BY KIM ERICKSON

ALONG WITH THE SUMMER CAMP-OUTS, barbecues and days at the beach comes the sunburn, prickly heat, insect stings, cuts and poison ivy that can make your skin look and feel less than beautiful. Fortunately, nature is one step ahead of your skin's suffering, offering aloe vera gel to soothe the inevitable woes of summer.

aloe: NATURE'S SUPER SOOTHER

Cooling and soothing, aloe vera relieves painful sunburns, insect stings and other summer mishaps.

A member of the lily family, aloe offers healing powers that have been touted since the fourth century B.C. This cactus-like succulent contains more than 70 essential oils, along with vitamins, minerals, proteins, enzymes and amino acids. It wasn't until the 1930s when aloe was found to heal X-ray burns that modern medicine took note of its medicinal effectiveness. Today, the plant remains a familiar cosmetic ingredient and home remedy, even though science has yet to fully understand all of its benefits.

A Burning Proposition

Most people discover aloe vera after they've experienced a sunburn. The cooling, gooey aloe vera gel not only calms the pain, but because aloe contains salicylic acid, an aspirin-like compound with anti-inflammatory and antibacterial properties, it also seems to speed the healing process.

Although it's never a good idea to overdose on sunshine, research confirms that aloe offers real damage control from the occasional burn. Animal studies at the Chulalongkorn University Hospital in Bangkok, Thailand, revealed that topical aloe vera promoted burn healing by boosting circulation in the skin's capillaries. The study also found that aloe soothes burn-related inflammation.

Although sunburn can suppress the skin's immune function and increase the risk of skin cancer, two South Korean studies concluded that aloe vera gel contains tiny immunomodulators that prevent UVB-induced immune suppression in the skin when applied soon after exposure.

In addition, the herb contains vitamins A, C and E, potent antioxidants that can help protect sun-exposed skin cells, and substances that interfere with the enzymes that produce pigment-forming melanin and the sun-induced freckles and age spots that can surface as a result.

Rash Relief

When a summer rash leaves you feeling itchy and irritable, reach for the aloe, which contains magnesium lactate, an effective histamine blocker. By inhibiting histamine formation, aloe prevents the itching associated with many types of rashes. Psoriasis, for instance, reacts particularly well. During a double-blind, placebo-controlled study of 60 psoriasis patients by Sweden's Malmo University

Hospital, 83% were cured by the topical application of aloe compared to only 6% of those using the placebo. The study showed that aloe vera offered a safe and effective alternative to conventional treatments.

Moisture and More

Even if your complexion makes it through the summer unscathed, air conditioning and dry climates can leave skin starved for moisture. Found in many of today's cosmetic and skin care preparations, aloe vera gel has been used as a moisturizer since the days of Cleopatra — and for good reason. Throughout the centuries, the plant has gained a reputation as a skin-softening emollient with a neutral pH, making it ideal for toning and moisturizing the skin.

Recent research has found that aloe may increase the formation of collagen and elastin, the two compounds that keep our skin soft and youthful. While ancedotal evidence has linked the herb to a reduction in fine lines and wrinkles, two animal studies by the Department of Biochemistry at the Central Leather Research Institute in India have discovered that aloe not only increases the collagen content in skin, but also accelerates collagen turnover.

In addition to its topical properties, aloe vera juice as a nutritional food can help heal stomach and digestive disorders.

Whether you're at the pool or on a cruise, exploring the wilds or taming the weeds in your own back yard, tossing a bottle of aloe vera gel into your summer bag is a smart way to beat the summertime blues and keep a soft, healthy complexion in the bargain.

What to Use

Aloe-rich skin care products are everywhere these days, from sunscreens to moisturizers to cleansers. How do you choose? Look for a product that lists aloe vera as one of the primary ingredients, and apply a liberal amount. If you're plagued by dry skin, a daily head-to-toe slathering of an aloe vera moisturizer will keep your summer skin soft. ❖

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Aloe: An Herbal Ally Revisited

Michael Thomsen, N.D.

Aloe vera (*Aloe barbadensis* Miller), a member of the Liliaceae family, has been used since ancient times as a medicinal plant, primarily as a topical treatment for wounds, burns, and other skin conditions. Yet it is also known to have been used internally as a general tonic, anti-inflammatory agent, laxative, aphrodisiac, and anthelmintic. Thought to have originated in Africa, and mentioned as early as 2200 B.C. on a Sumerian clay tablet and later in the Egyptian Papyrus Ebers, aloe's earliest detailed uses in Western medicine appear in the Greek herbal of Dioscorides. There the sap of the plant was described as being used externally to treat a multitude of skin disorders including boils, ulcers, and itches, as well as internally for stomach disorders and infections.

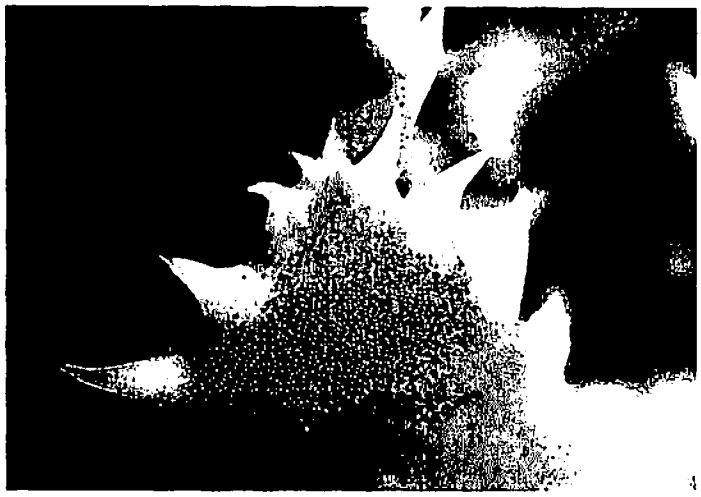
By 100 A.D., aloe had been introduced into Chinese medicine, where besides being used for skin disorders, it was employed to treat sinus problems and fever, and convulsions in children. Aloe is thought to have been introduced to North America in the 18th century, where it has since remained in wide use as a healing agent and component of commercial medicinal and cosmetic products. Since the beginning of the 20th century, there has been increasing scientific study of the potential benefits of this ancient herbal remedy.

Active Constituents of Aloe Vera

The part of the aloe plant used both traditionally and commercially is the leaf, from which two products are extracted: aloe resin or latex, and aloe gel. The resin, which comes from the latex that oozes from the cut leaf of the plant, is yellow, with a bitter taste. The clear gel is produced by parenchymal cells in the central part of the leaf. The diluted gel is commonly known as "aloe vera extract" or simply "aloe juice."

The resin or latex of aloe contains anthraquinones, particularly aloins A and B, while aloe gel is 99% water. The three main components of the gel are glucose, malic acid, and the polysaccharide acemannan, which consists of a long chain of linked mannose molecules, each bearing an average of one acetate group, on one of the the three remaining positions in the mannose ring. Aloe gel also contains lignans, saponins, salicylic acid, sterols, and triterpenoids; vitamins A, C, E, and B12; thiamine, niacin, and folic acid; and sodium, calcium, potassium, manganese, magnesium, copper, chromium, zinc, and iron.[1,2] The fresh gel contains glutathione peroxidase, isozymes of superoxide dismutase, and the proteolytic enzyme carboxypeptidase.[3,4]

The polysaccharides of aloe can be isolated from the plant and analyzed with nuclear magnetic resonance (NMR) spectroscopy.[5] When this is done, the acetate groups on the mannose monomers of acemannan produce a unique NMR "fingerprint." To ensure the stability of liquid aloe products, a preservative must be added to them, and it should be named on the product label. If the gel is not properly stabilized, it degenerates, producing decomposition products. Both the preservatives and the decomposition products of improperly stabilized aloe gel are easily recognizable in the NMR spectrum. Thus NMR can be used in the quality assurance of aloe gel products.



The leaf of the Aloe vera plant is the source of aloe resin, or latex, and aloe gel.

Uses of Topical Aloe

When applied topically, aloe is useful in the treatment of skin wounds and ulcers, burns, radiation burns, frostbite, psoriasis, and genital herpes. Its healing properties may be attributed to antimicrobial, immune-stimulating, and anti-inflammatory activities, and to an inhibiting effect on the formation of thromboxane. Allantoin has been shown to stimulate epithelialization, and acemannan has been found to stimulate macrophage production of the cytokines interleukin-1 and tumor necrosis factor (TNF). These and a number of other cytokines act as growth factors that stimulate fibroblast proliferation, and their production is associated with wound healing.[6]

Aloe affects a number of factors intrinsic to wound healing. It has, for example, been shown *in vitro* to inhibit thromboxane, a cytokine that impedes wound healing,[7] and it contains enzymes that have been found to break down damaged tissue, which can subsequently be removed by phagocytosis.[8]

To test the efficacy of topical application versus oral administration of aloe gel, a study was conducted on rats with full-thickness wounds, the results of which showed that topical use of the gel was slightly more effective than its internal use. The collagen content in granulation tissue was measured to be 89% in the topical-treatment group as compared to 83% in the orally treated group.[9]

Studies have also found that aloe gel increases the collagen content of scar tissue, but also changes its collagen composition and increases its degree of collagen cross-linking, all of which increase the strength of such tissue.[9,10] Additionally, several low-molecular-weight compounds present in aloe gel have been found to protect tissues from free-radical-mediated oxidative damage,[11] and an acemannan gel has been shown to assist in the healing of radiation burns in mice, especially when applied during the first week after injury.[12]

Burns

A study involving 27 patients with partial-thickness burn injuries found that topical aloe gel significantly accelerated healing, to slightly less than 12 days, as compared to more than 18 days for controls treated with a Vaseline-impregnated gauze dressing. The aloe treatment brought about full epithelialization after 14 days.[13] A study involving 18 outpatients with moderate to deep second-degree burns over 2% to 12% of their total body surface area found a commercial aloe vera ointment to be as effective as silver sulfadiazine in terms of both healing time, at 13 days versus just over 16 days with the latter, and in protecting against bacterial colonization.[14]

Frostbite

In combination with other treatments, topical aloe significantly enhances healing in frostbite. In a clinical study in which it was combined with standard treatments such as rapid rewarming of affected areas, analgesics, antibiotics, and debridement, topical aloe vera cream produced healing in 67% of a group of 56 patients, as compared to 32.7% of a control group of 98 patients who received only the standard treatments.[15] Moreover, only 7.1% of the patients in the combination-treatment group required amputation, as compared to 32.7% in the control group. Unfortunately, although its results seem encouraging, this study is difficult to interpret because of mismatching of the study groups and differences in the combination regimens.[15]

Aloe is also believed to act synergistically with pentoxifylline—a drug that enhances blood flow by reducing blood viscosity—to further increase tissue survival in frostbite. In a study in which the frostbitten ears of rabbits were treated with pentoxifylline, aloe vera cream, or a combination of the two, tissue survival was calculated as the percent of total frostbite area that remained after 2 weeks. Tissue survival was notably improved with pentoxifylline, but was improved to an even greater extent with aloe vera cream, and showed the greatest improvement with the combination of the two.[16]

Other Topical Uses

Among other observed benefits of aloe was the finding that a dressing of aloe gel in combination with a polyethylene oxide gel accelerated healing after dermabrasion as compared to polyethylene oxide gel alone.[17] In this study, in which human subjects were treated over half of their faces with the combination dressing and over the other half with polyethylene oxide gel alone after undergoing dermabrasion, the combination dressing led to 90% re-epithelialization at 5 or 6 days after treatment, as compared to 50% with polyethylene oxide. This is important because faster healing helps reduce the risk of bacterial infection, subsequent keloid formation, and changes in pigmentation after dermabrasion.[17]

A number of case reports describe positive effects of topically applied aloe gel for leg ulcers, including some lesions that failed to respond to standard medical interventions.[18]

Besides these other uses, topically applied aloe is beneficial for psoriasis. In a 16-week double-blind, placebo-controlled study of 60 patients with mild to moderate chronic psoriasis, with a 12-month follow up, a 0.5% aloe vera extract in a hydrophilic cream produced a decrease in psoriatic plaques in 82.8% of the patients, versus only 7.7% in the placebo group.[19]

Genital Herpes

Two clinical studies had good results with 0.5% topical preparations of aloe in genital herpes. One of these, a double-blind, placebo-controlled study, demonstrated that 0.5% aloe gel extract in a hydrophilic cream, applied three times daily for 5 consecutive days, was more efficacious than placebo for initial episodes of genital herpes in 60 men aged 18 to 40 years. The treatment was well tolerated by all of the study subjects.[20] The second study, involving 120 subjects, found that a preparation containing 0.5% whole aloe leaf extract in a hydrophilic castor and mineral oil cream base, applied three times daily for a week for 2 weeks, accelerated healing as compared

with placebo. Again, no significant adverse reactions were reported.[21]

Immunostimulant Effects

Although aloe gel is commonly used as a topical agent for wound healing, aloe is also used internally. An experiment done in 1980 demonstrated that aloe extract given to mice 2 days before exposure was protective against a variety of fungi and bacteria.[22] Since then, aloe has been shown to be active against a wide variety of bacteria *in vitro*, including *Pseudomonas aeruginosa, Klebsiella pneumoniae, Streptococcus pyogenes, Staphylococcus aureus,* and *Escherichia coli*.[1,14]

When acemannan was isolated from aloe, it was found to increase the response of lymphocytes to antigens *in vitro*,[23] and was also found to stimulate the release of cytokines, inducing an immune attack against implanted sarcoma cells in mice that led to these cells' necrosis and to tumor regression.[24] *In vitro* studies suggest that aloe also has antiviral activity, as a result of interference with DNA synthesis.[25] Other studies have shown the anthraquinones in aloe to be virucidal against herpes simplex 1 and 2, vaccinia virus, parainfluenza virus, and vesicular stomatitis virus.[26] The acemannan component of aloe has exhibited activity against human immunodeficiency virus (HIV) type 1, influenza virus, and measles virus,[27–29] and has been used adjunctively with antiretroviral therapy in human HIV infection.

In a preliminary clinical trial with the anti-HIV drug azidothymidine (AZT), acemannan in a dose of 800 mg daily significantly increased the numbers and activity of circulating monocytes (macrophages) in 14 HIV-infected patients.[30] However, a subsequent randomized, double-blind, placebo-controlled study of 63 male subjects with advanced HIV infection, who were taking zidovudine and didanosine, found that acemannan at an oral daily dose of 1,600 mg did not prevent the decline in the CD4-cell count that is characteristic of progressive HIV disease. When compared with the placebo, acemannan showed no significant effect on the p24 antigen of HIV, nor any effect on quantitative virology.[31] The utility of acemannan in the treatment of HIV infection therefore remains to be investigated.

Anti-Inflammatory Effects

By reducing the oxidation of arachidonic acid, aloe gel reduces prostaglandin synthesis and inflammation. A study of rats with croton oil-induced edema reported a 47% reduction in swelling after the topical application of aloe gel.[32] Animal studies also found that topical application of aloe gel produced an increase in numbers of fibroblasts.[33] It has been suggested that C-glucosyl chromone, a bitter-tasting resin recently isolated from aloe gel extracts, is responsible for the anti-inflammatory effect of the gel. When tested in a mouse-ear bioassay, the C-glucosyl chromone was shown to be similar in potency to hydrocortisone.[34]

The International Aloe Science Council

The International Aloe Science Council (IASC) was established to promote scientific investigation of aloe vera and set manufacturing standards for its use. The IASC is a nonprofit, worldwide trade organization. Its membership includes aloe growers, processors, finished goods manufacturers, marketing companies, insurance companies, equipment suppliers, sales organizations, physicians, scientists, and researchers.

According to the IASC, more than 250 species of aloe are grown around the world, of which the two most popular are *A. barbadensis* Miller and *A. arborescens*. In the United States, most aloe is grown in the Rio Grande Valley of South Texas, and in Florida and Southern California. Internationally, aloe is grown in Mexico, the Pacific Rim countries, India, South America, Central America, the Caribbean, Australia, and Africa.

The original commercial use of the aloe plant was for a resin called aloin, a yellow sap used for many years as a laxative, and which became synonymous with the name "aloe." This later created much confusion when aloe's other main ingredient, aloe gel—a clear colorless semisolid gel—was stabilized and marketed. The gel, which had its commercial beginnings in the 1950s, is now enormously popular as a moisturizer and healing agent in cosmetics and OTC drugs, as well as an ingredient of nutritional beverages.

Gastrointestinal Effects

Oral aloe vera is a popular treatment for a variety of gastrointestinal disorders. In normal human subjects, it has been shown to enhance colonic bacterial activity, gastrointestinal pH, stool-specific gravity, and gastrointestinal motility.[35] The anthraquinones of aloe latex act as laxative stimulants, and animal studies have shown that aloe latex increases intestinal water content, stimulates mucus secretion, and induces intestinal peristalsis.[36] However, aloe is a more drastic and irritating laxative than other herbs,[37] and its prolonged use may cause an electrolyte imbalance through depletion of potassium salts. Further study is needed to establish the optimal gastrointestinal indications for the use of aloe.

Asthma

Orally administered aloe has been found beneficial in asthma.[38] In an open study, a whole-leaf extract of aloe, containing the anthraquinones discussed earlier, produced improvement in one-third of a group of 33 patients with chronic asthma.[39]

Diabetes

In a trial involving 72 patients with non-insulin-dependent diabetes mellitus (NIDDM), aloe juice consisting of 80% aloe gel, at a dosage of 1 tablespoon taken twice daily, significantly reduced blood sugar levels as opposed to those in a control group, and in combination with glibenclamide was more effective than glibenclamide alone.[8]

Safety

Adverse reactions to aloe are rare, but hypersensitivities and contact dermatitis have been reported.[40,41] Hypersensitivity manifested by dermatitis, and possibly by contact urticaria, has been observed after prolonged topical use of aloe.[41] Strong laxatives such as aloe latex are contraindicated in children, and should not be used in patients who have a known hypersensitivity to aloe, or in cases of nausea, vomiting, or signs and symptoms of gastrointestinal obstruction. Consideration should also be given to possible potassium loss with aloe, which may affect cardiac electrophysiology. Strong laxatives such as aloe latex are contraindicated in pregnancy.

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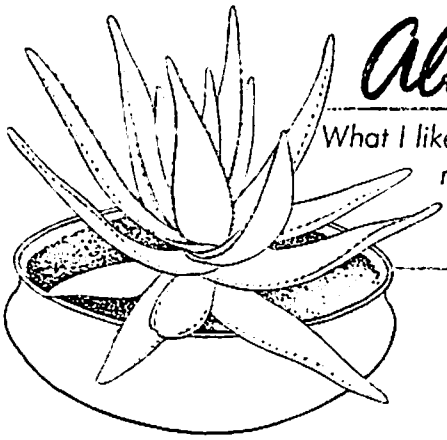

Aloe Vera: Desert Lily

What I like about a supplement like aloe is that it helps the body do the job that nature intended and, ... it doesn't disrupt normal function. Rather, it enhances normal function which is what any good medicine should do.

– Raphael Kellman, MD, *Gut Reactions*[2]

Of the more than 300 species of *aloe vera* (true aloe) succulent, the most widely cultivated is *Aloe barbadensis miller*. This aloe came out of South Africa via Barbados to North America in the 1500s. However, the history of aloe goes back much further than that.

Ancient Egyptian writings tell us that aloe vera has been used to heal humans for more than 3500 years. Roman records describe its use for many ailments, including boils, itchy skin, hemorrhoids, bruises, hair loss, tonsillitis, gum and mouth problems, as an eye medication, and powdered to stop bleeding wounds. These applications are still typical today.

In the US, aloe is known as a treatment for household burns and sunburns. Secondly, it is a traditional internal cleanser and a healer of the entire gastro-intestinal tract. **Currently, it is being investigated for effectiveness in the treatment of non-insulin dependent diabetes (type 2).**

Simply stated, aloe is anti-inflammatory, anti-microbial, antihistamine, and analgesic (numbs pain). It is nutritious and contains beneficial phytochemicals. Further, besides its soothing mucilaginous quality, it brings alkalinity to a basically acid-eating population.

Skin Deep

According to James Duke, PhD, studies since the 1930s have shown that the gel inside the aloe's tough leaves speeds the healing of burns, wounds, frostbite, and a variety of skin problems. It relieves itching, pain, and swelling from all kinds of rashes, including heat rash, diaper rash, rash caused by poisonous plants (e.g., poison ivy), hives, scabies, ringworm, and athlete's foot. Aloe also softens skin and brings relief to dry skin.

Beyond this, at least one study has shown that aloe applications can cure psoriasis. In 1996, Syed, et al conducted a double-blind, placebo-controlled study of 60 people with psoriasis. Participants applied a .05 percent aloe vera cream three times daily for one year. This procedure cured 86 percent of the participants of psoriasis.

Another amazing demonstration of aloe's healing power is included in Dr. Duke's *The Green Pharmacy*. Patients who had dermabrasion used aloe during recovery. Aloe speeded healing by 72 hours (that's 3 days!).[3]

Outside - In

Herbalists and naturopaths continue to consider aloe as a superlative healer of the entire gastro-intestinal tract. How does this relate to the unquestioned ability of aloe to heal the skin? According to Dr. Kellman, the mucous lining of the GI tract resembles the skin. When it is injured, it uses the same healing mechanisms. **Thus, the same phytochemicals in aloe that soothe our skin also soothe our insides.**

Beginning with the mouth, aloe can be used to treat cold sores and is approved by the FDA for use with **oral ulcers/canker sores.** Further into the system, Elizabeth Lipski, MS, RD, LD, writes that aloe's anti-inflammatory and analgesic properties sooth the mucous membranes of the gut. **Aloe stimulates the immune system,** increasing white blood cell activity and the formation of T-cells. This helps to clear out pathogens. Detox takes place through enzymes in aloe that help rid the body of toxins.

In addition, aloe reduces bleeding time, important to ruptured diverticula (pockets in the intestines that can become infected). **The editors of *The Sensitive Gut: A Harvard Medical School Book* (2001) recommend aloe for functional dyspepsia (indigestion with no known cause), garden variety indigestion, and IBS (irritable bowel syndrome).** Kellman notes that aloe is a "perfect treatment" for **peptic ulcers** because it relieves symptoms and helps control the overgrowth of bad bacteria such as *H. pylori*.

Although there are few studies to gauge the effectiveness of aloe, one was cited on the Memorial Sloan-Kettering Cancer Center website. In 2004, Langmead, et al, conducted a double-blind, placebo-controlled trial for **ulcerative colitis.** There were 44 subjects. Half drank 100 mL (about 3.5 oz) of aloe vera gel twice daily for four months while the other half received a placebo. The aloe-drinkers registered a statistically significant response, meaning they were more likely to experience relief than the placebo folks.

At the far end of the line, aloe has been suggested as a stool softener for **hemorrhoids** or anal fissures by physicians of Germany's Commission E (the German FDA) and Ayurvedic physicians. Drink a half-cup of aloe three times daily until the condition has cleared. **Constipation** is the condition most associated with hemorrhoids. The Harvard editors recommend four ounces of apple juice mixed with four ounces of aloe vera in the morning on an empty stomach, taken only once each day.

One caution: Stay away from the leathery casing or rind of the aloe leaf. It contains an extremely powerful laxative. The FDA warns that it is not safe to use. All the authors referred to in this newsletter agree.

The generally recommended dose for aloe healing is 5 ounces of juice twice daily between meals or with a light meal. Reported adverse reactions include GI upset and occasional rash (hm-m-m). If diarrhea occurs, taper back. **Drug interactions** include a possible loss of potassium if aloe is taken with a diuretic and increased hypoglycemic action of drugs prescribed for blood sugar regulation. Plus, aloe can increase the anti-inflammatory effects of hydrocortisone-containing skin cremes or ointments.

A Treat for Sunburn

Got burned? Based on Dr. Duke's suggestions and my own experience (as a former "surf bunny"), here is a recipe for successful recovery from sunburn. It's a good idea to keep these healers on hand in your home.

1st **Step:** Make or buy some brewed black tea. After showering, apply the cooled tea to the affected area. The *tannic acid* and *theobromine* in the tea begin to remove heat from the sunburn while *catechins* help prevent and repair skin damage.

2nd **Step:** If you have access to the aloe plant, you can use the fresh gel scooped from inside the leaf. Or purchase the prepared gel at the health food store. (Don't worry. It will work just fine.) Apply the aloe gel after the tea. Continue to use the gel daily until all pain has subsided. The redness disappears in a day or two, and the skin does not peel.

Unlike the tea, using aloe vera on the skin leaves it soft and supple. It has astringent and skin refreshing properties as well as being a natural moisturi er.

[2] Authored by Kellman and Colman and published by Broadway Books in 2002.

[3] Dermabrasion is a medical procedure involving removal of the top layer of skin, removing acne scars and/or wrinkles.

Aloe

Latin name: *Aloe vera* (*Liliaceae* [lily] family)

GENERAL DESCRIPTION

Aloe, or aloe vera, is a prickly, gray-green succulent native to Africa but cultivated around the world. It is a perennial with leaves that can grow up to two feet (sixty centimeters) long, and it bears spikes of yellow or orange flowers. The leaves contain a clear gel that is applied in skin treatments. A dried yellow sap taken from the leaf base, aloe bitters, is used internally.

EVIDENCE OF BENEFIT

Aloe is an immune stimulant, laxative, and anti-inflammatory agent. It also promotes the absorption of nutrients through the digestive tract and normalizes blood sugar.

Benefits of aloe for specific health conditions include the following:

• *Burns and other wounds.* Scientific studies with animals have shown that aloe vera sap activates macrophages, the immune cells that fight bacterial infection. This allows burns to heal cleanly. The sap stimulates the circulation of blood at the body's surface, which accelerates wound healing. Aloe vera juice speeds healing because it increases the amount of oxygen carried by the blood to the cells. Aloe gel is a mild anesthetic that relieves itching, swelling, and pain. Aloe also helps repair damaged cells and prevents burns from scarring. Moreover, aloe contains enzymes, carboxypeptidase and bradykininase, that relieve pain, reduce inflammation, and decrease redness and swelling. Clinical studies have confirmed that burns and cuts treated with aloe vera gel heal as much as three days faster than burns and cuts treated with unmedicated dressings or with chemical antiseptic gels.

• *Cancer.* Alo A, a medically active complex sugar in aloe, stimulates and regulates various components of the immune system. It stops both the processes of inflammation necessary for tumors to gain new blood supplies and the growth of tumors themselves. In a skin cancer study involving animals, aloe gel and vitamin E cream together produced remission approximately 33 percent of the time, compared with 3 percent when no treatment was given. In addition, certain compounds in aloe seem to prevent cancer-causing substances from entering liver tissue. Because it keeps potential carcinogens from entering the liver, rather than changing the chemistry of the liver itself (like many other cancer treatments), aloe compounds do not cause the liver to create new carcinogens while it deactivates others. Some clinics have used aloe vera to increase the effectiveness of cancer treatment with the chemotherapy agents cyclophosphamide (Cytoxan, Neosar) and 5-fluorouracil (5-FU). Several studies indicate that aloe vera gel can protect both the immune system and the skin from the effects of radiation treatment. In addition, at least one study suggests that taking aloe *internally* can reduce the likelihood of lung cancer in smokers.

• *Constipation.* Aloe bitters are a fast and effective remedy for constipation used widely outside the United States. When compared with other herbal stimulant laxatives such as cascara sagrada or senna, aloe draws less fluid into the large intestine from the rest of the body. This makes it less likely than cascara or senna to cause dehydration or electrolyte disturbances. Aloe juices have the same effect as bitters on constipation but are less reliable and offer less relief.

• *Crohn's disease.* Aloe *juice* is an effective anti-inflammatory for Crohn's disease. It also ensures soft stools. Aloe *bitters* and aloe *laxatives*, however, should be avoided by people with Crohn's disease, since they may cause painful cramps. Cathartic preparations of aloe should be avoided.

• *Diabetes.* In one five-year study, 3,167 diabetic patients with atherosclerotic heart disease were given 120 grams of parboiled aloe leaves for lunch and dinner each day. The patients showed marked decreases in levels of cholesterol, triglycerides, and sugar. While aloe leaves are unlikely to be eaten as a vegetable in the United States, this research demonstrates the antidiabetic potency of the herb. In another test, diabetic patients were given a spoonful of a much more palatable aloe extract with water at every meal for fourteen weeks. Their average fasting blood-sugar level fell from a very high 273 milligrams per deciliter (mg/dl) to a slightly elevated 151 mg/dl. Aloe seems to act by stimulating the pancreas to secrete insulin. For this reason, it is potentially helpful only for people with type 2 diabetes whose bodies still produce some insulin. However, one of aloe's strengths is that it does not cause weight gain, a common side effect of some diabetes medications.

• *Frostbite.* Aloe prevents a decrease of blood flow to the frozen tissues, which is a common cause of tissue loss in frostbite. People treated with aloe vera cream are more likely to heal without any tissue loss or amputation.

• *Hangover.* An aloe compound called aloin helps prevent alcoholic intoxication, probably by preventing the passage of alcohol from the intestines into the bloodstream.

• *Hemorrhoids.* Aloe gel helps heal wounds and can be applied topically. India's ayurvedic physicians recommend drinking ½ cup of aloe juice three times a day until hemorrhoid flare-ups are gone.

• *HIV/AIDS.* In test-tube studies, acemannan, a potent immune-stimulating compound found in aloe, was shown to be active against HIV. Acemannan also may reduce

requirements for zidovudine (Retrovir, better known as AZT). The recommended amount of acemennan is up to 250 milligrams four times a day. It takes about a quart of aloe juice to provide 1,600 milligrams of acemennan.

• *Kidney stones.* Aloe juice contains aloemannan. This complex sugar concentrates in the kidneys, stimulates the growth of healthy kidney cells, and slows the rate of crystal formation.

• *Radiation exposure.* Aloe protects against skin-damaging x-rays. Aloe is an effective antioxidant that absorbs the free radicals caused by radiation.

• *Skin disorders and wrinkles.* A clinical study found that using aloe vera cream three times a day for four weeks "cured" psoriasis inflammation, stopping skin outbreaks for at least a year. Aloe gels applied to the skin relieve the pain and inflammation of eczema and psoriasis. A potent anti-inflammatory chemical in aloe is as effective as hydrocortisone in treating skin irritation, without hydrocortisone's detrimental effects on the immune system, and using aloe vera cream with hydrocortisone increases relief of inflammation. In a study involving sixty volunteers, daily use of aloe vera gel cleared up psoriasis in over 80 percent of volunteers, compared with 7 percent of those treated with a placebo. Research at the University of Maryland has found that another compound in aloe, aloe-emodin, which is also responsible for aloe's laxative effect, kills the viruses that cause herpes and shingles. Aloe, which has antibacterial and moisturizing effects, also has been shown to rejuvenate sun-aged skin.

• *Surgery, recovery from.* Studies have shown that patients who underwent surgical procedures and were treated with a dressing and aloe healed much faster than those who were treated with a dressing and surgical gel.

• *Ulcers.* Aloe soothes peptic-ulcer inflammation caused by excess acid, aspirin and other nonsteroidal anti-inflammatory drugs (NSAIDs), and alcohol, although it is not effective against ulcers in which stress is a prominent factor. Studies show that aloe vera juice heals ulcers so completely that researchers recommend it over the anti-ulcer drug cimetidine (Tagamet). In people with AIDS, it soothes the lining of the digestive tract, increasing nutrient absorption.

CONSIDERATIONS FOR USE

Use aloe gels for skin problems, bitters for constipation and kidney stones, and juice for other disorders, as directed in individual entries in Part Two.

Aloe gel is available commercially and may also be taken from one's own plants. Leaves up to one foot long may be removed from the plant without causing damage. The best time of day for cutting aloe leaves is midafternoon, when the plant has moved a maximum amount of sap into the leaf.

Be aware that there are many so-called aloe vera products on the market that actually contain very little aloe vera. They are watered-down imitations that are not as beneficial as bona-fide aloe vera. Read product labels. Aloe vera should be listed as a primary ingredient—that is, it should be the first- or second-listed ingredient.

Aloe bitters and aloe juice should not be taken *internally* during pregnancy or menstruation, or in cases of rectal bleeding, although aloe gel may be used externally under these conditions. The laxative compounds in aloe are passed into mother's milk, so nursing mothers should avoid *internal* use of aloe.

Any laxative, herbal or otherwise, affects the rate at which other orally administered drugs are absorbed into the bloodstream. Therefore, prescription medication and aloe laxatives should be taken at different times.

Scientists have debated whether aloe-emodin, aloe's laxative compound, can damage colon cells. The most recent finding is that, when taken as directed, aloe poses no risk of cancer or genetic damage. Among people who abuse aloe and similar laxative herbs over a period of at least a year, *and* who develop other colon changes, about 3 percent can be expected to develop colorectal cancer within five years. This can be compared with the approximately 4 percent of the population as a whole who will develop colorectal cancer at some point in their lives. Stopping aloe use before twenty weeks have passed gives the body a chance to reverse its effects. Aloe juice does not carry the risks of aloe bitters for colon cancer.

Ayurvedic medicine uses aloe to stimulate fertility in women. Women who take birth control pills should avoid the internal use of aloe, although application of aloe to the skin will not interact with oral contraceptives.

Some research scientists think of aloe vera as a pharmacy in a plant


"Miracle Plant"

Medicinal properties include help for immune system

By CAROL POIROT
Fort Worth Star-Telegram

Aloe vera has come of age. The herbal remedy your grandmother grew in clay pots on her kitchen windowsill to ease the pain of red-ant bites and sunburn recently won Food and Drug Administration approval for human auto-immunodeficiency virus, which causes AIDS.

Aloe juice and gel are used in hundreds of skin-care products, health drinks and topical ointments.

Although much of the "proof" is anecdotal, some researchers call aloe vera a wonder drug. A study out of the M.D. Anderson cancer center suggest the gel can stop immune system damage caused by sunburns, and a study at the University of Texas Medical Branch in Galveston indicated it helps heal frostbite.

The slippery gel softens skin, eases pain, speeds the healing of burns and abrasions, increases energy, fades age spots, improves circulation and has many other nutritional and medical benefits that producers are not allowed to claim because they have not been scientifically proved, according to the ***International Aloe Science Council,*** which has headquarters in Fort Worth.

The Aloe Science council works with the FDA to police the industry and make sure that any contaminated or highly diluted products that could give aloe a bad name are kept off the market.

How much is enough?

"You have to put enough aloe in a product for it to work, but there's still some controversy over how much you need," said Gene Hale, executive coordinator of the council.

"Many major cosmetic companies have maybe ***one-half of 1 percent*** in their products. Why? Because aloe sells."

Hale said most aloe experts believe a product needs to be 25 percent to 40 percent aloe to be efficient.

Cost restricts the amount of aloe contained in some products, but even in very high concentrations, aloe is virtually nontoxic when it is properly processed, proponents say.

"You can't drink too much aloe," Hale said. "studies show the only way you can kill a rat with aloe is to drown him in it."

Unproved curative claims on some products, not toxicity, have caused the Food and Drug Administration to issue warnings and confiscate some products.

Because proponents are forbidden to make medical claims for this succulent member of the lily family, a relative of the onion, many simply urge consumers to "try it." It's a good tactic.

When ***Prevention*** magazine surveyed 5,000 readers on their favorite home remedies several years ago, more than 4,000 said they had tried aloe vera for soothing and healing minor burns. Of those who tried the ancient folk medicine, ***87 percent reported "good"*** results. The best rating of any herbal remedy in the survey.

Damaged reputation

Many "aloe products" have been tested and several contained no measurable amount of aloe. ***(Mostly water)***

Too little aloe and poor processing that allowed some commercial products to become inert or contaminate quickly have cast a shadow on aloe's reputation.

The Aloe Science Council's Hale said that with better processing, the aloe business was gaining public confidence until a freeze in 1983 wiped out the U.S. supply of aloe vera plants from South Texas.

Some major manufactures continued to produce more aloe products than ever but contained less and less aloe vera.

To protect the integrity of the aloe industry and to safeguard consumer interests, the International Aloe Science Council now has a certification process to regulate the manufacturing of aloe products.

Quality control becomes even more important as aloe moves from mostly cosmetic use to more ***medicinal products*** with ***anti-bacterial, anti-viral, and anti-fungal properties,*** Hale said.

"The ultimate business for aloe is medicinal," he said. "In my opinion, we are going from cosmetics that make your hair shine and your skin soft to drinks that give you energy, to the over-the-counter ointments and medications to pharmaceuticals."

Rx on a stem

Dr. Wendell Winters, associate professor of microbiology at the University of Texas Health Science Center in San Antonio, has been researching aloe Vera for 15 years, and authored the first major scientific paper on the aloe vera plant in 1981.

"We think really of aloe vera as a ***pharmacy in a plant,"*** says Winters.

He said researchers have identified a substance in aloe that causes cells to divide and multiply, ***stimulating*** the growth of white blood cells and other ***immune-function cells.***

Among the 140 substances contained in aloe, Winters said, are several that ***reduce inflammation,*** along with some that ***promote cell growth and wound healing.***

Aloe Vera: *Healing Inside and Out*

Aloe vera is one of the most remarkable health and beauty plants of the modern era. Although aloe vera has been around for centuries (it is spoken of in the Bible), scientists continue to discover new ways to use its healing gifts.

Aloe is perhaps best known for its recuperative properties in the treatment of burns, rashes, and sores. However it also has been shown to be useful in treating constipation, frostbite, arthritis, AIDS, stomach ulcers, diabetic skin ulcers, gum disease, and feline leukemia.

Aloe vera is one of the most versatile plants on Earth. The plant has been used externally as a salve or ointment for the skin and internally as a juice, tea, or gel for relieving indigestion and intestinal gas. It contains all the essential minerals and enzymes needed for rapid cell regeneration and improved overall health.

The plant contains at least 22 amino acids, complex carbohydrates, such as polysaccharides, glucose, galactose, and xylose, vitamins B1, B2, B6, and B12, pantothenic acid, folic acid, biotin, choline, inositol, and the minerals magnesium, iron, zinc, manganese, and potassium.

Inherent in aloe vera is its unique ability to penetrate damaged, infected tissue until it reaches healthy tissue. Aloe vera enzymes then break down the damaged cells and regenerate the healthy cells.

Aloe vera is found throughout the world and is especially cultivated in Texas, California, Florida, and Arizona. Although it looks like a cactus, the plant is called a succulent and is related to the lily.

The aloe vera plant can grow anywhere from 10 inches to 30 feet. It grows in a rosette formation, which helps the plant catch as much rain as possible. This shape also helps aloe shade itself from the tremendous heat of the desert.

The aloe varies in color from light to dark green. It usually is darker in color than a regular cactus. The aloe vera plant has long flat leaves with pointy edges. Its waxy coating keeps moisture inside.

From the Outside

Aloe is probably best known for its ability to treat burns and skin disorders. The pulp found inside the center of the leaf contains a mucilaginous gel. The reason aloe gel is so helpful in healing skin abrasions and burns is because it contains salicylates, the same pain-killing and anti-inflammatory agents found in aspirin. Aloe also contains magnesium lactate, a substance that inhibits histamine reactions made by the immune system in response to irritants.

Many studies have been performed on both humans and animals to determine aloe's effectiveness in treating burns and promoting wound healing. A research team at the University of Texas found that based on available data and their studies, aloe vera is a substance of "enormous therapeutic potential." It penetrates injured tissues, relieves pain, and serves as an anti-inflammatory agent.

A study by Robert H. Davis, PhD, a researcher at the Pennsylvania College of Podiatric Medicine in Philadelphia, reported that aloe vera was an effective oral and topical agent for wound healing. In an experiment involving wounded mice, he found that the mice that were given aloe in their drinking water had a 62.5% reduction in wound diameter compared to control animals.

Because it penetrates easily into the skin, aloe is a very popular ingredient in thousands of bodycare and personal care products such as moisturizers, cleansers, shaving lotion, deodorants, shampoos, makeup, lip balms, suntan products, and acne preparations.

Research has shown that aloe produces an anti-aging effect on the skin as strong as retinoic acids. Its high mineral and water content make it ideally suited for uses in skin cream. Aloe vera gel normally will average about 99.5% water and only .48% active ingredients.

From the Inside

Internally, aloe vera juice is used to alleviate gastrointestinal complaints because of its immune-enhancing and anti-viral properties. Aloe appears to slow down the emptying of the stomach and to inhibit the release of excess hydrochloric acid and the enzyme pepsin.

Research conducted by Ivan Danhof, PhD, MD, retired professor of physiology at the University of Texas, found aloe to be a potent anti-inflammatory agent. "It lines the GI tract and stays there for 48 hours or more. And it may produce protective changes in the cells," Danhof says.

A problem in taking aloe juice, however, is that different products vary widely in how much aloe they actually contain. The concentration of aloe vera is often not specified and the consumer has no way of knowing how much active ingredient the product contains. Because aloe juice is not classified as a drug by the FDA, manufacturers are not required to list a product's aloe content.

One exception is a component derived from the outer rind of the outer leaf—aloin. This substance is used as a laxative and is classified as a drug by the FDA. Aloin is used in some commercial laxatives. Taken in excess, it can cause painful cramping and irritation of the digestive tract.

However, reputable companies will provide the aloe content of their products. Consumers should demand documentation and look for companies that specialize in aloe vera products. Consumers can also see how well the products work.

Aloe Vera: The Wonder Plant That Heals

Right this minute, someone – somewhere – is using aloe vera to heal something. Millions grow the plant themselves and others keep a container of aloe on hand for those times when nothing else will do.

Although the most common use in the United States is for burn treatment, including sunburns, aloe has five major applications. The first three are wound healing, skin conditions, and digestive disorders. These are also folk uses of aloe known since ancient times. The other two may be surprising: cholesterol management and immune system enhancement. All five areas are backed by science.

Is It Magic?

For our ancestors, effectiveness determined aloe vera's use. Today, science is validating its healing properties. The aloe plant is between 99 and 99.5 percent *water*. All the power of the plant is in that tiny one to one-half percent! Water acts as a carrier for those potent nutrients. The solid material contains over 75 different ingredients, including vitamins, minerals, enzymes, amino acids, anthraquinones, sterols, lignins, saponins, salicylic acid, and perhaps most interesting, biological sugars. Before discussing the sugars, let's look at the other components.

Aloe contains most of the major vitamins, excepting vitamin D, but including the important antioxidant vitamins A, C, and beta-carotene (the vitamin A precursor). The B vitamins thiamine, niacin, riboflavin, choline and folic acid are also present.

As many as 13 of the 17 minerals necessary for human nutrition have been found in aloe. These include sodium, potassium, calcium, magnesium, manganese, copper, zinc, chromium, sulfur, and iron.

The presence of magnesium may explain aloe's facility for soothing itchiness. As people with allergies know, a substance called *histamine* is released in many allergic reactions. Histamine causes intense itching, watery eyes and nose, and pain. Magnesium inhibits the formation of histamine.

When taken orally, several of the enzymes found in aloe, such as amylase and lipase, aid digestion by breaking down sugars and fats. Another important enzyme produces an anti-inflammatory effect. This adds to aloe's reputation for pain relief.

Aloe Increases Vitamin Effects

Recently, researchers found that taking vitamins C and E *with aloe* increases the vitamins' bioavailability by over 200 percent. When taken with aloe, vitamin levels remain significantly higher over a 24-hour period.

As you recall, amino acids are the building blocks of proteins. The body needs 22 amino acids to build the proteins it needs. Of these, eight are called essential amino acids, because (like vitamins) the body cannot synthesize them. Instead, we must get them from food. Aloe vera is a rich source of amino acids, providing 20 of the 22 necessary amino acids and 7 of the 8 essential amino acids.

Anthraquinones is a long word for important phytochemicals found in the yellow sap of the aloe plant. In large amounts, these compounds have a laxative effect.[2] However, in smaller quantities, their general bitterness appears to stimulate digestive secretions, bile flow, and the upper digestive system as a whole. Secondly, anthraquinones are potent antimicrobial agents, especially toxic both to *Shigella dysenteriae* (the well known dysentery-causing bacillus) and to *Staphylococci* (cause of the notorious "staph" infection).

In 2004, the *Journal of Pharmacy and Pharmacology* published a study by Chen, et al, demonstrating that anthraquinones are also anti-inflammatory in nature. Used topically, these compounds give aloe its capacity to absorb ultraviolet light and reduce the formation of melanin and any tendency to hyper-pigmentation (patches of darkened skin).[3]

Sterols are the secret to aloe's cholesterol-lowering potential. This capacity of plant sterols has been known for over 50 years. They are essential components of plant cell membranes and resemble cholesterol. Sterols inhibit the absorption of cholesterol in the small intestine by up to 50%. In turn, this can lower LDL blood cholesterol by up to 14%.

Salicylic acid is an aspirin-like compound possessing anti-inflammatory and antibacterial properties. Used topically, it helps wounds to heal more quickly without scarring. Lignin found in all plants (and different from *lignan*, the fiber in flaxseed) is an inert woody substance that gives topical aloe preparations their singular ability to penetrate to the dermis, carrying other active ingredients deep into the skin. Last, saponins are soapy substances with antiseptic properties. When making a purchase of aloe for internal use, shake the container. Some bubbles should result. No bubbles, not enough aloe.

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[1] FYI: The terms BCE (Before [the] Common Era) and CE (Common Era) are gradually replacing the traditional BC (Before Christ) and AD (*Anno Domini*, Year of Our Lord). According to the editors of www.religioustolerance.org, this movement was instigated by Christian theologians who felt that non-religious, neutral terms like CE and BCE would be less offensive to non-Christians and more in keeping with the Golden Rule. Living in the US, we tend not to remember that only one out of every three humans on earth is a Christian.

[2] These are the same substances that bring laxative action to cascara sagrada, senna, and rhubarb.

[3] Melanin is a natural substance that gives color [pigment] to hair, skin, and the iris of the eye.

Cover photo credit: GM Khalsa, Publisher, taken in his and Siri's back yard.

Important to ruptured diverticula (pockets of the intestines), aloe soothes and reduces bleeding time. The editors of *The Sensitive Gut: A Harvard Medical School Book* (2001) recommend it for functional dyspepsia (indigestion with no known cause) and garden variety indigestion. Other sources cite it for Irritable Bowel Syndrome (IBS) and leaky gut. Aloe has shown some success in the treatment of peptic ulcers because it relieves symptoms and helps control the overgrowth of bad bacteria such as *H. pylori*, the bacteria implicated in this condition.

At the far end of the line, aloe has been suggested as a stool softener for hemorrhoids and anal fissures by physicians of Germany's Commission E (Germany's FDA) and by Ayurvedic practitioners. (Drink a half-cup 3x/d until the condition has cleared.) Constipation is a condition often associated with hemorrhoids. In this case, take 4 ounces of aloe with 4 ounces of apple juice first thing in the morning on an empty stomach.

Heart Health Plus

In a recent presentation for the NNFA,[6] Ken Jones, PhD, director of research and development for a major aloe corporation, described a study involving 5000 patients with heart disease. Of these, 3000 had diabetes. Participants drank 100 milliliters (about 1/3 cup) of aloe with lunch and dinner, and ate a special high fiber bread. Treatment brought significant results within the first few months. Total serum cholesterol and triglycerides (blood fats) were normalized, and HDL ("good" cholesterol) was increased. Angina attacks were reduced. No heart attacks occurred during the five-year study.

Nearly all patients with diabetes (94%) were able to normalize their blood sugar and discontinue prescription medications used for this reason. At the conclusion of the study, all patients were using only diet to control their conditions.

Antioxidants and Detoxification

Dr. Jones (above) was particularly impressed with aloe's performance as an antioxidant. All plants contain antioxidant biochemicals to protect them from the elements. When we eat them, some of their antioxidant functions translate into our systems. Research has shown that antioxidant supplements can reduce the risk of heart attack, stroke, diabetes, and cancer.

Our bodies have their own powerful antioxidants. These include glutathione peroxidase, catalase, and superoxide dismutase (SOD). Not only does aloe contribute antioxidants, it stimulates our body to engage its own antioxidant system. This internal system and the antioxidants we ingest from food provide our best protection against internal toxins and exposure to pollutants. Incidentally, liquid aloe is frequently recommended for personal detoxification programs.

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Put Aloe Vera in Your Life

We've mentioned that aloe vera can be taken internally as a drink or applied topically. It is also available in cosmetics. The generally recommended dose for aloe healing is 5 ounces of juice twice daily between meals or with a light meal. However, some companies "condense" their product by reducing the amount of water. As a result, the products are more expensive but the recommended dose is much smaller. I suggest you do as I did and ask for a recommendation at your local health store.

Reported adverse reactions include GI upset and occasional rash (this is a liver cleansing response). If diarrhea occurs, taper back. Drug interactions include a possible loss of potassium if aloe is taken with a diuretic and increased hypoglycemic action of drugs prescribed for blood sugar regulation. Also, aloe can increase the anti-inflammatory effects of hydrocortisone-containing creams or ointments.

Regrettably, there are many products which contain virtually no aloe. Caution applies particularly to cheap capsules or dried aloe leaf. Now that you know how valuable pure aloe is, take the time to choose a quality supplement. There is no doubt that aloe vera does a body good!

[6] National Nutritional Food Association 67th Meeting, 2004.

Siri Khalsa, Editor in Chief • Lisa Wade Devine, Associate Editor

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How Sweet It Is!

This is no ordinary sugar. It isn't in the baking aisle or in packets for coffee. These are biological sugars that are essential to life. They are structural components of our cells, involved in cell-to-cell communication. Each of our cells is coated with eight essential sugar communicators. Without them, cellular communication is greatly compromised.

Individual sugars are called *saccharides*. In nature, they hook together in chains as *polysaccharides*. (*Poly-* means many.) Currently, the main focus of aloe research is a group of polysaccharides called *mannose* (or mannan).[4] Amazingly, mannose is one of those eight essential sugars. Research on the functions of mannose explains aloe's healing properties more than any other single constituent.

Mannose molecules occur in many lengths, weights, and sizes called chains. The varying sizes determine healing properties. Like pearls in a necklace, ranging from short strands with small pearls to very long heavy strands with large pearls, the heavier and longer the polymannose chain, the more biologically valuable its function in the body (See sidebar.)

Aloe for Your Health

The number of aloe studies has tripled since 1990. Folk uses are being reinforced while the healing potential of its components is being defined and substantiated. Work with the essential biological sugars is particularly important. In this section, we look at the five major aloe applications and more.

Immune Boosting

Mannose is so stimulating to the immune system that one company is allowed to make the claim that their product "enhances the immune system."[5]

According to a 1988 study published in the *Journal of Immunopharmacology*, mannans activate white cells, stimulate communication between immune cells, and stimulate bone marrow activity (where some immune cells are formed). Mannans enhance TNF release (tumor necrosis factor), producing an anti-tumor effect, helping to destroy abnormal cells. For over two decades, research has found aloe mannans to be antiviral and helpful in the treatment of AIDS.

Lastly, aloe counteracts the immune-suppressing effects of ultra violet B exposure (e.g., sun burn). Keep in mind that all whole leaf aloe preparations contain mannose.

Skin Repair

Aloe's effects on skin and on wound healing have been recognized for thousands of years. According to James Duke, Ph.D., studies since the 1930s have shown that aloe speeds the healing of burns, wounds, frostbite, and other skin conditions. It relieves itching, pain, and swelling from all kinds of rashes including heat rash, diaper rash, rash caused by poisonous plants (i.e., poison ivy), hives, scabies, ringworm, and athlete's foot.

Approved by the FDA for use with oral ulcers/canker sores, a 2005 article in *General Dentistry* supports the successful use of aloe for the treatment of many oral health problems. These include canker sores, cold sores, herpes virus, gingivitis, and *lichen planus* (a disease affecting the skin and oral mucous membranes). Aloe was used topically and ingested.

Beyond this, studies have shown that aloe can provide extremely effective treatment for psoriasis. A 1996 year-long double-blind, placebo-controlled study of 60 people with psoriasis found that applying a .05% aloe vera cream 3 times daily eliminated symptoms in 86 percent of cases.

Aloe's capacity to penetrate to the dermis, bringing nutrients and removing toxins, is behind its speedy and impressive healing ability. Not surprisingly, aloe brings relief to dry skin, and is found in many lotions and moisturizers.

Good Digestion

Whole leaf aloe vera is an herbal bitter. Studies at the Linus Pauling Institute show that six ounces of aloe juice taken three times daily increase protein digestion and absorption, decrease bowel putrefaction, and improve intestinal pH.

Aloe's anti-inflammatory properties are soothing to mucous membranes and have been shown to reduce pain and inflammation in the digestive tract. The mucous lining of the gastro-intestinal tract resembles the skin. The same phytochemicals that soothe our skin can soothe our insides. Food allergy relief is another benefit of healing the gut lining. (Reactions to air born allergens are also reduced.)

[4] All sugars carry the suffix *-ose*: sucrose, glucose, fructose.

[5] Carrington Labs (a large aloe grower with millions of dollars of research and development) can make this claim in compliance with the Dietary Supplement Health and Education Act of 1994 (DSHEA). It is attached to the use of 160 mg/d of pure mannose polysaccharide.

Let's Take a Closer Look

Short Chain: These chains reduce the inflammation involved in such diseases as ulcerative colitis, arthritis and gastric reflux. They also help reduce blood sugar in both types I and II diabetes.

Medium Chain: Functioning within the cell as effective antioxidants, these chains protect us against ever increasing pollution and the loss of nutrients from food while maintaining cellular communication.

Large Chain: Large chains have a direct anti-bacterial and anti-viral effects. They are important to treating both new infectious diseases and older ones that are resistant to antibiotics.

Very Large Chain: The "big pearl" molecules are immune modulating and have a powerful healing effect on AIDS, cancer, and many different immune system disorders.

At one time, polymannans were readily available in our diet. Eating wheat, rice, and other produce supplied our needs. In the last 50 years, farming practices and food processing have caused a loss of nutrition in our food. Even when products are organic, it is difficult to eat enough to meet our mannose requirement.

Using a dried or liquid whole leaf aloe product gives us the healing synergistic effect of aloe's surprising components. Within a few months, mannans (polymannose) in supplement form for therapeutic use will be available from natural products stores.