

## Aloe Vera (Ghritakumaaree) Ladies Best Friend for Sure— A Study

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**Abstract:** “He whose friend is great is himself great” – Rig Veda

“To such an extent does nature delight and abound in variety that among her trees there is not one plant to be found which is exactly like another; and not only among the plants, but among the boughs, the leaves and the fruits, you will not find one which is exactly similar to another”. - Leonardo da Vinci

Ghritakumaaree is also known as Aloe Vera, Aloe Vera remains one of history’s most visible mysteries. This article gives us glimpses of Aloe’s first recorded origins in Egypt 6000 years ago and leads us to some fascinating perceptions of its miraculous curative powers (1)—even in the beginnings of Mediterranean civilizations. It takes us on Aloe’s journeys around the world as it was carried from civilization to civilization and across the centuries...until it mysteriously fell into disfavor in 17th Century Europe. This review article describes the prominence of the history of aloe vera, and the medicinal uses along with its chemical composition, and how it is useful for ladies on a day –to- day basis by proving to be the best friend of ladies.

**Key Words:** History of aloe vera, Aloe Vera and various culture, Chemical composition and properties, Aloe vera a miracle doctor.

### 1. History

There are more than 250 varieties of aloes in the entire world and many hybrids, mainly native of African Continent and Mediterranean. Since the earliest days of recorded history, man has made use of *Aloe* plants (2), They range in size from little one inch miniatures to enormous plant colonies containing of hundreds of two feet diameter plants, All Aloes are semi tropical succulent plants, and may only be cultivated outside in location where there is no possibility of freezing (USDA zones 10-11) However they make great house plants when they are provided with adequate sunlight. Aloe Vera is known as healing aloe, is an ever green perennial succulent. Indian aloe is found all over India; generally it is grown in pots in houses. The plant does not contain a stem, thick muscular leaves grow directly from root from all sides. Leaves are 1 to 2 feet long and 2 inch wide. The margins have small thorns which gives it a look of a chisel. From the center of the leaves grow red flowers. Plant bear fruits in winter season. When the leaves are cut a yellowish, sticky liquid oozes out which freezes when cold. It is known as “kumari Sar” or “Ghritakumaaree”(3). Being one of the most important of the 32 medicinal plants identified the world over, the Central and State government organizations are keen on promoting the plantation for the extraction of multiple benefits from it for the human well-being. Belonging to the family of Liliaceous, it is indigenous to Africa and Mediterranean countries and is reported to grow wild in the islands of Cyprus, Malta, Sicily, Carary Cape, Cape Verde, and arid tracts of India. This is a hardy perennial tropical plant that can be cultivated in drought-prone areas and is one of the crops whose potential is yet to be exploited, despite being identified as a ‘new plant resource with the most promising prospects in the world’ and its flowers are both in red and yellow colored, tubular and nearly 1.2 inches long.(4)



Fig:5

### 1.1 Aloe (Ghritakumaaree) in Egyptian culture

The Egyptians called Ghritakumaaree the “plant of immortality” and placed it at the entrance of the pyramids to indicate the pathway for the dead pharaohs towards the Land of the Dead. Precious information relative to this plant is contained in the “Papyrus of Ebers”, discovered during the excavation of an Egyptian tomb in 1858 and so called after its discoverer, the German Egyptologist, George Ebers. In this papyrus is found the Aloe symbol and a detailed description pertaining to the plant, with indications for its therapeutic uses. Aloe juice formed an integral part of the ingredients used for the mummification of the dead, as in the case of Pharaoh Ramses II. The ancient Egyptians, inventors of the first enema, used Aloe in combination with other herbs for their purging enemas. Also, the beauty of Cleopatra and Nefertiti was attributed to the use of Aloe as one of the ingredients of their regenerating and nutrient-rich milk baths. Aloe juice was also used in numerous ways at the esoteric level. In fact, many recipes for propitiatory potions include Aloe as the principal ingredient. Among those worthy of mention are those dedicated to the goddess Isis and the sun god Ra. Today, in Egypt, this succulent plant is still considered a symbol of happiness and protection, especially if placed inside a house – it is thought to protect the family by absorbing the negative energies brought into the home by visitors. It is not uncommon to find Aloe in shops or public structures. Decorated with a red bow, the Aloe plant serves to invoke love and, if decorated with a green ribbon, it is propitious in invoking the blindfolded goddess. In some rituals, it is still used for its energetic powers. Table 1. Shows the various therapies did in various centuries.

