ALOGENIC
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Contents of Aloe Vera Gel

To date 75 nutrients have been identified in stabilised Aloe Vera gel, the most important are:

Lignin

A woody substance that is combined with cellulose. It is pretty inert but has been shown to penetrate into the skin. It is probably this substance that assists Aloe preparations to penetrate to the dermal layers of the skin.

Saponins

Natural Soapy cleansers with antiseptic properties, that are excellent for cleaning off the skin.

Anthraquinones

So far 12 have been identified:

Aloin	Aloe Emodin	Chrysophanic Acid	Ethereal Oil
Anthracene	Anthranol	Cinnamonic Acid	Isobarbaloin
Aloetic Acid	Barbaloin	Emodin	Resistannol

Found principally in the sappy the gel, anthraquinone give the yellow colour and bitter taste to the gel that we are all so fond of!! in the pass they were used mainly for their laxative and purging properties, principally in horses as a treatment for colic, worms, and systemic diseases.
Today the use of Aloe vera for colic is not advised and it has no direct affect on intestinal parasites, The anthraquinone properties of Aloe Vera are still reported current veterinary text books on pharmacology and therapeutics.

When Aloe is given orally it is absorbed as anthraquinone through the small intestine. These are then secreted into the large intestine where they irritate and stimulate, leading to the purging and laxative effect. It often takes over 18 hours from the oral administration of Aloe before the purging is noticed.
In high does the anthraquinone can be toxic, resulting in super purgation, which leads to dehydration and death, Aloe Vera provides a safe method of administering beneficial amounts of these compounds.

The action of the following anthraquinone are of particular importance:

Chrysophanic Acid and Emodin:	These have the ability to help in conditions of the skin such as psoriasis and ring worm.
Cinnamonic Acid	Helps to break down dead tissue on the skin.
Anthracene:	This is converted to dimethylsulphoxide (DMSO) which has natural anti-inflammatory properties particularly useful for inflammatory conditions of the musculoskeletal system such as injuries to joints, tendons, ligaments and muscles.

The anthraquinone are also quite potent pain killers, They also have been shown to inhibit the growth of bacteria, Virus, fungi and yeasts.
One can therefore appreciate that small amounts of the anthraquinone containing sap of the gel is beneficial.

Minerals

At least 9 minerals are present, namely:

- Calcium
- Sodium
- Iron
- Potassium
- Chromium
- Magnesium
- Zinc
- Manganese
- Copper

These often exist as a complete and act synergistically with Vitamins and enzymes. They are essential nutritional components in animal feeds.

Calcium

The Skeleton and teeth contain 99% of the body's Calcium, This mineral is essential for the activity of a number of enzyme systems including those for transmission of nerve impulses and the contraction of muscles. It is also involved in the coagulation of blood.

Deficiency, the most well-known deficiency symptom of calcium is rickets which issue in young animals. Their bones become misshapened joints enlarged with lameness and stiffness.
In adult animals calcium deficiency leads to oesteomalacia. The bones become weak and easily broken because calcium is removed from them. It is important to remember that calcium is closely linked with phosphorus and vitamin D, so any deficiency of these can result in similar diseases.

One of the most dramatic diseases seen in cattle, called milk fever is caused by a deficiency of calcium. This disease is most common in dairy cows shortly after calving. During pregnancy calcium reserves can be depleted as the foetal skeleton develops. At calving there is an additional demand for calcium in milk production, This lowers serum calcium levels (hypocalcaemia) resulting in muscle spasms, paralysis, coma and death.
Treatment is simple and impressive because it is possible to return a paralysed and semi-comatose cow back to its feet within half an hour of giving intravenous calcium drip (Calcium Borogluconate).

Sodium

Most of the sodium stored in animals bodies is found in the soft tissues and body fluids. Sodium is closely involved with potassium and Chloride in regulating the bodies acid base balance and osmotic properties of the body fluids,
Deficiency: Retards growth and can lead to eye lesions and reproductive disturbances.

