulation of improved botanical preparations from traditional medicinal plants which are stimulating commercialization of these products. Further, the number of patients being treated in these herbal clinics is on the increase, sometimes reaching well over 500 patients per month [12].

Materials and methods

Research Design

An ethno medica survey was conducted in Gusii (Nyamira and Kisii) Counties in South Western Kenya in order to obtain ethno-botanical information from traditional healers.

Description of the Study Area

The study was conducted in Kisii and Nyamira (Gusii) Counties of Kenya. Kisii and Nyamira Counties lie between latitude 0° 351' and 1° 883' South and longitude 34° 038' and 35° 051' east. Kisii and Nyamira Counties covers total area of 2214.3 km² and a population of 1,879,839 inhabitants, based on population census of 2009. Over 67% of this population is living below the poverty line [2]. There are fourteen administrative sub-counties within the two counties namely: Manga, Masaba North, Borabu, Nyamira North, Nyamira South, Gucha, Gucha South, Kisii South, Kisii Central, Marani, Masaba South, Nyamache, Sameta and Kenyenya. Kisii and Nyamira Counties have 534 secondary schools, distributed within the fourteen sub-counties. More than 70 percent of the population is involved in agriculture related activities as a means of livelihood thus the need for more investment in agriculture. Main economic activities of the area include: maize farming, tea production, brick making and dairy farming.

Data Collection Procedure



Fig 1: Kisii and Nyamira Counties, Nyanza Province of Kenya, where the research was undertaken. Adopted from Google Maps on 17/5/2020

A number of villages in the study area were visited. The information on the ethno medical practices gathered from the traditional healers was entered into questionnaires and field notebooks. The healers were quizzed about their knowledge, methods of diagnosis, preparation of herbal potions and the treatment of diseases. The specific plant part (s) used along with the methods of preparation were recorded. This work was done between the months of January and February 2020 a period of heavy rains when there was plenty of vegetation.

The plant specimens were collected and pressed in a plant press and placed in the herbarium to dry under room temperature. Their vernacular names were recorded while in the field. The plants collected were allotted a collection number MP001 to MP72. They were then identified using the Kenyatta University Botany Department's Herbarium and the East African Herbarium. For each plant specimen collected, the vernacular name, botanical name and ethno medical uses(s), method of preparation of the medicinal potion and

toxic effect, if any, were documented. Voucher specimens were deposited in the Faculty of Agriculture, Kisii University College.

Results

One hundred and sixty six plant species representing 68 genera and 48 families commonly used by the Abagusii traditional medical practitioners were botanically identified. The results are presented below.

Aloaceae

***Aloe vera* (L.) Burm. f. (Syn *Aloe barbadensis* Miller) (exotic) (N001)**

Vernacular name: Omonyaineke. Use(s) and preparation: Stomach ulcers, skin wounds, headaches and constipation, stomach ulcers and problems; is an appetizer, a laxative and a purgative, provokes uterine contractions (oxytocic), increases menstrual flow; treats burns and fungal infections., improves the appearance of scars and cracks in the skin; is a digestive and treats duodenal ulcers. 2-4 spoonfuls of aloe juice dissolved in water, fruit juice or milk are taken three times daily to enhance its effects during the treatment of skin infections e.g. eczema.

Amaranthaceae

***Achyranthes aspera* L. (N002)**

Vernacular name: Esarara; Use(s) and preparation: Syphilis, an emesis and anti-malaria, toothache, and stomach problems. Young stem is chewed until it achieves brush like ends, dipped in common salt and used as a brush to clean teeth. 10 g of the burnt ash of the dried whole plant is mixed with 1 glass of water and boiled. 2-3 cups of this decoction are drunk three times daily after every meal as a remedy for stomach problems. 100 g of fresh leaves are macerated and then mixed with flour, and boiled to make a paste which is used as a poultice and applied on boils and abscesses to hasten their maturity so that the pus can be squeezed out of them and herbal treatments applied to hasten their healing.

Rhus vulgaris Meikle (N003)

Vernacular name: Obosangura; Use(s) and preparation: Diuresis, wounds, diarrhoea; and toothache. 10 g of the fresh or cooked fruits are eaten daily by a person suffering from scurvy 2 cups of a decoction made from 20 g of root material in one litre of water are drunk after every meal as a treatment for scurvy. A decoction made from 10 g of ground stem material made in 1 litre of water is mixed with 5 g of common salt and is applied directly on wounds with the help of cotton wool. Young slender stems are chewed until they achieve brush-like ends and are then used to clean teeth.

Apocynaceae

***Rauvolfia caffra* Sond. (N004)**

Vernacular name: Omomure; Use(s) and preparation: Gonorrhoea and other sexually transmitted diseases. 3 cups of a decoction made from 10-15 g of dry powdered root material in 1 litre of water are drunk daily.

3.5. *Tabernaemontana stapfiana* Britten (N005)

Vernacular name: Omobondo; Use(s) and preparation: Gonorrhoea and other sexually transmitted diseases. 2-3 cups of a decoction made from 10-15 g of dry powdered root material in 1 litre of water are drunk daily.

Aspleniaceae

***Dryopteris filix-mas* Schott. (N006) Vernacular name:**

Engwe; Use(s) and preparation: Anthelmintic. 5 g of the powder of the rhizome and the root are swallowed. Warning: During the treatment, no alcoholic beverages should be taken. No more than 10 g of the powder should be swallowed because the plant is toxic.

Asellaceae

***Basella alba* L. (N007) Vernacular name:** Enderema. Use(s) and preparation: Constipation. 10-20 g of fresh leaves are macerated and strained and the extract mixed with 1 litre of water and 3-4 cups are drunk three times daily for constipation.

Cactaceae

***Pachycereus pecten-aboriginum* L (exotic). (N008). Vernacular name:** Omobimbera ng'umbu; Use(s) and preparation: Wound healing. 5 g of the leaves are macerated and strained and the extract used to clean wounds when there is no water around. When the bleeding has stopped, a piece of cactus is tied around the wound with a piece of cloth. After 2-3 hours the strip is removed from the wound.

Caesalpinaceae

***Cassia occidentalis* L. (Syn *Senna occidentalis* (L.) Link.) (N009)**

Vernacular name: Omote ogotioka; Use(s) and preparation: Fever, snake-bite, kidney problems inflammations, edema, bruises, dysmenorrhoea, furuncles, sprains, prostate glands, purgative, and an antispasmodic substance. For internal use a decoction made from 100 g of the root material per litre of water is boiled until its volume is reduced to a third of the original volume strained and sweetened with honey, 2-3 cups are drunk after each meal as a remedy for painful menstruation, or prostate disorders a teaspoonful of toasted seeds and ground into a powder are mixed with 1 cup of water and drunk daily after every meal. For external use poultices of leaves can be used as a remedy for edema, bruises, furuncles and sprains.

Campanulaceae

***Lobelia gibberoa* Hemsl. (N010) Vernacular name:** Omomoa (Etumbato enyegarori). Use(s) and preparation: Stimulant, diaphoretic, skin diseases, chronic rheumatism and gout. 2 cups of an infusion of 20-30 g of the powder of the whole plant made in 1 litre of water are drunk as a stimulant and a diaphoretic. A decoction of 100-200 g of fresh leaves in 1 litre of water is used to bathe the whole body of a person with any skin malady, chronic rheumatism or gout.

Canellaceae

***Warburgia ugandensis* Sprague (N011) Vernacular name:** Esoko (Omonyakige). Use(s) and preparation: Chest pains, malaria and toothache. 4 cups of a decoction made from 20-30 g of the roots and bark in 1 litre of water are drunk daily.

Capparidaceae

***Gynandropsis gynandra* (L.) Briq. (N012) Vernacular name:** Chinsaga; Use(s) and preparation: Dissolves adhesions in the womb and increases the production of milk. 5 cups of a decoction made from 20 g of the roots of the plant in 1 litre of water are drunk dissolve adhesions in the womb. The soft young tender leaves are cooked and eaten by lactating mothers to improve milk production.

Combretaceae

***Combretum molle* G. Don. (N013) Vernacular:** Ekamukira;

Use(s) and preparation: Stomachache and coughs. 100 g of fresh leaves are boiled in one litre of water, allowed to cool and then sweetened with honey. 1 cup of this decoction is drunk after every meal as a cure for stomachache and coughs.

Commelinaceae

***Commelina bengalensis* L. (N014) Vernacular name:** Rikongi; Use(s) and preparation: Fevers. 100 g of the leaves are boiled in 1 litre of water and used as a wash.

Compositae

***Ageratum conyzoides* L. (N015)**

Vernacular: Emete y'amaiso; Use(s) and preparation: A haemostatic, epistaxis; sore eyes, bowel complaints. 50 g of fresh leaves are macerated and then strained. The resulting extract is used as eye drops. This extract is also mixed with common salt and applied to fresh wounds to stop bleeding and also to hasten the process of healing 100 g of fresh leaves are boiled in one litre of water, allowed to cool and then sweetened with honey. 1 cup of this decoction is drunk after every meal as a cure for stomachache, bowel complaints and coughs.

Convolvulaceae

***Ipomoea batatas* L. (exotic) (N016). Vernacular name:** Amanyabwari; Use(s) and preparation: Antihelminthic. 20-30 g of leaves are macerated in 1 litre of water and strained. The extract is drunk for the expulsion of hookworms from the gut.

Cucurbitaceae

***Homodica foetida* Schumach (N017)**

Vernacular name: Egwagwa; Use(s) and preparation: Thrush. 100 g of the buds are boiled in 1 litre of water and 3-4 cups of the extract drunk.

Cruciferae

***Brassica oleracea* L (N018) Vernacular name:** Ekabichi nyamato; Use(s) and preparation: Gastro-duodenal ulcers, diabetes, Intestinal worms, wounds, varicose veins and torpid ulcers, eczema, furuncles and acne. For gastro-duodenal ulcers 1 cup of fresh juice is drunk three to four times daily before each meal on an empty stomach. Poultices, prepared with either raw leaves or with cooked leaves mixed with bran so that the mixture becomes more compact, are applied directly on an affected skin area for the treatment of infected wounds, varicose veins, torpid ulcers, eczema, furuncles and acne.

