

UNDERSTAND THE STRUCTURE OF ALOE VERA AND ITS MEDICINAL BENEFITS

RITU

Research Scholar

BOTANY

Asian International University, Manipur

Abstract

Aloe vera incorporates nutrients, minerals, proteins, amino acids, normal sugars, and mitigating and hostile to microbial mixtures. Mending powers are credited to the plant's parts and equilibrium. The leaves of Aloe vera are utilized. The Aloe is emollient, laxative, and defenseless. Its antimicrobial, sedative, and germicide qualities make it valuable for tissue reclamation. Albeit used to treat skin disease, it is most normally utilized on consumes and minor cuts, strikingly sun related burns. Poison Ivy rashes benefit from aloe, which might assist with battling disease. It might help vaginal yeast diseases; notwithstanding, this is problematic. Aloe juice can be placed into a warm tea for eyewash. Eyewash with Aloe may block sun UV radiation. As a purgative. Aloe is a strong laxative and should not be taken internally. Fresh plant juice is preferable over store-bought juice in other products or alone. Because the therapeutic efficacy of the plant declines over time, there is great debate about whether store-bought aloe, even if it contains preservatives, can be beneficial. It rejuvenates, reduces wrinkles, cures acne, and gives skin a young sheen.

Keywords: *Aloe Vera, Structure, Medicinal Benefits, Skin Disorders, Properties.*

1. Introduction

The enduring green spice known as aloe vera (Aloe barbadensis Mill operator, family Xanthorrhoeaceae) is broadly tracked down in hot, dry locales of North Africa, the Center East, Asia, the Southern Mediterranean, and the Canary Islands. It has distinctive yellow cylindrical sprouts. The words "Allaeh" (Arabic for "sparkling harsh substances") and "Vera" (Latin for "valid") are the underlying foundations of aloe vera. Aloe vera leaves are utilized to make a dry, adhesive gel that is broadly utilized in drug and restorative purposes.



Figure 1: Aloe vera: A Potential Herb

This restorative spice has generally been utilized to treat skin conditions like consumes, wounds, and irritation. Aloe vera has furthermore exhibited antihyperlipidemic, antidiabetic, cancer prevention agent, and anticancer impacts. Nutrients (A, C, E, and B12), proteins (amylase, catalase, and peroxidase), minerals (zinc, copper, selenium, and calcium), sugars (monosaccharides like mannose-6-phosphate and polysaccharides like glucomannans), anthraquinones (aloin and emodin), unsaturated fats (lupeol and campesterol), chemicals (auxins and gibberellins), and different substances, (for example, salicylic corrosive, lignin, and saponins) are among the in excess of 75 distinct mixtures found in aloe vera.

2. Literature Review

Ipshita et al. (2018)directed a randomized, controlled clinical trial to assess 1% alendronate and Aloe vera gel as nearby host-modulators for class II furcation shortfalls in constant periodontitis patients. Both medicines improved clinical indicators in the research, showing encouraging results. The data imply that 1% alendronate and Aloe vera gel may add to traditional periodontal therapy to treat furcation deficiencies and promote periodontal health.

Kurian et al. (2018)subgingivally-conveyed 1% metformin and Aloe vera gel for intrabony abandons in persistent periodontitis patients were looked at. Both therapies showed promising results in stimulating periodontal tissue regeneration and lowering clinical markers of inflammation. These findings emphasize the need of trying new periodontal treatments like Aloe vera gel.

Kumar et al. (2014)A randomised control trial examined Aloe vera mouthwash's preliminary antiplaque efficacy. The study found that Aloe vera mouthwash may prevent plaque regrowth and enhance dental hygiene. Aloe vera may be a natural alternative to standard oral hygiene products for periodontal health.

Lin et al. (2017)Aloe vera has been studied for its potential in periodontal therapy and inflammatory disorders. They tested how exopolysaccharide, a component, protects against ulcerative colitis. Their findings explain Aloe vera polysaccharides' anti-inflammatory processes,

suggesting their use in treating inflammatory bowel illnesses.

3. Properties of Aloe vera

It is a stemless or extremely short-stemmed plant developing to 80-100 cm tall, spreading by balances and root sprouts. The leaves are lanceolate, thick and meaty, green to dim green, with a serrated edge.

