COMMERCIAL BULLETIN ALOE VERA ACNE SKIN CARE



Aloe Vera from Beauty-in

Acne is a common skin disease especially in teenagers. However, adult acne is not rare either. Acne usually shows when the nature of the skin is changed either because of bacterial colonization of the skin surface or androgen-induced changes in the sebaceous follicles. Aloe Vera can be used on the bases of anti-acne capabilities, stating that the anti-inflammatory properties have a positive impact of the condition, helping to soothe and clean up outbreaks.

The first signs of acne are the lesions. In mild to moderate acne, seborrhea, comedones, papules and pustules are the first to appear. These are also commonly known as red, scaly skin, whiteheads, blackheads, pinheads and pimples. In severe cases of acne, the papules could become bigger and form nodules. In addition, inflamed bumps on the skin may turn into acne cysts. When nodules and cysts are aggravated they may cause acne scars. Acne starts in most people as soon as puberty. Ideally, it should have cleared away or reduced tremendously by age 25 when the oily teenage skin is replaced by the dry adult skin. However, the hormonal imbalance and bacterial cause of Acne vulgaris is one of the most prevalent acne may extend the skin condition well into skin diseases, affecting up to 85% of teenagers middle age.and young adults. It is a multifactorial disease





based on an alteration in the pattern of excess sebum production and keratinization within the pilosebaceous follicles. Acne characteristically presents in these sites with both noninflammatory and inflammatory skin lesions. Non-inflammatory lesions consist of closed comedones (whiteheads) and open comedones (blackheads) and result from hyper- cornification of the pilosebaceous duct and consist of plugs of cornified cells in the dilated follicles. Inflammatory acne lesions take the form of erythematous macules, papules and pustules in the majority of cases. In more severe cases, deeper inflamed lesions present as acne nodules. Inflammatory lesion formation occurs most when Propionibacterium commonly acnes colonizes the pilosebaceous unit, triggering follicular rupture and a neutrophil cascade. Rarely, acne may have non-bacterial causes.



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CAUSES OF ACNE

In young people, especially in their teens, the level of production of male sex hormones or androgens is increased. These excess androgens can change the nature of the skin leading to increased sebum production and hyperkeratinization.

Examples of androgens which can cause this change are testosterone and its metabolites such as dihydrotestosterone or DHT. When acne breaks out during pregnancy, menstrual cycles or menopause, it is usually because of hormonal imbalances. For example, during menopause, the production of estradiol may fall. This female sex hormone is a natural anti-acne compound, and when it is no longer produced, androgens will dominate.

Other causes of hormonal imbalance which can lead to acne include birth control pills especially ones which do not contain estrogen; certain diseases such as Cushing's syndrome and polycystic ovarian syndrome; and some forms of hormone replacement therapy. For the bacterial cause of acne, two bacteria are implicated. These are Propionibacterium acnes and Staphylococcus epidermis. While there are beneficial strains of P. acnes living on the surface of healthy skin, harmful strains of the bacterium can change the nature of the skin enough to cause acne especially when S. epidermis is also present.





There are different medications that can be used to treat acne. Some of them kill off the acne-causing bacteria, some correct hormonal imbalance and others keep the skin pores unclogged while clearing acne lesions. Herbal extracts can treat acne by any combination of these three mechanisms. They share the distinct advantage of having very few side effects if any.



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HERBAL EXTRACTS HAVE THE ADVANTAGE OF HAVING VERY FEW SIDE EFFECTS, IF ANY

Aloe is an excellent example of such herbal extract. After centuries of use as a herbal remedy, it continues to be used for treating skin diseases even today. Aloe Vera is widely used in the cosmetic industry for its soothing, moisturizing and nourishing effects on the skin.

Its bactericidal activity makes it useful for healing wounds and for treating skin infections such as psoriasis and acne. In acne treatment, the bactericidal activity of Aloe Vera is effective against both P. acnes and S. epidermis. Aloe Vera extracts have also been shown to have antifungal properties. Apart from skin infections, Aloe Vera can be used to treat inflammatory bodies on the skin such as boils and cysts.



Aloe Vera can penetrate deep into the skin to kill off bacteria hiding in clogged skin pores. It can also form a protective layer over the skin in order to speed up the healing of acne lesions and the fading of acne scars.

This herbal extract can also reduce the size of inflamed nodules and cysts and help relieve pain caused by the swelling. Aloe Vera also promotes the regeneration of skin cells and tissues. Aging. hormonal changes. and approaching adolescence often cause unsightly and embarrassing skin conditions which take the form of pimples, blemishes, pustules and reddened areas. These skin problems take their toll not only in emotional anxiety and distress but also in physical marring of the skin, sometimes associated with pain, in both juveniles and adults.

Age-related skin problems can arise either from disease or illness, or as a consequence of hormonal changes. Skin problems can be exacerbated by environmental influences such as, for example, improper diet, stress or tension, and lack of sleep. Disease conditions include dry skin, ichthyosis, eczema, palmar and plantar hyperkeratoses, dandruff, acne and warts. Skin changes associated with aging can result in such symptoms as age spots, wrinkling and related aging changes.

Cosmetic cleansing and skin care preparation which is suitable in particular for oily skin, which often also has inflamed spots or areas, such as skin to during puberty or skin exposed to particular environmental toxins. Aloe extracts can be used to reduce the redness associated with acne lesions, also can be used to treat or prevent a wide variety of skin conditions.

Acne vulgaris is a common, chronic disease caused by obstruction of the sebaceous glands and associated hair follicles in the skin of a patient's face and/or body, and which is characterized by the formation of pimples on the skin. Although sebum, an oily substance, is naturally made by the skin for protection and lubrication, the sebaceous glands can become blocked by dead skin cells, dirt, pollutants, and cosmetics, or become susceptible to blockage due to factors such as improper diet, stress, poor hygiene, genetics,





steroidal medications, or hormonal changes. Aloe Vera can be suitable in the treatment of most of acne-related lesions and is great in the prevention of more skin lesions. If bacteria are trapped in blocked sebaceous glands, infections can develop, which can lead to inflammation. When bacteria on the skin are trapped in oil, a nutrient-rich anaerobic environment is established, which stimulates bacterial division. Inflammation near the skin surface results in a pustule, a small collection of pus at or near the skin surface. Deeper inflammation can form a papule, a small, solid elevation in the skin that does not contain pus. Still deeper inflammation can result in the formation of a closed sac called a cyst, or hard swellings called nodules.



Acne breakouts can be visually unappealing, itchy, and painful. Furthermore, inflamed papules can infect surrounding areas when they rupture, causing more pimples and, upon healing, scarring. Repeated acne breakouts can also cause social stigmatization, especially during puberty. Aloe Vera extract and their use topically in cosmetic or palliative treatment of human skin. Aloe anti acne formulation can be used topically in many different forms:

- Spray
- Topical liquid (serum)
- Topical gem
- Ointment or mask
- Compressed or flowable powder



The chemistry of Aloe Vera has been investigated on and off during the past several decades.

Substances reported to occur in Aloe Vera include polysaccharides containing glucose, mannose, galactose, xylose, arabinose, tannins, steroids, organic acids, antibiotic principle(s), glucuronic acid, enzymes (oxidase, catalase and amylase), trace sugars, calcium oxalate, protein containing 18 amino acids, wound healing hormones, biogenic stimulators, saponin, vitamin chloride, sulfate, iron, calcium copper, sodium, potassium, manganese, etc.

The major polysaccharide present has been determined to be a acemannan. Other polysaccharides containing galactose and uronic acids as well as pentoses are also present. It is probable that its beneficial properties are not due to the polysaccharides alone, but rather from a synergistic effect of these compounds with other substances present in the gel, making Aloe a unique tool in the treatment of acne.



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ALOE VERA PROTECTS SKIN HYDRATION



Aloe Vera penetrates the skin quickly and deeply. This allows water and other moisturizers to sink deeply into the skin, restoring lost fluids and replacing the fatty layer. It permits the uronic acids, which strip toxic materials of their harmful effects, to penetrate deeply and allows the cleansing astringent qualities of the gel to work better. By increasing the circulation of the blood to an area, Aloe Vera sloughs off the dead cells and fosters the growth of new ones. This helps foster the regeneration of scarred or blemished skin tissue and provides a protective coating on the skin to prevent the growth of harmful bacteria.

This antiseptic action also stops skin infections (acne) in oil-clogged pores. It heals blemishes with little or no scarring. It is also said to replace lost hair and eliminate liver spots. The moisturizing effect of Aloe Vera can be explained because of three main attributes. The plant has the ability to carry nutrients and moisture through the different layers of the skin so it can benefit from a high absorption.

Furthermore, the polysaccharides will create a barrier that prevents the loss of moisture. Taken that these polysaccharides also have antihistamine and antibiotic properties, people with damaged or easily-irritated skin are benefited. Finally, the enhanced availability of fibroblasts supports the natural collagen production process. Most global markets are increasingly concerned with consumer health and the use of natural products. Aloe Vera should regain its position of valuable active ingredient now we are able to better understand the plant and know to look for the active compounds.

THE THREE MAIN REASONS TO ADD ALOE VERA BIOACTIVES TO YOUR ANTI-ACNE TREATMENT PRODUCTS:

• First: the polysaccharides act as moisturizer and hydrate the skin.

• Second: Aloe is absorbed into the skin and stimulates the fibroblasts to replicate themselves faster and it is these cells that produce the collagen and elastin fibers, so the skin becomes more elastic and less wrinkled.

• Third: Aloe makes the surface of the skin smoother because of its cohesive effect on the superficial flaking epidermal cells, binding them.





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Aloe Vera is a versatile and natural ingredient available for use in your product line. Aloe Vera acts on the pores of the skin by removing the obstruction of all substances that the skin keeps so it can expel all the waste substances with external agents that are mixed with them.

The properties of Aloe Vera saponification are conducted by the combination of amino acids polysaccharides that make these and accumulations of external fat and become contaminants foamv substances. being removable easily with daily grooming. This deep cleaning promotes exchanges with the outside can also penetrate water containing Aloe Vera this will produce a deep hydration of the skin.



Aloe Vera it is not just only a natural moisturizer, but also a powerful astringent that has the ability to thoroughly clean all three layers of the skin, this deep cleaning pores and remove obstruction of glandular ducts, so the substances nutrient and water penetrates easily into the hypodermic layer. Although it is recommended for all skin types, it is especially recommended for oily or acneic, conserves water ungreased. Another property of Aloe Vera is its high regenerative capacity, this is primarily based on the vitamins (A, B1, B2, B6, and B12) and polysaccharides present in Aloe Vera (glucomannan, pentoxa, hexose, galactose, etc.), which make it an active stimulant, its main functions are to relax the elastic fibers in the dermis, collagen fibers strengthen and stimulate the production of epithelial cells in the mucosal Malpighian body.



After Aloe Vera has penetrated well into the skin can be served with a moisturizer for the benefit is greater. It has been demonstrated that dry Aloe Vera extracts increase skin moisturization through a humectant mechanism. Indeed, this substance increases the quantity of water contained in the superficial part of the epidermis without increasing the TEWL (Transepidermal Water Loss). The composition of the extract, rich in hygroscopic mono/polysaccharides and amino acids (histidine, arginine, threonine, serine, glycine and alanine), is probably responsible for improving water retention in the stratum corneum.

All the healing qualities of Aloe are also used in cosmetics. "Cutaneous" affinity of Aloe works well in all activities of cosmetics.



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MECHANISMS OF ACTION OF ALOE VERA IN ANTI-ACNE APPLICATIONS

Healing properties: Glucomannan, a mannose-rich polysaccharide, and gibberellin, a growth hormone, interacts with growth factor receptors on the fibroblast, thereby stimulating its activity and proliferation, which in turn significantly increases collagen synthesis after topical and oral Aloe Vera. Aloe gel does not only increase collagen content of wounds but also changes the collagen composition (more type III) and increases the degree of collagen cross linking. Due to this, it accelerates wound contraction and increases the breaking strength of resulting scar tissue.

Anti-inflammatory action: Aloe Vera inhibits the cyclooxygenase pathway and reduces prostaglandin E2 production from arachidonic acid. Recently, the novel anti-inflammatory compound called C-glucosyl chromone was isolated from gel extracts.



Moisturizing effect: Mucopolysaccharides help in binding moisture into the skin. Aloe stimulates fibroblast which produces the collagen and elastin fibers making the skin more elastic and less wrinkled. It also has cohesive effects on the superficial flaking epidermal cells by sticking them together, which softens the skin.

Antiseptic effect: Aloe Vera contains 6 antiseptic agents: Lupeol, salicylic acid, urea nitrogen, cinnamonic acid, phenols and sulfur. They all have inhibitory action on fungi, bacteria and viruses.

