

COMMERCIAL BULLETIN

ALOE VERA DELIVERY SYSTEM FOR DIETARY SUPPLEMENTS



AMB Wellness is a Raw Material supplier only.

ALOE VERA ALOE DELIVERY SYSTEM FOR DIETARY SUPPLEMENTS

AMB WELLNESS offers active & excipient Aloe Vera Ingredients with key points of value for Nutra & pharma applications. Aloe Vera is an excellent carrier and excipient for food supplements, sport nutrition, food fortification, fortified premixes, nutraceuticals & animal health. Aloe Vera is an ingredient that will surely be of the interest for companies manufacturing tablets, softgels, hard capsules, powders and functional drinks.

Global Demand for Aloe Vera extracts will continue its upward momentum. The growing health and wellness trend will also boost positive sentiment on Aloe Vera, with wide-ranging applications opening up new avenues of evolution. Merge the need of innovative, high-quality and cost-effective products to ramping up your sales. Aloe Vera extracts are gaining traction as an essential ingredient in food, beverages, cosmetics, nutraceuticals and pharmaceuticals. Demand will continue to grow at a healthy rate in global market, where a rapidly growing middle class with increasing disposable income is making a steady shift to natural and organic products.

Factors such as increasing trend of consumers towards healthy lifestyle, coupled with increased usage of Aloe Vera extracts as an ingredient on food, pharmaceutical and cosmetics industries are showing a global market growth.

Aloe's polysaccharides contribute on drug absorption due to its enhancing properties. Currently, the new trend on Aloe Vera Global Market is using the Aloe Vera for Nutraceuticals as a vehicle for other functional ingredients enhancing their bioavailability instead of using

other carriers that will not contribute at all on the better absorption of the other ingredients, nowadays Aloe Vera can be found mixed with other actives such as vitamins, minerals, aminoacids, botanical extracts and so on.

With the continued sedentary and hectic lifestyles of industrialized regions of the world and the relative increase of the senior segment of the world population, these trends are expected to grow. It is not the simple target to sale, but how can offer best results. Despite numerous issues facing the market, herbs and botanicals are set to experience the fastest growth of any of the nutraceutical categories, in fact, sales will continue to increase worldwide.



Aloe's polysaccharides contribute on drug absorption due to its enhancing properties

The market demands much greater differentiation than it did in the past. The days when a single multivitamin tablet satisfied all consumers are gone?, 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. Today's consumers are much better informed about nutrients and plant extracts.

Every consumer's goal is to get the nutrition they are looking for in the form of foods and beverages that are easier to include in their daily diet. Major factors that fuel the growth of Aloe Vera extracts market includes increasing number of health conscious consumers, rising number of urban population coupled with increasing consumer awareness regarding the benefits of Aloe Vera extracts. In particular, consumers are gravitating toward ingredients within certain supplement platforms based on their perceptions that products can improve their well-being. These platforms include digestive health, active nutrition/sports nutrition, healthy aging and nutritional oils.

Manufacturers and marketers would be wise to understand that dosage forms for delivery of these ingredients can make as big a difference in consumer satisfaction as the ingredients themselves. In fact, delivery forms can maximize the potential benefit of those ingredients. Today's busy consumers look for easy-to-use formats. Healthy lifestyle consumers are also hungry for anything they perceive to be "good for prevent illness.



Boost your sales adding Aloe Vera as Bioenhancer



Add value to your products, create your own niche high value category, there are big opportunities for functional and nutritional value products. Alone or combined with other natural ingredients. Consumers are more focused on higher value, in the products they do consume. They're also much more demanding in terms of a higher sustainability footprint, they're also much more demanding on the product's nutritional, functional and health benefits. Be part of this trend in your market, adding Aloe Vera to your existing product line.

Innovate and formulate with Aloe Vera, be part of this emerging trend, innovate in your market and offer benefits and drive a strategy in nutrition, health and wellness and make a competitive advantage, add Aloe Vera to your product portfolio.

Consumers are more aware of the nutritional dimensions in their lives and the need for quality of life. Interestingly, those who are making a strong effort to consume nutrients (including probiotics, vitamins, minerals, Aloe Vera extracts, fiber, calcium, organic foods), and to limit additives are also making an effort to eat more fresh foods and also receptive to fortification of foods.



Aloe Vera is a natural functional ingredient that enhances and supports well-being

Consumers buy products with belief they are buying the best quality of life. Today the nutraceutical companies are looking for health ingredients, this is the reason AMB Wellness invite you to trust us as your Aloe Vera Raw Materials Supplier to improve your sales and benefit your consumers, for that reason AMB assures its analytical on International Laboratories with the highest standards of quality, as HPLC/ GPC for polysaccharides, NMR for purity, ORTO-ACETYL for acemannan contents, Extensive microbiological and purity testing ensures an ingredient you can trust to wear your Brand name, and others more.

Aloe Vera nutrients are necessary in order to maintain and develop a healthy body. 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 Vera can be formulated for natural short- and long-term health products. Products containing Aloe Vera offer psychological rewards with returned value. Functional food and beverage products provide outstanding nutritional health benefits in an everyday food, beverage, tablet, or capsule format that consumers find convenient and easy to add to their daily health regimen.

There is an increasing interest in developing natural products to address functional concerns. When formulating products, it is of the paramount importance to use a standardized extract in order to guarantee consistency. AMB WELLNESS has several range of Aloe Vera premium products with a standardized and pure process.

Among Aloe Vera attributes, Aloe contains amino acids, vitamins, minerals, enzymes, proteins and polysaccharides as being key components of its health-enhancing qualities, and believes that Aloe Vera will become also a big hit in performance-enhancing products.



Aloe Vera Powder, the ultimate protective carrier

Aloe Vera is certainly a good option for protecting sensitive components from degradation, with good exceptional film forming and emulsifying properties that ensures superior protection over time compared to modified starches, food polymers or gums.

