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ALOE-VERA IN HAIR COSMETICS

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ABSTRACT

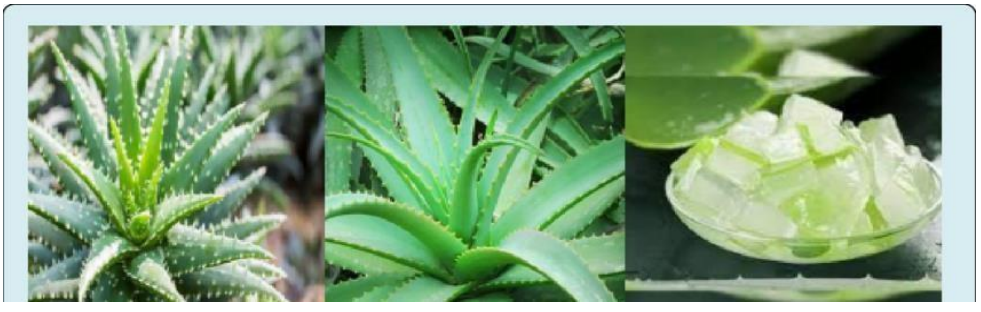
Aloe vera, a succulent plant known for its multifaceted properties, has gained significant attention in the realm of hair cosmetics due to its diverse composition and beneficial attributes. Aloe vera comprises a plethora of constituents, including polysaccharides, vitamins (A, C, E, B12), minerals (calcium, magnesium, zinc), enzymes, amino acids, and phytochemicals (anthraquinones, flavonoids). Its nutritional profile includes essential vitamins and minerals that contribute to hair health. Phytochemicals like anthraquinones offer anti-inflammatory, antioxidant, and antimicrobial properties, while the gel's medicinal and pharmacological attributes aid in soothing the scalp and promoting hair growth. The gel contains a complex blend of polysaccharides like acemannan, which possesses moisturizing and healing qualities. Amino acids in aloe vera contribute to strengthening hair strands and maintaining their integrity. In hair cosmetics, aloe vera's inclusion revitalizes the scalp, reduces dandruff, nourishes hair follicles, and enhances hair luster and strength. Its emollient nature helps in conditioning and restoring moisture balance, making it a coveted ingredient in shampoos, conditioners, serums, and masks. While aloe vera is generally considered safe, allergic reactions may occur in some individuals. Prolonged topical application can lead to skin irritation or allergic dermatitis. Oral consumption in high doses may result in gastrointestinal discomfort. This abstract provides an overview of aloe vera's multifaceted role in hair cosmetics, encompassing its composition, properties, benefits, and potential risks associated with its usage.

KEYWORDS: Alovera, nutrients, phytochemical, antioxidant, pharmacological, dermatological, antidiabetics, anti-inflammatory, hair-tonic.

INTRODUCTION

Aloe vera is a tropical perennial plant that is drought-resistant and robust. It is a member of the Liliaceae family and has been used medicinally for many years. It has a significant traditional role in homeopathy, ayurveda, siddha, and unani medicine. Clinical analyses have shown that the aloe vera leaf's rind and gel contain the majority of the plant's pharmacologically active components. Aloe vera is a plant with short or no stems that reaches a height of 60 to 100 cm and spreads by offsets. Mature plants have an average height of 26 to 28 inches and can grow up to four feet in height. Typically, a plant might have 12 to 16 leaves and weigh up to 2-3 kg when it is fully grown. Every six to eight weeks, the plants can be harvested by plucking three to four leaves from each plant. In the second year, throughout the winter, it develops upright, unbranched blooming stalks that reach a height of 90 to 150 cm. It produces orange and brilliant yellow blooms in an auxiliary spike arrangement. It has a unique look due to the rosette of thick, meaty leaves it bears. Certain types include white specks on the top and lower stem surfaces, while the leaves range in color from green to grey-green. The leaf's edge features tiny white teeth and is serrated. Summertime sees the production of the flowers, which are pendulous and have a 2-3 cm long yellow tubular corolla. The spike can reach up to 90 cm in height.

Aloe vera generates arbuscular mycorrhiza, a symbiotic relationship with other Aloe species that improves the plant's access to mineral nutrients in the soil. In addition to moisturizing the scalp and stimulating hair growth, hair oil strengthens hair. It also provides vital minerals and nutrients to the scalp. This prevents external damage and strengthens the hair. The main purpose of oiling is to condition the scalp. Oilmassage also promotes hair growth by stimulating hair follicles and improving blood circulation in the scalp. Herbal formulations consist only of natural sources derived from plants5. natural hair oils, including traditional hair oils such as coconut, castor, and almond oils. can. Therefore, plays an important role globally. Hair oiling is a method of pouring oil into the hair and massaging it into the scalp to increase moisture, shine, shine, and blood circulation.



Distribution of Aloe vera

Taxonomists refer to aloe vera as Aloe barbadensis in common parlance. Egypt and Mesopotamia have been using it since 1750 BC. The Arabic term for bitterness is alloeh, which means brilliant. For thousands of years, several ancient civilizations, including those in Egypt, Persia, Greece, India, and Africa, have documented the benefits of aloe vera. The genus is native to the Mediterranean region, including Southern Italy and Greece, as well as the African continent. It is said to grow wild on the Canary Cape, Cape Veroe, Malta, Sicily, and Cyprus islands. It is also said to have spread throughout dry regions of India. Of the 275 species, 42 are found in the African area of Madagascar, 12–15 are found in the Arabian Peninsula, and the other species are found across tropical South Africa. Aloe barbadensis is the most extensively dispersed species of the four species (Aloe forbesii, Aloe inermis, Aloe ferox, and Aloe barbadensis) that are known to exist in India. These taxa are divided into many varieties, including their cross, officinalis, chinensis, and litoralis. There are several synonyms for the species: Aloe indica Royle, Aloe barbadensis Mill., and Aloe perfoliata L. var. vera and A. vulgaris Lam.

PROPERTIES OF ALOEVERA

1. Nutritional Properties of Alovera

A closer look into aloe vera exposes some of the enchantment that underlies its therapeutic miracles. Numerous important vitamins and minerals, including folic acid, choline, calcium, phosphorus, potassium, iron, sodium, magnesium, manganese, copper, chromium, and zinc, are present in the plant. Numerous amino acids are also found in aloe, including aspartic acid, glutamic acid, isoleucine, leucine, lysine, methionine, phenylalanine, threonine, valine, arginine, cystine, glycine, histidine, hydroxyproline, proline, serine, and tyrosine. Seventy-five components, including vitamins, enzymes, minerals, sugars, lignin, saponins, salicylic acids, and amino acids, are potentially active in aloe vera The trace minerals iridium and rhodium, which are employed in cancer and tumor research studies, are also found in aloe vera. Aloe vera is a plant that is high in antioxidants. It also includes zinc and selenium as minerals, as well as vitamins A, C, and E that function as natural antioxidants. Antioxidants support the body's defenses against free radicals and strengthen the immune system. These anti-free radical fighters eliminate poisons and carcinogens from pollution and low-quality diets from human bodies.

2. Phyto-chemical Properties of Aloevera

Flavonoids, terpenoids, and lectins are found in aloe plants fatty acids, cholesterol, anthraquinones, and chromones (8-Cglucosyl-7-O-methylaloediol, 8-Cglucosyl-noreugenin, iso-rabaichromone, neoaloesin-A, isoaloeresin-D),mono and polysaccharides (derived from mannose, acemannan, glucomannan, hemicelluloses, and pectins) tannins, organic acids, saponins, enzymes, vitamins, minerals, sterols (lupeol, campesterol, and β sitosterol), salicylic acid, and enzymes Aloin, anthrone, aloe emodin (3-hydroxylmethyl-chrysazin), aloetinic acid, choline and choline salicylate, enzymes like catalase, amylase, cellulase, and alliinase, complex mucopolysaccharides that resemble hyaluronic acid, sapogenins, and alophenol. Many physiologically active substances may be found in aloe vera leaves; the most well-researched ones include lectins, acetylated mannans, polymannans, anthraquinone C-glycosides, anthrones, and anthraquinones. Aloe vera also contains tannins, prostaglandins, magnesium lactate, mannins, resins, proteins such lectins, monosulfonic acid, and gibberellins.

