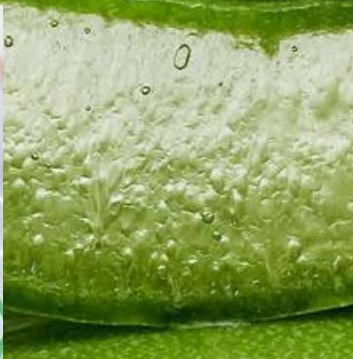


THE

ALOE VERA HANDBOOK

FOR PRODUCT DEVELOPMENT



Add our premium aloe vera ingredient to your formula

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The following information is just for commercial reference, it no pretend to be a medical use or claim, is a recompilation of documents or files of Aloe Vera worldwide and desire to be a help to know more of Aloe Vera. Some of the ingredients mentioned bellow are from natural plant, inner gel or skin of Aloe. Consciously we ommite anthraquinones due is removed from our raw material



Aloe Vera is wellbeing and vitality

Aloe Vera is packed with vitamins, minerals, polysaccharides, phytosterols, antioxidants and amino acids, this one plant is as effective for internal concerns as external ones, as relevant to the athlete as to the aging adult, and as popular for looking better as for feeling better. Aloe Vera, it is extremely nutritious and safe to eat and eventual consumption as a beverage or juice or externally in hair or body. Due to the large amounts, minerals, antioxidants to help fight and vitamins is the perfect dietary supplement, and because of the antibacterial and antifungal properties can also be used to restore the microflora in the digestive tract, liver and spleen cleaning and restoring the immune system.

Whether you're interested in formulating therapeutic nutraceutical, capsules or tablet preparations, or innovative refreshing Aloe drink with Aloe bits, or cosmetics that turn back the clock, Aloe is your ingredient of choice and AMB Wellness is your supplier. For that reason AMB Wellness and its strategic partner HNSI supply Aloe Vera raw material in bulk, with great success trough its global network. Our large selection of premium quality certified an organic Aloe ingredient makes it easy to meet your needs. Choose InnovAloe extracts maximized for polysaccharide content- or our fresh – pressed gel juices in different concentrations.

Produced from only the highest quality

AMB Wellness pays careful attention to growing, harvesting, and manufacturing our certified organic Aloe ingredients. From seed to finish product, we are dedicated to purity and quality every step of the way.

Our plants are organically grown in the dry climate of Northeast Mexico, with plenty of sun and carefully timed irrigation. The plants are harvested by hand in order to select only the highest quality three-year-old Aloe leaves, which scientific investigation has found have the highest antioxidant potential. Experienced quality control personnel monitor each step of the production process.

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Aloe is great source of nutrients

Our products are designed to meet the requirements of users with deep interest in the value of healthy life through the use of 100% natural, pure ingredients for nutraceutical, Food and Beverages, Foods, Dairy, Personal Care and Cosmetics, also pet care applications. For this reason our plants are organically grown, and no chemical pesticides and no herbicides are used in the Aloe plantations. An expert team of quality control monitors each step of the process, from the harvest in the fields to the processing facility where trained workers transform the succulent leaves in the best Aloe Vera raw Materials for the industry.

AMB's InnovAloe products are manufactured to meet your requirements

Aloe active biological agents- Aloe Vera's nutrient tools may be useful in a variety of situations where the body needs to draw upon extra support to keep itself healthy or return its tissues to health, such as: High in nutrients, vitamins, minerals, amino acids and fatty acids. Regarding wellbeing, however, the new great opportunity is an offer micro and macro nutrients which is the utilization of natural food complexes.



Aloe contains macro and micro-nutrients such as water, carbohydrates, proteins, lipids/fats, vitamins, minerals, trace minerals and electrolytes, enzymes, and accessory nutrients such phenolics and antioxidants, support a healthy life in humans and in animals. Studies show that adequate dietary macro- and micro-nutrient intake promotes health and wellbeing and slows the onset and progression of disease. However, most diets are deficient in these important nutrients due to their general lack of convenient availability in preferable forms.

The nutritional health and well-being of humans are entirely dependent on plant foods either directly or indirectly when plants are consumed by animals. Plant foods provide almost all essential vitamins and minerals and a number of other health- promoting phytochemicals. Humans require a diverse, well-balanced diet containing a complex mixture of both macronutrients and micronutrients in order to maintain optimal health and good appearance.

Micronutrients are organic or inorganic compounds present in small amounts and are not used for energy, but are nonetheless needed for good health. Essential micronutrients in the human diet include 17 minerals and 13 vitamins and are required at minimum levels to alleviate nutritional disorders, Aloe Vera has it!. Nonessential micronutrients encompass a vast group of unique organic phytochemicals that are not strictly required in the diet, but when present at sufficient levels are linked to the promotion of good health. Most everyone understands the concept of a catalyst, which is that the presence of one element facilitates a good chemical reaction but remains unchanged.

Aloe Vera acts as a physiological carrier for many active biological agents

When you get Aloe Vera shots your are drinking small doses of bioactive ingredients, such as vitamins, minerals, aminoacids, enzymes, proteins, organic acids, essential fatty acids, polysaccharides, lignins, saponins, chromones, all of them GOOD for your client's health. This helps their body day by day, to get nutrition for your cell and body systems, acts synergistic way. Nutrition is key, and a diet rich in nutrients, micronutrients, and antioxidants maintains the body's ability to fight disease and repair itself. Aloe Vera makes a great addition to a healthy diet/defense regimen and has the added bonus of easing cold and flu symptoms and speeding recovery.



Nutrients is a chemical substance that comes from the foods you eat. The energy you need for the metabolic processes in your body and for maintaining a constant internal environment comes from these nutrients. So if you think about all the basic reactions going on in your body to keep you breathing, your heart beating, your brain working and allowing you to move about, they all derive their energy from nutrients

The gel in Aloe Vera contains various nutritional elements that are very useful to our body and helps to keep our body nourished. Our body needs both macro and micro nutrients. Aloe Vera contains almost all the micro nutrients that our body needs. Aloe Vera is a very nutritional plant. Aloe Vera can be of used for your targeted formulas.

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Aloe Vera is considered to be a nutritional storehouse

Aloe products have long been used in health foods, nutraceutical or functional products and for cosmetic purposes. These products range from Aloe drinks to Aloe Vera gels, powders, capsules, creams and oils, etc for both external and internal uses for a wide variety of indications. The presence of all the essential elements in Aloe Vera may readily account for one of the most therapeutic efficiencies.

Aloe nutrients are necessary in order to maintain and develop a healthy body

Aloe Vera is very rich in various nutrients. These nutrients help Aloe Vera nourish and enhance immunity. For further details on the functioning of various micro nutrients refer Aloe Vera ingredients below. Aloe is nutrient dense, meaning they contain a broad-spectrum of synergistic concentrated beneficial macro and micro nutrients that help or enhance the body's abilities to generate healthy cells and maintain optimum operational performance.

Aloe is the solution to Regain and Retain Good Health for your customers- Whether you're interested in formulating therapeutic nutraceutical formulations, innovative functional beverages, or cosmetics that turn back the clock, Aloe is your ingredient of choice and AMB Wellness is your supplier and InnovAloe is your key ingredient.

Achieve a nutritional impact and health benefit

As the dietary supplement industry is registering steady and rapid growth, consumers are demanding quality supplements. Consumer perception of the quality of oral solid dosage forms is changing. Good quality is associated with the ability to disintegrate and dissolve. Performance characteristics of oral solid dosage forms in public standards will address the in vitro dissolution requirements, which will be presented as they relate to multivitamin- mineral combination products.

Biological activities in Aloe Vera leaf gel has been claimed that the polysaccharides have therapeutic



properties such as immunostimulation, anti-inflammatory effects, wound healing, promotion of radiation damage repair, anti-bacterial, anti-viral, anti-fungal, anti-diabetic and anti-neoplastic activities, stimulation of hematopoiesis and anti-oxidant effects.

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Absorption/Bio-Availability

The nutraceutical and functional food industries endeavours to develop novel delivery systems which require excipients that fulfil specific functions. Excipients from renewable sources are attractive due to their sustainable mass production. Aloe Vera has the best relatively good powder flow and it improved the powder flow properties of hydroxypropyl methylcellulose and carbopol when mixed with these polymers. You can add functional ingredients and improve and boost the effectiveness of your formula, you can even use liquid forms to add to your ingredients or additives.



Aloe Vera improves the availability of nutrients in combination with other products.

The commonly accepted definition of bioavailability is the proportion of the nutrient that is digested, absorbed and metabolized through normal pathways. Consequently, it is not enough to know how much of a nutrient is present in a dietary supplement; the more important issue is how much of that present is bioavailable. A common belief regarding bioavailability of dietary supplements is that they have to be in solution to be absorbed in the body. Essential to maintain a healthy body, but a majority of the vitamins and supplements that we consume are flushed out of our system before we are able to absorb them fully. Aloe polysaccharides are considered the main biologically-active component of Aloe that helps enhance nutrient absorption.

Swelling properties. The mass of selected mini-tablets plotted as a function of time in dissolution medium, the formulations containing Aloe Vera powder when mixed with carbopol showed the best swelling properties. However, Aloe Vera powder must be mixed, because alone it has a relatively fast erosion and it completely disintegrated within about four hours. Dissolution kinetics, the kinetic data of the dissolution profiles of those mini-tablets is that the power law models are shown in Table II. From the release exponent values it is clear that the formulations containing AVWL material in combination with carbopol showed Fickian diffusion release ($n \leq 0.45$). The formulation containing Aloe Vera powder and Carbopol in a 50:50 ratio approached zeroorder kinetics ($n = 0.89$), indicating they have potential as excipients in combination with other polymers to form matrix systems that can control nutraceutical ingredient release.

Recent research, sponsored by the International Aloe Science Council (IASC), concluded Aloe Vera increases levels of vitamins C and E in the bloodstream by more than 200 percent when consumed. The study also concluded Aloe Vera can enhance the bioavailability of both water- and fat-soluble vitamins, and has a natural time-release effect (vitamin levels were found to remain elevated for 24 hours, according to the study).

“Like Aloe, vitamins C and E are known to be powerful antioxidants that boost immune system function, promote skin health, and protect cardiovascular health. The bioavailability research has created a landmark event and major turning point for the functional food and nutraceutical industry as these companies realize the benefits of incorporating Aloe Vera into their products containing vitamins C and E. By adding Aloe Vera to these and other supplement products, we are delivering to discerning consumers highly synergistic and superior products that allow them to gain maximum benefits from their supplements.

For external use, Aloe Vera is well known throughout history for providing assistance to the body in cases of skin damage, ranging from deep wounds suffered in battle, to damaged skin from sun, wind exposure and bites from insects. Aloe’s assistive power is theorized to come partly from helping to increase the availability of oxygen in the skin and partly from its ability to help suppress free radicals and partly from its ability to accelerate natural healing processe.



Aloe Vera has natural nutrients for body systems

AMB Wellness products do not not contain anthraquinones, it is removed in the production process, however production of the gel, through a total leaf extract may include this property. Aloe Vera contains more than 75 potentially active constituents including vitamins, enzymes, minerals, sugars, lignin, saponins, salicylic acids and amino acids. It is claimed that the polysaccharides in Aloe Vera are responsible for many of its health benefits. The overall effectiveness of Aloe Vera on promoting health in the human body is hugely dependent on the polysaccharides found in Aloe Vera gel . Aloe Vera can boost your sales of a new class of dietary supplements based on Aloe Vera Products.

Powerhouses of minerals, vitamins, amino acids, enzymes in general whole micronutrients

Aloe Vera can be a convenient composition containing very broad-spectrum, 100% natural, organic, plant and macro and micro nutrients. Aloe Vera can manufacture in several formulations can be incorporate any nutritive additive into many other various oral, capsules, tablets, gencaps, and parenteral delivery methods such as in waters, beverages, foods, feeds, confectionaries, herbal and dietary supplements, personal care and cosmetic products, and pet care.

Aloe is a great carrier increasing bioavailability of other compounds. The great success of Aloe Vera as a commodity for use in nutritional foods and cosmetics is due to the proper stabilizing procedures that enable processors to store and ship the Aloe Vera Gel without fear of spoilage throughout the market places of the world. Research conducted around the world leaves little doubt that certain biochemical properties of Aloe will be proven facts.



Such attributes as moisturizing and penetrating properties are known, but the attributes such as its healing abilities and analgesic action to bacterial activity has not been clearly defined and documented through properly controlled scientific research and testing.

Make Aloe Vera ingredient, your platform for your nutritional formulation, adding plant extracts, amino acids, trace minerals, and in multiple uses and forms. Be creative and maximize the benefits of your consumers. Aloe Vera provides the ideal sources of broad-spectrum nutrients in their most bioavailable form for the body's optimal utilization. Its nutrients are essential and beneficial for human consumption and use. Therefore, Aloe Vera has a natural nutritional composition containing nutrients from most, or preferably all, of the major nutrient classes can safely and conveniently fill the nutritional gap in one's diet and potentially has positive implications on human and animal health and wellness when consumed regularly in various conveniently available forms.

Aloe Vera is a very well-known adaptogen. An adaptogen is something that boosts the body's natural ability to adapt to external changes and resist illness. It is thought that Aloe's power as an adaptogen balances the body's system, stimulating the defense and adaptive mechanisms of the body. This allows you an increased ability to cope with stress (physical, emotional and environmental stress like pollution). Aloe Vera's most extraordinary property, the ability to act appropriately on the specific problem or problems of the person using it. People taking Aloe Vera for one problem are often surprised when it handles something else.

Aloe Vera alkalizes the Body

Aloe Vera provides to what it needs, with a great abundance and variety than any other plant on earth. With so many nutrients being available at once from the same plant... your body is able to draw from the Aloe Vera the exact nutrients it needs the nutrients work together which gives more powerful results... Aloe Vera is well known for its synergistic properties. The active ingredients hidden in its succulent Aloe Vera leaves have the power to soothe human life and health in a myriad ways. Aloe Vera is undoubtedly, the nature's gift to humanity for cosmetic, food, beverages, and cosmeceutical applications and it remains for us to introduce it to ourselves and thank the nature for its never-ending gift.



Aloe has a wealth of nutrients

Today, the Aloe Vera industry has established high ethical standards for businesses and their Aloe products.