**Table 1. History of Aloe Vera Therapy**

1750 B.C.E.	Aloe pictured as medicinal treatment on Mesopotamian clay tablets
550 B.C.E.	Egyptian books refer to the treatment of skin infections
74 C.E.	Greek physician writes about his success in treating wounds, hair loss, and hemorrhoids
700 C.E.	Aloe used for sinusitis and eczema in the Orient
1200 C.E.	Predominantly used as a cathartic medicine
1935 C.E.	Modern experimentation begins with radiation-induced ulcerations

### 1.2 Aloe (Ghritakumaaree) in Ancient Greece and Ancient Rome

The etymology of the word Aloe derives from the Greek “àls – alòs” (salt), because the bitter taste of the plant is reminiscent of sea water. A folk legend tells us that, during Alexander the Great’s endeavors to expand the Persian Empire, he sought to conquer the island of Socotra under the advice of Aristotle, with the intent of gaining possession of the vast quantities of its

Aloe plants and their succotrine constituent. This small island, situated off the eastern coast of Somalia and south of the Arab peninsula, was, in fact, a fertile area for the growth of this precious plant, which was used as a healing salve for the often serious and extensive wounds suffered by Alexander’s soldiers in their long and arduous military expeditions. There are numerous references to this plant in many books of the Holy Bible. In the Book of Psalms (45:8), for example, it is clearly stated “...the King’s robes are perfumed with Myrrh and Aloe...”. In the Gospel of John, chapter 19, verse 39: “...Nicodemus prepared a mixture of Myrrh and Aloe to prepare the body of Jesus for burial ...”. This unguent was later given the name “Elixir of Jerusalem” and used by the templar and masonic cultures, who exalted its amazing curative and rejuvenating virtues for skin, body,

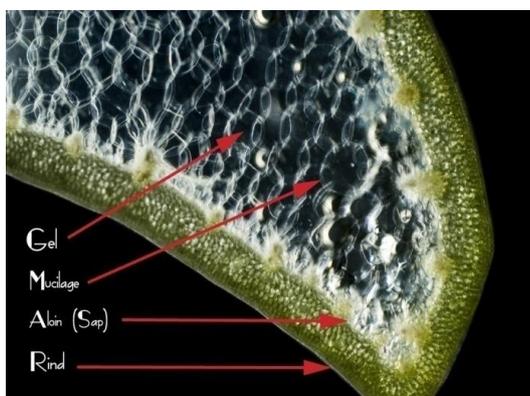
and soul. In the first century, A.D., both Dioscorides, Greek physician to the Roman Empire, and Pliny the Elder, author of the treatise, "Historia Naturalis", described the therapeutic uses of Aloe juice to cure wounds, stomach problems, constipation, headaches, alopecia (balding), skin irritations, oral problems, and many other disturbances.

### 1.3 Aloe (Ghritakumaaree) in the various Eastern cultures

Among the hundreds of Aloe species found in the world, some have larger trunks than others. These are the species that Tibetan medicine and culture uses to make therapeutic remedies and incense for meditation. They are still used today, especially for their calming, soporific, and harmonizing effects. To no lesser degree, Ayurvedic medicine today still uses the cortex, or skin, of the Aloe species *Aloe aquilarius agallocha* in many of its prominent preparations. One of these formulations including Aloe, called "Agar" in Hindi or Agar in Sanskrit, is mainly used to treat ear infections and open wounds. Aloe is also mentioned as an aphrodisiac in the *Kamasutra*. Other mentions are found in the "Milione", in which the famous Venetian, Marco Polo, describes clearly and concisely, the story and legend created around the Aloe plant with regard to its use and its widespread growth and distribution from the island of Socotra to all the Orient and in the flourishing trade routes of the mighty Chinese Empire.(5)

## 2. Anatomy

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)(6).



**Fig: 5.1 aloe vera leaf structure is made up of 4 layers which are as follows:**

- Rind: the external protective layer, green colour part of the leaf upto 15 cells thick;
- Sap: A layer of bitter liquid which assist protect the plants from animals, cells that consist of aloin.
- Mucilage (gel): The inner portion of the leaf which is filleted out to make aloe vera gel. the cell is surrounded by mucilage layer which consist of high value polysaccharides.
- Gel: Aloe Vera (inner gel) consist of eight essential amino acid that the human body requires but can't produce.(7)

2.1 Active components with its properties: Aloe vera contains 75 potentially active constituents: vitamins, enzymes, minerals, sugars, lignin, saponins, salicylic acids and amino acids.

1. **Vitamins:** It contains vitamins A (beta-carotene), C and E, which are antioxidants. It also contains vitamin B12, folic acid, and choline. Antioxidant neutralizes free radicals.
2. **Enzymes:** It contains 8 enzymes: aliase, alkaline phosphatase, amylase, bradykinase, carboxypeptidase, catalase, cellulase, lipase, and peroxidase. Bradykinase helps to reduce excessive inflammation when applied to the skin topically, while others help in the breakdown of sugars and fats.
3. **Minerals:** It provides calcium, chromium, copper, selenium, magnesium, manganese, potassium, sodium and zinc. They are essential for the proper functioning of various enzyme systems in different metabolic pathways and few are antioxidants.

4. *Sugars*: It provides monosaccharides (glucose and fructose) and polysaccharides: (glucomannans/polymannose). These are derived from the mucilage layer of the plant and are known as mucopolysaccharides. The most prominent monosaccharide is mannose-6-phosphate, and the most common polysaccharides are called glucomannans [ $\beta$ -(1,4)-acetylated mannan]. Acemannan, a prominent glucomannan has also been found. Recently, a glycoprotein with anti-allergic properties, called alprogen and novel anti-inflammatory compound, C-glucosyl chromone, has been isolated from Aloe vera gel.
5. *Anthraquinones*: It provides 12 anthraquinones, which are phenolic compounds traditionally known as laxatives. Aloin and emodin act as analgesics, antibacterials and antivirals.
6. *Fatty acids*: It provides 4 plant steroids; cholesterol, campesterol,  $\beta$ -sisosterol and lupeol. All these have anti-inflammatory action and lupeol also possesses antiseptic and analgesic properties.
7. *Hormones*: Auxins and gibberellins that help in wound healing and have anti-inflammatory action.
8. *Others*: It provides 20 of the 22 human required *amino acids* and 7 of the 8 essential amino acids. It also contains salicylic acid that possesses anti-inflammatory and antibacterial properties. Lignin, an inert substance, when included in topical preparations, enhances penetrative effect of the other ingredients into the skin. Saponins that are the soapy substances form about 3% of the gel and have cleansing and antiseptic properties.(8)

### 3. Properties

It is heavy in digestion, unctuous, sticky, pungent, cooling and bitter, it is dry sour and warm. It is purgatives and beneficial for eyes, is a rejuvenator and sweet, It promotes physical strength, improves potency and cures vata, poisonous flatulence, lower disorders, spleen disorders, semen production, cough, fever, cyst. It is beneficial in curing burns. It cures pitta, blood disorders and skin disorders, In little amount it promotes digestive functions and promotes digestion, stimulates, liver and in large amounts it is purgative and anthelmintic, it is unctuous and warm and hence increases the blood circulation in uterus. IT excites and strengthens the muscles of uterus and increase the contraction, Hence it is emenagogue.(9)

### 4. Chemical Composition

In 1851, it was discovered that the potency of aloe was the result of aloin, a bitter juice that dried to a yellow powder and functioned as a cathartic medicine (Fig.1) The different species of aloe have different chemical compositions. Unfortunately many investigation of the constituents found in Aloe do not report the specific species studies. Gjerstad found that the leave of the Aloe Vera plant contained 99.5% water and 0.013% protein. Rowe and parks noted Fructose, ash and amylase. Although they did not find vitamins A or D coats and Ahola indicate that Aloe contains beta carotene and alpha-tocopherol. Many other organic compounds and inorganic compounds have been found by others, and are listed in Table No.2. Both fresh and commercial Aloe preparations were found to contain high levels of lectin-like substances, lectins which are found in some plant seeds, are hemagglutinating proteins that bind to glycoproteins and decrease inflammation. Lignin which is similar to cellulose is believed to provide Aloe with the ability to penetrate skin where as saponin offers antiseptic properties, Gibberellin acts as a growth hormone. It decreases inflammation, but unlike steroids, stimulates protein synthesis. The central gel mucilage is thought to contain the growth hormone like substance, whereas the yellow sap has been found to decrease cell growth.(10)

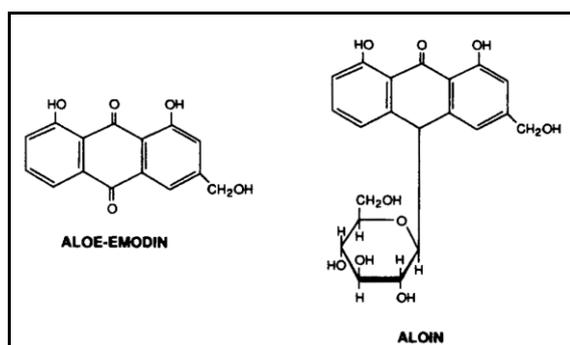


Figure 1. Molecular structures of aloe-emodin and aloin. Structures reproduced from Budavari S, O'Neil MJ, Smith A, et al., eds. The Merck Index. 11th ed. 1989. Permission granted by copyright owner, Merck & Co., Inc., Rahway, NJ, USA © Merck & Co., Inc., 1989.

<b>Anthraquinones</b>		<b>Inorganic</b>	
Aloin	Ester of cinnamic acid	Calcium	
Barbaloin	Aloe-emodin	Sodium	
Isobarbaloin	Emodin	Chlorine	
Anthranol	Chrysophanic acid	Manganese	
Aloetic acid	Ethereal oil	Magnesium	
Anthracene	Resistannol	Zinc	
		Copper	
		Chromium	
		Potassium sorbate	
<b>Saccharides</b>	<b>Enzymes</b>	<b>Vitamins</b>	
Cellulose	Oxidase	B1	Folic acid
Glucose	Amylase	B2	C
Mannose	Catalase	B6	Alpha-tocopherol
L-rhamnose	Lipase	Choline	Beta carotene
Aldopentose	Alkaline phosphatase		
<b>Essential amino acids</b>		<b>Nonessential amino acids</b>	
Lysine	Leucine	Histidine	Proline
Threonine	Isoleucine	Arginine	Glycerine
Valine	Phenylalanine	Hydroxyproline	Alanine
Methionine		Aspartic acid	Tyrosine
		Glutamic acid	
<b>Miscellaneous</b>			
Cholesterol		Uric acid	
Triglycerides		Gibberellin	
Steroids		Lectin-like substance	
Beta-sitosterol		Salicylic acid	
Lignins			

## 5. Aloe Vera A Miracle Doctor

### 5.1 Benefits of Aloe Vera

There are five unique benefits of Aloe Vera to the body they are

- Penetration: aloe has the ability to reach the deepest body tissues some seven layer deep.
- Antiseptic: aloe has at least 6 antiseptic agents which kill bacteria, viruses and fungi.
- Stimulates cell growth aloe stimulates the birth of new healthy tissue.
- Settles nerves aloe has a clearing effect on the body's nervous system.
- Cleanses- aloe detoxifies and normalizes the body's metabolism

