

ORIGINALRESEARCH

Ethnomedicinal Knowledge of Plant Species Used for Healing Children with 'Evil Eye' Illnesses in Kemera, Nyamira County, Kenya

Conocimiento etnomédico de especies de plantas utilizadas para la curación de los niños con “Mal de ojo” en Kemera, Distrito de Nyamira, Kenia

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Abstract

Ethnopharmacological relevance. Belief in evil eye illnesses is widespread across various cultures. Though both the illnesses and their treatments can involve harm to persons and property, they been given little mainstream attention, and the interventional approaches rely on traditional medicine practices which are largely devoid of scientific evidence. **Objective.** The objective of the study was to identify and document the medicinal plant species used to manage evil eye illnesses in Kemera. **Materials and methods.** A cross-sectional survey was used in the study using a questionnaire to collect data from twenty four key informants who consented to participate in the study. **Results.** Eighteen plant species were identified for the treatment of various "evil eye" illnesses in Kemera, Manga Subcounty, Nyamira County. The Solanaceae family contained the majority of the plants (17%), followed by the Asteraceae, Lamiaceae, and Rubiaceae families, which together accounted for 11% of the plants used. The most commonly used part of the plants was the leaf (69%), and indigenous plants made up 78% of the total collection. Of the recorded plants, 56% were prepared in either ash form (35%) or as poultices (30%), with the ash preparations taken orally and the poultices applied to the skin. Popular plant species included *Fuerstia africana*, *Iresine herbastii*, *Rubia cordifolia*, *Bryophyllum pinnatum*, *Clematis brachiata*, *Micromelia imbricata*, and *Clutia abyssinica*. **Conclusions.** The Abagusii people of Kemera utilize implicit sociocultural practices, skills, and knowledge to address the symptoms of "evil eye" illnesses and restore health. Given that the concept of the evil eye dates back to antiquity and is present across various cultural groups, it is crucial to allocate resources towards research that can provide scientific data to validate the complementary medicine practices used to manage these illnesses.

Keywords: Abagusii, Cultural medicine, Ebibiriria, Traditional medicine

Resumen

Relevancia de la etnofarmacología. la creencia en el mal de ojo está difundida entre diferentes culturas. A pesar de que tanto las enfermedades y sus tratamientos pueden implicar daños a las personas y sus bienes, se ha prestado poca atención a la intervención mediante enfoques basados en la medicina tradicional práctica, en gran parte desprovistos de evidencia científica. **Objetivo.** El objetivo del estudio fue identificar y documentar las especies de plantas medicinales usadas para gestionar el mal de ojo en Kemera. **Materiales y métodos.** Se hizo un estudio transversal con un cuestionario para recabar los datos de veinte y cuatro informantes clave que aceptaron participar en el estudio. **Resultados.** Dieciocho especies de plantas fueron identificadas para diverso tratamientos del "mal de ojo" en Kemera. La mayoría de las plantas (17%) pertenecían a la familia Solanaceae, seguida por las Asteraceae, Lamiaceae, y Rubiaceae, que en conjunto representaron el 11% de las plantas utilizadas. La parte más comúnmente usada de las plantas fue de la hoja (69%), y las plantas autóctonas representaron el 78% de la colección total. En cuanto al tratamiento de las plantas, el 56% se prepararon en forma de ceniza (35%) o como cataplasmas (30%), con la ceniza se preparan tomas por vía oral y las cataplasmas se aplican a la piel. Entre las especies vegetales populares incluidas están: *Fuerstia africana*, *Iresine herbastii*, *Rubia cordifolia*, *Bryophyllum pinnatum*, *Clematis brachiata*, *Micromelia imbricata*, y *Clutia abyssinica*. **Conclusiones.** Las personas Abagusii de Kemera utilizan implícitamente prácticas socioculturales, habilidades y conocimientos para abordar los síntomas del "mal de ojo" y restaurar la salud. Dado que el concepto del mal de ojo se remonta a la antigüedad y está presente a través de diversos grupos culturales, es fundamental asignar los recursos hacia investigación que pueda proporcionar datos científicos para validar las prácticas utilizadas en la medicina complementaria para gestionar estas enfermedades.

Palabras clave: Abagusii, prácticas culturales, Ebibiriria, la medicina Tradiciona



Introduction

The concept of "evil eye" illness is widely believed across various cultures, where it is thought that a person can either intentionally or unintentionally cause harm to another, or to their property, simply by looking at or praising them^{1,2}. The diagnosis and interpretation of health problems associated with the evil eye are rooted in supernatural beliefs¹. Evil eye disease is considered a culture-bound syndrome, as classified by the Economic Botany Data Collection Standard (EBDCS)³. Based on the symptoms, the illness can also be categorized as a psychological disorder³⁻⁵. The evil eye is believed to be caused by individuals who, driven by envy or jealousy, have the power to harm people (both adults and children), livestock, and property, either by gazing at or praising them⁶. The most vulnerable are the very young children, the wealthy and the beautiful⁶. Despite its widespread occurrence throughout history and across cultures, there remains insufficient scientific explanation for the evil eye illness to date^{7,8}.

The evil eye is believed to cause impairment of sexual activity, impotence, sterility, disorders in menstruation, problems in pregnancy and childbirth, deficient breast milk, mastitis, and a baby's refusal to suckle, among other symptoms. Currently, there are no examination protocols for evil eyes illness in the mainstream health care system⁹. However, the illness is diagnosed and treated within various traditional medicines system. The illness may also manifest as general malaise, headache, digestive problems, drowsiness, yawns, fatigue, lack of concentration, hiccoughs among babies and young children, constant crying, and anxiety^{10,11}.

Globally, about 40% of people believe in the evil eye illness¹². The illness is widespread in people of almost every culture, tribe and religion⁸⁻¹⁰. A number of ethnic communities in African countries believe in the existence of evil eye illnesses¹³. The illness is documented in some regions of Africa, including Ghana¹⁴, Ethiopia^{12,15} and the majority of East Africa^{14,16-20}. However, there is not yet any scientific evidence of the evil eye illness theory, and its afflictions are persistently unabated, assuring

that the mystery of the evil eye remains a lively focus of fear and fascination¹⁵. The understanding of evil eye illness is largely rooted in cultural beliefs. As outlined in the World Health Organization's traditional medicine strategy, traditional medicine practitioners and herbalists often serve as primary healthcare providers in many tribal societies. These practitioners play a crucial role in addressing specific health concerns, including the treatment of evil eye illnesses, with great care and attention.²¹.

Psychological disorders, or culture-bound syndromes related to the evil eye, are treated with medicinal plants in addition to rituals and ceremonies²². Different cultural groups have used varied plant preparations to mitigate the negative effects or diseases caused by evil eyes. In America, plants for witchcraft and evil eye management include *Scrophularia canina* (the evil eye herb), *Allium sativum* L., *Centaurea ornate*, *Thymus mastichina*, *Cynodon dactylon*, *Magydaris panacifolia* and *Rosmarinus officinalis* among others described by González et al.²³. In Africa, traditional medicine practitioners have used various plant-based treatments to manage diseases caused by the evil eye. In South Sudan, inhalations of powder from *Hydnora johannis*, smoke from *Cissus quadrangularis*, and other plants such as *Cassia arereh* and *Securidaca longepedunculata* are commonly used. Various communities in Ethiopia use some of the following plants: *A. sativum*, *Brucea antidysenterica* (J. F. Mill), *Carissa spinarum*, *Echinops kebericho* (Mesfin), *Draceana steudeneri*, *Justicia schimperiana* (Hochst. ex A. Nees), *Verbena officinalis* (L.), *Vernonia amygdalina* (Del.), *Clerodendrum myricoides* (Hochst) (Vatke), *Ferrula communis* (L.), *Asparagus africanus* (Lam.), *Capparis tomentosa* (Lam.), *Verbascum sinaiticum* (Benth.), *Clausena anisata* (Willd) (Benth), *Artemisia afra* (Jacq. ex willd), *Erythrina abyssinica* (Lam. ex DC.), *Klinia odora* (Forssk.), *Plumbago zeylanica* (L.), *Tagetes minuta* (L.), *Agrocharis melanantha* (Hochst.), *Centella asiatica* (L.) (Urban), *Monopsis stellarioides* (Presl) (Urb.), *Artemisia absinthium* (L.), *Momordica pterocarpa* (Hochst. ex A. Rich), *Hypericum peplidifolium* (A. Rich), *Endostemon tereticaulis* (Poir.) (M. Ashby), *Indigofera spicata*

(Forssk), *Biophytum umbraculum* (Welw.), *Phyllanthus rotundifolius* (Willd), *Ranunculus multifidus* (Forssk), *Oldenlandia lancifolia* (Schumach.) (DC), *Pentas lanceolata* (Forssk) (Defflers), *Solanum dasyphyllum* (Schumach). *Hypericum quartinianum* (A. Rich) *Veronica abyssinica* (Fresen.) and *Ruta chalepensis* (L.)²⁵⁻³¹.

