Literature review

Subbiah Rajasekaran, et al (2005) In the present study, an attempt has been made to evaluate the presence of antioxidant property in the alcoholic extract of Aloe vera leaf gel. Oral administration of Aloe vera gel extract at a concentration of 300 mg/kg to diabetic rats significantly decreased the levels of blood glucose, glycosylated hemoglobin and increased hemoglobin. The increased levels of lipid peroxidation and hydroperoxides in tissues of diabetic rats were reverted back to near normal levels after the treatment with gel extract. The extract treatment also resulted in a significant increase in reduced glutathione, superoxide dismutase, catalase, glutathione peroxidase and glutathione-S-transferase in the liver and kidney of diabetic rats. These results clearly show the antioxidant property of Aloe vera gel extract. The extract was also more effective than glibenclamide in restoring the values of these parameters.

Ian Edwin Cock (2008) Methanolic extracts of Aloe barbadensis Miller inner leaf gel were fractionated by RP-HPLC and the resultant fractions were tested for inhibitory activity against a panel of bacteria and fungi. Five fractions were identified as having antimicrobial activity. Fraction 1 had the broadest antibacterial activity, being capable of inhibiting growth of both Gram-positive and Gram-negative bacteria as well as inhibiting growth of a nystatin resistant strain of the fungus Aspergillusniger. Fraction 1 had similar UV spectral properties as aloe emodin and was chromatographically identical to the pure compound. The other fractions tested were much more selective in their antimicrobial activities, being only capable of inhibiting the growth of specific Gram-negative rod bacteria. Two of these antimicrobial fractions were identified by ESI mass spectroscopy as being isomers of 8-C-β-D-[2-0-(E)-coumaroyl] glucopyranosyl -2-[2-hydroxy]-propyl-7-methoxy-5-methylchromone.
Akira Yagi et al (2009) Aloe vera L. high molecular weight fractions (AHM) containing less than 10 ppm of barbaloin and polysaccharide (MW: 1000 kDa) with glycoprotein, verectin (MW: 29 kDa), were prepared by patented hyper-dry system in combination of freeze-dry technique with microwave and far infrared radiation. AHM produced significant decrease in blood glucose level sustained for 6 weeks of the start of the study. Significant decrease in triglycerides was only observed 4 weeks after treatment and continued thereafter. No detrimental effects on kidney and liver functions were apparent. Treatment of diabetic patients with AHM may relieve vascular complications probably via activation of immunosystem.

Martina Šutovská et al (2010) Different plants have been reported to be a source of polysaccharides that possess a great variety of biological activities, including cough suppression. The experiments were aimed on the influence of two polysaccharides isolated from the gel (A, HF1-Z) and one from the epidermis (SL-1) of Aloe vera leaves, characterized by chemical composition and structural properties, on the cough reflex. The method of mechanically induced cough was used in conscious cats. A nylon fibre directed individually into the mucous area of the laryngopharyngeal and tracheobronchial airways via endotracheal cannula elicited the cough reflex. Statistical evaluation registered cough reflex indicators (number of cough efforts - NE, cough frequency – NE·min–1 intensity of cough attacks during expiration and inspiration - IA+ and IA-, intensity of maximal inspiratory and expiratory cough efforts - IME- and IME+) showed that gel polysaccharide HF1-Z possessed higher cough-suppressing activity than dropropizine, a nonnarcotic peripheral cough suppressant. Their antitussive activity was accompanied mainly with a decrease of NE, IA+ and IA- from both laryngopharyngeal and tracheobronchial mucous areas of the airways. Results of the presented study also showed minimal influence of polysaccharide HF1-Z on
expectoration predictor, IME- and IME+. New pharmacodynamic property of polysaccharides isolated from Aloe vera was shown during experiments, which could be a base of their possible therapeutic use in this indication in future.

