

MEDICINAL PLANTS USED IN THE TREATMENT OF ECZEMA AND OTHER INFLAMMATORY CONDITIONS BY ABAGUSII HEALERS OF WESTERN KENYA

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ABSTRACT

An ethnomedical survey of plants used by Abagusii traditional healers of South West Kenya in the treatment of eczema and other inflammatory conditions was carried out. A number of traditional healers were interviewed about the plants they used in the treatment of eczema, method of preparation and dosage regimens. Their responses were recorded. Each materia medica entry followed the format; Latin binomial; Common name; Vernacular and taxonomic name; parts used; constituents; indications; safety considerations; preparation and dosage. Eleven plant species were botanically identified. It was found that in this ethnic group greatly depended on herbal remedies in the treatment of eczema and its related ailments. This study also revealed that the Abagusii healers have an extensive knowledge of their therapeutic flora. However, there is a rapid degeneration of most of these indigenous herbal medicinal plants, hence the need for their proper identification and conservation.

KEYWORDS: Eczema, Inflammatory, Treatment, Gusii Healers, Kenya.

INTRODUCTION

Eczema and dermatitis phytotherapy provide two unique approaches to the treatment of skin inflammation. For instance, certain plant elements have specific pharmacological and physical characteristics that have direct topical and cosmetic effects upon external application.^[12,14] Likewise, medical approaches have been established to address skin conditions as internal disease symptoms, with the majority of herbal medications being taken orally.^[11] Despite the relative dearth of clinical research evidence, phytotherapy is still a recommended dermatological method for the reasons stated above. Skin conditions, however, are among the medical fields' most intricate and erratic classifications.^[9]

Alopecia, pigmentary disorders, malignant illnesses, and bullous diseases are among the situations that are likely beyond conservative treatment. Other conditions, including *Pityriasis Rosea* and *Lichen Prunus*, typically don't require treatment at all, and some are completely unpredictable. To expect consistent results from phytotherapy is also unreasonable.^[1] There are a variety of practical solutions that can be examined in conjunction with conventional

prescription medications and other complementary therapies, such as nutritional and psychotherapy methods, to effectively treat skin inflammations.^[10]

Unfortunately, contemporary clinical data supporting the conventional internal methods for skin illness is conspicuously lacking. One noteworthy exception, though, is promising. An internal herb preparation showed substantial efficacy when studied by a group of dermatologists and immunologists in London in 1992.^[1,7] However, in the aforementioned investigations, obvious safety concerns were brought up, not least by the authors, who suggested strict treatment exclusion criteria and routine monitoring of liver function tests.^[4,14] However, the clinical trials' actual reports were not concerning.

MATERIALS AND METHODS

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 2019. Over 67% of this population is living below the poverty line.^[16] 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 Kenyenyia. Kisii and Nyamira Counties have 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.

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.

Data Collection Procedure

A number of traditional healers in the study area were visited. The information on the ethno medical practices gathered from the healers was entered into questionnaires and field notebooks. The healers were requested to respond about their knowledge, methods of diagnosis, preparation of herbal potions and the treatment of eczema and dermatitis. The specific plant part (s) used along with the methods of preparation were recorded. Their vernacular names were recorded while in the field. 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, and safety considerations were documented.

Parts used: This entry lists the parts of the herb used medicinally.

Constituents: the lists provided here represent a combination of relevant phytochemical research on the particular remedy. This is not a comprehensive constituent listing as each plant contains many hundreds of thousands of distinct chemicals both organic and inorganic. Only the most relevant chemicals have been listed. The ubiquitous primary constituents found in all plants are omitted. The information provided here reflects current pharmacological thinking about which chemicals are the primary contributors to the plant's actions. However, this does not necessarily tell us

much about the value and benefits of the herb when used in healing. The activity of the whole plant is always more than the sum of its parts.

Indications: in this section a brief overview of the clinical indications of the herb are provided.