Aloe Vera is the optimal carrier for encapsulation:

- Protects delicate and fat soluble materials such as flavors, nutritional oils, vitamins, natural colors, vegetable extracts, bacteria or enzymes against oxygen, moisture and other ingredients.
- Proves unrivaled retention, improves stability and extends the shelf life of encapsulated active ingredient.
- Shows outstanding binding and coating properties in a fluidized bed, for granulation and co-drying technologies
- Enhanced and controlled release of active ingredients.
- The presentation are available spray dried powder form, or liquid concentrates and single strength juice
- Also exclusive instantatized with fastest dilution in water factor and easy to handle, with good dispersability and significantly improves the dilution process with water or other liquid materials.

Another advantage of using Aloe Vera is that it can be customized to fit a broad range of mill sizes and bulk densities that is of great help for new products development and to improve old formulas.

The unique functional properties of aloe by AMB wellness improves your functional marketing value and imparts and gives an added value in food products. In certain industries, rheology properties are very important in some preparations, Aloe Vera allows the consistency, degree of fluidity, and other mechanical properties and does not affect the determining texture. Aloe Vera work in solid, gel, liquid, emulsion with associated rheological behaviors, and its rheological properties can be noticed in manufacturing process

Aloe Vera is ideal as a carrier, excipient and bioactive enhancer for an active ingredient delivery system, this approach addresses the limitations of the traditional drug delivery systems, determination of pharmacokinetics, mechanism of action, site of action, accurate dose required etc.), Aloe Vera can be incorporated in novel drug delivery system, such as nanoparticles, microemulsions, matrix systems, solid dispersions, liposome, solid lipid nanoparticles and so on.

The method by which a drug is delivered can have a significant effect on its efficacy. Some drugs have an optimum concentration range within which maximum benefit is derived, and concentrations above or below this range can be toxic or produce no therapeutic benefit at all. Aloe Vera compounds have demonstrated the capability to enhance the bioavailability. To minimize drug degradation and loss, to prevent harmful side effects and to increase drug bioavailability and the fraction of the drug accumulated.

Aloe Vera delivery release can be an option with good and significant effect on its efficacy. A novel drug delivery system is a system that offers multiple drug delivery solutions such as promising for valuable and efficient herbal, minerals, vitamins, drug delivery, fortified foods and sport nutrition.



Aloe Vera carrier provides specific nutrients, cosmetic benefits among some other important benefits. Aloe Vera has been established overall health boosting capacities of various release active ingredient but there is a great interest and medical need for the improvement of bioavailability of a large number of nutra and food supplements.

Bellow this lines, we will present several studies of how Aloe Vera is a good delivery systems and big promising potential, several researchers are working towards developing novel drug delivery systems like mouth dissolving tablets, TEER intestinal absorption, as an excipient, extended release formulations, solubility enhancer in tablet formulation mucoadhesive systems, transdermal dosage forms, as an excipient in sustained release (SR) pharmaceutical dosage forms microparticles, microcapsules, nanoparticles, implants etc. of herbs. Some of them are at the laboratory stage and some have reached to the market.

Approximately one-third of the population, primarily, geriatric and pediatric populations, has swallowing difficulties, resulting in poor compliance with oral drug therapy. Fast dissolving tablets offer the combined advantages of performance, convenience, rapid onset of action and patient compliance and allow administration of an oral solid dose form in the absence of water or fluid intake. When placed on the tongue, it disintegrates instantaneously, releasing the drug which dissolves or disperses in the saliva. They are prepared by techniques such as tablet molding, spray drying, lyophilization, sublimation, or addition of disintegrants. Pharmaceutical formulators often face the challenge of finding the right combination of formulation variables that will produce a product with optimum properties.



This study was undertaken to formulate a suitable fast dissolving nutraceutical tablet of freeze dried Aloe Vera Gel (AVG), utilizing factorial design. Many of the health benefits associated with Aloe Vera have been attributed to the polysaccharide contained in the gel of the leaves. On the other hand, the important pharmaceutical applications such as the use of the Aloe Vera Gel Powder as an excipient in sustained release (SR) pharmaceutical dosage forms has to be explored further. The HPMC and ethyl cellulose are ideal to be used as polymer and different concentration of Aloe Vera Gel Powder used as dissolution enhancer.

Sustained release matrix tablets were formulated by direct compression method and subjected to quality control studies as per the official pharmacopeial standards. The developed tablet formulation complies with the monograph. To conclude the Aloe Vera Gel Powder can be used as dissolution enhancer for improving the drug absorption of water insoluble drugs.

Formulate your Active ingredient with Aloe Vera

Today, there are many natural products available to consumers to help them live better, fuller, healthier, and happier lives and Aloe Vera has been for years one of the favorites among the top ten natural products. At a time when products come and go quickly on the market, Aloe Vera retains a strong league of dedicated supporters. That group will grow as new products with Aloe Vera are created and launched.



The herbs and botanicals market, as it applies to the dietary supplement, self-medication and functional food segments, is driven by consumer demographics and health concerns. Broadly speaking, these trends include anti-aging, weight control, joint and bone health, digestion/immunity, cardiovascular health/ diabetes, cognition/memory, female/ male health and the growing wellness and beauty trends.

There is a very large population worldwide which consume vitamins and many people also consume Aloe Vera. Speaking in bioavailability of larger consume of vitamins, using aloe vera combined, the effect of Aloe on the human absorption of vitamins C and E, the most popular vitamin supplement.

The Aloe Vera Gel absorption was 304%, Aloe Vera Gel caused a significant increase in plasma ascorbate after 8 and 24 h. For vitamin E, aloe vera gel got 369% of absorption. Only Aloe Vera produced a significant increase in plasma tocopherol after 6 and 8 h. don't be late, improve your old formula and boost your sales. The results indicate that the Aloes improve the absorption of both vitamins C and E. The absorption is slower and the vitamins last longer in the plasma with the Aloe Vera. Aloe is the only known supplement to increase the absorption of both of these vitamins and should be considered as a complement to them.



Aloe Vera and TEER

Aloe Vera and Effect on biological membrane permeation and Intestinal drug absorption enhancement. The polysaccharides in the Aloe Vera are responsible to contribute to a large extent to the effect on the TEER of the excised rat intestinal tissue. This reduction in TEER of the excised rat intestinal tissue by the Aloe Vera indicates their ability to open the tight junctions between epithelial cells, which indicate the potential of these materials to enhance drug transport across intestinal tissues.

