

COMMERCIAL BULLETIN

ALOE VERA FROM WITHIN

COSMECEUTICALS



Lifts
sagging skin

Aloe
Benefits

Boosts
skin's elasticity
and strength

Reduce
wrinkles

Supports
younger-
looking skin

Hydrates
skin
intensively

Radiates
brilliance

Tightens
stretched skin

Accelerates
skin's renewal
process

COLLAGEN POWDER

DAYTOX

LA BOISSON BEAUTE SOLAIRE INTENSIF
Objectif protection cellulaire Anti-oxydante

super fruity beauty drink

COLLAGEN POWDER FOR BEAUTY DRINK
BEAUTY COLLAGEN DRINK

Mad Beauty Drink

AMB Wellness is a Raw Material supplier only

ALOE VERA AND BEAUTY – A WELL-ESTABLISHED CONNECTION: BEAUTY INSIDE OUT

People spend billions of dollars annually in an attempt to look beautiful from the outside-in; and as evidenced by the booming global “nutricosmetic” business, they are now embracing the concept that outer appearance is also reflected by how well they support wellness from within.

Nutricosmetics refer to products in the form of dietary supplements, functional foods or beverages marketed specifically for beauty benefits, and it appears this trend is on the rise. According to Nutrition Business Journal, sales grew 6% from 2012 to 2015, with supplement sales for this sector reaching more than \$884 million in 2015. As the beauty from within concept continues to blossom, it may be somewhat of a challenge for consumers and retailers alike to sift through the marketing hype.

Simply put, dietary adjustments are a common recommendation for people looking to reduce their risk of chronic disease. If consumers put good things into their bodies, they are more likely to feel better and maintain a healthier body. What is now being explored—fueling the growth of wellness from within—is the concept that what is consumed internally can also be reflected in outer beauty and vitality. For example, consider that what people ingest could possibly reverse sun damage, improve skin elasticity or even alleviate acne.

SKIN HEALTH

The skin is the largest organ in the human body, and the one that most visibly reflects what people put into their body. For example, look at smokers whose habit is often revealed by their appearance. Those who don't regularly hydrate might have skin that is dry and less resilient; alcohol can also dehydrate skin whereas regular consumption of added sugars, refined carbohydrates, trans fat and saturated fats may aggravate acne—and may add pounds to the scale.

The point is that “garbage in equals garbage out” often manifests in the way we look. When it comes to science to support the effect of wellness products, the evidence for topical ingredients is still way ahead of those that are ingestible. For oral nutricosmetics, the marketing potential appears to be ahead of the science, and some ingredients touted for wellness from within may offer no more than an empty wallet. However, new research continues to indicate that several of these ingredients taken orally may offer benefits reflected in outer appearance, including hair, skin and nails.



ALOE IS SKIN CARE NUTRITION

The skin is the largest organ in the human body, and the one that most visibly reflects what people put into their body. For example, look at smokers whose habit is often revealed by their appearance. Those who don't regularly hydrate might have skin that is dry and less resilient; alcohol can also dehydrate skin whereas regular consumption of added sugars, refined carbohydrates, trans fat and saturated fats may aggravate acne—and may add pounds to the scale.

TODAY'S CONSUMERS SEEK PRODUCTS THAT WILL BRING THEM HEALTH FROM THE INSIDE OUT

The market for wellness from within gains momentum as younger consumers focus on delaying signs of aging. Dry skin is a common symptom of a number of skin diseases, including atopic dermatitis/eczema, ichthyosis, irritant contact dermatitis, psoriasis and asteatotic eczema, and can also be seen in healthy individuals. It is more prevalent in geriatric populations than in younger patients and could be affected by environmental factors, such as frequent washing, the use of harsh detergents and exposure to low-humidity air. These factors can influence moisturiser studies, and so in this study, certain clinical and habitual factors, such as the menopausal state, bathing habits and the treatment experiences of other skin diseases will be included in the baseline assessments.



COSMECEUTICALS: AT THE INTERSECTION OF NUTRITION AND BEAUTY

Throughout history, men and women have sought to use the medicinal power of natural compounds to increase their health, enhance their looks and fight off aging. Cosmeceutical products promote not only external beauty, but overall whole health and wellness.

Cosmeceuticals combine the best of both worlds: wellness and beauty. At this intersection, marketers are seeking to help define the term cosmeceutical; this term tends to imply a product that is neither a drug, nor a cosmetic, but one that has a desired impact inside the skin. To product developers, it has come to mean any nutritional supplement that demonstrably improves health and beauty, with a particular focus on skin health. A cosmeceutical is a product or formula that contains an important nutritional component such as an herb, mineral or functional dietary nutrient that is ingested for the specific health benefits and appearance of the consumer.

It is this interest in nutrition supporting both internal health and outward appearance that is helping drive consumer awareness. More recently, consumers appear to understand that what they eat also plays an important role in how they look.