It treats body acne: Aloe Vera gel contains two hormones: Auxin and Gibberellins. These two hormones provide wound healing and antiinflammatory properties that reduce skin inflammation. Giberellin in Aloe Vera acts as a growth hormone stimulating the growth of new cells. It allows the skin to heal quickly and naturally with minimal scarring. Aloe is soothing and can reduce skin inflammation, blistering and itchiness, while helping the skin to heal more rapidly. Additionally, in Ayurvedic medicine, Aloe is used to effectively heal chronic skin problems, such as psoriasis, acne and eczema.





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CREATE PRODUCTS THAT ENHANCE THE SKIN HEALTH WITH ALOE VERA



There's a reason for that: It's great medicine for the skin! Aloe soothes the skin, hydrates it, nourishes it and accelerates the regeneration of new skin tissue. And while most people are only familiar with using Aloe Vera externally, Aloe also enhances skin health when used internally.

The bio-active properties of the Aloe Vera are therapeutic as well and the plant has a long established reputation in the world. The plant is well-known for its trans-dermal properties. It can reach deeper body tissues, allowing it to take all the nutrients of the Aloe into the skin. Inflammatory type of skin problems such as eczema, psoriasis, and acne, can benefit from these high transdermal and anti-inflammatory properties.

Further results have shown glycol-nutrients act as humectants— substances that absorb or help another substance retain water and moisture. Aloe helps retain moisture in damaged tissue; the penetrating power of Aloe allows water and other moisturizers to sink deeply into the skin, replenishing lost fluids and restoring the fatty layer. Aloe Vera allows uronic acids (which strip toxic materials of their harmful effects) to penetrate deeply, making the cleansing astringent qualities of Aloe more effective.

CREATE FACIAL SOAP WITH ALOE SAPONINS

Aloe Vera is a natural source of saponins. Saponins are natural anti-fungal agents which inhibit the growth of bacteria, viruses and fungi. Saponins are naturally occurring substances microorganisms with sparkling _ antiinflammatory, antiseptic and cleansing properties. With a strong antimicrobial activity against bacteria, viruses, fungi and yeasts while stimulating immune system.

They increase the concentration of antibodies in the blood, lower cholesterol and normalize blood sugar concentration. Saponins also increase mineral absorption helping the neutralization process of acidic waste, improving digestion and helping in achieving overall wellness.





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The saponins perform strongly as antimicrobial against bacteria, viruses, fungi, and yeasts. The plant sterols or phyto-steroids in Aloe Vera include Campesterol, Lupeol, and B (Beta sign) Sitosterol. The plant steroids have fatty acids in them that have antiseptic, analgesic, and antiinflammatory properties.

Saponins, which resemble those of the human body and have anti-inflammatory action. saponins Bevond that, demonstrate antimicrobial properties particularly against fungi and additionally against bacteria and protozoa. Saponins are natural detergents. Saponins have detergent or surfactant properties because they contain both watersoluble and fat-soluble components. They consist of a fat soluble nucleus, having either a steroid or triterpenoid structure, with one or more side chains of water soluble carbohydrates (sugars). As a consequence of their surface-active properties, saponins are excellent foaming agents, forming very stable foams Because of their surfactant properties; they are used in preparation of emulsions for photographic films, and extensively in cosmetics, such as lipstick and shampoo.





The antifungal and antibacterial properties of saponins important are in cosmetic applications, in addition to their emollient effects. of surfactant Because their properties, saponins are also used industrially, dish wash detergent, bath liquid soap, in emulsions for cosmetic products like lipstick and shampoo where their anti-fungal and anti-bacterial properties are important in addition to their emollient effects. The soapy characteristics of saponins make them ideal for use as spray adjuvants (they make sprays work better).

Saponins when mixed with water reduce the surface tension of water, allowing the formation of small stable bubbles. As a consequence of their surface-active properties, saponins are excellent foaming agents (very stable).

Today, Aloe saponins are used in the manufacture of toothpaste, shampoos, liquid soaps, and cosmetics, kitty litter, detergents, beverages, lipsticks, herbal skin balms, and many other things. The antifungal and antibacterial properties of Aloe saponins are important in cosmetic applications, in addition to their emollient effects. Aloe Vera or Aloe barbadensis has been scientifically proven for all forms of burn, be it radiation, thermal, or solar. It has also been demonstrated that it has a prophylactic effect if used before, during, and after these skin damaging events.