3. Medicinal Properties

For millennia, aloe vera has been utilized medicinally in a number of countries, including Greece, Egypt, India, Mexico, Japan, and China. Aloe vera was utilized by the Egyptians to cure TB and to manufacture scrolls that resembled papyrus. Aloe barbadensis preparations such as confections, lotions, and juices are effective treatments for a variety of illnesses.

There is little and sometimes conflicting scientific data supporting aloe vera's medicinal and cosmetic benefits. In spite of this, claims about the calming, hydrating, and restorative qualities of aloe vera are frequently made by the alternative medicine and cosmetic sectors, particularly through online advertising. Commercially available lotion, yogurt, drinks, and even desserts use aloe vera gel as an ingredient.

4. Pharmacological Properties

a. Wound healing property

Tannic acid and one particular kind of polysaccharide may be useful ingredients for wound healing. The human body uses wound healing as a technique to restore injured tissues. The active component of A. vera's mucilaginous gel, mannose-6-phosphate, is thought to be responsible for wound healing. Collagen thickness and fibroblast count were used to measure the effects of aloe vera on wound healing. It has been documented that aloe vera possesses wound-healing and ulcer-prevention properties that improve the healing of dermal injuries

(such as burns, frostbite, skin infections, surgical wounds, inflammation, herpes ulcers, diabetic foot ulcers, pressure sores, and chronic wounds).

b. Antibacterial properties

Aloe vera, particularly against Gram-positive bacteria that cause food poisoning or infections in humans and animals, inhibits the growth of certain microorganisms such as Streptomyces pyogenes, Shigella flexneri, and Klebsiella s.

c. Anti-oxidant / Antiseptic properties

Aloe vera has powerful antioxidant properties. Aloe Vera gel was shown to have glutathione peroxidase activity, superoxide dismutase enzymes, and a phenolic anti-oxidant, which may be in charge of these anti-oxidant benefits. Aloe vera improves blood quality, most likely by facilitating the blood's ability to carry nutrients and oxygen to the body's cells more efficiently. Six antimicrobial substances may be found in aloe vera: sulfur, urea nitrogen, salicylic acid, cinnamonic acid, phenols, and luteol. They all have the ability to suppress viruses, bacteria, and fungus.

d. Anti - inflammatory properties

The body's natural reaction to an injury is inflammation, which is characterized by swelling, discomfort, redness, and heat and slows down the healing process.[40] Aloe vera gel's anti-inflammatory properties not only reduce pain and discomfort but also hasten the healing process. The anti-inflammatory properties of mannose-6-phosphate are similar to the effects of acetylated mannan in Aloe ge.

e. Moisturizing and anti-aging effect

Currently, aloe vera is used in the production of almost 95% of goods with dermatological value. This is due to its unbelievable moisturizing qualitie. It helps the skin retain moisture better and eliminates dead skin cells that produce collagen and elastin fibers. This makes the skin less wrinkly and more elastic, which reverses the effects of aging on the skin. Through the action of amino acids and its cohesive effect on superficially peeling epidermal cells, it softens the skin.

f. Anti-diabetic properties

It is commonly known that aloe vera gel lowers blood sugar. Herpatic transminases, plasma and tissue cholesterol, triglicerides, and fasting blood glucose were all markedly decreased by

aloe vera gel (alcohol insoluble residue extract). phospholipids and free fatty acids, as well as notably raising plasma insulin.

BENEFITS OF ALOEVERA IN COSMETICS

1. Hair products

Given that hair is thought to be one of the key components that enhances a person's appearance, it is crucial to take proper care of your hair. Hairs are the protrusions from the follicles that are found on the skin and are characterized as "improved epithelial structure formed as a result of keratinization of germinative cells. Together with additional chemical components like oxygen, carbon, nitrogen, sulfur, etc., keratin makes up hair. There are other forms of keratin, but in vertebrates, alpha-keratin is typically seen and is in charge of nail and hair growth, among other things.

An essential part of the human hair system is the scalp. It is made up of layers of soft tissue that cover the head's hair-growing region and the skull. Numerous hair follicles and sebaceous glands are integrated within it. Due to changing environment, excessive heat, dirt and pollution leads to overproduction of sebum in the scalp that further leads to various hair problems such as.

