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Review Article

A Review on Herbal Plants Used for Haemorrhoidal Treatment

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ABSTRACT

Piles, or hemorrhoids, are a common anorectal disorder affecting a large portion of the adult population. They are characterized by the swelling, inflammation, and protrusion of veins in the rectal and anal region. Prolonged constipation, sedentary lifestyle, pregnancy, and low-fiber diets are among the primary causes. Conventional pharmacological therapies, such as corticosteroids and vasoconstrictors, provide symptomatic relief but often cause side effects like irritation or rebound swelling. Herbal and Ayurvedic treatments are gaining renewed importance due to their natural origin, multi-targeted action, safety, and cost-effectiveness. This review provides an in-depth summary of the pharmacological properties, phytochemical constituents, and mechanisms of action of key herbal plants traditionally used in the treatment and management of piles, including Terminalia chebula, Momordica charantia, Cynodon dactylon, , Aloe barbadensis, and Mesua ferrea.

INTRODUCTION

Hemorrhoids, often known as piles, are enlarged veins in the lower rectum and anus that resemble varicose veins [1]. These are very prevalent anorectal disorders that are characterized by symptomatic swelling and distal displacement of the normal anal cushions. Hemorrhoids have been associated with humans as a disease entity since the dawn of recorded history. Half of men and women of any age suffer hemorrhoid symptoms at some point in their lives, making hemorrhoids a prevalent condition among adults. However, women between the ages of 45 and 65 are more likely to experience it than men [2]. Internal hemorrhoids were the third most frequent colonoscopic finding, or 7.5%, according to a study conducted at Ayder Referral Hospital. 13.1% of adult patients who went to the surgical outpatient department at the University of Gondar comprehensive specialty hospital, according to a different survey, had hemorrhoids. Hemorrhoids are 1 typically categorized according to where they are and how much prolapse they have. Turelly claimed that 40% of the population requires surgical treatment for hemorrhoids, which afflict

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70% of the population. Internal hemorrhoids form within the rectum, while external hemorrhoids form beneath the skin around the anus. It is often diagnosed as a hemorrhoidal plexus inflammatory condition [3]. One of the most widespread illnesses to affect people, internal hemorrhoids are characterized by bleeding and prolapse. Internal hemorrhoids might prolapse during urination and bleed painlessly in brilliant rimson [4]. External hemorrhoids are anoderm-covered and located distal to the pectinate line; while they may grow, making personal hygiene challenging, they only truly cause serious pain when they become Major symptoms associated with hemorrhoid complaints include inflammation, pain, bleeding and pruritus. Treatment available for hemorrhoids mainly include laser treatment, sclerother-apy, hemorrhoidectomy, infrared photocoagulation and bipolardiathermy [5]. However, oral route become unsuitable in some cases such as nausea, vomiting or convulsion. In such cases, the rectal route may offer a suitable alternate. Rectal route is also preferred if the drug is extensively metabolized or deactivated by liver enzymes [6].

When a medication is heavily metabolized or rendered inactive by liver enzymes, the rectal route is also flavoured. According to reports, the absorbed medications are discharged into the portal vein, then the liver, via the superior hemorrhoidal veins. The lower region of the rectum is drained by the middle and inferior hemorrhoidal veins, and venous blood is then redirected to the inferior vena cava. The medicine will therefore start to circulate throughout the body, avoiding the liver, once it is absorbed in the latter system. The best treatment for hemorrhoids is rectal suppositories. Suppositories are typically placed after a bowel movement, which prolongs the duration of the medication's effects because they degrade more gradually. Rectal tissue absorbs the medication, which can be beneficial [7-8]. Currently, herbal medicines are becoming the major alternatives for management of different diseases. Nearly 90% of Ethiopians depend on traditional medicine, mainly herbal medicine, for managing their illnesses. Hemorrhoids was reported as the fourth most commonly treated disease by traditional healers in Addis Ababa, Ethiopia" bortifacient activities [9]. Scientifically, the plant is reported to have an anti- inflammatory and antiseptic activity while, traditionally the leaves of the plant are used in treatment of hemorrhoids, which is still unexplored. Thus, taking these evidences into consideration, the present investigation was undertaken to scientifically validate the anti-hemorrhoidal potential of leaves from the plant Momordica chandrika, terminalia chebula. These plants have anti-inflammatory and antiseptic activity which has been useful for piles Currently, herbal medicines are becoming the major alternatives for management of different diseases. Nearly traditional healers in Addis Ababa, Ethiopia" bortifacient activities.