NUTRICOSMETICS: BEAUTY STARTS BENEATH THE SURFACE

The market for wellness from within gains momentum as younger consumers focus on delaying signs of aging. Cosmeceuticals treatments for conditions such as photoaging, hyper pigmentation, and wrinkles have Cosmeceuticals refer to the combination of cosmetics and pharmaceuticals. Cosmeceuticals are cosmetic products with biologically active ingredients purporting to have medical or drug-like benefits. Cosmeceuticals are used for nourishing as well as improving the appearance of the skin, and are also documented as effective agents for treating various dermatologic conditions. Cosmeceuticals improve appearance by delivering nutrients necessary for healthy skin.

The advent of cosmeceuticals has revolutionized the Cosmetic and Personal Care Industry. These beauty products have the ability to resolve the cause of imperfections rather than covering them. Due to this ability, the share of cosmeceuticals is incessantly increasing in the Cosmetics and Personal Care Industry. Cosmeceuticals are the fastest-growing segment of the natural personal care industry . Consumers are always interested in maintaining a youthful appearance, and as the global population's median age increases.

Cosmeceuticals, serving as a bridge between personal care products and pharmaceuticals, have been developed specifically for their medicinal and cosmetic benefits. Cosmeceuticals represent the fastest growth segment in the skin-care market, and a number of topical Cosmeceuticals treatments for conditions such as photo aging, hyper pigmentation and wrinkles have come into widespread uses.

Of course, whether any beauty product can kick time into reverse remains dubious. But the more we learn about the biochemistry of skin and the biomechanics of aging, the better equipped the skincare industry will be to formulate safe, effective, and natural cosmeceuticals that, while maybe not turning back time's hands, can at least help erase its fingerprints. The growth of the U.S. cosmeceutical market in the last decade has been "phenomenal. With an aging population, there is an increase in spending on age-defying or antiaging products.

Fortunately, cosmeceutical formulators can take advantage of a firmer, and broader, foundation of knowledge upon which to build their products. "The concept of antiaging is now not limited to antioxidants," Pande says, "but also covers factors like inflammation, which has been recognized as a root cause of several diseases.



THE SKIN WE ARE IN

That organ's uppermost layer is called the epidermis, and within it, cells called keratinocytes form at the base and pile, one upon the other, into stacks of sub-layers. As keratinocytes at the surface die and slough off, they make way for the younger cells beneath them, which themselves eventually shed in an endless cycle of cellular renewal.

Directly below the epidermis lies the dermis, which gives skin its strength and support. Unlike the epidermis, the dermis contains nerves, blood vessels, and fibroblasts that supply sensory receptors, deliver nutrients, and maintain the structural foundation of the skin.

The dermis also contains collagen, a flexible, fibrous protein that makes up fully 70% of skin's dry weight, helps maintain skin firmness and, in conjunction with the protein elastin, forms a protein complex that lends skin elasticity.

The base of the dermis comprises a collection of complex sugars: glycosaminoglycans, glycoproteins, hyaluronic acid (HA), and chondroitin sulfate. "These substances together form a 'cementing and gelling base' that binds water molecules, allowing nutrients and oxygen into the tissue and protecting the dermal structural layer.

AGEING FROM THE INSIDE OUT

As skin ages, these structures and components deteriorate. Some of the deterioration is preprogrammed into our systems and falls under the category of "intrinsic aging"—essentially, the body's way of winding down. It's a natural, progressive process that, on the surface, manifests in thinner, weaker, and less-elastic skin. But what's going on underneath is much more complex.

Intrinsic aging is characterized by "a decline and/or changes in the chemical structure and three-dimensional organization of collagen and glycosaminoglycans. The percentage of hyaluronic acid in the skin decreases, which results in the loss of hydration and moisture. Meanwhile, elasticity and firmness give way to the appearance of wrinkles as collagen and elastin breakdown increases.

Our built-in repair mechanisms also slow, lengthening the time it takes for skin to heal from injuries. The subcutaneous fat layer thins, deflating the plumpness that's a hallmark of fresh-faced youth. Skin grows drier as the



number of sweat and oil glands falls. And thanks to age-related changes in circulation, less oxygen and nutrients may be delivered to the skin, potentially dulling skin's appearance. Finally, estrogen production decreases with age, and this further contributes to skin thinning, dryness, and itching.



GAIN MARKET WITH ALOE INTO YOUR PORTFOLIO INGREDIENTS

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, aloe vera based.

A cosmeceutical is a product or formula that contains an important nutritional component such as an herb, mineral or functional dietary nutrient that is ingested for the specific health benefits and appearance of the consumer. And the appeal of “natural” is certainly helping the growth of the market. From what the past few years have indicated, consumers show a strong leaning toward the natural versus the synthetic, especially if the natural may work just as well or better. Consumers are starting to understand, at least on a basic level, what researchers have been seeing for years—components that protect the plant, and the mechanisms by which they do this, are frequently the same as that which protect the human.

It is this interest in nutrition supporting both internal health and outward appearance that is helping drive consumer awareness. More recently, consumers appear to understand that what they eat also plays an important role in how they look. In AMB Wellness, we’re seeing functional foods positioned for their skin and beauty benefits, such as yogurt with aloe vera, beauty drinks, which has been introduced in Europe and Asia.