Iron

Over 90% of the bodies iron is combined with proteins, the most important being haemoglobin. The haemoglobin is contained in the red blood corpuscles. These are continually being produced by the bone marrow and bro0ken down elsewhere. Fortunately the iron released by this metabolism is used again, so the daily requirement for iron is low. However, during prolonged haemorrhage or during pregnancy, iron deficiency may occur resulting in anaemia,

Deficiency. The most common deficiency is seen in rapidly growing suckling animals because milk is deficient in iron, this is particularly common in piglets housed on concrete. Commercially housed piglets are usually given injections of iron to prevent this deficiency, while those at pasture obtain iron from the soil they consume.

Potassium

Potassium carries out an interrelated function with sodium chloride and bicarbonate ions in the osmotic regulation of body fluids. Potassium is involved in nerve and muscle excitability and in carbohydrate metabolism.
Deficiency is rare. Green food contains more potassium than the body needs. In cases where it is seen, signs develop of poor growth, weakness and muscle paralysis.

Chromium

In 1959 it was discovered that rats required chromium for normal glucose utilisation due to its involvement with insulin. This mineral also plays a role in lipid and protein synthesis and is involved in regulating cholesterol levels.
Deficiency is seen mainly as poor growth rate.

Magnesium

This mineral is closely associated with calcium and phosphorus.
Over 70% of the body's magnesium is found in the skeleton, the rest being present in the soft tissues and body fluids. This mineral is the most common enzyme activator and is involved in conducting electrical impulses required for nerves and muscles.
Deficiency increases nervous irritability and the risk of convulsions. This can result in uncontrollable muscle spasms and twitching (tetany) followed by death. This condition, known as hypomagnesaemic tetany, is most commonly seen in adult cows but has but has been reported in all types of cattle and sheep. It is also known by a number of other names - magnesium tetany, lactation tetany and grass staggers. It is most commonly seen in early spring in cattle are turned out onto lush grass or when they have been out-wintered and there is a sudden spell of cold, wet, windy weather. Like milk fever, which is caused by a deficiency of calcium, hypomagnesaemic tetany responds well to slow intravenous infusion of a magnesium solution.

Zinc

This mineral is present in every tissue in animal bodies with the highest concentration being found in the bones. High concentrations are also present in the skin, hair and wool. It is an important component of several enzymes and co-enzymes involved in the metabolism of proteins, carbohydrates and fats. It is a very important element in the normal functioning of the skin, digestive and immune systems.
Deficiency leads to depressed appetite, poor growth rates and parakeratosis (reddening of the skin which errupts and forms scabs).

Manganese

Most body tissues contain a trace of this element, the highest concentration being found in the bones, liver, kidney, pancreas and pituitary gland. Manganese, like magnesium, is involved in activating a number of enzymes and is therefore involved in a number of biochemical pathways within the body.
Deficiency leads to poor growth rates and impaired reproductive performance. In females, deficiency results in defective ovulation whilst in males there is testicular degeneration resulting in sterility. A deficiency of manganese is also involved with imbalance of calcium and phosphorous in osteoporosis.

Copper

The first evidence that copper was involved in dietary deficiency was discovered in 1924 when copper was shown to be essential with iron in haemoglobin synthesis. Copper is not actually a constituent of haemoglobin but is it an essential component of mature red blood corpuscles.
This element plays in important role in many enzyme systems, and is necessary for the pigmentation of hair, fur, wool and feathers. It is present in all cells, being stored particularly in the liver.
Deficiency. Symptoms include anaemia, poor growth, poor fertility, bone disorders, gastrointestinal disturbances and de-pigmentation of hair and wool. It has also been associated with lesions of the brain-stem and spinal cord. In lambs a condition known as “sway back” is seen as a result of poor copper intake in the ewes during pregnancy. The lambs show varying degrees of inco-ordination with high mortality. An interesting condition known as “teart” or “peat sours” is seen in cattle grazing pastures high in molybdenum and sulphate. These two elements cause the copper to be unavailable to the cattle resulting in unthriftiness and scouring. This condition is easily corrected by supplementing the diet with copper sulphate.