Momordica Charantia

Momordica charantia *(MC)* that is one of the vegetable plants used in traditional medicinal systems. MC belongs to the family of *Cucurbitaceae* and is commonly known as bitter melon, bitter gourd, balsam pear, bitter cucumber, Karela, and African cucumber [10]. *Momordica* means "too bite", which refers to the jagged edges of the leaf appear as if it has been bitten. All parts of the plant, including the fruit, taste bitter. Hence, the fruits are usually cooked with different vegetables, stir-fried, stuffed or used in small quantities in soups or beans to give a slightly bitter flavor and taste. Several parts of MC, including fruits, flowers, and young shoots, are used in various Asian dishes as a flavoring agent. The shoots and leaves of MC are

also cooked and consumed as vegetables and fruit extracts are also used in tea preparations [11-12]. Unlike other cucurbitaceous vegetables, the bitter fruit flavor of MC is considered desirable for consumption. This plant is cultivated in all over the world, including tropical areas of Asia, Amazon, east Africa, and the Caribbean, and used as vegetable as well as folk medicine. MC has been cultivated traditionally in developing countries like India, China, Brazil, Colombia, Cuba, Ghana, Haiti, Mexico, Malaya, New Zealand, Nicaragua, Panama, and Peru, and is commonly used for the treatment of diabetes and colics [13-14].

Pharmacological Activity: MC is also used as antiviral, anti malarial, and anti-bacterial agent, while it is applied for wound healing and treatment of peptic ulcers in Traditional Turkish medicine. In Indian medicinal systems, MC is reported to possess anti-diabetic, abortifacient, anti-helminthic, anti-malarial, and laxative properties, while it is also used for treatment of dysmenorrhea, emmenagogue, eczema, gout, galactagogue, kidney (stone), jaundice, leucorrhea, leprosy, pneumonia, piles, rheumatism, and psoriasis [15].

Figure: Momordica Charantia Plant

Composition:

Constituents	Amount
Water (%)	83.2–92.4
Lipids (%)	0.1–1
Carbohydrates (%)	4.2–9.8
Proteins (%)	1.6–2.9
Fiber (%)	0.8–1.7
Ash (%)	7–18
Calcium (mg/100mg)	20–50
Phosphorus (mg/100mg)	70–140
Iron (mg/100mg)	2.2–9.4
Magnesium (mg/100mg)	16
Sodium (mg/100mg)	3–40
Potassium (mg / 100mg)	8–170
Zinc (mg/100mg)	0.1
Manganese (mg/100mg)	0.08–0.32
Copper (mg/100mg)	0.18–5
Vitamin A as carotenes	210–220 IU
Vitamin C	70–120mg
Thiamine (mg)	0.05
Riboflavin (mg)	0.03
Niacin (mg)	0.4

Aloe Vera:

For thousands of years, plants have been used as an important source of medicine in pharmaceutical biology. As per WHO estimates, even today, up to30 percent of population still rely on traditional medicines. 'The genus Aloe is a perennial, succulentzerophyte grown in temperate and sub

tropical parts ofhe world. It has originated from Africa. Aloe vera or Aloe barbadensis belongs to the Asphodelaceae family, of which there are over 360 known species. There have peen several species under the genus Aloe, including Aloe vera, Aloe barbadensis, Aloe ferox, Aloe chinensis, Aloe indica, Aloe peyrii etc. Amomgst these, Aloe vera Linn syn. Alo barbadensis Miller is accepted unanimously as the correct botanical source of Aloe. It is commonly called aloe, burn plant, lily of the desert and elephant's gall. It is cactus like plant with green, dagger-shaped leaves that are fleshy, tapering, spiny, marginated and filled with a clear viscous gel.*4-6 is a stem less or very short-stemmed plant growing to 30-100 cm tall, spreading by offsets and root sprouts. The leaves are thick and fleshy due to water storage tissue in he leaves to survive in dry areas of low rainfall. Leaves are green to grey-green, with a serrated margin. The lowers are produced on a spike up to 90 cm tall, each lower pendulous, with a yellow tubular corolla 2-3 cm long.[16] .Aloe vera is cultivated in large quantities because of its migh demand in industrial, cosmetics and pharmaceutical vecto.