Through the International Aloe Vera Science Council, the industry has solidified its dedication to providing the world with the highest quality Aloe. The wide acceptance of Aloe by society in so many consumer products suggests that the IASC is moving in the proper direction.

The image of Aloe Vera has never been higher. The IASC has a dedicated group of professionals committed to the further growth. This is because the IASC knows the future of Aloe is full of promise for those willing to make the necessary effort. AMB Wellness is membership from 2012 and its facility has been audited and approved by IASC certifiers.

Aloe is natural super food

Aloe is to be uniquely valued for its content of active biochemicals. These are substances which interact with living cells in very small amounts, producing significant changes to cell metabolism and cell behavior. These substances interact with specialized receptors on the cell surface to produce these changes, yet the substances within Aloe which are doing this are entirely non-toxic natural substances and they leave no residues in the tissues. Aloe itself, of course, is not a food, but pharmacologically active substances of the same general type are well distributed among unprocessed whole foods.

None of our foods contain the same range of active cell-stimulating constituents as Aloe in the same proportions, but the principles involved in using Aloe are much the same as when one uses some foods as medicines. Naturally, much of what one does when using foods as medicines involves selecting the foods for their nutrient content.

Unlike Aloe , we eat enough of various individual foods, or can do, to contribute significantly to the dietary supply of specified vitamins, minerals etc. That is one most important element of food therapy. The other aspects of food therapy, but one which is often forgotten, due to focusing primarily upon the nutrients, is the way that the various whole unprocessed foods contribute pharmacologically active substances which constantly stimulate or otherwise modify the behaviour and metabolism of our cells.



Knowledge applied for care

Applications of Aloe Vera in Personal Care

In the personal care, Aloe Vera is one of the most popular bio-active ingredients used as a base material for skin care products because of its well-known skin soothing and moisturizing properties. Aloe Vera is highly recommended and useful for cosmetic products, due to its soothing, protective, skin regenerating and anti-aging properties. The gel from Aloe is believed to stimulate skin and assist in new cell growth. Commonly, consumers find Aloe Vera ingredients in products like: (ask for each brochure)

- Facial care industry
- Body care industry
- Hair care industry
- Wet wipes industry
- Non woven care industry
- Toiletries industry
- Tissue facial paper and tissue bath industry

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 moisturising 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.

Add more life to your cosmetic products with natural bioactives from Aloe Vera

- First: the polysaccharides act as moisturizer and hydrating 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.

It's time to renew your formula with Aloe Vera

Aloe Vera is a versatile natural ingredient available for use in your product line. The way that Aloe Vera acts on the pores of the skin, is to remove the obstruction of all substances that keep skin can expel all the waste substances with external agents that are mixed with them. The properties of Aloe Vera saponification is conducted by the combination of amino acids and polysaccharides that make these accumulations of external fat and become contaminants foamy 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. This stimulation of the synthesis of collagen and elastic fibers of the skin is particularly suitable for after-shave, the blade destroys many cells and Aloe regenerates. 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). 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.

Aloe Vera is known to be used in assisting people with some following skin condions:

- Accelerates healing from physical burns and radiation burns. *
- Replaces dozens of first aid products, makes bandages and antibacterial sprays obsolete. *
- Hydrates the skin, accelerates skin repair. *

Mechanism of actions of Aloe Vera in body care

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 not only increased collagen content of the wound but also changed collagen composition (more type III) and increased the degree of collagen cross linking. Due to this, it accelerated wound contraction and increased the breaking strength of resulting scar tissue. An increased synthesis of hyaluronic acid and dermatan sulfate in the granulation tissue of a healing wound following oral or topical treatment has been reported.

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.

Its moisturizing effects has also been studied in treatment of dry skin associated with occupational exposure where Aloe Vera gel gloves improved the skin integrity, decreases appearance of fine wrinkle and decreases erythema.

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 sunburn: Aloe Vera helps with sunburn through its powerful healing activity at the epithelial level of the skin, a layer of cells that cover the body. It acts as a protective layer on the skin and helps replenish its moisture. Because of its nutritional qualities and antioxidant properties, the skin heals quicker.

It acts as a moisturizer: Aloe moisturizes the skin without giving it a greasy feel, so it's perfect for anyone with an oily skin complexion. For women who use mineral-based make-up, Aloe Vera acts as a moisturizer and is great for the face prior to the application to prevent skin drying. For men: Aloe Vera gel can be used as an aftershave treatment as its healing properties can treat small cuts caused by shaving.

It treats body acne: Aloe Vera gel contains two hormones: Auxin and Gibberellins. These two hormones provide wound healing and anti-inflammatory properties that reduce skin inflammation. Gibberellin 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.



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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. It fights aging. As we age, everyone begins to worry about the appearance of fine lines and the loss of elasticity in their skin. Aloe leaves contain a plethora of antioxidants including, beta carotene, vitamin C and E that can help improve the skin's natural firmness and keep the skin hydrated. It lessens the visibility of stretch marks. The skin is like one big piece of elastic that'll expand and contract as needed to accommodate growth. But if the skin stretches too far, too fast (due to pregnancy, rapid weight gain or loss) the elasticity of the skin can be damaged. That's what leaves those unsightly stretch marks. These marks appear due to minor tears in the layers of the skin caused by sudden and excessive stretching.

Our process starts with the living plant

PH regulation is performed by joint action amino acids with sodium, potassium, iron, zinc, etc ..., so the production of epithelial cells is assured, it slows down the aging and wear of the skin, is renewed skin consistently.

The skin nutrition is carried out by the absorption of vitamins and polysaccharides present in the gel of Aloe Vera, this stimulates the production of new skin also cells, eliminating old cells, the elastic muscle cells to tone and collagen cells the cracking of the skin causing wrinkles and crow's feet can be avoided.

The bactericidal action causes normal cells to resist the attack of external aggressive agents. The astringent property gives the Aloe Vera a very good performance while shaving; the polluting effects of makeup, etc.



Packed with beneficial nutrients, Aloe is a key ingredient for a variety of skin care applications. In fact, the soothing properties of Aloe are particularly helpful during the summer months when the sun is out in full force. Even if you wear sunscreen, it is possible to be sunburned. Fortunately, Aloe can soothe and cool sunburned skin, thus decreasing the amount and length of time of discomfort. 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 Aloe Vera is compatible with the most skin protection additives.

Surprise your clients with Aloe Vera ingredient into your cosmetic and beauty care product lines you carry. The cosmetics industry often uses it as an emollient and moisturizer in a myriad of products such as moisturizers, face and hand creams, cleansers, soaps, suntan lotions, shaving preparations and baby lotions.

AMB Wellness stepped into a breakthrough. We Provide to our customers raw materials with high quality, stable and standardized Aloe Vera extracts, free from additives, impurities and any other agents. Aloe is rich in mucilaginous polysaccharides including acemannan (one of the active metabolites of Aloe); wound healing, stimulates fibroblast growth, angiogenesis, and re-epithelialization; reduces inflammation and increases collagen synthesis.

Aloe Vera can help to enhance skin health

Aloe is one of the most widely-used ingredients in high-grade skin care products. 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 transdermal 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.

Internal benefits of drink Aloe Vera

Consumers understand the need for certain nutrients, and are looking to get them in different more pleasant ways. Consumers have a significant interest from manufacturers for new healthy solutions. The market demands much greater differentiation than it did in the past. The days when a single multivitamin tablet satisfied all consumers, today manufacturers have to offer functional foods with specific health benefit to meet individual consumer needs, the lifestyles of the consumer are changing and your company needs to adjust to new trends. In terms of the active ingredients that are up and coming in functional foods, Aloe Vera has a well-known reputation in the consumer's minds.

If consumers can get the nutrition they are looking for in the form of foods and beverages that's really everybody's preference. If you read the Aloe literature there's a whole diversity of different biological activity that individual investigators have seen, you could make the case that every investigator has a favorite pathway.



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AMB Wellness are interested to satisfy consumer's high expectations, who are better educated and informed looking for healthier ingredients which provide important benefits to health.

Today consumer's demand is not only by creating new and tasty food, regular beverages or products that have a protective rapid effect, today they are looking for products with healthy proprieties. Conscious of this new lifestyle, AMB is dedicated to develop new natural ways of Aloe , which fulfill our unique customer's need. We care for you health creating refined and pure extracts which synthesized some natural elements need by your body.

If you're looking for Aloe Vera, you've come to the right place. AMB Wellness offers a variety of fresh-pressed, organic InnovAloe gel juices in different concentrations. InnovAloe is an exclusive concentrate which maximize the Aloe solids for a more therapeutic effect. Aloe Vera has remained strong through the ages, one of nature's most proven all-purposes healers, today research is showing that daily Aloe Vera oral supplementation supports a wide range of physiological function.

Add value to your consumers, create your own niche high value product category, there are big opportunities for functional and nutritional value ingredients.

Be part of this trend in your market, adding Aloe Vera to your existing product line.

With Aloe Vera as a natural ingredient in your formula, it provides the right combination of nutrition and taste. You can drive your consumer platforms for your product in the following attitudes and behavior of the functionality, accessible and easy for the consumer. Functional foods will continue to influence mainstream products in the near term, as consumers seek better options to meet their needs. Consumers buy products with belief they are buying the best quality of life.

Today the companies are looking for health ingredients, for this reason AMB Wellness offer natural Aloe Vera to improve your sales and benefits of the consumers. Health and wellness goals will continue to drive demand for natural products, even in dairy products. Aloe Vera is a natural functional ingredient that enhances and supports well-being.



Consumers are aspiring to live a healthier lifestyle

Innovate and formulate with Aloe Vera, be the one in your market and offer broad applications and drive a strategy in nutrition, health and wellness and make a competitive advantage, add your portfolio Aloe Vera ingredients.

Consumers are more aware of the nutritional dimensions in their lives and the need for quality of life.

Brands who innovate with this new ingredient can take advantage of the market; create a new segments and categories to succeed. The most-consumed functional benefit of Aloe Vera can be for digestive health, heart health, lowering cholesterol, joint health, beauty, skin and immune-boosting products check out some of the benefits taken orally Aloe Vera:

- Nourishes the body with minerals, vitamins, enzymes and polysaccharides *
- Detoxify the body*
- Hydrates the skin*
- Lowerers high cholesterol*
- Supports immune system*
- Stabilizes blod sugar*
- Protects the body from stress*
- Reduce high blood pressure*
- Strengthness gums and promote strong and healtht teeth*
- Heals the intestinal and lubricates the digestive tract*
- Prevents and treats candida infections*
- Boost cardiovascular performance and physical endurance*
- Aloe Helps Reduce Inflammation*
- Lowers high cholesterol.*
- Boosts the oxygenation of your blood.*
- Eases inflammation and soothes arthritis pain.*
- Protects the body from oxidative stress.*
- Speeds recovery from injury or physical exertion.*
- Hydrates the skin, accelerates skin repair.*
- Stabilizes blood sugar and reduces triglycerides in diabetics.*
- Protects the kidneys from disease.*
- Alkalizes the body, helping to balance overly acidic dietary habits.*
- Cures ulcers, IBS, Crohn's disease and other digestive disorders.*
- Halts colon cancer, heals the intestines and lubricates the digestive tract.*
- Prevents kidney stones and protects the body from oxalates in coffee and tea.*
- Functions as nature's own "sports drink" for electrolyte balance, making common sports drinks obsolete *



- Boosts cardiovascular performance and physical endurance.*
- Aloe Vera alkalizes the body and helps to detox the body and promote weight loss*
- Aloe Vera can help to improve the digestion and accumulation of toxins and free radical in the body.
- It normalises the body's metabolism.*
- It has six antiseptic agents which kill bacteria, viruses and fungus.*
- It acts to regenerate damaged tissues.*
- It settles nerves.*
- It is a natural moisturiser.*
- It stops itching and burning.*
- It naturally contains vitamin B12.*
- It has no known side effects.*

*This statement has not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure or prevent any disease

Aloe Vera contains more than 75 substances that work together to support internal and external health. AMB Wellness takes great care to ensure the highest levels of these bioactives in all of ingredients, below AMB will detail of the benefit of main ingredients inside Aloe Vera, those information allow to take advantage of this raw material to use as carrier of all of this ingredients useful for the customer's bodies, which are explained briefly in the sense of commercial values, not separately, but with the spread of several industrial applications with this ingredients details:

- Aloe Vitamins • Aloe Saccharides
- Aloe Minerals • Aloe Polysaccharides
- Aloe Amino Acids
- Aloe Fatty acids
- Aloe Organic acids
- Aloe Phytosterols
- Aloe Antioxidants
- Aloe chromones
- Aloe Flavonoids
- Aloe Enzymes
- Aloe lignins
- Aloe lipids
- Aloe saponins
- Aloe lectins



Aloe Vitamins

With Aloe Vera extracts has natural nutrients and therefore the breadth, scope, and synergistic complexity of highly bioactive, bioavailable, and bioassimilable macro- and micro-nutrients found naturally in any plant and mineral foods. You don't need to buy, as well as natural compositions, contains unsafe and undesirable preservatives, chemicals, synthetic additives, and contaminants like heavy metals. Past artificial and natural formulations are also unappealing in their appearance, taste, odor, and palatability. Many nutritive additives cannot be incorporated into other products without discernibly altering the substance's original or desired visual and sensory appeal.



Vitamins fulfill certain metabolic functions. If one of them is missing, it affects the entire metabolic process. Aloe Vera Gel contains pro-vitamin A, the eye vitamin. It is rich in antioxidants, and among other things, promotes bone growth and a healthy immune system. Furthermore, Aloe Vera gel contains vitamin B1, B2, B3, B5, B6, vitamin C and vitamin E and the rare vitamin B12, which is found almost exclusively in foods of animal origin.

The potency of Aloe Vera is due to its Vitamin A is also known as retinol rich variety of ingredients which are (because it generates the pigments present in perfect balance, and work in the retina). It is a powerful cellular together as a team. Although the regenerator, ideal for therapies for solid portion of the plant forms only psoriasis or acne. Improves vision 1%-1.5%, the rest being water, this and prevents premature aging. Turn small amount of active ingredient can promote the growth of tissues, produce a substantial effect. The only including the skin, eyes and mucous way to account for this is to accept the membranes. Vitamin A deficiency may philosophy of synergism within the increase susceptibility to infectious plant. Synergism means that the effect diseases and vision problems. Aloe of the whole is greater than the effects can be sourced of beta-carotene, is of the component parts, so although an antioxidant. An antioxidant is a individual members of the team could substance that inhibits the oxidation of only have an effect, together they can other molecules; it protects the body achieve a great deal more from free radicals.

Vitamin B2: O riboflamina. It facilitates the transformation of food into energy. Combats anemia because it facilitates the absorption of iron and improves hair, nails and skin. It produces red blood cells, releasing energy from carbohydrates. Deficiency syndromes most important are those characterized by sore throat, inflammation of mucous membranes, mouth and / or sore lips, anemia and dermatitis. Vitamin B2, works in conjunction with other B vitamins and is important for body growth, the production of red blood cells and the release of energy from carbohydrate.

Vitamin B3: O niacin. Cash desitoxicante; also contributes to the reduction of cholesterol, and is involved in the synthesis of fats. Niacin is involved in reactions that generate energy through biochemical conversion of carbohydrates, fats and proteins. The main function of vitamin B3 is converting food into energy.



Vitamin B6: O pyridoxine. Sobe exerts a beneficial effect on immune system, facilitating connections between the central and peripheral nervous system. This vitamin helps maintain normal brain function and also acts in the formation of red blood cells. Also, vitamin B6 is required in the chemical reactions necessary to digest protein and therefore, the higher protein intake, the greater the need for vitamin B6.

Vitamin B9: O folic acid. Combats anemia and prevents fetal malformations and tumors. It also helps the body (with vitamin C and B12) to digest and utilize proteins and to synthesize new proteins when needed. It is necessary in the production of red blood cells and DNA synthesis (which controls heredity and is used to guide the cell in its daily activities). Folic acid also works with cell function and growth of tissues. It also helps to increase appetite when needed and stimulates the formation of digestive acids.

Vitamin B12: O cobalamin. Vitamin B12, like other B vitamins, plays an important role in metabolism, helps form red blood cells and the maintenance of the central nervous system. Promotes concentration and memory, also prevents anemia and exerts a protective role in precancerous lesions of the lung, especially in smokers. Accelerates convalescents and the elderly. Low levels of vitamin B12 can cause anemia as well as numbness and tingling in the extremities, and other neurological symptoms such as weakness and loss of balance. Vitamin B12 Aloe Vera is one of the rare plant sources of this essential vitamin necessary for manufacturing red blood cells.



Vitamin C: Or ascorbic acid. Vitamin C is required for growth and repair of tissues in all parts of the body. It is necessary to form collagen, an important protein used to make skin, scar tissue, tendons, ligaments and blood vessels. Vitamin C is essential for wound healing and repair and maintenance of cartilage, bones and teeth. It is also one of many antioxidants such as vitamin E and beta-carotene. Also acts in the prevention of tumors. Deficiency of vitamin C can lead to drying and splitting in hair, gingivitis (gum inflammation) and bleeding gums; rough, dry, scaly skin; decreasing the rate of wound healing; tendency to bruising; nosebleeds; weakened tooth enamel; pain and swelling of joints; anemia; decreased ability to stop infections and possibly weight gain due to the low metabolic rate and low energy expenditure. Vitamin C helps the development of healthy teeth and to the adsorption of iron and the maintenance of normal connective tissue, as well as wound healing gums. It is also a powerful antioxidant trapping free radicals in the aqueous phase.

Vitamin D: O calciferon. Promotes the absorption of minerals in the process of ossification. Vitamin D promotes calcium absorption in the body, which is essential for the development and maintenance of healthy teeth and bones item. Calcium is also important for nerve cells, including the brain. It also helps maintain adequate blood levels of calcium and phosphorus. Vitamin D deficiency can lead to osteoporosis in adults and rickets in children.

Vitamin E: O tocopherol. Powerful antioxidant and cell regenerator. Maintains and improves skin and the cardiovascular system. Vitamin E protects body tissue from damage caused by unstable substances called free radicals. These radicals can damage cells, tissues and organs and are believed to be one of the degenerative process observed with aging. The major function of vitamin E is already act as a natural antioxidant that reacts with free radicals generated in the lipid phase protecting the membrane lipids also plays a role in system physicochemical lipid membranes, stabilizing structures of membranes.

Overall this vitamin helps protect the skin so that no rashes, acne and psoriasis occurs. Vitamine E helps the body to use oxygen, prevents blood clots, thrombosis and atherosclerosis. It also improves wound healing and fertility and is good for the skin. Free radicals are chemical entities that can exist separately with one or more unpaired electrons produced from various biochemical reactions. They occur continuously in the cells as a

result of enzymatic and non-enzymatic reactions to different molecules in the body.

They are generated as a result of imbalance between formation and neutralization of pro-oxidants in the body metabolic process. Examples of these are reactive oxygen species (ROS) or reactive nitrogen species (RNS) radicals which include superoxide anions, singlet oxygen, hydrogen peroxide and hydroxyl radicals. These radicals can cause a variety of pathological effects such as protein damage, DNA mutation, carcinogenesis, aging, cardiovascular and neuro-degenerative diseases.



Aloe minerals and Aloe trace elements

They are implicated as a result of oxidative stress, occasional leakages from continuous exposure to chemicals, contaminants and exogenous factors. The pathological disruption of these radicals in the human cells could be prevented by quenching the upshot of catalytic activities.

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Choline: its wide-ranging roles in human metabolism, from cell structure to neurotransmitter synthesis, choline-deficiency is now thought to have an impact on diseases such as liver disease, atherosclerosis and possibly neurological disorders, choline is one of the newest nutrients to be added to the list of human vitamins. Choline is an essential nutrient in the production of phosphatidylcholine, one of the most important structural building blocks of a living cell.

Nervous System Activity, Choline is the backbone of a nervous system signal molecule—or neurotransmitter—called acetylcholine. The part of your nervous system that runs your heart and keeps your intestines moving along runs largely on acetylcholine. Similarly, any muscle you move requires a signal of acetylcholine to tell it to contract.

Like the action of the heart itself, you really don't need to think or worry about this action of choline. Even in medically supervised situations where people eat diets bizarrely restricted in choline, we don't see these activities break down.



Aloe absorbs from mother nature the most important nutrients from the soil, which are minerals and trace elements, Minerals are nutrients used by the body to build bones and muscles as well as to regulate heartbeat, oxygenation of the body cells and blood clotting.

Unlike some vitamins, minerals cannot be generated by the body and must be consumed through an outside source. Minerals are essential chemicals that the human body needs for proper functioning. For example, calcium, phosphorus, magnesium, potassium and chloride, organic sulfur (MSM), but also trace elements such as iron, selenium, copper, zinc, are considered regulatory and structural elements in the human organism.

But minerals also play an important role in helping the body neutralize toxins. If we don't get enough alkalines (minerals) in our diet, the body takes minerals out of bones, veins, scalp, etc for this process. This of course can have a debilitating effect on our health in the long run.

The mineral are usually required in small amount for the development of the plants and organisms. Excessive uptake of these trace elements by plants affects the metabolic activities of plant as well as animals. However these metals also play an important role in control of many diseases in humans.

Aloe Vera contains important minerals and trace minerals among which are:

Potassium: Needed for proper fluid balance, nerve transmission, and muscle contraction. Combat hypertension, improves athletic performance and removes waste from the body. Potassium is a mineral involved in electrical and cellular functions of the body and is classified as an electrolyte. Potassium is an important mineral for the human body because it serves several roles in metabolism and body functions essential for the proper functioning of all cells, tissues and organs: helps the synthesis of proteins and carbohydrates, regulates the acid-base balance and is necessary for normal body growth. The most common problems associated with reduced levels of potassium are ECG changes, weakness and fatigue. Cardiac arrhythmias (irregular heartbeat) may also be a concern.

Sodium: Needed for proper fluid balance, nerve transmission, and muscle contraction. Regulates fluid balance in the body. Sodium is a mineral that helps regulate blood volume and blood pressure. It also contributes to the proper functioning of muscles and nerves. The most common form is sodium chloride or sodium salt. Sodium an important mineral, responsible for balancing the pH of the body's fluids. Also involved in the electrical conductivity in muscles and nerves, as well as facilitating the uptake of nutrients by individual cells.

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Copper: Part of many enzymes; needed for iron metabolism. Copper is an essential trace element that is present in all body tissues. Copper, like iron, contributes to the formation of red blood cells and helps the good maintenance of blood vessels, nerves, immune system and bone. Good antioxidant and anti-inflammatory. Useful against arthritis and circulatory disorders. Copper also a component of many enzymes and facilitates the action of iron as an oxygen carrier in red blood.



Zinc: Zinc helps your immune system, which is your body's system for fighting off illnesses and infections. It also helps with cell growth and helps heal wound.

Part of many enzymes; needed for making protein and genetic material; has a function in taste perception, wound healing, normal fetal development, production of sperm, normal growth and sexual maturation, immune system health. Zinc is an important trace mineral that is second only to iron in its concentration in the body. It stimulates the immune system, inflammatory and boosts sexual appetite. Helps fight infections and speeds healing. Is required for the activity of the enzymes necessary in cell division, cell growth, as in wound healing. Plays an important role in the acuteness of the senses of smell and taste; while also plays a role in carbohydrate metabolism.

Symptoms associated with zinc deficiency include: slow growth, decreased appetite, hair loss, increased infections and skin lesions.

Selenium: Antioxidant. Selenium is an essential trace element that integrates enzymes, which are crucial for the control of numerous chemical reactions involved in brain and body functions. Selenium has several functions. The principal is its role as an antioxidant in the enzyme glutathione peroxidase selenium.

This enzyme neutralizes hydrogen peroxide, which is produced by some cellular processes and that, if not for this would cause damage to cell membranes. It also appears to stimulate the formation of antibodies in response to vaccines and may provide protection against the toxic effects of heavy metals and other substances. Can contribute to the synthesis of proteins, growth and development and fertility, especially in men, and it has been shown that selenium increases semen production and motility.

Magnesium: Magnesium serves several metabolic functions and plays an important role in the production and transport of energy. It is also helpful in muscle contraction and relaxation. This mineral is involved in protein synthesis and participates in the functioning of certain enzymes in the body. Toxic symptoms produced by the high magnesium intake are not common because the body removes excess amounts. Magnesium is involved in the metabolism of calcium in bone formation but is also needed by nerve and muscle membranes to help them conduct electrical impulses.

Calcium: Important for healthy bones and teeth; helps muscles relax and contract; important in nerve functioning, blood clotting, blood pressure regulation, immune system health, is the most abundant mineral found in the human body and represents from 1.5 to 2% of total body weight of an adult. The teeth and bones contain most of the calcium found in the body (about 99%).

Calcium concentrates in these tissues as calcium phosphate salts. Body tissues, nerve cells, blood and other body fluids containing the remaining calcium. Prevents osteoporosis, arthritis and other rheumatic problems, helps blood to clot when necessary and regulates the heartbeat and nerve impulses. Calcium is one of the most important minerals for the growth, maintenance and reproduction of the human body and is essential in the formation and maintenance of healthy teeth and bones.

Teeth incorporate calcium into their structure similar to bone manner. In addition to helping maintain healthy bones and teeth, calcium has other functions. Blood clotting, nerve impulse transmission, muscle contraction, relaxation, normal heartbeat, the stimulation of hormone secretion, activation of enzyme reactions, as well as other functions require small amounts of calcium.

Iron: Part of a molecule (hemoglobin) found in red blood cells that carries oxygen in the body; needed for energy metabolism. Essential component of blood (which gives color), prevents anemia. Iron is part of hemoglobin in red blood cells and myoglobin in the muscles. The role of both molecules carries oxygen. Iron also integrates many proteins and enzymes in the body. Symptoms of reduced iron stores are among others: lack of energy, difficulty breathing, headache, irritability, dizziness and weight loss, anemia. Of particular risk for iron deficiency women with excessive menstrual, pregnant women, long-distance runners, vegans, teenagers and people with any type of bleeding from intestinal tract. Iron enables oxygen to be carried around the body in red blood cells.



Silicon: This trace element serves the important function of stimulating the cells involved in the formation of bone and cartilage, which can be beneficial to combat osteoporosis. Moreover, we recommend routinely include foods rich in silicon in the diet of people who have suffered a bone fracture, especially in the elderly, because in them the bone healing process is slower.



Silicon is also presented in important in other body tissues such as hair, cornea, tendons, skin or arteries quantities. In the latter case it is thought that silicon plays a significant role in vascular health as hardened arteries feature of this mineral fifteen times less than healthy. The refined food is one of the leading causes of silicon deficiency in the diet since much of this trace element is present in the shell of the grain portion is removed during refining. Silicon deficiency could cause not only alterations in bone and cartilage, but also a lack of elasticity in the skin and hair loss.

Chlorine: a cleanser. This is a fascinating element that is found in all living tissue. Chlorine is essential for the function of cleansing the body of debris. It is also exchanged in the stomach to produce hydrochloric acid, a very necessary acid for protein digestion. Chlorine is a member of a group of elements called the halogens. Others in this group are fluoride, iodine and bromine. The body maintains a delicate balance between all these elements. Sulfur, needed for structure of most protein, including muscles and hair.

Critical role in liver detoxification. It is an important element for digestion and detoxification in the liver. It is needed for the joints and in all connective tissue. This includes the hair, skin and nails. Most dietary sulfur comes from sulfur-containing amino acids found mainly in animal protein foods. Vegetarians can easily become deficient in sulfur if they do not eat eggs. Deficiency can affect hair, nails, skin, joints, energy and the ability to detoxify poisons.

Aloe Aminoacids

The Aloe provides nineteen of the twenty two amino acids that our body needs, seven of which are essential and can not be synthesized by ourselves, so we have to resort to external inputs. They are critical because when combined forms proteins essential for life and very necessary for those who have an intense sport. Also serve, among other functions, of raw material in the production of other cellular products, such as hormones and pigments. Both essential and nonessential amino acids, involved in the formation of neurotransmitters enzymes (chemical messengers), antibodies and nutrient transporters.

Essential amino acids are histidine, isoleucine, leucine, lysine, methionine, phenylalanine, threonine, tryptophan and valine. There are two more amino acids in the semi-essential Aloe called: tyrosine and cysteine. Arginine is the major amino acid representing 20% of all amino acids.

Amino Acids are the building blocks of protein. Humans require 22 amino acids. The human body knows how to produce 14 amino acids. The remaining 8 will be supplied to the body by ways of food and nutritional superfoods. Pure Aloe Vera Juice provides the body with these essential amino acids.

The non-essential amino acids found in Aloe Vera are alanine, arginine, asparagine, cysteine, glutamic acid, glycine, histidine, proline, serine, tyrosine, glutamine, and aspartic acid. Arginine: is essential for the metabolism of muscles provides a vehicle for transport, storage and nitrogen excretion. L-Arginine is an important production and tissue regeneration component.

Highly concentrated in the skin and connective tissues and helps remove ammonia from the body as part of the urea cycle appears. BCAA (Branched Chain Amino Acids: L-Leucine, L-isoleucine and L-valine) muscle tissue composed largely of BCAAs, which are used for energy production and protein synthesis. The BCAAs are also active in the metabolism of neurotransmitters, natural chemicals in the brain that affect mood and other mental functions.

Arginine has nitrogen retention ability. Nitrogen as you are all aware is one of the key elements in muscle protein synthesis. It enhances the immune system, and stimulates the size and activity of the thymus gland which makes it a prime choice for anyone in a condition that is less than optimal for health. It also improves the health of the liver, skin and connective tissues and may lower cholesterol. But mostly it facilitates muscle mass gain while limiting fat storage, because it keeps fat alive in the system and uses it. It's key in weight control.



Aspartic acid is an amino acid and one of the 20 proteinogenic amino acids, i.e., the building blocks of proteins. The carboxylate anion of aspartic acid is known as aspartate. Aspartic acid is also thought to play a role as an excitatory neurotransmitter in the central nervous system.

Glutamate, asparagines and glutamine are formed from their precursor, aspartic acid. It is one of the nonessential amino acids found in many proteins and closely related to asparagine. Aspartic acid is used in medical and biochemical research, as an organic intermediate, and in various industrial applications. Aspartic acid is one of the two components of aspartame.

Asparaginase is an enzyme that helps the conversion of asparagine to aspartic acid. Aspartame is composed of two amino acids, aspartic acid amino acid and phenylalanine, as the methyl ester. L-Aspartic acid plays a vital role in energy production. It is one of the components necessary to move high energy NADH molecules from the main body of a cell to its mitochondria, or primary energy-production areas.

Besides helping with energy production, it is a major excitatory neurotransmitter. Isoleucine- Very similar to leucine in most every way. Isoleucine promotes muscle recovery, regulates the blood- sugar levels and stimulates HGH release. But isoleucine holds its own in terms of wound healing.

Hydroxyproline. (Non-Essential Amino Acid) - Plays a major role in manufacture of collagen, connective tissue, skin, ligaments, tendons, bones, cartilage and is necessary in Vitamin D assimilation. Vitamin D is essential in proper calcium absorption.



Glutamic acid, Glutamic acid, abbreviated as E or Glu, is an important amino acid for the synthesis of proteins. The salts and carboxylate anions associated with glutamic acid are referred to as glutamates. Glutamic acid contributes to the health of the immune and digestive systems, as well as energy production.

Muscle tissues are an important site for storing and producing this amino acid. Each day approximately 80g of glutamic acid is release from the muscles into circulation to be used throughout the body. Glutamic acid is in the same amino acid family group as glutamine and they can alter their structure to transform into each other. Glutamine is required by the muscles more than any other amino acid.

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Body builders and other athletes that rely on muscle mass, endurance and strength often have a higher demand for glutamine. Glutamine is rapidly used by muscles during exercise. Consequently, having an adequate supply of glutamine/glutamic acid is important to support a healthy, active body. Serine is a non-essential amino acid derived from the amino acid glycine. It is important to overall good health, both physical and mental. Serine is especially important to proper functioning of the brain and central nervous system. Serine helps form the phospholipids needed to make every cell in your body. It is also involved in the function of RNA and DNA, fat and fatty acid metabolism, muscle formation, and the maintenance of a healthy immune system.

The proteins used to form the brain, as well as the protective myelin sheaths that cover the nerves, contain serine. Without serine, the myelin sheaths could fray and become less efficient at delivering messages between the brain and nerve endings in the body, essentially short circuiting mental function.

Meat and soy foods, dairy products, wheat gluten, and peanuts are all good natural sources of serine, but today's Western diet includes so much processed convenience food—amino acid supplementation may be needed more often than most people realize.



Serine is a constituent of phospholipids, which help seal in moisture, so it is also often included as a natural moisturizing agent in many cosmetics and skin care preparations. Histidine is important for growth and tissue repair.

Histidine comes to the blood stream especially when someone is affected by allergic complications. It aids in repairing of bodily tissues as well as for development. It also protects nerve cells by maintaining myelin sheath. It assists in the production of red and white blood cells. It also helps body to fight against bodily damages resulted from radiation.

L-histidine is a conditionally essential amino acid, so-called because adults generally produce adequate amounts of the substance but children quite often do not and must fill their needs through diet. Both plant and animal proteins are good sources of this amino acid, which is a building block of protein in your body. Apart from its central role as a protein component, L-histidine has demonstrated a variety of medicinal properties both anecdotally and in clinical studies.

Histidine is the chemical precursor to histamines, which play a central role in allergic reactions -- the body's response to the presence of substances it perceives as alien and potentially dangerous. Released in allergic reactions, those histamines set into a motion a series of physical changes, causing the dilation of capillaries, a drop in blood pressure, increased secretion of gastric acids, subcutaneous fluid leakage resulting in itchy skin and hives, and tightening of the smooth muscles of the bronchial tubes.



Lysine: is important for growth, tissue repair and the production of hormones, enzymes and antibodies. L-Lysine is found in large amounts in muscle tissue. L-Lysine is one of the aminos that is of utmost importance to growth and development. It is used in the body for calcium absorption, which results in bone and muscle growth as well as fat mobilization for energy uses.

It maintains the nitrogen balance and helps to maintain lean body mass in periods of extreme stress and fatigue. It is also needed to produce antibodies, hormones (GH, testosterone, insulin, you name it), enzymes, collagen and to repair damaged tissue, much like histidine and most of the essential amino acids. Next to maintaining it, it also helps to build new muscle protein. And the cardiovascular benefits include the maintenance of healthy blood vessels. **Threonine-** An essential amino acid that is not manufactured within the body, ever.

Threonine is used to form the body's two most important binding substances, collagen and elastin. It is also essential to maintain proper protein balance. Threonine is involved in liver functioning, lipotropic functions (when combined with aspartic acid and methionine) and in the maintenance of the immune system by helping in the production of antibodies and promoting growth and activity of the thymus. But perhaps its most useful property of all is that it allows better absorption of other nutrients, so protein sources containing threonine are more bio-available than others.

Valine helps the repair and growth of muscle tissue, as commonly attributed to BCAAs. It maintains the nitrogen balance and preserves the use of glucose. Valine is an essential amino acid that is crucial for maintaining proper cell and organ functioning

It is particularly important for gall bladder and liver function, as well as balancing nitrogen levels in the body. Valine is also valuable for cognitive, immune and nervous system functioning. In addition, it acts as a stimulant, maintains blood sugar levels and promotes muscle growth and repair. Valine has been shown to have numerous health benefits.

It promotes muscle growth and repair, helps to decrease stress and sleeplessness, and can act as an appetite suppressant. In addition, it can be used as part of a treatment regimen for gall bladder and liver disease. In particular, valine can be helpful in treating liver damage due to alcohol and drug abuse; however, be sure to consult your physician prior to starting any kind of treatment plan.



Methionine is essential amino acids that helps the body process and eliminate fat. It contains sulfur, a substance that is required for the production of the body's most abundant natural antioxidant, glutathione. The body also needs plenty of methionine to produce two other sulfur-containing amino acids, cysteine and taurine, which help the body eliminate toxins, build strong, healthy tissues, and promote cardiovascular health.

Methionine is a lipotropic, or a chemical substance that helps the liver process fats (lipids). Other lipotropics include choline, inositol, and betaine (trimethylglycine), all of which help prevent the accumulation of fat in the liver and thus ensure normal liver function, which is essential for the elimination of toxins from the body.

Methionine is needed to make creatine, a nutrient naturally found primarily in muscle tissue that provides the energy our muscles need to move, and has been found to boost athletic performance during short, intense workouts.

Creatine is necessary for all muscular function, and thus supports normal functioning of the heart and circulatory system. Methionine is essential for the formation of healthy collagen used to form skin, nails, and connective tissue, and helps reduce the level of inflammatory histamines in the body. People with conditions linked to excessive histamine production, such as arthritis and chronic allergies, may benefit from methionine supplementation.

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Methionine assists in the breakdown and use of fats, which in turn yields a higher testosterone rate. Together with zinc, that's how ZMA does its thing. It also eliminates excess fat from the bloodstream, resulting in less potential adipose (fat) tissue. It is a good antioxidant because it readily supplies sulfur, inactivates free radicals and helps with memory recall.



It is a precursor to cysteine, which is the amino that produces glutathione to detoxify the liver. It's also one of the three aminos that are needed to manufacture creatine monohydrate within the body, an essential compound for energy production and muscle growth.

Leucine, the strongest of the BCAAs, is responsible for the regulation of blood-sugar levels, the growth and repair of tissues in skin, bones and of course skeletal muscle. It's a strong potentiator to Human Growth Hormone (HGH). It helps in healing wounds, regulating energy, and assists in the preventing the breakdown of muscle tissue. It functions on balancing blood sugar level in the body. It also promotes in the development of the muscle tissue. It modulates the level of hormone production and energy regulation. It also provides support by preventing the breakdown of muscles. Deficiency in leucine may include dizziness, irritation, headache, fatigue, etc.

It elevates the mood by stimulating the nerve system, and may be important to staying motivated for whatever reason. It aids memory and together with its derivative, glutamine, is considered a smart-vitamin (though they aren't vitamins). It increases levels of epinephrine, nor-epinephrine, and dopamine in the anterior pituitary. All three are important neurotransmitters needed for optimum operation of the nerve system.

It also helps the absorption of UV rays in sunlight, which in turn gives a higher rate of Vitamin D, a strong body hormone. Its main metabolite is tyrosine which increases levels of dopamine and nor-epinephrine, as stated above. It's also one of the manufacturers of glutamine, the amino acid that makes up the largest part of the amino acid pool.

Tryptophan It is responsible for the production of serotonin which is exclusively important for balancing nerve and brain functioning. It is beneficial for controlling hyperactivity among children. It aids in alleviating stress. It works effectively as an appetite suppressant. It also promotes in reducing weight. His proteinogenic amino acid L-tryptophan is essential for the human body and has an aromatic structure. Like phenylalanine, histidine and tyrosine, its structure contains an indole functional group, which means it cannot be synthesised and must be ingested as part of the diet.

L-histidine is one of the semi-essential amino acids and has an imidazole functional group, which is typical for an aromatic amino acid. It is involved in the formation of proteins and influences several of the metabolic reactions in the body. As L-histidine is only produced in very small amounts by the body, it must predominantly be taken in through the diet.



Infants in particular need an additional source of L-histidine, either through breast milk, special supplements, or formula milk, as a deficiency can lead to growth problems and other conditions. Histidine is also an essential substance for those recovering from an illness and during growth (in childhood and the teenage years).

Glutamine is one of the non-essential amino acids in humans. Although the body can produce it, immune system weaknesses and nerve problems can occur during times of high demand. Our body uses L-glutamine to create proteins, so-called amino sugars, and to support the production of the super- antioxidant glutathione.

The body also uses L-glutamine to increase water retention in muscle cells, help signalling cell growth and to start intensifying production of protein and glycogen. Glutamine is therefore a very popular supplement with strength athletes. Among the free amino acids in human blood, L-glutamine is the most abundant at around 20% of the total. It also exists in a peptide-bonded state, which makes it chemically very stable. L-glutamine enables the production of the natural anti-oxidant glutathione, a known preventer of cell damage.

Proline, also known as L-proline, is an amino acid. It is non-essential because it can be synthesized by the body through the breakdown of L-glutamate, another amino acid. Protein is broken down into amino acids, or building blocks.

Collagen is a smooth and flexible tissue that covers and holds bones together, like glue. It is the main structural protein found throughout the body. It acts as a shock absorber and reduces friction. It helps heal cartilage and cushion joints. Proline aids the body in breaking down proteins for use in healthy cells. In conjunction with lysine, another amino acid, proline is a precursor for hydroxyproline and hydroxylysine. The body uses hydroxyproline to make collagen, tendons, ligaments and heart muscle. Collagen contains approximately 15 percent proline. For this reason, adequate proline is beneficial for the treatment of conditions such as osteoarthritis, soft tissue sprains and chronic back pain.



Alanine, or L-alanine, is an amino acid that helps the body convert the simple sugar glucose into energy and eliminate excess toxins from the liver. Amino acids are the building blocks of protein, and are key to building strong, healthy muscles—alanine has been shown to help protect cells from being damaged during intense aerobic activity, when the body cannibalizes muscle protein to help produce energy.

Alanine is crucial for preserving balanced levels of nitrogen and glucose in the body, which it does through a series of chemical actions called the alanine cycle. During the alanine cycle, any excess amino acids (proteins) in cells or tissues are transferred to a receptor molecule called pyruvate, which is produced by the breakdown of glucose. The pyruvate is then converted to alanine and transferred to the liver. The liver extracts nitrogen from alanine and converts some of it back into pyruvate, which can then be used to produce more glucose.

This cycle, glucose—pyruvate—alanine—pyruvate—glucose, helps supply the body with the energy it needs to support cellular life. It also ensures that a constant supply of pyruvate is available to allow the synthesis of glucose and amino acids in the body. Tyrosin: is a component of protein amino sugars and amino lipids which has very important functions throughout the body. It is very important for brain nutrition because it is a precursor of the neurotransmitters dopamine, norepinephrine and epinephrine.

Also form an important part of peptides such as the enkephalins, which are used to relieve pain in the brain. It is also the precursor of certain hormones such as thyroid and catecholestrogens (chemicals that are both estrogens and catecholamines time) and the most important human pigment, melanin. Cystine is a sulfur-containing non-essential amino acid, making it a veritable favorite as an anti-oxidant. It's closely related to Cysteine, which basically consists of 2 Cysteine molecules bonded together. Cysteine is very unstable and almost immediately converts to Cystine when it gets the chance. It's not a true problem, because if the body needs it, it can easily convert it back to Cysteine. It's required for healthy skin, detoxification of the body (due to the sulfur-content) and the production of collagen (used for skin elasticity and texture). That is why it is found most often in beta-keratin. (Keratin molecules are the things that make up hair, nails and such, and provide you with healthy skin. Keratin is a protein often formed and stored in skin tissue.)



Here is where cysteine proves its use as a vital component of life. It is the manufacturer of taurine, which is a component of glutathione.

It strengthens the protective lining of the stomach and intestines to prevent damage by products that are not wanted in the body. But it does qualify as a very good liver protector.

Moreover, cysteine is critical to the metabolism of other very useful things to the bodybuilder, including coenzyme A, heparin, biotin (B-vitamin), and the praised alpha lipoic acid. It's manufactured from methionine.

Sparagine (Non-Essential Amino Acid) - On intracellular function Asparagine, Glutamine and Serine are vital for energy and smooth function of brain reactions, contribute to the formation of proteins, muscles, neurotransmitters, antibodies and receptors; important transporters of nitrogen; foundation of carbohydrate metabolism; improve recovery after surgery or trauma by hastening wound... Aspartic acid 252 and asparagine 185 are essential for activity of lipid N-acetylglucosaminylphosphate transferase. Glycine: is a natural sweetener and antacid acts on DNA synthesis, collagen and phospholipids. Glycine also helps to keep glucose for energy production by increasing the amount of glycogen stored.

Aloe essential Fatty Acids

Aloe Vera supplies essential fatty acids for growth, reproduction and good health. Unsaturated fatty acids are important to every cell in the body for normal growth, especially of the blood vessels and nerves and to keep the skin and other tissues youthful and supple through their lubricating quality. These are nutrients which are invaluable for the production and movement of energy throughout the body, regulation of transportation of oxygen and are vital in maintaining the integrity of cell structure as well as the unique ability to lower cholesterol levels of the blood.

Aloe essential fatty acids provide nutritional and medicinal benefits:

Essential fats are nutrients that must be obtained from the diet because humans lack the anabolic processes for their synthesis. Essential fats serve multiple purposes in the body including:

- Production of eicosanoids, which affect inflammation and cellular function.
- Production of lipoxins and resolvins, which affect inflammation.
- Production of endogenous cannabinoids, which affect mood and behavior.
- Influencing cell signaling.
- Regulation of blood pressure, blood clotting, lipid levels, immune response, and gene expression.
- Increased consumption of omega 3 fatty acids has been linked with reducing coronary heart disease.
- An excess of omega 6 fatty acids can interfere with the health benefits of omega 3 fatty acids, and has also been linked with several detrimental health conditions. As a result of consumers' desire to have 'healthier fat' in the diet, the analysis of the omega 3 and omega 6 fatty acid content of food products has become a very active area of research for many food companies.

Capric acid is a medium chain fatty acid (a Saturated Fat) present in Aloe Vera has antimicrobial, antiviral and antifungal properties. Capric acid --- together with lauric acid and caprylic acid, other medium-chain fatty acids --- helps to increase levels of high-density lipoproteins --- HDL, the "good" cholesterol, capric acid are broken down quickly and processed in the liver, and can be used as a source of energy to power your workouts, capric acid may lead to greater energy expenditure and assist fat and weight loss.



Lauric acid is a potential antibacterial and antifungal agent. The human body converts lauric acid into monolaurin, which is supposedly helpful in dealing with viruses and bacteria that cause diseases.

It also helps in fighting harmful bacteria such as *listeria monocytogenes* and *helicobacter pylori*, and harmful protozoa such as *giardia lamblia*. Lauric acid is considered a "healthier saturated fat because it is a mediumchain triglyceride. As an MCT, lauric acid is more easily absorbed by the body and has a host of other associated health benefits, including potentially helping with weight loss. Mediumchain triglycerides, or fatty acids, such as lauric acid, are characterized by a specific chemical structure that allows your body to absorb them whole. This makes them more easily digestible -- your body processes them as it would carbohydrates, and they are used as a source of direct energy



Palmitic acid, Palmitic Acid is is one of the most common saturated fatty acids and it is one of the most prevalent saturated fatty acids in body lipids. In aging skin levels of palmitic acid can decrease by as much as 56%, also is used for soaps, cosmetics, and release agents, adds texture to processed foods (convenience food), natural additive in organic products.

Margaric acid. Margaric acid was associated with reduced risk of coronary disease. Myristic acid, is found in Aloe Vera and has antimicrobial and antifungal properties which aid in the elimination of candida albicans. myristic acid is particularly effective at causing the liver to synthesize cholesterol. Stearic acid is related as surfactant and softening agent and lubricant. Stearic acid is mainly used in the production of detergents, soaps, and cosmetics such as shampoos and shaving cream products. Stearic acid is used to produce dietary supplements. Oleic acid, described as anti-inflammatory fats, little is known about the role of oleic acid in immune system. Diets rich in oleic acid have beneficial effects in inflammatory-related diseases. Linolenic acid. Reduce inflammation and may help prevent chronic diseases, such as heart disease and arthritis. Palmitoleic acid. A beneficial fatty acid, it has been shown to increase insulin sensitivity by suppressing inflammation, as well as inhibit the destruction of insulin-secreting pancreatic beta cells.

Hexadecadienoic acid. Antimicrobial, Antiinflammatory, Diuretic, Antioxidant, Hypocholesterolemic, Nematicide, Pesticide, Antiandrogenic flavor, Hemolytic, 5-Alpha reductase inhibitor.

Succinic acid is used in the food and beverage industry, primarily as an acidity regulator. It is also sold as a food additive and dietary. Linoleic acid, an essential fatty acid which helps restore moisture. Enhance immunity, protect against cancer and heart disease and help to build muscle and promote fat loss. Recent research suggests that CLA may also help promote healthy glucose and insulin metabolism.

Aloe Enzymes

Aloe Vera can provide some of the most important vegetable enzymes, basics of human nutrition. Important nutrients and phytochemicals found in plants are absorbed more easily by our bodies -- sometimes within minutes -- without too much effort on the part of the digestive system. As well, more of the nutrients are absorbed. Enzymes are endogenous catalysts which enable, accelerate or prevent chemical processes. The enzymes contained in the Aloe Vera gel help with digestion and in absorbing the sugars, proteins and lipids of our daily food intake. Leading scientists agree that a portion of the enzymes present in Aloe Vera gel can destroy free radicals.

Enzymes break down proteins, carbohydrates and fats turning it into fuel increasing cell functions. For instance, bradykinase reduces inflammation and stimulates the immune system. Lipase is a digestive enzyme with a fat-splitting effect. Phosphokinase acts as an energy transmitter to muscle cells. Naturally, the list of Aloe Vera properties does not leave out the many important enzymes

found within the leafgel of the plant. The main enzymes found in Aloe Vera are amylase, bradykinase, catalase, cellulase, lipase, oxidase, alkaline phosphatase, proteolytiase, creatine phosphokinase and carboxypeptidase. Aloe is rich in enzymes. Enzymes spark the hundreds of thousands of chemical reactions that occur throughout the body; enzymes are essential for digestion and absorption of food, for conversion of food into body tissue, and for the production of energy at the cellular level. In fact, enzymes are essential for most of the building and rebuilding that goes on in the body every day.



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Enzymes act as biochemical catalysts that break down the proteins we eat into amino acids. The enzymes turn the food we eat into fuel for every cell in our body, enabling the cells to function and work efficiently. The main enzymes found in Aloe Vera include Amylase (breaks down sugars and starches), Bradykinase (stimulates immune system, analgesic, anti-inflammatory), Catalase (prevents accumulation of water in the body), Cellulase (aids digestion - cellulose), Lipase (aids digestion - fats), Oxidase, Alkaline Phosphatase, Proteolytiase (hydrolyses proteins into their constituent elements), Creatine Phosphokinase (aids metabolism), and Carboxypeptidase.



Why are enzymes important?

Enzymes are proteins that control the speed of chemical reactions in your body. Without enzymes, these reactions would take place too slowly to keep you alive. Some enzymes, like the ones in your gut, break down large molecules into smaller ones.

Others, like the enzymes that make DNA, use small molecules to build up large complex ones. Enzymes also help cells to communicate with each other, keeping cell growth, life and death under control.

The next thing we need to ask ourselves is what fuels the enzymes? The key is the vitamins and minerals we take in. For instance if we lack in zinc and/or Vitamin B6, our body will not be able to break down or use protein. Because of the healing properties of Aloe Vera and its synergistic action, the body receives what it needs to work properly. Aloe Vera, an anti-oxidant rich plant, contains vitamins such as A, C, and E plus the minerals, zinc, and selenium. Anti-oxidants help boost the immune system and combat free radicals in the body. Offer Aloe Vera products for your customer to balance their lack of nutrients.

Enzymes are also used to make or break biomolecules needed for cell growth and maintenance, are also a penetration factor favoring the rapid absorption of certain substances, accelerating processes such as wound healing, coagulation, cell regeneration.... The enzymes can be found in all organs of the body. Your body needs them.

Enzymes are also responsible for numerous other functions, which include the storage and release of energy, the course of reproduction, the processes of respiration, and vision.

- Boosting the Body's Primary Antioxidant Defense
- Overall human health, physical rejuvenation and anti-aging.
- Acts as a Natural Preservative and Probiotic Support
- Help for Diabetics
- May Have Natural Activity Against Harmful Organisms
- Resistant to Bacteria
- Natural Cleansing Properties
- Natural Immune Booster
- May Help Lower Autoimmune Responses
- Resistant to Swelling and Redness
- Compromised Health Support
- Help reduce colds, flu and other respiratory infections.
- Lessens Aging Effects
- Helps keep pancreatic enzymes at optimal levels as we age
- May improve symptoms of Celiac disease
- May improve common symptoms of indigestion, including the sensation of being overly full, flatulence and bloating following a meal of high-fat food.
- May improve overall nutritional status for those with cystic fibrosis (digestive system to produce excess mucus, and creates nutritional lack due to mucus stopping the pancreatic enzymes from reaching the intestines.
- Helps boost immune function by increasing enzyme secretions, reduction in abdominal pain, bloating, vomiting, nausea, heartburn, gas, and loss of appetite.
- Boosts absorption of vitamins and minerals from food
- Helps us better biosynthesize the vitamins A, D, E and K.
- Aids in fat digestion and weight control
- Could help reduce lipid malabsorption and return fat digestion to optimal levels.
- Powerful Antioxidant Support
- Create a speedy reaction against hydrogen peroxide free radicals, turning them into water and oxygen.)
- Possible Anti-Aging and Anti-Degenerative Effects
- Catalase May Increase Lifespan
- Fat Reduction and increase in muscle strength.
- Helps Prevent DNA Damage
- Aiding in the hydrolysis of cellulose into energy-sustaining blood sugar that may help maintain optimal blood sugar levels
- Helps keep cholesterol in the blood stream at optimal levels
- Supporting cell membranes to keep them healthy from free radicals, toxic chemicals, and other entities that are harmful to cell membranes.
- Aid in mediation of biofilm formation from cellulose produced by many types of pathogens.
- Breaking down the polysaccharides of microbial biofilms.



- Participates in the detoxification and induces protein modification, oxidative stress, and apoptosis.
- Mediate and inform the inflammatory processes
- Helps to prevents genetic vulnerability to anxiety and depression, Anxiety, Depression, Autism Schizophrenia, Restless Legs Syndrome
- DNA Copying
- Glucose Transformation

Aloe Phytosterols

Aloe Vera contains a phyto-sterol/ beta-sitosterol. Beta-sitosterol is a competing sterol that will enter the blood. The body can use and break down beta-sitosterol simply with no side effects. As a result the dangerous LDL cholesterol will pass out of the body without doing damage. With time – our body would produce less LDL cholesterol and so the levels will drop. There are three Aloe Vera gel sterols were able to reduce inflammation by up to 37%. Lupeol, the most active antiinflammatory sterol, reduced inflammation in a dose dependent manner. The data suggest that specific plant sterols may also contribute to the anti-inflammatory activity of gel . The Aloe sterol includes campesterol, β -sitosterol, lupeol, and cholesterol which are anti-inflammatory in nature, helps in reducing the inflammation pain and act as a natural analgesic. Aloe Vera - Anti-Inflammatory .-Aloe contains three plant sterols, which are

important fatty acids-HCL cholesterol (which lowers fats in the blood), campesterol, and B-sitosterol.

All are helpful in reducing symptoms of allergies and acid indigestion. These compounds also aid in arthritis, rheumatic fever, both internal and external ulcers, and inflammation of the digestive system. Similar in structure to human cholesterol, phytosterols compete with cholesterol for absorption, which is why they're considered heart-healthy.

Sterols, also known as steroid alcohols, are a class of chemicals that play multiple important roles in the body. They have parts that can dissolve in fat-like molecules and parts that can dissolve in water. The most widely known human sterol is cholesterol, which serves as a precursor to steroid hormones and fat-soluble vitamins. Some people take plant sterols -- such as vitamins A, D, E and K -- as supplements.



The Aloe Vera a plant produces six antiseptic agents: Lupeol, a natural salicylic acid, urea nitrogen, cinnamic acid, phenol, and sulfur all demonstrate anti-microbial effects. Lupeol and salicylic acid also have analgesic effects. These naturally occurring sterols bear a tremendous similarity to synthetic materials, those synthetic materials like corticosterone and hydrocortisone, traditionally used in allopathic medicine for their antiinflammatory effects and particularly for skin eruptions, eczema and other pruritic and erythemic conditions.

The antiseptic property of Aloe Vera is due to presence of six antiseptic agents namely lupeol, salicylic acid, urea nitrogen, cinnamonic acid, phenols and sulphur. These compounds have inhibitory action on fungi, bacteria and viruses. Though most of these uses are interesting controlled trials are essential to determine its effectiveness in all diseases.