### 5.2 . External and Internal uses of Aloe Vera

- Skin Care Aloe Vera is used widely in Dermatology, as it acts as an astringent, moisturizer, humidifier and cleanser. It softens the skin, diminishes wrinkles and cures acne, herpes, red spots, psoriasis, eczema, mycosis, fever blisters, skin irritation and provides protection to the skin against pollution. Also, it is ideal for sunburns, fragile skin, and for removal and repair of dead skin and cells.
- Aloe Vera cures gum disease The Aloe Vera actually heals gums and eliminates gum disease, mucositis, lip fissure and mouth herpes lesions.
- Relieves Itching Aids Healing: Aloe Vera Juice relieves itching that occurs due to allergies and insect bites and aids healing.
- Aloe Vera relieves joint and muscle pain, pain in the joints and muscle pain occurred due to arthritis is reduced by the application of Aloe Vera sprays or gels.
- Provides Relief in Liver Infections Aloe Vera Juice improves the liver function and is an excellent antidote in case of excessive ingestion of alcohol. In addition to this, it also prevents scarring of the liver.
- Cures Stomach & Intestinal Problems Aloe vera Juice prevents stomach ulcers, facilitates digestion and intestinal transit. Acts as an Anti inflammatory Agent Aloe Vera Juice contains 12 essential nutrients that inhibit inflammation with rare incidence of side effects. Also, the juice of Aloe Vera improves joint and muscle mobility.
- Aloe Vera stabilizes blood sugar and reduces cholesterol in diabetics: Laboratory studies show that aloe can stimulate insulin release from the pancreas and can lower blood glucose levels in mice.
- Antiviral and Antitumor Activity Aloe Vera facilitates the stimulation of immune system that in turn protects the body against viral and tumor related disorders(11)

## 6. Conclusion

*Aloe vera*, an ancient Indian herb has a long history as a medicinal plant with diverse therapeutic applications, *Aloe vera* has proved in the clinical scientific studies of *Aloe Vera*'s internal and external uses have been discovered mitigations or full resolutions of the following diseases they are Abrasions, Cold, acne, colic, Menstrual cramps and irregularity, ulcerations, Allergies, cancer, Denture gum sores, Nausea, burns, chronic fatigue, vaginitis, viral infections, sunburn, constipation, AIDS, viral infections, Arthritis, dermatitis, psoriasis, edema, varicose vein, boils, diabetes, dandruff, insect bites (12,13,14,15,16,17,18,19,20,21,22,23) and the cultivation of *Aloe vera* has great commercial importance for medicinal products and cosmetics processing. *Aloe vera* has multiple uses and certainly, it is nature's gift to humanity and it remains for us to introduce it to ourselves and thank the nature for its never-ending gift and research says that many ladies are reported to grow *aloe vera* as a kitchen plant just to provide home treatment for their family members for minor skin injuries and this plant is easily accessible for any individual household (24) especially because it could be even grown in kitchen gardens, the ladies can use it for beauty purpose, for immediate burns which happens due to kitchen chores could be easily attended by just cutting and applying a piece of *aloe vera* on the burn, and during Menstruation cycles loss and irregularity this medicine plays as a miracle and for any cold attack or fatigue also this plant is used and I feel this could be a miracle doctor for all the ladies at home and from ages our granny's are using *aloe vera* for long and beautiful hair and hair related problems like dandruff and dryness of scalp, hair fall etc.. I think this plant can be called as best friend for ladies because during their childhood days use of this plant will give immunity for the children as kids, during teenage time it help to correct the menstruation related issues and during middle age and old age it help to cure joint pains and help to correct your metabolism when consumed in right quality so these many examples prove that this plant can be surely declared as ladies best friend for sure.

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