



# Wound Recuperation and Approaches of Aloe Barbadensis for Traumatize Mending: A Review

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## Abstract

The most widely used medical plant in the world is aloe vera, the oldest known medicinal plant. Lotion is made in several steps, including cutting the tip and base of the leaf, extracting the mucilage portion, grinding it thoroughly, adding vitamin E, pasteurising the mixture, and cooling it. After the gel is made, it is measured out and mixed with other ingredients, including the gel, to make the lotion. With a pH of 5.5 and great extrudability, the formulation is greenish in hue. There were no negative effects from the natural remedy. This herbal remedy has been shown to be effective in treating inflammation, wounds, tumors, ageing, and other conditions.

**Keywords:** Herbal formulation, aloe vera, herbal lotion, herbal gel, wound mending

## 1. INTRODUCTION: -

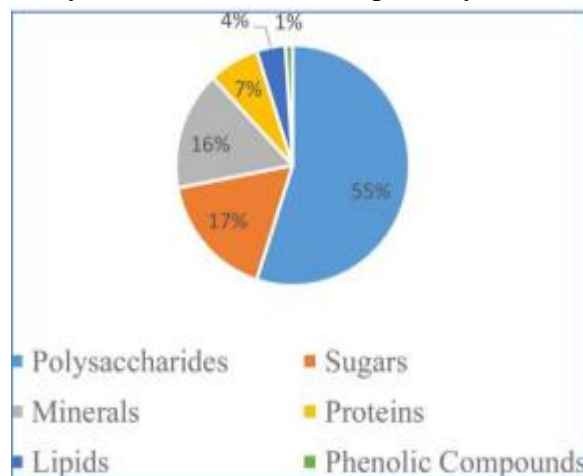
Aloe is also prevalent in both conventional and Ayurvedic and Chinese medicine. Aloe vera is referred to as originated from the Arabic term "Aloe," which means While "vera" in Latin means "shining bitter material," "true" [1-12]. The history of the plant Aloe vera dates back era of the Bible. There are more than 250 varieties of aloe. globally cultivated Two species only are raised for use in commerce: Aloe barbadense Miller and Aloe arborescent. Numerous people have knowledge about this plant monikers like "the wand of heaven," "heaven's" The silent healer" and

"the blessing"[9]. Aloe was a formerly thought to belong to the Liliaceae family, but it has it has been assigned to the Aloaceae family. Aloe vera has a positive impact on human health and can treat various diseases.

**1.1 Plant details:** Its habitat is primarily moist Africa, Asia, Europe, and America's arid regions. It exists in Rajasthan, Andhra Pradesh, and Tamil Nadu, Gujarat, and Maharashtra [12]. Geographic Source: South America is the native home of aloes South America and Africa, but they are currently cultivated excluding the tundra, deserts, and rain forests, everywhere. It

reaches maturity in four years on average and has an average lifespan of 12 years [10]. an active part of the three layers of a plant's leaves. The highest strata or formed of a layer of defense 15–20 cells thick protein and carbohydrate synthesis [15].

The present Anthraquinones, chromones, and other compounds are found in aloe include enzymes and polysaccharides. Those substances Al, B, Ba, Ca, Fe, Mg, Na, P, Si, and other substances have reportedly also Present.



**Figure 1: Composition of Biomolecules**

It is successfully developed by cultivation in low-fertility marginal to sub-marginal soils. The plants tend to withstand high pH and high Na levels. K salts, too. The earth shouldn't be too deeply disturbed, since Aloe's root system only descends 20–30 feet. It is spread through rhizome cuttings or root suckers. Aloe may be grown successfully in both irrigated and non-irrigated with the presence of rain. supplying irrigation Aloe's Biological and Pharmacological Activity Aloe vera has a 72% chance of preventing adjuvant arthritis and result in a 22–26% regression at a dosage of 150mg/kg daily. It could lessen edema, as we discovered. 80% maintaining wound moisture and boosting epithelial cell improvement in skin hydration and a decrease in irritation Aloe has great anti-aging effects and makes the

skin more elastic less wrinkly, has an anti-inflammatory effect, and is restrained Candida albicans' development, laxatives, and Effects: Aloe vera latex has laxative properties that can be abused constipation, but it's also a purgative. Aloe vera extract's anti-bacterial properties were 7 out of the 12 species of organisms are bactericidal. Aloe vera, a powerful immune booster, has been shown to the T cells and macrophages in the white blood cells, The aloe plant has antioxidant and antitumor properties.

