

ASTOUNDING THERAPEUTIC BENEFITS OF ALOEVERA

Aanchal Meena¹, Devendra Kumar², Monika Chamoli³, Raaz K. Maheshwari⁴

1. Department of Political Science, SBRM Govt PG College, Nagaur, Rajasthan, India
2. Department of Political Science, BSR Govt College, Alwar, Rajasthan, India
3. Department of Applied Sciences, Pt LR College of Technology, Faridabad, Haryana, India
4. Department of Chemistry, SBRM Govt PG College, Nagaur, Rajasthan, India

*gcacs16@gmail.com; gcacs60@gmail.com

ABSTRACT

Aloe vera is a plant that has been used historically in various traditional cultures for its health benefits, as well as its medicinal and skin care properties. However, the benefits of taking aloe vera internally have not been completely validated. Aloe leaves are made up of three layers, the innermost being a gel containing the plant's alleged beneficial properties. Today, the gel inside the aloe vera plant is used in skin care products, and it's also consumed in its raw natural form for its purported health benefits. Aloe vera gel contains vitamins A, C and E. These are antioxidants, meaning they protect from free radicals that are responsible for aging and can cause cancer over time. The gel also contains vitamin B-12 and folate. It hosts an array of essential minerals, including calcium, potassium, magnesium, chromium, sodium, copper, zinc and selenium. Its mineral content makes aloe vera beneficial for healthy cellular enzyme and metabolic activity. It also contains 20 amino acids, including 7 out of the 8 essential ones.

Keywords: Bradykinase, Vitamin B-12, Folate, Mannans, Polysaccharides, Lectins, , Anthraquinones, Immunomodulatory properties

INTRODUCTION

Aloe vera is also known as medicinal aloe, and its common names are Lily of the Desert, Burn Plant, and Elephant's Gall. It belongs to the family of succulent plants in the genus 'Aloe'. The origin of this burn plant is believed to be in Sudan and has been used for more than 6,000 years. The great virtues of this plant have been recognized by many civilizations, including the Egyptians, Spanish, Persians, Greeks, Italians, Africans, Japanese, and Indians. It grows best in warm and dry climates and is densely found in India, Africa, and other arid zones. This species has a wide usage in herbal medicines. The aloe vera plant has compounds such as mannans, polysaccharides, lectins, and anthraquinones that are extremely beneficial for human health. Aloe Vera plant is often a stemless or sometimes very short-stemmed juicy plant that grows around 60–100 cm (24–39 inch) in height and the offsets spread out wide. The leaves of this plant are thick and fleshy and the color varies from green to gray-green. Some varieties of this plant have white flecks on the upper and lower portions of the stem surfaces. The margin of the leaves is like saw-tooth and the flowers bloom during the summer. This plant can be easily grown both, indoors and outdoors. Aloe contains several anti-inflammatory compounds, including salicylic acid, C-glucosyl chromone and an enzyme called bradykinase. Meanwhile, aloe reduces the production of acid in the body, which also prevents inflammation. Consuming aloe might prove helpful in treating inflammatory bowel disease. Aloe can also be helpful in mild to moderate cases of ulcerative colitis. Aloe Vera is extensively used in beauty products and for good reason. It's got antiviral and antibacterial properties, and the ability to help treat everything from constipation to diabetes.



The green-cactus looking plant that sits out in your garden isn't just a plant with its roots in folklore, it's the crux of a million dollar industry that extends from beauty creams to healthy juices and diet supplements. Over time, aloe vera has seamlessly integrated itself into everything we use. But what makes this miracle plant so distinguishable?

The aloe vera plant is about one or two feet tall with prickly and bitter leaves, which act as a defence to keep animals and insects from feeding on the plant. The leaves hold a gooey translucent gel, also extremely bitter, and known all over the world for its unbelievable healing properties. This translucent gel is made up of around 96% water, some organic and inorganic compounds, a type of protein which contains 18 of the 20 amino acids found in the body and lastly, Vitamin A, B, C and E¹⁻⁵.



Another part of the aloe vera plant which is used is the 'sap', a yellow-coloured liquid stuck to the skin of the plant from the inside. When dried and purified, the powdered aloe is often used as a laxative, though its effectiveness is questionable. One of the most crucial elements found in aloe vera gel is a complex carbohydrate known as acemannan. It allows nutrients to reach the cells, nourish them and at the same time relieve them of toxins. Ayurveda, Chinese herbal medicine and British herbal medicine have all advocated aloe vera as a healer, when applied or consumed orally⁶.