Figure: Aloe Vera

Pharmacological Activity

The pharmacological actions of Aloe vera include anti-inflammatory and anti-arthritic activity and antibacterial and hypoglycaemic effects. It is called the healing plant or the silent healer, because of its woundand burn healing properties. Aloe vera has been used for medicinal purposes in several countries for millennia,such as Greece, Egypt, India, Mexico, Japan, and China.mucilaginous pulp called Aloe gel, lies in the centre of leaf.

Composition:

The Aloe gel consists of 96% water while the Uses of Aloe gel in skin care.[17] Aloe leaf consists of two parts, each of which produces different substances that have completely different composition and therapeutic properties . The inner parenchymal tissues form a clear, thin, tasteless, jelly-like material. The outer pericyclic tubules, occuring just beneath the outer green rind or cutinized epidermis of the leaves, produce a bitter yellow exudates. The inner remaining 4% contains 75 known substances including Vitamins A, B, C, E, calcium, amino acids and enzymes.

Chemical Constituents	Activity
Amino acids	Body construction
sugars	Antiviral activity
steroids	Anti inflammatory agents, Antiseptic and analgesic properties
Antraquinones	Analgesic,antibacterial
Enzymes	Antifungal and antiviral activity
Minerals	Essential for good health
Salicylic acid	Analgesic

Triphala:

In ayurveda, triphala is a well known poly herbal formulation. In Indian system of medicine (ISM) it is a rasayana drug [18]. Triphala is a mixture of the dried powders of three fruits such as *Emblica officinalis Garetn* (*Euphorbiaceae*), *Terminalia belerica Linn (Combretaceae)* and *Terminalia*

chebula (Combretaceae) in equal proportions. Triphala is one among the ayurvedic medicinal herbal formulation mostly preferred by medical practicioners [19]]. It can be used by all people irrespective of their age. In ayurveda it is described as a tridoshic rasayana that can balance and rejuvenate the three constitutional elements that govern human life ie; vata, pitta and kapha.

It has various applications in medical field like laxative, eye rejuvenator, antiinflammatory, antiviral and so on. It is also effective in headache, dyspepsia, ascites, leucorrhea, also used as a blood purifier and possess anti- inflammatory, analgesic, antiarthritic, hypoglycemic and anti -aging properties. Triphala is claimed to have antiviral and antibacterial effect [20]. Triphala is prescribed for fatigue, assimilation, reduces oxidative stress and infectious diseases such as tuberculosis, pneumonia, AIDS, periodontal diseases etc [21] Triphala is reported to reduce considerably the damage due to oxidative stress [22]. Studies show that it inhibits the growth of Gram-positive and Gram-negative bacteria [23]. The recent studies proves that the triphala is rich in gallic acid, vitamin C, ellagic acid, chebulic acid, bellaricanin, beta – sitosterol and flavanoids [24]. Various studies prove that triphala possess various pharmacological and therapeutic activities.

Composition:

Sr. No	Chemical	T. Chebula	T. Bellerica	P. Embillica
1	Alkaloids	Yes	Yes	Yes
2	Flavonoids	Yes	Yes	Yes
3	Steroids	No	No	No
4	Saponins	No	No	No
5	Phenols	Yes	Yes	Yes
6	Tannins	Yes	No	No
7	Glycoside	Yes	No	No
8	Carboxyllic acid	No	No	No
9	Sterols	Yes	Yes	Yes
10	Resins	Yes	Yes	Yes
11	Quinines	Yes	Yes	Yes
12	Xanthoproteins	Yes	Yes	No

Pharmacological Activity of Triphala

Anti-Inflammatory Activity of Triphala

Triphala when topically administered prevents uveitis induced by intravitreal injection of lipopolysaccharide from E.coli. The inflammation of anterior segment in control groups was significantly higher than in triphala treated groups. Triphala exhibits a protective effect in endotoxin – induced uveitis. One study indicated that gallic acid is a selective inhibitor of COX-2. Being a small natural product with selective and reversible inhibition of COX-2, gallic acid would form a lead molecule for developing a potent anti-inflammatory drug [28] Triphala in wound healing The ointments prepared from triphala extracts show significant wound closure in vivo. The granulation tissue shows reduced bacterial count, increase in collagen, hexosamine and uronic acid. Collagen sponges incorporated with triphala when used to close wounds showed increased thermal stability, water uptake capability, faster wound closure, improved tissue regeneration etc. Epigallocatechin gallate interaction with collagen contributes to this quick wound healing activity. Triphala has also shown in vitro wound healing activity [29]. In one study, an infected wound was

dressed with triphala (methanol extract). The study revealed that matrix metalloproteinases expression was correlated well with reduction in the inflammatory phase, thus confirming the efficacy of the dressing [30]. Another study had shown in vitro activity of triphala against wound pathogens such as Staphylococcus aureus, Pseudomonas aeruginosa and Streptococcus pyogenes. Reduction of matrix MMP expression was observed in the treated group by gelatin zymography [29]

Figure: Triphala plant

Nagkeshar:

Nagkeshar *(Mesua ferrea Linn*) also called Ironwood and Cobra's saffron.[31] It is ingredient of Misrakgana Chaturjat. Chaturjata is content of many formulations as Prakshepa Dravya. Nagkeshar is illustrating value as Pachan. According to Ayurveda, Nagkesar is good for improving digestion due to its Laghu (easy to digest) property. Taking Nagkesar powder helps to manage bleeding piles, dysentery and stomach irritation due to its astringent property. It's topical application also helps reduce pain and inflammation due to its analgesic and anti-inflammatory properties. In Charak Samhita, Nagkeshar's single use in Arsha Chikitsa of Nagkeshar

Pharmacological Activity

It has beneficial properties like

▪ Haemostatic properties anti-inflammatory properties

▪ Liver appetizer.

▪ Diuretic (expelling excess water from the body)

▪ Analgesic (pain-relieving)

▪ Antipyretic (reducing fever)

▪ Antibacterial

▪ Anti-fungal activity

▪ Anti arthritic properties

▪ Anti-oxidant

▪ Antibacterial properties

▪ Anti-fungal activity

▪ Anti-arthritic properties

▪ Anti-oxidant activity.

Potential use of Nagkeshar in piles

Hemorrhoids also called as piles, are clumps of dilated veins in the anus and lower rectum.10This makes defecating difficult with continuous throbbing pain accompanied by bleeding stools. Bleeding disorders occur due to an imbalance in Pitta (heat) Dosha.

Nagkesar may have some effect in the management of bleeding piles as may help in pacifying Pitta Dosha, resulting in a balance in the body's heat. It helps in reducing the colonic motility and thereby, helps in irritable bowel syndrome. Powder of Nagkesar aids digestion and also increased the vital capacity of lungs getting increased for the proper utilization of Prana.

Hence, it was assumed that the Nagkesar plant shows anti-spasmodic effect by inhibition the action potential generation in the acetyl choline and muscarinic receptor which is further responsible for the inhibition of myosin which results in the smooth muscles relaxation and therefore also relax colonic motility and cramps.

Figure: Nagkeshar

Cynodon Dactylon:

Cynodon dactylon possesses immense medicinal value and may be applied both externally as well as internally [32]. The plant possesses antiviral and antimicrobial activity [33]. Decoctions of root are used in secondary syphilis and irritation of urinary organs [34]. The plant is astringent, sweet, cooling, haemostatic, depurative, vulnerary, constipating, diuretic and tonic and is useful in impaired conditions of pitta and kapha, hyperdipsia, burning sensation, haemoptysis, haematuria, haemorrhages, wounds, leprosy, diarrhoea, dysentery, conjunctivitis, vomiting etc. [35]. The plant_is a folk remedy for snake bites, gout, and rheumaticaffections [36]. Itsanthelmintic activity has been successfully investigated [37]. Apart from this, it also possesses anti-inflammatoryactivity [38]. Three varieties namely ‘nildurva’ with bluish or greenish stem,‘shvetadurva’ with whitish stem and branches and ‘gandadurva’ with nodulose stem are mentioned in ‘Bhavaprakash nighantu’ [39]. C. dactylon Species-Cynodon dactylon Geographical distribution The plant C. dactylon prefers light sandy, medium loam and heavy clay soils. It can even grow in very acidic, alkaline and saline soils. However, it cannot grow in shady places. It needs moisture in soil. It has been introduced throughout warm-temperate and the subtropical world primarily for use as a lawn grass or as a forage grass, especially in saline habitats as reported by various workers [40].