Cultural medicine in East Africa recognizes that the evil eye causes a number of diseases and misfortunes³¹. Some communities in Kenya have documented the plants utilized in the treatment and management of diseases caused by evil diseases³². The Luo people use *Psidium guajava* (L.)¹⁹, while the Abagusii people use *Curcubita pepo*, *Nicotiana tobacco* and *Bryophyllum pinnatum* (Lam.)^{33,34}. Though the Abagusii people of Kenya believe that practices regarding the evil eye are an inherent and crucial part of their culture, beliefs, and values¹¹, there are limited studies of the plants used to treat the evil eye, because this information remains largely undocumented as it is passed from generation to generation orally and rarely available in written literature. Therefore, the results from current study provide for the identification and documentation of plants used by the Abagusii people of Kemera, in Nyamira County, Kenya.

Materials and methods

Research study design

A cross-sectional survey was carried out among the selected traditional medicine practitioners and herbalists using a semi-structured questionnaire. The traditional medical practitioners and the herbalists gave the information willingly.

Inclusion and Exclusion criteria

The study included literate key informants, aged 50 years and above, whose primary occupation involved the use of herbal products in traditional medicine practices. Individuals such as witches, sorcerers, diviners, and rainmakers were excluded. This research explored the demographic data of traditional medicine practitioners and herbalists in Kemera who possessed knowledge of evil eye illnesses. It also examined the medicinal plants

used, the methods for managing evil eye illnesses, and the preparation techniques of the medicines used in Kemera, Nyamira County, Kenya.

Study area and period

The study was conducted at Kemera in Manga subcounty, Nyamira County in Kenya (Fig 1). Kemera covers an approximate land area of 40.23 km² and is the largest in comparison to the other wards in Manga Subcounty, namely Manga and Magombo. It has a population estimated to exceed 35,000 people³⁵. It is a business and agricultural center, cultivating tropical fruits and vegetables, as well as offering crucial services and goods. Kemera is mostly rural and Esaba, Kemera, Omogonchoro and Ekenyuru serve as trade centers³⁶. Data collection occurred from June to September of 2022.

Fig. 1: A map of Nyamira County showing Manga Subcounty the location of study.



Source: Nyamira County Spatial Plan (Volume 2) 2021-2030³⁶.

Sampling method

The sample study included the herbalists and traditional medicine practitioners of fifty years and above in Kemera. There were a total of twenty four key informants who were interviewed, fifteen traditional medical practitioners and nine herbalists. In the three sub locations, the selected healers were well-known in the community due to their long practice in providing traditional healthcare services.

Ethical consideration

Ethical approval was granted by the Mount Kenya University Ethics and Review Committee (REF.NO.MKU/ERC/0069). The principle of confidentiality was carefully observed through the use of coded interviews, rather than using actual names. During data collection, processing, and analysis, access to the information was restricted to authorized personnel only, ensuring that it was not exposed to unauthorized individuals. The entire research was conducted in accordance with ethical guidelines, as outlined in the signed informed consent. Clearance from the chief of the location was obtained at the start of the study and maintained throughout its duration.

Data collection and presentation

Descriptive statistics were used to analyze and summarize the ethnobotanical data, based on the information obtained from the informants. The data collected by the questionnaires was recorded, coded, summarized, and analyzed using Microsoft word and excel. The findings were presented in tables and graphs. Prior to the interview process, discussions were held with the informants, through assistance of local elders and the chief, to elaborate the objective of the study. This was done to clarify the purpose of the study and to build the confidence of the respondents, so that they would be more inclined to provide reliable information without

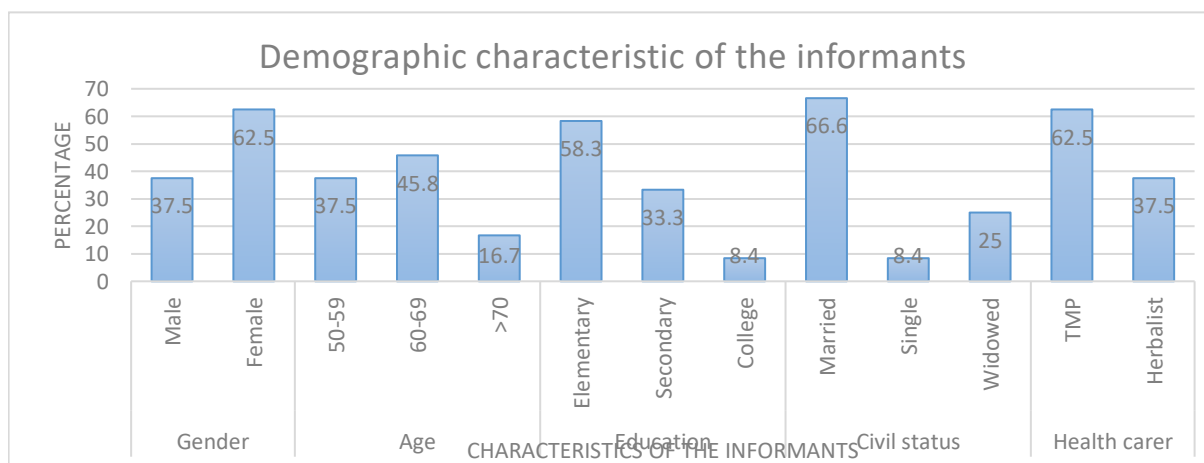
suspicion. The 24 healers that participated in the study were asked to provide information on plants used against evil eye illness (including trees, shrubs, herbs, climbing vines and other types), the parts used (such as roots, leaves, seeds, flowers, stems or other parts), the methods of preparation (e.g. concoction, filtrate, paste, smoke bath, or other methods), the routes of administration (e.g. oral, topical, smoke bath, nasal or others) and the dosage used for each. Specimen of the reported medicinal plants were collected during the interview from the field, coded and sent to the East African Herbarium of the National Museum of Kenya for botanical identification. A letter indicating the names of the plants as identified was provided by the botany department of the Herbarium. Voucher specimens for the collected plants were deposited at East African Herbarium and Mount Kenya university herbarium.

