

A Review on Aloevera Therapeutic Miraculous Herb

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Abstract—Aloe vera is a member of the Alliaceae family, also known as Ghrit Kumari. which is a popular medical plant. Since Ancient times, the mucilaginous gel from the parenchymatous cells in the leaf pulp of Aloevera has been used for a variety of medicinal purposes. More than 200 active ingredients of medical importance have been isolated from the gel. (Sandeep Kumar and J P Yadav at. all) The goal of this paper is to highlight the fascinating history, cultivation, and medicinal use of aloe vera. The antimicrobial properties of aloe vera relieve skin inflammation, skin swellings, cure burns, skin irritations, cuts, and insect bites and is also used to treat skin cancer. (K Manvitha, B Bidya-journal of pharmacognosy at All 2014). It also could help with vaginal yeast infections. Additionally, it contains antiviral and immune-stimulating properties. Aloe Vera helps in digestion, according to research, when added to a diet, it acts as a tonic for general health. It is a good source of vitamins. Aloe vera gel includes a wide variety of vitamins, including vitamin B12, vitamin A, B-group vitamins, vitamin C, vitamin E, and folic acid. 19 of the 20 amino acids that the human body requires, along with seven of the eight essential nutrients that the body cannot make on its own, are found in aloe vera gel. Aloe vera is a plant that is rich in vitamins, minerals, enzymes, amino acids, natural sugars, and chemicals that may have anti-inflammatory and anti-microbial properties. The juice of aloe plants can be turned into an herbal tea and used as an eye wash. (Kumar, Debjit Bhowmik 2010).

Index Terms—Aloevera, Anti-Inflammatory, Antimicrobial, Digestion, Vitamins

I. INTRODUCTION

Aloe barbadense Miller is the scientific name for aloe vera. The Arabic term "Aloe" means "shining bitter substance" and the Latin word "vera" means "true". (A Surjushe et.al., 2008) The Aloe barbadense miller plant, commonly referred to as "True Aloe" or Aloe Vera, one of the more than 400 categories of aloe that are grown throughout the world. Because of its therapeutic characteristics, this plant has been the most beneficial for humans. Dr. Indu Mehta Department of

History Kumaun University. (2017) Aloe vera is an extremely powerful and essential herbal plant that is found in many other plants. It has a wide range of therapeutic benefits for humans as well as animals. Aloe vera can be utilized as medicinally in a variety of cultural systems. Aloe vera has antibacterial characteristics that limit the growth and development of microorganisms like microbes, fungi, protozoa, etc. Many cultures historically used aloe vera as a treatment. Among other applications, aloe preparation, including Products based on the gel and leaf, is used as a laxative, in skin lotions, functional meals, and treatment for a wide range of diseases. Indian Aloe (English), Kumari (Malayalam, Oriya), Katarazhai, Kilimukan, Charudutta (Tamil), Lolisara (Kannada), Kumarpathu (Gujrati), Chinna Kalabanda (Telgu), Ghrit Kumaari (Bengali), and Korepharh (Marathi) are just some of the regional names for aloe vera. (Mini Tiwari M.Phil. Chemistry, Dr. C.V. Raman University Kargiroad Bilaspur, Chhattisgarh, India Dr. Manish Upadhayay Principal and HOD in Department of Chemistry, Dr. C.V. Raman University, Kargiroad Bilaspur, Chhattisgarh, India 2018)." Aloe Vera is a cactus-like plant that survives in hot, dry climates and is currently grown worldwide due to high demand. The mucilaginous tissue at the centre of the aloe vera leaf is used to make cosmetics and some pharmaceuticals, and this material is known as aloe vera gel. This gel is a transparent, flavorless, thin, jelly-like product. The pericyclic tubules are a collection of particular cells that make up the remainder of the plant. (Cite This Article: Dr. Shail Bala Sanghi "ALOE VERA: A MEDICINAL HERB" International Journal of Research – Granth Aalayah, Vol. 3, No. 11(2015): 32-34.

II. PLANT PROFILE OF ALOE VERA

Aloe Vera is credited with helping Alexander the Great and Christopher Columbus heal wounded soldiers. Aloe Vera is a delightful plant that has a long

history of usage as medicinal product and is especially beneficial for skin diseases, small wounds, abrasions, and burns. The gel is different from dried latex, a well-known laxative. The inner leaf's tubules contain a yellow juice that is the source of this substance. (Plant Profile: Aloe vera by Kat Morgenstern | Jun 20, 2021)

1. Rind - The outer protective layer.
2. Sap – A covering of bitter liquid that plays a role in animal defense for the plant.

III. MUCILAGE GEL- THE INSIDE OF LEAF TISSUE THAT IS REMOVED FOR MAKING ALOE VERA GEL.

3.1 Botanical description: Aloe vera is a perennial, xerophytic, succulent plant with turgid green leaves. It is a stemless or very short stemmed plant growing up to 60 to 100 cm tall, spreading by offsets. The leaves of aloe vera plant are elongated pointed and joined in rosette pattern. The flowers of A. vera come out in summer on a spike up to 90 cm tall, each flower being pendulous, with a yellow tubular corolla and 2 to 3 cm long.

3.2 Medicinal uses: The medicinal properties of aloe vera include antibiotics, aperients, carminatives, deobstruents, depurative, diuretics, stomachics, and emmenagogues. Juice can be applied to the skin, used for the treatment of diarrhoea, fatigue, amenorrhoea, burns, colic, hyperemesis, hepatitis, cyclic menstrual bleeding, abdominal tumours, dropsy carbuncles, and lumbago. (Pankaj k. shau) 2013.

3.3 Taxonomic classification of aloe vera:

Table no. 1

Rank	Scientific And common Name
Kingdom	Plantae
Division	Magnoliophyte
Class	Liliopsida
Sub Class	Liliidae
Order	Liliales
Family	Aloaceae
Genus Species	Aloe LAloe Barbadians or Aloe vera

IV. CHEMICAL COMPOSITION, PROPERTIES AND FUNCTION OF ALOE VERA:

Table no. 2

Constituents	Identification	Properties and function
Amino acids	Provide 7 out of the required 8 essential amino acids and 20 out of the 22 necessary ones.	Basic building blocks proteins in the body and muscle tissues.
Anthraquinones	Aloe-emodin, aloetic acid, alevin, and anthracene are provided.	Analgesic, antibacterial.
Hormones	Auxins and gibberellins.	Wounded healing and anti – inflammatory.
Minerals	Calcium, chromium, copper, iron, manganese, potassium, sodium, and zinc.	Essential for good Health.
Enzymes	Anthranilic, barbaloin, Cryophilic acid, smodin, ethereal oil, resistanol.	Antifungal and antiviral activity but toxic at high concentration.
Salicylic acid	Aspirin like compounds.	Analgesic.
Saponins	Glycosides	Cleansing and antiseptic.
Steroids	Cholesterol, campestral, sitosterol.	Anti- inflammatory agents; lupeol has antiseptic and analgesic properties.
Sugars	Monosaccharides Glucose and fructose Polysaccharides: glucomannans / Polygonise.	Anti- viral, the immune modulating Activity of aloe Mannan
Vitamins	A, B, C, E, choline, B12, folic acid.	Antioxidant (A, C, E), neutralizes free radicals.

4.1. Active ingredients:

Amino acids, Anthraquinones, Hormones, Minerals, Enzymes, Salicylic acid, Saponins, Fatty acids, Steroids, Sugars & Vitamins.

V. MORPHOLOGY

Taste: - Bitter

Oduor: - None

Size & Shape: - Plant growing to 60-100cm in lance shaped with elongated

Strands

Color: - Leaves are green to grey – green flower

Flower: - Yellow tubular in 25- 35cm in a slender loose stamens

Root: - Root fibers that can reach 30-40cm in length (DIVYA PATHAK*, Dept. of Pharmacology at all.)

The plant has triangular, fleshy leaves with serrated edges, yellow tubular flowers and fruits that contain numerous seeds. Each leaf is composed of three layers: 1) An inner clear gel that contains 99% water and rest is made of glucomannans, amino acids, lipids, sterols and vitamins. 2) The middle layer of latex which is the bitter yellow sap and contains anthraquinones and glycosides. 3) The outer thick layer of 15–20 cells called as rind which has protective function and synthesizes carbohydrates and proteins. Inside the rind are vascular bundles responsible for transportation of substances such as water (xylem) and starch (phloem) (Choi S, Chung MH at all. 2003)

Synonyms: Aloe, Mosebar, Kumari

VI. PHARMACOLOGICAL EFFECTS OF ALOE VERA

This gel-like substance was used to treat irritated skin and was successful in treating radiation burns in the 20th century. The bioactive substances are effective in treating stomach disorders, gastrointestinal issues, constipation, radiation injury, wound healing, burns, dysentery, diarrhea, and treatment of skin diseases. They are also used as bitter, homeostatic, antidiabetic, antiseptic, antibacterial, antioxidant, and anti-tumor agents. The herb is being utilized extensively in skin care.

- Wound healing: Aloe Vera can help heal first- to second-degree burns, according to cumulative research.6. Mannose-6 phosphate has been implicated in the Aloe Vera gel's ability to heal wounds. Brady kinase enzymes assist in the decrease of when topically used to the skin, severe irritation.
- Anti-bacterial and anti-viral activity: Aloe vera gel contains 12 anthraquinones, which are

phenolic substances that have historically been used as laxatives. Aloin and Emodin have anti-viral, anti-bacterial, and analgesic properties.

- Anti-oxidant activity: It contains vitamin A, B Carotene, C and E. They are anti-oxidants. It provides calcium, magnesium, potassium, sodium, and zinc minerals which are essential for the proper functioning of various enzymes which are antioxidants.
- Anti-ulcer activity: A number of glycoproteins present in Aloe vera gel have anti-tumor and anti-ulcer effects.
- Anti –septic and analgesic properties: Some fatty acids such as cholesterol, coumetarol, B-sitosterol, and lupeols can be found in aloe vera gel. They all have anti-inflammatory effects, and lupeols contains analgesic and antiseptic characteristics.
- Anti – diabetic effects:
- Anti – tumors Effect: Aloe vera gel contains a number of glycoproteins that have been shown to have anti-tumor and anti-ulcer properties as well as to boost the proliferation of normal skin cells in humans. However, statistically significant clinical investigations on the beneficial effects of aloe vera gel on human health are few and frequently inconclusive.

Cosmetics and skin protections application: Preservatives, essential oil, Dyes, moisturizing and anti- ageing effects.

(Tsegaye Minwuyelet) et al 2017.

6.1 Anti- microbial effects: Aloe vera terminates the growth of the pathogenic microbes that cause gastrointestinal sickness in people and animals as well as spoilage Food.

- Anti – bacterial effects: Antibiotics have been utilized in earlier times to treat several bacterial illnesses in animals. The harmful impact on animal health, however, led to restrictions on this use. antibacterial activity against strains of bacteria like Mycobacterium, Staphylococcus aureus, Pseudomonas aeruginosa, Escherichia.
- Anti- fungal effects: Fungal infections on cattle hides reduce their value in the marketplace and result in many financial losses. Two such infections that need to be focused on ringworm caused on by teratophilic fungus and cattle dermatophytosis. Aloevera has the ability to improve T-lymphocyte cells and hence improve

internal immunity, curing ringworm disease. *Aspergillus Niger*, *Penicillium manifer*, *Pythium* sp., *Cryptococcus neoformans*, *Mycobacterium* exspores, and *Ralston a Solani* are among the fungal species in which the aloe leaf juice fights against. (Deepak Chandra et al) 2022.

- Mosisterizing and anti- aging effect: Currently, more than 95% of dermatologically beneficial products are made using aloe vera. This is because it has incredible moisturizing qualities.

VII. RECENT RESEARCH

1. The present study carried out on the Aloe vera revealed to evaluate antimicrobial activities of various extracts of Aloe vera. The successive leaf extracts using petroleum ether, chloroform and methanol of Alovera were tested for their antimicrobial efficiency against pathogenic bacteria and fungi (*Staphylococcus aureus*, *Klebsiella pneumonia*, *E.coli*,) and fungi like (*Aspergillus Niger*, *Candida*) at a dose 1: 20mg/ml and 2:40mg/ml. The standard drugs used for comparison were Streptomycin and Fluconazole against bacteria and fungi. Among the extracted tested for their antibacterial activity, the leaf extracts showed moderate to high activity against both gram positive and gram-negative bacteria. The extracts using petroleum ether, chloroform, and methanol of Aloe vera showed active antimicrobial activity against *Staphylococcus aureus*, *Klebsiella pneumonia*, *E. coli* and, and antifungal activity against *Candida* and *Aspergillus niger*.

(Kedarnath, kambel kaveri et. All 2013)

2. A plant base cell (PBC) has been proposed as a new electrical energy source to power low power consumption devices such as a transmitter. The PBC constitutes of a power management system that is connected to Cu-Zn electrode pairs which are embedded into the leaves of the Aloe Vera plants. The proposed power management system can perform a fully autonomous operation to harvest the electrical energy from the Aloe Vera plants to trigger a transmitter load to send signal periodically to the temperature and humidity sensor. This has been confirmed by performing the experiment under a real-life condition. (Jay Kumar Singh, Swee Leong Kok at all. 2019)

3. Aloe vera may be a helpful supplement for lowering blood lipid levels in patients with hyperlipidemia as well as for lowering blood glucose in diabetic patients. (Vogler B, Ernst E, et al. 1999)

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