



The Review on Medicinal Uses of Aloe Vera

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Abstract:

A succulent plant that grows in dry subtropical climates, Aloe Vera is best known for its medicinal properties and is used in Ayurveda, homeopathy and allopathic medicine. It has long been used by people of different cultures. Traditional uses include controlling sweating, oral administration for diabetes, and relief of various gastrointestinal ailments. It is also used to treat burns, minor cuts, genital herpes, and seborrheic dermatitis. The leaves of this wonderful medicinal plant contain numerous vitamins, minerals, natural sugars, enzymes and amino acids and are emollients, laxatives, anti-inflammatory, antioxidants, antibacterials, anti-helminths and anti-fungals. Aphrodisiac, aphrodisiac, antiseptic, and cosmetic value. Many cosmetic industries use this plant for its healing and nourishing properties.

Keywords: Aloe vera, Medicinal Uses, bioactive compounds, Cosmetic industries

Introduction:

Medicinal plants occupy an important position in the field of pharmacology due to their abundance of bioactive compounds. The majority of newly launched antibiotics are derived from natural sources. According to WHO, medicinal plants will be the best source for obtaining many medicines. A succulent plant belonging to the Alliaceae family, Aloe vera grows 60 to 100 cm tall, matures in 4 to 6 years, and can survive nearly 50 years under favorable conditions. Among his more than 500 species of the genus Aloe, Aloe Vera (L.) Balm. f.syn. Aloe barbadensis Miller is the most biologically active. It is native to southern and eastern Africa along the upper Nile River in Sudan. These plants have since been introduced to many countries around the world, including North Africa. Many countries such as India, South Africa, the United States, Venezuela, Aruba, Bonaire and Haiti grow this plant commercially, but aloe grown in the Southern California desert is of the highest quality. It can withstand high temperatures of 100 degrees Fahrenheit and can withstand freezing temperatures until its roots are damaged.

The leaves of this wonderful medicinal plant are rich in numerous vitamins, minerals, enzymes, natural sugars and amino acids. They are also rich in various phytochemicals with emollient, laxative, antioxidant, anti-inflammatory, anthelmintic, antibacterial, aphrodisiac, antiseptic and cosmetic value. Aloe vera leaves are juicy and erect. and form dense rosettes. The gel made from the leaves has countless uses, and the plant is grown worldwide primarily as an 'aloe his gel' crop. Aloe vera has been used for centuries and is now more popular than ever, according to reports from Kew Gardens, England's Royal Center for Botanical Excellence. According to the Egyptians, aloe is the "plant of immortality." Today aloe vera is widely used in food. It is also FDA approved as a flavoring and dietary supplement. It is also the main ingredient in many herbal remedies. Even many manufactured cosmetics are based on aloe products.

HISTORY:

The aloe vera plant has been used for centuries and is known for its health, medicinal, beauty and skin care properties. Alloeh" and "vera" are derived from meaning "truth". 2000 years ago, Greek scientists thought only aloe vera was a universal panacea. The earliest recorded human use of aloe vera comes from Ebers Papyrus. Thus, Egyptian medical records date from the 16th century BC. The ancient Egyptians considered aloe vera a plant of immortality (according to literature published in the Indian Journal of Dermatology). There are also records of the plant being used for centuries in countries such as China, Japan, India, Greece, Egypt, Mexico and Japan. Egyptian queens, Nefertiti and Cleopatra, used the leaves of this plant regularly. Alexander the Great and Christopher Columbus also used it to treat the wounds of their soldiers. It was a 1655 translation by John Goodyew of De Materia Medica. Aloe vera has been used as a laxative in the United States since the 1800s. A turning point came in the mid-1930s, when it was successfully used to treat chronic and severe radiation dermatitis.

Youthful energy and femininity. Aloe is used as a tonic for the female reproductive system. According to Ayurveda, aloe is said to have alliteration, tonic, rejuvenating, laxative and energizing effects. Aloe is also believed to provide a good solution for all her three constitutions in Ayurveda: vatta, pitta and kapha. In traditional Indian medicine, it is primarily used to treat constipation, colic, skin ailments, parasitic infestations, and infections. It is also used as a laxative, anthelmintic, to treat hemorrhoids, and as a uterine stimulant (menstrual regulator). Aloe extract is also used topically in combination with

licorice root to treat eczema and psoriasis. Aloe is also used as a food. People in Tamil Nadu, India, often prepare curries containing *A. vera* for consumption with Indian bread (nan bread) or rice.

Botany of Aloe Vera:

Aloe vera is a spiny cactus like dry plant. It is a tuberous perennial with thick fibrous roots, usually producing 12 to 16 large basal leaves per plant and weighing up to 1.5 kg at maturity. The plant matures in about 4 years and has a lifespan of about 12 years. The leaves are up to 0.5 m long, 8-10 cm wide at the base, tapering to a point, and have serrated margins. In cross-section, the plant exhibits a slightly concave appearance on the adaxial plane and a distinctly convex appearance on the lower abaxial plane. The leaves are covered with a thick cuticle, under which is the epidermis and mesophyll. Subsequently, the rosettes of continuous ripening leaves become grey-greenish with fewer whitish spots, thus distinguishing the upper green bark from the lower parenchyma. Plants can be harvested every 6-8 weeks by removing 3-4 leaves per plant. The red, yellow, purple or faintly striped flowers are present most of the year and root. It grows in long racemes on top of flower stalks arising from the center of fresh leaves. The flower stalks grow up to 1.5 m in height. The fruit is a triangular capsule containing many seeds. The plant is practically disease-free, but fungal infections can cause black spots to appear on top. Also, soft rot can damage the entire plant. The causative agents of soft rot are bacteria. Frost is another enemy of aloe vera plants, which cannot survive in freezing conditions. All over the world he grows more than 550 species of aloe. However, only two of his species are commercially grown: *Aloe barbadensis* Miller (*Aloe vera*) and *Aloe aborescens* Miller. There are at least two other species with medicinal properties, *Aloe Perry Baker* and *Aloe Ferox*. Most aloe vera plants are non-toxic, but some are highly toxic and contain a hemlock-like substance.

Ethno-botany of Aloe Vera:

In Ayurveda, aloe is known as Kumari or "young girl" because it is believed to restore youthful energy and femininity. Aloe is used as a tonic for the female reproductive system. In Ayurveda, Aloe is said to have alliteration, strengthening, rejuvenating, laxative and detrimental effects. Aloe also strengthens all her three Ayurvedic constitutions: Vatta, Pitta and Kapha. It is considered. It is used in traditional Indian medicine for constipation, colic, skin ailments, parasite infestations, and infections. Aloe vera is taken internally as a laxative, anthelmintic, hemorrhoid treatment, and uterine stimulant (menstrual regulator). It is often used topically in combination with licorice root to treat eczema and psoriasis. People of Tamil Nadu in India take it with Indian bread (nan bread) or rice. , I often prepare curries containing *A. vera*.

Phytochemistry of Aloe Vera:

Aloe vera has up to 200 different molecules. Aloe vera leaf gel contains approximately 98% water. Aloe vera gel has 0.66% total solids and 0.56% soluble solids with seasonal variation. On a dry matter basis, aloe gel is composed of polysaccharides (55%), sugars (17%), minerals (16%), proteins (7%), lipids (4%) and phenolic compounds (1%). Aloe vera gel contains many vitamins, including the important antioxidant vitamins A, C, and E. It also contains vitamin B1 (thiamine), niacin, vitamin B2 (riboflavin), choline and folic acid. Some authors also suggest the presence of trace amounts of vitamin B12 (cyanocobalamin), which is usually of animal origin. increase. They include both monosaccharides and polysaccharides. The most important is a long-chain polysaccharide composed of glucose and mannose known as glucomannan [$\beta(1,4)$ -linked acetylated mannan]. It contains lupeol (a triterpenoid), cholesterol, campesterol and beta-sitosterol, as well as trace amounts of xylose, rhamnose, galactose and arabinose. Structural studies of aloe vera gel polysaccharides have shown that the gel is composed of at least four different partially acetylated glucomannans. They are unbranched linear polymers with 1,4-glycosidic linkages in a 1:2:8 ratio with glucose and mannose. When these sugars are hydrolyzed, the viscosity of the gel is reduced.

When taken orally, some of the sugar binds to receptor sites lining the intestine, creating a barrier that may help prevent leaky gut syndrome. The presence of polyuronides consisting of -mannose polyose and hexuronic acid has been shown, the presence of uronic acid has been reported, and fermentative hydrolysis produces galacturonic acid and oligosaccharides. At least six enzymes are reported to be present in aloe vera gel, including brazikinase, cellulase, carboxypeptidase, catalase, amylase, and oxidase. Carboxypeptidases inactivate brazikinase at wound or cut sites in the body, Produces analgesic and anti-inflammatory effects. During the inflammatory process, bradykinase causes pain associated with vasodilation. The gel also contains several isoenzymes of glutathione peroxidase and superoxide dismutase. Also, the potassium and chloride concentrations in aloe vera juice appear to be too high compared to most plant products, while the sodium content was found to be low. Calcium, magnesium, copper, zinc, chromium and iron were also found. Contained in aloe products. Magnesium lactate inhibits histidine decarboxylase, preventing the formation of histamine from the amino acid histidine. Histamine is released in many allergic reactions, causing severe itching and pain. Preventing its formation may explain the anti-allergic effect of aloe vera gel. Anthraquinones are phenolic compounds present in the sap or yellow exudate of leaves or aloe vera latex. Aloe latex contains a number of glycosides known as anthraquinones, the best known being aloin A and aloin B. Bitter aloe (a dry, yellow secretion) is composed of free anthraquinones and their derivatives.

Aloe concentrate and its food applications:

Aloe juice can be concentrated under vacuum without loss of bioactivity. The concentration process should be performed under a vacuum of 125 mm Hg, at a temperature below 50 °C, and should not exceed 2 minutes, as higher vacuum and temperature result in a loss

of potency of the bioactive ingredients (63). Concentration is carried out to obtain an aloe vera concentrate of desired consistency, which can be used in various food applications, such as food applications. Suitable for pumpkin, jam, jelly, etc. Aloe concentrate can also be mixed with tea, water, or juice.

Aloe powder and its food applications:

In the dehydration process, pure, intact aloe vera gel fillets are first washed to remove traces of aloin. The fillets are then placed in a humidity chamber to maintain desired levels of relative humidity and temperature. Here, hot air is applied to dry the fillet. This material is ground into a powder and packaged. Qmatrix drying is a new, proprietary method of dehydrating aloe vera that can dehydrate aloe while preserving its integrity in terms of taste, color and bioactivity. The quality is comparable to freeze-drying, but the running cost is not high. In freeze-drying, gel fillets are freeze-dried at -88°C . and a pressure of 0.01 mmHg for 65 hours to obtain dry gel fillets. It is then ground to obtain an aloe powder with a moisture content of less than 4%. Peng et al., 1991 prepared a lyophilized powder from ultrafiltration and reverse osmosis of concentrated aloe vera gel. Franz 1989 made aloe vera leaf powder by chopping the leaves into small pieces, mixing them in a blender and drying them in a tray dryer at 50°C for 12 hours. The dried ingredients are then ground in a blender mill into a powder. Aloe vera powder can be used in cottage cheese, lassi, ice cream, etc. Aloe powder is also used in the production of yogurt.

Commodity use of Aloe vera:

Aloe leaves can be eaten as a vegetable. Pickles made from small pieces of leaf pods are a common preparation in western Rajasthan. Immature flower stalks, which contain no bitter components, are also used for herbal purposes. Fresh, fleshy leaf sheaths are part of green salads and are useful in treating indigestion and constipation. Sharma and Goel 2002 standardized recipes for a variety of aloe products: vegetables, pickles, lard, jams, pumpkins, biscuits and churma using sensory evaluation techniques. Saroj and Purohit (2004) standardized recipes for preparing several culinary products from sweet aloe (*Aloe barbadensis*). Helps heal diabetes, ulcers and heart disease. Aloe vera juice is now on the market for a day to improve the immune response against various diseases. Besides juice, aloe vera leaf powder is also used in the food industry to prepare yogurt and other foods. Gel is the most common part of the plant and is processed and used in a variety of products. Today, the industry is thriving and the gel is used as fresh gel juice. It has also been suggested that biofuel can be obtained from aloe vera seeds. Cosmetic companies often add juices and other aloe vera derivatives to products such as cosmetics, tissue paper, moisturizers, soaps, sunscreens, incense, shaving foams and shampoos. Traditionally, aloe has been widely used for medical purposes, especially for urinary problems, acne, and ulcers.

Commercial Production:

The use of aloe gel and formulations containing it was widespread, resulting in the development of a large industry, primarily in Texas and Florida. :www.carringtonlabs.com/about.html), using the expertise of Texas A. and M. University staff to grow plants in Costa Rica. Among the many products, a compound called Acemannan or Carrisyn™ has been studied a lot. An affiliated company, Mannatech™ Incorporated (<http://www.mannatechinc.com>), has prepared similar mannose-based mucopolysaccharides from *A. vera*. will be supported by HPLC validation. Dr. Madis Laboratories of New Jersey is another company that has been an early supplier of both new gels and derivative products in this area. A Science Council (<http://www.iasc.org.iasc.articles.html>) was established by industry in 1981 to try to set standards. A key supporter of the council is Aloecorp (<http://www.aloecorp.com:aloecorp.htm>), which has lands in Texas and Mexico. They support a wide variety of research activities and supply their products in raw form, concentrated or in gel form either freeze-dried or spray-dried. Another established (1973) company is Terry Laboratories (<http://www.terrylabs.com:index.htm>) is a major gel supplier to many multinational companies and a big proponent of aloe research and quality control. Dr. Madis Laboratories Inc. offers the gel as a purified extract or in many formulations. Aloe Vera Company UK (Forever Living Products) (<http://www.aloevera.co.uk:home.htm>) sells gels and derivative products as a franchise using aloe grown in Texas. Many companies concentrate their gels by either gentle air-drying or freeze-drying, and CRH International Inc (<http://www.aloealoe.com>). raw.html) and Valley Aloe Vera Inc (<http://www.quikpage.com.valleyaloe>). This is by no means an exhaustive list. There are many other manufacturers, large and small, some of which have sites on the World Wide Web. An informative site, The Aloe Vera Studies Organization (<http://www.aloe-vera.org>), offers some interesting pointers, but botany is a little more interesting. A similar website was created by Miracle of Aloe (<http://www.miracleofaloe.com.internal.htm>) and another of his by Triputic Laboratories (<http://www>).

Safety aspects of Aloe Vera products:

The scientific community is divided into two groups regarding the safety of aloe vera products. One group claims that aloe vera is fairly safe for human consumption. On the contrary, scientists believe that the anthraquinones in aloe vera leaves, including aloin, are associated with many benefits when used in small amounts. Aloe vera gel is safe for topical use, allergies are rare, and side effects from other drugs have not been reported. . Aloe should not be taken internally during pregnancy, lactation, or in childhood, and should not be used by anyone suffering from abdominal pain, appendicitis, or intestinal obstruction. Cases of disseminated dermatitis have been reported after dermabrasion. Some patients who applied topical aloe vera gel after dermabrasion reported the development of burning sensation and facial dermatitis. Possible anthraquinone contamination. Oral aloe vera gel can cause symptoms of abdominal cramps and diarrhea. There are some reports that aloe vera gel lowers plasma glucose levels in laboratory animals and humans. Aloe vera use has been reported to be associated with the occurrence of Henoch-Schoenlein purpura (HSP). It is the most common systemic vasculitis in children who are not frequently exposed to drugs or other environmental factors. Acute hepatitis may be associated with ingestion of aloe

vera densis compounds. Acute blistering allergic reactions and urticaria have also been reported with aloe vera gel use. showed no acute toxicity at high doses, but decreased central nervous system (CNS) activity was noted at higher doses. Chronic treatment has been associated with reduced red blood cell counts and significant sperm damage

CONCLUSION:

The literature discussed in previous reviews included many case reports and more or less anecdotal descriptions of the curative powers of A. vera gel, particularly for skin lesions, but this is not the case for a variety of other diseases. Laboratory studies have shown that in vitro activity is indeed present, but the relevance to in vivo activity has not always been clear. Since then, much more experimental work has been carried out, revealing the full picture of bioactive properties. One of the features revealed is that the repaired system contains multiple interacting factors, each of which can be influenced by multiple components of the raw gel. Some of the reported discrepancies may be caused by unknown variations in any of these factors. Indeed, one property, immune stimulation, seems to emerge frequently as an important factor. This is related to the presence of polysaccharides in the gel. These substances are found in all plants, often as storage carbohydrates such as starch and insulin, or structural carbohydrates such as cellulose, although some have a more restricted distribution. Many of these specialized polysaccharides have been discovered with unknown functions in plants.

There seems to be less and less doubt that aloe gel has true therapeutic properties. It is also clear that these components, acting either individually or in concert, are at least polysaccharides, glycoproteins, possibly prostaglandins, small molecules such as magnesium lactate, and infiltrating exudates. It contains liquid phenol and, most simply, water.

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