Results and Discussion

Demographic data of traditional medicine practitioners and herbalists

The graph in Fig. 2 provides a summary of the demographic characteristics of the participants of the current study. The highest percentage of the interviewed informants were between the age of 60 to 69 (45.8%), followed by those between age 50 and 59 (37.5%), with the fewest being more than 70 years old (16.7%). Out of the 24 informants who participated in the current study, the majority were

Figure 2: A graph showing the demographic characteristics of the informants



female (62.5%). The majority of the participants had elementary education only (58.3%) while a small percentage of 8.4% had attained college training. More participants were married (66.6%) while the unmarried made up only 8.4%. It was also observed that the majority of the participants were traditional health practitioners (62.5%), while herbalists formed a lower percentage (37.5%).

Diversity of medicinal plants used for treatment of evil eye illnesses.

The study recorded eighteen plants species used to treat various evil eye illnesses in Kemera, Manga Subcounty, Nyamira County (Table 1). The identified plants are distributed in thirteen families and twelve genera (Fig.2). The most represented family was Solanaceae (17%), followed by Asteraceae, Lamiaceae and Rubiaceae (11%). The leaf is the most commonly used part (69%),

followed by flowers (12%) and stem, and finally the roots (Fig 3.). Most of the plants identified were indigenous to Kenya, making up to 78% of the collections, while 22% were exotic. Of the plants used, 56% were herbs, 17% were climbing vines and 11% were shrubs. The plants were usually prepared as ash (35%) or poultices (30%) that are used orally (39%) or topically (38%). The current research indicates popular plants used in the treatment of evil eye illnesses as per the calculated familiarity index. The most popular medicinal plants were *Fuerstia qfricana* (T.C.E), *Iresine herbastii*, *Rubia cordifolia* (L), *Bryophyllum pinnatum* (Lam.) (Oken), *Clemantis brachiata*, *Micromelia imbricata* and *Clutia abyssinica* (Jaub. & Spach) followed by *Dichrocephala integrifolia* (L.f), *Pentas longifolia* (Oliv), then *Rumex abyssinicus* (Jacq), *Bidens pilosa* and *Nicotiana tabacum*, and the least used was *Cannabis sativa* (L).

Figure 3: Showing the various characters of the plants used to treat evil eye illnesses and the percentage occurrence or use