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Clearly, the plant is mainly used for its soothing and cooling effect; hence its usefulness in the treatment and relief of acne-related lesions. The natural chemical constituents of Aloe Vera can be categorized in the following main areas: Amino acids, enzymes, lignin, minerals, mono- and polysaccharides, salicylic acid, saponins, sterols, and vitamins. Aloe Vera not only improved fibroblast cell structure, but also accelerated the collagen production process. Aloe Vera is a uniquely effective moisturizer and healing agent for the skin.

It should be applied generously to the affected areas, and then reapplied as often as necessary. Compatibility with anionic, amphoteric, and nonionic surfactants and typical emollients or skin actives is excellent, our InnovAloe[™] compatible with the most skin protection additives. Additionally, the CG lines are well suited for both zinc oxide and titanium dioxide sunscreen products.

Surprise your customers adding Innovaloe[™] ingredients in your cosmetic and acne care production lines. The cosmetics industry often uses it as an emollient and moisturizer in a myriad of products such as moisturizers, body and hand creams, cleansers, soaps, suntan lotions, shaving preparations and baby lotions Aloe Vera improves the skin's ability to hydrate itself; it is therefore an active skin conditioning agent. Externally applied, it is a natural skin with the ability to penetrate into the skin and transport healthy substances through it. Aloe Vera makes it a treatment for premature aging of skin, healing of wounds, burns, sunburns, cellulitis, and more.

Aloe Vera has calming effects, amino acids and polysaccharides regenerators, it is the best to stimulate cell regeneration and helps to moisturize the skin. After that Aloe Vera has penetrated well into the skin can be served with a moisturizer for the benefit is greater. It has been demonstrated that dry Aloe Vera extracts increase skin moisturization through a humectant mechanism. Indeed, this substance increases the quantity of water contained in the superficial part of the epidermis without increasing the TEWL (Transepidermal Water Loss).







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MOISTURIZING AND REGENERATING PRODUCTS.

The regenerating effect of Aloe has a great impact on the efficiency of cell division. Aloe works at the cellular level; the rich, nutritional composition of the pulp causes skin micro circulation. Our Aloe Vera ingredient are developed to bring you the functionality you need while also enabling more efficient manufacturing process, with 18 years of experience in personal care and cosmetic clients, we are committed to keeping your products and process at the forefront.

Aloe Vera extracts are good natural sources of antioxidants. A peroxidase has been identified in a commercial gel of Aloe Vera and a chromone with potent superoxide anion scavenging activity has also been found. More generally, there is a correlation between the phenolic content of Aloe Vera extracts and their antioxidant capacity.



However, one study showed that an Aloe Vera extract did not affect the total antioxidant capacity of a human skin EpiDerm model. More importantly, studies have also indicated that the exposure of Aloe Vera extracts to UVA light may lead to the generation of free radicals that cause oxidative damage.

Aloe Vera has shown its anti-inflammatory activity in a number of experimental models, including rat paw edema and ear swelling. In one study, a chromone compound isolated from Aloe Vera exhibited topical anti-inflammatory activity. Aloe Vera extracts inhibit many bacterial species, including Klebsiella, Enterobacter, Pseudomonas, Staphylococcus, Micrococcusand E. coli, even those strains that are multidrug resistant, such as MRSA.

MEDICATED FORMULATIONS ANTI ACNE WITH ALOE VERA

Develop formulas with derma-pharmaceutical actives:

• In combination of 0.05% tretinoin cream and 50% Aloe Vera gel

• With topical retinoids, considered first-line therapy in the treatment of acne vulgaris yet can be associated with cutaneous irritations. The preferred acne treatment medication is benzoyl peroxide and the preferred vasoconstrictor is tetrahydrozoline hydrochloride or a combination of tetrahydrozoline

hydrochloride and zinc sulfate.

• Other therapeutic applications with Salicylic acid, sulfur and resorcinol have been employed as keratolytic agents are utilized in the treatment of acne and seborrhea to prevent the obstruction of the follicular duct, to reopen the duct if it has become blocked to combat the infecting bacteria or the thickened sebum, and to provide combinations of each of these actions. The horny outer layer of the skin (stratum corneum) is formed of dead cells composed largely of keratin.

• With benzoyl peroxide will reduce the skin irritations caused by the peroxide compound and enable the dermatologist to employ much more highly potent concentrations with superior clinical results and no more irritation and drying than with the F.D.A. approved 5% and 10%.