TEER is a measure of tight junction integrity between adjacent intestinal epithelial cells. If the size of the openings of the tight junctions increases in the presence of a paracellular permeability enhancer, the TEER of the intestinal



epithelium will be reduced because of the increasing flow of ions through the opened tight junctions and intercellular spaces.

Tight junctions between epithelial cells are dynamic structures that can be modulated by certain chemicals in such a way to enlarge the pores or fenestrae and thereby allow paracellular passage of hydrophilic macromolecules. This approach to drug absorption enhancement has the additional Advantage of avoiding enzymatic degradation of susceptible molecules. Aloe Vera Compounds selectively open the intestinal epithelial tight junctions, referred to as paracellular permeability enhancers, have shown potential as novel excipients in advanced drug delivery systems.

It is well known that polysaccharides of natural origin such as Aloe Vera are capable of enhancing the intestinal absorption of co-administered drugs by means of a transient opening of the tight junctions between adjacent epithelial cells to allow for paracellular transport across the intestinal epithelium. Aloe Vera Gel 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. Aloe Vera Gel is also able to significantly increase the transport of the macromolecular peptide drug, insulin, across the Caco-2 cell monolayers.

Aloe Vera as an excipient

The nutraceutical and functional nutraceutical 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 Gel in matrix systems showed good swelling properties due to Aloe Vera Gel Polysaccharide component has an excellent potential to be used as an excipient in the formulation of direct compressible sustained-release matrix type tablets. You can add bioactive ingredients to improve and boost the effectiveness of your formula, you can even use liquid forms to add into your products.

Aloe Vera as a bioavailability enhancer

Aloe Vera is a very promising future nutritional Bio-enhancer. Aloe Vera Powder has shown to increase the solubility of water-insoluble drugs. The concentration of Aloe Vera is directly proportional to the drug release; Aloe Vera can be used as a bioavailability enhancer. Bioavailability enhancers are drug facilitators, they are the molecules which by themselves do not show typical drug activity but when used in combination they enhance the activity of drug molecule in several ways including increasing bioavailability of the drug across the membrane, potentiating the drug molecule by conformational interaction, acting as receptors for drug molecule and making target cells more receptive to drugs. A 'bioenhancer' is an agent capable of enhancing bioavailability and bioefficacy of a particular drug with which it is combined, without any typical pharmacological activity of its own at the dose used.

These are also termed as 'absorption enhancers' which are functional excipients included in formulations to improve the absorption of a pharmacologically active drug.



Nutritional bio-enhancers enhance absorption by acting on gastrointestinal tract. Antimicrobial bio-enhancers mostly act on drug metabolism processes. Bioenhancers One possible way to reduce this drug dosage and toxicity is to increase the drug bioavailability; the rate at which a therapeutically active substance enters the systemic circulation and becomes available at the required site of action.

The results of two different Aloe Vera Inner Gel preparations indicate that Aloe Vera improves the absorption of both the vitamin C and E. The absorption is slower and vitamins last longer in the plasma with aloes, this increases bioavailability of vitamin C and E in human. They just enhance the activity and availability of the main drugs, such molecules are called bio-enhancers. Bioavailability enhancers are actually the drug facilitators which do not show typical drug activity by themselves but when used in combination, enhance the activity of drug molecule by increasing bioavailability and making it biologically available across the membrane, potentiating it by conformational interaction, acting as receptors for drug molecule and making target cells more receptive to drugs.

Aloe Vera as Solubility Enhancer in Tablet Formulation

Let Controlled or sustained release dosage forms are well known in the prior art and make broad use of polymeric compositions to delay or control the release of a medicament or nutritional supplement. Controlled or sustained release dosage forms are desirable because they provide a single dosage application without overdosing the patient and deliver a medicament or nutritional supplement at an appropriate rate to provide the desired activity over periods of time of up to 24 hours. These dosage forms can be formulated into a variety of physical structures or forms, including tablets, lozenges, gelcaps, buccal patches, suspensions, solutions, gels, etc. Polymer blends in sustained release compositions are known and used in the pharmaceutical industry because of the blend's versatility of being able to create different release profiles. Cellulose ethers are desirable polymers for use in sustained release compositions because they are derived from naturally occurring cellulose, and are free-flowing, readily compressible powders. Unfortunately, not all cellulose ethers provide a desirable release profile for compressed tablets.

Aloe Vera Ingredient has a sustained release when mixed with other active ingredients and food grade polymers, as inulina, cellulose, agar agar, (HPC), (MC) (EHEC), (HMEHEC) (HEMC) (HMHEC), (CMHMHEC) (CMHEC), L-HPC, etc. Aloe Vera improve the release rate of your formula. Aloe Vera breaks up and release its active ingredient, as an excipient in sustained release (SR) pharmaceutical dosage forms.

The polysaccharide fraction of Aloe Vera in the development of sustained release formulation for water insoluble compounds, indicate that the Aloe vera powder improves the solubility without effecting the sustain release pattern of the formulation.



The study implies that Aloe Vera with high contents of polysaccharides powder can be used in the formulation of SR matrix tablets for water insoluble compounds. Further, IIVC can be established using in vivo animal models to claim the potential use of Aloe Vera Powder as excipient in improving solubility of class II/IV drugs. Many of the health benefits associated with Aloe Vera have been attributed to the polysaccharide contained in the gel of the leaves.

On the other hand, the important pharmaceutical applications such as the use of the dried Aloe Vera Gel as an excipient in sustained release (SR) pharmaceutical dosage forms has been explored since a few years ago. The present study is development of water insoluble compound into a sustained release matrix tablets and the influence of Aloe vera gel powder in the dissolution and other physical properties of the SR matrix tablets were assessed. The HPMC and ethyl cellulose were used as polymer and different concentration of Aloe Vera Gel Powder used as dissolution enhancer. Sustained release matrix tablets were formulated by direct compression method and subjected to various quality control studies as per the official pharmacopeial standards.