Cyperaceae

***Cyperus rotundus* L. (N019) Vernacular name:** Endwani; Use(s) and preparation: Fevers Bulb is boiled and eaten for fevers.

Euphorbiaceae

***Croton macrostachysus* Del. (N020) Vernacular name:** Omosocho; Use(s) and preparation: Diarrhoea and dysentery. 50 g of the dry leaves are ground into a powder. Two spoonfuls of this powder are stirred in one cup of water and drunk as a remedy for diarrhoea and dysentery.

***Euphorbia hirta* L. (N021) Vernacular name:** Obwaranse; Use(s) and preparation: Thrush, diarrhoea and dysentery. 10 g of leaves are combined with 10 g of the leaves of *Oxalis latifolia* and 10 g of *Ajuga remota*, macerated and strained. 1 cup of this extract is recommended as a remedy for children suffering from a condition in which the mouth becomes bloody red. 50 g of the dry leaves are ground into a powder.

Two spoonfuls of this powder are stirred in one cup of water and drunk as a remedy for diarrhoea and dysentery.

Flacourtiaceae

Dovyalis abyssinica L. (N022)

Vernacular name: Omokorogonywa; Use(s) and preparation: gonorrhoea, bilharzia, stomachache and fever. 3-4 cups of 20 g of the root decoction made in 1 litre of water boiled with fat is drunk for treatment of stomachache and fever.

Grameneae

Agropyron repens (L.) Beauvois (N023)

Vernacular name: Ekenyambi; Use(s) and preparation: Cystitis and other diseases of the genital tract. 10 g of the dried rhizome are macerated in 1 litre of water and the extract is filtered. 3-4 cups are drunk daily.

Labiatae

Ajuja remota Benth. (N024) **Vernacular name:** Omosinyonto; Use(s) and preparation: Constipation. 3 cups of a decoction made from 10 g of the leaves and 10 g of the stem is drunk. This is a useful treatment for constipation especially in small children.

Leonotis nepetifolia R.Br. (N025) **Vernacular name:** Risiibi rienyoni Use(s) and preparation: Stomachache. 2-3 cups of an infusion made from 10 g of the leaves per litre of water are drunk.

Lillaceae

Asparagus africanus Lam. (N026) **Vernacular name:** Ekerobo; Use(s) and preparation: Boils. 5 g of the leaves are macerated and pasted on a boil to quicken its healing.

Gurriosa superba L. (N027) **Vernacular name:** Omorero bwenyang'au; Use(s) and preparation: Abortion, indigestion, aphrodisiac and gouts. 2-3 cups of a decoction made from 10-15 g of root tissue per litre of water are drunk for abortion and for indigestion. 1 cup of an infusion made from 10-15 g of root tissue is drunk as an aphrodisiac and to treat gouts.

Warning: Little quantities should be taken at a time, as the plant rhizomes are poisonous.

Malvaceae

Abutilon mauritium (Jacq.) Medic. (N028) **Vernacular name:** Omorobianda; Use(s) and preparation: Diarrhoea, stomach cramps and bronchitis. 2 cups of an infusion of 20-30 g of a dry powder of the leaves in 1 litre of water are drunk daily for diarrhoea. 2 cups of a decoction made from 20-30 g of the root powder are drunk daily for stomach cramps and bronchitis.

Sida tenuicarpa Vollesen (Syn *Sida cuinefolia* Cuf. non Roxb. (N029)

Vernacular name: Ekeburanchogu; Use(s) and preparation: Poison antidote, sore throat, quietening a foetus and wound healing. 100 g of dry leaves are ground into a powder 1 teaspoonful is pasted on an operated organ or part to remove poison. 1 cup of an infusion made from the powder drunk for sore throat. 1000 g of root material is boiled in 1 litre of water, strained, sweetened with honey and 1 cup is drunk three times to quieten a foetus which moves too much in the womb. A suitable quantity of the leaves or roots is macerated and pasted on a wound.

Meliaceae

Ekebergia capensis Sparm. (N030) **Vernacular name:**

Omonyamari; Use(s) and preparation: Antihelminthic; dysentery. 3-4 cups of a decoction made from 10 g of bark material in 1 litre of water is drunk for dysentery and round worms.

Melanthaceae

Bersema abyssinica Fres. (N031) **Vernacular name:** Omobamba; Use(s) and preparation: Expulsion of placenta, colds; an aphrodisiac; Antihelminthic; dysentery and epilepsy. 3-4 cups of a decoction made from 10 g of root material are drunk to facilitate the expulsion of the placenta. Dry leaves are ground and used as a snuff for colds or chewed to act as an aphrodisiac. 2-3 cups of a decoction of 10 g of the powder of the dry bark are mixed against helminthes. 3 cups of a decoction made from 10 g of young twigs are drunk for dysentery. 3 cups of a decoction made from 20 g of root material in 1 litre of water are drunk three times daily for epilepsy.

Mimosaceae

Acacia abyssinica Benth. ssp. *calophylla* Brenan (N032) **Vernacular name:** Omonyenya omwegarori; Use(s) and preparation: Digestive problems and sore throat. 5 g of the gum is stirred in 1/2 a litre of honey and 1 cup of this mixture is drunk for digestive problems and sore throat.