• A novel topical preparation comprised of carboxylic acids, chelating agents, dimethyl Sulfone and

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magnesium sulfate that forms a functional and versatile base formation for the addition of numerous medications and active ingredients for the purpose of treating certain skin conditions including psoriasis, eczema, dermatitis, acne, rosacea, scleroderma, skin stones, fungal infections, bacterial infections, or other skin disorders and diseases with improved efficacy and penetration.

AMB produces personal care ingredients that fulfill the key consumer trend for natural products focused on wellbeing. INNOVALOE AVG POWDER 200:1 is a spray dried powder with great natural properties that can be easily formulated into skin care creams and lotions. Formulators of skin care lotions will make their formulations and then dose in INNOVALOETM AVG POWDER to get the right viscosity, at that same time it has some healing and moistening properties. Our Aloe Vera ingredients Are very versatile and can be formulated into a wide range of personal care products.







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References

1. Surjushe A, Vasani R, Saple DG. Aloe Vera: a short review. Indian J Dermatol. (2008)

2. Feily A, Namazi MR. Aloe Vera in dermatology: a brief review. G Ital Dermatol Venereol. (2009)

3. Goodyear-Smith F. Aloe Vera--Aloe Vera, Aloe barbadensis, Aloe capensis. J Prim Health Care. (2011)

4. Barcroft A. Aloe Vera - ancient myth or modern day medicine? Aloe Vera: Nature's Silent Healer. (2003)

5. Grindlay D, Reynolds T. The Aloe Vera phenomenon: a review of the properties and modern uses of the leaf parenchyma gel. J Ethnopharmacol. (1986)

6. Ahlawat KS, Khatkar BS. Processing, food applications and safety of Aloe Vera products: a review. J Food Sci Technol. (2011)

7. Hamman JH. Composition and applications of Aloe Vera leaf gel. Molecules. (2008)

8. Eshun K, He Q. Aloe Vera: a valuable ingredient for the food, pharmaceutical and cosmetic industries--a review. Crit Rev Food Sci Nutr. (2004)

9. Chularojanamontri L, et. al. Moisturizers for Acne: What are their Constituents? J Clin Aesthet Dermatol. (2014)

10. Corazza M, et. al. Use of topical herbal remedies and cosmetics: a questionnaire-based investigation in dermatology out-patients. J Eur Acad Dermatol Venereol. (2009)

11. Vinson JA, Al Kharrat H, Andreoli L. Effect of Aloe Vera preparations on the human bioavailability of vitamins C and E. Phytomedicine. (2005)

12. Yun JM, et. al. A randomized placebo-controlled crossover trial of Aloe Vera on bioavailability of vitamins C and B(12), blood glucose, and lipid profile in healthy human subjects. J Diet Suppl. (2010)

13. Chen W, et. al. Intestinal drug transport enhancement by Aloe Vera. Planta Med. (2009)

14. Beneke C, Viljoen A, Hamman J. In Vitro Drug Absorption Enhancement Effects of Aloe Vera and Aloe ferox. Sci Pharm. (2012)

15. Carien B, Alvaro V, Josias H. Modulation of drug efflux by Aloe materials: An In Vitro investigation across rat intestinal tissue. Pharmacogn Mag. (2013)

16. Cole L, Heard C. Skin permeation enhancement potential of Aloe Vera and a proposed mechanism of action based upon size exclusion and pull effect. Int J Pharm.(2007)

17. Ballam L, Heard CM. Pre-treatment with Aloe Vera juice does not enhance the in vitro permeation of ketoprofen across skin. Skin Pharmacol Physiol. (2010)

18. Bergamante V, et. al. Effect of vehicles on topical application of Aloe Vera and arnica montana components. Drug Deliv. (2007)

19. López A, et. al. Phenolic constituents, antioxidant and preliminary antimycoplasmic activities of leaf skin and flowers of Aloe Vera (L.) Burm. f. (syn. A. barbadensis Mill.) from the Canary Islands (Spain). Molecules. (2013)

20. Moniruzzaman M, et. al. In vitro antioxidant effects of Aloe barbadensis Miller extracts and the potential role of these extracts as antidiabetic and antilipidemic agents on streptozotocin-induced type 2 diabetic model rats. Molecules. (2012) 21. Esteban A, et. al. Peroxidase activity in Aloe barbadensis commercial gel: probable role in skin protection. Planta Med. (2000)