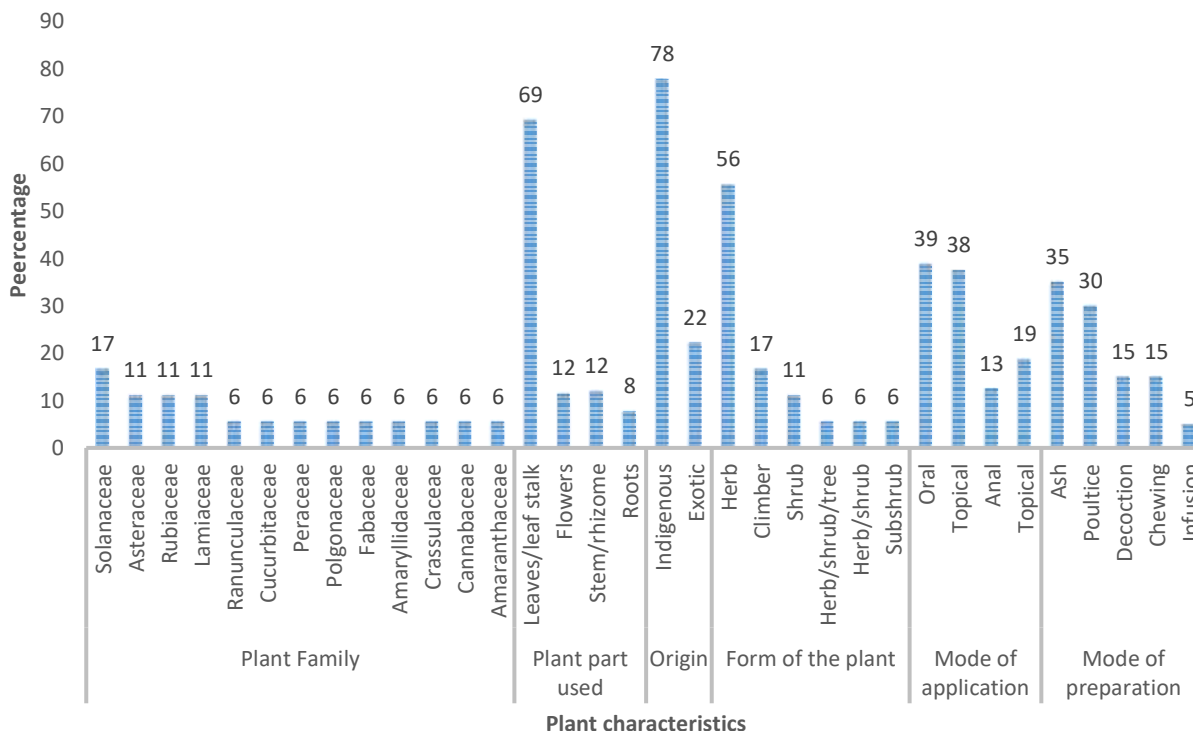


Table 1: Medicinal plants used to treat evil eye illnesses.

Family	Plant species and voucher number	Local name	Part(s) used	Origin	Life form/	Method of preparation and administration	Fi
Amaranthaceae	<i>Iresine herbstii</i> Hook. (LO1-2019-JO)	Amauga amabariri	Leaves and flowers	Exotic	Herb	Fresh leaves are scrubbed onto the whole body of the patient. One glass of filtered decoction from fresh leaves or flowers is taken orally by the patient 3 times a day.	1
Asteraceae	<i>Bidens pilosa</i> L. (LO2-2019-JO)	Ekemogomogi	Leaves	Indigenous	Herb	Leaves are dried and burnt into ash. Half table spoonful of ash is licked by the patient three times daily.	0.75
Asteraceae	<i>Dichrocephala integrifolia</i> (L.f.) Kuntze (LO6-2019-JO)	Ekegentambori	Leaves and floral parts	Indigenous	Herb	Leaves are dried and burnt into ash. Half table spoonful of ash is licked by the patient three times daily. The fresh leaves are also pounded to produce leaf sap, which is applied to the baby skin two times daily	0.875
Cannabaceae	<i>Cannabis sativa</i> L. (LO13-2019-JO)	Enyasore	Leaves and stem	Exotic	Herb	Dry leaves or stem are knitted on the clothes	0.25
Crassulaceae	<i>Bryophyllum pinnatum</i> (Lam.) Oken (LO7-2019-JO)	Omoneke	Leaves	Exotic	Herb	The leaves are chewed together with pumpkin leaves and put into the pumpkin stalk and then inserted through the anus to alleviate pain and stop diarrhea.	1
Lamiaceae	<i>Fuerstia africana</i> T.C.E.Fr. (LO8-2019-JO)	Ekebungabai seke	Leaves or roots	Indigenous	Shrub or herb	Decoction of fresh leaves or roots is prepared, and one glass is taken orally two times daily for 3 days.	1
Lamiaceae	<i>Micromeria imbricata</i> (Forsk.) C.Chr. (LO10-2019-JO)	Egesancha	Leaves		Subshrub	Decoction of fresh leaves, one glass to be taken orally daily for 5 days without taking milk.	1
Amaryllidaceae	<i>Allium sativum</i> L. (LO3-2019-JO)	Egetunguo g'esumo	Bulb	Exotic	Herb	Decoction of the bulb is prepared and taken orally in hot water	0.625
Fabaceae	<i>Senna didymobotrya</i> (Fresen.) H.S.Irwin & Barneby (LO9-2019-JO)	Omobeno	Leaves, root and flowers	Indigenous	Shrub	Leaves or flowers or roots are burnt into ash, and it is licked four times a day for 3 days.	1

Family	Plant species and voucher number	Local name	Part(s) used	Origin	Life form/	Method of preparation and administration	Fi
Polygonaceae	<i>Rumex abyssinicus</i> Jacq. (LO18-2019-JO)	Omosinyont	Stem and leaves	Indigenous	Herb	Fresh stem and leaves are chewed, and the extracted juice is swallowed for curative purpose.	0.625
Peraceae	<i>Cluita abyssinica</i> Jaub. & Spach (LO17-2019-JO)	Omosamba igoro	Leaves	Indigenous	Tree, Shrub or Herb	Dry leaves are burnt into ash and a tablespoon full of ash is mixed with a glass of water and drunk. Fresh leaves are crushed and rubbed onto the belly of the patient.	1
Rubiaceae	<i>Dolichopent as longiflora</i> (Oliv.) Kârehed & B.Bremer (LO12-2019-JO)	Omonyanke	Leaves and roots	Indigenous	Shrub	Infusion or concoction of crushed leaves or roots are drunk for 5 days	0.875
Rubiaceae	<i>Rubia cordifolia</i> L. (LO15-2019-JO)	Enguranguri	Leaves	Indigenous	Climber	Dry leaves are burnt into ash, one tablespoon of ash is then mixed with one glass of water and then filtered. The filtrate is drunk for 5 days. The prepared ash can also be licked.	1
Ranunculaceae	<i>Clematis brachiata</i> Thunb. (LO5-2019-JO)	Omonyaigen	Leaves	Indigenous	Climber	Dry leaves are burnt into ash, one tablespoonful of ash mixed with water and drunk. Fresh leaves are crushed and rubbed onto the belly of the patient.	1
Solanaceae	<i>Nicotiana tabacum</i> L. (LO11-2019-JO)	Tobacco	Leaves	Indigenous	Herb	Dry leaves are burnt into ash and a tablespoon full of ash is mixed with a glass of water and drunk. Fresh leaves are crushed and rubbed onto the belly of the patient.	0.5
Solanaceae	<i>Physalis peruviana</i> L. (LO16-2019-JO)	Chinsoboso	Leaves	Exotic	Herb	Dry leaves are burnt into ash and a tablespoon full of ash is mixed with a glass of water and drunk. Fresh leaves are crushed and rubbed onto the belly of the patient.	0.5
Solanaceae	<i>Solanum americanum</i> Mill. (LO14-2019-JO)	Rinagu	Leaves	Indigenous	Herb	Dry leaves are burnt into ash and a tablespoon full of ash is mixed with a glass of water and drunk. Fresh leaves are crushed and rubbed onto the belly of the patient.	0.5
Cucurbitaceae	<i>Curcubita maxima</i> Duchesne (LO4-2019-JO)	Omwongo	Leave stalk	Exotic	Climber	The leaves are chewed together with pumpkin leaves and put into the pumpkin stalk and then inserted through the anus to alleviate pain and stop diarrhea.	0.5

Key: Fi; Familiarity index

FI (Familiarity Index) = Frequency of a given species used as medicine/Total number of respondents), indicator of the popularity of a species. (Tabuti, 2004).

3.2: Cross-reference of Plants used to treat illnesses caused by evil eye at Kemera, Manga Sub County in Nyamira County with published literature

Botanical name	Biological activity and chemical constituents	Ethnomedicinal uses related to illnesses caused by evil eyes
<i>Iresine herbstii</i> Hook.	Antiviral ³⁷ , antibacterial ³⁸ , antioxidant ³⁹ and has effects on central nervous system ⁴⁰ . Also, Anti-inflammatory, anti-flu, analgesic, diuretic, sedative, and tonic effects reported in limited number, isolated isoflavonoid compounds ⁴¹ .	Plant used is used to expel evil from the body ⁴² . It is also known for the treatment of cancer ⁴³ and gastrointestinal, urogenital, nervous, respiratory, skin infections, malaria and culture-related syndromes ^{44,45} .
<i>Bidens pilosa</i> L.	Antibacterial ⁴⁶ , anti-inflammatory ⁴⁷ . Shows hepatoprotective and cytotoxic activities against various cancer cells ⁴⁸ . Presence of phenylpropanoids, polyacetylenes, polyphenols, triterpenes, flavonoids, saponins and alkaloids has been demonstrated ⁴⁷ .	Plants used for treatment of urogenital disorders ⁴⁹ , intestinal problems, skin infections ⁴⁸ . It is also used for treatment of respiratory and mental disorders ⁵⁰ .
<i>Cannabis sativa</i> L.	Diuretic and anti-emetic ⁵¹ , anti-inflammatory ⁵² , anti-epileptic ⁵³ . Analgesic and antipyretic properties ⁵⁴ , have been reported. Over 100 cannabinoids, tetrahydro cannabinoids, terpenoids, phenolics, and alkaloids ^{53,55} .	Leaves, whole plant used for treatment of cancer ⁵⁶ . Treats pains and gastrointestinal illnesses ⁵⁷ . Also treats headache, migraine, arthritis, and chronic pain ⁵³ . Leaves used in the management of neuronal conditions and inflammatory skin diseases that include atopic dermatitis and psoriasis ⁵⁸ .
<i>Bryophyllum pinnatum</i> (Lam.)	antimicrobial and antiseptic properties have been demonstrated ⁵⁹ . Reported to contain flavonoids, hexadecanoic acid, methyl ester, 10,13-Octadecadienoic acid, methyl ester, Tetracosanoic acid, methyl ester polyphenols, tannins, glycosaponins, steroidal glycosides ⁶⁰ .	Leaves are ground, applied on the affected part and dressed to treat skin diseases. Also used for gastrointestinal and kidney disorders ⁶¹ . Leaf extracts also used to treat cervical cancer and curing various infections, healing wounds and other ailments ⁶² .
<i>Fuerstia africana</i> T.C.E.Fr.	Antimicrobial properties ^{63,64} and alkaloids, anthraquinones, xanthines, valepotriates, cardio active glycosides, flavonoids, coumarins, lignans, saponins and arbutin containing drugs have been reported ⁶⁵ .	Boiled leaves are used to treat oral infections ⁶⁶ . Leave also used to ease toothaches ⁶⁷ and the whole plant is used to treat malaria ⁶⁸ .
<i>Micromeria imbricata</i> (Forssk.) C.Chr.	Anti-inflammatory, antimicrobial, antifungal, antiseptic, antispasmodic, antioxidant, antitumor and antiviral activities ^{69,70} . The plant also contain fatty acids, phenolics and terpenes ⁷¹ .	Leaves and stems are used to treat ailments such as skin infections, wounds ⁷¹ , intestinal complaints ⁷² . headache, fever, colds and flu ⁷³ .