Acacia nilotica (L.) Del. (N033) **Vernacular name:** Omonyenya; Use(s) and preparation: Digestive problems and sore throat. 5 g of the gum is stirred in 1/2 a litre of honey and 1 cup of this mixture is drunk for digestive problems and sore throat.

Mimosa pudica (L.) Del. (N034)

Vernacular name: Ekiebundi; Use(s) and preparation: Dysentery, diarrhoea and sexually transmitted diseases. 2-3 cups of a decoction of 30-40 g of the whole plant in 1 litre of water are drunk for the treatment of dysentery. 3-4 cups of a strong decoction of 100 g of the whole plant per litre of water are drunk for days for sexually transmitted diseases. 2-3 cups of a strong decoction of 100 g of the leaves, bud or bark in 1 litre of water are drunk for dysentery and diarrhoea.

Ficus natalensis Hochst. (N035)

Vernacular name: Omogumo; Use(s) and preparation: Stomach problems and skin diseases. The leaves are burnt to ash. 2-3 spoonfuls of this ash are stirred in a cup of water and drunk three times for stomach problems. The same ash is mixed with animal fat and applied directly on an area afflicted with a skin disease.

Ficus sansibarica Warb. (N036)

Vernacular name: Omoko; Use(s) and preparation: Stomach problems and skin diseases. 2-3 spoonfuls of ash from burnt leaves are stirred in a cup of water and drunk three times daily for stomach problems. The same ash is mixed with animal fat and applied directly on an area afflicted with a skin disease. A decoction of the leaves made from 50 g of leaves in 5 litres of water is used to bathe the whole body as a treatment for skin afflictions.

Ficus sur Forssk (N037) **Vernacular name:** Omoraa; Use(s) and preparation: Stomach problems. 2-3 spoonfuls of ash from burnt leaves are stirred in a cup of water and drunk three times daily.

Myrsinaceae

Maesa lanceolata Forssk (N038)

Vernacular name: Omoterere; Use(s) and preparation: Diarrhoea and dysentery. 1 cup of a decoction of 100 g of leaves in 1 litre of water is drunk every four hours until the diarrhoea or dysentery stops.

Myrtaceae

***Psidium guajava* L. (exotic) (N039)**

Vernacular name: Ripera; Use(s) and preparation: Diarrhoea and dysentery, 1 cup of a decoction of 100 g of leaves in 1 litre of water is drunk every four hours until diarrhoea or dysentery stops.

Oxalidaceae

***Oxalis latifolia* L. (N040): Vernacular name:** Enyonyo; Use(s) and preparation: Inflamed rectum. 9 g of the leaves of this plant are combined with 10 g of the leaves of *Orthosiphon Trophetarum* are macerated in 1 litre of water and strained and introduced into an inflamed rectum.

Palmae

***Phoenix reclinata* Jacq. (N041) Vernacular name:** Rikendo; Use(s) and preparation: Skin diseases. 1 handful of fresh fruits is eaten daily.

Papilionaceae

***Erythrina abyssinica* DC. (N042) Vernacular name:** Omotembe; Use(s) and preparation: Trachoma, Antihelmintic, gonorrhoea, syphilis, snake bite, and anthrax.

Three cups of the decoction made from 20 g of finely ground bark and 10 g of the root tissue in 1 litre of water are drunk for the treatment of trachoma. The same decoction acts as a vermifuge. 3-4 cups of the same decoction are drunk for gonorrhoea, syphilis and snake bite.

***Indigofera arrecta* A. Rich. (N043) Vernacular name:** Omocheo; Use(s) and preparation: Stomachache. 3-4 cups of an infusion made from 10 g of the roots in 1 litre of water are drunk.

***Kotschyia africana* Endl. (N044) Vernacular name:** Omosing'oro; Use(s) and preparation: Stomach problems. 3-4 cups of a decoction made from 10 g of the roots in 1 litre of water are drunk.

***Phaseolus vulgaris* L. (N045) Vernacular name:** Ching'ende; Use(s) and preparation: Edema, gout, kidney stones and premenstrual retention of fluid. Green pods are cooked, dressed with oil and lemon juice and eaten as vegetables for edema, gout, kidney stones and premenstrual retention of fluid. A decoction with 100 g of dry bean pods in 1 litre of water is boiled until the liquid reduces to a half its original volume and drunk daily for edema and premenstrual retention of fluid.

***Sesbania sesban* (L.) Merrill var. *nubica* Chiov. (N046) Vernacular name:** Omosabisabi; Use(s) and preparation: Stomachache. 3-4 cups of an infusion made from 10 g of leaves in 1 litre of water are drunk as a remedy for stomachache.

Passifloraceae

***Passiflora incamata* L. (Syn *Passiflora subpeltata* L.) (N047)**

Vernacular name: Ritindogoro (Ritunda nyakoranda); Use(s) and preparation: Anxiety, nervousness, insomnia,

alcoholism and drug addiction. An infusion of 20 g of the flowers and 20 g of the leaves is prepared in 1 litre of water, sweetened and drunk for insomnia. 50 g of flowers and 50 g of leaves are dropped into 1 litre of boiling water. The infusion is then decanted, sweetened with honey and 3 cups are drunk daily for alcoholism and drug withdrawal.