22. Yagi A, et. al. Antioxidant, free radical scavenging and anti-inflammatory effects of Aloesin derivatives in Aloe Vera. Planta Med. (2002)

23. Kammoun M, et. al. In vitro study of the PLA2 inhibition and antioxidant activities of Aloe Vera leaf skin extracts. Lipids Health Dis. (2011)

24. Grazul-Bilska AT, et. al. Antioxidant capacity of 3D human skin EpiDerm model: effects of skin moisturizers. Int J Cosmet Sci. (2009)

25. Xia Q, et. al. Photo-irradiation of Aloe Vera by UVA--formation of free radicals, singlet oxygen, superoxide, and induction of lipid peroxidation. Toxicol Lett. (2007)

26. Vath P, Wamer WG, Falvey DE. Photochemistry and phototoxicity of Aloe emodin. Photochem Photobiol. (2002)

27. Wamer WG, Vath P, Falvey DE. In vitro studies on the photobiological properties of Aloe emodin and aloin A. Free Radic Biol Med. (2003)

28. Kumar MS, Datta PK, Dutta Gupta S. In vitro evaluation of UV opacity potential of Aloe Vera L. gel from different germplasms. J Nat Med. (2009)

29. Crowell J, Hilsenbeck S, Penneys N. Aloe Vera does not affect cutaneous erythema and blood flow following ultraviolet B exposure. Photodermatol. (1989)

30. Reuter J, et. al. Investigation of the anti-inflammatory potential of Aloe Vera gel (97.5%) in the ultraviolet erythema test. Skin Pharmacol Physiol. (2008)

31. Strickland FM, Pelley RP, Kripke ML. Prevention of ultraviolet radiation-induced suppression of contact and delayed hypersensitivity by Aloe barbadensis gel extract. J Invest Dermatol. (1994)

32. Lee CK, et. al. Prevention of ultraviolet radiation-induced suppression of accessory cell function of Langerhans cells by Aloe Vera gel components. Immunopharmacology. (1997)

33. Byeon SW, et. al. Aloe barbadensis extracts reduce the production of interleukin-10 after exposure to ultraviolet radiation. J Invest Dermatol. (1998)

34. Lee CK, et. al. Prevention of ultraviolet radiation-induced suppression of contact hypersensitivity by Aloe Vera gel components. Int J Immunopharmacol. (1999)

35. Guo Y, et. al. The protective effects of sodium selenite and aloin against ultraviolet A radiation. Sichuan Da Xue Xue Bao



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Yi Xue Ban. (2011)

36. Davis RH, et. al. Processed Aloe Vera administered topically inhibits inflammation. J Am Podiatr Med Assoc. (1989)

37. Davis RH, et. al. Anti-inflammatory activity of Aloe Vera against a spectrum of irritants. J Am Podiatr Med Assoc. (1989) 38. Davis RH, Leitner MG, Russo JM. Topical anti-inflammatory activity of Aloe Vera as measured by ear swelling. J Am Podiatr Med Assoc. (1987)

39. Hutter JA, et. al. Antiinflammatory C-glucosyl chromone from Aloe barbadensis. J Nat Prod. (1996)

40. Park MY, Kwon HJ, Sung MK. Evaluation of aloin and Aloe-emodin as anti-inflammatory agents in Aloe by using murine macrophages. Biosci Biotechnol Biochem. (2009)

41. Dal'Belo SE, Gaspar LR, Maia Campos PM. Moisturizing effect of cosmetic formulations containing Aloe Vera extract in different concentrations assessed by skin bioengineering techniques. Skin Res Technol. (2006)

42. Park YI, Lee SK. Carbohydrates: Chemistry of Aloe polysaccharides. New Perspectives on Aloe. (2006)

43. Saraf S, et. al. Comparative measurement of hydration effects of herbal moisturizers. Pharmacognosy Res. (2010)

44. Di Franco R, et. al. Preventing the acute skin side effects in patients treated with radiotherapy for breast cancer: the use of corneometry in order to evaluate the protective effect of moisturizing creams. Radiat Oncol. (2013)

45. Fox LT, et. al. In Vivo skin hydration and anti-erythema effects of Aloe Vera, Aloe ferox and Aloe marlothii gel materials after single and multiple applications. Pharmacogn Mag. (2014)

46. Yagi A, Kanbara T, Morinobu N. Inhibition of mushroom-tyrosinase by Aloe extract. Planta Med. (1987)

47. Jones K, et. al. Modulation of melanogenesis by Aloesin: a competitive inhibitor of tyrosinase. Pigment Cell Res. (2002) 48. Wu X, et. al. Mushroom tyrosinase inhibitors from Aloe barbadensis Miller. Fitoterapia. (2012)

49. Yang ZQ, et. al. The effect of Aloesin on melanocytes in the pigmented skin equivalent model. Zhonghua Zheng Xing Wai Ke Za Zhi. (2008)

50. Wang Z, et. al. Effects of Aloesin on melanogenesis in pigmented skin equivalents. Int J Cosmet Sci. (2008)

51. Choi S, et. al. Aloesin inhibits hyperpigmentation induced by UV radiation. Clin Exp Dermatol. (2002)

52. Jin YH, et. al. Aloesin and arbutin inhibit tyrosinase activity in a synergistic manner via a different action mechanism. Arch Pharm Res. (1999)

53. Yang ZQ, et. al. The effects of Aloesin and arbutin on cultured melanocytes in a synergetic method. Zhonghua Zheng Xing Wai Ke Za Zhi. (2004)

54. Tan C, Zhu W, Lu Y. Aloin, cinnamic acid and sophorcarpidine are potent inhibitors of tyrosinase. Chin Med J (Engl). (2002) 55. Ali SA, et. al. On the novel action of melanolysis by a leaf extract of Aloe Vera and its active ingredient aloin, potent skin depigmenting agents. Planta Med. (2012)

56. Salim S, Ali SA. Vertebrate melanophores as potential model for drug discovery and development: a review. Cell Mol Biol Lett. (2011)

57. Barrantes E, Guinea M. Inhibition of collagenase and metalloproteinases by aloins and Aloe gel. Life Sci. (2003)

58. Takahashi M, et. al. Liposomes encapsulating Aloe Vera leaf gel extract significantly enhance proliferation and collagen synthesis in human skin cell lines. J Oleo Sci. (2009)

59. Hwang E, et. al. A comparative study of baby immature and adult shoots of Aloe Vera on UVB-induced skin photoaging in vitro. Phytother Res. (2013)

60. Lee CH, Singla A, Lee Y. Biomedical applications of collagen. Int J Pharm. (2001)

61. Cho S, et. al. Dietary Aloe Vera Supplementation Improves Facial Wrinkles and Elasticity and It Increases the Type I Procollagen Gene Expression in Human Skin in vivo. Ann Dermatol. (2009)

62. Ahshawat MS, Saraf S, Saraf S. Preparation and characterization of herbal creams for improvement of skin viscoelastic properties. Int J Cosmet Sci. (2008)

63. Pawar PL, Nabar BM. Effect of Plant Extracts Formulated in Different Ointment Bases on MDR Strains. Indian J Pharm Sci. (2010)

64. Banu A, Sathyanarayana B, Chattannavar G. Efficacy of fresh Aloe Vera gel against multi-drug resistant bacteria in infected leg ulcers. Australas Med J. (2012)

65. Tian B, et. al. Relationship between antibacterial activity of Aloe and its anthaquinone compounds. Zhongguo Zhong Yao Za Zhi. (2003)

66. Herman A. Comparison of antimicrobial activity of essential oils, plant extracts and methylparaben in cosmetic emulsions: 2 months study. Indian J Microbiol.(2014)

67. Hajheydari Z, et. al. Effect of Aloe Vera topical gel combined with tretinoin in treatment of mild and moderate acne vulgaris: a randomized, double-blind, prospective trial. J Dermatolog Treat. (2014)

72. Kim J, et. al. Effects of Scutellariae radix and Aloe Vera gel extracts on immunoglobulin E and cytokine levels in atopic dermatitis NC/Nga mice. J Ethnopharmacol.(2010)

73. Panahi Y, et. al. A randomized comparative trial on the therapeutic efficacy of topical Aloe Vera and Calendula officinalis on diaper dermatitis in children. ScientificWorld Journal. (2012)

74. West DP, Zhu YF. Evaluation of Aloe Vera gel gloves in the treatment of dry skin associated with occupational exposure. Am J Infect Control. (2003)

75. Skin permeation enhancement potential of Aloe Vera and a proposed mechanism of action based upon size exclusion and pull effect. Louise Colea and Charles Heard.



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