Skin penetration enhancement

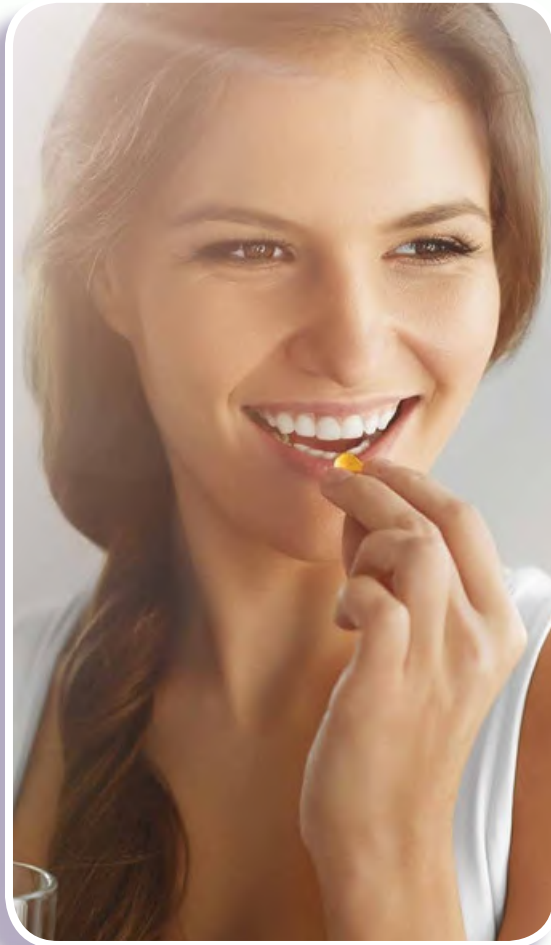
Although there is a high interest in transdermal drug delivery, the poor penetration of drugs into the skin and low permeation across the skin severely hamper the use of this route of drug administration. Techniques for improving the transdermal delivery of drugs are based on the use of chemical penetration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



Aloe Vera Gel increased the in vitro skin penetration wounds 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 Vera Gel was explained by lignine 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 Vera Gel 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. The Aloe Vera lignins is the responsible that allow Aloe Vera Gell to penetrate deep into the tissues of the skin, through all seven layers. This is especially of importance when trying to heal skin conditions. Lignins, is the 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. Ligin – This cellulose substance is found in the gel has no known medical properties except it posses the property of penetrating the human skin. Lignin, an inert substance, when included in topical preparations, enhances penetrative effect of the other ingredients into skin. Lignins penetrate the toughened areas of the skin proving great relief for skin problems such as eczema and psoriasis.

The aim of this study was to determine in vitro the potential of Aloe Vera juice as a skin permeation enhancer; a secondary aim was to probe the extent to which Aloe Vera itself permeates the skin. Enhancement potential was dependent upon the molecular weight of the drug in formulation, with the enhancement effect attributable to as yet no identified components within the Aloe Vera.

Formulate chewing gum with Aloe Vera as a medication for oral wound healing



Aloe Vera can be formulated in chewing gums for release medication, produced in a solid form and a single dose. Their base mainly consists of gum base. This form of medication contains one or more active ingredients that are released by chewing. Pharmaceutical applications of pharmaceutical chewing gums include topical treatment of oral diseases and systemic delivery after absorption through the buccal mucosa or the gastrointestinal route. Some of the formulated drugs in the form of chewing gum include fluoride, chlorhexidine, nicotine, aspirin, caffeine, and dimenhydrinate.

Pharmaceutical chewing gums are formulated in such a ways that release the maximum of its active ingredient at the appropriate time. Factors such as speed and the intensity of chewing and the amount of saliva production affect the releasing and absorption of oral drugs.

Drug releasing rate from pharmaceutical chewing gum depends on their dissolution in water. Soluble substances in water are rapidly, and sparingly dissolve but insoluble substances in water are slowly released from the pharmaceutical gum bases. Aloe Vera chewing gum can be formulated with appropriate organoleptic properties.

Fast Dissolving Tablets of Aloe Vera Gel

Fast dissolving tablets of the nutraceutical, Aloe Vera Gel can be prepared by dry granulation method. The tablets were evaluated for crushing strength, disintegration time, wetting time, friability, drug content and drug release. In order to obtain a fast dissolving tablet of the Aloe Vera Gel, an optimum concentration of mannitol and a higher content of microcrystalline cellulose should be used.

Other options with Aloe Vera could be: Fast dissolving oral films (FDOFs) or Oral wafers or Oral strips (OS) or sublingual strips or oral thin films (OTF) are the most advanced form of oral solid dosage form due to more flexibility and comfort. It improves the efficacy of APIs by dissolving within minute in oral cavity after the contact with saliva without chewing and no need of water for administration. It gives quick absorption and instant bioavailability of drugs due to high blood flow and permeability of oral mucosa is 4-1000 times greater than that of skin.

FDOFs are useful in patients such as pediatric, geriatrics, bedridden, emetic patients, diarrhea, sudden episode of allergic attacks, or coughing for those who have an active life style. It is also useful whether local action desired such as local anesthetic for toothaches, oral ulcers, cold sores or teething. At present Zolmitriptan is available in the form of tablets, nasal sprays in the market. Patients are non co-operative with these dosage forms. Hence oral disintegrating films have become important tool to improve the patient compliance.

Make Aloe Vera a part of a successful formula



Aloe Vera has a long history as a medicinal plant with diverse therapeutic applications. Although it was claimed that some of the biological activities of this plant can be attributed to the polysaccharides found in the Aloe Vera Inner Gel, it is a daunting task to link individual polysaccharides to specific therapeutic properties. Differences in plant composition due to geographic location as well as differences in gel extraction methods and sample preparation techniques have contributed to discrepancies in the results obtained from many studies in terms of the chemical composition and biological activities of Aloe Vera Gel. Although some indications were found that a particular polysaccharide is effective when tested for a specific biological activity, it seems as if it is rather a combination of compounds that account for the health benefits of Aloe Vera Gel.

With technological developments in the field of analytical chemistry it has become easier to isolate and characterise the chemical components of the leaf gel and it is expected that more information in this regard will become available in the future at a faster rate. Interesting pharmaceutical applications such as intestinal absorption enhancement activities and skin penetration improvement effects have recently been shown for Aloe Vera Gel. The dried gel has also showed potential as an excipient in modified release matrix type tablets. More applications are discovered as research from different view points is conducted on this versatile plant to provide a better understanding of its composition and effects.