ALOE VERA NUTRITION FACTS

Aloe vera a perennial, xerophytic, succulent plant that's green and has triangular, fleshy leaves with serrated edges. The geographic origin of aloe vera is believed to be in Sudan, and it was later introduced in the Mediterranean region and most other warm areas of the world, including Africa, Asia, India, Europe and America. Aloe gel is the clear, jelly-like substance found in the inner part of the aloe plant leaf. Aloe latex comes from just under the plant's skin and is yellow in color. Some aloe products are made from the whole crushed leaf, so they contain both gel and latex. Aloe vera is considered to be the most biologically active of the Aloespecies; astonishingly, more than 75 potentially active components have been identified in the plant, including vitamins, minerals, saccharides, amino acids, anthraquinones, enzymes, lignin, saponins and salicylic acids. It provides 20 of the 22 human-required amino acids and eight of the eight essential amino acids. Aloe vera contains many vitamins and minerals vital for proper growth and function of all the body's systems. Here's an easy explanation of aloe vera's active components:

- Aloe vera contains antioxidant vitamins A, C and E — plus vitamin B12, folic acid and choline.
- It contains eight enzymes, including aliase, alkaline phosphatase, amylase, bradykinase, carboxypeptidase, catalase, cellulase, lipase and peroxidase.
- Minerals such as calcium, copper, selenium, chromium, manganese, magnesium, potassium, sodium and zinc are present in aloe vera.

- It provides 12 anthraquinones — or compounds known as laxatives. Among these are aloin and emodin, which act as analgesics, antibacterials and antivirals.
- Four fatty acids are present, including cholesterol, campesterol, beta-sisosterol and lupeol — all providing anti-inflammatory results.
- The hormones called auxins and gibberellins are present; they help with healing wounds and have anti-inflammatory properties.
- Aloe vera provides sugars, such as monosaccharides (glucose and fructose) and polysaccharides.

HEALTH BENEFITS OF ALOE VERA

Including aloe vera products in your regular nutritional plan, will automatically give a regenerated body and an attractive, youthful appearance. The common health benefits of aloe are discussed below.

The adaptogenic properties of aloe vera are beneficial for a proper digestion. It ensures better nutrient absorption and also eliminates harmful elements through smooth excretion. A healthy digestive process positively affects your thoughts and actions, thus promoting overall health. It cures irritable bowel syndrome and keeps constipation, piles, and other gastrointestinal conditions from damaging your system. Aloe vera has compounds called polysaccharides that have the ability to cure a host of digestive disorders and ulcers. Ulcers are one of the most prominent consequences of digestive problems that are effectively cured by this plant extract. Many studies have proven that it cures issues like Crohn's disease, peptic ulcers, and other digestive tract disorders. If you suffer from ulcers and consume aloe vera extract for at least 3 – 4 weeks, you will surely notice positive results⁷.



During a cancer treatment, radiotherapy is inevitable in most cases. Cancer patients often experience uncomfortable side effects due to radiotherapy. Topical application of aloe vera gel to the radiation area will make the patient immediately feel the soothing effect and it also accelerates healing. If you drink aloe juice in such conditions, it will help you in healing the radiation burns.

Aloe vera has been used for skin ailments since ancient times. The pure inner gel extracted from the aloe leaf is the best natural remedy for skin abrasions and it also helps to diminish the symptoms of aging skin conditions. Many skin care and personal care products, toiletries, and cosmetics include aloe extract. In fact, if you have its plant at home, simply tear a small part of the leaf, take the gel and apply it in the raw form on your face. This therapy will prove to be far better and more effective than many expensive skin creams on the market. Most people prefer drinking its juice, which also enhances skin health, as the properties of the plant work internally. It also helps in curing stings, rashes, acne, and psoriasis.

Aloe vera has proven to be an excellent option for promoting hair growth naturally. The hair products that contain it are essential to retain voluminous and healthy hair. You can apply its gel to the entire scalp and hair to treat hair loss. It has an enzyme that is beneficial for stimulating hair growth. Aloe vera shampoo improves blood

circulation and keeps you away from stress and mental strain. In fact, it has anti-inflammatory properties that effectively treat 'Androgenetic Alopecia'. If you use it regularly as your shampoo and conditioner, you are sure to prevent premature hair loss.

Aloe Vera is noted for its amazing anti-inflammatory properties that work instantly on the pain and swelling resulting from arthritis. Its juice is extremely effective in calming the swelling and inflammation that are closely associated with arthritis. In fact, topical application on swelling or drinking aloe vera juice both show positive results in curing arthritis pain. The anti-inflammatory properties of aloe vera help it to work efficiently on joint and muscle pains. Applying aloe gel topically eases inflammation of the joints. Aloe juice can also be consumed to reduce inflammation throughout the body, thus revitalizing your body. In some studies, it has been reported that people who regularly consume aloe vera juice for at least two weeks experience a significant improvement in inflammation issues. However, it works efficiently when your diet contains less intake of red meat, sugar, milk, fried foods, and white flour⁸.

Aloe vera has been considered a natural healer ever since it was discovered thousands of years ago. If used externally, it is the best option for wound dressing. In fact, in many cases, it is seen that aloe vera works like magic, even in the most serious of emergency room wound cases. The juice instantly seals the wound while drawing the flow of blood to the wound, thus enhancing the process of wound healing. In many studies, it has been proven that aloe effectively treats third-degree burn victims and it restores the burned skin faster. It is also known that a large amount of aloe vera gel can heal wounds of gunshots and tissue injuries.

Nausea can occur due to a host of reasons, including consuming contaminated food, having a virus or flu, or even due to chemotherapy treatments. There are many man-made medicines for nausea, however, nowadays doctors are also prescribing natural options for treatment. Oftentimes, nausea feelings originate from disorders in the stomach or in the digestive tract. Aloe vera juice is excellent for a sick stomach and makes you feel better by bringing a calm feeling throughout the body. This indirectly helps to alleviate the feelings of nausea. Aloe vera is also used for lowering blood sugar levels. Consuming it has beneficial effects on reducing blood sugar levels. A result of the study on the effects of aloe vera on diabetic rat models suggests that it is useful in the treatment of diabetes.

Aloe vera gel is rich in vitamins like vitamin B12, B1, B2, B6, and vitamin A, E, and C, and niacin, and folic acid. These vitamins are required for a proper functioning of human body. The body's defensive system is thus kept intact with the regular intake of its juice and thus keeps you away from the dangerous impact of oxidative stress. Acid reflux is often wrongly known to be a disease, while it is actually just a symptom that involves heartburn and discomfort. Initially, you can try the natural remedy of consuming the soothing aloe vera juice, which usually works effectively and initiates proper functioning. However, you should try to avoid eating fried and processed food⁹.

Aloe vera gel, when used internally, automatically improves the blood quality and thus helps in re-balancing the other components in your blood like cholesterol and glucose. It effectively lowers cholesterol and total triglyceride content. Blueberries are also powerful, cholesterol-lowering agents, thus you can imagine how great a natural remedy it can be if you combine blueberries and aloe vera. Aloe vera extract accelerates the supply of blood and purifies it at the same time. This blood accelerates the delivery of oxygen to the organs in the body, thereby maximizing their functionality. Organs like the brain and heart need oxygen that is supported by this purified blood. Therefore, aloe vera indirectly keeps the blood fresh and rich in oxygen to serve these purposes perfectly. Dental and gum diseases can also be cured by aloe vera. You can try out this natural remedy at home; put some aloe vera powder on your toothbrush, then brush normally. The aloe vera powder will soothe your gums and cure any kind of infection or bruises. Aloe vera juice can also help in keeping gums healthy. Just gargle the liquid around your mouth before swallowing. Also, try to increase your intake of vitamin D. Both these measures will be enough to get your gums back in shape within a few months¹⁰.

Aloe vera gel can act as a natural food preservative. In the experiment, they immersed some table grapes into a bowl of aloe vera gel and then kept it in the refrigerator temperatures. The table grape without aloe vera gel went bad in 7 days, but the gelled ones stayed fresh for more than 35 days and still tasted fresh.