There are at least 250 different plant sterols in the foods we eat, Aloe Vera is one of them, every day especially vegetable oils, seeds, nuts, cereals and legumes, veggies and fruits. The compounds have become a darling of the food industry because they have therapeutic effects in humans: specifically, they lower levels of LDL (or “bad”) cholesterol in the bloodstream by interfering with cholesterol absorption in the small intestine. (They have little effect on HDL or “good” cholesterol levels.) LDL cholesterol can lead to the buildup of plaque in arteries (atherosclerosis), a major factor in heart disease and stroke. Aloe Vera contains a variety of compounds (esp. polyphenols and phytosterols) with confirmed antioxidant capacity, and putative therapeutic actions (including blood glucose, cholesterol and cortisol lowering properties).

Aloe Lipids

Essential oils are antiseptic, bactericidal and have the ability to act against viruses. There are no side effects and germs do not develop resistance to them. Gibberellin (a plant growth hormone) in Aloe increases wound-healing by increasing protein synthesis. Aloe Vera and gibberellin: anti-inflammatory activity in diabetes. The activity of gibberellin-like substances possibly plays a major role in the wound healing and anti-inflammatory activity of Aloe Vera.



Unlike steroids, Aloe Vera and gibberellin inhibit inflammation but do not retard wound healing. This study helps redefine inflammation as it relates to wound healing.

- Aloe Vera inhibits inflammation and adjuvant-induced arthritis.
- Aloe Vera improves wound healing, which suggests that it does not act like an adrenal steroid.
- Aloe Vera inhibits inflammation and adjuvant-induced arthritis.
- Aloe Vera inhibits inflammation and adjuvant-induced arthritis.
- Aloe Vera improves wound healing in a dose-response fashion, reduces edema and pain, but does not decrease the granuloma tissue around a foreign substance under the skin.

Aloe Chromones

It has been reported that the agents responsible for the anti-inflammatory action are chromones and sterols, because they inhibit prostaglandin synthesis and reduce lymphocyte migration and infiltration. Moreover, glycoproteins block antigen binding to the receptors on mast cells surface, thus reducing histamine release and leukotriene synthesis and secretion.

Furthermore, the phenol compounds fraction contributes to modulate inflammation, because of its antioxidant action and its inhibitory action on leukocyte metalloproteinases, which reduce the deleterious effects of these mediators. Other gel components also involved in the anti-inflammatory action are: magnesium lactate, which inhibits histidine decarboxylase and consequently, the conversion of histidine into histamine in mast cells, and salicylates, which inhibit prostaglandin production from arachidonic acid by inhibiting cyclooxygenase. Research studies have demonstrated that both commercially available Aloe gel and Aloe extract significantly inhibit arachidonic acid oxidation in vitro.



Such anti-inflammatory effects of Aloe gel contribute to explain the above mentioned healing actions on skin wounds, burns and ulcers, as well as the observed improvement of joint inflammation and arthritis.

In the later pathology, progressive joint destruction occurs because different neutrophil metalloproteinases degrade collagen, elastin and proteoglycans in the connective tissue Chromones (flavonoids) such as:

- Aloe sin
- Aloe resin R
- Aloe resin D
- 8-C-glycosyl-7-O-methyl-Aloe sol and related glycosides

Orally taken glycosides are metabolized by intestinal flora in glucosidase and form active anthrones. In humans, the intestinal flora breaks completely the O-glycosides and C-glycosides. Aloe sin, a chromone derivative isolated from Aloe Vera, was found to enhance cell proliferation. A novel anti-inflammatory compound, C-glucosyl chromone, was isolated from gel extracts.

Aloe Vera inhibits the cyclo-oxygenase pathway and reduces prostaglandin E2 production from arachidonic acid. Though lifestyle intervention, mainly diet and exercise, remain as the ultimate behavioral change in managing metabolic syndrome and diabetic conditions; it is desirable to have safe nutritional approaches for preventing and/or ameliorating insulin resistance. In this frontier use of dietary supplements could be a potential option to control diabetic conditions. Aloe chromones improve insulin sensitivity by increase of adiponectin level and their potential in maintaining healthy blood glucose level. Aloe chromones reveal hundreds of structures with antiinflammation, anti-ulcer, tyrosinase inhibition, and skin protection.

Aloe Flavonoids

Flavonoids contain a defense mechanism protecting us from the damages of sun rays further protecting us from diseases. These so-called secondary plant compounds have a very broad-spectrum effect on human health. In contrast to the primary plant compounds such as carbohydrates, proteins and fats, they consist of very different compounds that can develop pharmacological effects even with low dosages.

Bioflavonoids activate certain enzymes and are anti-inflammatory and antioxidant. Isoflavonoids act as estrogen and can inhibit the growth of certain cancers.

Aloe Vera is an excellent example of a functional food that plays a significant role in protection from oxidative stress, is helpful in smooth functioning of the body machinery.



It reduces cell-damaging process during stress condition and minimizes biochemical and physiological changes in the body. Oxidative stress refers to chemical reactions in which compounds have their oxidative state changed.

Some antioxidants are part of the body's natural regulating machinery while other dietary antioxidants are derived from diet sources.

On a daily basis each human cell is subjected to 10,000 plus oxidative hits.

Each hit represents damage (a chemical reaction) to the individual cells of the body. Such damage is caused by sunlight, x-rays, environmental toxins, exercise, etc. The body utilizes antioxidants to immediately repair or in many cases, to actually take the damage itself (like a bodyguard stands in front of a bullet).

Aloe Vera is understood to act as an intracellular antioxidant and free radical scavenger. It is also believed that Aloe Vera polysaccharides bind to available vitamins in the digestive tract that also have antioxidant properties. This helps to increase the bioavailability of these vitamins. For example the overall bioavailability of vitamin C may increase up to three times when consumed with Aloe Vera gel, and this high level of availability may remain for more than 24 hours.

Additionally, Aloe Vera has the ability to decrease the transepithelial electrical resistance of intestinal epithelial cell monolayers, enhancing paracellular transport across the intestinal epithelial cell.

Aloe contains quercetin is a polyphenol compound in the flavonoid family of antioxidants. In simpler words, it's a natural antihistamine, anti-inflammatory and immunity enhancer. Quercetin's antihistamine properties are now well-established. It has been found to stabilize mast cells in a way that helps lower stress-induced anxiety and allergic reactions. Quercetin is the major flavonoid which belongs to the class called flavonols. Quercetin provides many health promoting benefits, including improvement of cardiovascular health, eye diseases, allergic disorders, arthritis, reducing risk for cancers and many more.



Aloe Lectins

Aloe has two enzymes: Aloctin I and II. Lectins, fractions of Aloe Vera gel, directly inhibited the cytomegalovirus proliferation in cell culture, perhaps by interfering with protein synthesis. Antiviral activity of Aloe Vera. Lectins are a type of protein that can bind to cell membranes. Lectins offer a way for molecules to stick together without getting the immune system involved, which can influence cell-cell interaction. Lectins are resistant to human digestion and they enter the blood unchanged; Lectins are thought to play a role in immune function, cell growth, cell death, and body fat regulation. Because we don't digest lectins, we often produce antibodies to them. Almost everyone has antibodies to some dietary lectins in their body. This means our responses vary. Certain foods can even become intolerable to someone after an immune system change or the gut is injured from another source. The presence of particular lectins can stimulate an immune system response.

Aloe Tannis

Tannins are one of the Aloe Vera properties that some of us know little about. They inhibit the growth of harmful intestinal bacteria and play a big role in the healing of burns. Tannins have antioxidant properties that can help prevent cellular damage. This means that it can add in helping to reduce the risk of cancer and heart disease. Tannic acids are Aloe Vera properties which are worth mentioning. They contain the opposite electrostatic charge of the outer shell of viruses. This allows them to magnetically crack these microorganisms to some extent. Tannins are substances - defense compounds - tannins inhibit the growth of bacteria and fungi on their surface.

The strong sour and bad taste of bark and leaves due to tannins. So tannins protect plants from insects and herbivorous animals, which are repelled by this astringent taste and the astringent effect in the mouth. Tannins offer to the human's resistance against tissue infection and they fight back bacteria and various viruses, including influenza, herpes, etc. and have also anti-parasitic effects. Generally, they exercise astringent action and they form a protective layer over the mucous membranes and the skin.



Aloe Saponins

Saponins are natural anti-fungal agents which inhibit the growth of bacteria, viruses and fungi. 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. Aloe Vera contains saponins. These are soapy substances from the gel that is capable of cleansing and having antiseptic properties. The saponins perform strongly as anti- microbial against bacteria, viruses, fungi, and yeasts. The plant sterols or phyto-steroids in Aloe Vera include Cholesterol, Campesterol, Lupeol, and B (Beta sign) Sitosterol. The plant steroids have fatty acids in them that have antiseptic, analgesic, and anti-inflammatory properties. Saponins glycosides that form approximately 3% of the Aloe Vera gel. Saponins contain antiseptic properties and are capable of cleansing.

Saponins are naturally occurring substances - sparkling microorganisms - with anti-inflammatory, antiseptic and cleansing properties. With a strong antimicrobial activity against bacteria, viruses, fungi and yeasts while stimulating immune system.

There are two types of saponins:

- Triterpenoid saponins that have expectorant action.



- Steroid saponins, which resemble those of the human body and have anti-inflammatory action.

Beyond that, saponins 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 water-soluble 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 industrially in mining and ore separation, in preparation of emulsions for photographic films, and extensively in cosmetics, such as lipstick and shampoo.

The antifungal and antibacterial properties of saponins are important in cosmetic applications, in addition to their emollient effects. Because of their surfactant 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). They also make sprays stick or spread better on leaf surfaces. They also allow nutrients to be absorbed better. Another important thing they do is to distribute water more evenly on hard-to-wet substrates. For these reasons saponins are often used in fertilizers, potting soils and pesticides.



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

Miscellaneous

- Gama -linolenic acid.
- Arachidonic acid.

Balancing fatty acids is not something that is easy for individuals to do. In order to avoid any potential harm in using various kinds of fatty acids like arachidonic acid, it's necessary to consult with health care professionals in order to have a plan for improving your health without overwhelming the body with these powerful nutrients. Nutritionists have pointed out that outside factors also contribute to large differences in how humans process these chemicals. Researchers continue to look at various food cultures and societies to determine what is the best dietary course of action for a particular individual.

In addition to the physical necessity of arachidonic acid in the body, this element has been said to be useful in treating depression, where good fatty acid levels can help improve neurological function. Again, it's best to pursue lifestyle and therapy related courses for mental illness, using dietary supplements according to a plan from a medical professional. Gamma-linolenic acid (GLA) is an omega-6 fatty acid that is found mostly in Aloe. Omega-6 fatty acids are considered essential fatty acids: They are necessary for human health, but the body can't make them -- you have to get them through food.



Along with omega-3 fatty acids, omega-6 fatty acids play a crucial role in brain function, as well as normal growth and development. Also known as polyunsaturated fatty acids (PUFAs), they help stimulate skin and hair growth, maintain bone health, regulate metabolism, and maintain the reproductive system. There are several different types of omega-6 fatty acids. Most omega-6 fatty acids in the diet come from vegetable oils in the form of linoleic acid (LA). The body converts linoleic acid to GLA and then to arachidonic acid (AA). The anti-inflammatory action of Aloe Vera may be through the inhibition of the arachidonic acid pathway via cyclo-oxygenase, which inhibits the production of prostaglandin E2. The enzymes carboxypeptidase and bradykininase also help to facilitate this anti-inflammatory process.

Arachidonic acid is helpful for facilitating the growth of muscle tissues around the skeleton. Humans get arachidonic acid through their diets. It is primarily found in a variety of red meats, as well as egg yolks and organ meats. It can also be put into processed foods as a supplement for vegans or vegetarians.

Although doctors have their own opinions on arachidonic acid, most would agree that a precise balance is necessary to avoid various kinds of health risks associated with excessive arachidonic acid intake or deficiency. Individuals with an arachidonic acid deficiency may not be able to grow correctly, or may have difficulty fighting off infections. However, too much arachidonic acid can also lead to some specific health risks including cardiovascular issues.

Aloe Lignins

Aloe Lignins is the responsible that allow Aloe Vera gel to penetrate deep into the tissues of the skin, through all seven layers. This is especially of importance when trying to heal skin conditions Salicylic acid and other antiprostaglandin compounds may be responsible for Aloe's local anti-inflammatory activity, possibly due to an inhibitory effect on the arachidonic acid pathway via cyclooxygenase.

Lignin a cellulose-based substance. It has no known medicinal properties but it is this that is thought to enable the Aloe Vera, when applied topically, to penetrate through the human skin to the dermis layer where new skin cells are made.

Lignins, a major structural material of cellulose content that allows for penetrative properties. Aloe Vera can soak into the skin up to seven layers deep. Lignins penetrate the toughened areas of the skin being beneficial for skin problems such as eczema and psoriasis. This cellulose substance is found in the gel has no known medical properties except it posses the property of penetrating the human skin. The salicylic acid components of Aloe make it a terrific anti inflammatory and analgesic- pain reliever. The Phenolic compounds have a stimulating effect on the bowels and anti biotic properties, aiding in gastric motility-softening stools.

Lignins are a major part of cellulose- an insoluble fibrous substance which is the main constituent of plant cell walls that allows for penetrative properties.

Its these Lignins that enable Aloe Vera to soak into the skin up to seven layers deep. Lignins penetrate the toughened areas of the skin proving great relief for skin problems such as eczema and psoriasis.



Aloe phytohormones

Aloe contains as other plants, hormones or Phytohormones are organic compounds that are synthesized in a particular part of a plant and then conveyed to other parts. Even in low concentration, phytohormones are able to regulate the growth and development of plants, as well as affect their ability to differentiate cells and tissues. Phytohormones affect the plants' ability to respond to environmental stimuli. They are also responsible for the plants' longevity and death, time of flowering, as well as in the development and ripening of fruit.

Plant hormones are abundant in embryonic plant tissues and not in mature plant cells.

Like plants, the human body also produces hormones and enzymes. In people and vertebrate animals, hormones act as chemical messengers that are utilized by the endocrine, nervous, and immune systems to convey unseen electrical impulses and chemical signals that would facilitate communication within a cell or between cell and/or among system organs. Hormones and enzymes also regulate body functions, control human behavior and integrate systemic functions – nervous, immune and endocrine systems, etc.

Plants cannot benefit from human hormones; however, plant hormones can do wondrous health effects to human health. Laboratory findings show that plant hormones can stimulate human immune cells that boost the body's natural defense against stressors and diseases.



There are three types of plant hormones that have shown promising benefits to us humans - Plant Growth Hormone (PGH), Plant Stress Hormone (PSH) and Plant Immune Hormone (PIH).

- Auxins
- Gibberellins

Gibberellin is a growth factor found in Aloe plants that has anti-inflammatory and wound healing activity in laboratory animals. It does this in normal and diabetic animals. Gibberellin's wound healing activity is related to its ability to stimulate protein synthesis as well as the RNA-DNA cellular systems. It stimulates wound healing (open and incisional wounds) in a dose-response manner.

Aloe Vera and gibberellin can stimulate fibroblasts directly to form collagen and proteoglycans for wound healing. We also feel that Aloe Vera (or gibberellin) can stimulate or modulate the macrophage to produce the traditional growth factors which stimulate fibroblasts.

It appears that Aloe Vera or gibberellin can do the same thing as proposed by the polysaccharide. Because of the contribution of other agents, they probably do a better job on open and incisional wounds. However, studies need to be designed to show this. Aloe Vera gibberellins are anti-inflammatory even in the diabetic. They improve wound healing, reduce edema and pain. Aloe Vera has an additive "vehicle effect" with gibberellin on wound tensile strength.

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Hydrocortisone inhibits wound healing by blocking the formation of connective tissue. This increases the spread of infection. Aloe Vera and gibberellin counteracts these detrimental effects of steroids. Gibberellin and Aloe Vera block the steroid inhibition on wound tensile strength. Aloe Vera contains three sterols that have good anti-inflammatory activity.

They exhibit anti-inflammation in a dose-response fashion and may be a major contributor to the anti-inflammation in Aloe. Aloe Vera blocks a wide variety of irritants that act by different biochemical pathways. However, it has no chronic anti-inflammatory activity because it stimulates the fibroblast for wound healing. However, we wonder if it aids the hydrocortisone's chronic anti-inflammatory activity since Aloe Vera prevents and regresses adjuvant induced arthritis.



Auxins are plant growth hormones that are involved plant-cell elongation. A well-known natural auxin extracted from plants is Indole Acetic Acid (IAA). They also stimulate cellular growth and provide better resistance to disease. The IAA in auxins acts as an antiinflammatory and helps tissue to regenerate Acceleration of wound healing and rehabilitation following injury and reversal of biological and physical effects of aging are just some of the numerous benefits that plant hormones have to give.

Plant hormones also reverse muscle wasting, improve vision kidney, liver and other organ function, improve memory retention and other cognitive factors, reduces stress and enhances the immune system, as well as promote tighter, younger and more supple skin.

Contrary to Human Growth Hormones, which pose the risk of cancer, embryonic plant extracts do not pose such risk. Nor will it affect the function of the pituitary gland as in the use of human growth hormone.

- Lectins
- lectin-like

Lectins offer a way for molecules to stick together without getting the immune system involved, which can influence cell-cell interaction. Lectins in plants are a defense against microorganisms, pests, and insects. They may also have evolved as a way for seeds to remain intact as they passed through animals' digestive systems, for later dispersal. Lectins are resistant to human digestion and they enter the blood unchanged.

Why are lectins so important?

Lectins are thought to play a role in immune function, cell growth, cell death, and body fat regulation.

Immune response and toxicity

Because we don't digest lectins, we often produce antibodies to them. Almost everyone has antibodies to some dietary lectins in their body. This means our responses vary.

Certain foods can even become intolerable to someone after an immune system change or the gut is injured from another source. The presence of particular lectins can stimulate an immune system response. There are some lectins that no one should consume.

Ever wonder why you don't see sprouted red kidney beans?

It's due to phytohaemagglutinin – a lectin that can cause red kidney bean poisoning.

The poisoning is usually caused by the ingestion of raw, soaked kidney beans. As few as four or five raw beans can trigger symptoms.

Beneficial lectins

While many types of lectins cause negative reactions in the body, there are also healths promoting lectins that can decrease incidence of certain diseases.



Furthermore, the body uses lectins to achieve many basic functions, including cell to cell adherence, inflammatory modulation and programmed cell death.

Lectins and the intestinal wall

This GI distress happens because lectins can damage the intestinal lining. As food passes through the gut, it causes very minor damage to the lining of the GI tract. Normally the cells repair this damage rapidly. Since the purpose of the gut lining is to let the good stuff past and keep the bad stuff contained, it's important for the cellular repair system to be running at full efficiency.

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But lectins can blunt this speedy reconstruction. Our cells can't regenerate as fast as they need to in order to keep the intestinal lining secure.

Thus, our natural gut defenses are compromised after the damage occurs and the gut can become "leaky," allowing various molecules (including stuff we don't want) to pass back and forth amid the gut wall. We may also not absorb other important things, such as vitamins and minerals, properly. When enough lectins are consumed, it can signal our body to evacuate GI contents. This means vomiting, cramping and diarrhea. It's similar to consuming large amounts of alcohol, which can damage the GI lining and cause GI evacuation.

Lectins and immune response

When lectins affect the gut wall, it may also cause a broader immune system response as the body's defenses move in to attack the invaders. Symptoms can include skin rashes, joint pain, and general inflammation.

Fractions of leaf extracts from Aloe Vera were prepared by differential centrifugation and tested by in vitro assays for the presence of lectin-like activities and for effects on the attachment and growth of human normal and tumour cells. Fractions of extracts of fresh leaves had high levels of lectin-like substances measured by immunodiffusion and haemagglutinin assays. Substances in fluid fraction from both fresh leaf sources were found to markedly promote attachment and growth of human normal, but not tumour, cells and to enhance healing of wounded cell monolayers.

Results from cell assays suggested that the observed growth promotion and wound healing effects of Aloe substances in vitro may be analogous to what has been observed in vivo during healing of wounds and burns.



Aloe Organic Acids

Aloe Vera contains organic acids (Malic acid , Succinic acid, p-Coumaric acid Uronic acid, Uric acid, Cinnamic acid and Fumaric acid) , with beneficial effect on the prevention of the disease, can raise the body's metabolism of sugar and protein are carried out smoothly;

Aloe contains malic acid

Since malic acid has a vital role in metabolic activities within the cells and facilitates the body to receive ATP, it is considered to be the 'energy current' that circulates throughout the body augmenting the production of cellular energy.

Besides generating energy, malic acid also assists in shielding the muscles from exhaustion and helps in lessening the toxic consequences of specific metals. In addition, malic acid also perks up the immune system, sustains the oral health, promotes the health and functioning of the heart, nerves and muscles, and is beneficial for softer and more compact skin.

It works in the form of an antiseptic that aids in keeping the mouth free of germs and also diminishes the risks of contagions. Malic acid also invigorates salivaproduction, which, in turn, lessens the number of detrimental bacteria that circulate within the mouth. This is the primary cause as to why malic acid is used as a well-accepted constituent of several toothpastes as well as mouthwashes.

Malic acids help in constricting the skin pores, leading to a soft and compact skin. It also facilitates in lessening the signs of aging by means of lightening the fine lines and wrinkles on the skin making the skin appear more youthful and healthy. In effect, malic acid works in the form of a normal face peel.

Other valuable component found in Aloe Vera, such as Salicylic acid—an important acne treatment—contains anti-bacterial, anti-inflammatory, and exfoliating properties, valuable components in dealing with painful acne type skin. An added advantage is that Salicylic acid found in Aloe Vera will not dry out acne skin, which is quite common when using other salicylic type of creams.

Aloe Vera contains salicylic acid which is an aspirin-like compound with anti-inflammatory, analgesic, and anti-bacterial properties. It has anti-pyretic properties for reducing fevers. Other constituents of Aloe Vera would include prostaglandins, tannins, magnesium lactate, resins, mannins and proteins such as lectins, monosulfonic acid and gibberlin.



Other aspirin-like compound present in Aloe is responsible for anti-inflammatory and antimicrobial properties. Fumaric acid is an antibacterial component of Aloe Vera.

The acetoacetate fraction partitioned from Aloe Vera showed an effective antibacterial activity against four clinically frequent pathogenic bacteria. Through a series of chromatographic methods and activity assays, one compound was obtained and it has potent antibacterial activity. Based on the data of mass spectrometry, ¹H-NMR, ¹³C-NMR and IR spectra, this compound was determined to be fumaric acid. This study concluded that fumaric acid is one of the antibacterial components in Aloe Vera.

Aloe Monosaccharides And Polysaccharides

Aloe contains monosaccharide and polysaccharide. - Monosaccharide and polysaccharides have anti-inflammatory, antibacterial, antiviral, anti-mycotic and immune-stimulating effects. These properties enhance digestion and bind numerous detrimental substances such as cholesterol and gall acid. Most importantly are the long-chain sugars (especially the polymannan sugars) which enter the intestinal wall undegraded and then have an immune regulating effect in the blood. Or they stick to the intestinal wall and therefore prevent undesired substances from entering the bloodstream. The most important ingredient is the acemannan which cannot be produced by adults. It supports the immune system, is anti-inflammatory and bolsters the digestive system in its absorption of vital substances. As an example, the following substances belonging to this group were found in Aloe Vera gel: Acemannan, aldopentose, arabinose, cellulose, galactose, galacturonic acid, glucuronic acid, glucose, hexanoic acid, mannose, mannuronic acid, pentosan, rhamnose, uronic acid and xylose. Aloe carbohydrates were thought to serve mainly as an energy source for the body, but it is now recognized that many carbohydrates play key roles in enhancing immune function and in facilitating cellular communication.

Carbohydrates and the Immune System
Most cells in the body have carbohydrate molecules on their surface. These carbohydrates are often attached to proteins or to fats and act as receptors for bacteria, viruses, or antibodies. The invaders actually use these sugars as fuel to grow, multiply, and attack the cell itself.



A small group of very special carbohydrates called mucopolysaccharides, however, actually work to prevent bacteria and viruses from finding binding sites. In fact, they literally trap and destroy them. In addition, they also work to trap and destroy antibodies.

Polysaccharides, now more commonly called glycosaminoglycans, are a special form of polysaccharide. They are made in the human body and perform many key functions in our health, including promoting growth and enhancing the immune system. Unfortunately, after puberty we cease manufacturing these polysaccharides and must obtain them from outside sources. Formulate with Aloe Vera to deliver this polysaccharides.



The Power of Aloe Vera: polysaccharides

The active polysaccharide fractions in Aloe are called galacto-mannans or beta-glucomannans. These polysaccharides have been shown in laboratory studies to act as a bridge between foreign proteins (such as virus particles or lignins) and macrophage cells in the human body, facilitating the destruction of the invading the protein by the macrophage. These various effects, while seemingly widespread and unrelated, are in fact due to one simple process that occurs at the cell membrane. Acemannan (the name often used for Aloe beta-glucomannans, acetylated polymannans and mucopolysaccharides) is a long chain sugar that interjects itself into all cell membranes.

This results in an increase in the fluidity and permeability of the membranes allowing toxins to flow out of the cell more easily and nutrients to enter the cell more easily. This results in improved cellular metabolism throughout the body and an overall boost in energy production. Aloe is a rich source of polysaccharides and has various carbohydrate constituents, for example, polysaccharides, acemannan, and mannose-6-phosphate, of which mannose-6-phosphate and acemannan are major constituents of the carbohydrates of Aloe Vera.

Aloe polysaccharides are known scientifically, boost your brain power, improve your digestion, your moods and maximize your immunity. Polysaccharides seem to be essential to the needs of every cell in the body. Increasing your consumption of them through diet and supplementation could lead to restored health.

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What these polysaccharides do in our bodies is a complicated process that leads to cell to cell communication. It means that communication inside our bodies between cells is as significant to our well being - Polysaccharides provide building blocks needed to assemble healthy cells and enable these glycoforms to create correct cellular communication. When cellular messages go wrong then health breaks down and sickness occurs.

Wound healing does not just require immune stimulation by polysaccharides but Aloe's healing comes from growth factors, amino acids, glycoproteins, gibberellin, auxin and minerals such as zinc as well as polysaccharides. These biologically active agents synergize to give us the synergetic action of Aloe Vera. Polysaccharide with the other bioactive compounds makes major contributions to the biological activity of Aloe Vera.

Polysaccharides are sugars, ie organic compounds containing carbon, hydrogen and oxygen - carbohydrates - which, like the fat, are supplying our organism with the necessary energy that needed daily. Aloe contains the most important polysaccharides:

- Mannose: Stimulates the immune system, particularly the T-4 cells and the white blood cells that react and fight infections.
- Glucuronic acid: It has a strong detoxifying effect.
- Rhamnose: Polysaccharide in the primary cell wall.

- Cellulose: It is the most common form of carbohydrates in nature. It is the main component of plant cell walls. From cellulose we take glucose.
- Glucose: The main source of energy for living organisms. Main source of energy for the body and the sole source of nutrients for the brain tissue.
- Hexouronic acid: It is involved in energy production.
- Lactose: Herbal low calorie sweetener, added to sweets and energy drinks.
- Xylose: Also low calorie herbal sweetener.
- Galacturonic acid: Nutritional additive.
- Arabinose: Pentose used for weight reduction, treatment of hepatitis-B and inhibitor and sucrose in diabetics.
- Aldopentose: Another pentose.
- Acetyl mannose or acemannan.



Acemannan or acetylated mannan

One miracle ingredient of Aloe is acemannan or acetylated mannan which acts as a potent anti-inflammatory agent. Protects the spinal cord from damage due to chemical poisons and harmful drugs. Detoxifies, cares and stimulates the cells of the immune system, improves metabolism and provides increased energy levels. It is the natural bio-stimulant of the body. Acemannan is stored in all cell membranes and thus it achieves an immune enhancing of whole our body against pathogenic parasites, bacteria, fungi and viruses.



Antibacterial activity of Aloe. *

Glucomannan and acemannan have been proved to accelerate wound healing, activating macrophages, stimulating immune system as well antibacterial and antiviral effects. Aloe Vera is anti-viral and anti-bacterial, Aloe not only provides vigorous overall immune system support, but aids directly in the destruction of intravascular bacteria. The reason is Aloe's unique polysaccharide component. The body's natural "complement system" a critical defense system involving a series of proteins only needs to be activated in order to attack bacteria.