1. Hair loss,
2. Hair thinning,
3. Excessive dandruff,
4. Split ends,
5. Dryness and roughness of hair and
6. Bald patches.

Causes of hair loss

THERAPEUTIC PROPERTIES OF ALOE VERA

Moisturizing actions Moisturizing action is mainly due to the mix of water and polysaccharide components, creating a jelly-like consistency that holds the water within the mix and minimizes its evaporation, providing a sustained moist environment when applied to drying tissues and humectant properties that promote retention of moisture in tissues Wound healing effects The aloe vera gel polysaccharide acemannan was shown to activate macrophages; an effect that improved wound healing in a rat model. A mannose-6-phosphate component of the gel has been credited with a wound healing effect. Anti-inflammatory

effects Hanley et al., reported that an aloe vera extract (described as 5.0% leaf homogenate) decreased inflammation by 48% in a rat adjuvant-induced arthritic inflammatory model.

More recently, the peptidase bradykinase was isolated from aloe and shown to break down the bradykinin, an inflammatory substance that induces pain.

Antibacterial/antifungal/antiviral effects Streptoccocus pyogenes and Streptococcus faecalisare two microorganisms that have been inhibited by aloe vera gel. Aloe vera gel reportedly was bactericidal against Pseudomonas aeruginosawhile acemannan prevented it from adhering to human lung epithelial cells in a monolayer culture. A processed aloe vera gel preparation reportedly inhibited the growth of Candida albicans. In terms of antiviral effects, acemannan reduced herpes simplex infection in two cultured target cell lines.

USES OF ALOE IN DENTISTRY

A retrospective evaluation reviewed the records of 587 patients (totaling 1,031 sockets) whose extraction sites had been treated with clindamycin-soaked Gelfoam; in addition, a prospective study was performed in which 607 patients (1,064 sockets) each received two patches (Sali Cept Patches, Carrington Laboratories) with a freeze-dried pledglet containing acemannan hydrogel, a mixture of natural substances obtained from the clear inner gel of aloe vera, immediately after extraction.17 According to data restricted to the third molar extraction sites, the Gel foam retrospective analysis group produced 78 of 975 sites (8.0%) with alveolar osteitis; in the Sali Cept Patch prospective analysis group, 11 of 958 sites (1.1%) reported alveolar osteitis. The difference between the incidences of alveolar osteitis in the two groups was significant.

1. Acute illness,
2. Stress,
3. Thyroid dysfunction,
4. Prescription drugs,
5. Prolonged operation/ anaesthesia,
6. High iron deficiency/ anaemia,
7. Hair Styling products and
8. Chemotherapeutic agent

Aloevera as hair tonic

Hair tonics are one kind of cosmetic that may be used to cure hair loss. A liquid cosmetic

preparation called Hair Tonic is a blend of chemicals and other components that are used to support the growth, repair, and maintenance of hair health. Hair tonics have three main purposes: they stop hair loss, stop dandruff and irritation, and encourage hair growth.

Because aloe vera includes vitamins A and C, amino acids, copper, isofolate, enzymes, and minerals that help strengthen hair roots and lessen hair loss, it is used as a hair tonic. A stability test was carried out on hair tonic formulations with different concentrations of propylene glycol. Aloe vera and celery extracts are the constituents in each mix. Each formula was then put to.

CONCLUSION

Scientific evidence has brought about the possibility of the utilization of aloe extracts in the treatment of bacterial infections and development of anti-bacterial and anti-fungal products. Furthermore, an anti-inflammatory property of aloe vera has also made a better understanding of its use as a potential drug in addition to contemporary drugs. Further research should be encouraged to utilize the herbs with medicinal properties. The medicinal and pharmacological facets of aloe vera are extensive. Its antibacterial, antifungal, and moisturizing attributes make it an ideal candidate for hair care products, promoting scalp health, and strengthening hair strands. Aloe vera gel's chemical composition, primarily comprising water, polysaccharides, glycoproteins, and enzymes, underlies its hydrating and soothing characteristics. The benefits of aloe vera in hair cosmetics are manifold. Its ability to stimulate hair growth, reduce dandruff, and condition hair without leaving a greasy residue make it a favored ingredient in shampoos, conditioners, and serums.

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