



## **Aloe Vera Applications & Articles**

*Updated 03/01/2006*

**There are over 240 different species of Aloe, growing mainly in the dry regions of Africa, Asia, Europe and America.**

**Although Aloe vera is a member of the Lily family, it is very cactus-like in its characteristics. This unique plant also belongs to a larger plant family called "Xeroids".**

**Of the 240+ species of Aloe, four are recognized as having nutritional value with [Aloe barbadensis miller](#) leading the group. Aloe barbadensis miller is the type of Aloe used in most products with aloe content available commercially today.**

**The aloe leaf contains over 75 nutrients and 200 active compounds, including 20 minerals, 18 amino acids, and 12 vitamins.**

**Aloe, native to Africa, is also known as "lily of the desert", the "plant of immortality", and the "medicine plant". The name was derived from the Arabic alloeh meaning "bitter" because of the bitter liquid found in the leaves. In 1500 B.C. Egyptians recorded use of the herbal plant in treating burns, infections and parasites.**

**There are over 500 species of aloe growing in climates worldwide. Ancient Greeks, Arabs and Spaniards have used the plant throughout the millennia. African hunters still rub the gel on their bodies to reduce perspiration and their scent.**

**Extensive research since the 1930's has shown that the clear gel has a dramatic ability to heal wounds, ulcers and burns by putting a protective coating on the affected areas and speeding up the healing rate.**

**The plant is about 96% water. The rest of it contains active ingredients including essential oil, amino acids, minerals, vitamins, enzymes and glycoproteins. Modern healers have used it since the 1930's. Many liquid health treatments are**

made, some combining aloe juice with other plants and herbs. The juice is soothing to digestive tract irritations, such as colitis and peptic ulcers.

As a food supplement, aloe is said to facilitate digestion, aid in blood and lymphatic circulation, as well as kidney, liver and gall bladder functions.

Aloe contains at least three anti-inflammatory fatty acids that are helpful for the stomach, small intestine and colon. It naturally alkalizes digestive juices to prevent overacidity - a common cause of indigestion. It helps cleanse the digestive tract by exerting a soothing, balancing effect.

A newly discovered compound in aloe, acemannan, is currently being studied for its ability to strengthen the body's natural resistance. Studies have shown acemannan to boost T-lymphocyte cells that aid the immune system.

Those wise to the ways of aloe healing keep this plant in the kitchen. When the leaf is broken, its gel is placed on burns to relieve pain and prevent blisters. Aloe may reduce inflammation, decrease swelling and redness, and accelerate wound healing.

Aloe can aid in keeping the skin supple, and has been used in the control of acne and eczema. It can relieve itching due to insect bites and allergies. Aloe's healing power comes from increasing the availability of oxygen to the skin, and by increasing the synthesis and strength of tissue.

**Part Used:** Aloe vera "extract" is made by pulverizing the whole leaves of the plant. Aloe juice is made from the inner leaf.

### **Aloe Vera Overview**

There are two very different health benefits from Aloe vera. Gel from the Aloe leaf has been used for centuries as a topical remedy for minor burns, cuts, and other skin irritations. The second benefit is its laxative effects from internal use of Aloe juice or encapsulated powder.

The active constituents for aloe's laxative effect are known as anthraquinone glycosides, which are converted by intestinal bacteria into aglycones. The active compounds responsible for aloe's wound healing properties are likely a combination of several saccharide molecules. Other beneficial effects, especially from high fiber content of the plant, are on cardiac disease risk factors by reducing blood levels of cholesterol, triglycerides and glucose.

**Dosage:** Laxative - 50-200 mg per day or about 1-3 ounces of aloe gel can be taken by mouth for constipation relief. Aloe juice can also be used as part of a detoxification or cleansing protocol. As topical relief for minor skin irritations, aloe gel can be applied as needed throughout the day.

**Side Effects:** There are no significant side effects noted with aloe vera as an internal or topical agent, except in rare cases of aloe-latex allergy. Pregnant women, however, should avoid aloe-derived laxatives during pregnancy. However, excess consumption of oral aloe juice products (12-16 ounces per day) may lead to nausea, vomiting, and diarrhea.

(Source: [www.supplementwatch.com](http://www.supplementwatch.com))

### **Research Overview**

- 1. Aloesin and aloemannan constituents in Aloe species are anti-inflammatory. (ANIMAL)**
  - a. Aloesin prevents UVB-induced immune suppression.**
  - b. The neutral polysaccharides, aloemannan and acemannan show antitumor, antiinflammatory and immunosuppressive activities.**
  - c. Glycoprotein fractions have bradykinin degrading and cell proliferation stimulating activities.**
  - d. Aloesin, aloemannan and verectin may act in concert to exert therapeutic properties for wounds, burns and inflammation.**
  - e. Aloemannan, together with acemannan are expected to participate in biological activity following oral administration.**
- 2. The glycoprotein fraction of aloe showed a radical scavenging activity against superoxide anion as well as inhibition of cyclooxygenase2 and reduction of thromboxane A 2 synthase level in vitro. (BASIC RESEARCH)**
- 3. Aloins bind and to inhibit Clostridium histolyticum collagenase reversibly and noncompetitively. Aloe gel and aloins also inhibit stimulated granulocyte matrix metalloproteinases (MMPs). (BASIC RESEARCH)**

4. Local aloe vera treatment was a selective and nontraumatic method to treat the allergic rhinitis. (ANIMAL)
5. Aqueous cream was useful in reducing dry desquamation and pain related to radiation therapy. (HUMAN)
6. Lifelong Aloe vera ingestion had no deleterious side effects, and could also be beneficial for the prevention of age-related pathology. (ANIMAL)
7. Isorabaichromone, feruloylaloetin, and p-coumaroylaloetin fractions of aloe showed potent free radical and superoxide anion scavenging activities. (BASIC RESEARCH)
8. Aloemodin may be useful in liver cancer prevention. (ANIMAL)
9. Chemical toxicity in rat hepatocytes was inhibited by aloe extract. (ANIMAL)
10. An aloe product significantly reduces the incidence of alveolar osteitis (after dental extraction) compared with a clindamycin product.
11. Aloe prevents pancreatic neoplasia in hamsters. (ANIMAL)
12. Aloe secundiflora could be a potential candidate on the management of Newcastle disease in chickens. (ANIMAL)
13. Aloe emodin, a natural constituent of aloe vera leaves, significantly inhibited the growth of Merkel cell carcinoma. (BASIC RESEARCH)
14. An aloe glycoprotein fraction is involved in the wound healing effect of aloe vera via cell proliferation and migration.
15. Oral administration of aloe vera might be a useful adjunct for lowering blood glucose in diabetic patients and for reducing blood lipid levels in patients with hyperlipidaemia. (REVIEW HUMAN)
16. Aloe vera could exhibit the actions of both antiinflammation and wound healing promotion when applied on a second-degree burn wound. (ANIMAL)
17. Aloe vera influences the wound healing process by enhancing collagen turnover in the wound tissue.
18. Wounds were treated either by topical application or oral administration of Aloe vera to rats and both treatments were found to result in similar effects. (ANIMAL)
19. Aloe vera treatment of wounds in diabetic rats may influence inflammation, fibroplasia, collagen synthesis and maturation, and wound contraction. These effects may be due to the reported hypoglycemic effects of the aloe gel. (ANIMAL)
20. Both topical and oral treatments with Aloe vera were found to have a positive influence on the synthesis of glycosaminoglycans (GAGs) and thereby beneficially modulate wound healing.

- 21. A component of aloe, acemannan, can stimulate macrophage cytokine production, nitric oxide release, surface molecule expression, and cell morphologic changes. (BASIC RESEARCH)**
- 22. Aloe gel extracts permit a faster healing of burn wounds. (ANIMAL)**
- 23. Aloe prevents progressive dermal ischaemia caused by burns, frostbite, electrical injury, distal dying flap and intraarterial drug abuse. (HUMAN)**
- 24. Studies and case reports provide support for the use of aloe vera in the treatment of radiation ulcers and stasis ulcers in man, and burn and frostbite injuries in animals. (REVIEW)**
- 25. Intraperitoneal acemannan in feline leukemia cats improved both the quality of life and the survival rate.**
- 26. Acemannan has shown variable degrees of promise as a possible therapy for Irritable Bowel Disease. (HUMAN) for IBD.**
- 27. Acemannan from aloe vera may provide functional food and potential drug source with antiviral and immunomodulating properties.**
- 28. Acemannan enhances the respiratory burst (RE), phagocytosis, and killing of *Candida albicans* by mouse peritoneal macrophages. (ANIMAL)**
- 29. Acemannan may function, at least in part, through macrophage activation.**
- 30. Acemannan may cause the activation of macrophages by increasing the level of NO synthase at the level of transcription. (BASIC RESEARCH)**
- 31. An acemannan product may be an effective adjunct to surgery and radiation therapy in the treatment of canine and feline fibrosarcomas. (ANIMAL)**
- 32. Acemannan increased killing by T-lymphocytes by almost 50%. (BASIC RESEARCH)**
- 33. Acemannan increases lymphocyte response by enhancement of monocyte release of Interleuken I. (BASIC RESEARCH)**
- 34. 5,000 patients on dietary aloe reduced total cholesterol, triglycerides, and blood sugar level in diabetic patients, total lipids and also increased HDL. Clinically there was reduction in the frequency of anginal attacks and gradually, drugs, like verapamil, nifedipine, betablockers and nitrates, were tapered.**
- 35. CARN 750, a polydispersed beta(1,4)linked acetylated mannan isolated from the Aloe vera plant increased hematopoietic activity in mice.**
- 36. Aloe may increase tensile strength by increasing crosslinking in collagen and interactions with the ground substance.**

- 36. Extracts of Aloe vera possess activities that reverse the degenerative skin changes seen with aging by stimulating the synthesis of collagen and elastin fibers.**
- 37. In facial dermabrasion, wound healing was approximately 72 hours faster at the aloe site compared to polyethylene oxide gel wound dressings.**
- 38. A particular fraction of aloe leaves prevented the growth of Bacillus subtilis by inhibiting primarily nucleic acid synthesis, after which protein synthesis is also inhibited.**

**Helps Heal Wounds:** The bulk of the aloe leaf is filled with gel, 96% water with the other 4% containing 75 known substances. Applied to wounds, aloe gel is a mild anesthetic, relieving itching, swelling, and pain: it also is antibacterial and antifungal, increases blood flow to wounded areas, and stimulates fibroblasts, the skin cells responsible for wound healing. An animal-based study in the *Journal of the American Podiatric Medical Association* found that both oral and topical aloe preparations speed wound healing. Animals were given either aloe (100mg/kg body weight) in their drinking water for two months or 25% aloe Vera cream applied directly to wounds for six days. Aloe had positive effects in both cases. The size of wounds decreased 62% in the animals taking oral aloe compared to a 51% in the control group. Topical aloe produced a 51% decrease in wound size compared to a 33% in the control group.

**Supports Surgical Recovery:** Aloe decreases surgical recovery time, according to a report in the *Journal of Dermatologic Surgery and Oncology*. Eighteen acne patients underwent facial dermabrasion surgery, in which lesions are scraped away. Dressings were applied to their faces, with half of each person's face receiving the standard dressing coated with surgical gel, and the other half with aloe added to this dressing. The half of the face treated with aloe healed approximately 72 hours faster than the other side. Dermatologist James Fulton, M.D., of Newport Beach, California, principal author of the report, uses topical aloe in his practice to speed wound healing. "Any wound we treat, whether it's suturing a cut or removing a skin cancer, heals better with aloe Vera on it," he states.

**Soothes Burns:** In a study in the *Journal of the Medical Association of Thailand*, 27 patients with moderate burn wounds were treated with a gauze coated in either aloe gel or Vaseline (petroleum jelly). The burns healed more quickly in the aloe group, with an average healing time of 12 days compared to 18 days for the group using Vaseline.

**Minimizes Frostbite Damage:** A study published in the *Annals of Emergency Medicine* established that aloe works for frostbite as well. Researchers gave standard treatments for frostbite (antibiotics, ibuprofen, and rewarming) to 154 patients with mild to severe frostbite. Of patients who additionally received aloe Vera cream, 67.9% healed without any tissue loss (amputation) compared to 32.7% in the control group. Researchers concluded that aloe prevented a decrease of blood flow to the frozen tissues, a common cause of tissue loss in frostbite.

**Screens Out Radiation:** Aloe protects against skin damage from X rays, according to researchers at Hoshi University in Japan publishing in the journal *Yakugaku Zasshi*. They found that aloe was an effective antioxidant, mopping up the free radicals caused by radiation, and that it protected two of the body's healing substances, superoxide dismutase (an antioxidant enzyme) and glutathione (an amino acid which stimulates the immune system).

**Heals Psoriasis Lesions:** In a double-blind, placebo-controlled study published in *Tropical Medicine and International Health*, 60 patients with chronic psoriasis were given a 0.5% aloe Vera extract in a mineral oil cream. The ointment was applied three times daily for five consecutive days (15 applications total per week) for four weeks. When patients were checked after eight months, far more psoriasis skin lesions had healed in the aloe group (82.8%) than in the placebo group (7.7%). Further, 83.3% of the aloe group were considered cured of their psoriasis compared to only 6.6% of the placebo group.

**Eases Intestinal Problems:** Aloe Vera juice can be effective for treating inflammatory bowel disease, according to a study in the *Journal of Alternative Medicine*. Ten patients were given two ounces of aloe juice, three times daily, for seven days. After one week, all patients were cured of diarrhea, four had improved bowel regularity, and three reported increased energy. Researchers concluded that aloe was able to rebalance the intestines by "regulating gastrointestinal pH while improving gastrointestinal motility, increasing stool specific gravity, and reducing populations of certain fecal microorganisms, including yeast." Other studies have shown that aloe Vera juice helps to detoxify the bowel, neutralize stomach acidity, and relieve constipation and gastric ulcers.

**Reduces Blood Sugar in Diabetes:** Aloe reduced the blood sugar levels in diabetics, as reported in *Hormone Research*. Five patients with adult (non-insulin-dependent) diabetes were given 1/2 teaspoon of aloe extract daily for up to 14 weeks. Blood sugar levels were reduced in all patients by an average of 45%, with no change in their total weight.

**Reduces Arthritic Swelling:** Aloe can help prevent arthritis and reduce the inflammation in joints already affected by arthritis, according to the Journal of the American Podiatric Medical Association. Aloe can also inhibit the autoimmune reaction associated with certain forms of arthritis, in which the body attacks its own tissues. Animals were injected with a bacterium to cause arthritic symptoms, namely inflammation and swelling. To determine if it could prevent arthritis, aloe (150mg/kg body weight) was injected under the skin daily for 13 days. Physical measurements were taken daily to determine the amount of swelling and inflammation. Several compounds from aloe showed ant arthritic activity, according to the researchers. One organic acid in aloe reduced inflammation by 79.7% and suppressed the autoimmune response by 42.4%. Another aloe compound (anthraquinone) reduced inflammation by 67.3% but had no effect on the autoimmune response.

**Curtailling HIV Infection:** An extract of mannose, one of the sugars in aloe, can inhibit HIV-1 (the virus associated with AIDS). In a 1991 study in Molecular Biotherapy, HIV-1 cells were treated in vitro (outside the body) with a mannose extract. Aloe slowed virus reproduction by as much as 30%, reduced viral load (total amount of the virus), suppressed the spread of the virus from infected cells, and increased the viability (chance of survival) of infected cells.

**Nutritional Support for HIV Patients:** Aloe Vera juice proved to be an effective part of a nutritional support program for HIV+ patients according to the Journal of Advancement in Medicine. For four months, 29 patients were given 100% pure aloe Vera juice (five ounces, four times daily) along with an essential fatty acid supplement and another supplement containing vitamins, minerals, and amino acids. Patients were told to continue with their normal diet and not to take other supplements. After 90 days, all of the patients had fewer occurrences of opportunistic infections, thrush, fatigue, and diarrhea, as well as increased white blood cell counts (meaning their immune systems were responding positively). Their assessment of overall quality of health also improved. In 25% of the patients, aloe apparently knocked out the virus's ability to reproduce. Researchers found that aloe (the mannose extract and perhaps other compounds) stimulates the body's immune system, particularly T4 helper cells, white blood cells that activate the immune response to infection.

**Stimulates Immune Response Against Cancer:** Aloe may help prolong survival time and stimulate the immune system of cancer patients, according to recent research. In a 1994 study in the Japanese medical journal Yakhak Hoeji, mice with cancerous tumors were given aloe orally for 14 days. While the aloe did not suppress tumor growth, the average life span of the mice was prolonged by 22% for those given 50mg aloe/kg body weight and by 32% for those given 100mg/kg daily. A simultaneous experiment on human cancer cells (outside the body)

found that high doses of aloe significantly suppressed the growth of these cancer cells. Researchers writing in *Cancer Immunology and Immunotherapy* found that a compound (lectin) from aloe, when injected directly into tumors, activated the immune system to attack the cancer. Killer T cells, white blood cells that bind to invading cells and destroy them, began to attack the tumor cells injected with lectin. Aloe turns on the immune system by activating macrophages (white blood cells which "swallow" antigens), causing the release of immune-activating (and anticancer) substances such as interferons, interleukines, and tumor necrosis factor. In addition, aloe promotes the growth of normal (non-cancerous) cells, researchers said.

**Benefits Lung Cancer:** Aloe's protective effect was confirmed in a study of 673 lung cancer patients in Okinawa, Japan, published in the *Japanese Journal of Cancer Research*. This survey looked at the connection between smoking, comparative amounts of 17 plant foods in the diet, and the occurrence of lung cancer over a five-year period. Aloe was the only one of the plant foods that was protective against cancer. "The results of plant epidemiology suggests that aloe prevents human pulmonary carcinogenesis," stated the researchers. Further, aloe is "widely preventive or suppressive against various human cancers."

This information is provided so that current & prospective buyers will have complete knowledge about the historical and documented uses of Nature\*4\*Science Nutraceutical ingredients. N4S does not recommend any of its Nutraceutical ingredients for any particular use. Each buyer must determine, with regulatory and legal advice, the kinds of products and product claims that are suitable and appropriate for their respective markets and customers. N4S does not provide this advice.