Safety considerations: if there are any concerns about the safe use of the herb, the issues are discussed under this heading, including side effects, contraindications and drug interactions.

Preparation and dosage: this section lists dosage ranges for various herbal preparations taken, the healer's details of concentration (weight and volume ratios, expressed as "w/V" and alcohol percentages for tinctures and liquid extracts. For example, a tincture containing 1-part herb to 5 parts solvent in menstruum composed of 45% alcohol is denoted as "1 in 45%").

RESULTS

1). *Fumaria officinalis* L.

Fumitory

Fumariaceae

Parts Used: Aerial parts

Constituents: Isoquinoline alkaloids.^[15,6]

Actions: Diuretic, laxative, alterative, hepatic

Indications: skin problems, such as eczema and acne, conjunctivitis

Safety Considerations: No side effects or drug interactions have been reported.

Preparations and Dosage: Tincture dosage is 1 to 2 ml three times a day (1:5 in 25 %). For an infusion, 1 cup of boiling water is poured over 1 to 2 teaspoons of dried herb and infused for 10 to 15 minutes. This may be drunk freely, but for skin problems, it should be drunk, at least three times a day.

2). *Galium aparine* L.

Rubiaceae

Cleavers

Rubiaceae

Parts Used: Aerial parts.

Constituents: Plant acids (caffeic, p-coumaric, gallic, p-hydrobenzoic, salicylic, citric); coumarins; iridoids (asperuloside, rubichloric acid); tannins.^[15,13]

Actions: Swollen glands (lymphadenitis), skin conditions, especially the dry types such as psoriasis, cystitis, and other urinary tract conditions associated with pain, ulcers and tumors.

Safety Considerations: No side effects or drug interactions have been reported.

Preparations and Dosage: Tincture dosage is 4 to 8 ml three times a day (1:5 in 25 %). To make an infusion, 1 cup of boiling water is poured over 2 to 3 teaspoons of dried herb and infused for 10 to 15 minutes. This should be drunk three times a day.

3). *Scrophuraria nodosa* Juss**Figwort****Scrophuriaceae**

Parts Used: Aerial parts

Constituents: Iridoids (aucubin harpagide, acetylharpagide, 6-alpha-rhamnopyranosylcatalpol) flavonoids (diosmin, losmetin, acetin rhamnoside, hesperidin); phenolic acids (ferulic, isoferuri, p-coumaric, caffeic, vanillic, chlorogenic acids).^[15,13]

Actions: Alterative, diuretic, laxative, cardiac stimulant.

Indications: skin problems such as eczema, psoriasis or any skin condition characterized by itching and irritation, constipation.

Safety Considerations: Figwort may potentiate the effects of cardiac glycosides.

Preparations and Dosage: Tincture dosage is 2 to 4 ml three times a day (1:5 in 40 %). An infusion is made by pouring 1 cup of boiling water over 1 to 3 teaspoons of dried leaf and infused for 10 to 15 minutes. This should be drunk three times a day.

4). *Trifolium pretense* L.**Red Clover****Fabiaceae**

Parts Used: Flower head

Constituents: Isoflavones (biochanin A, diadzein, formononetin, genistein, trifoside); other flavonoids, including pectolinarin, and kaempferol; volatile oil (containing furfural); clovamide (L-dopa-caffeic acid and conjugates); coumarins (coumestrol, medicagol coumarin); miscellaneous: galactomannan, resins, minerals, vitamins, phytoalexins.^[15,13]

Actions: Alterative, expectorant, antispasmodic.

Indications: Skin problems such as eczema and psoriasis, coughs, bronchitis.

Safety Considerations: Red clover may potentiate the effects of anti-coagulant drugs.

Preparations and Dosage: Tincture dosage is 2 to 4 ml three times a day (1: 5 in 40 %). An infusion is made by pouring 1 cup of boiling water over 1 to 3 spoons of dried herb and infused for 10 to 15 minutes. It should be drunk three times a day.

