

ALOVERA JUICE: EFFECT OF ALOVERA ON HEARTBURN**Kanchan Babasaheb Sanap*, Pooja Raut, Akshay Raut and Prachi Udupurkar**

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ABSTRACT

Aloe Vera is natural product used for cosmetic purpose, also used for health benefits. Aloe Vera having medicinal properties. This is one of the richest natural source of health for being coming. It contains different 200 chemical constituents. The genus aloe has more than 75 species but few such as A. vera, Aloe Ferox Aloe arborescens Aloe Vera has various medicinal Properties such as antitumor, antidiabetic, anticancer, acidity reflux, constipation, etc. Aloevera plant, it's properties, active constituent, mechanism of action properly mentioned in this article.^[3] Daily consumption of aloe Vera juice is essential to fight and cure a range of digestive disorder including poor digestion, constipation, acidity and gas. It is also beneficial in boosting appetite and keeping check on weight gain.^[2]

KEYWORDS: Aloe Vera juice, heartburn (Acidity reflux).

INTRODUCTION

The aloe Vera plant used for medicinal as well as health purpose. Name of aloe Vera derived from Arabic word 'Alleah' means 'shining bitter substance', Vera in Latin means 'true'. In Chinese medicine it is used for the unit is also used as purgative and skin protection. In western aloe Vera is used as cosmetics usage and also pharmaceutical and food industries. It is also used as purgative and skin protection.^[5]

Today, aloe Vera and aloe Vera juice also is an important traditional medicine in many countries including china, India, west indies, South Africa, japan.^[7]

1. Taxonomy

Aloe Vera is having 420 species of the genus aloe which classified as belonging to the

asphodelaceae, lilaceous, aloacea families. Biologically it is called as Barbados's Miller. The ale Vera plant described in detail in Greek herbal of Discords and it's use promoted for treatment of wound, hair loss, genital ulcer hemorrhoids.

2. Anotomy

The plant has succulent, triangular, fleshy leaves with serrated edges. Each leaves contain the inner clear gel that contain 99% water and made up of glucomannans amino acids, lipids, sterol and vitamins. Middle layer of latex which is bitter yellow sap and contains anthraquinones and glycosides.^[10]

Active constituent

Aloe vera contains 75 active constituent: Vitamins, Enzymes, Minerals, Sugar ignin, Saponins, Salicylic acids amino acids.

- 1) **Vitamins:** It contains vitamin A, C, E which are antioxidants. It also contains vitamin B 12, folic acid, choline. Antioxidants neutralize freeradicals.
- 2) **Enzyme:** It contains 8 enzymes: Aliase, Alkaline phosphatase, Amylase bradykinase, Carboxypeptidase, Catalyse, Cellulase, Lipase and Peroxidase. Bradykinase help to reduce excessive inflammation.
- 3) **Mineral:** It provides calcium chromium, copper, Selenium, Magnesium manganese, pottasium, Sodium and Zinc. They are essential for proper functioning of various enzyme system in different metabolic pathway andfew antioxidant.
- 4) **Sugar:** It provides Monosaccharide and Polysaccharide. The most prominent monosaccharide is mannose – 6- Phosphate and Most commonpolysaccharide are called glucomannans.
- 5) **Anthraquinones:** It provide 12 anthraquinones which are phenolic compounds traditionally known as laxative. Aloin and Emodin act analgesic, Antibacterial, Antiviral.
- 6) **Fatty acids:** It provide 4 plant steroids; Cholesterol, campesterol, Beta sisosterol and lupeol. All have antiinflammatory action only lupeol haveantiseptic properties.
- 7) **Hormone:** Auxin and gibberellin that help in wound healing and gaveantiinflammatory action.
- 8) **Other:** It provides other 7- essential amino acids. It also contains salicylic acids which provides antiinflammatory actionband antibacterial activity.^[17]

Aloe vera

- **Synonyms:** Goldenseal, calendula, Vera -based, lotion, herb, moisturizeand aloe Vera