Many scientists say that this benefit of aloe vera can bring a new dimension to the food safety regulations around the world. Further experiments showed that dipping fruits and vegetables in aloe vera gel effectively eliminated E.coli, retained the freshness, and also extended its shelf life. The FDA has also approved it as a natural food flavoring agent.

Aloe vera is also used for lowering blood sugar levels. Consuming it has beneficial effects on reducing blood sugar levels. A result of the study on the effects of aloe vera on diabetic rat models suggests that it is useful in the treatment of diabetes. Aloe vera gel is rich in vitamins like vitamin B12, B1, B2, B6, and vitamin A, E, and C, and niacin, and folic acid. These vitamins are required for a proper functioning of human body. The body's defensive system is thus kept intact with the regular intake of its juice and thus keeps you away from the dangerous impact of oxidative stress.

Aloe vera gel, when used internally, automatically improves the blood quality and thus helps in re-balancing the other components in your blood like cholesterol and glucose. It effectively lowers cholesterol and total triglyceride content. Blueberries are also powerful, cholesterol-lowering agents, thus you can imagine how great a natural remedy it can be if you combine blueberries and aloe vera. Aloe vera extract accelerates the supply of blood and purifies it at the same time. This blood accelerates the delivery of oxygen to the organs in the body, thereby maximizing their functionality. Organs like the brain and heart need oxygen that is supported by this purified blood. Therefore, aloe vera indirectly keeps the blood fresh and rich in oxygen to serve these purposes perfectly¹¹.

Dental and gum diseases can also be cured by aloe vera. You can try out this natural remedy at home; put some aloe vera powder on your toothbrush, then brush normally. The aloe vera powder will soothe your gums and cure any kind of infection or bruises. Aloe vera gel can act as a natural food preservative. In the experiment, they immersed some table grapes into a bowl of aloe vera gel and then kept it in the refrigerator temperatures. The table grape without aloe vera gel went bad in 7 days, but the gelled ones stayed fresh for more than 35 days and still tasted fresh.

Many scientists say that this benefit of aloe vera can bring a new dimension to the food safety regulations around the world. Further experiments showed that dipping fruits and vegetables in aloe vera gel effectively eliminated E.coli, retained the freshness, and also extended its shelf life. The FDA has also approved it as a natural food flavoring agent.

Blood oxygenation benefits the supplying of CO₂ (carbon dioxide) to vital organs. In some studies, it has been reported that aloe vera aids in blood oxygenation. However, more evidence is required to back up this potential benefit.

Aloe vera has been a primary component of many skin products that help in retaining youthfulness through a healthier skin. The added support of aloe in any skin cream enhances its function as a wrinkle fader and skin rejuvenator. The anti-aging properties work on the skin and keep it fresh, supple, wrinkle-free, and bright. The properties of aloe vera make it penetrate quickly within the various layers of the skin, even to the muscles of the body¹².

Aloe vera is also used for lowering blood sugar levels. Consuming it has beneficial effects on reducing blood sugar levels. A result of the study on the effects of aloe vera on diabetic rat models suggests that it is useful in the treatment of diabetes.

Acid reflux is often wrongly known to be a disease, while it is actually just a symptom that involves heartburn and discomfort. Initially, you can try the natural remedy of consuming the soothing aloe vera juice, which usually works effectively and initiates proper functioning. However, you should try to avoid eating fried and processed food.

Aloe vera gel, when used internally, automatically improves the blood quality and thus helps in re-balancing the other components in your blood like cholesterol and glucose. It effectively lowers cholesterol and total

triglyceride content. Blueberries are also powerful, cholesterol-lowering agents, thus you can imagine how great a natural remedy it can be if you combine blueberries and aloe vera.

Aloe vera extract accelerates the supply of blood and purifies it at the same time. This blood accelerates the delivery of oxygen to the organs in the body, thereby maximizing their functionality. Organs like the brain and heart need oxygen that is supported by this purified blood. Therefore, aloe vera indirectly keeps the blood fresh and rich in oxygen to serve these purposes perfectly¹³.

It has been proved that a thin layer of aloe vera gel can act as a natural food preservative. In the experiment, they immersed some table grapes into a bowl of aloe vera gel and then kept it in the refrigerator temperatures. The table grape without aloe vera gel went bad in 7 days, but the gelled ones stayed fresh for more than 35 days and still tasted fresh¹⁴.

Many scientists say that this benefit of aloe vera can bring a new dimension to the food safety regulations around the world. Further experiments showed that dipping fruits and vegetables in aloe vera gel effectively eliminated E.coli, retained the freshness, and also extended its shelf life. The FDA has also approved it as a natural food flavoring agent¹⁵.

Blood oxygenation benefits the supplying of CO₂ (carbon dioxide) to vital organs. In some studies, it has been reported that aloe vera aids in blood oxygenation. However, more evidence is required to back up this potential benefit.

Aloe vera has been a primary component of many skin products that help in retaining youthfulness through a healthier skin. The added support of aloe in any skin cream enhances its function as a wrinkle fader and skin rejuvenator. The anti-aging properties work on the skin and keep it fresh, supple, wrinkle-free, and bright. The properties of aloe vera make it penetrate quickly within the various layers of the skin, even to the muscles of the body¹⁶.

ALOEVERA JUICE



Aloe vera juice has digestive and immunity-boosting benefits. It helps treat intestinal issues and builds immunity. The plant is good for the heart too – it aids in cholesterol and blood pressure reduction. Other benefits include balancing the body's pH levels, improving skin health, and treating bad breath. It can also stimulate the uterus and improve menstrual conditions. In fact, aloe vera juice has been mentioned in Ayurvedic texts too. As per Ayurveda, aloe vera juice can benefit the eyes and help prevent various eye disorders. It is also useful in treating jaundice and bronchitis. Aloe vera juice can also help in keeping gums healthy. Just gargle the liquid around your mouth before swallowing. Also, try to increase your intake of vitamin D. Both these measures will be enough to get your gums back in shape within a few months. Aloe vera juice is excellent for a sick stomach and makes you feel better by bringing a calm feeling throughout the body. This indirectly helps to alleviate the feelings of nausea. Aloe vera juice can also help in keeping gums healthy. The extract of aloe vera has shown to be an excellent stimulant of the uterus. Intake of its juice is very beneficial during painful menstruation. Beverages made from aloe vera juice possess natural detoxifying properties that effectively cleanse the digestive system and the circulatory system. As the absorption level of nutrients accelerates, it results in better blood circulation and also

improves the health. When the blood is oxygen-rich, it automatically provides nutrients within the cells more proficiently. These healthy cells ensure your body's ability to ward off infections, thereby strengthening your immune system. It has the capability to neutralize harmful bacteria; its rejuvenating properties work within your body to keep it fresh and active throughout the day. Many studies have shown that these antitumor and immunomodulatory properties are due to aloe vera polysaccharides¹⁷⁻²⁰.

CONCLUSION

The health benefits of aloe vera are numerous, beginning with improving the digestive system, it can result in an optimal health in the long run. It strengthens the immune system, delays the aging process, cures dermatitis, alleviates menstrual problems, reduces arthritis pain, and heals wounds. It also cures nausea, eliminates ulcers, lowers blood sugar levels, prevents diabetes, reduces oxidative stress, inhibits cancerous growth, heals the side effects of radiotherapy treatments, promotes hair growth, and soothes acid reflux symptoms. This widely useful plant also lowers cholesterol and triglycerides, improves cardiovascular functions, alleviates joint and muscle pain, enhances lifespan, and cures gum diseases. It has been used for ages to alleviate pain since it has excellent anti-inflammatory properties. Studies are still being conducted to discover more benefits of the aloe plant that will undoubtedly make it more important in the medicinal practices all around the world. Aloe vera gel has a protective effect against radiation damage to the skin. With the threat of nuclear warfare always looming, the U.S. government conducted research on the ability of aloe vera to treat thermal and radiation burns with the aim of introducing its use into the military.