General Appearance:

Leaves of C. dactylon are lanceolate, about 2 to 10 cm long and 1.25 to 3 mm wide. Flowers are characterized by presence of spikelets with 1 perfect floret. Glumes are lanceolate and extend up to 2mm in length. Lower glume is slightly smaller than the upper one. Anthers are 1 to 1.5 mm long, having tan to yellow. Styles are purple in colour. Roots are fibrous and cylindrical. The thickness of the roots ranges between 2 to 4 mm. The stem is very smooth and yellowish green in colour.

Microscopic characters

Cynodon dactylon (L) Pers has following microscopic characters:

Root Mature root shows piliferous layer (bearing hairs) composed of a single layer of thin-walled, radially elongated to cubical cells.Hypodermis consists of 1 or 2 layers of thin-walled, tangentially elongated cells. Cortex is differentiated into two zones (i) thin walled, polygonal and lignified sclerenchymatous zone and (ii) 4 to 6 layered parenchymatous zone containing elongated cells.Endodermis consists of single layered tangentially elongated cells. Pericycle consists of one or two layered thin-walled sclerenchymatous cells. Vascular bundles comprise xylem and phloem arranged in a ring form. Pith region is centrally located. It

iscomposed of oval and thick-walled parenchymatous cells containing numerous simple or angular starch grains having diameter of about 4 to 16 µ. Stem is found in warm climates all over the world between 45° south and north latitudes. It is available throughout the year [40]

Figure : Conodon dactylon

Phytochemical Constituent:

Phytochemicals are the secondary metabolites present in the plant they are responsible for its medicinal activity. C. dactylon contains 28.17% enzymes, 11.79% ash, 10.47% Proteins. Ash contains 0.77% calcium, 0.58% phosphorus, 0.34% manganese, 0.23% sodium, 2.08% potassium.[50] Dry grass contains per 400 grams 36.16% carbohydrate, 6.04 % proteins. It contains phenolic phytotoxins viz. ferulic, syringic, paracoumaric, vanillic, para hydroxyl www.wjpps.com Vol 4, Issue 11, 2015517Chandel et al. World Journal of Pharmacy and Pharmaceutical Sciences benzoic and orthohydroxy phenyl acetic acid.[41,42] Other compounds like vitamin C, β carotene, fats, palmitic acid etc. have also been reported.[43]

The table below shows the phytochemical constituent of Cynodon dactylon extracted using different organic solvent potential of Cynodon dactylon L. aqueous and alcoholic extract[45]

Cynodon dactylon Linn. is a member of the family *Graminae (Poaceae*). It is a creeping grass, very tough, drought resistant, light green in color, has a coarse texture, and fast growing. It is found in short cylindrical pieces about 3 to 20 mm long & 2 to 3 or sometimes 4 mm in diameter5. Cynodon dactylon aqueous extract have been evaluated for their Antioxidant6, Anti-inflammatory7 action while the fresh juice has shown the Immunomodulatory & DNA protective activity8.[44] Phytochemical screening carried in the past has shown the presence of phenols, flavonoids, alkaloids, glycosides, proteins and amino acid in Cynodon dactylon9.Ethnomedicinal investigation revealed the use of Cynodon dactylon L.as first aid in minor injuries in traditional medicine10. However, there is no scientific evidence or report on the wound healing potential of the Cynodon dactylon L. The present study is planned to evaluate the wound healing

CONCLUSION:

In the present review, it shows that many herbal plants have the anti-hemorrhoidal activity and also antiinflammatory activity which is effective in the treatment of hemorrhoid the selected herbal plants and formulations—*Momordica charantia*, *Aloe vera*, Triphala, Nagkesar (*Mesua ferrea*), and *Cynodon dactylon*—offer significant therapeutic potential for managing hemorrhoids. This potential stems from a synergistic blend of pharmacological properties including anti-inflammatory, analgesic, astringent, hemostatic, and wound-healing effects. These natural remedies are effective in alleviating common symptoms such as pain, swelling, itching, and bleeding. Plants like Triphala and *Momordica charantia* also address constipation, a key underlying cause of hemorrhoids, while topical applications of *Aloe vera* and *Cynodon dactylon* promote faster tissue repair. The paper

posits these herbal options as viable, well-tolerated, and cost-effective alternatives or complements to conventional treatments, especially within traditional medicine systems.

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