Piperaceae

***Piper capense* L. (N048) Vernacular name:** Ekenyanengo; Use(s) and preparation: Sore throat. 2 cups of a decoction made from 40 g of the roots in 1 litre of water are drunk daily for sore throat.

Polygonaceae

***Oxygonum sinuatum* (Meisn) Dammer. (N049) Vernacular name:** Omonyantira omwegarori; Use(s) and preparation: Boils, tonsillitis and sore eyes

A handful of leaves are macerated and the macerate pasted on a boil to make it ripen faster so that the pus can be squeezed out to hasten it healing. A decoction made from 30 g of stems in 1 litre of water is gargled as a remedy for tonsillitis. 10 g of the leaves are macerated and the extract is used as eye drops to treat a diseased eye.

***Rumex usambarensis* (Dammer) Dammer. (N050)**

Vernacular name: Omonyantira; Use(s) and preparation: Malaria, TB, wound healing and scabies. 20 g of the whole plant is burnt into ashes. 2-3 spoonfuls of this ash are stirred in a cup of honey and drunk as a treatment for malaria and tuberculosis (TB). 10 g of the whole plant are combined with 10 g of the leaves of *Ajuga remota* and then burnt to ashes. Two to three spoonfuls of this ash are stirred in a cup of honey and applied directly to wounds to quicken their healing. A decoction made from 50 g of the leaves in 1 litre of water is used as a bath for the body of a person suffering from scabies.

Proteaceae

***Fauera rochetiana* (A. Rich.) Pic. Ser. (N051) Vernacular name:** Omosasa; Use(s) and preparation: Expulsion of intestinal parasites. 15 g of the powder of the rhizome and the root are swallowed. For children the dose should be halved.

Warning: During the treatment, no alcoholic beverages should be taken. No more than 10 g of the powder should be swallowed.

Rhamnaceae

***Rhamnus staddo* A. Rich. (N052) Vernacular name:** Omonyango; Use(s) and preparation: Malaria and venereal diseases. 3-4 cups of a decoction made from 20-30 g of the leaves and 15-20 g of the roots in 1 litre of water are drunk daily.

***Rhamnus prinoides* L' He'rit. (N053) Vernacular name:** Omong'ura; Use(s) and preparation: Indigestion, gonorrhoea, malaria and rheumatism. 3-4 cups of a decoction made from 100 g of ground roots in 1 litre of water are drunk daily.

Rosaceae

***Fragaria vesca* L. (N054) Vernacular name:** Chinkenene; Use (s) and preparation: Arthritis and gout. 2-3 g of ripe fruit is eaten daily with no any other food except water.

***Hagennia abyssinica* (Bruce) J.F.) Gmel. (N055)**

Vernacular name: Omokunakuna; Use (s) and preparation: Arthritis, malaria oedema and stomachaches. 2-3 cups of a decoction made from 100 g of ground leaves in 1 litre of water are drunk daily.

***Prunus africana* (Hook, f.) Kalkm. (Syn *Pygeum africana* Hook, f.) (N056)**

Vernacular name: Ekeburabura; Use(s) and preparation: Purgative and prostate glands problems. 2 cups of an infusion of 10-20 g of the dried and ground bark made in 1 litre of water are drunk.

Rubiaceae***Rubia cordifolia* L. (N057)**

Vernacular name: Eng'urang'uria; Use(s) and preparation: stomachache, antidote for general poisoning, diarrhoea and skin rashes. 3 cups of a decoction made from 10 g of the roots in 1 litre of water are drunk for the treatment of stomachache. These are drunk 3 times daily. 2 cups of a decoction made from 10 g of the leaves and 10 g of the stem in 1 litre of water are drunk for the treatment of diarrhoea. Two cups of a decoction made from 10 g of the leaves in 1 litre of water are drunk daily for the treatment of skin rashes.

***Vangueria apiculata* K. Schum. (N058)**

Vernacular name: Omokomoni; Use(s) and preparation: Stomachache, intestinal worms and, and scurvy. 3 cups of an infusion made from 10 g of macerated leaves are drunk as a remedy for stomachache. 5 cups of a decoction made from 15 g of roots in 1 litre of water are drunk as a remedy for intestinal worms. The fruits are also eaten as a preventative measure against scurvy.

Rutaceae***Citrus aurantium* L. (*Citrus Union* L.) Burn, (exotic) (N059)**

Vernacular name: Ritunda riroro; Use(s) and preparation: Insomnia, migraine, stomach spasms and nerves in the stomach, belching, heart palpitations, fainting and weakness of fatigue, menstrual pain, edema, haemorrhages, a digestive tonic, appetizer, indigestion and a sedative. 30 g of the leaves and 30 g of the flowers are made into an infusion in 1 litre of water. 3-4 raps are drunk daily when retiring to bed. This brings on sleep quickly. 50 g of dry rind are cut into pieces and then boiled for 30 minutes, sweetened with honey and a cup of this decoction is drunk daily after each meal as a remedy for edema, indigestion and varicose veins.