EATING BEAUTY

In terms of product format, nutraceuticals for beauty are traditionally offered in pill, tablet, liquid and food forms. Foods and drinks positioned and marketed as “beauty enhancing” are part of a newer concept, with the rise of added-value functional foods becoming the next logical step for innovation in the cosmetics and toiletries industry. Younger consumers also are seeking products to aid in beauty and anti-aging. Much of the interest comes from consumers in their mid-30s and older, because that’s typically the time when they begin to get concerned about the effects of aging.



It is a known fact that certain herbs contribute to healthy skin and support collagen, an essential building block for the skin, tendons, ligaments and cartilage. Since inflammation compromises the integrity of collagen, Aloe vera, long known for its anti-inflammatory capabilities, would be a wise choice for many skin care and nutritional supplement products. Aloe has also long been cited for its wonderful moisturizing, detoxification, wound healing and immune stimulating properties. In fact, a scientific study carried out on the immune regulatory activity of Aloe vera has shown that applied topically, aloe has the ability to help repair damage to skin cells caused by exposure to the sun. Studies show that Aloe vera improves the skin’s ability to hydrate itself, aids in the removal of dead skin cells and has an effective penetrating ability that helps transport healthy substances through the skin.

AMB WELLNESS is always at the forefront of researching customer demands and market trends. Customers can choose from an ever-expanding list of premium quality ingredients to use in a variety of cosmeceutical applications.

Aloe vera is a natural compound that has been used for centuries for its skin health benefits, and has been shown in a more recent study to serve as a carrier of topical ingredients into the skin and tissues, increasing efficacy, according to Apps. “This is in addition to its roles as a detoxifying/antioxidant ingredient, immuno-regulatory ingredient that helps the skin and immune system recover from negative impact of UV light, and compound that helps the skin to counteract its lack of resilience and tone from natural, age-related loss of collagen and reinforce the skin’s supportive network for a firmer look. .



TO FUNCTION WELL, IT REQUIRES BALANCE AND HARMONY

Following are a few of the vital functions Acemannan and the other constituents of Aloe have been found to perform. Take a look what aloe does for your formulas:

- Aloe improves overall cellular metabolism and functioning
- Aloe reduces inflammation
- Aloe provides critical lubrication of joints; helping to prevent arthritis and to heal it once it has developed
- Aloe reduce pain
- Aloe improve vascular flow
- Aloe improve macrophage activity as much as tenfold
- Aloe speed wound healing by as much as 35%
- Aloe reduce allergic reactions
- Aloe stimulate fibroblasts to release collagen and elastin to make new tissue
- Aloe reduce inflammation: very strong anti-inflammatory agent.
- Aloe encourages and increases: the tissue healing process.
- Aloe works as an intracellular antioxidant cleaning out all cells.
- Aloe is absorbed by every cell in the body.
- Aloe mucilaginous polysaccharides act as a potent anti-inflammatory agent
- Aloe Mucilaginous Polysaccharides have a remarkable ability to:
- Aloe helps to promote tissue growth and regeneration inside and out
- Aloe 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.

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.

ALOE AS SKIN PENETRATION ENHANCER

Skin penetration enhancers are the most commonly used approach for enhancing drug penetration into the skin through transdermal drug delivery system or topical administration. These skin penetration enhancers are molecules which reversibly remove the barrier resistance of the stratum corneum and allow drugs to penetrate more readily to the viable tissues and thus enter the systemic circulation. Aloe Vera gel increased the in vitro skin penetration of compounds depending on their molecular weights, with an apparent inverse correlation between enhancement ratio and molecular weight of the compound.

Some constituents of the Aloe Vera gel itself also penetrated the skin and this was interestingly dependent on the molecular weight of the co-applied compounds. Thus the penetration enhancement effect of the aloe gel was explained by a probable pull effect of complexes formed between the compound and the enhancing agent within the aloe gel, but it was stated that the proposed mechanism of action has to be further investigated and confirmed.

ALOE IS NOT JUST FOR BODY CREAMS

Aloe Vera improves the availability of nutrients in combination products. As the dietary supplements 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.

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.

Aloe also offers ingredients and premixes targeted at skin nourishment, other aging-related concerns and overall well-being. Mix aloe vera carotenoids, biotin and vitamin E to deliver antioxidant protection from the sun's rays and to help slow the signs of aging, also helps dry skin to moisturize, aims to improve skin hydration and elasticity.

Aloe vera is your ingredient solutions for maintaining and restoring skin health, and offers nutritional ingredients that work to protect, repair or hydrate the skin from within.

ALOE VERA CONSUMPTION INCREASES VITAMIN BIOAVAILABILITY



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 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.

INNOVALOE AND THE WOUND-HEALING PROCESS



Aloe Vera accelerates considerably wound healing process, help to produce a better and more organized tissue reconstruction due to an improved organization of the dermal constituents. Aloe with high content of polysaccharides stimulates epidermal growth. Polysaccharides are a type of carbohydrate that stimulates skin growth and repair, enhancing fibroblast function (cells responsible for collagen formation). Moreover Aloe Vera contains at least three anti-inflammatory fatty acids, cholesterol, campesterol and B-sitosterol (plant sterols) which explains why it is a highly effective treatment for burns, cuts, scrapes, abrasions, allergic reactions.

