

A REVIEW: ALOE VERA IS MIRACLE PLANTShirish B. Nagansurkar, Sanjay K Bais, Mustafa B. Mujawar
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ABSTRACT:

Aloe vera is sometimes called the "miracle" or "wonder" plant because of the gel inside its fleshy leaves and has been used by humans to treat different diseases for centuries. Medicinal uses and uses of the main species, Aloe vera (L.) Burm. F. Often attributed to immunomodulatory or antioxidant activity. Our work in Vera began with the isolation of anthraquinone and continued with the purification. Natural treatments are more popular because they are safer and have fewer side effects than synthetic treatments. There is a growing demand for herbal preparations in the commercial world. Current research suggests that aloe vera, rose water, glycerine, soap-based almond oil, olive oil, etc. It includes the development and analysis of herbal facial treatments. Although there are many types of herbal medicines available in the market for acne treatment, our goal is to create herbal medicines without using synthetic ingredients. Making an herbal face wash with aloe vera is a good thing to try. The leaves of this beautiful plant contain many vitamins, minerals, natural sugars, enzymes, amino acids and many bioactive compounds with emollient, laxative, anti-inflammatory, antioxidant, antibacterial and antimicrobial properties. It has antifungal, aphrodisiac, antiseptic and cosmetic value. Although the instructions for use may differ, the results cannot be determined without clinical studies. The oldest and most widely used plant in the world is aloe vera, also known as Ghritkumari. It is a member of the Xanthorrhoeaceae family (APG III System, 2009). Since Rigveda's time, aloe vera root has been utilized for therapeutic and health-related uses. Aloe vera can be used for many health purposes such as treating burns, wounds and frostbite; protect skin from X-ray damage; against stomach, gastric and blood cancer; and for high- and low-density lipoprotein (HDL).

Keywords: Chemical components, extraction of gel, processing, extraction of aloin, uses, etc.

INTRODUCTION

Products that clean your face in the absence of drying it are called facial cleansers. Another name is "facial purifier". It has been determined that the face wash is suitable for all skin types. Facial cleansers for dry skin are especially good at removing oil, dirt, and moisture. You can use cleansers and face washes to remove oil, pollution, and residue from your face. Use facial cleanser to remove excess oil, makeup, and debris from your skin. These bacteria are fat soluble. They can be removed by washing your face, although they are not completely successful. Regular use of soap can cause dehydration of the skin. Face wash is a made cleansing solution. It does not irritate the skin, so the skin looks young and vibrant. The purpose of facial cleansing will be cleansing, anti-wrinkle, acne prevention, moisturizing and skin lightening. It is believed that skin care

products reduce melanin content by inhibiting melanin production in melanocytes, thus affecting melanin synthesis and metabolism in the skin. Medicines such as glycerine, aloe vera, rose water, raw honey, peppermint oil and lavender essential oil inhibit melanin synthesis.¹

Types:

The introduction of face wash:

“Facial cleanser” is another name for a product that is used to clean the skin of impurities such as oil, dirt, dead skin, and makeup.

Advantages of Facial Cleanser:

It helps to remove dead skin and replace it with new skin.

It makes the skin beautiful and healthy

It gives a healthy skin.

Side Effects: - (No Side effect.)

Taxonomic name- Aloe vera.

Product: - Asparagus.

Family: Asphodelaceae.

Subfamily: - Asphodeloideae.

Category: - Plantae.

Botanical name: - Aloe barbadense miller²

Geography/History:

The Arabic word "Alloeh" means "shining" and the Latin word "vera" means "true" and their combination forms the compound word aloe. More than 2000 years ago, Greek scientists believed that aloe vera was a panacea that could cure all diseases. Aloe vera is known as the "eternal plant" in Egypt. What are the components of aloe vera. It contains of seventy-five components and also contains vitamins, minerals, lignin, saponins, carbohydrates, enzymes and amino acids. Vitamins: Beta-carotene are antioxidants^{3,4}

Antibacterial:

It treats bacterial and fungal infections and is a reliable source. In its broadest sense, an antibiotic is a substance that interferes with the growth and development of bacteria. Although both antibiotics and antibiotics kill bacteria, their meanings have changed over time. Nowadays, most people define antibiotics as medications that eradicate dangerous bacteria. [5]

Remove acne:

Aloe vera's anti-phlogistics qualities help reduce redness and scarring from acne. It also reduces itching, blistering and working of the wound. Use an aloe vera cleanser to reduce blemishes and shrink pimples.

Sunburn: -

The nourishing and antioxidant properties of aloe vera make it ideal for treating sunburn. In addition to replacing lost moisture, it also protects the skin from sun damage.

Anti-inflammatory effect:

It helps reduce pain, swelling and inflammation from cuts and injuries and stimulates collagen production.

Anti-Inflammatory Effect:

Helps reduce inflammation, swelling and inflammation in wounds and injuries and supports colla gen production and release.

Antioxidants:

Helps repair UV damage and slow down UV damage in aging skin.

Frost residue should not thicken when water evaporates. Do not soak, its physical activity should d rinse the skin and open the pores.

Protect skin from the dangers of radiation therapy.

Contains 98% water to moisturize, soften and moisturize the derm.

It makes the skin supple and supple instead of hard and tight.

Relieve redness and heat by cooling.⁶

How to use:

Use your fingertips to apply a small amount of the gel to your face after washing your hands. Use aloe vera to gently wash your face, making sure to cover your entire face in circular motions. Dry after rinsing with cold water. Apply aloe vera toner after that.

Benefits:

Using Aloe Vera Facial Cleansing Gel is suitable for all skin.

It has antibacterial properties.

Anti-inflammatory.

It acts well for a good product.

It helps cleanse the skin It helps. recover pollution. and damage caused by UV rays.

Aloe vera moisturizes the skin.

ALOE VERA**Synonym:**

Aloe flava P., Aloe indica, Aloe Barbadensis Mill. Synonymous. Aloe vera L. biz. Royle.

Biological sources:

Dried juice collected from the base of the leaves of various aloe species such as Aloe perryi Baker, Aloe barbadensis Mil and Aloe Ferox Miller.

Family:

Liliaceae

Medicinal ingredients: aloe glycoside, anthraquinone vitamins, vinegar, aloe emodin. Mannan, etc.

Geographic History

Tropical and subtropical latitudes of African countries are home to many species of aloe. Plants have played an important role in medicine for thousands of years. The World Health Organization estimates that eighty percent of people still use traditional medicine. Aloe vera has been used in medicine, skin care, cosmetics and health for centuries and is known for its benefits. Aloe vera was called the “plant of immortality” in Egyptian culture. Today, aloe vera is widely used in dermatology. Check the product. Latin “vera” means “true” and Arabic “Alloed” means “bright”; This is where the name aloe comes from. Greek scientists discovered aloe vera more than a thousand years ago¹⁰



Fig.1:Aloe Vera

Anatomy:

The plant is characterized by numerous fruit seeds, triangular fleshy leaves, serrated edges and yellow tubular flowers. Each leaf has three layers:

A clear gel, 99% water, the rest containing vitamins, lipids, amino acids and glucomannan.

There yellow core containing glycosides and anthraquinones forms the middle layer of rubber.

The slough is a thick layer of protective cells that produce proteins and carbohydrates. It has 1520 cells. The shell contains containers called xylem and phloem that carry water and starch.⁶

Active ingredients and products:

Aloe vera contains seventy-five active ingredients, including minerals, sugars, lignin, vitamins, enzymes and saponins.¹¹

Enzymes:

The eight enzymes are alkaline phosphatase, lipase, cellulase, peroxidase, amylase, brady kinase, carboxypeptidase and catalase. Brady kinase reduces inflammation, while other enzymes break down lipids, amino acids, carbohydrates, and salicylic acid when applied topically.

Minerals:

They are rare antioxidants that are necessary for the activity of many enzymes involved in various metabolic processes.

Sugar:

Contains polysaccharides (glucomannan/polymannose) and monosaccharides (glucose and fructose). They are called mucopolysaccharides and are produced by the slime layer of plants and glucomannan acetylated mannan is the most abundant polysaccharide. Acetylated mannan is also present and is an important component of glucomannan. Recently glycoprotein.¹²

Medicinal use:

The aloe vera plant may also have some medicinal properties, such as its ability to reduce pain and treat pain-related pain and its hypoglycemic properties. Since aloe vera has antibacterial and antifungal properties, this plant can prevent dandruff on the head. Aloe vera plant also helps control fungal diseases such as hair loss. Among other effects of the new aloe vera gel, its positive effects on wounds and the skin of the wound will also be suggested. Similarly, it may be observed that the pain in the injured area decreases after taking this medicine. The moisturizing effect of aloe vera has also been found in hot and cold products of this plant. In a study investigating the effects of aloe vera consumption on caffeine, colchicine, mefenamic acid, oxybutynin and quinine, an increased effect on the skin was observed. This may be the result of more aloe vera being taken into the skin. Water conations (stratum corneum)¹³

Medicinal Products:

The mannose-rich polysaccharide glucomannan interacts with the growth hormone gibberellin, stimulating the growth and activity of fibroblast receptors, thereby increasing the synthesis and growth of collagen in cosmetic applications. Aloe Vera orally. Aloe vera gel replaces the contractile component of collagen. It increases the collagen content of the wound as well as the strength of the tissue. Bottom After oral or topical treatment, hyaluronic acid and dermatan sulphate are produced by the granulation tissue.

Results from skin exposure to gamma and UV radiation:

Aloe vera gel has been shown to protect skin from radiation. The benefits after using aloe vera are unknown. Vera gel or metallothionein is a skin-building antioxidant that eliminates hydroxyl free radicals and inhibits glutathione peroxidase, superoxide dismutation and other skin enzymes.¹⁴

Effects against inflammation:

Aloe vera lowers the synthesis of prostaglandin E2 from arachidonic acid and inhibits the cyclooxygenase pathway. The gel extract was recently used to isolate a novel anti-inflammatory substance known as Glucosylceramide.

Impact on the immune system:

Alprogen blocks the release of calcium from mast cells, which stops the release of histamine and leukotrienes from the cells as a result of antigen-antibody interactions. In a previous study, acetyl Mannan induced tumour necrosis and macrophage formation in mice implanted with mouse sarcoma cells. Tumour necrosis causes necrosis and degeneration as a result of the death of cells in the body. Cancer. Inhibition of the release of oxygen radicals by activated neutrophils is another ability of many high molecular compounds.

Impact on laxation:

Latex's anthraquinone works well as a laxative. It increases the amount of water in the intestines, stimulates mucus secretion and ensures intestinal motility.

Antiviral and antitumor activity:

Activation of the immune system is responsible for the indirect effect, while anthraquinone is responsible for the direct effect. Anthraquinone aloin neutralizes many herpes viruses, including varicella-zoster, herpes simplex and herpes. According to recent studies, Polysaccharides have been shown to be effective in preventing benzopyrene from binding to primary rat liver cells and forming carcinogenic benzopyrene DNA adducts. It

was also found that glutathione transfer was induced and the tumour-promoting properties of phorbol myristate acetate were inhibited; These results confirm the ability of aloe vera gel to prevent cancer¹⁵

Moisturizing and antiaging effects:

Mucopolysaccharides help keep the skin moist. Aloe vera stimulates the production of collagen and elastin fibers by fibroblasts, which gives the skin elasticity and reduces wrinkles. Tighten pores and have an astringent effect, but amino acids can help tighten skin. The moisturizing properties of aloe gel gloves are also effective in treating dry skin because they have been shown to improve skin texture, reduce wrinkles and reduce redness.¹⁶

Protective impact:

Six preservatives are found in aloe: sulphur, lupeol, urea nitrogen, cinnamic acid, and salicylic acid. It has a preventive effect against fungi, bacteria and viruses.

Cosmetic use:

Redness, burning, stinging and sometimes dermatitis may occur in sensitive patients. Allergies are often caused by aloin, aloin, which is caused by anthraquinones.

Oral administration:

Abdominal pain, diarrhoea, red urine, liver disease, addiction constipation. It has been reported that long-term use increases the risk of cancer. The effects of laxatives may be caused by low potassium or electrolyte deficiency.¹⁷

Contraindications:

Contraindicated in case of allergy to Liliaceae plants. Taking aloe vera orally while pregnant is not advised as it can irritate the uterus, cause abdominal pain in older mothers, and cause abdominal discomfort in babies.¹⁸

Interactions:

Steroids like hydrocortisone will be more readily absorbed when aloe vera is applied topically. Due to their potassium-lowering properties, digoxin and digitalis may reduce their effectiveness and cause side effects. Taking furosemide with aloe vera might increase potassium levels. Insulin and oral hypoglycaemic medications will not work because they lower blood sugar. Therefore, aloe vera has many benefits and uses. Some may be magical; some are just myths. Future controlled studies will show that aloe vera is effective in different conditions.

1. Treatment.
2. Anti-inflammatory effect.
3. Effects of the immune system.
4. Moisturizing and anti-aging.
5. Prevention of cancer.
6. Laxative effect

Pharmacognostical Characteristics

Compare the texture found in the middle of the leaves of this plant, also known which applied in many skin care and medical applications. Compare the outer leaves of this plant, which produces a bitter-tasting, yellow latex

called aloe vera. Aloe Vera is one of the plants that can be found here^{19,20} The leaves have slightly curved edges with thistle.

Therapeutic and Pharmacological Effects

The pharmacological characteristics of the aloe vera plant include, some of which are antibacterial, anti-inflammatory, hypoglycaemic, and anti-inflammatory. Aloe vera helps to prevent dandruff on the head because of its antibacterial and antifungal properties. The aloe vera plant also aids in the prevention of fungal infections that cause hair loss. One of the additional advantages of fresh aloe vera gel is its ability to heal wounds and areas of skin damage. In a similar vein, taking this medication can help the injured area feel less painful. Aloe vera is used cosmetically and also as a moisturizing herb. Benefits of aloe vera gel for skin: It can increase the absorption of the medicine into the skin. Learn about the side effects of taking more medications²¹

MECHANISM

Its medicinal properties are related to a substance called glucomannan, which is rich in polysaccharides such as mannose. Glucomannan affects the growth of fibroblast and supports the function and growth of cells, thereby increasing collagen production and secretion. Aloe vera mucus not only strengthens the collagen in the wound, but also changes the structure of the collagen., it causes external connection between these groups, thus allowing the wound to heal faster. The use of plants to treat a variety of ailments has been documented since the beginning of time. These plants have attracted attention due to their economic benefits and medicinal effects. Various traditional herbs are used worldwide to treat various skin wounds and burns One of these may refer to plants such as date palm, truffle, frankincense, and purslane, which have benefits in treating burn wounds. in rats. It has been verified in 4042. Wound area $\beta 1$ gene expression increased in mouse skin. In this context, TGF $\beta 1$ stimulates fibroblasts to rebuild the extracellular matrix of the wound better than before.²²

After the skin is formed, the inflammatory response and collagen production begins in the cells forming the dermal area and then repairs the epithelial tissue. This is a physiological process and many factors that affect the quality of its structure, including growth and cytokines, will influence it. The goal of wound healing is to heal as quickly as possible and reduce the patient's pain and scarring.

The Role of Vitamins and Other

Aloe vera slime contains vitamins C and E, as well as some important amino acids for healing. Vitamin E is a powerful antioxidant that helps wounds heal. The antibacterial and anti-inflammatory properties of aloe vera slime may help heal wounds. Since aloe vera mucus has anti-inflammatory properties and can remove free radicals produced by wounds, aloe vera mucus contains antioxidants such as glutathione peroxidase and superoxide dismutase, which can heal wounds beautifully. This research was done. Research shows that an alcohol-based aloe vera gel solution can reduce diabetic foot ulcers in rats. According to another article, aloe vera may be the best treatment.²³

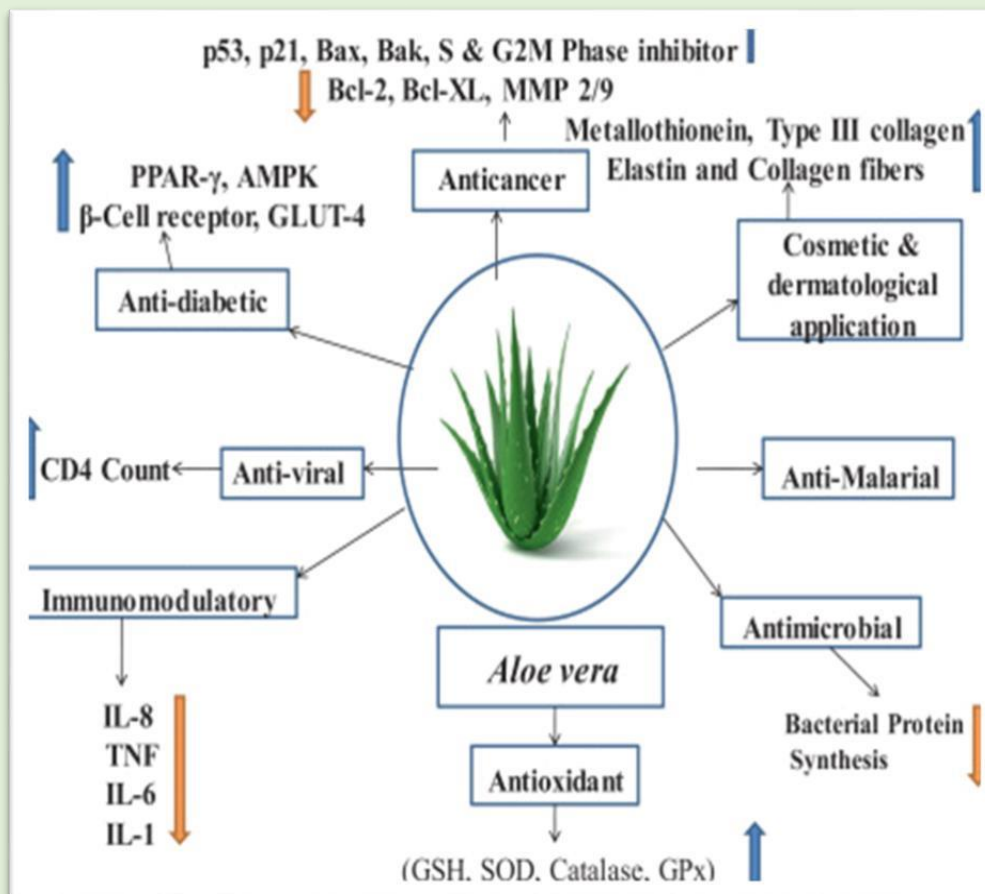


Fig.2: Role of Aloe vera

Aloe Vera's medicinal qualities and composition:

Aloe vera has been used medicinally for thousands of years in many cultures, including Greece, Egypt, India, Mexico, Japan and China. Egyptians used aloe vera to produce papyrus and to treat tuberculosis. Aloe vera preparations in the form of smoothies, lotions and juices can be used in the treatment of various diseases. Aloe vera is a glycoside compound found in many medications. Indian Aloe Vera is rich in more than 200 natural nutrients, vitamins and minerals. Aloe vera leaves are used in the production of emollient, laxative, antibacterial, antioxidant, antifungal, antiseptic and beauty products²⁴

Digestive Health:

Aloe vera juice helps relieve digestive problems such as heartburn and heartburn, and can be used to treat stomach disorders such as candida, colitis, and indigestion. Water obtained from aloe vera juice can be used to treat ailments. Malnutrition, inactivity, constipation, and back pain are all caused by toxins and impurities in foods that block the intestines and prevent the absorption of nutrients. Aloe vera juice improves digestion, helps eliminate waste and improves overall health. Alvera gel and leaves can treat many gastrointestinal problems. Preliminary research suggests that oral aloe vera gel may reduce symptoms and pain in patients with stomach ulcers.²⁵

Human Immune System:

Aloe vera strengthens the body and protects the heart, brain and other vital organs. Whole leaf extract stimulates the immune system. Phagocytes in the body provide protection by providing various defences and clean the body's water. Ninety percent of acetyl mannan is produced from the mineral's rhodium and iridium. Acetyl Mannan is a polysaccharide that forms macromolecules or white blood cells. T lymphocytes and phases. Glucomannan, a long-chain polysaccharide containing mannose and sugar, is the most significant of these. As a protective agent, the polysaccharide is totally absorbed and stays unaltered in the blood.²⁶

Arthritis:

People with arthritis benefit from the use of aloe vera juice. Various enzymes found in aloe vera juice can help strengthen the immune system. Its anti-inflammatory and anti-inflammatory properties allow it to stimulate the growth of new cells and repair tissue damaged by arthritis. Aloe vera juice applied topically or taken orally can aid healing by stimulating the brain and removing toxins from the affected area. Aloe vera is thought to reduce arthritis and joint pain, such as tendonitis, muscle and joint pain. When applied directly to the painful area, aloe vera penetrates the skin and reduces pain.²⁷

Anxiety:

Health benefits of aloe vera juice. It reduces stress-related cellular damage and biochemical and physiological changes in the body. The phrase "oxidative stress" refers to a chemical process that changes the oxidation state of a substance. Antioxidants can be found in foods as well as in the immune system. Reducing oxidative stress is one of the benefits of taking aloe vera.²⁸

Cancer:

In addition to helping the body get rid of cancer, aloe vera juice also plays a crucial role in treating the serious effects of radiation and antibiotics on the body. As an anti-radiation agent, aloe vera can inhibit the growth of tumours and protect them from gamma radiation. Aloe vera leaves are rich in anthraquinones, sugar, zinc, enzymes, vitamins E and C and acetylsalicylic acid. Having Ace Mannan is the main source of carbohydrates that can be obtained from aloe vera leaves. These components have antibacterial, antifungal Properties.

Diabetes Mellitus:

Type II diabetes is the world's leading cause of death. Studies have shown that people with diabetes may have decreased antioxidant levels, decrease antioxidant levels or decrease total antioxidant levels. Studies have shown that polysaccharides from aloe plants control blood sugar. It reduces blood sugar and triglycerides. Aloe vera juice can reduce blood sugar and increase the absorption of nutrients.²⁹ Aloe vera may increase the effectiveness of medications or herbs taken with insulin in the treatment of diabetes.

Curing:

The initial stage is characterized by leukocyte infiltration, congestion, and inflammation. dead tissue is the second step. In the third stage, fibrous tissue development and epithelial regeneration occur. Many people refer to aloe vera as a "natural healer." The antibacterial and healing properties of aloe vera gel work on first-degree burns. Aloe vera gel stimulates cell division through hormones involved in wound healing. Oral aloe vera juice can protect healthy cells and strengthen immunity by preventing microbial invasion. It can reduce symptoms of

psoriasis, reduce burns and ulcers, and reduce the pain of shingles. This promotes epithelial cell migration and prevents drying of the wound.³⁴

Antifungal activity:

After measuring the effect of aloe vera mycelial growth on *Fusarium oxysporum*, *Rhizoctonia solani* and *Coccidioides*, the results showed that aloe vera pulp at a concentration of 104 μ Lory was effective against *Fusarium oxysporum*. There are also reports that aloe vera juice has anti-inflammatory, anti-arthritic, anti-inflammatory and hypoglycaemic effects. Regarding bacteria, *Streptococcus* and *Shigella* have difficulty growing in vitro when aloe vera leaf gel is used. Aloe vera gel prevented *Trichophyton mentagrophytes* (20.0mm) and Aloe vera leaves prevented *Pseudomonas aeruginosa* and *Candida albicans* from growing.³⁵

Antiviral Activity:

Based on measurement of the effect of aloe vera mycelium growth on *Fusarium oxysporum*, *Rhizoctonia solani* and *Coccidioides*, aloe vera pulp at a concentration of 104 μ Lory was effective against *Fusarium oxysporum*. *Bacillus* colonies was reduced in the liquid fraction and at a concentration of 105 μ l L-1/-1. Additionally, aloe vera juice is said to have hypoglycaemic, anti-inflammatory, anti-arthritic and anti-inflammatory properties. Bacteria such as *Streptococcus* and *Shigella* have difficulty growing in vitro when aloe vera leaf gel is used. Aloe vera gel prevented of *Trichophyton mentagrophytes* (20.0 mm) and aloe vera leaves inhibited the growth of *Pseudomonas aeruginosa* and *Candida albicans*.^{36,37}

Composition of Aloe species:

Table No.1: Composition

General Name	Components	Use, activity
Amino acids	20 of the 22 human required amino acids required for nutrition	7 of the 8 essential amino acids required for nutrition
Anthraquinones	Aloin (A and B), aloe emodin, barbaloin, anthranol, emodin, resistannol etc.	Laxatives Antibacterial Cancer (?)
Enzymes	Alliinase, alkaline phosphatase, amylase, carboxypeptidase, bradykinase, catalase, peroxidase, cellulase, lipase etc.	Digestion Free radical neutralization etc. Topical antiinflammatory
Hormones	Auxins and gibberellins	Wound healing and antiinflammatory effect
Minerals	Ca, Cr, Cu, Fe, Mg, Mn, K, Na, Zn	Nutritional additives
Vitamins	A, C, E, B, choline, B ₁₂ , folic acid	Nutritional additives Antioxidants
Carbohydrates	Monosaccharides, mucopolysaccharides (glucomannans, acemannan, polymannose)	Antiinflammatory Antiviral (AIDS?) Immunostimulatory Cancer (?)
Sterols	β -Sitosterol, lupeol, campesterol, cholesterol	Antiinflammatory Antiseptic
Lectins	Aloctin I and II	Immunostimulatory
Saponins		Antiseptic, foaming and cleansing
Lignin		Included in topical preparations enhances the penetrative effect of other ingredients into the skin

CONCLUSION

A survey of several referenced references about the manufacturing of aloe vera leaf gel has turned up some helpful data. The pharmaceutical, nutritional, and cosmetic sectors might benefit from the use of aloe vera plants. Because the plant's leaves contain biologically active substances, handling and harvesting of the leaves must be done carefully.

The primary aspect in the processing of aloe vera, and especially in the gel extraction process, is temperature. Aloe Vera is a very valued and useful component with reasonably amazing biological capabilities that are of significant interest to the food, pharmaceutical, and cosmetic sectors, according to a review of the processing of Aloe Vera leaf gel. Its succulent leaves contain active chemicals that may be used in a variety of ways to improve human life and health.

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