5) *Urtica dioica* L.**Nettle****Riise****Urticaceae**

Parts Used: Aerial parts, root.

Constituents: Chlorophyll (high yields); indoles such as histamine and serotonin; acetylcholine; flavanol glycosides (isorhamnetin, kaempferol, quercetin); miscellaneous: vitamin C and other vitamins, protein dietary fibre.^[15,13]

Actions: Astringent, diuretic, tonic, hypotensive.

Indications: myalgia and osteoarthritis (Chrubasik, 1977); eczema; benignprostatic hyperplasia (BHP).

Safety Considerations: Fresh nettle causes urticarial if applied topically! Internal use may theoretically decrease the efficiency of anti-coagulant drugs.

Preparations and Dosage: Tincture dosage is 2.5 to 5 ml three times a day (1:5 in 40%). An infusion is made by pouring 1 cup of boiling water over 1 to 3 teaspoons of dried herb and infusing for 10 to 15 minutes. This should be drunk three times a day.

6). *Viola tricolor* L.

Heartsease

Violaceae

Parts Used: Aerial parts

Constituents: Flavonoids (including violanthin, rutin, violaquertrin); methylsalicylate; miscellaneous: mucilage, gums, resins, saponins.^[15;13]

Actions: Expectorant, diuretic, anti-inflammatory.

Indications: Skin diseases such as eczema, psoriasis, acne and topically in babies for cradle cap; cystitis; arthritis; edema; high blood pressure.

Safety Considerations: No side effects or drug interactions have been reported.

Preparations and Dosage: Tincture Dosage is 1 to 2 ml three times a day (1:5 in 40 %). An infusion is made by pouring 1 cup of boiling water over 1 teaspoon of dried herb and infused for 10 to 15 minutes. This should be drunk three times daily.

7). *Arctium lappa* L.

Burdock

Asteraceae

Parts Used: Rhizome, root, leaf.

Constituents: Lignans (arctigenin, arctiin, and mateiresinol); polyacetylenes; carbohydrates: inulin (45 % to 50 %), mucilage, pectin, sugars; miscellaneous: organic acids, fatty acids and phenolic acids.^[15;13]

Actions: Alterative, diuretic, bitter,

Indications: Skin conditions that result in dry and scaly patches; psoriasis; indigestion; loss of appetite; cystitis; wound healing and ulcer healing

Safety Considerations: Potentially burdock may cause allergic reactions in people sensitive to plants in the Asteraceae family.

Preparations and Dosage: Tincture dosage is 2 to 4 ml three times a day (1:5 in 40 %). In making a decoction, 1 teaspoon of root is put into 1 cup of water. This is brought to the boil and simmered for 10 to 15 minutes. This should be drunk three times a day.

8). *Hydrastis Canadensis* L.

Goldenseal

Ranunculaceae

Parts Used: Root, rhizome

Constituents: Isoquinoline alkaloids (2.5 % to 4.0 %; berberine (0.5 % to 6.0. %); fatty acids; resin; phenylpropanoids (meconini, chlorogenic acid, phytosterins; a small amount of volatile oil.^[17]

Actions: Bitter, hepatic, alterative, anticatarrhal, antimicrobial, anti-inflammatory, laxative, emmenagogue

Indications: digestive problems, from ulcers to colitis; loss of appetite; catarrhal conditions especially sinus disorders.

Safety Considerations: Golden seal is contraindicated for individuals with elevated blood pressure. Not recommended during pregnancy. It should not be taken during lactation. Prolonged use decreases vitamin B absorption.

Preparation and Dosage: Tincture dosage is 1 ml three times a day (1: 5 in 60 %). An infusion is made by pouring 1 cup of boiling water over ½ to 1 teaspoon of powdered root and this is infused for 10 to 15 minutes. This should be drunk three times a day. Unpowdered root is decocted in the usual way by simmering.

9). *Calendula officinalis* L.

Calendula

Asteraceae

Parts Used: Petals, flower head.

Constituents: Triterpenes (Calendulosides A-D); flavonoids (including narcissin, rutin); volatile oil; chlorogenic acid.^[15,13]

Actions: Anti-inflammatory, antispasmodic, lymphatic, astringent, vulnerary, emmenagogue, cholagogue, antifungal.

Indications: Minor burns; any external bleeding or wound bruising or strains; inflammation on the skin whether due to infection or physical damage; gastric and duodenal ulcers; gallbladder problems; delayed menstruation; fungal infections.

Safety Considerations: Calendula is a possible allergen for those people with known sensitivity to members of the Asteraceae family.

Preparations and Dosage: Tincture dosage is 1 to 4 ml three times a day (1: 5 in 60 %) In making an infusion, 1 cup of boiling water is poured over 1 to 2 spoons of flowers and then infused for 10 to 15 minutes. This should be drunk three times daily. Calendula may be applied externally as a lotion or ointment for cuts, bruises, diaper rash, sore nipples, burns and scalds.

10). *Plantago major* L.

Plantain

Plantaginaceae

Parts Used: Leaf, aerial parts

Constituents: Iridoids (aucubin catalpol); flavonoids (apigenin, luteolin, scutellrin, baicalein, nepetin, hispidulin, plantagoside); tannins; oleanolic acid; plant acids.^[15,13]

Actions: Vulnerary, expectorant, demulcent, anti-inflammatory, astringent, diuretic, antimicrobial.

Indications: Coughs, mild bronchitis, diarrhea, hemorrhoids, cystitis, accompanied by bleeding.

Safety Considerations: No side effects or drug interactions have been reported.

Preparations and Dosage: Tincture dosages 2 to 3 ml three times a day (1:5 in 40 %). An infusion is made by pouring 1 cup of boiling water over 2 spoons of dried herb and infused for 10 minutes. This should be drunk three times a day. An ointment may be made for the treatment of hemorrhoids and cuts.

11). *Stellaria media* L. (Villars)

Chickweed

Caryophyllaceae

Parts Used: Dried aerial parts

Constituents: Saponin glycosides; coumarins and hydroxycoumarins; flavonoids; carboxylic acids; triterpenoids; vitamin C (about 150 to 350 mg per 100 g).^[15,13]

Actions: Antirheumatic. Vulnerary, emollient

Indications: Cuts, wounds and especially itching and irritation; eczema, rheumatism.

Safety Considerations: No side effects or drug interactions have been reported.

Preparations and Dosage: Chickweed is used fresh or in the form of a water extract. In making an infusion, 1 cup of boiling water is poured over 2 teaspoons of dried herb and infused for 5 minutes. This may be drunk three times a day. To make a “green drink” of fresh chick-weed, a handful of fresh plant is placed in a blender with some pineapple juice. This is blended and then strained. To ease itching, a strong infusion of fresh plant is a useful addition to bath water.

DISCUSSIONS

Information on the general popularity of plant medicines among the Abagusii is relatively substantial. However, such information can be deduced from this kind of study unless the traditional healing practices inherent in this group are assessed. Thus, 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 drugs and the negative experiences (or disillusion) with modern drugs. Additionally, the modern health care system that has been experienced by most individuals also determines the type of medication this community can access affordably.

In support of these findings,^[3] while carrying out a related study observed that a cosmopolitan urban area in Saudi Arabia, established that majority of the local people use herbal preparations (43 plant species) to treat dermatologically related disorders. Similarly,^[13] recorded 28 plant species which are traditionally used by a rural population in the Parinche valley in India to treat skin diseases.

The study findings are in agreement with those obtained by^[5], that medicinal plants play an important role in the primary health care system of the rural people in northern Maputaland, KwaZulu-Natal. The authors further observes that care-givers in the rural homesteads generally treat the same ailment by using a diverse range of plants which is primarily dependent upon plant availability in their area. According to^[2], the concept of treatment is based on the principle that the wider the choice of plant, the better the chance of a cure.

CONCLUSION

Among the Abagusii community, 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. However, an important observation that was made in this study concerns the rapid disappearance of many indigenous medicinal plants.

Some of the factors which can be attributed to the disappearance of medicinal plants are population pressure on land, trees are felled for timber, charcoal and other commercial uses. This comprehensive study will give valuable information for future research to validate the efficacy of traditional plants and determine the viability of commercialization. There is need for further detailed investigations on individual plants which will enable it to reach the general public in different suitable formulations.

Recommendations

The recognition and restoration of indigenous knowledge on traditional remedies and medicinal plants in order to enhance sustainable use of natural resources.

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Conflict of interest

“The author(s) declare(s) that there is no conflict of interest.”

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REFERENCES

1. M. S. Abdel-Kader et al., A survey on traditional plants used in Al Khobah village. *Saudi Pharmaceutical J.*, 2018; 26: 817–821.
2. N. A. A. Ali et al., Ethnopharmacological survey of medicinal plants in Albaha Region, Saudi Arabia. *Pharmacognosy research*, 2017; 9: 401–407.
3. Y. Almoshari, Medicinal plants used for dermatological disorders among the people of the kingdom of Saudi Arabia: A narrative review. , 2022; 29(6): 103303. doi: 10.1016/j.sjbs.2022.103303. PMID: 35592741.
4. H. M. Alshamrani et al., Pattern of skin diseases in a university hospital in Jeddah, Saudi Arabia: Age and sex distribution. *Annals Saudi Medicine*, 2019; 39: 22–28.
5. A. C. Dahlberg and S. B. Trygger, Indigenous medicine and primary health care: the importance of lay knowledge and use of medicinal plants in rural South Africa. *Human Ecology*, 20029; 37:79-94.
6. G. A. Fawzy et al., Bioactivity and chemical characterization of *Acalypha fruticosa* Forssk. growing in Saudi Arabia. *Saudi Pharm. J.*, 2017; 25(1): 104–109.
7. A. Hosseinkhani et al., An Evidence- Based Review of Antitussive Herbs Containing Essential Oils in Traditional Persian Medicine. *Curr. Drug Discov. Technol*, 2021; 18:179–185.
8. Kenya National Bureau of Statistics, *Kenya population and Housing Census; 2019*.
9. C. Karimkhani et al., Global skin disease morbidity and mortality: an update from the global burden of disease study 2013. *JAMA dermatology*, 2017; 153: 406–412.
10. A. H. Nadi, Diversity of medicinal plants used in the treatment of skin diseases in Tabuk region, Saudi Arabia. *J. Medicinal Plants Research*, 2017;11 (35):549–555.
11. M. H. Swaney et al., Living in Your Skin: Microbes, Molecules, and Mechanisms. *Infect. Immun*, 2021; 89(4).
12. L. Tizek et al., Skin diseases are more common than we think: screening results of an unreferral population at the Munich Oktoberfest. *J. Eur. Acad. Dermatol. Venereol*, 2019; 33: 1421–1428.
13. T. Tounekti et al., Ethnobotanical study of indigenous medicinal plants of Jazan region, Saudi Arabia. *Evidence-Based Complementary Alternative Medicine*, 2019; 1–45.

14. U. Urban et al., Burden of skin disease and associated socioeconomic status in Asia: A cross-sectional analysis from the Global Burden of Disease Study 1990–2017. *JAAD International*, 2021; 2:40–50.
15. R.C. Wren. *Potter's New Cyclopedia of Botanical Drugs and Preparations*, 8th edition. Revised by Williamson EM and Evans FJ. Essex, UK: C. W. Daniel Co, 1988.
16. KNBS, *Kenya Population and Housing Census, Ministry of Planning, National Development and Vision 2030*. Kenya National Bureau of Statistics, Nairobi, Kenya, 2019.
17. M. Blumenthal. *The ABC Clinical Guide to Herbs*, 2003.