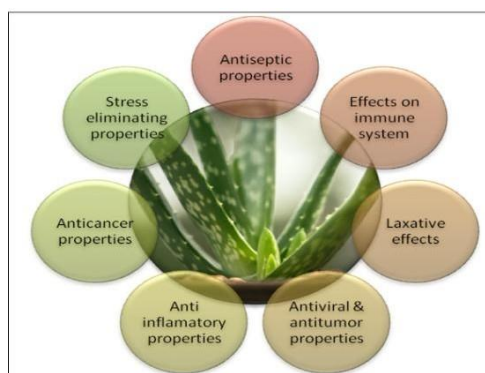


Figure 2: Properties of Aloe vera

Each pendulous blossom has a yellow rounded corolla 2-3 cm long and develops on a shoot up to 90 cm tall. Aloe vera gel is produced using the tissue in the focal point of the leaf.

Table 1: About aloe vera

| | |
|---------------------------|--|
| Family: | Liliaceae |
| Botanical Name(s): | Aloe barbadensis, Aloe indica, Aloe barbados, Aloe vera. |
| Popular Name(s): | Aloe, Aloe Vera, Indian Alces, Kumari, Ghirita, Gawarpaltra, Barbados aloe, Curacao aloe and Lu hui etc. |

3.1. Aloe vera contains an array of materials, including the following.

- **Acids** - antibacterial, wound healing for skin tissue and ulcers, and anti-helminitic (anti-parasitic worms).
- **Amino Acids** - Amino acids are required for both growth and repair. Aloe vera contains twenty of the twenty-two essential amino acids.
- **Enzymes** - catalysts that allow for the occurrence of chemical reactions.
- **Lectin** - anti-tumour effects.
- **Lipids** -essential structural elements of live cells.

- **Minerals** -Significant amounts of calcium, magnesium, potassium, and sodium are found.
- **Lactates and Salicylates** - analgesic properties.
- **Phenolics** - mild antiseptics and antimicrobials.
- **Polysaccharides** - enzymes that break down long-chain carbohydrates into smaller ones.
- **Urea-Nitrogen** - pain killing effect.
- **Vitamins** - contains 8 of the 13 recognized vitamins.
- **Contra-indications/Precautions**
Not advised to be used while pregnant.

4. Medicinal Benefits of Aloe Vera

For ages, the medicinal benefits of aloe vera, a succulent plant species with thick, meaty leaves, have been known. For its therapeutic effects, it has been utilised traditionally in many civilizations around the world.



Figure 3: Medicinal Benefits of Aloe Vera

Here are some of the medicinal benefits of Aloe vera supported by scientific research:

4.1. Skin Healing

Aloe vera is maybe generally notable for its skin-recuperating properties. It contains intensifies like polysaccharides, glycoproteins, and nutrients that add to its capacity to mitigate and mend harmed skin. Aloe vera gel can be applied topically to treat minor consumes, sun related burns, wounds, and cuts. It assists with lessening aggravation, advance injury recuperating, and alleviate torment.

4.2. Moisturization

Aloe vera gel is a characteristic lotion that can hydrate and relax the skin. It is regularly utilized in skincare items like salves, creams, and lotions to assist with calming dry and bothered skin conditions like dermatitis and psoriasis.

4.3. Anti-inflammatory

Aloe vera contains compounds with calming properties, for example, salicylic corrosive, bradykinase, and acemannan. These mixtures help to diminish aggravation, enlarging, and redness related with skin conditions like skin inflammation, rosacea, and dermatitis.

4.4. Antioxidant

Aloe vera contains cancer prevention agents like nutrients C and E, beta-carotene, and flavonoids, which help to kill free revolutionaries and shield the skin from oxidative harm brought about by UV radiation and natural poisons. This cancer prevention agent movement adds to Aloe vera's enemy of maturing impacts and its capacity to further develop skin versatility and solidness.

4.5. Wound Healing

Aloe vera has been displayed to improve the injury mending process by invigorating the development of collagen and fibroblasts, which are fundamental for tissue fix. It additionally has antimicrobial properties that assistance to forestall disease in injuries and advance quicker recuperating.

4.6. Oral Health

Aloe vera has been explored for its expected advantages in advancing oral wellbeing. Studies recommend that Aloe vera mouthwash or gel might assist with lessening plaque collection, gum disease, and periodontal irritation when utilized as an assistant to standard oral cleanliness rehearses.

4.7. Digestive Health

Aloe vera has been customarily used to help stomach related wellbeing and deal with gastrointestinal issues like stoppage, indigestion, and irritable bowel syndrome (IBS). It contains intensifies like aloin and anthraquinones that make purgative impacts and can assist with directing bowel developments.

4.8. Immune Support

Aloe vera contains intensifies like pro Mannan, which have immunomodulatory impacts and can assist with supporting the invulnerable framework. It might assist with upgrading the body's regular guards against contaminations and advance by and large wellbeing and prosperity.