Vitamins

Aloe Vera contains a number of natural vitamins, particularly Vitamins A, C, E, B1, B2, B6, B12, Folic Acid, Choline and Niacin.
Vitamins were first discovered in 1912 and at that time they were called “vital amines” because it was thought that they all contained amino-nitrogen. AT around this time a researcher called Funk coined the term vitamin that literally means “agent of life”. It had been known for a long time that certain foods were essential in preventing the occurrence of some diseases. One of the first was

reported by Lind in 1753, a British naval physician, who linked scurvy with lack of salads and summer fruits in the diets of sailors (Vitamin C deficiency).
Many vitamins are destroyed by oxidation, a process speeded up by the action of heat, light and certain metals such as iron.

Over 15 vitamins have been shown to be essential constituents of animal diets and at least 10 are found in stabilised Aloe Vera gel.

Vitamin B1 - Thiamine

All B Vitamins are water soluble. This vitamin is involved as a co-enzyme in a number of biochemical pathways within the body.
Deficiency leads to poor appetite, loss of weight, muscular weakness and dysfunction of the nervous system. Most species have been shown to develop deficiency systems, one of the most common being cerebrocortical neurosis (CNN) in growing lambs.

Vitamin B2 - Riboflavin

This is an essential component of flavo proteins that are involved with chemical reactions concerned with the transport of hydrogen within the body and carbohydrate metabolism.
Deficiency causes poor appetite, retarded growth, various skin eruptions and eye abnormalities. In birds deficiency is associated with “curled toe paralysis” and “clubbed down”.

Vitamin B6 (exists in 3 forms - pyridoxine, pyridoxal and pyridoxamine)

These vitamins are involved in amino acid metabolism within the body and their absorption in the intestine. *Deficiency* can lead to poor growth rate, convulsion and anaemia.

Vitamin B12 - Cyanocobalamin

In 1916, B12 was found to be one of the essential factors in pernicious anaemia. It was often called the “animal protein factor” because few plants contain the vitamin. B12 is essential in ruminant animals for production of essential fatty acids, which are their main source of sugars.
Deficiency can result in poor growth, inco-ordination, dermatitis and rough coats in mono-gastric animals. Deficiency in ruminant animals is rare because of the synthesis of B12 by gut bacteria. However, it does occur where their diets are deficient in cobalt. B12 contains cobalt and if there is a dietary deficiency the rumen bacteria do not synthesise B12, leading to a disease known as ‘pining’, where the cattle waste away and die.

Vitamin A - Retinol

Vitamin A has several functions in the body. Firstly it is essential for the transmission of light stimuli from the eye to the brain. It is also involved with mucous membranes and the development of bones. Vitamin A is also a natural antioxidant.
Deficiency of vitamin A leads to an inability to see dim light commonly called “night blindness”. It can also be associated with rough coats and scaly skin. Some animals show excessive watering from the eyes with drying of the conjunctiva, cloudiness of the cornea and blindness.

Free Radicals and Antioxidants

Animal and human tissues are constantly exposed to free-radicals.
These are unstable energy-seeking chemical substances that cause cellular changes in the body.
They are produced by the normal by the normal metabolic processes that occur within us, but also from exposure to smoke, exhaust fumes, radiation, over-cooked food and sunlight. Food additives, as well as herbicides and inorganic fertilisers that we ingest via the food chain, are also a source.
Free radicals are unstable because they contain unpaired electrons. In order to stabilise, free radicals seek out substances with which combine, resulting in cell damage and the breakdown, or oxidation, of tissues.
Antioxidants, such as vitamins A, C and E, intercept free radicals by turning them into stable molecules.

Vitamin C - Ascorbic Acid

An antioxidant vitamin essential in the diet of man, primates and guinea pigs.
Deficiency. Leads to scurvy. Interestingly most other animals do not require a diet source of this vitamin.

Vitamin E

A natural antioxidant.
Deficiency. It is involved in preventing infertility, "white muscle disease" and muscular dystrophy. Deficiency can also lead to sudden death in an animal.

Folic Acid

This vitamin's main function is in the formation of red blood corpuscles.
Deficiency is characterised by poor growth and anaemia. Prolonged medication with sulphur drugs, such as some antibiotics, can depress the bacterial synthesis of folic acid by the gut microflora resulting in anaemia.

Choline

Acetylcholine, which is derived from this vitamin, is an essential component in the transmission of nerve impulses.
Deficiency. The main symptoms of deficiency are slow growth and fatty infiltration of the liver.

Vitamin B3 - Niacin

Also known as nicotinamide, this vitamin is involved with hydrogen transfer in living cells. The body can synthesise this vitamin from the amino acid tryptophan and therefore deficiency is rare unless the diet is protein deficient.

Deficiency. Results in poor growth , enteritis and dermatitis. Birds show an inflammation of the mouth and upper oesophagus called “black tongue”.

Amino Acids

The amino acids are the building blocks for proteins and are important components of all living cells. Muscle cells are particularly rich in these proteins.
Amino acids are produced when proteins are broken down by enzymes. Over a hundred have been identified but only twenty two are generally regarded as being components of protein in animals. Of these, eight are essential to animal diets and consequently are called essential amino acids. In Aloe Vera twenty amino acids have so far been identified and all of the essential ones.

Enzymes

A number of enzymes have been identified in Aloe Vera. These aid in the digestion of food and therefore make the absorption of its nutrients more efficient.

Salicylic Acid

This is a compound related to acetyl salicylic acid, which is known as aspirin. Salicylic acid reduces fever by lowering body temperature - in other words it is antipyretic. It is also a useful antiseptic, but its major function is as a keratolytic where it softens the keratin layer of the skin and aids exfoliation without being an irritant.
This keratolytic effect has also proved useful in the removal of dead tissue from wounds and can prove beneficial in treating certain types of sarcoids. It can also be used in the treatment of ringworm through its ability to encourage exfoliation of the keratin layers of the skin that contain the ringworm mycelia.
Salicylic acid also has anti-inflammatory, analgesic and anti-bacterial properties.

Fatty Acids

These are the plant steroids that have anti-inflammatory, analgesic and antiseptic properties.

Sugars

Present in the mucilage layer of the Aloe Vera plant are simple sugars like glucose, which are called monosaccharides. Chains of these simple sugars joined together are called polysaccharides.
The polysaccharides are the most important group, particularly those containing glucose and mannose.
These are also called gluco-mannans - and one in particular - acemannan - has been shown to have several actions:

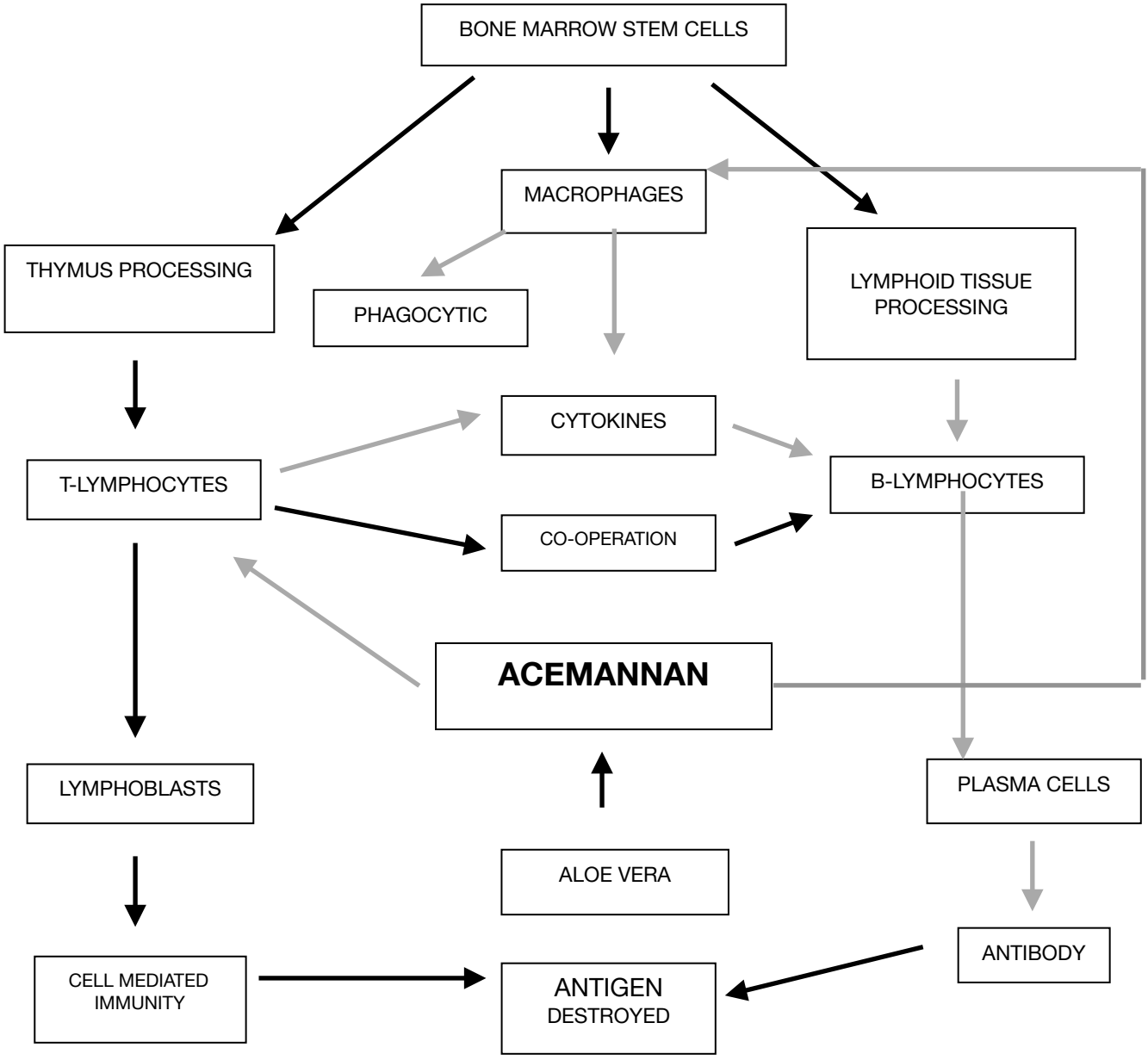
- Immunomodulating properties - it helps to return immunity to normal by boosting the level of antibodies (see below).
- Antiviral - particularly against tumour producing viruses, such as feline leukaemia.
- Reduces secondary infections.
- Increases the activity of T-lymphocytes by up ti 50%.

- Increases the activity of large white blood cells (macrophages) leading to increased wound healing.

This polysaccharide is absorbed intact from the gut (pinocytosis) so it enters the blood unchanged.

The Immune Modulating Action of Acemannan

Acemannan increases the release of interleukin (cytokine and prostaglandins from large white blood cells (macrophages) as well as stimulating their ability to engulf bacteria (phagocytic). Acemannan also increases the production of cytokines from T-lymphocytes. Acemannan is engulfed by these cells which stimulate them to release the cytokines. These in turn encourage B-lymphocytes to produce antibodies.



The overall action appears to be that stem cells produced in the bone marrow are either processed in the thymus to T-lymphocytes, which circulate in the blood stream, or via the Bursa gut related lymphoid tissue of mammals to B-lymphocytes, which tend to be fixed in lymphoid tissue such as lymph nodes.

In the usual immunological response to an antigen, such as a virus or bacteria, lymphokines and cytokines are released and these induce a co-operation between T-lymphocytes and B-lymphocytes. The T-lymphocytes develop into lymphoblasts, which are part of the cell-mediated immunological response, and have antibody-like particles attached to their surfaces. The B-lymphocytes become plasma cells that synthesise and release free antibodies into the blood and other body fluids. These antibodies combine with and neutralise bacteria, virus and foreign proteins. This is called the humoral antibody response.