REFERENCES

1. Boudreau MD, Beland FA (2006). An Evaluation of the Biological and Toxicological Properties of Aloe Barbadosis (Miller), Aloe Vera. *J Environ Sci Health C Environ Carcinog Ecotoxicol Rev.* **24** (1): 103–54. doi:10.1080/10590500600614303.
2. Ernst E (2000). Adverse effects of herbal drugs in dermatology". *Br. J. Dermatol.* **143** (5): 923–9.
3. Gong M, Wang F, Chen Y (2002). Study on application of arbuscular-mycorrhizas in growing seedings of Aloe vera. *Zhong Yao Cai* (in Chinese). **25** (1): 1–3.
4. King GK, Yates KM, Greenlee PG, Pierce KR, Ford CR, McAnalley BH, Tizard IR (1995). "The effect of Acemannan Immunostimulant in combination with surgery and radiation therapy on spontaneous canine and feline fibrosarcomas". *J Am Anim Hosp Assoc.* **31** (5): 439–47. doi:10.5326/15473317-31-5-439.
5. Eshun K, He Q (2004). Aloe vera: a valuable ingredient for the food, pharmaceutical and cosmetic industries--a review. *Critical Reviews in Food Science and Nutrition.* **44** (2): 91–6. doi:10.1080/10408690490424694.
6. Liao Z, Chen M, Tan F, Sun X, Tang K (2004). Micropropagation of endangered Chinese aloe. *Plant Cell, Tissue and Organ Culture.* **76** (1): 83–86. doi:10.1023/a:1025868515705.
7. Jamir TT, Sharma HK, Dolui AK (1999). "Folklore medicinal plants of Nagaland, India". *Fitoterapia.* **70** (1): 395–401. doi:10.1016/S0367-326X(99)00063-5.
8. Wang H, Li F, Wang T, Li J, Li J, Yang X, Li J (2004). Determination of aloin content in callus of Aloe vera var. chinensis. *Zhong Yao Cai* (in Chinese). **27** (9): 627–8.
9. Gao W, Xiao P (1997). Peroxidase and soluble protein in the leaves of Aloe vera L. var. chinensis (Haw.)Berger. *Zhongguo Zhong Yao Za Zhi* (in Chinese). **22** (11): 653–4, 702.
10. Akinyele BO, Odiyi AC (2007). Comparative study of the vegetative morphology and the existing taxonomic status of Aloe vera L. *Journal of Plant Sciences.* **2** (5): 558–563. doi:10.3923/jps.2007.558.563.
11. Newton LE (1979). In defense of the name Aloe vera. *The Cactus and Succulent Journal of Great Britain.* **41**: 29–30.
12. Darokar MP, Rai R, Gupta AK, Shasany AK, Rajkumar S, Sunderasan V, Khanuja SP (2003). Molecular assessment of germplasm diversity in Aloespp. using RAPD and AFLP analysis. *J Med. Arom. Plant Sci.* **25** (2): 354–361.

13. Treutlein J, Smith GF, van Wyk BE, Wink W (2003). Phylogenetic relationships in Asphodelaceae (Alooideae) inferred from chloroplast DNA sequences (rbcl, matK) and from genomic finger-printing (ISSR). *Taxon*. **52**(2): 193. doi:10.2307/3647389.
14. Vogler BK, Ernst E (1999). "Aloe vera: a systematic review of its clinical effectiveness. *Br J Gen Pract*. **49** (447): 823–8. .CD008762. doi:10.1002/14651858.CD008762.pub2.
15. Maenthaisong R, Chaiyakunapruk N, Niruntraporn S, Kongkaew C (2007). The efficacy of aloe vera used for burn wound healing: a systematic review . *Burns*. **33** (6): 713–8. doi:10.1016/j.burns.2006.10.384.
16. Deng S, May BH, Zhang AL, Lu C, Xue CC (2013). Plant extracts for the topical management of psoriasis: a systematic review and meta-analysis. *Br. J. Dermatol*. **169** (4): 769–82. doi:10.1111/bjd.12557.
17. Bottenberg MM, Wall GC, Harvey RL, Habib S (2007). Oral aloe vera-induced hepatitis. *Ann Pharmacother*. **41** (10): 1740–3. doi:10.1345/aph.1K132.
18. Rodriguez F, Baldassarre H, Simonetti J, Aste F, Ruttle JL (1988). Cervical versus intrauterine insemination of ewes using fresh or frozen semen diluted with aloe vera gel. *Theriogenology*. **30** (5): 843–54. doi:10.1016/S0093-691X(88)80046-3.
19. Serrano M, Valverde JM, Guillén F, Castillo S, Martínez-Romero D, Valero D (2006). Use of Aloe vera gel coating preserves the functional properties of table grapes. *J. Agric. Food Chem*. **54** (11): 3882–6. doi:10.1021/jf060168p.