AMB Wellness Aloe Vera products can be formulated with the following products:

- Infant formulas.
- As fortifier in toddler and children's fruit juices, baby food, powdered drink mixes and other foods.
- Ensure type supplements.
- Nutraceutical and other meal replacement applications.
- Fortified drinks and other prepared foods.
- Free flowing powders.
- Ideal for tablets, two piece capsules.
- Eliminate need for gelatin capsules.
- Eliminate concern with BSE and other gelatin contaminants.
- Increase the consumption of kids with instant and soluble fruit and vegetables and aloe flakes
- Ideal for a mixture with high density/viscosity ingredients.
- Excellent for athlete sport and energy formulation with high ORAC in bars.
- Ideal for spa products mixed with sugar scrubs.
- Detoxifying drinks .

- Aloe Vera for instant chocolate mix, beverage powders, compacted cubes for nutritional-intervention program, health bars using expanded/puffed cereals, etc.



Aloe Vera is ideal to make nutra preparation or formula containing or mixing in following carriers:

- Calcium carbonate
- Potato starch
- Silica
- Sucrose
- Dried food blends
- Pure fruits
- Egg shell powders
- Protein fortifier

- Maltodextrin
- Tri-calcium phosphate
- Magnesium carbonate
- Salt
- Coral calcium
- Dried fruit powders
- Tapioca dextrin
- Mineral blends
- Silicon dioxide
- Vitamin premixes
- Probiotic powders
- Microcrystalline cellulose (MCC)
- Corn starch
- Refined sugar
- Magnesium oxide calcium
- Talc
- Enzyme powders
- Protein powders



Nutritional industry uses:

- Ideal for Nutritional (Nutri) grade powders
- Aloe Vera omega tablets or capsules with omega 3,6,7,9 (flax, borage, macadamia, olive)
- Powdered lutein ester tablets or capsules as part of eye care formula
- Aloe Vera and CLA, Medium Chain Triglycerides (MCT's in sports drink)
- Tablets or capsules forms of aloe flakes & vitamin E for Nutraceutical / dietary supplements/ yogurts/ beauty drink/ beauty drinkable yogurt
- Aloe Vera plus diglyceride containing conjugated linoleic acid and MCT in slimming tablets, capsules, sachets,
- Aloe Vera in weight management dry shake meals products
- Aloe Vera plus Alpha Lipoic Acid (ALA)(flax)
- Tablets or encapsulated Aloe Vera plus gamma linoleic acid (GLA)(borage, primrose, black currant)
- Tablets or encapsulated Aloe Vera DHA (Fish, tuna, krill, algae-based oils)

Aloe Vera in Functional foods as:

- Formulated medical foods for Weight loss
- Fortified foods
- Formulated foods
- Functional drinks
- Medical foods
- Condition-specific foods, beverages:
 - Cardiovascular.
 - Diabetes.
 - Skin health and antiaging.
 - Degenerative disease.
 - Immune booster.
 - Digestive health.
- ~ To relieve gastrointestinal disorders like indigestion.
- ~ To reduce symptoms of irritable bowel syndrome including bloating and discomfort.
- To relieve heartburn, arthritis and rheumatism pain.
- To lower blood sugar levels—especially for diabetics.
- To reduce cholesterol and triglycerides for a healthy heart.
- As general detoxifier and health boosting qualities.
- Aloe Vera with ALA (flax) powder with pectin for cholesterol reduction or pine' s betasitosterol (pine sp).
- Periodontal / oral care.
- Bioavailability enhancer (of other nutrients).



Aloe Vera in food industry

- Cardiovascular and hearth benefits.
 - ~ Aloe plus CLA fortification in powdered milks, juices, chocolate blends, instant fruit juices, and other powder drinks.
 - ~ Aloe plus Omega 3 DHA powder in infant formula, children's drink mixes.
 - ~ Similar applications in older adult powder mix beverages, juices.
- For cardiovascular health.
- Help in maintaining healthy mental acuity.
 - ~ Aloe (omega 3) , diglyceride CLA (omega-6 and thermogenic), MCT (Thermogenic), vitamin E (Anti-oxidant) for cereal fortification.
 - ~ Aloe in powder beverages, instant dry mixes for sachets or stick packs.
 - ~ Best option for fast mouth-dissolving films.
 - ~ Permeable tea bags and sachets for individual preparations to drink on the go.

AMB your source of Aloe Vera Bulk ingredients

AMB Wellness Innovaloe premium has superior freshness characteristics when reconstituted to other dried powders. Innovaloe premium are the beginning of a new way of taking advantage of the Aloe Vera market and the best retention of the bioactive ingredients found in Aloe.

AMB 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 in 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 qualify tree-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.

Innovaloe Line from AMB Wellness is ideal for nutraceutical applications, functional beverage and cosmeceutical products. Our Premium Aloe Vera Line offers an even higher concentration of polysaccharides with a minimum of 10% measured by GPC and our Acetyplo Line reaching up to 40% measured by GPC.

The Aloe Vera has been selectively extracted to maximize the high molecular weight polysaccharide fraction of Aloe Vera, and the insoluble fiber has been removed in order to render a completely soluble spray dried powder. AMB Wellness's proprietary technology removes only the water and Aloin (an irritant laxative) from raw Aloe Vera fillet, delivering a natural balance of aloe constituents – including the insoluble fiber, preserving all the biological proprieties of fresh Aloe Vera.

AMB Wellness Premium Line

We assure you that one of our Aloe Vera products found in our Portfolio will suit the functional product you have in mind; AMB with its proprietary process has developed the following Aloe Vera premium line:

- Innovaloe premium (>10% de polysaccharides by HPLC).
- Aloe Flakes (Instant aloe powder).
- Aloe Acetypol POWDER, with a high concentration of Acetylated Polymannose. (Acemannan concentrate is in a range of 10% to 40% by NMR/ ORTO ACETYLO)

AMB Wellness has a wide range of polysaccharides or acemannan, we can fit your valuable needs and specifications

Ask for any range of polysaccharides or acemannan, we can fit your valuable needs and specifications. AMB wellness improves your functional marketing value, imparts, and gives a benefit in food products.