Acemannan exerts immunomodulating properties by increasing the production of lymphokines and cytokines. The Carrington laboratories in the USA have isolated and extracted acemannan from Aloe Vera. This compound has a product licence for use in Feline leukaemia in the cat and has also been used in the treatment of human AIDS. This acemannan product is called "Carrisyn".

Action of other sugars found in Aloe Vera

These polysaccharides have also been shown to have beneficial properties:

- They line the digestive system thereby helping to decrease the amount if toxins absorbed from the gut, which should be useful in cases of laminitis.
- They also aid the absorption of the breakdown products of digestion such as sugars, amino acids and fatty acids.
- These sugars can also strengthen cell membranes so that their penetration by micro-organisms, such as viruses, is decreased.
- An improvement in the lubrication of joints has also been reported. This probably occurs through an action on synovial fluid production and its composition. This is why Aloe Vera appears to improve cases of osteoarthritis.
- Increases fluid-flow between cells.
- Aids gaseous transfer in the lungs and so helps in cases of asthma.
- A sugar called mannose-2-phosphate has been shown to play3 an important role in the healing of wounds.

Actions of Aloe Vera REPUTED ACTION OF ALOE VERA

Synergistic properties

Aloe Vera has remarkable synergistic properties. Synergism is defined as the "the working together of 2 or more substances to produce an effect greater than the sum of the individual effects".
In other words, the 75 nutrients contained in the gel appear to work as a team producing an overall more powerful effect. The presence of the other team members enhances (or potentiates) the actions of the individual components.

Adaptogenic properties

Aloe Vera is also known as an adaptogen. My scientific medical training made it difficult for me to understand the adaptation properties of the gel. Adaptogenic means that the body will take out the gel what it needs to help the condition it is suffering from. The gel is therefore not helping a symptom directly but rather helping the body to heal itself. The gel appears to help to restore the body's balance. As a veterinary surgeon I initially had problems comprehending the rationale behind this because to me it didn't make sense that one product could be used to help a variety of conditions such as diarrhoea, constipation, vomiting and poor appetite. I knew from my training, and nearly 20 years in veterinary practice, that the drug I used for diarrhoea, for example, was the exact opposite of the one I would use for constipation. However, after using the gel in my practice for over 2 years, I soon began to see at the practical level that you could use the gel for a number of dissimilar conditions and that you did get this effect, which was best described as adaptogenic.

Induces "well being"

Many people, when they start drinking the gel for the first time, notice that they have more energy and feel more able to cope with the daily stresses of life. We often refer ti this as the gel's ability to promote a feeling of well-being. This is probably as a result of the gel's ability to fine-tune our immunity therefore enhancing the body's abilities to fight off challenges. Now it could be said that this is a placebo effect - because you believe the person who is persuading you to take the gel, this generates a positive feeling in you, so you do feel better. However, this does not explain why a general health improvement is noticed in animals when the gel is included in their diets. In small animals we often talk of "bright-eyed and bushy-tailed". This is certainly noticed in many animals after about 6 weeks on the gel. Typically I have noticed:-

- They have thicker, shiny and better quality coats.
- Their nails row faster and are of better quality.
- They are brighter in themselves and more full of life.

A classic example is seen in old arthritic incontinent bitches. These female dogs are often spayed (sterilised ova hysterectomy) when they are quite young. As they get older they put on weight, exercise less and often develop signs of osteoarthritis. This causes them pain and they are often

therefore reluctant to get up. This causes them to put on more weight - they get stiffer, and they are stuck in a vicious cycle of pain, decreased exercise, increased weight. This finally leads to urinary in continence. I have now seen for myself in a number of cases a dramatic improvement over 6 weeks or so when these bitches are given gel at a rate of 60-80mls per day added to their diets. Initially they are keener to get up in the mornings and go out for a walk. This in time tones their muscles and they lose some weight. The overall effect of this is that the urinary incontinence improves.

Antioxidant properties

The gel also has antioxidant properties that are mainly due to its overall effect on the body and its vitamin A, C and E content. I have discussed earlier in this chapter how human and animal bodies are exposed to toxic materials on a daily basis. These come from pollutants in our air from factories and car exhausts, in our food and water from pesticides, herbicides, preservatives and inorganic fertilisers. The metabolic processes in the body also generate toxins. These release free radicals inside the body that are reactive particles with unpaired electrons. They can be very damaging to the cells throughout the body. The liver in particular has to detoxify these for us, and to help it do this, this organ requires antioxidants. Vitamins A, C and E which are contained in the gel, are known to be 3 of the most potent. These are used by the liver, and other cells in the body, to help deal with the free radicals and so prevent damage.
Research and clinical observation has attributed a number of properties and activities to the effects of Aloe Vera gel when taken orally and/or applied to the skin.

Essential nutrients

Aloe Vera contains over 75 ingredients and provides many of the essential nutrients animals require for everyday life such as vitamins, minerals, sugars and amino acids.

Natural cleansers

Aloe Vera os an effective cleanser due to its saponin content.

Skin penetration

Aloe Vera will penetrate through the epidermal layer of the skin to the deep dermal layer helped by its lignin content.

Moisturising

When applied to the skin Aloe Vera acts as as a natural moisturiser, and is the reason why it is a component in many beauty and skin-care preparations.

Exfoliation

The proteolytic enzymes contained in the gel help to break down dead tissue from the skin. The salicylic acid content also assists in exfoliation by softening the keratin layer of the skin. Together these actions help remove dead and damaged cells from conditions such as eczema and psoriasis and are also beneficial when cleansing and healing skin wounds.

Improves blood flow

Aloe vera induces an improvement in blood flow to the skin through capillary dilation.

Increases cell - division and healing

It has been shown scientifically by Dr Atherton and Dr Cochrane in the UK and by Dr Danof in the USA that Aloe Vera increases call division by fibroblasts in the skin by at least three times. This is why wounds tend to heal quicker. In my clinical experience I have consistently found that wounds heal at least 1/3 quicker than those treated with conventional veterinary preparations.

Local anaesthetic

In clinical practice I have found that when Aloe Vera is applied to the skin it acts as an excellent natural local anaesthetic. In some cases it even appears to relieve some of the pain associated with joints and muscles when applied topically. These latter benefits can be enhanced further by consuming the oral gel.

Kills certain bacteria, viruses, fungi and yeasts (antimicrobial)

In the laboratory, researchers such as Gottshall7 have shown that Aloe Vera gel when kept in contact with micro-organisms for prolonged periods in antimicrobial. It has been shown that it not only kills gram positive bacteria, such as streptococci and staphylococci which causes skin diseases, but that it will also kill the tuberculosis bacteria and *E.coli.* In addition it is also viruscidal, particularly against herpes viruses, and fungicidal against yeasts such as *Candida albicans,* which causes thrush.

Decreases bleeding

When applied to minor wounds with capillary bleeding, such as a graze, it encourages coagulation thereby decreasing bleeding.

Anti-inflammatory

It acts as a natural anti-inflammatory agent without the side-effects of steroids.

Decreases itching (anti-pruritic)

It is anti-pruritic so decreases itching from conditions such as allergic dermatitis (atopy).

Lowers temperature (anti-pyretic)

Probably due to its content of salicylic acid - an aspirin-like agent - it has been found to lower body temperature and take the heat out of inflammatory skin conditions such as ulcers - a property often referred to as being anti-pyretic.

No detectable side effects

During the 1960's independent research was carried out to determine whether Aloe Vera taken orally, or applied to the skin topically, had an level of toxicity to us or our animals. These tests confirmed that there is no measurable level of toxicity with stabilised Aloe Vera products. Over the last 20 years the stabilised gel has been used both orally and topically by thousands of patients world wide, and no adverse reactions have been reported.

Safe to use with other drugs

In my practice I have found that Aloe Vera preparations can be used with all commonly used veterinary drugs with no interaction between them.

Enhances the action of other drugs (potentiates)

In many cases I have found that Aloe Vera tends to potentiate the action of some of my usual drug preparations, such as antibiotics. Homeopathic practitioners frequently report enhanced activity of their preparations.

SPECIFIC SITES OF ACTION FOR ALOE VERA

It soon becomes apparent when using Aloe Vera to help medical conditions in animals that it appears to work on a number of bodily systems. It shows consistency beneficial effects on conditions affecting the following:-

The skin	The urinary and genital systems
The digestive system including the oral cavity	The eyes
The respiratory system including the nasal chambers and sinuses	The ears
The musculo-skeletal system	

These systems have two properties in common - they either have **epithelial cells** or the response involves the **immunological system.**

A number of workers, including Dr Peter Atherton, have concluded that Aloe Vera actually works on epithelial tissues (a layer of cells covering the body - the skin - or lining a cavity connecting with it) and the immune system to produce its beneficial effects. This has been borne out by my experience in the large number of clinical cases I have worked with in my practice.

WHAT TYPES OF GEL DO I USE IN MY VETERINARY PRACTICE?

There are many different types of Aloe Vera preparations available.
They are all derived from either:

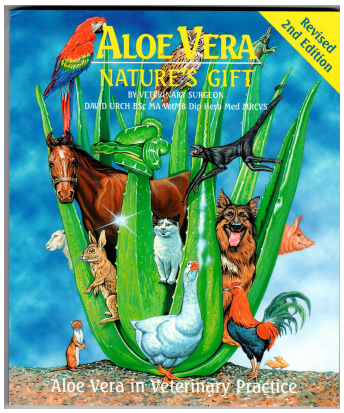
- The whole leaf of the plant
- or the filleted gel

In practice, I have found the preparation at present that consistently produces the most beneficial results, is based on cold stabilised Aloe Vera gel. This is produced by filleting out the gel from the rind of the leaf and therefore will contain mainly parenchymatous gel with some sap. It is important that a small amount of sap is present because this contains the anthraquinone fraction. The small amount present has to be shown to be beneficial through its natural antimicrobial and analgesic properties. Such a gel will therefore be yellow or orange in colour, contain cellar material and have a bitter taste.
I only use preparations that carry the official international Aloe Science Council seal, which ensures that they have been tested for purity and content.

Stabilisation

Freshly filleted Aloe Vera gel oxides very quickly and therefore it has to be stabilised. By adding 9 other plant extracts to the fresh gel this oxidation and breakdown is prevented. Although the primary purpose of these extracts is to stabilise the gel, they have beneficial properties in their own right.

Sorbital	Derived from corn/maize and not only aids in the absorption of vitamins and minerals from the gel but is also a natural sweetener.
Ascorbic acid	Better known as Vitamin C and not only helps the deficiency disease scurvy, but also plays an important role in would healing and is a natural antioxidant.
Citric acid	Found naturally in citrus fruits such as lemons, limes and oranges. It helps to adjust the acidity/alkalinity (ph) and has antioxidant properties. It is also a mild astringent.
Sodium benzoate to	*A* naturally occurring flavouring from fruits like blackberries. It helps stabilise the gel and prevent bacterial growth when opened to the air.
Potassium sorbate	Found naturally in fresh berries of the Mountain Ash. It provide flavouring and maintains the gel's freshness.
Papain	A natural sweetener from the papaya fruit that aids healing and reduces the effects of trauma.
Xanthan gum	A natural stabilising and emulsifying agent from kelp (seaweed).
Tocopherol	More commonly known as vitamin E. An antioxidant derived from wheatgerm oil, rice kernel and vegetable oils.
Fructose	A natural fruit sugar that enhances the actions of other stabilisers.



Information can all be found in Aloe Vera Natures Got Publication.