Botanical name	Biological activity and chemical constituents	Ethnomedicinal uses related to illnesses caused by evil eyes
<i>Allium sativum</i> L.	Hepatoprotective ⁷⁴ , anti-inflammatory, anti-rheumatoid, anti-ulcer anticholinergic, analgesic, antimicrobial, antistress, antidiabetics, anticancer, liver protection, anthelmintics, antioxidants, and wound healing properties ⁷⁵ . Contain peptides, steroids, terpenoids, flavonoids, saponins and phenols ⁷⁶ .	Leaves and cloves are used to treat respiratory, gastrointestinal disorders ⁷⁶ . Also treats issues of the reproductive system and nervous system ⁷⁴ . Treats stress, asthma, bronchitis, malaria, arthritis and stubborn skin diseases ⁷⁷ .
<i>Senna didymobotrya</i> (Fresen.)	Antimicrobial ^{78,79} and antiviral activities ⁸⁰ . Phytochemical analysis shows presence of Flavonoids, phenolic compounds and alkaloids as the most pronounced phytochemicals, especially in methanol and water extracts ⁷⁸ .	Roots and bark extracts used to treat malaria and fevers ⁸¹ . Also treats intestinal worms ⁸² , and reproductive disorders, inflammation of fallopian tubes, fibroids and backache, and to stimulate lactation, uterine contraction and abortion ⁸³ .
<i>Rumex abyssinicus</i> Jacq.	Antidiabetic ⁸⁴ anti-inflammatory and wound healing ⁸⁵ antimicrobial and antioxidant activities ⁸⁶ . Contain oxalic acid, chrysophanic acid, chrysophanol, emodine and physcion ⁸⁷ .	Root extracts treat male reproductive disorders ⁸⁸ , gastrointestinal and skin disorder ⁸⁵ .
<i>Clusia abyssinica</i> Jaub.	Antimicrobial ⁸⁹ , antidiarrheal ⁹⁰ , anti-inflammatory, analgesic, antipyretic and antiviral activities ⁹¹ . Methanolic leaf extract contains saponins, anthraquinone, phenolics, terpenoids and alkaloids ⁹² .	Roots, bark extracts are used to treat candidiasis, respiratory and skin disorders ⁹³ . Leaf extracts are rubbed on the head to treat headache ⁹⁰ .
<i>Dolichopentas longiflora</i>	Antimicrobial ^{68,94} . Cytotoxic ⁹⁵ Phenolics, alkaloids, terpenoids and steroids are present in extracts obtained using different solvents ⁹⁴ .	Leaves, roots and stems are used to treat scabies, oral disorders, skin disorders and for detoxification ^{96,72} .
<i>Rubia cordifolia</i> L.	Anti-inflammatory ⁹⁷ , antimicrobial ⁹⁸ . Chemical compounds like alkaloids, glycosides, saponins, resins, oleoresins, sesquiterpene, lactones and oils are present ⁹⁹ .	The whole plant used traditionally in the treatment of the liver, dysentery, maggots, wounds, and intestinal worms in animals ⁹⁹ . The paste of root is used for application in ulcers, inflammations, and skin conditions. A decoction of leaves and stems is used as a vermifuge ¹⁰⁰ .
<i>Clematis brachiata</i> Thunb.	Antioxidant ¹⁰¹ . antimicrobial, anti-tumor and anti-inflammatory activities ¹⁰²⁻¹⁰⁴ . Flavonoids, steroids, triterpenoids, tannins, coumarins, carotenoids, polyoses and reducing substances are the main phytochemical constituents ^{105, 102} .	A hot decoction of roots, stems and leaves is made, and the steam inhaled, used for easing colds, malaria, sinus infections and asthma ¹⁰⁶ . Leaf extracts are used to treat skin infections. The tea is also a soothing wash for aching feet, soothes cracked skin and blisters, and cooled it is used as an eyewash for tired red eyes ¹⁰⁴ .

Botanical name	Biological activity and chemical constituents	Ethnomedicinal uses related to illnesses caused by evil eyes
<i>Nicotiana tabacum</i> L.	Antibacterial ¹⁰⁷ , anti-inflammatory ¹⁰⁸ , antifungal ¹⁰⁹ activities.	The plant sap and decoction is used to treat headache, sinusitis, and conjunctivitis ¹⁰⁸ . It is also used to relieve pains and to manage inflammatory diseases caused by swellings, hernia, rheumatism, arthritis, gout, hemorrhoids, and stomach problems ¹¹⁰ .
<i>Physalis peruviana</i> L.	Anti-asthma, antidiabetic (111), antioxidant and antimicrobial ^{112,113} , anti-cancer, anti-dermatitis, anti-malaria anti-hepatitis, immunomodulatory and antipyretic properties ¹¹⁴ . The phytochemical classed indicated in the plant extract include alkaloids, carbohydrates, flavonoids, phenols, proteins, saponins, tannins, glycosides and starch have been recorded ^{114,115} .	Leaves are the most commonly used parts of the plant to treat gastrointestinal tract disorders, female genital tract disorders, skin infections and respiratory system and metabolic disorders ¹¹³ .
<i>Solanum americanum</i> Mill.	Antimicrobial ¹¹⁶ . Virucidal and toxicological ¹¹⁷ , antiulcerogenic and ulcer healing properties ¹¹⁸ .	The whole plant is used to treat of dysentery and fever and helps in reducing gas formation in the stomach. Used to treat intense pain, a sedative with powerful narcotic properties. It is applied topically to treat herpes zoster, measles, itching, and eczema ¹¹⁶ . Boiled extracts of the leaves and berries are used to alleviate liver related ailments and to fight jaundice. Juice obtained by expression of fruits are used to treat skin injuries caused by Herpes zoster, Herpes simplex and herpes genitalis ¹¹⁹ .
<i>Curcubita pepo</i>	Antibiotic activities ¹²⁰ , Antioxidant and burn wound healing properties ¹²¹ . Anti-inflammatory, antiviral, analgesic urinary disorders, antiulcer, antidiabetic and antioxidant ¹²² . The plant extracts contain flavonoid, saponin, tannin, alkaloid, and steroidal compounds ¹²³ .	Fruits are used to cure fatigue and thirst and purify the blood. Treats cold and alleviates aches. Seeds are used to treat irritable bladder, prostatic complaints, gastritis, burns, enteritis, febrile diseases, headaches, fever, bronchitis and neuralgia. Also as diuretic. Leaves used for treat nausea and a boost to haemoglobin content of the blood ¹²² .

Conclusion

The present study revealed that the people of Kemera, Kenya, use eighteen medicinal plants for treatment and management of evil eye illnesses. For fifteen of these plants, this study marks the first time they have been reported as treatments for illnesses related to the evil eye. Some of the plant extracts demonstrate properties associated with the symptoms of evil eye illnesses, including skin, gastrointestinal, headache, fever, and humoral disorders. While the belief in evil eye illnesses is not officially recognized in healthcare systems, it

remains a significant health concern in many communities across Africa and the world. The sociocultural practices, skills, and knowledge applied as interventions to alleviate the symptoms and restore health are supported by the World Health Organization's definition of traditional medicine. Given that the concept of the evil eye dates back to antiquity and is shared by various cultural groups, it is essential to allocate resources for research that can provide scientific data to validate the complementary medicine practices used to manage evil eye illnesses.

Recommendation

Based on the research findings from the current study we recommend more studies on the beliefs and perceptions of the people in Kemera, and other localities in Kenya, towards evil eye illnesses. The plants documented in this study must be given logical utilization status through scientific research to ascertain their efficacy and safety of use in alleviation of symptoms associated with evil eyes illnesses.

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Authors' contributions. The study was designed by all the authors. Dr. Onsinyo L. B. and Dr. Onyancha J.O collected and analysed the data. The manuscript was prepared by Dr. Onyancha J.M., Dr. Ogeto G.S., Dr. Menge D. M, and Dr. Meroka J.O while all the authors reviewed and revised the manuscript.

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