**Iji O.T et al (2010)** The study was designed to investigate the effects of chronic administration of Aloe vera gel extract on markers of hepatic damage, lipid profiles and erythrocyte osmotic fragility using the Wistar rats. Forty male Wistar rats divided into four groups of ten rats per group were used in the study. Group I which served as the control received 0.9% physiological saline while those in groups II, III and IV received Aloe vera gel (100, 250 and 500mg/kg), respectively, for four weeks. There was significant increase in the haemoglobin concentration while the PCV, RBC count, MCH and MCHC though showed some marginal increases but the increases were not significant in all the treated rats. No significant change was also observed in the erythrocyte osmotic fragility. However, there were significant reductions in plasma ALT (P<0.001), AST (P<0.05) and ALP (P<0.05) levels in animals that received the gel compared with the control while the plasma albumin (P<0.01) and total protein (p<0.05) values were higher than those of the control. All the animals that received the gel also showed significant reduction in plasma total cholesterol (P<0.001), triglycerides (P<0.001) and LDL-cholesterol ratio (p<0.01) compared with the control. In a similar manner, those animals that were administered with 500mg/kg gel had significantly higher (P<0.001) HDL-cholesterol ratio than those of the control. This study showed that, chronic administration of Aloe vera gel extract had no significant effects on the haematological parameters of the rats and did not affect erythrocyte osmotic resistance. It however showed some cholesterol lowering action.
**Sweety Lanjhiyana1 et al (2011)** Diabetes mellitus (DM) is a metabolic disorder, characterized by absolute or relative deficiency in insulin secretion or insulin action. Currently available synthetic antidiabetic drugs used in clinical practice have characteristic profiles of adverse side effects. Plant based drugs are considered to be less toxic and free from adverse effects in comparison to modern allopathic medicines. Aloe vera L. (Syn.: Aloe barbadensis Miller; Hindi: Ghikanvar; AV) is a cactus-like perennial plant belonging to family Liliaceae (sub-family of the Asphodelaceae), native to North Africa and cultivated in warm climatic areas. The present work aimed to evaluate the antioxidant and antidiabetic potency of Aloe vera gel extract using alloxan induced experimental diabetic rats and its effect were compared with reference glibenclamide (GL). Inbreed adult male Charles-Foster (CF) albino rats were used in the experiment for hypoglycemic activity in oral glucose tolerance test (OGTT) and normoglycemic rats, and antidiabetic activity in alloxan induced rats. Preliminary phytochemical screening revealed that AV showed positive response to alkaloids, saponins and triterpenes, tannins, flavonoids, carbohydrates and sterols. Further, the AV showed total phenolic content (135.8 mg/g). Results revealed in the present experiment that the routine post-treatment for 21 days with the AV showed potential hypoglycemic activity in OGTT and normoglycemic rats, and antidiabetic activity in alloxan induced rats. In conclusion, isolation and establishment of exact mechanism of action of specific compound from AV is to be carried out in the future.

**Yeppella G. G. et al (2011)** A phytochemical and comparative study of the antibacterial activity of Aloe vera extracts were carried out. The phytochemical screening revealed the presence of bioactive compounds such as saponins, alkaloids, flavonoids, tannins, glycosides, and proteins, with absence of cardiac glycosides and sterols in all investigated extracts. According to the antibacterial activity results, *Escherichia coli* was sensitive to all extracts while
*Klebsiellapneumoniae* and *Pseudomonas aeruginosawere resistant to methanol and aqueous leaf pulp extracts, *Salmonella typhi*was sensitive to gel and the green rind aqueous (GRA) extract. The GRA and gel exhibited high activity against the assayed bacteria. The MIC value ranged from 6.25 to 25mg/ml and the MBC ranged from 12.5 to 50mg/ml. Among the assayed extracts, the gel exhibited great potential against the bacteria tested in this study.

**C. O'Brien, et al (2011)** Aloe ferox leaf gel differs substantially from that of Aloe vera but almost no commercially relevant data is available this species. Leaf dimensions, gel yields and gel compositions were studied, based on samples from several natural populations. Glucose is the only free sugar in aloe gel (0.1 to 0.4 mg ml−1 in A. ferox). Monosaccharides released after hydrolysis show potential for gel fingerprinting and allow for a distinction between A. ferox and A. vera. The former yields various combinations of glucose and galactose as main monosaccharides, while the latter yields only mannose. Further variation studies are recommended because A. ferox appears to have three different gel chemotypes. Conductivity shows species-specific ranges—in A. ferox below 3000 μS cm−1 in fresh gel and above 3100 μS cm−1 in aged gel (corresponding values for A. vera were 1670 and 1990 μS cm−1). The level of phenolic (bitter) compounds in A. ferox gel can be reduced by treatment with activated charcoal, resulting in a small loss of total dissolved solids. Alcohol precipitable solids and insolubility are useful variables for quality control of gel powder. The methods and data presented are the first steps towards developing quality criteria for A. ferox leaf gel.