***Clausena anisata* (Willd.) Benth. (N060)**

Vernacular name: Omonyansuri; Use(s) and preparation: Coughs and stomachaches, and paralysis. 1 cup of the decoction made from 15 g of roots in 1 litre of water is drunk for the treatment of coughs and stomachache. A root infusion made from 1 litre of water is put into incisions and some of this decoction is taken orally as a remedy for paralysis caused by snake bites.

***Toddalia asiatica* (L.) Lam. (G061) Vernacular name:**

Ekenagwa ekiagarori; Use(s) and preparation: Coughs, colds and stomachache. 2-3 cups of a decoction made from 15 g of the roots in 1 litre of water are drunk for the treatment of coughs and stomachache.

Solanaceae***Capsicum frutescens* L. (N062) Vernacular name:**

Earare; Use(s) and preparation: Palpitations, asthma, cough and cold in the chest, boils, nausea, indigestion or, sore throat, bloated stomach, lack of appetite, rheumatism, lumbago, stiff neck and muscular aches.

The fruit is cooked as a vegetable in any cooking recipe to act as a remedy for those suffering from a bloated stomach or

slow indigestion, and from lack of appetite. Small doses are recommended. It can also be sprinkled on food in the form of a dry powder. Poultices of hot peppers are applied on aching parts or areas. These are then tied with a woolen cloth.

Warning: People suffering from severe stomachaches must abstain from eating hot peppers.

Tiliaceae***Triumfetta brachyceras* K. Schum. (Syn *Triumfetta macrophylla* K. Schum.) (N063)**

Vernacular name: Ekemiso; Use(s) and preparation: Constipation, indigestion problems, minor pains and aching in new born. 50-60 g of the powder of the dry leaves are mixed with 1 litre of water. 3-4 cups are drunk daily for constipation and other indigestion problems. 100 g of fresh leaves are pounded and mixed with 2 litres of water. This infusion is used to bathe newborn babies. This infusion acts as a remedy for itching. For minor pains the same water can be used as a bath.

***Triumfetta rhomboidea* Jacq. (N064) Vernacular name:**

Omomiso; Use(s) and preparation: Facilitation of first purching in new borns, burns, toothache and circumcision wounds. One cup of a decoction made from 5 g of the closed flowers in 1 litre of water is given to newborn babies to facilitate the first purching. The leaves are macerated and the macerate then pasted on wounds resulting from burns to quicken their healing. A root infusion made from 30 g of root material in 1 litre of water is used as a gargle to treat toothache. The same infusion is applied to circumcision wounds to hasten their healing.

***Corchorus olitorius* L. (N065) Vernacular name:**

Omotere; Use(s) and preparation: Increases milk production, in women Cooked with any vegetable recipe and eaten.

Theaceae***Thea sinensis* L. (N066) Vernacular name:**

Echae; Use(s) and preparation: Stimulant, diarrhoea, colitis, a digestive tonic, and conjunctivitis. 30-50 g of dried and ground tea is dropped into 1 litre of boiling water. 4-5 cups of this infusion are drunk daily as a cure for diarrhoea, colitis, upset stomach or indigestion. 40-60 g of dried and ground leaves are dropped into 1 litre of water. This is boiled for 10 minutes, allowed to cool, and then applied to the eye as eye drops to treat conjunctivitis.

Ulmaceae***Trema orientalis* (L.) Bl. (N067). Vernacular name:**

Omonyia; Use(s) and preparation: Demulcent and emollient. 100-200 g of the powdered drug is mixed with 1 litre of water. This is then boiled and mixed with cassava flour and stirred to make a paste. This paste is used as a poultice and applied on dislocated joints.

Umbelliferae***Daucus carota* L. (N068) Vernacular name:**

Ekarati; Use(s) and preparation: Conjunctivitis, ulcers, diarrhoea and colitis, wounds, burns, eczema, acne, abscesses, induction of menstruation and avoidance of intestinal gases. Raw carrot, sliced or shredded is eaten to improve vision. The juice can also be drunk immediately after preparation, alone or mixed with lemon and/or apple juice. This is still for the improvement of vision. The juice must be drunk over long periods in order to reduce its beneficial effects. A herbal tea

with carrot seeds (40-50 g per litre of water) is recommended for the treatment of stomachaches and any excess of acidity. For the treatment of infected wounds, burns, eczema, acne, and abscesses poultices of cooked and mashed carrot are directly applied to the affected area.