## 2. MATERIAL AND METHOD

Experimental Work Equipment: - Digital balance, pH meter, measuring cylinder, glass bowl, spoon, Brooke filed viscometer.

Required Material

**Table-1: Materials of formulation**

<b>S.No.</b>	<b>Ingredients</b>	<b>Quantity</b>
1.	Aloe vera gel	150ml
2.	Coconut oil	120ml
3.	Rose water	240ml
4.	Vitamin E	14 capsule
5.	Glycerin	150ml
6.	Essential oil	4 drops
7.	Arrowroot powder	39 gm

**2.1 Getting ready for formulation: -**

Clean and Clean up the area where you work and all your packaging supplies. It is advised that you put on gloves and safety gear. While cooking this meal, and a hair net. Collect raw material (aloe leaves) Washing leaf and removed base and tip of the leaf, leaf is cut into section (Filleting) Extract mucilage part of the leaves into mixing jar and heat it and add agar-agar into the mixing jar.

Grinding/Homogenization of

Unpasteurized Juice Add Vitamin E and Pasteurize the mixer cool the mixer of aloe leaf Packaged the produced gel and stored it.

**2.2 Steps Used in Formulation of Gel**

2.2.1 Raw materials reception: Aloe vera leaf harvesting, it was preferable to carry the processing facility The leaves ought to be healthy intact, root and mold-free, and ripened (3–4 years) in keeping all the active components completely intact concentration.

2.2.2 Filleting procedure: It was proved that the aloe gel, being removed from the leaf, was more stable unlike the gel still inside the leaf. To stay away from the biological activity's breakdown, the Within 36 hours, the filleting operation must be finished of collecting leaves.

2.2.3 Homogenization and grinding are the two main phases in this Crushing and grinding are processes. Aloe vera gel Use a to smash and homogenies the fillets at-room commercial high-speed tissue crusher (25 °C) and include agar-agar into the mixture.

2.2.4 Vitamin E addition - Unpasteurized aloe gel vitamin E was added to juice to enhance the Aloe vera juice taste and to keep the juice. Due to its antioxidant properties, it is used.

2.2.5 Pasteurization- Treatment (1–2 minutes at 85–95 °C) is a practical way to avoid the unpleasant flavor and the Aloe vera gel's loss of biological activity.

After pasteurization, the juice is flash cooled within 10-15 seconds, the temperature dropped to 5°C or lower. Here is an essential action to keep the biological function of the Aloe vera lotion.

2.2.6 Storage: Two factors are temperature and relative humidity the most significant environmental factors that affect the product's quality.

2.2.7 Lotion formulation technique: Measure the quantity of the gel already created. Consider each other substance used in the composition. Grab a big glass or plastic dish for mixing. Add the measured-out gel into the mixing basin with the aloe vera. adding added one by

one, ingredient by ingredient, in the formulation vitamin E, glycerin, coconut oil, rosewater, and essential oils oil and arrowroot powder in the proper amounts aggressively combine all the bowl's ingredients manner. The herbal lotion was made.

### 3. EVALUATION PARAMETER

Spread ability is the word used to describe the size of the territory where a formulation can spread easily when applied to the skin or other affected area. The mending the spreading of a formulation affects its effectiveness as well value [16], [29].

The following formula is used to compute it:

$S = M \cdot L / T$  where M is the weight attached to the top slide

L = the length of the glass slides.

T is the duration it took to separate the slides. pH measurement- pH of a 1% aqueous solution of a calibrated device was used to measure the formulation constant temperature digital pH meter pH level is 5.5 for the formulation.