**Mohammed Moniruzzaman (2012) et al** In this study, the total phenolic and flavonoid contents, the 2,2-diphenyl-1-picryl hydrazyl (DPPH) radical scavenging ability and the ferric reducing power (FRAP) of *Aloe vera* were measured to determine the antioxidant activity of this species. The *in vivo* antidiabetic effects of the plant were also investigated using streptozotocin-induced type 2 diabetic model.
rats that were divided into five groups based on the treatment received: (1) water (WC); (2) glibenclamide; (3) concentrated gel extract (Gel-C); (4) ethanol (80%) gel extract (Gel-Et); and (5) ethanol (80%) skin extract of Aloe vera (Skin-Et). Skin-Et, which contained the highest level of total phenolics (62.37 ± 1.34 mg gallic acid/kg) and flavonoids (20.83 ± 0.77 mg/kg), exhibited the highest scavenging activity (85.01 ± 0.52%) and the greatest reducing power (185.98 ± 0.41 μM), indicating that the skin contained the highest level of antioxidants. The oral consumption of Gel-Et for 4 weeks caused a significant reduction in the fasting serum glucose levels of the rats. The rats in the Gel-C-, Gel-Et- and Skin-Et-treated groups experienced a reduction in their total cholesterol levels by 11%, 17% and 25%, respectively and a reduction in their LDL cholesterol levels by 45%, 3% and 69%, respectively. The in vivo experimental antioxidant parameter MDA is strongly correlated with the in vitro antioxidant parameters of flavonoids and polyphenols, namely the DPPH and FRAP values (r = 0.94, 0.92, 0.93, 0.90), thus confirming the antioxidant potential of the Aloe vera extracts.

Amira Mouradet al (2013) In the present investigation, the antidiabetic effect of Aloe vera leaf pulp extract was studied in vivo and in vitro as compared to glimperide. Diabetes was induced experimentally in adult male albino rats by single-dose intraperitoneal injection of streptozotocin (50 mg/kg body weight). The in vitro study was performed using isolated islets of pancreas from adult female albino rats. Both aloe extract (10 ml/kg, p.o.) and glimperide (10 mg/kg, p.o.) significantly decreased serum glucose and significantly increased serum insulin levels as compared to control diabetic rats. Serum levels of malondialdehyde (MDA) and superoxide dismutase (SOD) were significantly decreased while blood glutathione (GSH) was significantly increased by aloe treatment as compared to diabetic rats. Effect of aloe was better than the effect of glimperide. Regarding the in vitro study, both aloe (10 ll/l) and glimperide (10 lmol/l) significantly
increased both basal and stimulated insulin secretion from the isolated islets of pancreas as compared to control. These results show a promising antidiabetic effect of aloe for further clinical trials regarding clinical use of aloe extract for treating type II diabetes.

PAOULOMI CHATTERJEE* et al (2013) Aloe vera is an herb distributed throughout the world. The herb is used internally to combat most digestive problems, including constipation, poor appetite, colitis, irritable bowel syndrome as well as, asthma, diabetes, immune system enhancement, peptic ulcers. A scrutiny of literature revealed some notable pharmacological activities of the plant such as anti-inflammatory, antiviral and antitumor, moisturizing, anti-aging effect, antiseptic, enhance immune system, hypoglycemic, cytotoxic, antiulcer and antidiabetic effects, antibacterial effect, antioxidant, cardiovascular effect. The present review is an attempt to highlight the various ethnobotanical and traditional uses as well as pharmacological reports on Aloe vera.

Pankaj K. Sahu1, et al(2013) The plant Aloe vera is used in Ayurvedic, Homoeopathic and Allopathic streams of medicine, and not only tribal community but also most of the people for food and medicine. The plant leaves contains numerous vitamins, minerals, enzymes, amino acids, natural sugars and other bioactive compounds with emollient, purgative, antimicrobial, anti-inflammatory, anti-oxidant, aphrodisiac, anti-helmenthic, antifungal, antiseptic and cosmetic values for health care. This plant has potential to cure sunburns, burns and minor cuts, and even skin cancer. The external use in cosmetic primarily acts as skin healer and prevents injury of epithelial tissues, cures acne and gives a youthful glow to skin, also acts as extremely powerful laxative.