A similar activity to that of wound healing, and most likely derived as a combination of two of aloe's activities, immune modulation and anti-inflammatory, is cell repair. This is especially important in maintenance cosmetics, response to everyday insults to the skin such as U.V irradiation or occupational exposure.

BEAUTY PILL OR BEAUTY DRINK?

Among its benefits, the company says aloe has been shown to promote wound healing and increase collagen, which is associated with skin elasticity. Consumers particularly are seeking products that can smooth fine lines and wrinkles, protect against sun damage, and replace lost collagen, she says. Ingredients utilized to offer these functional beauty and anti-aging claims in nutricosmetic beverages typically include collagen, aloe vera, resveratrol, omega-3 fatty acids, vitamin E, lutein, lycopene, green tea extract and antioxidants.



SKIN CARE SEGMENTATION SPARKS SIMILAR TREND IN NUTRACEUTICALS

It is fast becoming apparent that skin care—more specifically anti-aging products. As the segment grows, skin care products are becoming increasingly specialized and segmented by the type of problem they treat, as well as targeting different parts of the body. These trends are beginning to be mirrored by the new group of “beauty-from-within” products.

Nutraceutical products as they pertain to personal care generally focus on three areas—skin, hair and nails. In the skin segment, nutraceuticals address a range of problems, including skin repair, pigmentation issues, firmness, whitening, slimming and aging. For hair, nutraceutical products claim to aid growth, restoration, nourishment and volume, while nail-specific products concentrate on improving strength and the overall appearance of nails.

Another popular beauty supplement with aloe vera to promote the development of skin, hair and nails. It contains, among many other ingredients, grape seed extract, carotenoids, vitamin D, biotin and manganese. Cosmeceuticals refer to a combination of cosmetics with pharmaceuticals which contain biologically active ingredients claimed to enhance the health and vitality of the skin and hair, restore the body's natural function and help cell regeneration.

One of the new tendencies in cosmeceuticals formulations is the use of biotechnological raw materials like aloe's polysaccharides, are outstanding due to suggestive effects in skin water content and micro-relief improvement, as well as in the stimulation of cell renewal and glycosaminoglycan biosynthesis. Aloe Vera extract, which is rich composition in hygroscopic mono and polysaccharides and in the amino acids, which may improve water retention in the stratum corneum.

Aloe vera extract is a natural effective ingredient for improving skin hydration, possibly through a humectant mechanism. Consequently, it may be used in moisturizing cosmetic formulations and also as a complement in the treatment of dry skin. Skin conditions in terms of the water content of the stratum corneum and of transepidermal water loss (TEWL), Aloe vera extract increased the water content of the stratum corneum. Aloe vera extract is a natural effective ingredient for improving skin hydration, possibly through a humectant mechanism. Consequently, it may



be used in moisturizing cosmetic formulations and also as a complement in the treatment of dry skin. Aloe vera extract helps the appearance and function of the skin are maintained by an important balance between the water content of the stratum corneum and

Anti-aging remains a popular skin care product category, as aging baby boomers, and even those still very much in the prime of their youth, are looking for ways to appear and feel much younger longer. Each time I read an alternative health publication my eyes gaze upon ads for innovative products that assist with the appearance of wrinkles, wound healing, skin whitening, etc. The word cosmeceutical, though seemingly strange when first introduced years ago, is now a common phrase, and industry folks are now used to hearing such buzz words as dermaceuticals, phytocosmetics and skinceuticals, to name a few. As these words may connote, huge sums of money, time, effort and science are being devoted to producing skin care products with dramatic health benefits. d skin surface lipids.

Aloe Vera gel and whole leaf extract could decrease the transepithelial electrical resistance of intestinal epithelial cell monolayers (Caco-2), thereby indicating opening of the tight junctions between adjacent epithelial cells. The Aloe vera gel were also able to significantly increase the transport of the macromolecular peptide drug, insulin, across the Caco-2 cell monolayers. The cumulative transport of insulin in the absence (control) and presence of different concentrations of gel at pH 7.4 is depicted. The effect of Aloe Vera gel on the transport of insulin across Caco-2 cell monolayers at pH 7.4

Cumulative transport (% of initial dose)	Insulin control	0.1% aloe gel	0.5% aloe gel	1.0% aloe gel	2.5% aloe gel	5% aloe gel
Many potential therapeutic agents face the disadvantage of low bioavailability after oral administration due to poor membrane permeability.						



Drug absorption enhancers are compounds capable of reversibly removing the resistance of the outer layers in the body with minimum tissue damage, thus allowing the drug to enter the blood circulation in sufficient quantities. Although many compounds have been investigated for their drug absorption enhancing properties, some have been associated with cytotoxic effects and others were not efficient enough to ensure that therapeutic levels of poorly absorbable drugs are achieved . Only limited information is currently available on the drug absorption enhancement activities of Aloe Veragel, but if it proves to be a safe and effective absorption enhancer in vivo, it could be used in novel dosage forms for the oral delivery of poorly absorbable drugs that are administered by means of injections.