Homogeneity was examined in all gels that had been created. Upon setting the gels in the container, homogeneity can be checked visually. They had evaluations for presence and appearance of any aggerates. Measurement of a substance's viscosity Using a Brookfield viscometer, the produced gel was evaluated. Spindle number 7 and a speed of 25 rpm. C.

3.1.1 Smoothness: The lotion's level of smoothness Testing the formulation involved rubbing between the using fingers, check the gel's smoothness clumped, uniform, or rough

3.1.2. Absorbency- The rating at which a product is thought to be taken up by the skin. decided by seeing changes in the

epidermis. Rating: somewhat sluggish, rapid.

Consistency and gregariousness were both present application to the skin and checking.

All aloe vera compositions have a uniform appearance. They were a pale green colour. When the product was applied by hand, it was washable noticed in a flowing body of water.

3.1.3. Irritability Test: Left hand was treated with cream.1 square centimeter-sized dorsal side surface, seen in equal periods of up to 24 hours for irritancy, redness and edema. The did not produce any irritation or redness on skin.

### 3.2. Body application:

Drinking Aloe Vera juice aids in digestion stimulates bowel movement and aids in if a person is constipated, elimination. Also, if you get diarrhea, it will go more slowly. Stimulates the immune system: Aloe vera juice the white blood cells known as macrophages that battle viruses.

Aloe vera juice is a fantastic natural remedy for detox. Aloe vera juice can help within credibly nutritious mixture of vitamins, minerals, and to aid our bodies cope with this, trace elements daily demands and stresses.

### 3.3. Application in practice

Researchers evaluated a gel for aphthous ulcer combine silicon dioxide, Aloe vera, and all antibiotics as well as how it affects oral aphthous ulcers [9]. [30].

3.3.1. Oral Lichen Planus: Aloe Vera's effectiveness in Efficacy of oral lichen plan us treatment as decided by many academics [9].

3.3.2. Gingivitis: Several research projects have been conducted to decide whether aloe vera works to treat gingivitis.[9].

3.3.3. Denture adhesive- This is a characteristic that caused the prototype

acemannan denture manufacture adhesives.

3.3.4. Cancer: Polysaccharides and glycol proteins are present make Aloe vera a powerful chemo-preventive in agent effective against a variety of cancer kinds. These substances energize the immune system to combat opposed to cancer.

Aloe vera gel works well as an effective anti-hypertensive medication for type 2 diabetes. It reduces blood glucose without interfering the typical liver/kidney function and blood lipid level's function.

3.3.5. Asthma: Aloe vera extract should be kept in the dark for Three to ten days yield some active proteinoids are compounds. These active ingredients have proved success in treating persistent bronchial asthmatics.

Applications for aloe vera in cosmetics: gel and powder have many other applications in the cosmetic industry due to their valuable moisturizing and soothing effects in products like shampoos, soaps, cleansers and moisturizing creams. Soaps prepared with Aloe vera have the advantage that they do not cause irritation and do not leave this kindly [31].

#### 4. RESPONSE AND CONVERSATION

The aloe vera plant may be used in medicine cosmetic and dietary industries. The preparation of Aloe vera needs urgent care in terms of timing and temperature sanitary conditions. The body lotion and herbal gel produced, then put up for examination by several parameters. The herbal remedy had a greenish tint color. From the beginning of the investigation to about the pH of the skin and the body is normally between 5.5 and 7.2. use of the gel did not cause any irritation to the skin. Viscosity is the most important parameter in the evaluation, as it controls many

characteristics of such as the spread ability and pourability of the formulation product. The spread ability statistics show that the gel easily spreadable with a light shear. The Assessment of Extrudability assumes significance criterion. Each Gel composition had a fantastic extrudability. The three people who were evaluated for stability months, and the outcomes showed that all the gels displayed improved stability The stability investigation did not find any many changes in viscosity after testing at various thermal circumstances. The formulation was dependable under typical storage circumstances. These outcomes showed that the topical drug was not adversely affected by the herbal gel area. This herbal remedy has been shown to be helpful in results and discussion on inflammation, wound mending, and anti-aging the aloe vera plant may be used in medicine, cosmetic and dietary industries. The preparation of Aloe vera needs urgent care in terms of timing and temperature sanitary conditions. The body lotion and herbal gel produced, then put up for examination by several parameters.