Priyanka Sharma et al(2013). Aloe vera is a perennial, drought resisting succulent herb that belongs to the Asphodelaceae family. It is called the healing plant or the
silent healer because of its wound and burn healing properties. *Aloe vera* has been known and used for centuries for its health, beauty, medicinal, and skin care attributes and is used in a variety of commercial products. It has a vast traditional role in indigenous systems of medicine like ayurveda, siddha, unani, and homoeopathy. The pharmacologically active ingredients of aloe are concentrated in inner parenchymatous tissue, called aloe gel, and outer pericyclic tubules, called aloe sap or aloe juice. The bioactive compounds from *Aloe vera* are very effective in various treatments, such as burns, allergic reactions, rheumatoid arthritis, rheumatic fever, acid indigestion, ulcers, diabetes, skin diseases, dysentery, diarrhoea, piles and inflammatory conditions of the digestive system. Most of the health benefits associated with *Aloe vera* have been attributed to the polysaccharides contained in the gel of the leaf. Cosmetic products made from Aloe give a healthy and supple look to the skin by reducing wrinkles, curing acne, rejuvenating and giving it a youthful glow. In the pharmaceutical industry, it has been used for the manufacture of topical products such as ointments and gel preparations, as well as in the production of tablets and capsules. The present review is therefore, an effort to give a detailed survey of literature on its traditional, phytochemical, and pharmacological properties.

*Kedarnath et al (2013)* The antimicrobial activity of *aloe vera* extract was tested against pathogenic bacteria like *Staphylococcus aureus, Klebsiella pneumonia* and *E.coli* and fungi like *Aspergillus niger* and *Candida* at a dose of 1:20 mg/ml and 2:40 mg/ml by using cup plate diffusion method. Various solvents such as petroleum ether, chloroform, and methanol were used for extracts. The results reveal that, methanol and petroleum ether at a dose of 20 mg/ml has showed significant activity against *Klebsiella pneumonia* and *E.coli* whereas in fungi, methanol extract showed significant activity against *Aspergillus niger* and *Candida*. Methanol extract
has showed maximum inhibitory activity against _E. coli_ and _Candida_. Petroleum ether has showed moderate inhibitory activity against _Klebsiella pneumonia_ and _Candida_. The zone of inhibition was measured and compared with standard Gentamycin (1 mg/ml). However, in none of the above mentioned extracts the inhibition zone was not more than that found in standard i.e., Gentamycin.

**Karkala Manvitha et al, (2014)** The purpose of this review is to discuss about the interesting History, Cultivation and medicinal uses of Aloe vera. Aloe vera is the oldest and the most applied medicinal plant worldwide. The Aloe vera plant is a member of lily plant known as Aloe barbadensis which is full of juice and closes similar to a cactus. Due to its cactus like feel, Aloe is often mistakenly called a "Desert Cacti". There are over 250 species of aloe grown around the world. However, only two species are grown today commercially, with Aloe barbadensis Miller and Aloe arborescens being the most popular. Aloe is native to North Africa and Spain, now the plant is also grown in the hot dry regions of Asia, Europe and America. For centuries, it has been medicinally used for an array of ailments such as mild fever, wounds and burns, gastrointestinal disorders, diabetes, sexual vitality and fertility problems to cancer, immune modulation, AIDS and various skin diseases. In the pharmaceutical industry, it has been used for the manufacture of topical products such as ointments and gel preparations, as well as in the production of tablets and capsules. So, there is an urgent need to educate about the miraculous uses of Aloe vera along with its cultivation methods for human race and popularize it for greater interest.

**Bawankar Raksha et al (2014)** The practice of using _Aloe vera_ extract as a herbal medicine basically depend on folklore and by experiences of people over a long period of time. Extensive research, especially in the area of basic biochemical characterization and elucidation of bioactivities has been conducted in a systematic manner. This has resulted in the characterization of many biochemical compounds
from *Aloe vera*, predominantly using the techniques of spectroscopy and chromatography. Many biochemical compounds have been characterized from the *Aloe vera* using spectroscopy and chromatography techniques. Today, in addition to the well-documented wound healing properties of *Aloe vera* extracts in burns, the antioxidant, antimicrobial and antidiabetic activities were tapped and hence formed the central core of bioactivity research on this plant in recent years. There have been preliminary reports on immune modulatory and other functions. The biochemical compounds and their bioactivity mechanisms from *Aloe* extracts, compounded by the bottlenecks in large scale cultivation represents a fascinating challenge to near complete exploitation and improvements in this pharmacologically important medicinal plant. This review is an effort to update our current knowledge on this plant based on many recent findings and to review the status for further exploration in pharmacology.