While Aloe vera offers various potential medical advantages, it's vital for use it securely and suitably. A few people might encounter hypersensitive responses or skin disturbance while applying Aloe vera topically. Furthermore, oral utilization of Aloe vera ought to be done circumspectly, as unnecessary admission might prompt gastrointestinal incidental effects. It's

generally prudent to talk with a medical service proficient prior to utilizing Aloe vera for therapeutic purposes, particularly on the off chance that you have any fundamental ailments or are taking drugs.

5. Conclusion

Aloe vera, an individual from the Asphodelaceae family, is known for its restorative applications and advantages. It is ordinarily utilized as an effective gel for treating consumes and minor scratches, offering relieving irritation, help with discomfort, and lessening contamination risk. Normal utilization of Aloe vera-based gels can accelerate mending in minor injuries and serious consumes. The plant has been utilized for quite a long time and has become well known in different items, including skin creams, beauty care products, shampoos, lip ointments, cleansers, and sunscreens. Aloe vera's concentrate contains nutrients and minerals that advance solid skin. It is delicate and can be utilized in touchy regions, like around the eyes. Aloe plants likewise have inner therapeutic purposes, for example, a purgative and therapy for hacks, ulcers, muscle torment, migraines, malignant growth, and HIV. The main demonstrated benefit in interior use is the alleviation of blockage. Be that as it may, inward utilization of Aloe makes side impacts, can cause queasiness, and ought not be taken by pregnant ladies.

References

1. Ipshita, S., Kurian, I. G., Dileep, P., Kumar, S., Singh, P., & Pradeep, A. R. (2018). *One percent alendronate and Aloe vera gel local host modulating agents in chronic periodontitis patients with class II furcation defects*. *Journal of Investigative and Clinical Dentistry*, 9, e12334. doi: 10.1111/jicd.12334.
2. Kumar, G. R., Devanand, G., John, B. D., Ankit, Y., Khursheed, O., & Sumit, M. (2014). *Preliminary antiplaque efficacy of Aloe vera mouthwash on 4 day plaque re-growth model: Randomized control trial*. *Ethiopian Journal of Health Sciences*, 24, 139–144. doi: 10.4314/ejhs.v24i2.6.
3. Kurian, I. G., Dileep, P., Ipshita, S., & Pradeep, A. R. (2018). *Comparative evaluation of subgingivally-delivered 1% metformin and Aloe vera gel in the treatment of intrabony defects in chronic periodontitis patients*. *Journal of Investigative and Clinical Dentistry*, 9, e12324. doi: 10.1111/jicd.12324.
4. Lin, H., Honglang, L., Weifeng, L., Junmin, C., Jiantao, Y., & Junjing, G. (2017). *The mechanism of alopolsaccharide protecting ulcerative colitis*. *Biomedicine & Pharmacotherapy*, 88, 145–150. doi: 10.1016/j.biopha.2016.11.138.
5. Maan, A. A., Nazir, A., Khan, M. K. I., Ahmad, T., Zia, R., Murid, M., & Abrar, M. (2018). *The therapeutic properties and applications of Aloe vera*. *Hereditas*, 12, 1–10. doi: 10.1016/j.hermed.2018.01.002.
6. Malik, I., & Zarnigar, H. N. (2003). *Aloe vera - A review of its clinical effectiveness*. *International Research Journal of Pharmacy*, 4, 75–79. doi: 10.7897/2230-8407.04812.

Exploring Innovation, Research Methodologies in a Variety of
Multidisciplinary Fields and Their Prospective Future Impact
February 2024

7. Moghaddam, A. A., Radafshar, G., Jahandideh, Y., & Kakaei, N. (2017). *Clinical evaluation of effects of local application of Aloe vera gel as an adjunct to scaling and root planning in patients with chronic periodontitis. Journal of Dentistry*, 18, 165–172.
8. Nejaim, Y., Silva, A. I., Vasconcelos, T. V., Silva, E. J., & de Almeida, S. M. (2014). *Evaluation of radioprotective effect of Aloe vera and zinc/copper compounds against salivary dysfunction in irradiated rats. Journal of Oral Science*, 56, 191–194. doi: 10.2334/josnusd.56.191.
9. Pradeep, A. R., Garg, V., Raju, A., & Singh, P. (2016). *Adjunctive local delivery of Aloe vera gel in patients with type 2 diabetes and chronic periodontitis: Journal of Periodontology*, 87, 268–274. doi: 10.1902/jop.2015.150161.
10. Sholehvar, F., Mehrabani, D., Yaghmaei, P., & Vahdati, A. (2016). *The effect of Aloe vera gel on viability of dental pulp stem cells. Dental Traumatology*, 32, 390–396. doi: 10.1111/edt.12272.