#### 5. CONCLUSION

The aloe vera plant can be utilised in the food, cosmetic, and medical fields. Regarding timing, temperature, and hygienic conditions, aloe vera preparation demands immediate attention. The body lotion and herbal gel were made, and numerous metrics were used to evaluate them. The herbal treatment was coloured with a greenish tint. The usage of the gel did not irritate the skin at any point during the inquiry, and the pH of the skin and the body is typically between 5.5 and 7.2. The most crucial factor in the evaluation is viscosity because it regulates a number of properties, including the spreadability and

pourability of the formulation product. The aloe vera plant can be utilised in the food, cosmetic, and medical fields.

## REFERENCES

- [1] Atlaw T K. Preparation and Utilization of Natural Aloe Vera to Enhance Quality of Mango Fruit. 2018;6(3):76-81.
- [2] Maana A A, Nazir A, Khan M K I, Ahmad T, Zia R, Murid M, Abrar M. The Therapeutic Properties and Applications of Aloe Vera: A Review. 2018:1-10.
- [3] Yohannes G. Review on Medicinal Value of Aloe Vera in Veterinary Practice. 2018:01-06.
- [4] Mendhekar S Y, Thorat P B, Bodke N N, Jadhav SL, Gaikwadd D. Formulation and Evaluation of Gel Containing Neem, Turmeric, Aloe Vera, Green Tea and Lemon Extract with Activated Charcoal and Honey. 2017;12(4):439-443. ISSN 394-3211.
- [5] Pardeshi M D. Formulation and Evaluation of Aloe-Vera Gel with Active Salt and Alum: As A New Dentifrice. 2016;6(5):297-310.
- [6] Pandey A, Singh S. Aloe Vera: A Systematic Review of Its Industrial and Ethno-Medicinal Efficacy. 2016;5(1):21-33.
- [7] Nia A F, Farhangsardrodi A. Morphological & Physiologocal Changes of Aloe (Aloe Barbadensis Miller) In Response to Culture Media. 2015;6(6):100-105.
- [8] Bhuvana, Hema, Patil R T. Review on Aloe Vera. 2014;2(3):677-691.
- [9] Sajjad A, Sajjad SS. Aloe Vera: An Ancient Herb for Modern dentistry-A Literature Review. 2014:01-06.
- [10] Periasamy, Kassa P, Sintayehu B, Libanos M, Gereziher G, Karim A. Cosmetic Use of Aloe Vera – A Review. 2014;3(5):342-458.
- [11] Bal A, Tara, Deva A S, Madan J, Sharma S. Preparation and Evaluation of Novel Aloe Vera Gel Beads. 2013;2(6):206-216.
- [12] Itrat M, Zarnigar. Aloe Vera: A Review of Its Clinical Effectiveness. 2013;4(8):75-79.
- [13] Scala K D, AntonioVegagálve Z, Ahen K, Nuñez-Mancilla Y, Munizaga G T, Pérez-Won M, Giovagnoli C. Chemical and Physical Properties of Aloe Vera (Aloe Barbadensis Miller) Gel Stored After High Hydrostatic Pressure Processing. 2013:52-59.
- [14] Chandegara V, Varshney A K. Aloe Vera L. Processing and Product: A Review. 2013;3(4):492-506.
- [15] Sahu P K, Giri D D, Singh R, Pandey P, Gupta S, Shrivastava A K, Kumar A, Pandey K D. Therapeutic and Medicinal Uses of Aloe Vera: A Review. 2013; 4:599-610.
- [16] Singh M, Nagori B, Shaw N, Tiwari M, Hanwar B. Formulation Development & Evaluation of Topical Gel Formulations Using Different Gelling Agents and Its Comparison with Marketed Gel Formulation. 2013;3(3):1-10.
- [17] Rajeswari R, Umadevi M, Rahale S, Pushpa R, Selvavenkadesh, Kumar K S, Bhowmik D. Aloe Vera: The Miracle Plant Its Medicinal and Traditional Uses in India. 2012; 1:118-124.
- [18] Maqbool S, Jairajpuri D, Bashir K. Preparation and Processing of Orange Flavoured Aloevera Gel. 2012;1(5):40-43.
- [19] Pounikar Y, Jain P, Khurana N, Omray K, Patil S, Gajbhiye A.

- Formulation and Characterization of Aloe Vera Cosmetic Herbal Hydrogel. 2012; 4:85-86.
- [19] Khan A, Khan M, Iqbal, Bashir. Formulation Development and Moisturising Effects of a Topical Cream of Aloe Vera Extract. 2011;5(3):128-136.
- [20] Ahlawat K S, Khatkar B S. Processing, Food Applications and Safety of Aloe Vera Products: A Review. 2011;48(5):525–533.
- [21] Yagbemi TI, Azeez O. Assessment of Chronic Administration of Aloe Vera Gel on Haematology, Plasma Biochemistry, Lipid Profiles and Erythrocyte Osmotic Resistance in Wistar Rats. 2010:107-113.
- [22] Tambe R, Kulkarni M, Joice A, Gilani I. Formulation and Evaluation of Aloe Vera Gels. 2009;2(10):1588-1590.
- [23] Hamman J. Composition and Applications of Aloe Vera Leaf Gel. 2008:1599-1616.
- [24] Ramachandra C, Rao S. Processing of Aloe Vera Leaf Gel: A Review. 2008;3(2): Page 502-510
- [25] Shreyasi, Shailesh Sharma, Hansraj Bishnoi And Manmohan Sharma. Formulation And Evaluation Of Herbal Lotion For Antimicrobial Activity, World Journal Of Pharmacy And Pharmaceutical Sciences, Volume 11, Issue 5, 1907-1913.
- [26] Hansraj Bishnoi, Shailesh Sharma Et.Al. A Review On Moringa Olifera Based On Chemical Composition And Wound Healing Activities, International Journal Of Education, Modern Management, Applied Science & Social Science (Ijemmasss) 26 Issn: 2581-9925, Volume 04, No. 03(Ii), July - September, 2022, Pp. 26-32
- [27] Shailesh Sharma, A. Mittal, Sonu S, Raj Kumari, Wagh Jyoti Preparation and evaluation of modified herbal “Kumkum Powder” to reduce allergic reactions, International Journal of Health Science 6 (S5), 11274-11283 on 14/10/2022.
- [28] Manohar Chouhan , Sandeep Rathor , Vishal Garg , Ambika Sharma , Pritam Singh , Jay Chandra , Vikram Kumar , Sanavi Byahut , Omveer Singh. Enhancement Of Solubility And Dissolution Characteristics Of Etoricoxib By Solid Dispersion Technique Using Different Grade Of Peg Carrier Using. Journal Of Pharmaceutical Negative Results [Internet]. 2023 Feb. 8 [Cited 2023 Feb. 26];:3233-42. Available From: <https://www.pnrjournal.com/index.php/home/article/view/8263>
- [29] Nisha, Omveer Singh , Sandeep Rathor , Sadia Parveen , Soma Ghosh , Shailesh Sharma , Hina Sharma , Nitish Gaur. Desloratadine: An Insight on Acute Inflammation. Journal of Pharmaceutical Negative Results [Internet]. 2023 Jan. 1 [cited 2023 Feb. 26];:590-8. Available from: <https://www.pnrjournal.com/index.php/home/article/view/7249>
- [30] Mahbubur Rahman, Omveer Singh et al., A Review on Psoriasis, NeuroQuantology, 2022: 20 , 16, 5786-5793.