FulvicForce fulvic acid
HIDDEN TREASURE UNEARTHED

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WHAT IS FULVIC ACID

FULVIC ACID – SUBSTANCE CRITICAL FOR LIFE

Fulvic acid is truly a remarkable natural compound. Not well known to general public but studied extensively by scientists and researchers around the world, it is a substance as critical to life as oxygen, water and sun rays. Plants would not be able to exist without fulvic acid and with no plants, there would be no animal and human life on earth.

Fulvic acid is found in soil and plants, where it carries out two indispensable functions: to absorb from soil minerals and trace elements and all nutritional and remedial components left there by microbial action, and to transfer this valuable content into plants cells, where it is metabolised and used for healthy growth. When plants die and eventually decompose, they return their mineral, nutritional and remedial value, fulvic acid including, back to soil and the cycle repeats itself again.

Just as it works for plants, fulvic acid has a very similar action, and an associated spectrum of outstanding benefits, for humans and animals - all life forms on earth share very similar building blocks: living cells.

FulvicForce fulvic acid is a natural supplement second to none. It carries mineral, nutritional and remedial value of ancient plants, delivered right inside living cells of the body. It is for everyone: healthy and active people looking for energy, wellbeing and protection, sport people striving for increased endurance, quicker recovery and guarding against injuries, as well as people afflicted with different, often serious, conditions.

Read more about fulvic acid, below: about its classification, origin, chemical composition and general properties, and elsewhere in this booklet: about its specific benefits in human life and wellbeing. References to research papers, scientific studies and clinical reports are provided in this section (general properties of fulvic acid) and in sections focusing on specific benefits of fulvic acid.

WHERE DOES THE NAME FULVIC ACID COME FROM

Fulvic acid derives its name from a Latin word ***fulvus***, indicating deep yellow, reddish yellow, golden or tawny yellowish-brown colour.

CLASSIFICATION OF FULVIC ACID

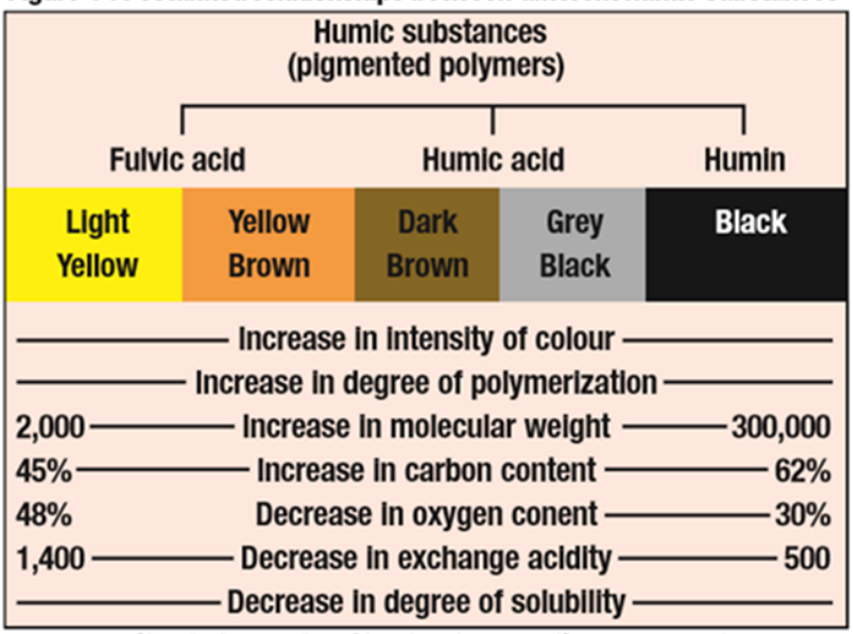
Fulvic acid is classified as a part of humic substances, but what are they? The following summary is based on a paper: *Humic & Fulvic Acids: The Black Gold of Agriculture?*

Soil organic matter is frequently said to consist of humic substances and non-humic substances.

Non-humic substances are all those materials that can be placed in one of the categories of discrete compounds such as sugars, amino acids, fats and so on.

Humic substances are the other, unidentifiable components. Generally, humic substances are considered as a series of relatively high molecular weight, brown to black coloured substances formed by secondary synthesis reactions.

Figure 1 : Postulated relationships between different humic substances



Chemical properties of humic substances (Stevenson 1982)

The term is used as a generic name to describe coloured material or its fractions obtained on the basis of solubility characteristics: the fraction called humic acids is not soluble in water under acidic conditions (pH < 2) but is soluble at higher pH values. They can be extracted from soil by various reagents. Humic acids are the major extractable component of soil humic substances. They are dark brown to black in colour; the fraction called fulvic acids is soluble in water under all pH conditions. They remain in solution after removal of humic acid by acidification. Fulvic acids are light yellow to yellow-brown in colour; finally the fraction called humins is not soluble in water at any pH value and in alkali. Humins are black in colour.

Many experts now believe that all dark coloured humic substances are part of a system of closely related, but not completely identical, high molecular weight polymers. According to this concept, differences between humic acids and fulvic acids, can be explained by variations in molecular weight, the number of functional groups (carboxyl, phenolic OH) and the extent of polymerisation.

The postulated relationships are depicted in figure below, in which it can be seen that carbon and oxygen contents, acidity and degree of polymerisation all change systematically with increasing molecular weight.

THE ORIGIN OF FULVIC ACID

Fulvic acid is an organic material created over the long passage of time by the action of microbes breaking down dead and dying vegetable matter. Thus, it is largely found in pre-historic deposits of lignite, a soft, brown coal, that has developed from peat through bacterial action and pressure and heat over millions of years. Smaller quantities of fulvic acid are also found naturally in soil. From the ancient remains we know that long ago plant life flourished in an environment abundant with fulvic acid and it seems that most of plants and food crops of today must contain at least some of those riches, but in reality few do.

Today, our soils provide less and less natural nutrition, especially minerals, to the plants and food crops, due to prolonged poor agricultural practices, such as excessive use of chemical fertilisers, insecticides, pesticides, and herbicides, and the resulting erosion and mineral depletion. Quantity and quick time to market are driving modern farmers to produce ever increasing volumes of food critically lacking in organic trace elements and other nutritional factors, but full of chemical residues. In turn, we are deprived of adequate natural supplies, including fulvic acid quantities that the Nature intended for us to have, which would otherwise be available to us through plants we eat.

FULVIC ACID MOLECULE

Fulvic acid is a natural, water-soluble acidic organic polymer. It is one of several sub-classes of humic acids with a particularly low molecular weight. Fulvic acid is very active biologically and its average elemental composition consists of: Oxygen (44 – 49 %), Carbon (44 – 49 %), Hydrogen (3 – 5 %), Nitrogen (2 – 4 %). It is this large content of highly bioavailable oxygen, which makes fulvic acid such an excellent natural anti-oxidant. Fulvic acid chemical formula and structure can vary slightly depending on the environment in which it occurs.

FULVIC ACID CONCENTRATION IN ENVIRONMENTAL SOURCES

Swamps with giant plants, hundreds of millions of years ago covered the Earth

Rotting plant material accumulated in warm, muddy swamps and eventually was covered by dirt and water, which, overtime, created increasing pressure and heat, leading to peat, lignite, coal and anthracite – each containing some fulvic acid from ancient plants

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Moist, fibrous ***Peat***

Fulvic acid: 10-30%
Humic acid: 5-10%

Lignite *(brown coal)*
found nearest Earth's surface

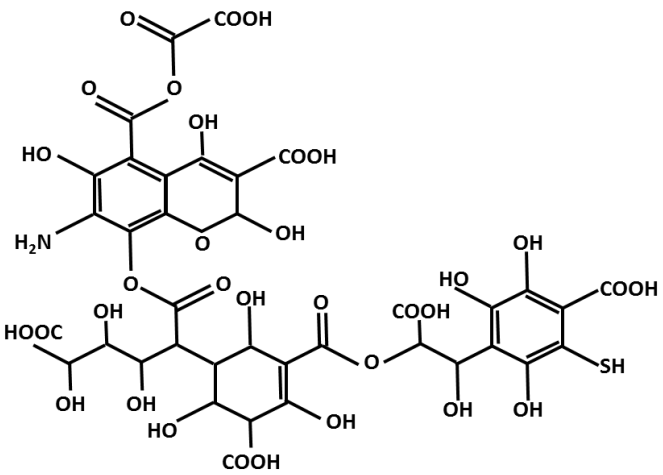
Fulvic acid: 30-85%
Humic acid: 5-40%

Bituminous coal
found deeper underground

Fulvic acid: 10-30%
Humic acid: 5-10%

Hard black ***Anthracite***
found deepest underground

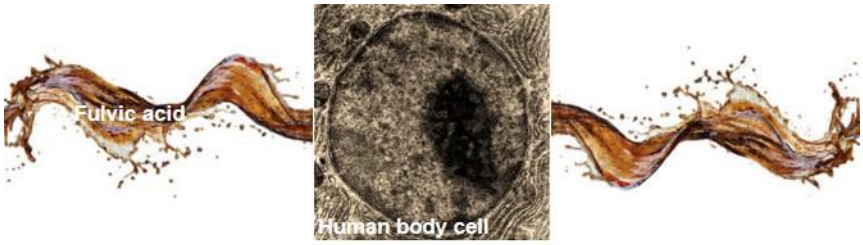
Fulvic acid: 0-1%
Humic acid: 0%



On average its chemical formula is $C_{37}H_{33}NSO_{33}$ and its structure looks like a diagram on the left (refer to: "*Theoretical study on fulvic acid structure, confirmation and aggregation, a molecular modelling approach*", R A Alvarez, C Valenzuela-Calahorro, J J Garrido, Elsevier, Science of the Total Environment 358 (2006), 243-254, 26 May 2005).

THE FUNCTIONS OF FULVIC ACID

The key functions of fulvic acid are: to absorb from soil minerals and trace elements and all nutritional and remedial components left there by microbial action, and to transfer this valuable content into plants cells, where it is metabolised and used for healthy growth. It works in exactly same way for humans. Due to its relatively low molecular weight, for a complex molecule fulvic acid is, and its excellent penetrative properties, fulvic acid infiltrates the membranes of living cells with a relative ease.

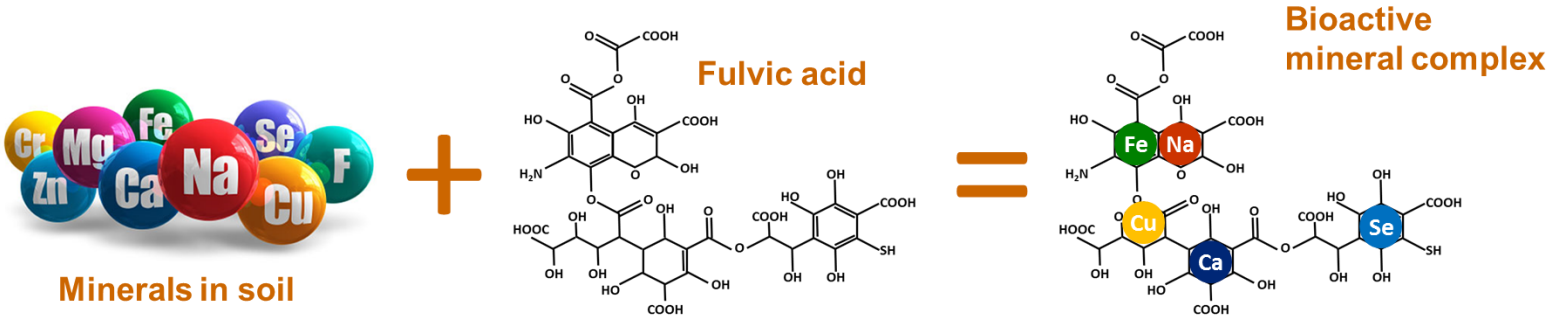


In order to underline the importance of the role, which fulvic acid plays in nourishing the living cells of our bodies we need to start from the cell itself. The cell is a fundamental component of all living things. We begin life as a single cell and eventually grow our bodies to approximately 10^{14} cells, that's a 1 with fourteen zeros behind! Cells are separated from each other or from an external environment with a special membrane. Most human cells have a nucleus, or its equivalent, which focuses the bulk of chemical information, which controls heredity properties of a human being. When cells deteriorate people age, when cells malfunction people get sick. We need healthy cells to have healthy bodies and our cells need to be nourished all the time.

For a cell to make the best of the essential nutrients, minerals and vitamins, they must become bioavailable and bioactive. But there's evidence that many, possibly all essential nutrients have a very-limited bioavailability in their pure chemical form. They only become highly bioavailable when they are ingested as part of a natural substance, in which they occur, alongside a multitude of other natural substances. All these substances create a synergistic environment for the nutrients to maximise their absorption and to turn into a live functioning part of your body. And fulvic acid is an essential ingredient of such an environment.

Minerals in fulvic acid

Fulvic acid dissolves elemental minerals present in the soil, both metallic in origin, or shell-, rock-, and clay-based, and converts them into a form usable by plants, but also by humans and animals. When inorganic minerals come into contact with fulvic acid in a presence of water, they are dissolved into an ionic form and incorporated into the fulvic acid complexes, becoming an inherent part of the fulvic acid itself. In this form they become highly bioactive and bioavailable to the living cells of our bodies (as illustrated in picture below).



Nutrients and remedial content in fulvic acid

As a product of a long and slow refining process, fulvic acid contains all the riches of ancient plants: 70+ minerals and trace elements, amino acids, amino sugars, peptides, nucleic acids, and, importantly, phytochemicals and phytonutrients. According to Wikipedia, phytochemical substances are chemical compounds, naturally occurring in plants, having protective or disease preventive properties. Plants produce these substances to protect themselves

but research demonstrates that many of them have biological significance for humans and potentials to affect diseases such as cancer, stroke, metabolic syndrome and others. There's more than 4 000 phytochemicals, having different preventative actions. Many of these substances can be counted among the most valuable and promising anti-cancer nutrients. Some selected examples of phytochemicals are:

- Antioxidant action : allyl sulphides, carotenoids, flavonoids, polyphenols – protect our cells against oxidative damage and reduce the risk of developing certain types of cancer.
- Hormonal action : isoflavones – imitate human estrogens and help reduce menopausal symptoms and osteoporosis.
- Stimulation of enzymes: protease inhibitors, terpenes, indoles – stimulate enzymes that make the estrogen less effective and could reduce the risk of breast cancer.
- Interference with DNA replication: saponins – impede replication of cell DNA, thereby preventing the multiplication of cancer cells; capsaicin – protects DNA from carcinogens.
- Anti-bacterial effect: allicin – has anti-bacterial properties.
- Physical action: proanthocyanidins – bind physically to cell walls, thereby preventing the adhesion of pathogens to human cell walls

Fulvic acid is a remarkable substance capable of making nutrients bioactive on a cellular level and it is thus recognized for its ability to balance and energize cell life and biological processes.

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FULVICFORCE FULVIC ACID FOR HEALTH AND WELLNESS

FulvicForce product is an essential natural mineral, nutritional and remedial supplement for modern women and men. While its main active ingredient, fulvic acid, is known to benefit people afflicted with even serious conditions, it is particularly vital for healthy individuals, who search for optimum nutrition and wellbeing, and strive for consistently high energy levels and lasting protection. FulvicForce helps active and sports people to cope with the demands of a fast-paced and stressful modern life and even the most strenuous physical training.

FulvicForce is South Africa's one and only fulvic acid product extracted directly from coal under a patented process. Thus, it can be considered an extract from plants, which lived 300 – 400 million years ago. As such, FulvicForce carries their mineral, nutritional and remedial value, free of man-made pollution, and concentrated through a slow process of transformation of

ancient plant matter into coal. Apart from fulvic acid - it contains on average more than 70 minerals and trace elements, amino acids, amino sugars, peptic and nucleic acids and phytochemicals and phytonutrients from prehistoric plants.

In addition, due to its complex molecular structure and chemical characteristics, fulvic acid, offers a wide spectrum of truly remarkable properties:

- Fulvic acid is one of the most robust natural antioxidants, which, depending on the need, can act as a donor or acceptor in the neutralisation of free-radicals, limiting their damage to membranes of living cells, proteins and DNA.
- Fulvic acid's molecule is made of 45% of structural oxygen, by weight, which is delivered inside body cells. This is a source of clean and sustainable energy, diametrically different from short energy spikes offered by popular caffeinated and sugar-loaded energy drinks.
- Due to its mineral and trace elements content, fulvic acid is an excellent natural electrolyte, able to replace most essential microelements, which are lost through skin while sweating.
- Fulvic acid binds vegetal silica into collagen and thus effectively strengthens all connective tissue; it also has anti-ageing and anti-wrinkling benefits for skin.
- Phytochemicals bound by fulvic acid provide anti-bacterial, anti-viral, antimicrobial and anti-inflammatory protection, effectively boosting immune system.
- Fulvic acid effectively stimulates a healthy alkaline pH of a living organism.

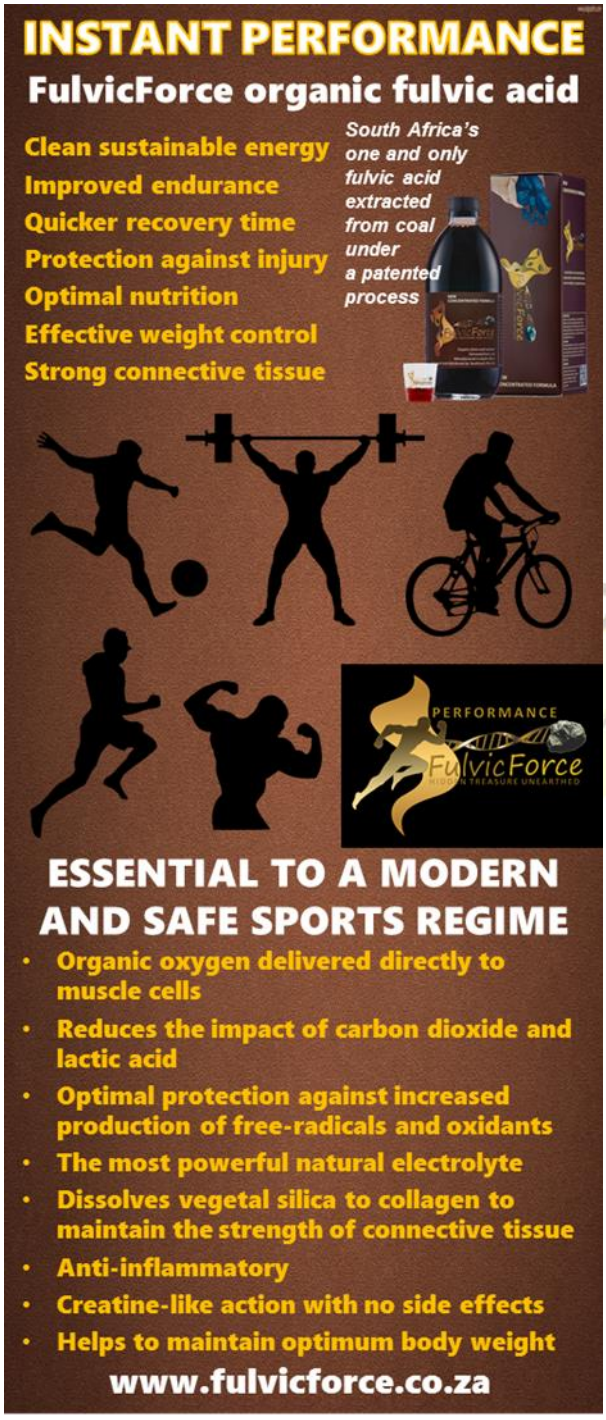
At the same time, fulvic acid is also a Nature-designed and very effective mechanism to deliver its mineral, nutritional and healing value straight into the inner parts of human living cells, where it is optimally utilised by the body.

By supplementing with FulvicForce product you will put back into your body all what's becoming rapidly lost from present-day fresh produce, due to depletion caused by chemical farming. You may experience some, or all, of the following:

- Your body cleansed, purged of toxins, viruses, parasites and pathogens.
- A lasting boost to your immune system, better resistance to infections and diseases.
- Better oxygenation and increased circulation.
- More balanced blood sugar.
- Renewed energy resulting in stronger motivation and improved endurance during sport exercises.
- Shorter recovery time between strenuous exercises, less frequent injuries.
- Reduced cravings, better control of unhealthy eating habits.
- Increased resistance to colds and flu, falling sick less often.
- Less inflammation and free radical damage.
- Quicker recovery from aches and pains.
- Rejuvenated skin, hair and nails, more youthful complexion and appearance, slowing down ageing factors.
- Improved digestion and bowel function.
- Improved concentration, better brain and memory functions.
- Revitalised libido, better sexual functions and an increase in sexual desire

FULVICFORCE FULVIC ACID – AN ESSENTIAL SUPPLEMENT IN A MODERN AND SAFE SPORT REGIME

Research confirms that fulvic acid possesses truly remarkable biological, nutritional and remedial properties. It is these same properties, which make it a sportspeople's supplement for second to none (refer to a review paper "The Role of Fulvic Acid in Sport and Exercise" by Peter Gouge, BSc (Hons) Nutrition, RNutr).



Fulvic acid provides clean and sustainable energy boost and reduces the impact of carbon dioxide and lactic acid during and after sports

Fulvic acid consists of 45% of highly bioavailable and bioactive oxygen and has the ability to deliver it directly to the body cells. It provides a sustainable energy increase, prolongs performance and shortens recovery time. Regular supplementation with fulvic acid may reduce problems associated with the lactic acid and carbon dioxide build up during and after exercise. When supplements are taken for a sufficient period of time, muscle soreness after exercise is decreased, the ability to train for longer can be noticed and recovery time between exercises is reduced.

Fulvic acid dissolves silica to collagen, which strengthens joints and connective tissue

Fulvic acid has the ability to dissolve vegetal silica, present in fruits and vegetables, into a bioavailable form, which can be used by the body for the production of collagen, an integral component of connective tissue such as ligaments and tendons. It can help prevent the tearing of tendons and ligaments and maintain strength of joints and connective tissue.

Fulvic acid provides the most powerful electrolyte in existence, preventing dehydration and muscle cramping

Fulvic acid is one of nature's most powerful electrolytes as many research articles prove its ability to maximise the electrical chemistry of the cell. The reason that fulvic acid is so powerful is that it naturally contains around 70 different minerals and also has the ability to provide minerals to a cell when they are needed. When sweating occurs during prolonged exercise and blood electrolytes are being lost through the skin, fulvic acid will immediately replace these and prevent loss of performance. Fulvic acid can help prevention of muscle cramps, dehydration or decreased performance levels linked to the absence of electrolytes.

Fulvic acid delivers the best natural anti-oxidant defence

When oxygen is metabolised, it creates free-radicals which steal electrons from other molecules, causing damage to cells, cellular proteins, lipids and DNA. Free radicals have been linked to a variety of diseases, including heart disease and certain cancers. During exercise, oxidants are produced at a faster rate due to faster average metabolism, hence

sports people have higher requirements for anti-oxidants. Well known anti-oxidants include vitamins A, C and E, but the complex structure of fulvic acid makes it far more powerful an anti-oxidant than any other nutrient known.

Fulvic acid offers an ideal replacement for creatine

Supplementing with creatine is hugely popular among sports people and body builders. Many scientific studies have shown its effectiveness for increasing endurance during high intensity training and increasing muscle mass. However, there are also concerns regarding its long term use. Reported side effects include kidney damage, muscle cramping, leg pain and stomach problems. Fulvic acid is an ideal replacement for creatine as this nutrient will offer all the benefits of creatine but will also work for endurance athletes (creatine has only shown to be effective for high intensity sports and therefore will not work for footballers for example) and it will not cause any of the side effects mentioned above.

Fulvic acid boosts immune system and fights inflammation

Fulvic acid carries phytochemicals – natural substances produced by plants for their own protection – which are anti-viral, anti-bacterial, anti-microbial and anti-inflammatory. This phytochemical content effectively boosts immune system in a sustainable way and helps fighting tissue inflammation occurring as a result of intense training.

Fulvic acid helps effective weight management

As a natural chelator – a substance capable to effectively bind other substances into its own molecular structure – fulvic acid scours food we digest for valuable nutrients, binds them and transports its content inside body cells. This nourishes body cells much more effectively reducing cravings and over-eating habits.

Many serious athletes use FulvicForce fulvic acid product with great results.

PREVENT AND FIGHT CANCER WITH FULVICFORCE FULVIC ACID

Although FulvicForce does not make any medical claims, there's a body of research and scientific papers (refer to a selected list of papers at the end of this page) indicating that fulvic acid offers a significant spectrum of benefits for people afflicted with cancer. These benefits are summarised below.

Fulvic and humic acids, used in traditional and natural medicine for centuries, have been reported to possess cancer preventive properties (refer to a list of selected references at the end of this summary). It has been shown that these compounds can inhibit mutagenesis and have free radicals scavenging, photo-protecting, anti-inflammatory and toxic-compound-removing properties that can inhibit the cancer development. Anti-inflammatory, anti- oxidative, anti-viral, anti-bacterial, immunomodulatory and several other effects of fulvic acid have also been widely researched.

Cancer cells live their own life but they can be slowed-down or even killed by literal starvation. Cancer's best friend is sugar and limiting sugar to an absolute minimum is a must. Cancer's greatest enemy is oxygen and the presence of a large amount of bio-available and bio-active oxygen in the body is effectively able to kill it. This should not be an eye-opening news, Dr Otto Heinrich Warburg, a German physiologist and a medical doctor, received a Nobel Prize in Physiology for just those findings in the investigation of the metabolism of a tumour and the respiration of cells, particularly cancer cells, already in 1931.

So, if the human body has a slight alkaline environment and a large amount of bio-available and bio-active oxygen at its disposal, it is definitely not a good environment for cancer to prosper. Cancer in such an environment can't grow, and this is the cornerstone of the natural anti-cancer strategy. This information has been known since the 1930s but its application does not bring any benefits to the big pharma industry – you can't patent and sell it at a huge premium – so it is not being widely pursued in a conventional medical practice.

And FulvicForce fulvic acid can help your immune system to protect you and put up an effective fight against cancer because of at least four good reasons:

(1) Fulvic acid is known to be one of the strongest natural anti-oxidants and free-radical scavengers. It is proven that fulvic acid can effectively neutralise and even repair some free radicals. It effectively limits free radical damage, which is responsible for and exacerbates cancer.

(2) Fulvic acid provides the most effective cellular oxygenation in Nature. Its molecule, by weight, is made of 45% oxygen, 45% carbon and the balance of 10% is made of hydrogen, nitrogen and sulphur. This highly bio-active and bio-available oxygen goes straight inside body cells providing sustained energy and wellbeing, and helping to manage consequences of cancer.

(3) In spite of being an acid, fulvic acid actively stimulates alkaline pH in our bodies. In this it behaves similar to vinegar (acetic acid) and lemon juice (citric acid) – both acids but stimulants of alkaline pH when inside our bodies.

(4) FulvicForce fulvic acid contains lots of phytochemicals of ancient plant origin, which have the most valuable and promising anti-cancer nutrients, provide anti-oxidant action and have anti-viral, anti-bacterial, anti-microbial and anti-inflammatory properties.

FulvicForce is South Africa's one and only fulvic acid product extracted from coal according to a patented process. FulvicForce product is literally an organic extract from plants, which lived hundreds of millions years ago, thus carrying their mineral, nutritional and remedial value, concentrated through a slow natural refinement process of transforming ancient plant matter into coal.

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FULVICFORCE FULVIC ACID IN HIV / AIDS MANAGEMENT

Although FulvicForce does not make any medical claims, there's a body of research and scientific papers (refer to a selected list of papers at the end of this post) that fulvic acid offers a significant spectrum of benefits for people afflicted with viral and other opportunistic infections. These benefits are summarised below.

Various studies, partly produced here in South Africa (as reviewed by Professor Jo Lorentzen from HSRC in his excellent report from 2006), provide clear evidence that humic and fulvic substances are non-toxic, non-mutagenic, and non-teratogenic. They stimulate the cell-mediated immune system, inhibit inflammatory reactions, inactivate the growth of certain viruses, and protect against environmental toxins.

They prove their efficacy and selectivity for the treatment of diseases associated with viral and other opportunistic infections as well as inflammatory conditions such as autoimmune diseases and allergies. These are among the most common diseases on earth, they afflict large numbers of people in Africa and, if treated successfully, would improve livelihoods and enhance economic development more generally.

Researchers based in Germany first showed the anti-HIV activity of humic acid in cell culture (Schneider et al. 1993 and 1996). Further test results showed that humic and fulvic acids have anti-inflammatory, antimicrobial, and antiviral effects (e.g. Jooné et al. 2001, 2003; van Rensburg et al. 2002). For example, the administration of humic acid in animal trials led to the suppression of the rejection of cell transplants by the immune system of the host. It also suppressed a contact hypersensitivity reaction. The same effects were seen on isolated phagocytes in that there was a decrease in adhesion molecules associated with the inflammation. At the same time, however, lymphocytes isolated from blood drawn from HIV positive patients that had been treated with humic acid for two weeks showed an increase in proliferation when stimulated with a non-specific stimulant. In other words, the cell-mediated immune system, greatly compromised in HIV positive patients, was stimulated while the phagocyte part associated with the inflammation was suppressed.

Our own South African clinical trial undertaken in 1999 at Kalafong, an academic clinic in Gauteng, was limited to two weeks' duration by The Medicines Control Council (MCC) out of concern that the HIV might develop resistance. Hence it was not possible to fully assess efficacy because the viral load does not sufficiently decrease in such a short period of time. What the trial did show, however, was that humic acid was non-toxic. In addition, patients put on weight and their general condition appeared to improve significantly, including WHO performance status. These results were presented to an international peer audience and also published (Botes et al. 2000, 2002; Van Rensburg 2000, Van Rensburg et al. 1999, Van Rensburg et al. 2001).

Research and development of humic and fulvic acid based medicines for HIV / AIDS was highly politicised in South Africa and all but halted in the aftermath of the embarrassment of Virodene, a highly toxic industrial solvent punted as HIV / AIDS cure. But humic and fulvic acids still remain exceptional natural substances providing excellent support in many chronic conditions plaguing humanity, HIV / AIDS including.

Below is a list of research papers on the role of humic and fulvic acids in HIV / AIDS treatment and general support. The list is by no means exhaustive but gives a representative view on the direction of research and the promise they hold.

Oxihumate and Oxifulvate, referred to in some publications below, describe products of a process which essentially reverses the process by which coal is formed – instead of humic and fulvic substances losing oxygen that over millions of years created coal, the coal is oxidised back to humic and fulvic content. FulvicForce fulvic acid product is just such oxifulvate. Fulvic acid is a sub-class of humic acids, typically richer in oxygen content and with lighter molecular weight.

FulvicForce is South Africa's one and only fulvic acid product extracted from coal according to a patented process. FulvicForce product is literally an organic extract from plants, which lived hundreds of millions years ago, thus carrying their mineral, nutritional and remedial value, concentrated through a slow natural refinement process of transforming ancient plant matter into coal.

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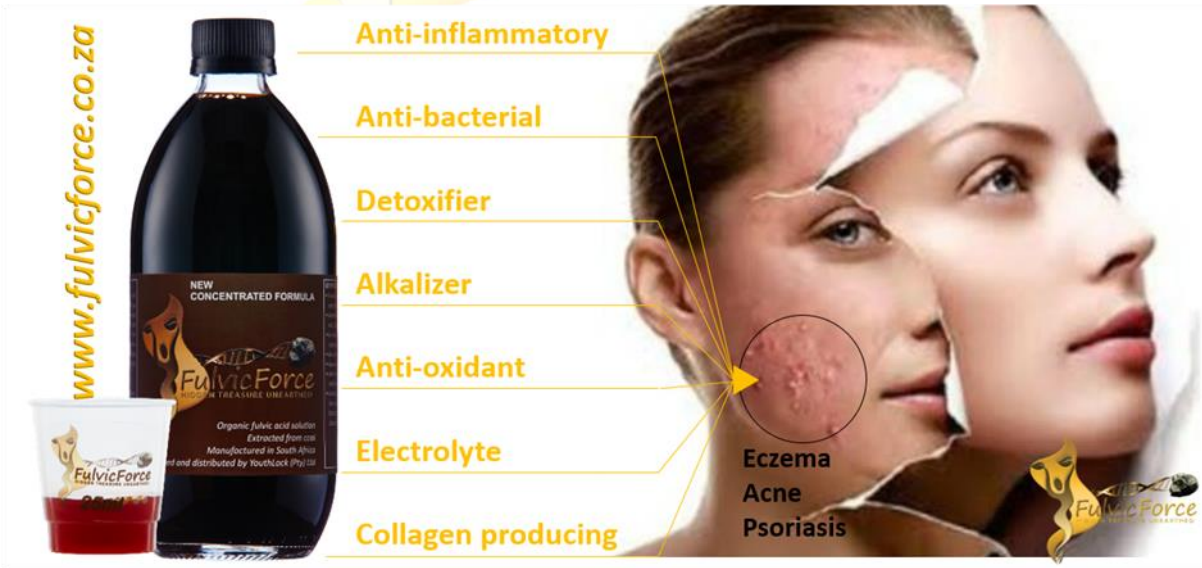
FULVICFORCE FULVIC ACID – AN ESSENTIAL INGREDIENT IN SKIN HEALTH

Although FulvicForce does not make any medical claims, there's a body of research and scientific papers (refer to a selected list of papers at the end of this page) indicating that fulvic acid offers a significant spectrum of benefits for people afflicted with various skin conditions. These benefits are summarised below.

Based on "The Role of Fulvic Acid in Skin Health" by Peter Gouge, BSc (Hons) Nutrition, RNutr

The skin is the largest organ in the human body and, along with this, it is our indicator of poor health. Many physiological conditions express themselves on the skin and this is vital for diagnosis and treatment. Many people often reach for topical treatments for skin conditions, but most of the time that will merely control a symptom of a more underlying problem.



Skin conditions such as eczema, psoriasis and acne are now extremely common in society and many people seek pharmaceutical medication to help combat these problems. These conditions can make the life of the sufferer extremely uncomfortable by either causing itchiness, pain or by effecting confidence in social situations. Many people think that they have to suffer with these conditions for the rest of their life, and in many case this is not true. Fulvic acid can be the answer to many sufferers of skin conditions (refer to selected references at the end of this summary).

FULVIC ACID OFFERS POWERFUL ANTI-INFLAMMATORY PROTECTION

The anti-inflammatory effect of fulvic acid is yet to be fully understood, however clinical trials show that the administration of fulvic acid reduces the production and impact of pro-inflammatory substances. As many skin conditions show some form of inflammation, fulvic acid therapy is essential in improving the health of skin.

FULVIC ACID POSSESSES ANTI-BACTERIAL PROPERTIES TO COMBAT ACNE

The anti-bacterial effect of fulvic acid is thought to be attributed to the fact that it balances the pH in our body. An acidic environment gives rise to a very poor immune system so it is vital that our body pH remains just above neutral in a slightly alkaline state. Once this is achieved, which may take a few months of fulvic acid therapy, our immune system will efficiently locate and destroy any bacterial overgrowth such as that experienced in some outbreaks of acne.

FULVIC ACID COMBINES WITH SILICA TO PROVIDE THE MOST EFFECTIVE ANTI-AGEING FORMULATION AVAILABLE

Many people, who take fulvic acid supplements which also contain vegetal silica, also mention that their skin feels very soft after a few weeks of use. This is due to the fact that fulvic acid can dissolve silica into a form that is very easy for our skin cells to use.

Silica is vital for the collagen structures in our skin to remain elastic. It is this elasticity that is lost when wrinkles start to appear. Many people spend a huge amount of money on face creams and moisturisers with little to no effect. The most effective way of preventing wrinkles is now known to be fulvic acid and silica.

FULVIC ACID DETOXIFIES OUR CELLS TO ENSURE THAT ENVIRONMENTAL TOXINS CANNOT CAUSE SKIN PROBLEMS

The physical structure of fulvic acid allows it to carry many different substances. It can hold up to 70 different trace minerals. However, it can also bind and hold substances that are in quantities that are not desirable to the human body, i.e. toxins. Everything is toxic to us in excess quantities and there is nothing better than fulvic acid for balancing undesirable substances back to safe levels.

FulvicForce is South Africa's one and only fulvic acid product extracted from coal according to a patented process. FulvicForce product is literally an organic extract from plants, which lived hundreds of millions years ago, thus carrying their mineral, nutritional and remedial value, concentrated through a slow natural refinement process of transforming ancient plant matter into coal.

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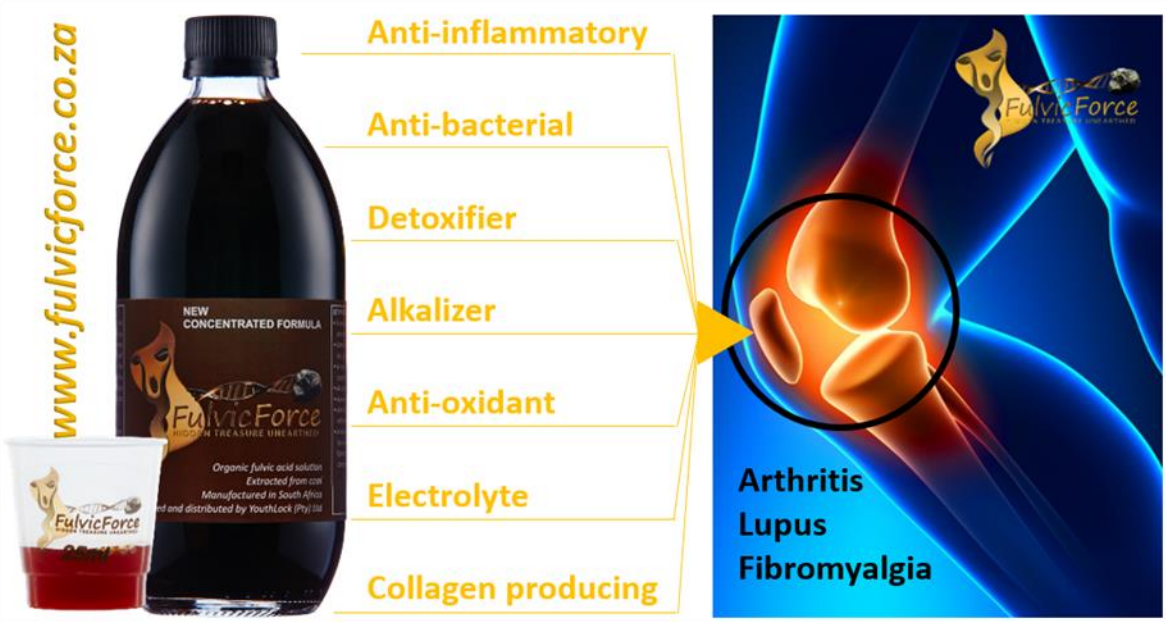
FULVICFORCE FULVIC ACID'S ROLE IN AUTOIMMUNE CONDITIONS SUCH AS: RHEUMATOID ARTHRITIS, LUPUS AND FIBROMYALGIA

Although FulvicForce does not make any medical claims, there's a body of research and scientific papers (refer to a selected list of papers at the end of this page) indicating that fulvic acid offers a significant spectrum of benefits for people afflicted with various autoimmune conditions. These benefits are summarised below.

Rheumatoid arthritis, lupus, and, to a degree, fibromyalgia are all arthritis-related conditions triggered by defective immune system (collectively called autoimmune conditions). When one's immune system, responsible for fighting viruses, bacteria and germs, cannot tell the difference between these foreign invaders and one's healthy cells, it creates auto antibodies that attack healthy tissue. These autoantibodies cause inflammation pain and damage in various parts of the body.

Although the direct causes of specific autoimmune conditions are not yet fully understood, doctors have found that people with rheumatoid arthritis have lower levels of common antioxidants in their blood in the years before the disorder is diagnosed. Also, arthritis (but also osteoporosis, cardiovascular disorders, and others) has been directly linked to a lack of minerals.



And FulvicForce fulvic acid certainly possess properties, which make it a good candidate for helping in various autoimmune conditions:

(1) Fulvic acid contains lots of phytochemicals of ancient plant origin, which have the most valuable nutrients, provide anti-oxidant action and have anti-viral, anti-bacterial, anti-microbial and anti-inflammatory properties.

(2) Fulvic acid effectively helps to dissolve vegetal silica for collagen, it thus repairs, strengthens and protects connective tissue: ligaments, tendons and joints.

(3) Fulvic acid is known to be one of the strongest natural anti-oxidants and free-radical scavengers. It is proven that fulvic acid can effectively neutralise and even repair some free radicals, which limits free radical damage.

(4) Fulvic acid provides the most effective cellular oxygenation in Nature. Its molecule, by weight, is made of 45% oxygen, 45% carbon and the balance of 10% is made of hydrogen, nitrogen and sulphur. This highly bio-active and bio-available oxygen goes straight inside body cells providing sustained energy, cleansing and protection.

(5) Fulvic acid chelates into its molecular structure more than 70 minerals and trace elements, which are then effectively transported to the body cells. Many of these essential elements are conductive, which makes fulvic acid a natural electrolyte

The baleotherapeutic use of peat, rich in humic substances (humic and fulvic acids), is practiced for centuries. Traditional indication for such therapies are rheumatic and gynaecological diseases. Many clinics in Europe offer peat therapies for muscoskoskeletal diseases: degenerative and deforming arthroses, gout, osteoporosis, muscular rheumatism, rheumatoid arthritis, rehabilitation after operations and accident, and skin diseases: chronic eczema neurodermatitis and psoriasis.

Not only do the humic substances relieve swelling from joint inflammation, they been shown to bond to the collagen fibers to aid in repair of damaged tendons and bone. Tendon strength has been shown to increase by as much as 75%.

Fulvic acid and vegetal silica appear to have the unique ability to interact positively with degenerative calcium deposits and unhealthy bone structures in the body. Arthritis sufferers taking a combination of fulvic and humic

acids and vegetal silica have noticed an immediate and marked increase in discomfort, and this has continued for 1 to 2 weeks or sometimes longer after beginning of use. This discomfort is believed to be due to the breakdown of calcium deposits in the joints and its ongoing and subsequent mobilization, dissolution, and removal. It is further believed that these calcium deposits react with the fulvic and humic acids minerals, and silica and transmutate in to more suitable forms that become beneficial to the body.

FulvicForce is South Africa's one and only fulvic acid product extracted from coal according to a patented process. FulvicForce product is literally an organic extract from plants, which lived hundreds of millions years ago, thus carrying their mineral, nutritional and remedial value, concentrated through a slow natural refinement process of transforming ancient plant matter into coal.

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FULVICFORCE FULVIC ACID IN DIABETES PREVENTION AND MANAGEMENT

Although FulvicForce does not make any medical claims, there's a body of research and scientific papers (refer to a selected list of papers at the end of this page) indicating that fulvic acid offers a significant spectrum of benefits for people afflicted with diabetes. These benefits are summarised below.

Global presence of *diabetes mellitus* is now epidemic and, according to the British Diabetic Association Journal, *Diabetic Medicine*, its prevalence worldwide is expected to double in the next 12 years.

Research and clinical studies on animals and humans demonstrate repeatedly that fulvic acid offers a number of preventative and curative properties to help in attenuating the development and progression of diabetes mellitus. In particular fulvic acid:

- produces significant reduction in blood glucose levels, simultaneously causing the reduction in total cholesterol level and triglyceride level
- increases oral glucose tolerance
- improves the lipid metabolism of diabetes and produces beneficial effects on the lipid profile

- prevents and combats free radical damage to pancreatic islet B cells, which is the widely accepted cause for diabetes mellitus

FulvicForce is South Africa's one and only fulvic acid product extracted from coal according to a patented process. FulvicForce product is literally an organic extract from plants, which lived hundreds of millions years ago, thus carrying their mineral, nutritional and remedial value, concentrated through a slow natural refinement process of transforming ancient plant matter into coal.

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FULVICFORCE FULVIC ACID IN HYPERCHOLESTEROLEMIA MANAGEMENT

Although FulvicForce does not make any medical claims, there's a body of research and scientific papers (refer to a selected list of papers at the end of this page) indicating that fulvic acid offers a significant spectrum of benefits for people afflicted with high cholesterol level. These benefits are summarised below.

Hypercholesterolemia, also called dyslipidemia, is the presence of high levels of cholesterol in the blood. It is a form of high blood lipids and "hyperlipoproteinemia" (elevated levels of lipoproteins). Elevated levels of non-HDL (high density lipoprotein) cholesterol and LDL (low density lipoprotein) in the blood may be a consequence of diet, obesity, inherited (genetic) conditions, or the presence of other diseases such as diabetes and an underactive thyroid. LDL cholesterol is often referred to as "bad cholesterol" because too much of it is unhealthy.

The biological effects in animals treated with natural isolated humic and fulvic acids include: a decrease in total cholesterol, total lipids, an increase of HDL fraction of cholesterol, decrease in glucose level and increase of protein fraction of globulin, hemoglobin, hematocrit and total number of erythrocytes (refer to References Cholesterol, at the end of this post).

Fulvic acid also offers a number of preventative and curative properties to help in attenuating the development and progression of diabetes mellitus. In particular, fulvic acid produces significant reduction in blood glucose levels, simultaneously causing the reduction in total cholesterol level and triglyceride level, increases oral glucose tolerance, improves the lipid metabolism of diabetes and produces beneficial effects on the lipid profile, and prevents and combats free radical damage to pancreatic islet B cells, which is the widely accepted cause for diabetes mellitus (refer to References Diabets, at the end of this post).

Thyroid malfunction, both overactive and underactive, is generally due to autoimmune response by the body. This is where the body's immune system produces antibodies which attack the gland because the tissues seem foreign to the body. Normal hormone production is upset. Generally, the cause is due to build-up of dangerous toxins, chlorinated substances, viruses, pathogens, infections, pesticides, altered enzymes or hormones, etc., in the tissues of the thyroid gland.

Fulvic acid contains many phytochemicals and enzymes, which are anti-viral, anti-bacterial, anti-microbial and anti-inflammatory. Fulvic acids also work as Nature's most powerful antioxidants, neutralizing dangerous free radicals, as well as supplying hormone stimulating micronutrients. As a natural chelator, fulvic acid is an effective detoxifier, which help rid the body of heavy metals, radioactive elements, chemical components of highly processed foods we consume, and other toxins. Research also confirms that humic and fulvic acid supplementation results in a strong

humoral immune stimulation - humoral immunity refers to antibody production (refer to References Thyroid, at the end of this post).

FulvicForce is South Africa's one and only fulvic acid product extracted from coal according to a patented process. FulvicForce product is literally an organic extract from plants, which lived hundreds of millions years ago, thus carrying their mineral, nutritional and remedial value, concentrated through a slow natural refinement process of transforming ancient plant matter into coal.

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FULVICFORCE FULVIC ACID – OPTIMUM USE

HOW MUCH IS IN THE BOTTLE?

A 500 ml bottle of FulvicForce product provides more than one-month worth of personal needs for fulvic acid at the recommended dosage. 250 ml bottles of FulvicForce product are also available.

DOSAGE

Use twice daily. Fulvic acid metabolises alongside other nutrients and is fully utilised within a single metabolic cycle, thus, one cannot build up elevated levels of fulvic acid in one's body without daily replenishment.

Take 8 ml in the morning (best on empty stomach) and **8 ml in the evening** (not too late). Shake well before use.

8 ml is a little less than one-third [1/3] of the measuring cup included with every bottle of the product (you may want to top it up with mineral water) or one and a half [1 + ½] of a teaspoon.

The dosage can be doubled during times of stress and/or low energy.

Fulvic acid has a natural strong sour and bitter taste, as it is a pure unadulterated organic product, not altered in any artificial way. It can be diluted in a glass of mineral (not tap) water or mixed with natural honey or pure fresh fruit juice to ease the natural taste, if required. **When consumed undiluted, drink a glass of mineral (not tap) water or pure fruit juice immediately after ingesting FulvicForce product.**

DETOX

When beginning to use fulvic acid for the first time some people (one in five in our experience) **may experience mild effects of cleansing and detoxification**. Signs of detoxification may include flu-like symptoms: mild headache, mild diarrhoea (or constipation), mild joint aches, tiredness, skin outbreaks, etc. Such a detox reaction is typically only short-term, usually a few days to a week. It is a normal and even healthy reaction that may indicate healing. **Do not discontinue using the product**, you may reduce the dose until symptoms of detoxification disappear, and then build up the dose to the regular recommended level.

CONTRA-INDICATIONS

Our experience with fulvic acid has not produced any evidence of contra-indications However, if you are on chronic medication we advise that you refer your physician to our website to confirm that fulvic acid products are indeed safe, effective, rejuvenating and remedial. **Always follow the instructions of your physician.**

As a precautionary measure, children and pregnant or lactating women are not advised to use fulvic acid.

STORAGE

Store in a cool dry place, at a temperature below 25°C, avoid direct sunlight. Fulvic acid is stable at lower and higher temperatures but, as a precaution, once the seal on the FulvicForce bottle is removed, the product should be refrigerated. **Keep out of reach of children.**

WHY DO WE DESPERATELY NEED FULVIC ACID TODAY?

Doctors and scientists have identified at least 90 different nutrients in our diet, which must be continuously supplied to the body to sustain a healthy life. These include: more than 50 different minerals and trace elements, 12 amino acids, 3 essential fatty acids and 17 vitamins. And no matter how conscientious you are in planning of and sticking to your healthy diet, you are not getting nearly enough of the very nutrients, which are essential to keeping you healthy! Nowadays, commercial farming continues to strip our soils of their original nourishing content and, as a result, growing fresh produce with increasingly diminishing mineral, nutritional and remedial value. Depleted soils lead to sick plants, and sick plants lead to un-healthy people. These people are forever desperately looking for a perfect nutritional, mineral and vitamin concoction, which will supplement what they should get but are not getting from fresh produce. But a sad fact is that most of the pharmacologically formulated supplements are very ineffectual as we critically lack the mechanism for making their mineral and nutritional content bio-available and bio-active. Fulvic acid is not only an exceptional natural nutritional, mineral and remedial supplement but also provides us with a Nature-invented mechanism to make other valuable nutrients easily absorbed.

WHAT CAN YOU EXPECT FROM REGULAR SUPPLEMENTATION WITH FULVIC ACID?

- Your body cleansed, purged of toxins, viruses, parasites and pathogens.
- A lasting boost to your immune system, better resistance to infections and diseases.
- Better oxygenation and increased circulation.
- More balanced blood sugar.
- Renewed energy resulting in stronger motivation and improved endurance during sports activities and exercise.

- Shorter recovery time between strenuous exercises, less frequent injuries.
- Reduced cravings, comfortable control over unhealthy eating habits.
- Increased resistance to cold and flu, falling sick less often.
- Less inflammation and free radical damage.
- Quicker recovery from aches and pains.
- Rejuvenated skin, hair and nails, more youthful complexion and appearance, slowing down ageing factors.
- Improved digestion and bowel function.
- Improved concentration, better brain and memory functions.
- Revitalised libido, better sexual functions and an increase in sexual desire.

WHERE CAN FULVIC ACID ASSIST?

Fulvic acid is foundational to the wellbeing of living cells in our bodies and, as such, helps coping with the effects of "big" and chronic diseases - when patients are not only battling the effects of the disease itself but also massive side effects of very invasive medication used to contain the disease.

Although FulvicForce makes no medicinal claims, there is a large body of research, which indicates that fulvic acid can assist in, amongst other:

- Viral infections.
- Diabetes.
- High cholesterol level.
- Various cancers.
- Eye diseases caused by viruses, bacteria or fungi.
- Ulcerous wounds, inflammation and haemorrhaging.
- Skin ulcers.
- Acne, eczema, psoriasis.
- Asthma and lung infections.
- Tuberculosis.
- Chronic bronchitis.
- HIV / AIDS.
- Arthritis related autoimmune diseases, including: lupus, fibromyalgia and rheumatoid arthritis.

FULVICFORCE FULVIC ACID – SAFETY AND QUALITY ASSURANCE

MANUFACTURING PROCESS

In order to understand the manufacturing process of FulvicForce fulvic acid product one needs to be reminded how coal was created.

Coal is called a fossil fuel because it was formed from the remains of vegetation that grew as long as 400 million years ago. Most of coal started to form about 300 million years ago, when much of the earth was covered by steamy swamps. As plants and trees died, their remains sank to the bottom of the swampy areas, accumulating layer upon layer and eventually forming a soggy, dense material called peat. Peat is a material composed of decaying plant matter, or humic substances, of which two principal components are humic and fulvic acids. But the concentrations of fulvic acid in many peats are relatively low.

Over long periods of time rocks, sands, silts and other matter buried the peat and cut off oxygen from peat deposits. The pressure and heat associated with increasingly deeper burial squeezed moisture out of the peat and, eventually

compacted it into coal. So coal is really made of fossilised ancient plants starved of oxygen. The slow process of transformation and compression of peat into coal further concentrated ancient humic substances, including fulvic acid, in some coal types more than in the others. But fulvic acid locked in coal remains at best a "fulvic acid potential", which still needs to be unlocked.

Our patented manufacturing process essentially reverses the process by which coal is formed – instead of humic and fulvic substances losing oxygen that over millions of years created coal, the coal is oxidised back to humic and fulvic content it holds. Sometimes the products of such process are called oxifulvates (fulvic acids derived from coal through the process of re-oxygenation) and oxihumates. While differences exist between fulvic and humic acids, fulvic acid is, essentially, a sub-class of humic acid, typically richer in oxygen content and with lighter molecular weight.

FulvicForce fulvic acid is manufactured from a South African brown and low-bituminous coal originating from Waterberg, with a particularly rich content of ancient humic substances. Our manufacturing process is purpose-designed, patented and in accordance with the good manufacturing practices (GMP) guidelines.

FULVIC ACID CONCENTRATION ANALYSIS

FulvicForce product is regularly tested for fulvic acid concentration by SGS South Africa (Pty) Ltd. SGS is the world's leading inspection, verification, testing and certification company.

According to SGS Laboratory Analysis Report, FulvicForce product contains up to 15% of fulvic acid. While we strive to maintain the consistency of our product, some variations may occur between different product batches, as the natural raw materials are used in the manufacturing of our product. However, the quality of fulvic acid always begins with the quality of the raw base material.

It has to be stressed that humic substances are difficult to characterize because of their inherent heterogeneous nature and, currently, there is no industry standard for procedural analysis of humic and fulvic acids. A molecule of fulvic acid comprises of several different types of functional groups, including phenolic, carboxyl, methoxyl, and hydroxyl varieties. The molecules vary a great deal with respect to both number and type of functional groups and also with respect to size. A sample would typically contain a range of different sizes of molecules. Furthermore, there are too many unknown acid chains, minerals, vitamins, amino acids, organic matter, etc., coexisting within the fulvic realm, that would have to be split off (removed) before testing, leaving only the actual fulvic molecules themselves for quantification. Therefore different test methods often yield different results.

The following testing methods are the most commonly used, each with its own set of advantages and disadvantages:

- Colorimetric - in this test the substance is exposed to light and the measurement comes from a reading of how much light is absorbed by the sample.
- CDFA, also known as the California method - this method separates the humic and the fulvic. It then discards the fulvic solution and measure all the remaining material, which includes the inorganic ash in with the humic.
- USGS/IHSS, also called the classical method -this method is used and endorsed by both the United States Geological Service and the International Humic Substance Society. It separates and measures both the humic and fulvic fractions while also going through rigorous purification steps to remove all insolubles, salt reagents and other materials that are not humic or fulvic.
- Verploegh and Brandvold method, or V&B method – it is based on the classical method. This is the same as the classical test except that it goes through almost no purification steps.

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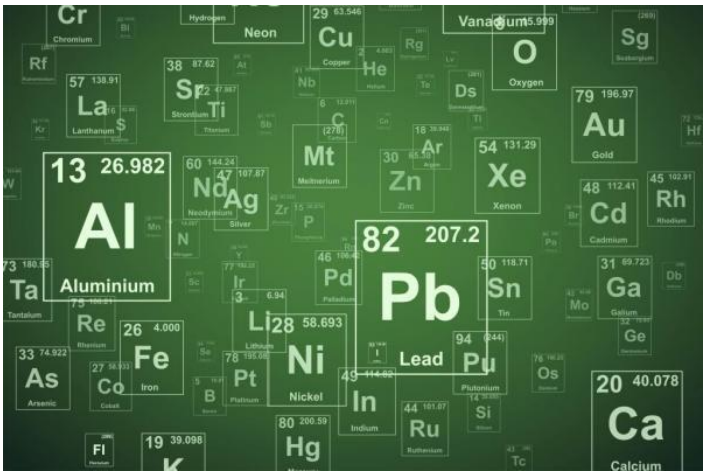
FULVIC ACID ATOMIC ANALYSIS

FulvicForce product is regularly tested for atomic content by Aquatico Scientific (Pty) Ltd. Aquatico is a water testing laboratory and environmental monitoring company, accredited by SANAS (The South African National Accreditation System).

A typical test report confirms that FulvicForce product is free from harmful levels of heavy metals or other toxic elements.



	Lab no:			182240
	Date sampled:			10-Aug-14
	Sample type:			Water
	Locality description:			Fulvic Acid x2 diluted
	Analyses	Unit	Method	
N	pH	pH	ALM 20	1.63
N	Electrical conductivity (EC)	mS/m	ALM 20	917
N	Total alkalinity	mg $CaCO_3$/l	ALM 01	<2.477
N	Chloride (Cl)	mg/l	ALM 02	87.2
N	Sulphate (SO_4)	mg/l	ALM 03	387
N	Nitrate (NO_3) as N	mg/l	ALM 06	154
N	Ammonium (NH_4) as N	mg/l	ALM 05	41.4
N	Orthophosphate (PO_4) asP	mg/l	ALM 04	4.06
N	Fluoride (F)	mg/l	ALM 08	16.6
N	Calcium (Ca)	mg/l	ALM 30	70.4
N	Magnesium (Mg)	mg/l	ALM 30	34.9
N	Sodium (Na)	mg/l	ALM 30	27.4
N	Potassium (K)	mg/l	ALM 30	22.1
N	Aluminium (Al)	mg/l	ALM 31	38.2
N	Iron (Fe)	mg/l	ALM 31	177
N	Manganese (Mn)	mg/l	ALM 31	3.21
N	Total chromium (Cr)	mg/l	ALM 31	0.828
N	Copper (Cu)	mg/l	ALM 31	0.072
N	Nickel (Ni)	mg/l	ALM 31	0.320
N	Zinc (Zn)	mg/l	ALM 31	1.96
N	Cobalt (Co)	mg/l	ALM 31	0.097
N	Cadmium (Cd)	mg/l	ALM 31	<0.001
N	Lead (Pb)	mg/l	ALM 31	0.015
N	Total hardness	mg $CaCO_3$/l	ALM 26	320
N	Silver (Ag)	mg/l	ALM 32	<0.001
N	Boron (B)	mg/l	ALM 32	1.73
N	Barium (Ba)	mg/l	ALM 32	0.066
N	Beryllium (Be)	mg/l	ALM 32	0.079
N	Bismuth (Bi)	mg/l	ALM 32	<0.004
N	Gallium (Ga)	mg/l	ALM 32	0.749
N	Lithium (Li)	mg/l	ALM 32	0.300
N	Molybdenum (Mo)	mg/l	ALM 32	0.124
N	Rubidium (Rb)	mg/l	ALM 32	1.09
N	Strontium (Sr)	mg/l	ALM 32	0.446
N	Tellurium (Te)	mg/l	ALM 32	0.011
N	Thallium	mg/l	ALM 32	<0.037
N	Vanadium (V)	mg/l	ALM 32	2.39

PATENT

FulvicForce product is manufactured according to a method protected by South African patent 20016028 “A method and apparatus for producing humic substances”.