Urticaceae

***Urtica dioica* L. (N069)** Vernacular name: Riise; Use(s) and preparation: Rheumatic afflictions, gout, arthritis, kidney stones, urinary sand, malnutrition, fatigue, for women with excessive malnutrition, uterine and nasal hemorrhages, digestive disorders, diarrhoea, colitis, dysentery, eczema, eruptions, acne and loss of hair. 30-40 g of fresh whole plant material are macerated in 1 litre of water and then strained using sackcloth. 1 cup of the resulting extract is drunk two times daily as a treatment for rheumatism, gout, arthritis, kidney stones and urinary sand. An infusion made from 50 g of fresh whole plant material per litre of water is steeped for 1 hour and 4 cups of this are drunk daily, preferably after every meal as a remedy for gout, rheumatism, arthritis, kidney stones, and urinary sand, uterine and nasal haemorrhages. Juice from the whole plant is applied on an area afflicted with eczema, eruptions, acne or hair loss. Compresses, soaked in the juice made from an infusion from whole plant material, usually 100 g in 1 litre of water, are applied unto an area affected by eczema, eruptions and acne. These compresses are changed five times daily. In the case of nasal haemorrhages cotton wool is soaked in the above juice and plugged into the nostrils. For the treatment of a rheumatic or inflammatory disorder, a freshly gathered bunch of the plant is used to gently hit the skin of the affected joint e.g. knee, shoulder, etc. This causes a revulsive effect to take place. This action attracts blood to the skin, thus re-congesting the internal tissues.

Verbenaceae

***Lantana camara* L. (N070)** Vernacular name: Obori bw'enyoni; Use(s) and preparation: Abortifacient, stomachache, malaria, rheumatism, coughs, sore throat, toothache, conjunctivitis, colds, headache and itching. 3-4 cups of an infusion made from 20 g of leaves per litre of water are for migraines. A decoction of 30 g in 1 litre of water is allowed to stand for 1 hour and 1 cup is drunk after every meal as for coughs, sore throat colds and headaches. For external use an infusion of 40-50 g of leaves is gargled for throat afflictions. For sinusitis the patient inhales steam from the hot decoction. Hot compresses of a concentrated infusion or decoction are applied on the affected parts. Throat afflictions can also be healed by the use of poultices of a stewed plant wrapped in cotton fabric.

Vitaceae

***Rhoicissus tridentate* (N071)**

Vernacular name: Omonyambeche (Egesanga); Use(s) and preparation: Antiseptic.

A decoction made of 50-60 g of stem tissue in 1 litre of water is used as an antiseptic.

Zingiberaceae

***Zingiber officinale* Roscoe (N072)**

Vernacular name: Entangausi; Use(s) and preparation: Exhaustion, lack of appetite, bloated stomach, and flatulence, Used for seasoning in small amounts for raw and uncooked food. 1 cup of an infusion of 2 g in 500 ml of water is drunk after every meal for all the above conditions.

Discussions

Traditional Medicine and Medicinal Plants

From the taxonomic consideration of the medicinal plant drugs, Mimosaceae family was represented by the highest number (6) of medicinal plant species followed by Papilionaceae family. Four families namely the Graminae, Palmae, Liliaceae and Zingiberaceae represented the monocotyledonae. The rest of the medicinal plants were from the dicotyledoneae. This study revealed that the Abagusii indeed possess an extensive knowledge of the effective medicinal properties of their flora. Seventy two plant species representing 68 genera and 48 families were botanically identified. It was also revealed that medicinal plants supply medication for the vast majority of the people in both urban and rural areas. This information was obtained from the interviews with the traditional healers who knew the backgrounds of their patients well. Some of the medicinal plants have been in use since time immemorial but through the ages, by trial and error many plants have gained fame as healing agents and some of these have lingered on as in the case of *Euphorbia hirta*.

In this ethnic group it was found that there are a great variety of healing practices for, example, steam inhalation techniques, fumigations like incense, bloodletting, hydrotherapy and many other beliefs. Most of the traditional healers do not distinguish between the physical and psychological elements of an illness and thus largely rely on faith. In this group medicinal plants are components of a medical system, rather than the sole medicinal resource; animal products, mineral substances and certain other methods are also used. Common plant treatments are known and used by the majority of the rural people in addition to those by traditional specialist healers. There is no distinction between what is consumed as food or medicine.

A number of medicinal plants such as *Ipomea batatas*, *Solanum nigrum*, *Manihot esculenta*, and *Gynandra gynandropsis*, to mention just a few, are consumed as vegetables in this ethnic community and also by other Kenyan communities^[8, 13]. Foods are thought to have different healing qualities and plants are often added to foods or are taken as tonics to promote good health. It should be noted that plant medicines can contribute important mineral and vitamins to the diet, thus favoring overall health e.g. the small fruits of *Rhus vulgaris* which are edible would contain vitamin C which prevents scurvy. This finding is in agreement with the results of^[16] who found out that the traditional cultures of ethnic groups in Northwest China use flowers as food material and medicines. The Abagusii also use flowers as food and medicine.

Most studies on traditional medicine do not assess plant material as it is traditionally prepared mostly in conjunction with other plant materials nor do they examine the extent to which treatments are used. No studies have attempted to place a value on the health care provided by traditional healers and traditional plant medicines in terms of their modern equivalents. Thus while there is a vast amount of literature on which species have been or are currently used in traditional medical treatments, there is little information to assess their effectiveness.

The extent to which the Abagusii use medicinal plants

Information on the general popularity of plant medicines among the Abagusii was lacking and there is no way in which such information can be deduced from this kind of study unless the traditional healing practices inherent in this group

are assessed. Such information and the information on the extent to which the people themselves use plant medicines for their health care as opposed to the extent of the use of plant medicines to the one being provided by traditional healers would make a very interesting topic for research.

However, it was noted that most of the Abagusii are increasingly shifting to the use of plant medicines and this could be attributed to the fact that Western medicines are very expensive due to the rising cost of drug and the negative experiences (or disillusion) with modern drugs and the modern health care system that has been experienced by these people. In this group traditional cures are often used before turning to Western medicine and vice versa. The majority of the people prefer herbal medicine because it is familiar (tradition and past experience) and less expensive than antibiotics in pharmacies and markets.

The Effectiveness of Plant Medicines

From the literature it was noted that most studies, which address the effectiveness of different traditional medical treatments generally evaluate their potential for pharmaceutical development, thus information can only be found in chemical and pharmacological studies, that analyze the phytochemistry of different species. However, the majority of these studies generally present their results in terms of a plant's chemical composition. They don't link the presence of a particular compound in a plant for instance tannins with the use of many plant treatments. In addition the potential health benefit(s) that plant minerals provide are not considered. Thus the layman is at a loss to judge the effectiveness of a particular plant for treating a particular illness or as one element of the complete traditional healing system^[14].

Since plants contain a multiplicity of constituents, it has been often claimed that the use of the whole plant or many whole plants rather than one purified constituent may be more effective therapeutically and also produce fewer adverse effects^[5]. This observation could support the practice whereby traditional healers mostly prefer to use more than one plant in the preparation of their medicines and also the reason why, if one plant is used in one treatment, then another must be taken as well to eliminate the toxic effect of the first plant.

The results revealed that the healers use different plant species from the same family to treat the same disease condition(s). This observation is supported by the work of other researchers. In their work,^[6] analyzed 1000 individual plants of the genera *Datura Scopolia* and *Hyoscyamus* to establish the variations in the levels and pattern of tropane alkaloids that occur between plants. These results showed that there were substantial differences in alkaloid patterns between different species, but the quantitative differences between different lines were less than those shown between plants.

During this study an attempt was made to link the antimicrobial activity and the presence of a particular plant in traditional medicine. The results obtained demonstrated that the plants that have traditionally been used in treatments, especially of bacterial and fungal infections, contained chemical constituents, which could explain or justify their effectiveness in traditional medical treatments. However, it should be noted that not all traditional medicines have proven effective in the scientific sense of the word.

The Availability of Plant Medicine Resources

Traditionally plant medicines used to be gathered from forest

areas, fallow lands, village common lands as well as agricultural fields. This study revealed that plant species usually used by traditional healers come from specific locations, which may be very far from the villages. During this study, one healer remarked that the availability of plant medicines was seasonal and that they were often very rare during the dry season and plentiful during the rains. He also observed that often the medicinal effectiveness of a plant is thought to be highest from plants collected in the wild and in particular areas. Plant medicines collected from deep in the forest are thought to be stronger medicinally^[3]. This observation is in agreement with the finding that the medicinal qualities of *Euphorbia hirta* L. are stronger when gathered from the wild rather than from cultivated areas and that they contain higher concentrations of active constituents in wild^[1]. This finding is also in agreement with the work of^[9] who in their studies in the estimation of the quality of *Epidium* leaves as a crude drug by the examination of the content of flavanol glycosides by high liquid performance chromatography in nineteen species collected from different parts of the world; Europe, China and Japan, found that the species from Japan and China had abundant quantities of flavanol glycosides when compared to the European ones. This also supports the fact that sometimes the healers would send for a plant that they use in their medicinal preparations from a different geographical region. For example, a traditional healer might send for a specimen of *E. hirta* L. from the Coast region while the same species is available locally in South West Kenya. Even within the same region there could be ecological or even micro-ecological differences.

An important observation that was made in this study concerns the rapid disappearance of many indigenous herbal medicinal plants with some such as *Gloriosa superba* L. being virtually on the verge of extinction. Some of the signs of this disappearance of these medicinal plants could be seen from the observation that people walk long distance to collect them and that some medicinal plants are no longer found. Areas that used to be thick forests of diverse species of flora have been reduced to bush land and are now fast disappearing. It was also noticed that many medicinal plants are not maturing and seeding because young plants are being harvested before they mature and the number of traditional healers using herbs is also falling.

Some of the factors responsible for this disappearance of herbal medicinal plants are that the rising numbers of people and animals cause pressure on plant survival^[20]. Natural habitats are being cleared for farming and grazing and trees are felled for timber, charcoal and other commercial uses. The pattern of land use has also changed. The land is grabbed and used in ways that are not sustainable^[15].

Inappropriate ways of harvesting for example, the removal of all the bark or uprooting the whole plant without leaving any part to grow, bush fires, commercialization of plants resources, lack of awareness that plants are the sources of conventional medicine young people not interested in practicing traditional medicine, the view by some Western religions that the use of traditional medicine is a form of evil worship or witchcraft and the poverty in the area that makes people to fell down trees and cut them for sale to earn a livelihood are also contributory factors to the disappearance of the medicinal plants.

Acknowledgements

Our sincere gratitude goes to Kenyatta University, Moi

University, Kisii University, the herbalists and other people knowledgeable in the use of plants as medicine who gave us the information contained in this paper openly. We cannot mention everybody who assisted in the success of this project but they should know that we have thanked them.

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