Although there is a high interest in transdermal drug delivery, the poor penetration of drugs into the skin and low permeation across the skin severely hamper the use of this route of drug administration. Techniques for improving the transdermal delivery of drugs are based on the use of chemical penetration enhancers, novel vehicle systems and physical enhancement strategies such as iontophoresis, sonophoresis, ultrasound, microneedles, velocity based techniques and electroporation .

Aloe Vera gel increased the in vitro skin penetration of compounds depending on their molecular weights, with an apparent inverse correlation between enhancement ratio and molecular weight of the compound. This penetration enhancement effect of the aloe gel was explained by a probable pull effect of complexes formed between the compound and the enhancing agent within the aloe gel, but it was stated that the proposed mechanism of action has to be further investigated and confirmed. Some constituents of the Aloe Veragel itself also penetrated the skin and this was interestingly dependent on the molecular weight of the co-applied compounds. The higher the molecular weight of the co-applied compound, the less of the gel components were transported across the skin. This was explained by the probable displacement of Aloe Vera components from the penetration pathways and thereby it inhibits permeation of the gel components more effectively than the smaller compounds.

Similar to the discussion for intestinal drug absorption enhancement, Aloe Vera gel could potentially be used as a penetration enhancement agent for the transdermal delivery of drugs if proven to be effective and safe. Aloe vera leaf gel as an excipient in modified release dosage forms Gums and mucilages from natural origin that contain complex polysaccharides have found a wide range of pharmaceutical applications such as functional excipients in dosage forms, which include binders, disintegrants, emulsifiers, suspending agents, gelling agents and sustaining agents in modified release tablets. Furthermore, some natural gums and mucilages have been reported to modify the release of drugs from modified release dosage forms such as matrix type tablets . Aloe polysaccharides are effective even when applied up to 24 h post UV exposure in external application.

BIOAVAILABILITY OF NUTRIENTS:

Biological activities of Aloe Vera leaf gel It has been claimed that the polysaccharides in Aloe Vera gel 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 .

Clinical investigations suggest that Aloe Vera Gel preparations accelerate wound healing. In vivo studies have demonstrated that Aloe Vera Gel promotes wound healing by directly stimulating the activity of macrophages and fibroblasts. Fibroblast activation by Aloe Vera Gel has been reported to increase collagen and proteoglycan synthesis, thereby promoting tissue repair. Some of the active principles appear to be polysaccharides composed of several monosaccharides, predominantly mannose. It has been suggested that mannose 6-phosphate, the principal sugar component of Aloe Vera Gel, may be partly responsible for the wound healing properties of the gel. Mannose 6-phosphate can bind to the growth factor receptors on the surface of the fibroblasts and thereby enhance their activity .

Furthermore, acemannan, a complex carbohydrate isolated from Aloe leaves, has been shown to accelerate wound healing and reduce radiation induced skin reactions. The mechanism of action of acemannan appears to be twofold. First, acemannan is a potent macrophageactivating agent and therefore may

stimulate the release of fibrogenic cytokines. Second, growth factors may directly bind to acemannan, promoting their stability and prolonging their stimulation of granulation tissue.

The nutraceutical and functional food industries endeavors 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, even you can use liquid form and your ingredient or additive.



KEEPING SKIN HYDRATED: BOTH INSIDE & OUT

To maintain a youthful and attractive appearance, skin must be flexible, soft, smooth and wrinkle-free. All of these attributes are directly associated with moisturization. Water is vital for the normal functioning of the skin and its cells; an absence or shortage of water leads to a dry, flaky and scaly appearance, or even xerosis. Thus, water levels need to be carefully regulated, a task mainly dependent on the nature of the skin's most external layer, known as stratum corneum (SC). The SC is a selectively permeable, heterogeneous, composite epidermal stratum that is the primary barrier and is therefore constantly exposed to major desiccation stress and damaging agents like wind and heat. But environmental elements aren't the only factors that alter water levels; there are other agents involved in water availability such as certain proteins implicated in transport and the aging process itself. Skin dehydration can be naturally aggravated with aging, as there are fewer interactions between water and the surrounding molecules.

The use of dietary supplements for a cosmetic benefit provides an opportunity to ameliorate skin appearance and health from the inside, complementing traditional topical agents. The combination of both types of ingredients results in a superior benefit for the skin, as the problem is attacked from opposing flanks. To improve skin hydration, selected a blend of hydrating and barrier function enhancing compounds to create your own specific formula.



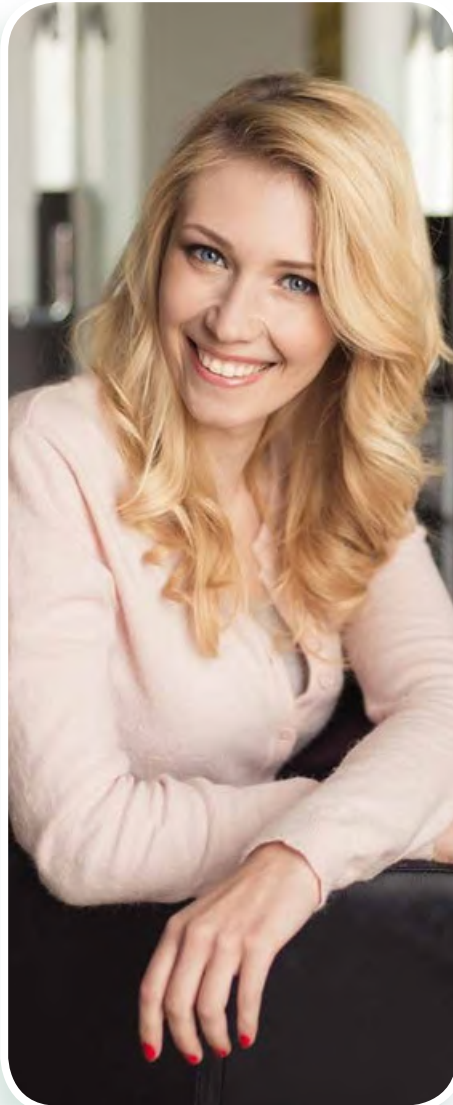
Oxidative stress occurs when the level of free radicals in the body exceeds the body's antioxidant defenses. Free radicals are considered a key factor in the aging process and may contribute to a number of health concerns.

Aloe contains a wealth of antioxidants, including polysaccharides, lignans and flavonoids. Research has shown that aloe vera extract inhibits the release of reactive oxygen species (ROS) in human neutrophils. By stopping ROS in their tracks, aloe protects our cells from free radical damage, thereby exerting an anti-aging effect. Antioxidants also can be used to work against free radicals to improve skin health.

When skin is exposed to the sun, enzymes are produced that degrade the proteins in skin. Aloe contains naturally antioxidant that helps prevent degradation of skin proteins by inhibiting the enzymes that break down dermal protein, which, among other benefits, enhances firmness of the skin. Moreover, this natural fruit extract has a cascading antioxidant effect, which means that its antioxidant activity is prolonged over a long period of time."

Aloe Vera is an adaptogen that increases the body's resistance to negative physical, chemical and biological factors and stimulates an overall feeling of balance. When aloe is combined with berry fruit juice, resvestrol, etc. have a synergistic ability to provide restorative skin care from within by addressing both internal and external aging factors while supporting metabolic and cellular health. Aloe is well-known antioxidant that help support good health in many ways, including protecting collagen tissue and blood vessels and exerting anti-inflammatory effects.

ALOE VERA IS NOT JUST GOOD FOR THE SKIN



Everyone knows that aloe vera is great for the skin, but a growing number of consumers also know the benefits of its consumption. Aloe is regarded for its immune-enhancing properties and is said to stimulate the body's own antioxidant production. Aloe also has been linked to lowering cholesterol and blood sugar levels. And it can play a key role in the health of a low-carb dieter.

These days, there are few of us who don't know someone following a 'low-carb' diet plan. A recent study at Yale University found that consuming foods high in animal protein, saturated fat, eggs and dairy could compromise the immune system. It is no myth that fruits and vegetables provide antioxidants, and are known to boost the immune system. This is a great reason to ingest aloe, especially if you are restricting your intake of fruits and vegetables as a result of following a low-carb diet plan.

Aloe vera easily acquire a taste and can easily be masked with added flavors, or blended in with your favorite fruit or vegetable juice.

Aloe can market in combination of ingredients to promote energy; vitality supports memory, mental clarity and focus; helps manage stress; and promotes joint comfort and flexibility. In addition to aloe vera, the beverage also contains green tea, vitamins B3 and B6, skullcap and ginkgo extracts, and cordyceps sinensis.

Boomers especially are very receptive to nutrient-dense beverages. Furthermore, interest in these beverages is quite high among younger consumers who are typically very willing to experiment with new products and like the convenience factor.

True beauty comes from within, many beverage formulators would agree with that philosophy, and adds to it the science of beauty-enhancing ingredients. With consumers' interest in improving their appearance, beverages offer

an ideal medium to deliver beauty from within. Beverages are good formats for beauty-from-within applications because there is already a trend for enhanced waters, such as, aloe vera who increase the bioavailability of vitamin E 300% and can attract the targeted market of women.

Functional beverages offering well-being and lifestyle solutions are just as hot as functional beverages focusing on improved health. Beauty from within is catching on fast, as is body composition, with beverages aiming to help metabolism and burn fat and calories, as CLA, green tea, garcinia gambogia and others.

To reach mainstream health and wellness-oriented consumers, aloe vera's rather challenging flavour needs to be effectively disguised. Playing in aloe vera's favour is the fact that a substantial number of consumers all over the world have already come across this ingredient skin care has a widespread association exists between aloe vera and beautiful skin. To address consumers' desire to enhance their beauty from within, ingredient suppliers are offering an array of beauty-enhancing ingredients.



Aloe Vera fit the busy lifestyles of today's wellness and inner beauty seekers, aloe vera is good positioned for internal health and outward appearance will certainly gain market share because people understand that what they eat and drink affects how they look.

As consumers clamor for products that help them look young and stay in good health at any cost, nutraceuticals represent one of the hottest categories within the beauty industry right now. This is because the concept of prevention is one that resonates well with beauty consumers—after all, the mantra “you are what you eat” is familiar to everyone.

Anti-aging is a major trend driving this market. In addition, consumers perceive health, beauty and well-being together as a whole. There is an increasing crossover between the idea of inner and outer well-being and inner and outer beauty.



Nutraceutical products as they pertain to personal care generally focus on three areas—skin, hair and nails. In the skin segment, nutraceuticals address a range of problems, including skin repair, pigmentation issues, firmness, whitening, slimming and aging. For hair, nutraceutical products claim to aid growth, restoration, nourishment and volume, while nail-specific products concentrate on improving strength and the overall appearance of nails.

ALOE VERA: INSIDE BEAUTY

In the beauty industry, the beauty-from-within category continues to grow. As new products launch in the marketplace and in the United States, slowly but surely this concept is taking hold. Many new products promise younger-looking skin, and here, science—including a recent human clinical study—supports the cosmetic benefits that have been touted of Aloe vera for years.

This recent human clinical study was completed by the Department of Dermatology at Seoul National University's Boramae Hospital, Seoul National University College of Medicine, and was funded by a grant from the Korean Food and Drug Administration (KFDA).

Thirty healthy female subjects over the age of 45 were orally supplemented with either a low or a high dose (low dose=1,200 mg/day; high dose=3,600 mg/day) of Aloe vera gel for 90 days. After completion of the 90-day period, the KFDA concluded that ingested Aloe vera gel resulted in a significant reduction in facial wrinkles and a significant increase in skin elasticity. There were no adverse events reported. There was also an increase in collagen production and a decrease in collagen-degrading MMP-1 gene expression.



In another study, oral treatments with Aloe vera were found to have a positive influence on the synthesis of glycosaminoglycans, thereby benefitting wound healing. Still other studies have been done specifically showing Aloe vera can increase the collagen content of the granulation tissue, the fibrous tissue involved in wound healing. While more studies are needed to further explore the ingestible benefits of Aloe vera, there is a clear indication that Aloe vera as a supplement will help the skin look better.

Studies also have shown that aloe-based supplements can enhance the bioavailability of vitamins C, E and B12. Human clinical studies also have shown that aloe supplements can be beneficial for immune health, oxidative stress, interior beauty and skin health,

A Philippines local brand of other Asian specialty drinks that provide functional benefits for the skin. Alo Youth is made from aloe vera juice and contains fragments of natural aloe vera, which helps regulate blood circulation and repair damaged tissues; 500mg of collagen, which enables the skin to be more elastic; vitamin E, a powerful antioxidant; and 200mg of L-carnitine, which assists in weight management.

COLLAGEN AND ELASTIN REPAIR FOR HEALTHY SKIN

Drinking Aloe Vera juice adds a rich supply of raw materials to your diet, which can produce and maintain really healthy skin. The skin replaces itself every 28 days. Using the nutritional building blocks of aloe vera, the skin can use these nutrients daily to help combat the effects of ageing. Aloe vera also helps in soothing minor burns, cuts, scrapes and skin irritations.



SKIN HEALTH

Studies show that aloe vera can penetrate three epidermal layers of the skin. High polysaccharide aloe vera gel may improve absorption of other botanical herbs and vitamins. Typically, aloe vera products should contain a significant quantity of aloe vera in the formula (30% - 99%) to be most effective on human skin

Its gel are used as skin tonic against pimples. Aloe vera is also used for soothing the skin, and keeping the skin moist to help avoid flaky scalp and skin in harsh and dry weather. It may also be used as a moisturizer for oily skin. Aloe vera improves the skin's ability to hydrate itself, aids in the removal of dead skin cells and has an effective penetrating ability that helps transport healthy substances through the skin. Each of these factors makes Aloe vera an ideal ingredient in cosmetic and dermatological products. In fact, Aloe vera is currently one of the most important ingredients in the cosmetics industry, being utilized in over 95 per cent of the dermatologically valuable extracts manufactured worldwide.

The Aloe sugars are also used in moisturizing preparations

- Hydrates the skin, accelerates skin repair.
- Moisturize and hydrate skin
- Delivering Beauty
- Age defying activity
- Youthful Radiance
- Protection from normal wear and
- Deep healing
- Enhancing and nurturing
- Anti-inflammatory
- Strengthening the skin's metabolic mechanisms
- Maintaining skin health and retarding



For manufacturers and formulators, the beauty of the nutricosmetics market is in part due to its "age." Because the market is still relatively young and entirely new to many consumers in the market, there aren't many players saturating the space.

INGREDIENT TRENDS

In simple terms, free radicals are generated from sunlight, smoke and pollution; they gobble up collagen and elastin, the fibers that support skin structure, potentially leading to wrinkles and other signs of aging. As one of the main antioxidant nutrients, vitamin C helps to lessen the oxidative stress in cells and may support regeneration and production of new, healthier skin cells. It is necessary for the development and maintenance of collagen, cartilage and blood vessels; collagen is also important for strengthening hair and improving hair growth.

Researchers analyzed data from the National Health and Nutrition Examination Survey, which explored links between nutrient intake and skin-aging appearance in more than 4,000 women aged 40 to 74. They discovered that higher intake of vitamin C and linoleic acid (an essential fatty acid) and lower intake of fat and carbohydrates were associated with better skin-aging appearance (less wrinkled appearance, less dry and atrophied).



Zinc affects multiple aspects of the immune system, from the barrier of the skin to gene regulation within white blood cells. Zinc is involved in the rate at which skin heals and it helps repress oil production, which is key for people who suffer from acne. Zinc is also important for growth and repair of hair cells and keeps the oil glands surrounding follicles in peak shape.

Vitamin A is essential for formation of healthy epithelial (skin) cells and mucous membrane surfaces. Low vitamin A levels may lead to dry, flaky and/or even bumpy skin. If vitamin A levels in the diet are adequate, adding more probably won't do much more for skin health.

Although much of the research on vitamin A is related to topical use, some studies have suggested that foods high in the antioxidant beta-carotene (a precursor to vitamin A) may lower risk for conditions like psoriasis. Vitamin A is also necessary for healthy sebum production in the scalp, which may prevent strands from drying out.

Omega-3s. There is an abundance of research indicating a positive role for omega-3 fatty acids in reducing the risk of cardiovascular disease, joint issues, inflammation, and for supporting skin health. Omegas are part of the building block of cell membranes and play a vital role in membrane fluidity, flexibility and permeability.

Specific to skin, omegas have been studied for their role in delaying visible signs of aging, regulating hydration and controlling the skin's oil production. If skin is dry and prone to inflammation then essential

fatty acids may help to produce a “calming” barrier that isn’t produced when these essential fatty acids are in less than adequate supply. In 2005, the Journal of Lipid Research published a study that explored the role eicosapentaenoic acid (EPA) plays in protection of the skin from UV-induced damage linked to fine lines and collagen degradation.²

Resveratrol is an antioxidant concentrated in red wine and in Japanese Knotweed (polygonum). The benefits of resveratrol have been fairly well-documented in the research; it has been suggested that it not only protect the skin but also repairs previous damage. Resveratrol’s benefits are linked to increased skin elasticity and the strengthening of collagen, resulting in fewer wrinkles.

CoQ10 is a component involved in healthy mitochondrial function; it helps facilitate converting food into energy and acts as a protective antioxidant in mitochondrial membranes. Because of its antioxidant role in reducing cellular damage, CoQ10 may contribute to the appearance of healthy skin. Dietary sources of CoQ10 are limited to mostly meat, poultry, fish, soybean and canola oil, eggs and dairy.

Collagen is an extremely popular ingredient in the Japanese market where consumers can buy everything from collagen marshmallows to collagen-infused plum wine. Declining collagen and elastin levels are a natural part of aging, which makes skin appear less firm and elastic and more “crepe like.”

In a study published in the Journal of Cosmetic Dermatology in 2015, oral supplementation with collagen peptides was shown to improve skin structure and health from within by increasing hydration and collagen density.³ Another recent study demonstrated a significant reduction in eye wrinkle depth in individuals taking a daily supplement containing collagen peptides, with improvement in collagen and elastin after eight weeks of taking the supplement.⁴



Alpha-Lipoic Acid. This antioxidant ingredient is said to be hundreds of times more potent than vitamin C because of its ability to penetrate both oil and water. Alpha-lipoic acid helps neutralize skin cell damage caused by free radicals, and has indeed been studied for this effect.⁵

Hyaluronic Acid (HA) is a mucopolysaccharide, which is one of the glycosaminoglycans (GAGs) best known for its role in lubricating joints, but it also appears to play a role in skin cells. HA retains water and helps hydrate and transport nutrients to cells. A 2014 review published in Nutrition Journal suggested that oral intake of HA can protect against moisture loss and UV skin damage.

Lycopene is an antioxidant that has been touted as promoting luminous skin from the inside out, and has been suggested to help boost protection against UV exposure. Supplementation with tomato-based lycopene products has been shown to have a modest effect—similar to an SPF of 2—in protecting against UV radiation.⁷ While both foods and supplements are being explored for their role in sun protection, they clearly should not be used as a replacement for topical sun protection.

Biotin is a water-soluble vitamin that is generally classified as part of the B-complex. Lofty claims that biotin supports hair and nail growth and strength have given it celebrity status in the beauty from within segment. Interestingly enough, biotin's popularity stems from effectiveness in treating abnormalities in hoofed animals, which led to research exploring the link between biotin intake and brittle fingernails in humans.

The Bottom Line. Sales of nutricosmetics are on the rise, but science has a ways to go to catch up with marketing and address consumer skepticism. When adding supplements or making changes in dietary habits, consumers may feel better within hours or days. However, more supple, glowing and/ or hydrated appearance typically doesn't happen overnight and might not be noticeable until after a couple of weeks, depending on severity of changes in each individual. Be cautious of products that sound too good to be true, and remember that the best way to promote wellness from within is with a diet that includes a wide variety of antioxidant-rich whole foods, healthy fats and is low in refined carbohydrates, with minimal processing and additives.