- **Local name:** Gear Patha or Ghrit Kumari' in Hindi (And Sanskrit is asucculent or juicy plant species of genus aloe).
- **Active constituent:** Aloe emodin is main constituent. Aloe Vera having different chemical constituents. Near about 75 constituent present in aloe Vera. It contains vitamins, different enzymes, sugars, fatty Acids and Other
- **Botanical name:** Aloe barbedensis miller.
- **Family:** Liliasea
- **Uses**
 - Used as beauty hack
 - Aloe Vera used as different health benefits.
 - In industrial level aloe Vera used for preparation of cosmetic.
 - The most well-known member of the aloe genus is Aloe Vera. "La Vera" means "the true one", which is why it is also called the true aloe. The botanic name for Aloe Vera is Aloe Barbados's, but this is rarely used. The leaves of the aloe Vera plant grow 30 to 40cm long and its flower stalk can reach 90cm high. Aloe Vera flowers are strikingly yellow- orange. There is much more to know about Aloe Vera.^[14]
- **Other type's of aloe vera**

1) Aloe arborescen

Aloe arborescens is also known as the krantz aloe or the candelabra aloe a name it owes to the candelabra-shaped branches that grow out of its short, woody trunk. The krantz aloe is a tree aloe that can grow very old and up to two metres tall. It forms several bare, pseudo-trunk stems with toothed leaf rosettes at their ends.



Figure no. 1: Aloe arborescen.

2) *Aloe aristata*



Figure no. 2: *Aloe arishta*.

The leaves of the Torch Plant or Lace Aloe are pale green in the shade but become dark green in full sun. The incurved leaves have tufted tips and are lined with white teeth along the edges.

It forms clumps and grows red-orange flowers in winter. This plant prefers partial shade, especially in the strong afternoon sun

3) *Aloe polyphylla*

Aloe polyphylla is also called the spiral aloe because of its beautiful leaf arrangement. The short, egg-shaped leaves taper to a point and are arranged in five rows that spiral in the same direction. The leaves are often tipped purple, making them particularly striking. Older spiral aloe plants form a distinctive rosette, though this will not be as obvious in younger plants. The sap of the spiral aloe is poisonous, so do not apply it to the skin and do not consume it.



Figure no. 3: *Aloe polyphylla*.

4) *Aloe ferox*

Aloe ferox which originates from South Africa, is also known as the cape aloë or bitter aloë. This species is a tree aloë, which forms a three metre high pseudo- trunk. The matte-green, sometimes reddish, leaves spread out and grow up to a metre long. Their wrinkled edges are lined with brown, hard teeth. Like *Aloe vera*, cape aloë is healing to the skin. It is often used in industry, as it produces a lot of gel in its thick-fleshed leaves. Its flower stalk grows up to 130cm high and forms striking, bright red or orange flowers.



Figure no. 4: *Aloe ferox*.

5) *Aloe variegata*

One of the most beautiful dwarf aloes is *Aloe variegata*, which is also known as tiger aloë, partridge-breasted aloë or *Gonialoe variegata*. It grows just 10 to 15cm high and forms lance-shaped, toothless leaves on a short stem.



Figure no. 5: *Aloe variegata*.

6) *Aloe mitriformis*

Although *Aloe mitriformis*, also called the rubble aloë or mitre aloë, is a dwarf aloë species, it can form a two metre long, horizontal pseudo-stem. It also forms a rosette of 20cm long

leaves, with prominent toothed edges, that become red at the tip. In optimal growing conditions, rubble aloe produces small, scarlet flowers. The juice of the Aloe mitriformis can help with some skin problems.^[13]



Figure no. 6: Aloe mitriformis.

Advantages

- Aloevera juice is acidic in nature. Due to which it help to maintain acid-base balance in body.
- It's help stop acidity reflux.
- It help to treat sunburn.
- It has tons of vitamins
- It's natural beauty hack
- Aloe Vera might just game changer for you : it's proven to be safe and effective treatment for reducing acidic reflux.^[17]

Disavantages

- Stomach Pain and Cramps (High doses).
- Diarrhea, kidney problems, blood in Urine and Heart disturbunes (Long term use at high doses).
- Liver problems (rare)
- Low blood sugar level.^[15]

Uses

1) Lower sugar level

Bioactive components of aloe have anti-inflammatory effect and aid the treatment of gastrointestinal diseases, i.e., inflammations, gastric, duodenal and intestinal ulcers. They aid

lipid and carbohydrate metabolism, which helps to maintain normal blood sugar and cholesterol levels as well as normal body weight.

2) **Used as laxative:** Aloe Vera contains high fiber content, it keeps our body from dehydration and helps constipation.

Due to which it improves digestion by treating constipation and increases metabolic rate.

3) **Reduces arthritic swelling:** Aloe Vera juice or Aloe Vera gel applied directly on swollen and painful joints. The gel will provide relief of joint due to anti-inflammatory property.

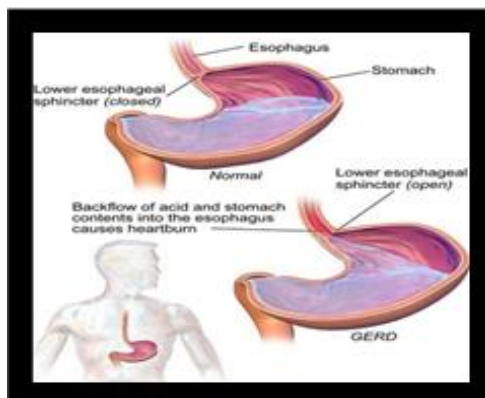
4) **Treat gum infection:** Aloe Vera having antibacterial properties it treats the gum infection.

5) **Lung congestion:** Aloe Vera extract reduces swelling of mucus membrane and consequently facilitates breathing through nose and improves release of mucus.

6) **Natural laxative:** The detoxifying property of Aloe Vera helps it cleanse the body of toxins. Juice also cleanses intestine which helps to keep our bowel movement smooth and healthy.^[9]

Mechanism

Aloe vera juice is primarily used for the treatment of acid reflux disease, increased stomach acidity, or inflammatory bowel disease. The juice is best made from the whole leaf which has the highest volume of polysaccharides, the naturally occurring active ingredient.^[16]



During acidity reflux lower esophageal sphincter valve open due to which back flow of acids takes place. Aloe vera having Basic PH due to which it maintain acid base balance in body. During acidity stomach having Acidic in condition so aloe vera acidic nature maintain acid base balance in body and reduce the acidity in this way mechanism takes place in body.^[10]

Method of preparation

1) Wash the aloe vera leaf under running Water and Pat it dry

Aloe vera secretes a yellowish liquid (Right after plucking) that is toxic, so you'll need to wash it well. If you've just harvested it from outside, let the leaf sit inside for 1 hour so all the liquid (Also known as "latex") gets out, then wash it. Use a clean cloth to pat it dry once you're ready to cut into it.

Most store-bought leaves have already had time to release the toxic yellow latex, but you should still wash the leaf beforehand to remove any dirt and debris.

The latex kind of substance can cause allergic reactions.

Ingesting the yellow latex may cause severe abdominal cramps, diarrhea, and/or vomiting and it can be deadly if you are allergic to

2) Use a sharp knife to cut the side rind off the leaf and pull it apart

Cutting the sides off will make it easier to open the leaf (almost like you're filleting it). Slice into the side "seam" of the leaf with the tip of your knife and slide the blade down the entire length of the leaf. Once you pull the leaf apart, you should have 2 pieces. Discard the rind (or side "seams") that you've cut off.

You can also use scissors for this step, just make sure they're sharp and wash the sticky residue off the blades afterward.

3) Peel the yellow layer just beneath the rind with a sharp knife

Carefully use the blade of the knife to peel away any yellow residue, film, or specks—that's the toxic substance that is secreted by the leaf when it's picked. Discard this layer once you've removed all of it. You should be left with nothing but a clear, gooey substance on top of the bottom leaf. Repeat this step for both leaves. Wash knife with dish soap and water after removing this yellow layer.

4) Use a spoon to gather all the clear aloe vera gel

Run the edge of a spoon along the leaf to scoop up the clear gooey substance. Gather as much as you can—at least 2 tablespoons (6.0 tsp)—and plop it right into your blender or into an airtight container for later use.

Make sure there are no yellow or greenish specks in the extracted gel. The gel can be stored for up to a week in the refrigerator, but to get the most health benefits (and the freshest taste), use it immediately.

You can blend all white fleshy parts in the blender so that the gel has no lumps. Add few ml of lecithin on it mask the bitter taste of aloevera juice. Also add honey as a sweetner. Add the preservatives (Vitamin E) it increase shelf life of the juice. Add natural flavour (orange, pineapple, apple strawberry, chocolate, etc). Flavours provide proper smell to juice.^[8]

Aloevera juice - Main ingredient

Lecithin. - Mask bitter taste of aloe Vera

Honey - Natural sweetner.

Vitamin E. - Increase shelf life of Aloe Vera juice.

Flavour - Add proper smell

Chemical test**1) Bromine test**

To 5 ml of aloe solution, add equal volume of bromine solution; bulky yellow precipitate is formed due to the presence of tetrabromaloin.

2) Borax test

Take 10 ml of aloe solution and to it add 0.5 gm of borax and heat; a green coloured fluorescence is produced indicating the presence of aloe-emodin anthranol.

3) Nitrous acid test

To 5 ml of aloe solution, add little of sodium nitrite and few drops of dilute acetic acid; it produces Pink or purplish colour. Zanzibar and Socotrine aloes give negative test.^[4]

Properties of aloevera juice**A) Nutritional properties**

Active components with its properties: Aloe vera contains 75 potentially active constituents: Vitamins, Enzymes, Minerals, Sugars, Lignin, Saponins, Salicylic Acids and Amino acid.

B) Antioxidant properties

Aloe-emodin also exhibits the antioxidative effect. It has been confirmed to inhibit the oxidation of linolenic acid by 78%. Its effect is caused by very strong reducing properties and the capacity to scavenge hydroxyl free radicals]. It is also cytotoxic to CH27 strain cells of squamous cell lung cancer in humans.

C) Antimicrobial properties

Aloe vera has potent antibacterial, antifungal and antiviral properties. The antimicrobial effects of Aloe vera have been attributed to the plant's natural anthraquinones which have demonstrated in vitro inhibition of *Mycobacterium tuberculosis* and *Bacillus subtilis*.

D) Chemical properties of aloe vera juice

The aloe plant, being a cactus plant, is between 99 and 99.5 per cent water, with an average pH of 4.5. The remaining solid material contains over 75 different ingredients including vitamins, minerals, enzymes, sugars, anthraquinones or phenolic compounds, lignin, saponins, sterols, amino acids and salicylic acid.^[18]

Aim

To reducing heartburn (Acidic reflux).

Objective

- 1) To determine the effectiveness of aloe Vera juice against stomach acid (HCl)
- 2) The aloe Vera plants low toxicity make it safe and gentle remedy for heartburn
- 3) Natural enzyme present in aloe Vera juice that help easy breakdown of sugar and fat which enhance your digestive system and also work by reducing acid production and acting as anti-inflammatory agent^[1]
- 4) The aloe Vera juice is more than traditional medication

Plan of work

- 1) Title: aloe Vera juice for acidity reflux.
- 2) Aim and objective
- 3) Literature review
- 4) Introduction of aloe Vera.
- 5) Uses of aloe Vera juice.
- 6) Method of preparation of aloe Vera juice.
- 7) Herbal formulations of aloe Vera in market by the dosage for in oil emulsion. It is applied on outer part or superficial part of the skin and its main ability is to remain for a

longer period of time at the site of application. The function of a skin cream is to protect the skin against different environmental condition, weather and gives soothing effect to the skin. There are different types of creams like cleansing, cold, foundation, vanishing, night, massage, hand and body creams.

CONCLUSION

Aloevera work on reducing acid production and acting as anti inflammatory agent so its result useful for reducing acidity reflux or heartburn. Aloe vera juice provide safe and tratment to reducing the acidity reflux Aloe vera juice is a rich source of antioxidants, which help fight free radicals.^[20]

Sample	T0	T1	T2	T3
Aloevera juice	10 ml	5ml	36 ml	73 ml
Lecithin		3ml	11 ml	20 ml
Honey		2ml	3ml	7 ml
Flavour		1 drop	1 drop	1 drop

I has performe the 3 trials of aloevera juice, In which e use the aloevera juice, Lecithin, Honey, Flavour. T2 trail show best result of aloevera juice.

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