AMB's exclusive Aloe premium ingredients demonstrates superior quality as well as having the quality of retaining the highest percentage of the beneficial compounds of Aloe Vera compared with freeze dried so you can benefit from all its bioactive ingredients that makes Innovaloe premium, one of the favorites around the world. AMB Wellness has developed the most potent soluble Aloe Vera powder in the industry.

Our powder extracts are 100% water soluble and do not contain any carrier, our Aloe Vera products makes the ideal base for functional beverages, nutraceutical formulations as well as for inner beauty cosmeceuticals applications.



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

Organic Certified by ECOCERT according to EU & NOP USDA regulations.

Halal Certified by IFANCA.

Kosher Certified by EarthKosher, all of our aloe meets the dietary requirements of Jewish Law.

IASC, Products and Facility Certified 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.



Why AMB Wellness?

At AMB, we see you as more than just a customer. We see you as a partner in health. Just as you are dedicated to bringing the most efficacious finished products to market, AMB is dedicated to providing you with the finest materials to accomplish that goal. When you work with AMB, you'll benefit from our:

Commitment to Quality: From the field to the factory, we're committed to quality every step of the way. You'll get quality and purity certification with each order.

Cutting Edge R&D Team: Our team of researchers is constantly working to develop new advances that give you a formulating edge.

Outstanding Customer Service: We're there when you need us, with friendly service and on-time delivery.

Year-round Supply: We grow our own Aloe Vera, so we have total control over the supply. That means you'll never be left out in the cold.

REFERENCES

1. Fast Dissolving Tablets of Aloe Vera Gel. Jyotsana Madan¹, AK Sharma², Ramnik Singh³ 1UP Technical University, Lucknow, India, 2MJP Rohilkhand, University, Bareilly, India, 3Sri Sai College of Pharmacy, Pathankot, India
2. Aloe gel and whole-leaf raw materials: Promising excipients for the production of matrix-type tablets Tafara Jambwa, Alvaro Viljoen and Josias Hamman Department of Pharmaceutical Sciences, Tshwane University of Technology, Private Bag X680, Pretoria, 0001, South Africa
3. NOVEL DRUG DELIVERY SYSTEM IN HERBAL'S Kharat Amol* and Pawar Pratibha PES Modern College of Pharmacy, Dehu-alandi Road, Pune, Maharashtra, India. Moshi-412105,
4. Bioavailability enhancers of herbal origin: An overview. Kritika Kesarwani and Rajiv Gupta* Department of Pharmacognosy, Faculty of Pharmacy, Babu Banarasi Das National Institute of Technology and Management (BBD University), BBD Green City, Lucknow, U.P., 227105.
5. Design, formulation and evaluation of Aloe vera chewing gum. Abolfazl Aslani¹, Alireza Ghannadi², Razieh Raddanipour¹¹ Department of Pharmaceutics, School of Pharmacy and Novel Drug Delivery Systems Research Center, Isfahan, Iran
6. Aloe vera Mucilage as Solubility Enhancer in Tablet Formulation. Habibur Rahman*, Telny Thomas Chungath, Kuppusamy Selvakumaraswamy and Chandrasekar R. PSG College of Pharmacy, Coimbatore, Tamil Nadu, India.
7. Growing impact of Herbal Bioenhancers in Pharmaceutical Industries: A Comprehensive Review Faiza Asghar School of Biological Sciences-University of the Punjab Lahore, Pakistan.
8. Evaluating Mucilage from Aloe Barbadensis Miller as a Pharmaceutical Excipient for Sustained-Release Matrix Tablets. Nov 02, 2007 By Vineet C. Jain, Girish K. Jani, Manish J. Patel, Disha A. Vithalani, Dhiren P. Shah
9. Evaluation of Aloe debrana Leaf Mucilage as a Sustained Release Matrix Former in Tablets Semaw Asmare¹*, Anteneh Belete² and Tsige Gebre-Mariam²
10. Sinha, V.R.; Kumria, R. Polysaccharides in colon-specific drug delivery. *Int. J. Pharm.* 2001, 224, 19-38.
11. Polysaccharide hydrogels for modified release formulations. Coviello, T.; Matricardi, P.; Marianecci, C.; Alhaique, F. *J. Control. Release* 2007, 119, 5-24.
12. Kulkarni, G.T.; Gowthamarajan, K.; Dhobe, R.R.; Yohanan, F.; Suresh, B. Development of controlled release spheroids using natural polysaccharide as release modifier. *Drug Deliv.* 2005, 12, 201-206.
13. Cole, L.; Heard, C. Skin permeation enhancement potential of Aloe vera and a proposed mechanism of action based upon size exclusion and pull effect. *Int. J. Pharm.* 2007, 333, 10-16.
14. Eshun, K.; He, Q. Aloe vera: A valuable ingredient for the food, pharmaceutical and cosmetic industries – A review. *Crit. Rev. Food Sci. Nutr.* 2004, 44, 91-96.
15. Vinson, J.A.; Al Kharat, H.; Andreoli, L. Effect of Aloe vera preparations on the human bioavailability of vitamins C and E. *Phytomedicine* 2005, 12, 760-765.
16. Jani, G.K.; Shah, D.P.; Jain, V.C.; Patel, M.J.; Vithalan, D.A. Evaluating mucilage from Aloe Barbadensis Miller as a pharmaceutical excipient for sustained-release matrix tablets. *Pharm. Technol.* 2007, 31, 90-98.
17. Steenkamp, V.; Stewart, M.J. Medicinal applications and toxicological activities of Aloe products. *Pharm. Biol.* 2007, 45, 411-420.
18. Unginger, H.E.; Verhoef, J.C. Macromolecules as safe penetration enhancers for hydrophilic drugs: a fiction? *Pharm. Sci. Technol. Today.* 1998, 1, 370-376.
19. Hamman, J.H.; Viljoen, A.M. Use of Aloe vera for increasing the bioavailability of poorly absorbable drugs. 2008. SA patent application 2008/01542.
20. Chen, W. Drug absorption enhancing properties of Aloe vera across the intestinal epithelium. D. Tech. Thesis, Tshwane University of Technology, South Africa, 2008.
21. Sharma, P.; Varma, M.V.S.; Chawla, H.P.S.; Panchagnula R. In situ and in vivo efficacy of peroral absorption enhancers in rats and correlation to in vitro mechanistic studies. *Il Farmaco* 2005, 60, 874-883.
22. Muranishi, S. Absorption enhancers. *Crit. Rev. Ther. Drug Carrier Syst.* 1990, 7, 1-33.
23. Brayden, D.J.; O'Mahony, D.J. Novel oral drug delivery gateways for biotechnology products: polypeptides and vaccines. *Pharm. Sci. Technol. Today.* 1998, 1, 291-299.
24. Hadgraft, J. Passive enhancement strategies in topical and transdermal drug delivery. *Int. J. Pharm.* 1999, 184, 1-6.
25. Moser, K.; Kriwet, K.; Naik, A.; Kalia, Y.N.; Guy, R.H. Passive skin penetration enhancement and its quantification in vitro. *Eur. J. Pharm. Biopharm.* 2001, 52, 103-112.

REFERENCES

26. Cross, S.E.; Roberts, M.S. Physical enhancement of transdermal drug application: Is delivery technology keeping up with pharmaceutical development? *Curr. Drug Deliv.* 2004, 1, 81-92.
27. Formulation evaluation and in-vitro drug release characteristics of aloe vera herbal suppositories Tarkase K. N. and Danve A. V.* Department of Quality Assurance Technique, Padmashree Dr. Vitthalrao Vikhe Patil Foundations College of Pharmacy, Viladghat, Ahmednagar, Maharashtra, India.
28. Extended Drug Release Retarding Effect of Aloe vera Gel IN THE DESIGN OF TABLET DOSAGE FORM Bharath Kumar. N, S. Bharath* , R. Deveswaran, B.V. Basavaraj, V. Madhavan Department of Pharmaceutics, M. S. Ramaiah College of Pharmacy, M.S.R.Nagar, M.S.R.I.T. Post, Bangalore-54, India.
29. ALOE VERA POWDER BASED MATRIX TABLET FOR ORAL CONTROLLED DELIVERY OF HIGHLY SOLUBLE DRUG ANURUPA C, SUSEEM S.R* Pharmaceutical Chemistry Division, School of Advance Sciences, VIT University, Vellore-632014, Tamil Nadu, India.
30. Comparison of Aloe Vera Gel and Aloe Vera Powder on Physical Properties of Ranitidine Mucoadhesive Microgranules Endang Diyah Iksari*, Anang Budi Utomo, Hanny Setyowati Department of Pharmaceutical Sciences, College of Pharmacy, "Yayasan Pharmasi", Semarang, Indonesia
31. Design and Development of Dental Film Containing Aloe vera for the Treatment of Human Periodontal Diseases. Himansu Bhusan Samal1*, Itishree Jogamaya Das1, Ch. Niranjan Patra2, P. N. Murthy3
32. DEVELOPMENT AND EVALUATION OF GLIMEPIRIDE ALOE BARBADENSIS MUCILAGE CONTROLLED RELEASE MATRIX TABLETS HINDUSTAN ABDUL AHAD*, J.SREERAMULU a, V. HIMA BINDU b and N. KIRANMAYI
33. Effect of Vehicles on Topical Application of Aloe Vera and Arnica Montana Components Valentina Bergamante, Gian Carlo Ceschel, Sergio Marazzita, Celestino Ronchi & Adamo Fini
34. Natural Excipients- A Review S. Dharmendra *1 , J.K. Surendra2, M.Sujata3 , S. Shweta1
35. THE EFFECT OF ALOE VERA POWDER (Aloe vera (L.) Webb) ON PHYSICAL PROPERTIES OF MUCOADHESIVE MICROGRANULES CONTAINING RANITIDINE HYDROCHLORIDE Endang Diyah Iksari*, Anang Budi Utomo, Hanny Setyowati, Salasa Ayu Trisnawati Yayasan Pharmasi College of Pharmacy, Letjen Sarwo Edhie Wibowo Km 1. Pucanggading Semarang 50193, Indonesia
36. Liposomal Aloe vera trans-emulgel drug delivery of naproxen and nimesulide: A study. Panuganti Venkataharsha, Ellutla Maheshwara, Y Prasanna Raju,1 Vayalpati Ashok Reddy,1 Bandugalla Sanjeev Rayadu,1 and Basappa Karisetty
37. DESIGN AND EVALUATION OF SUSTAINED RELEASE MATRIX TABLETS OF GLIMEPIRIDE BASED ON COMBINATION OF NATURAL AND SYNTHETIC POLYMERS Hindustan Abdul Ahad1 , Sreeramulu J2 , Hima Bindu V3 , Chitta Suresh Kumar1 , Kishore Kumar Reddy B1 , Chandana Rekha V1 , Sivaji S4 1College of pharmacy, Sri Krishnadevaraya University, Anantapur, Andhra Pradesh, India 2Department of Chemistry, Analytical Lab, Sri Krishnadevaraya University, Anantapur, Andhra Pradesh, India
38. Kumar KP, Bhowmik D, Chiranjib L, Biswajit M. Aloe vera: A potential herb and its medicinal importance. *J Chem Pharm Res* 2010;2:21-9.
39. INVESTIGATING THE POTENTIAL OF ALOE VERA AS PENETRATION ENHANCER FOR TRANSDERMAL DELIVERY KIRAN SHARMA1*, ASHU MITTAL2 , SHEIKH MURTUZA3 & PRIYANKA AGRAHAR
40. Study and description of hydrogels and organogels as vehicles for cosmetic active ingredients M. E. MORALES, V. GALLARDO, B. CLARÉS, M. B. GARCÍA, and M. A. RUIZ, Pharmacy and Pharmaceutical Technology Department, School of Pharmacy, University of Granada, 18071 Granada, Spain
41. Ethnobotanical and pharmacological properties of Aloe vera: A review. S Kumar, JP Yadav - *Journal of Medicinal Plants Research*, 2014 Academicjournals.org
42. Pereira, R. F., Carvalho, A., Gil, M. H., Mendes, A., & Bartolo, P. J., Influence of ' Aloe vera on water absorption and enzymatic in vitro degradation of alginate hydrogel films, *Carbohydrate Polymers* (2013).
43. Formulation of Aloe vera polysaccharide gel niosomes Sasan Khadem nematollahi1 , Abbas Pardakhty2, Kobra Habibi3 , Mitra Mehrabani3
44. Aloe Vera as Penetration Enhancer. Kiran Sharma*, Ashu Mittal, Nitesh Chauhan Assistant professor at KIET School of Pharmacy, 13km stone, Ghaziabad – Meerut road, Ghaziabad
45. Microencapsulation of natural antioxidant powder from Aloe vera (L.) skin using foam mat drying method. 1,2*Narsih, 2 Sri Kumalaingsih, 2 Susinggi Wijana and 2Wignyanto 1 Department Agricultural Technology, Pontianak State Polytechnic, Jalan Ahmad Yani, Pontianak, Kalimantan Barat, Indonesia 78124 2 Department Agroindustrial Technology, Faculty of Agricultural Technology, Brawijaya University, Jalan Veteran Malang, Jawa Timur, Indonesia 65145

REFERENCES

46. Carbopol and Sodium Carboxymethylcellulose Based Methylsulfonylmethane Gels for Treatment of Osteoarthritis: In-vitro and In-vivo Evaluation . Authors and affiliation (s): Vishwajeet Ghorpade*, Kailas Mali, Remeth Dias and Prashant Karande Satara College of Pharmacy, Behind Spicer India Ltd., Degaon, Satara, Maharashtra, India, 415004.
47. Natural Bioenhancers: Current Outlook Srinivasan Shanmugam* Pharm. R&D Institute, Hanmi Pharm. Co., Ltd., Hwaseung-Si, Gyeonggi-Do, 445-913, Korea Srinivasan Shanmugam Ph.D., Pharm. R&D Institute Hanmi Pharm. Co., Ltd., Hwaseung-Si Gyeonggi-Do, 445-913, Korea
48. Novel Buccal Adhesive Tablets Using Aloe vera L and Sinapis alba—A Promising Option for Improved Bioavailability of Diltiazem Hydrochloride . Yajaman Sudhakar and A. K. Bandyopadhyay*
49. Intestinal drug transport enhancement by Aloe vera. W Chen, Z Lu, A Viljoen, J Hamman - Planta medica, 2009
50. In vitro drug absorption enhancement effects of Aloe vera and Aloe ferox C Beneke, J Hamman, A Viljoen - 2012 - dspace.nwu.ac.za
51. Liposomes encapsulating Aloe vera leaf gel extract significantly enhance proliferation and collagen synthesis in human skin cell lines. M Takahashi, D Kitamoto, Y Asikin, K Takara
52. Evaluation of biological properties and clinical effectiveness of Aloe vera: A systematic review. Maharjan H. Radha, Nampoothiri P. Laxmipriya,
53. In-Vitro Assessment and Pharmacodynamics of Nimesulide Incorporated Aloe vera Transemulgel. Authors: Vandana, KR; R. Yalavarthi, Prasanna; Sundaresan, CR; N. Sriramaneni, Raghava; C. Vadlamudi, Harini
54. In vitro drug permeation enhancement potential of aloe gel materials. T Lebtsa, A Viljoen, Z Lu, J Hamman - Current drug delivery, 2012 - ingentaconnect.com
55. Aloe Vera High Molecular Weight Fractions as Carbohydratebased Immune Adjuvants. A Yagi - Journal of Gastroenterology and Hepatology Research, 2013 - ghrnet.org
56. Paracellular drug absorption enhancement through tight junction modulation. Hendrik JR Lemmer & Josias H Hamman , PhD
57. Skin Permeation of Candesartan Cilexetil from Transdermal Patch Containing Aloe Vera Gel as Penetration Enhancer.K Sharma - Asian Journal of Pharmaceutics (AJP)
58. DRUG ABSORPTION ENHANCING PROPERTIES OF ALOE VERA ACROSS INTESTINAL EPITHELIUM. W Chen, J Hamman, A Viljoen - African Journal of Traditional, ..., 2009
59. Intestinal drug transport enhancement by Aloe vera. W Chen, Z Lu, A Viljoen, J Hamman - Planta Medica, 2010
60. Possible Prophylaxes of Aloe Vera Juice with CoQ10 to Enhance Muscle Performance. A Yagi, S Ataka - Journal of Gastroenterology and Hepatology Research, 2016 –
61. Skin permeation enhancement potential of Aloe Vera and a proposed mechanism of action based upon size exclusion and pull effect. Louise Cole, Charles Heard.
62. In vitro drug permeation enhancement potential of aloe gel materials. T Lebtsa, A Viljoen, Z Lu, J Hamman - Current drug delivery, 2012
63. Modulation of drug efflux by aloe materials: An in vitro investigation across rat intestinal tissue. B Carien, V Alvaro, H Josias - Pharmacognosy magazine, 2013
64. Polymeric Plant-derived Excipients in Drug Delivery. Carien E. Beneke, Alvaro M. Viljoen and Josias H. Hamman * Department of Pharmaceutical Sciences, Tshwane University of Technology, Private Bag X680, Pretoria, 0001, South Africa
65. Exploring the Potential of Gastro Retentive Dosage Form in Delivery of Ellagic Acid and Aloe vera Gel Powder for Treatment of Gastric Ulcers. Authors: N Ranade, Arati; S. Ranpise, Nisharani; Ramesh, C.
66. Release characteristics of Aspirin and Paracetamol drugs from tablets with Aloe Vera gel powder as a drug carrier. K. Subramanian*, S.Narmadha, U.Vishnupriya & V.Vijayakumar
67. Aloe gel and whole-leaf raw materials: Promising excipients for the production of matrix-type tablets. Tafara Jambwa, Alvaro Viljoen, Josias Hamman
68. Matrix forming excipients from natural origin for controlled release matrix type tablets. T. Jambwa1, A. Viljoen1, J. Hamman1, 2, ,
69. Matrix forming excipients from natural origin for controlled release matrix type tablets. T. Jambwa1, A. Viljoen1, J. Hamman1, 2. Matrix forming excipients from natural origin for controlled release matrix type tablets. T. Jambwa1, A. Viljoen1, J. Hamman1, 2, ,
70. Efficacy and safety of Aloe vera syrup for the treatment of gastroesophageal reflux disease: a pilot randomized positive-controlled trial. Panahi Y, Khedmat H, Valizadegan G, Mohtashami R, Sahebkar A.