Following are a few of the vital functions Acemannan and the other constituents of Aloe have been found to perform. They...

- Make cells more resistant to viruses and pathogenic bacteria, by incorporating themselves into cell walls*
- Improve overall cellular metabolism and functioning*
- Reduce inflammation*
- Provide critical lubrication of joints; helping to prevent arthritis and to heal it once it has developed*
- Aid in the absorption of water, minerals and nutrients in the GI tract*
- Reduce pain*
- Improve vascular flow*
- Reduce scarring*
- Improve macrophage activity as much as tenfold*

Enhance macrophage effectiveness in modulating the entire immune system*

- Enhance macrophage effectiveness in stimulating, producing, and releasing antibodies
- Fight fungal infections, such as: Athlete's foot, Ringworm, Pruritus anivalvae, Balnea, Essential Pruritus, and Vaginal yeast infections*
- Help heal athletic injuries such as: Muscle cramps, Sprains, Strains, Bruises, Swelling, Soreness, Tendonitis, and Bursitis.*
- Soothe and promote the healing of intestinal disorders such as: Indigestion, Heartburn, Hyper-acidity, Peptic and Duodenal Ulcers, Colitis, and Hemorrhoids*
- Help with diabetes*
- Kill parasites such as: Pinworms and Threadworms*
- Speed wound healing by as much as 35%*
- Reduce allergic reactions*
- Stimulate bone marrow activity*
- Stimulate fibroblasts to release collagen and elastin to make new tissue*
- The healing power of Aloe Mucilaginous Polysaccharides explained*
- Takes stress off the immune system: Helps stop the bleeding, damage and leakage of the intestine wall. *
- Relieves autoimmune response and allergic conditions: *
- Helps to effectively balance and restore proper immune system function. *
- Reduce inflammation: very strong anti-inflammatory agent. *

- By curing your disease or syndrome your body will restore the intestinal protective mucus lining. *
- Encourages and increases: the tissue healing process. *
- Prevents the production of too much stomach acids which lead to heartburn, acid reflux disease or gastro esophageal reflux disease known as GERD. *
- Will maintain or correct fluid levels within the colon after continued use: eliminating both diarrhea and constipation. *
- By helping all the body's systems work together as they should: proper digestion, absorption of foods and nutrients are no longer a problem. *
- Will help to correct and protect the healing of: former damaging processes in the digestive tract. *
- Helps with people who have a problem with maldigestion and all the pathological reactions associated with maldigestion. *
- Will cure and prevent: anti-bacterial, anti-viral, anti-fungal, anti-yeast and anti-parasitic infections and viruses. *
- Protects and encourages healthy flora in the digestive tract. *



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- Controls chronic yeast growth: to insure that normal healthy flora may remain.*
- Increases blood circulation through the body. *
- Balances blood sugar throughout the body. *
- Works as an intracellular antioxidant cleaning out all cells. *
- Is absorbed by every cell in the body. *
- Aloe mucilaginous polysaccharides act as a potent anti-inflammatory agent*
- Absorbed through receptor sites, which are located within the human digestive tract. *
- Aloe Mucilaginous Polysaccharides have a remarkable ability to: *
- Help promote tissue growth and regeneration inside and out*
- Clean and Detoxify: Enhances the break-down and removal of excess waste, mucous, toxins, heavy metals and foreign buildup from cells, tissues and organs*
- Fortify Cell Walls strengthening cells resistance and integrity*
- Improve cellular metabolism - enhancing energy and optimal functioning of each cell of the body*
- Help normalize damaging processes caused by poor digestion*
- Help enhance the immune systems functions*
- Help correct imbalances within the body and has broad-spectrum uses in cases such as constipation and diarrhea*
- Help take the stress off the immune system*
- Help increase the number and intensity of all immune cells in the body*

The bottom line is that concentrated Aloe fractions enhance the functioning of the entire immune system, detoxify the body, promote the repair of a wide range of tissues and organs, improve digestive functions, and help with the destruction and elimination of invading bacteria, viruses, and parasites.

Mucopolysaccharides are made in the human body and perform many key functions in our health, including growth and immune system functioning. Unfortunately, after puberty we cease manufacturing mucopolysaccharides and must obtain them from outside sources.



Fortunately, mucopolysaccharides are found in large amounts in fresh Aloe and in our proprietary process does.

There is wide range in the size of the polysaccharide molecules you should become familiar with. Aloe Vera contains all 4 chains of polysaccharides. These result are measured by GPC/ HPLC is involved in such diseases as ulcerative colitis, arthritis, and gastric reflux. Also helps with the reduction of blood sugar with both type I and II diabetes. Medium Chains - Up to 1,500 molecules (50,000 - 150,000 Dalton) - Where as vitamins and minerals can only function outside the cells, mucopolysaccharides are very effective intracellular antioxidants and free radical scavengers - very important in preventing and treating arteriosclerosis, heart disease. With the ever increasing pollution on the planet and loss of nutrients in the soil, the increase in free radicals and loss of cellular oxygen will only become worse with time.

This makes Aloe mucilaginous polysaccharides even more important. Large Chains - Up to 5,000 molecules (150,000 - 1 Million Dalton) - These have a direct anti-bacterial and anti-viral effect, which is important with all the new infectious diseases cropping up and the older ones becoming more virulent from long term use of antibiotics. Very Large Chains - Up to 9,000 molecules (More than 1 Million Dalton).



The very large molecules are immune modulating, which have a powerful healing effect on AIDS, cancer and many different immune system disorders.

There are other polysaccharides inside Aloe Vera as:

Arabinan and arabinogalactan. Arabinogalactan contains mainly arabinose and galactose, but also other sugars including Glucuronic acid and/or galacturonic acid. Certain arabinans and arabinogalactans sometimes form the neutral side chains of pectins. Arabinogalactan is present in a much lower concentration in Aloe gel compared to acemannan.

Aloe ride is a polysaccharide that comprises only 0.015% of the crude Aloe Vera juice material (dry weight) It has a molecular weight between 4 and 7 million Da with its glycosyl components. Containing glucose (37.2%), galactose (23.9%), mannose (19.5%) and arabinose (10.3%). Polyuronide- Has a molecular weight between 275 and 374 kDa, while that of Aloe feron is 70 kDa.

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Aloe Pectin

Pectin is a substance found in many citrus products and is also in the cell walls of Aloe Vera. Scientifically, the reason behind Aloe's healing power has been cited to correlate with its levels of pectin. Pectin is said to be able to bind wounded or separated cells back together and protect from infection.

While Aloe Vera is often administered to aid in soothing burns on the surface of skin, it currently has no medicinal uses supported by clinical data. Pectic substance is a term that refers to a group of closely related polysaccharides including pectin, pectic acid and arabinogalactan. Pectin is a polysaccharide consisting of α -(1 \rightarrow 4) linked Polygalacturonic acid with intra-chain rhamnose insertion, neutral sugar side-chains and methyl esterification. When Aloe Vera pectin is applied to a wound: As a wound heals, the cells around it are stimulated to divide and grow into the wound. The stimulant is something called a growth factor, usually a vitamin that affects the growth of an organism. Most growth factors, however, degrade quickly, slowing the healing process. But when the researchers added the Aloe pectin, they found that it served as a binding agent, welding growth factors together and thus protecting them from degradation: Cement cell. The pectin in Aloe Vera has special properties that act as a type of "cell cement" that causes cells to be stimulated, divide and grow.

Our products are sold by the following registered brand:

Available in juice single strength liquid concentrates and powder form.

From AMB, your clients can get the following advantages:

- Quality and purity certification
- The best microbiological quality
- Longer shelf life (Two year minimum)
- Year-round supply according to your requirements
- Multimodal Export Experience
- On time delivery
- Friendly service
- We supply Customized Extracts
- AMB WELLNESS supplies healthful organic Aloe Vera.



Adhering to international standards

All of AMB Wellness's Aloe ingredients adhere to the following international standards:

- Certified Organic by Bioagricert (IFOAM) according to USDA organic rules.
- Certified Halal by the Muslim Center of Mexico (viva Hallal) , our Aloe is certified to fit for consumption by the Muslim community.
- Certified Kosher by Star-K, a leader in the international world of kosher certification. All of our Aloe meets the dietary requirements of Jewish Law.
- Certified pure by the International Aloe Science Council, a non-profit organization that subjects Aloe facilities and products to a series of rigorous quality and purity tests. Our ingredients proudly bear the IASC seal, which means you are getting the purest, most beneficial Aloe possible as your ingredient.

International Certifications



Addendum:

Aloe Vera Raw Materials are sold by the Concentration Value expressed by an X. The "X" value is 0.5%.

Product Code	Aloe Solids%	Water	Presentation	Packaging
AVG 1X JUICE	NLT 0.5%	99.5%	Juice single strength	200 lts drum
AVG 10X CONCENTRATE	NLT 5%	95%	Liquid concentrate	200 lts drum
AVG 20X CONCENTRATE	NLT 10%	90%	Liquid concentrate	200 lts drum
AVG 30X CONCENTRATE	NLT 15%	85%	Liquid concentrate	200 lts drum
AVG 200X POWDER	100%	0%	Powder	25 kgs fiber drum

- Ask for net weight per product, may have variation according to aloe solid content.

Drying Technologies:

- AVG 200X Spray Dried
- AVG 200X Freeze Dried Powder
- Aloe Flakes

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Our Production Capacity:

Aloe Vera Gel

Item	Capacity
Aloe single juice strength 1x	18,720 Tons /Year
10 X Concentrate	2.000 Tons / Year
20 X Concentrate	1,000 Tons / Year
30X Concentrate	667 tons / Year
200x Spray Dried	100Tons/ Year

Our liquid products are supplied in 55 gallons (210 liters) drums (food grade, high density polyethylene). Aloe Vera Powders are packaged in 25 moisture-proof double bags contained in fiber drums, powders in kilo, 5 kilos and 10 kilos and are packed in double plastic bag termoselled, into a box or biber drum.

Solutions we offer:

- Customized products
- With preservatives
- No preservatives:
- Powder special packaging
- 1 kg
- 5 kgs
- 10 kgs
- Multimodal Flexible Service
- Door to door service by courier
- Air
- Maritime
- Refeer
- Dry cargo
- LTL/ FTL

Statements:

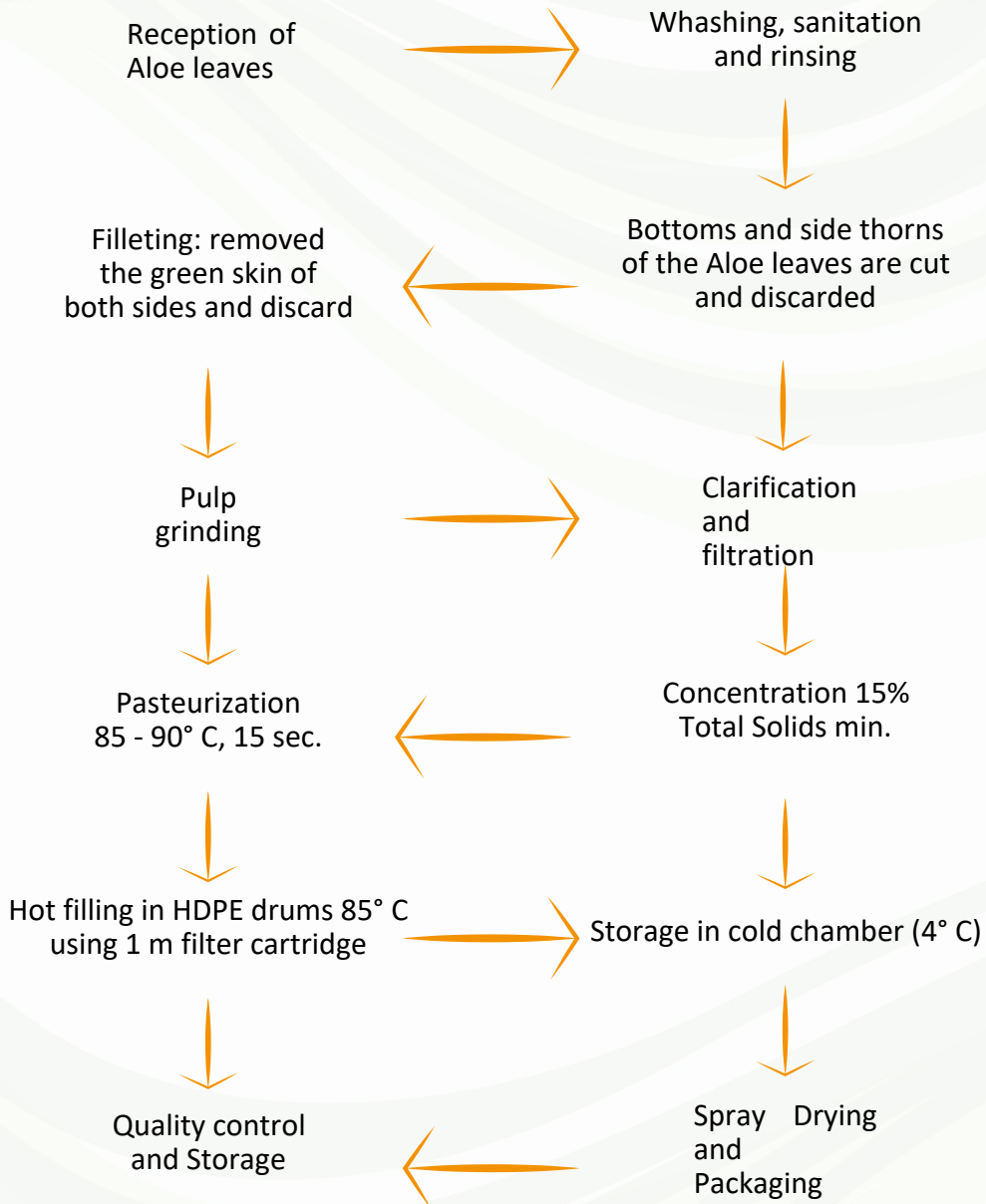


Team at your service
customized products



Product: Innovaloe Aloe Vera Gel Spray Dried Powder 200:1

Product Code: 0201



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