**Abdullah-Al-Nahain et al (2014)** Rheumatoid arthritis (RA) is an autoimmune disease characterized with a chronic, systemic inflammation which primarily affects synovial joints. A significant percentage of the world population including notably the aged groups suffers from such a disabling and painful condition that can result in substantial loss of normal functioning and mobility, if not adequately treated. Natural products have always been a potential source of alternative therapy and lead compounds for various diseases. A good number of anti-inflammatory or immunomodulatory plant extracts (and phytochemicals thereof) seem to exist whilst several of them have been specially studied in the context of RA. One potential example in this regard includes *Aloe barbadensis*. Over 75 active components have already been identified in *Aloe barbadensis* leaf gels and some of them have been implicated as immunomodulatory compounds and as such beneficial against RA, based on animal studies. This paper aims at critically
reviewing the evidence of beneficial role as well as possible mechanism of such action of *Aloe barbadensis* preparations in RA and related complications.

**Lee et al (2014)** reported in his study that several cases of aloe-induced toxic hepatitis have been reported in recent years. However, its toxicology has not yet been systematically described in the literature. It has been reported that an active aloe polysaccharide isolated from *Aloe barbadensis* Miller exerted various pharmacological effects, such as anti-inflammatory, wound healing, anti-hepatitis, anti-gastric ulcer, and anti-tumorigenicity in animals. Adverse health effects of aloe are of concern in humans. Therefore, a study was conducted to investigate a tolerable upper intake level (UL) of active aloe or a maximal allowable daily intake (ADI_{max}) of active aloe based on 4-weeks oral toxicity investigation in mice. An active aloe was daily administered to male and female mice for 4 weeks at different dose levels (0, 120, 600, 3000, or 15,000 mg/kg body weight.

**Saurabh Kumar Deo et al (2014).** Aloe vera (AV) is a tropical medicinal plant which has great medicinal value and ideal properties for curing and preventing diseases. The chemical composition and biological properties of AV, explain its potential use for cosmetic, nutritional and biomedical applications. AV gel present in AV leaves is rich in several compounds includes nutrients, antioxidants and polysaccharides of mannose-6-phosphate, carboxypeptidase, glutathione peroxidase, and superoxide dismutase. These compounds have been claimed to have anti-inflammatory, antioxidant, immuno-stimulatory, antibacterial, hypolipidemic, wound healing activity and hypoglycemic properties. However, in addition to the well-documented positive effects of the plant, there have also been reports of toxicity such as hepatitis and acute renal failure. Hence, to conclude, its overzealous use as medicine should be avoided.
Maram Shalabi et al. (2015) investigate the in vitro anticancer effect of Aloe vera (A. vera) and Calligonum comosum (C. comosum) extracts against hepatocellular carcinoma (HepG2) cells. HepG2 cells were tested against different doses of A. vera and C. comosum. Viability of the cells was assessed by MTT assay. Evaluation of apoptosis and DNA damage in HepG2 cells were performed using annexin V apoptosis detection kit. Real time-PCR and flow cytometer analyser tested the expression of p53 and anti-apoptotic (Bcl-2). Hematoxylin and eosin stained sections from untreated and treated HepG2 cells were observed using light microscopy. The IC50 values of A. vera and C. comosum extracts were (10.45 ± 0.31) and (9.60 ± 0.01) μg/mL respectively. The extracts separately increased cytotoxicity against HepG2 cells in a time and dose dependent manners. Also, it apparently induced apoptosis through increase P53 and decrease Bcl-2 genes expressions. The results indicated that the extracts could have anti-hepatocarcinogenic effect, at least in part, through modulation of apoptosis.

Marco Miroddi et al. (2015) Aloe vera L., is a plant used worldwide as folk remedy for the treatment of various ailments, including skin disorders. Its gel is present in cosmetics, medicinal products and food supplements. Psoriasis, an immune-mediated chronic inflammatory disease, involving mainly the skin, affects about the 2–3% of general population. Conventional pharmacological treatments for psoriasis can have limited effectiveness and can cause adverse reactions. For this reason often psoriatic patients look for alternative treatments based on natural products containing Aloe vera. We conducted a systematic review of clinical trials assessing effectiveness and safety of aloe for the treatment of psoriasis. Clinical studies published in English were considered; a total of four clinical trials met inclusion criteria. Studies were also evaluated by using the Jadad scale and Consort Statement in Reporting Clinical trials of Herbal Medicine Intervention. Quality and methodological accuracy of considered studies varied.
considerably, and some crucial information to reproduce clinical results was
missing. We conclude that administration of aloe as cutaneous treatment is
generally well tolerated, as no serious side effects were reported. Results on the
effectiveness of Aloe vera are contradictory; our analysis reveals the presence of
methodological gaps preventing to reach final conclusions.

Maharjan H. et al. (2016) Aloe vera is well known for its considerable medicinal
properties. This plant is one of the richest natural sources of health for human
beings coming. The chemistry of the plant has revealed the presence of more than
200 different biologically active substances. Many biological properties associated
with Aloe species are contributed by inner gel of the leaves. Most research has
been centralized on the biological activities of the various species of Aloe, which
include antibacterial and antimicrobial activities of the nonvolatile constituents of
the leaf gel. Aloe species are widely distributed in the African and the eastern
European continents, and are spread almost throughout the world. The genus Aloe
has more than 400 species but few, such as A. vera, Aloe ferox, and Aloe
arborescens, are globally used for trade. A. vera has various medicinal properties
such as antitumor, antiarthritic, antirheumatoid, anticancer, and antidiabetic
properties. In addition, A. vera has also been promoted for constipation,
gastrointestinal disorders, and for immune system deficiencies. However, not much
convincing information is available on properties of the gel. The present review
focuses on the detailed composition of Aloe gel, its various phytocomponents
having various biological properties that help to improve health and prevent
disease conditions.

Amit Pandey et al. (2016) Aloe vera belongs to the family Xanthorrhoeaceae
(APG III System) commonly known as GhritKumari, is the oldest medicinal plant
ever known and the most applied medicinal plant worldwide. Aloe Vera is used for
vigor, wellness and medicinal purposes since Rigvedic times. Health benefits of aloe
Aloe vera include its application in wound healing, treating burns, minimizing frost bite damage, protection against skin damage from x-rays, lung cancer, intestinal problems, Increasing High Density Lipoprotein (HDL), reducing Low Density Lipoprotein (LDL), reducing blood sugar in diabetics, fighting Acquired Immuno Deficiency Syndrome (AIDS), allergies and improving immune system. Phyto-chemistry of aloe vera gel has revealed the presence of more than 200 bioactive chemicals. Aloe Vera gel is extracted from its leaves and appropriate processing techniques are needed for stabilization as well as preparation of the end products. Aloe Vera Gel contains important ingredients including 19 of the 20 amino acids needed by the human body and seven of the eight essential ones that just cannot be made. In industries AloeVera is also used to extract liver tonic. The present research article is an effort towards the industrial and ethnobotanical properties of Aloe Vera.

**Suhasini Dehury1 et al (2017)** The present study was undertaken to evaluate the protective effect of aqueous leaf extract of *Aloe vera* (*ALEAV*) in animal model (wistar albino rats) through macroscopic and histopathological study of the colon after inducing ulcerative colitis by usage of acetic acid. 30 healthy albino rats of either sex 150-200g body wt. and 2-4 months age groups were divided into five groups (six in each). Group 1 was normal control group receiving vehicle 1ml of normal saline transrectally (negative control). Group 2 was ulcerative colitis control which was treated with normal saline. Group 3 & 4 were administered aqueous leaf extract of *Aloe vera*suspension(test drug) 150,300mg/kg bodyweight dose orally for 10 days respectively. Ulcerative colitis was induced on 10th day. Group 5 was administered prednisolone(1mg/kg) orally for 3 days. On the 3rd day ulcerative colitis was induced by transrectal administration of 1 ml of 4% acetic acid solution. In all the groups, animals were observed for decrease in bodyweight, stool consistency and rectal bleeding i.e Disease Activity Index for 48 hours after
inducing ulcerative colitis. After 48 hours the rats were sacrificed by high dose of ether anaesthesia and a piece of colonic segment (10 cm in length) were resected out and subjected to macroscopical study (colon mucosal index) and microscopic evaluation. ALEAV at 150 mg/kg produced significant improvement in macroscopic score in comparison to disease control (group 2) which is comparable to that of normal control (group 1) in ulcerative colitis model. Histopathological studies showed significant dose dependent decrease in lymphoid hyperplasia, neutrophilic infiltration, crypt damage and submucosal inflammation in ALEAV treated group (150 and 300 mg/kg b.w) in comparison to disease control.

**Jacobo Robledo et al (2017)** Aloe vera (Aloe barbadensis) is an important plant to cosmetics, pharmaceuticals, and food industry worldwide. In Colombia its cultivation has grown even when technical crop management is unknown. This study evaluated the growth of three aloe basal shoots weights ranges in two companion planting systems and monoculture (control). A completely randomized split plot design was used. Main plots were: aloe monoculture (AMN), common bean companion planting (CBCP), and giant taro companion planting (GTCP). Treatments were weight ranges from 50 to 150 g (LWe), 151 to 250 g (MW), and 251 to 350 g (HW). Data were analyzed using ANOVA, Duncan multiple range test (P ≤ 0.05), and linear regressions. Variables evaluated were total height (TH), number of leaves (NOL), length (LL), width (LW), and leaf thickness (LT). In CBCP, GTCP, and MW variable LL predicted GH. Models fitted to HW and AMN were not representative (R² < 0.64). CBCP obtained the highest values in NOL (17.8), TH (56.2 cm), LL (40.2 cm), and LW (5.8 cm). LWe and MW basal shoots reached non-significant differences one year after planting in any variable (P > 0.05). Companion planting promotes predictability of aloe growth and CBCP associated with HW are a promising alternative to aloe cultivation.
SALEEM U et al (2017) Aloe vera belongs to the family Liliaceae. There are approximately 360 species of Aloe vera. It is being widely used in the field of medicine now a day. It is extensively used in Ayurveda preparations for liver defense and overall weakness. Aloe Vera comprises numerous growth factors such as certain amino acids and sterols. Mannose-6-phosphate is the principal sugar in the gel of Aloe which causes wound restoration. However there are various pharmacological actions of Aloe vera such as anti-inflammatory, antitumor, antihyperlipidemic, anti-viral and antimicrobial etc. There are no any major withdrawal adverse reactions of Aloe vera reported in previous studies. Aloe vera is generally very well tolerated. These studies disclosed that Aloe vera is a good source of medicinal active components; hence it is encouraging to explore its new therapeutic use.

Prashant Kumar Dubey1, et al (2017) Aloe vera plant is oldest traditional medicinal plant used for various aspects worldwide. Aloe vera has been attributed to the polysaccharides contained in the gel of the leaves. The whole plant as well as its specific parts (leaves, roots), plant extracts and its active constituent mucopolysaccharides (MPS) which are long chain sugars have been widely used. Aloe leaves can be separated into two basic products the latex, a bitter yellow liquid beneath the epidermis of the leaf and the gel, a colorless and tasteless substance in the inner part of the leaf. Both of them have many biologically active components, mainly anthraquinones and polysaccharides (the most active is acemannan), which may act alone or in synergy. The medicinal value of the plant is recognized since centuries because of the gel like pulp obtained by peeling its leaves. Its juice has cooling properties, is anabolic in action, a fighter of „pitta”, storehouse of phytochemicals and guards against fever, skin diseases, burns, ulcers, boils eruptions etc. Commercially, aloe can be found in pills, sprays, ointments, lotions, liquids, drinks, jellies, and creams, to name a few of the
thousands of products available. Reports also describe antidiabetic, anticancer and antibiotic activities, so we may expect to see a widening use of aloe gel. The author is advice to peoples to read and educate and aware about the importance or magical plant Aloe vera.

DarshanDharajiya et al (2017) The present study was conducted to assess the antimicrobial potential and phytochemical analysis of Aloe vera (Aloe barbadensis Miller) leaves extracts. The extracts were prepared by the sequential cold maceration method by using hexane, ethyl acetate, methanol and distilled water as a solvent. Antimicrobial activity of four extracts was performed by agar well diffusion method against different bacteria and fungi. Determination of Minimum Inhibitory Concentration (MIC) of different extracts, Thin Layer Chromatography (TLC), TLC bioautography and qualitative phytochemical analysis were also performed. The antimicrobial activity of A. barbadensis leaves extracts was found maximum against S. marcescens with a Zone of Inhibition (ZOI) of 13.67±0.57 mm by hexane extract. The MIC of different extracts ranged between 6.25 and 50.00 mg/ml. Among all the fungi used in the study, all the three Aspergillus species were slightly inhibited by the specific extracts. The finding of TLC bioautography showed that compounds eluted at Rf 0.65 demonstrated strong antimicrobial activity whereas compounds eluted at Rf 0.41 and Rf 0.82 exhibited moderate antimicrobial activity against S. marcescens. Phytochemical analysis indicated the presence of phytochemicals present in various extracts. The results of the investigation clearly indicate that A. barbadensis leaves extract have a potential antimicrobial activity against various microorganisms due to the presence of various phytochemicals.

Valerie A. Ferro, et al (2018) Aloe barbadensis Miller (or Aloe vera) has widespread use in health products, and despite numerous reports on the whole plant, little work has been performed on the inner gel, which has been used extensively in these
products. This report describes the in vitro susceptibilities of two bacteria to this component. Global antibiotic resistance by bacteria is becoming an increasing public health concern, and the race to discover new antibacterial agents is on. One approach involves the search for new therapeutic agents with novel modes of action from natural resources. Plants belonging to the genus Aloe (Liliaceae) have been known for their medicinal properties for many centuries, and Aloe barbadensis Miller (or Aloe vera) is of particular renown. In the last decade, aloe vera (AV) has been used extensively in health drinks, topical creams, toiletries, and cosmetics, and there are many reported claims of its beneficial properties, encompassing a broad range of conditions. These claims remain largely anecdotal, and scientific evidence is often sparse and inconsistent. Major sources of confusion arise from preexperimental treatment of the plant, such as storage conditions, the use of fresh or dried components, variations in extraction methods, use of different parts of the plant, growing conditions, and the age of the plants at harvest. The fresh whole leaves of the succulent are fleshy, and removal of the thick outer cuticle reveals a mucilaginous inner gel. This is the major component in many reputable commercial products, found in a preserved but otherwise untreated form. To date, more than 75 active ingredients have been identified from the inner gel, each of which may have a range of mechanisms of action, acting synergistically or individually to explain the numerous curative properties.

Chandrasekar R et al (2018) Aloe a miracle plant obtained from many species namely aloe vera, aloe barbadensis, aloe perryi, aloe ferox and various other species. Aloe vera the Indian species cultivated in India and other species are cultivated in Africa. Aloe is a cactuslike plant that grows in hot, dry climates. Aloe plant can withstand drought conditions and can grow without rainfall. Aloe produces two substances, gel and latex. Aloe gel is a clear, jelly-like substance found in the inner part of the aloe plant leaf. Aloe latex comes from the plant's skin.
and is yellow in color. Some aloe products are made from the whole crushed leaf, so they contain both gel and latex. Aloe vera plant has enormous activities in treatment of various skin diseases such as acne, burns, psoriasis, etc. and used in herbal cosmetics. Aloe gel is used in many cosmetic preparations as face wash and herbal creams etc. since the potency, efficacy, safety is more toxicity and side effects are comparatively less. Aloe is used in gum diseases in, dental problems and dental plaque etc. Aloe gel has anti-diabetic activity, used in treatment of glaucoma, and can treat vision problems. It is also used in hepatitis, osteoarthritis, varicose veins, weight loss etc. aloe has tremendous other activities. This review includes various uses, medicinal properties, pharmacological actions, various extracts of these Aloe species are traditionally used and their application used to cure, arthritis, inflammation, immunity, diabetes, hyperlipidemic, antioxidant, atherosclerosis, coronary heart diseases, laxative, antibacterial, antifungal, antiviral, wound healing and antitumor effect. Since aloe has been reviewed in many journal and articles, this review is compiled from recent article of aloes. Hence aloe is an invaluable gift of nature and a miracle plant. Aloe is a medicinal plant from the past, present and future and the invaluable activities present in this plant leads us to promising activities for the research and development for finding new entities.