

BioSuperfood and BioPreparation Nutrients of the Algae

BioSuperfood and BioPreparation unlike many supplements on the market **are not** a conglomeration of separate, isolated vitamins and minerals, or extracted and concentrated ingredients bound together and compressed with fillers in a pill. They **are actually whole foods** containing just four [micro-algae](#) carefully grown, harvested, preserved and proportioned: Spirulina Pacifica, Spirulina Plantentis, Dunaliella and Heomatococcus Pluvialis for its high astaxanthin content.

Together these algae contain thousands of naturally occurring nutrients like proteins, vitamins, minerals, chlorophylls, antioxidants, fatty acids, enzymes and lots more. So simple, YET read on to find out the extraordinary diversity of its nutrients!

Thousands of Nutrients in BioSuperfood

[Proteins](#)

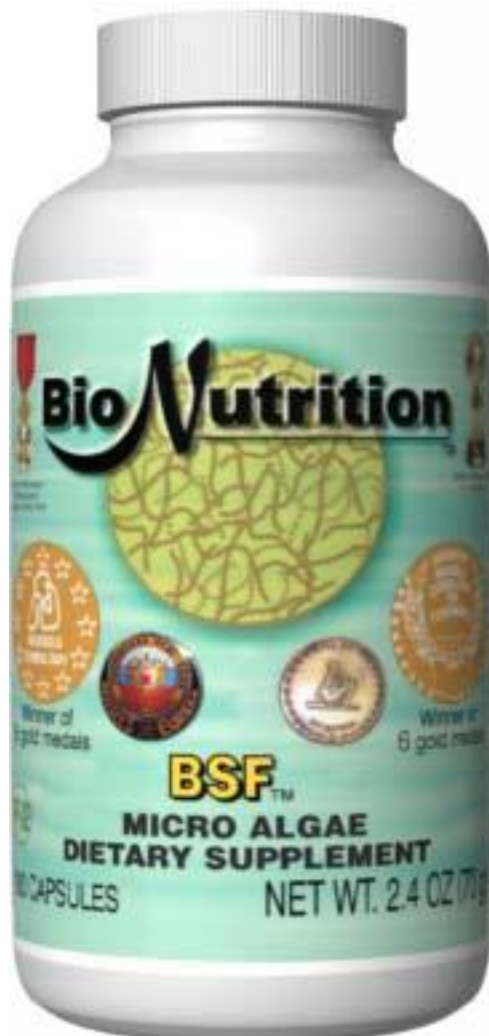
[Amino Acids](#)

[Vitamins](#)

[Minerals](#)

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[Fatty Acids](#)

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[Polysaccharides](#)

[Phytonutrients](#)

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The nutritional mission of BSF

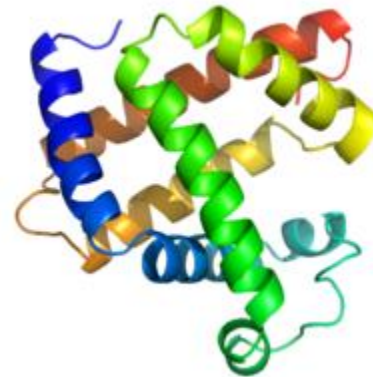
With these formulas, there is no attempt to measure up or compare its nutrients to the Required Daily Allowances (RDA) suggested by the Food and Drug Administration (FDA). BioSuperfood and BioPreparation are not a vitamin, a mineral, an antioxidant, an enzymes or not even a supplement per say; they actually are all of the above. That is made possible only because the formulas are actually whole foods, mind you an extraordinary whole foods. So the mission of the formulas is that of a food, that is to feed the body with required nutrients.

We know today that the principal nutrients for prevention of cancers are found in eating a mix of colorful fruits and vegetables (American Cancer Society). Those nutrients are the mixed antioxidants, carotenoids, chlorophylls and other phytonutrients that are found in those fruits and vegetables. Read on.

Proteins ▲

Some algae in the formulas have the highest usable (90% NPU) protein content of any natural food (65%); far more than meat and fish (15-25%), soybeans (35%), dried milk (35%), peanuts (25%), eggs (12%), grains (8-14%) or whole milk (3%).

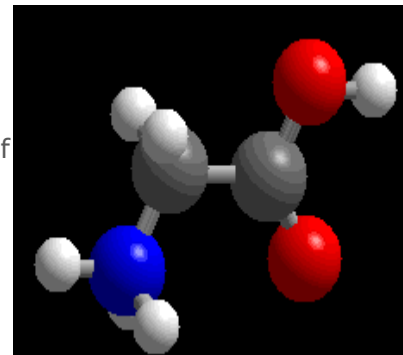
Its algae have minimal cellulose in their cell walls, being composed of soft mucopolysaccharides. Their proteins are 85 to 95% digestible. This high digestibility rate is especially important for people suffering from intestinal malabsorption problems which is very common nowadays. Older people have even more difficulty digesting complex proteins, and many are on restricted diets.



Amino Acids ▲

The formulas contains 20 amino acids, all eight to ten essential and 12 non-essential amino acids in high availability or non limiting form. Amino acids are all about quality. Protein is composed of amino acids. Essential amino acids cannot be manufactured in the body and must be supplied in the diet. Non-essential amino acids are needed too, but the body can synthesize them. Essential amino acids, plus sufficient nitrogen in foods, are needed to synthesize the non-essential amino acids. A protein is considered complete if it has all the essential amino acids. Spirulina in BSF is just that, a complete protein.

The body requires amino acids in specific proportions. If a food is low in one or more amino acids, those amino acids are called limiting amino acids, and the body cannot use all the amino acids completely. The most complete and ideal proportion of amino acids can be found in BioSuperfood because of its mix of several algae. BioSuperfood or BioPreparation complement our vegetable or animal protein and increase the amino acid



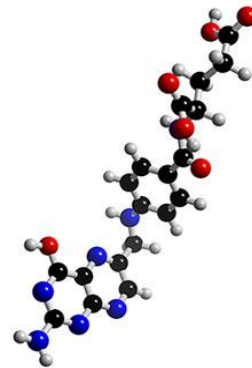
quality if eaten within several hours of other foods. A good portion of the daily essential amino acid required for a typical adult can be supplied by eating BioSuperfood or BioPreparation daily.

These eight to ten essential amino acids are found in BioSuperfood and BioPreparation arginine (required for the young, but not for adults), histidine, isoleucine, leucine, lysine, methionine, phenylalanine, threonine, tryptophan, and valine.

Vitamins ▲

The formulas contain the array of vitamins that most living beings need to carry on metabolic processes.

Not only do they contain all vitamins, including a full Vitamin B Complex, vitamins A, D, K, E & C, **BUT it also contains all co-dependent nutrients for these vitamins to be functional and active for human assimilation.**



Being a complete or balanced food, with these formulas, you don't have to worry about dosages. You cannot make a mistake with mixing and matching like you can with isolated and separate vitamins and minerals. You don't even have to worry about taking them with or without foods. All you need is water alongside. When you take these formulas, you automatically get completeness and perfect ratios. They are known for the obtained balance and the synergy between its vitamins and minerals that your body needs for true assimilation. The way nature makes vitamins and nutrients in plants cannot be replicated by chemists now and it will never be possible. A small amount of vitamin C occurring in a green pepper is tremendously more nutritionally functional than 1,000 mg of ascorbic acid from a bottle.

Furthermore, when you take vitamin supplements, you are taking risks with mixing and matching isolate and synthetic compounds that fall in the chemical category. **You CANNOT sustain life eating multi-vitamins and minerals as supplements.**

Minerals and Trace Elements ▲

There are more than 100 dietary minerals and trace elements detected in each formula. But when using specific element analysis, some amount of all known dietary minerals can be detected in the formulas.

Minerals are constituents of the bones, teeth, soft tissue, muscle, blood, and nerve cells. They are vital to overall mental and physical well-being. Minerals act as catalysts for many biological reactions within the body, including, muscle response, the transmission of messages through the nervous system, and the utilization of nutrients in food.

As important as vitamins are, they cannot be assimilated without the aid of minerals. Although the body can manufacture a few vitamins, it cannot manufacture a single mineral. All tissue and internal fluids contain varying quantities of minerals.

Since the formulas are 100% food, its minerals occur in non toxic form as prepared by nature within the plant or in the case of the formula by the algae.

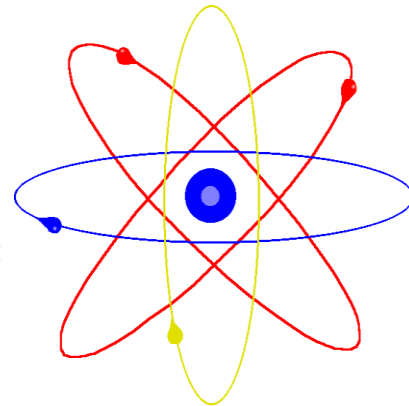
Here is a partial list of the principal minerals or trace minerals found in BioSuperfood or BioPreparation:

Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Caesium, Calcium, Cerium, Chromium, Cobalt, Copper, Dysprosium, Erbium, Europium, Gadolinium, Gallium, Germanium, Gold, Hafnium, Holmium, Iridium, Iron, Lanthanum, Lead, Lithium, Lutetium, Magnesium, Manganese, Mercury, Molybdenum, Neodymium, Nickel, Niobium, Osmium, Palladium, Phosphorus, Platinum, Plutonium, Potassium, Praseodymium, Rhenium, Rhodium, Rubidium, Ruthenium, Samarium, Scandium, Selenium, Silicon, Silver, Sodium, Strontium, Tantalum, Tellurium, Terbium, Thallium, Thorium, Thulium, Tin, Titanium, Tungsten, Uranium, Vanadium, Ytterbium, Yttrium, Zinc, Zirconium

Trace Elements ▲

BioSuperfood and BioPreparation contain some amount of all known trace elements occurring in a most human friendly form, that is naturally occurring from the plant kingdom..

In biochemistry, a trace element is a chemical element that is needed in minute quantities for the proper growth, development, and physiology of the organism. For this reason, in biochemistry they are also called micro nutrients.

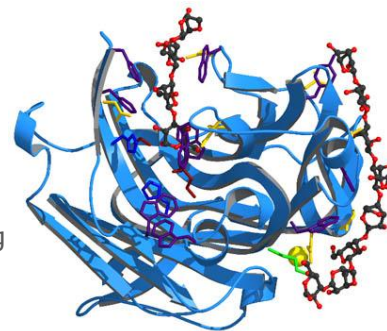


For example, its iron, occurs in a non toxic form that is more readily absorbed than that found in beef liver. Unlike iron from a bottle of iron supplement, its iron is like that of any plant such as celery or spinach and is a medicine for the body.

Enzymes ▲

All formulas contain more than 4,000 enzymes!

No other food or combination of foods contains so many naturally occurring enzymes. Some of these enzymes are critically important for health, such as superoxide dismutase (SOD). SOD is an iron-containing enzyme that supports important body-cell processes and also protects the cells from free radicals.



Enzymes are specialized protein molecules facilitating most of the body's metabolic processes - such as, supplying energy, digesting foods, purifying your blood, ridding the body of waste products etc.

Fruits and vegetables contain just enough enzymes to support self-breakdown as in the apple turning brown after falling from the tree. These enzymes in food are critical for their digestion by the human and animal that consumes them. Without enzymes in food, our digestive system must work harder to break down the foods to obtain its

nutrients. Often our foods goes on being undigested due to lack of enzymes.

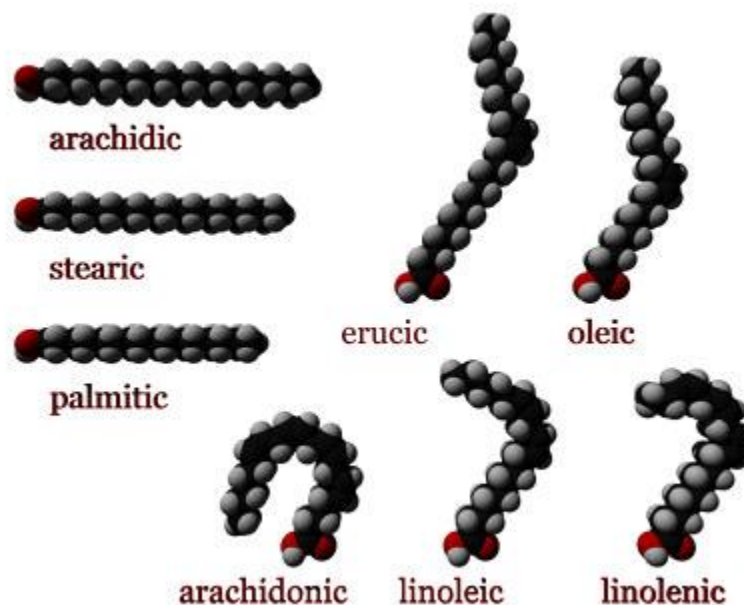
Very few food contain more enzymes then required for self-breakdown. Papaya is one of those exceptions with its large amount of the papain enzyme. But as far as enzyme goes, nothing comes close to certain microalgae to contain inexplicably large amounts of enzymes. Other than to serve in digestion, many enzymes found in foods are stored, transformed and used by our body for other important life sustaining functions.

The combination of microalgae in BSF boast over 4,000 such life sustaining enzymes including DNA, RNA, SOD, Glycolipids and many other. The spirulinas in BSF contain as many as 2,000 enzymes. Among other important enzymes identified in spirulina are restriction enzymes. Restriction enzymes (endonucleases) work like scissors to cut the DNA of invading enemy microbes.

A theory proposed to explain spirulina's long life is the role of restriction enzymes. By cutting the DNA of invading enemy microbes, restriction enzymes may have been good weapons against micro algae's ecological enemies for 3.5 billion years. Many enzymes in BSF and their health benefits have not been identified nor explained yet.

Fatty Acids ