

## Aloe vera-a 'miracle plant'

This episode deals with “Aloe Vera-a modern medicine” special reference to history, different medicinal properties, 'natural healer', Phytochemicals and Traditional medicine ect. The following topics are highlighted,

- 1: History
- 2: Uses and Home Remedies using Aloe Vera
- 3: Photochemicals
- 4: Aloe vera juice and health benefits
- 5: Conclusion

### Introduction

I remember my Mother grabbing a piece off aloe Vera plant and applying its gel to a burn or minor wound. The aloe Vera gel comes from the inner portion of the leaves. My grandfather putting aloe vera gel to my scalp and hair before bath. He was giving aloe vera gel or pulp to cows. For pharmaceutical use as a laxative, the aloe juice is taken from the tubules just beneath the outer skin of the leaves. It is a native to northern Africa. Aloe Vera has long been a popular houseplant. Often called the 'miracle plant' or the 'natural healer', There are around 400 species of Aloe. Plant which has been of most use to mankind because of the medicinal properties it displays

MPS: mucopolysaccharides

### 1:History:

**Aloe vera** is one of the oldest and most well known plants when it comes to medicinal and beauty benefits. It has amazing properties that promote healthy living. Though **Aloe vera** leaves a bitter taste in the mouth when consumed, Aloe Vera has long been a popular houseplant. Often called the 'miracle plant' or the 'natural healer', Aloe Vera is a plant of many surprises

**Family:**Xanthorrhoeacea

**Sub family:** Asphodeloideae

**Genus:***Aloe*

**Species:** *A.vera*

Aloe Vera has been found described in writings in many different cultures and as far back as the Greek, Egyptians, and Roman eras. References have also been found in writings from the Indian and Chinese early cultures. Ancient records show that the benefits of Aloe Vera have been known for centuries, with its therapeutic advantages and healing properties surviving for over 4000 years.

The species was introduced to China and various parts of southern Europe in the 17th century. The species is widely naturalized elsewhere, occurring in temperate and tropical regions of Australia, Barbados, Belize, Nigeria, Paraguay, Mexico and the US

*Aloe vera* has been widely grown as an ornamental plant. The species is popular with modern gardeners as a medicinal plant and for its interesting flowers, form, and succulence. This succulence enables the species to survive in areas of low natural rainfall, making it ideal for rockeries and other low water-use gardens. The species is relatively resistant to most insect pests.

Greek and Roman physicians were using for medicinal purpose. Researchers have found that both the ancient Chinese and Indian used Aloe Vera. In the Phillipines it is used with milk for kidney infections. Today in Japan Aloe Vera is commonly used as an ingredient in commercially available yogurt. There are also many companies which produce Aloe Vera beverages.

## **2:Uses ,Home Remedies using Aloe Vera**

Aloe gel has been used for topical treatment for minor wounds and burns and skin irritations for centuries. Aloe Vera used to be known as the "burn plant". these days

One of the home remedies for asthma was to boil some Aloe Vera leaves in a pan of water and breathe in the vapor. For pharmaceutical use as a laxative, the aloe juice is taken from the tubules just beneath the outer skin of the leaves. It's a bitter yellow and dried to become aloe granules that are dark brown in color. It is Made into a beverage and taken internally, it has been used to help many other conditions. Some of them are constipation, ulcers, diabetes, headaches, arthritis, and coughs. Taking aloe internally does have side effects, which can include pain, electrolyte imbalances, and diarrhea. It has been determined that it can also help with treating minor vaginal irritations.

Aloe Vera can be used topically as well as taken internally. It has been used for mouth sores, what we call stomach sores, or cold sores. Aloe Vera has been especially helpful of patients with severe and various skin diseases. It acts as a rejuvenating action. It acts

as a moisturizer and hydrates the skin. After being absorbed into the skin, it stimulates the fibroblasts cells and causes them to regenerate themselves faster. Because Aloe Vera is natural, it works gently within the intestinal tract to help break down food residues that have become impacted and help clean out the bowel. When the bowel is cleaned out, it greatly reduces bloating, discomfort, and helps ease stress, which only leads to more attacks of irritable bowel syndrome. It is also known as “royal plant”

**The Aloe leaf structure is made up of four layers:**

**Rind** - the outer protective layer;

**Sap** - a layer of bitter fluid which helps protect the plant from animals;

**Mucilage Gel** - the inner part of the leaf that is filleted out to make Aloe Vera gel.

**Aloe Vera** (inner gel) contains the 8 essential Amino Acids that the human body needs but cannot manufacture.

**Traditional medicine**

Today home remedies have become more and more popular because people have become aware of the harmful side effects of synthetic drugs. There is considerable interest in the aloe industry as a source of income. Important elements that may contribute to long term success include focused scientific research, official support, innovative new product development and imaginative marketing.

Traditional medicine is the sum total of the knowledge, skills, and practices based on the theories, beliefs, and experiences indigenous to different cultures, whether explicable or not, used in the maintenance of health as well as in the prevention, diagnosis, improvement or treatment of physical and mental illness.

*Aloe vera* is used in traditional medicine as a multipurpose skin treatment in Ayurvedic medicine also known as Ayurveda -- is one of the world's oldest holistic (whole-body) healing systems. It was developed thousands of years ago in India. It is based on the belief that health and wellness depend on a delicate balance between the mind, body, and spirit.

6000 year old stone carvings in Egypt contain images of the plant, which they referred to as the "plant of immortality. Aloe vera is used in traditional medicine as a

multipurpose skin treatment. In Ayurvedic medicine it is called kathalai. Aloe vera juice is marketed to support the health of the digestive system.

Aloe vera, has been documented in ancient Egypt, now many homes contain aloe vera plants in their garden. The commercially available aloe vera is in products such as creams, soaps, gel, face wash and lotions, etc.

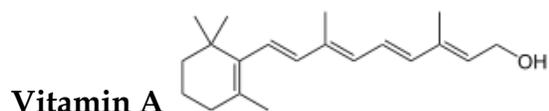
Aloe has such unique healing abilities, proven scientifically, like no other plant. There have been many studies on aloe. The key ingredient in aloe vera is mucopolysaccharides, long-chain sugars, that have very strong antiseptic, anti-inflammatory, anti-viral, anti-tumor and immunomodulatory properties proven scientifically.

There is much confusion between Aloe Vera Gel and Aloe Vera Juice with the two often being thought synonymous. The term Gel refers to the inner leaf only, whereas Juice refers to "Aloe Latex" a bitter substance found just under the skin of the leaf.

### **3: Phytochemicals:**

Phytochemicals are naturally present in many foods except some refined foods such as sugar or alcohol. They are non-nutritive plant chemicals that have protective or disease preventive properties. There are more than thousand known phytochemicals. Some of the well-known phytochemicals are lycopene present in tomatoes, isoflavones in soy and flavanoids in fruits. Aloe Vera juice contains about 240 nutritional and medicinal ingredients: Vitamins A, B1, B2, B3, B6, B9, B12, C, E, folic acid, minerals, calcium, potassium, magnesium, iron, amino acids, enzymes, saponins, etc.

**Lectins:** Lectins are a diverse family of carbohydrate-binding proteins found in nature. All plants and animals contain them



forms of vitamin A

Chemical structure of retinol, one of the major

Vitamin A plays a role in a variety of functions throughout the body, such as:

- Vision

- Gene transcription
- Immune function
- Embryonic development and reproduction
- Bone metabolism
- Hematopoiesis
- Skin and cellular health
- Antioxidant activity

**Vitamin A deficiency (VAD)** is a lack of vitamin A in humans. It is common in poorer countries but rarely seen in more developed countries. Nyctalopia is one of the first signs of VAD. Vitamin A deficiency is the leading cause of preventable childhood blindness.

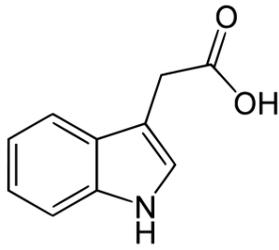
Approximately 250,000 to 500,000 malnourished children in the developing world go blind each year from a deficiency of vitamin A, approximately half of whom die within a year of becoming blind.

**Nyctalopia:** Night blindness, impaired vision in dim light and in the dark, due to impaired function of certain specialized vision cells (the rods) in the retina.

**Mucopolysaccharides** are long unbranched polysaccharides consisting of a repeating disaccharide unit. The repeating unit (except for keratan) consists of an amino sugar (N-acetylglucosamine or N-acetylgalactosamine) along with a uronic sugar (glucuronic acid or iduronic acid) or galactose. While traditional medicine has been using aloe as part of some drugs or cosmetic products for decades, folk medicine has been using aloe for a few thousand years and has built up an impressive collection of home remedies for many ailments.

Aloe vera gel used externally helps with acne, sunburns, thermal and radiation burns, boils, dandruff, gum sores, dermatitis, edemas, hemorrhoids, inflammation in the eyes, insect bites and stings, psoriasis, skin rashes and irritations, ulcers, varicose veins, warts, wounds and wrinkles.

When you apply freshly squeezed aloe vera gel on the affected area of the skin, it creates a protective coating which speeds up the healing process, decreases swelling and redness, reduces inflammation, relieves pain, promotes synthesis of collagen in tissue and prevents blisters in case of burns. Aloe vera gel contains two hormones: Auxin and Gibberellins. These two hormones provide wound healing and anti-inflammatory properties.



**Native auxins**

Taken internally, it reduces inflammation which is involved in such diseases as ulcerative colitis, arthritis, and gastritis.

**Gastritis**, an inflammation or irritation of the lining of the stomach. Symptoms include belching, nausea and vomiting, bloating.

Helps with the reduction of blood sugar with both type I and II diabetes and has a powerful healing effect on AIDS, cancer, tumors and many different immune system disorders.

Mucopolysaccharides found in aloe vera are very effective intracellular antioxidants which is very important in preventing and treating arteriosclerosis, heart disorders and Parkinson's disease.

**1. Vitamins:** It is rich in all vitamins excluding Vitamin D, especially the antioxidant Vitamins A (beta-carotene), C and E and even contains a trace of Vit. B12, one of the very few plant sources of this vitamin and this is important for vegetarians.

**2. Enzymes:** Several different types of these biochemical catalysts when taken orally aid digestion by breaking down fat and sugars.

One in particular, Bradykinase, helps to reduce excessive inflammation when applied to the skin topically and therefore reduces pain, whereas others help digest any dead tissues in wounds. Lipases and proteases which break down foods and aid digestion are present.

**3. Minerals:** Calcium, Sodium Potassium, Manganese, Magnesium, Copper, Zinc, Chromium and the anti-oxidant Selenium. Although minerals and trace elements are only needed in very small quantities, they are essential for the proper functioning of various enzyme systems in different metabolic pathways.

**4. Sugars:** These are derived from the mucilage layer of the plant which surrounds the inner gel. and are known as mucopolysaccharides, which enhance the immune system and help to detoxify. Aloe Vera contains both mono and polysaccharides, but the most important are the long chain sugars involving glucose and mannose or the gluco-mannans . These sugars are ingested whole from the gut, not broken down like other sugars, and appear in the bloodstream in exactly the same form. This process is known

as pinocytosis. Once in the blood stream they are able to exert their immuno-regulating effect.

**Detoxification** means cleaning the blood. This is done by removing impurities from the blood in the liver, where toxins are processed for elimination. The body also eliminates toxins through the kidneys, intestines, lungs, lymph and skin.

**Pinocytosis** is one type of endocytosis, the general process by which cells engulf external substances, gathering them into special membrane-bound vesicles contained within the cell.

**5. Anthraquinones:** There are twelve of these Phenolic compounds which are found exclusively in the plant sap. In small quantities, when they do not exert their purgative effect, they aid absorption from the gastro-intestinal tract and have anti-microbial and pain killing effects. The important ones, Aloin and Emodin, act as painkillers. They also function as anti-bacterials and anti-virals.

**Natural phenolic compounds** : Natural phenolic compounds play an important role in cancer prevention and treatment. Phenolic compounds from medicinal herbs and dietary plants include phenolic acids, flavonoids, tannins, curcuminoids, coumarins, lignans, quinones, and others.

**6. Lignin:** This in itself is an inert substance but when included in topical preparations it endows Aloe Vera with a singular penetrative effect so the other ingredients are absorbed into the skin.

**7. Saponins:** These soapy substances form about 3% of the Aloe Vera gel and are capable of cleansing, having antiseptic properties. These act powerfully as anti-microbials against bacteria, viruses, fungi and yeasts.

**8. Fatty Acids:** Cholesterol, Campesterol, b. Sisosterol and Lupeol. These four plant steroids are important anti-inflammatory agents.

**9. Salicylic acid:** An aspirin-like compound possessing anti-inflammatory and anti-bacterial properties.

**10. Amino Acids:** The body needs 22 amino acids – the gel provides 20 of these. More importantly, it provides 7 out of the 8 essential amino acids which the body cannot synthesise.

**4:Aloe vera juice and health benefits:**

1. Helps with colitis, diarrhea, constipation and irritable bowel syndrome,
2. Regulates digestion and stomach acidity, helps with heartburn and abdominal pain,
3. Cleanses the blood and removes harmful toxins from the body,
4. Regulates blood sugar levels,
5. Speeds up the metabolism and helps with weight loss,
6. Improves circulation,
7. Accelerates the healing tissue,
8. Regulates blood pressure and preventing diseases of the blood vessels,
9. Strengthens the immune system,
10. Prevents the growth of tumor cells,
11. Reduces inflammation and swelling,
12. Relieves the symptoms of asthma and allergies,
13. Helps with eye diseases: cataract, trachoma, glaucoma, corneal inflammation, etc.
14. Destroys viruses, bacteria, fungi and parasites.

**Heartburn**, also known as pyrosis, cardialgia, or acid indigestion, is a burning sensation in the chest, just behind the breastbone or in the epigastrium, the upper central abdomen. The pain often rises in the chest and may radiate to the neck, throat, or angle of the jaw.

The gel contains most of the bioactive compounds in the plant, including vitamins, minerals, amino acids and antioxidants.

1. Aloe Vera Has Potent Antioxidant and Antibacterial Properties
2. May Improve Skin Elasticity and Help Prevent Wrinkles
3. May Lower Blood Sugar Levels in Diabetics
4. Contains Bioactive Compounds That Can Improve Health
5. Accelerates The Healing of Burns.
6. Most commonly used as a topical medication, rubbed onto the skin rather than eaten
7. Can be Used to Treat Mouth Ulcers
8. Can Help Treat Constipation

## **Detoxifying**

Aloe vera juice is contain full of amino acids, vitamins and minerals.It is one of nature's most effective cleansers. 'It can help strengthen digestion and rid the body of any nasty waste, thus detoxifying the body naturally,' says Sebastian. 'Its main property is to be soothing, cooling and moistening which helps to clear inflammatory and irritating heat, such as in menopause, plus inflammatory skin and digestive problems, such as acne, rosaceous and IBS.'

## **Lowers cholesterol and blood sugar**

There is some evidence to suggest aloe vera lowers cholesterol and has a positive effect on blood sugar levels, meaning it can be useful for treating diabetes and obesity. Aloe vera contains plant steroids which help in reducing inflammation naturally. So aloe vera is used in orthodox or traditional medicine as steroidal drugs. Aloe vera also contains salicylic acid. Salicylic acid is like aspirin and has the potential of reducing inflammation by destroying the bacteria that cause inflammation.

## **5:Conclusion:**

Aloe Vera has long been a popular houseplant. Often called the 'miracle plant' or the 'natural healer', Aloes are referred in the Bible, and legend suggests that Alexander the Great conquered the island of Socotra in the Indian Ocean to secure supplies of Aloes to treat the battle wounds of his soldiers. One of the home remedies for asthma was to boil some Aloe Vera leaves in a pan of water and breathe the vapor.

Aloe Vera juice were made into a beverage and taken internally, it has been used to help many other conditions. Some of them are constipation, ulcers, diabetes, headaches, arthritis, and coughs. It has been determined that it can also help with treating minor vaginal irritations. Aloe Vera can be used topically as well as taken internally. It has been used for mouth sores, what we call stomach sores, or cold sores.

Aloe Vera has been especially helpful of patients with severe and various skin diseases. It acts as a rejuvenating action. It acts as a moisturizer and hydrates the skin. After being absorbed into the skin, it stimulates the fibroblasts cells and causes them to

regenerate themselves faster. These are commercially available aloe vera popular products are listed;

1. Aloe Vera Gel
2. Everyday Shampoo
3. Moisturizing Lotion
4. Juice Plain:
5. Nature's Essence Aloe Vera Gel
6. Aloe Vera & Cucumber Gel Face Pack
7. Green Leaf Aloe Vera Gel
8. Aloe Vera Skin Nourishing Gel
9. Soul flower Aloe Vera Soap
10. Bio active aloe vera shampoo for pets.
11. Patanjali Aloe Vera Juice Plain:
12. Khadi Aloe Vera Moisturizing Lotion:
13. Fabindia Aloe Vera & Cucumber Gel Face Pack: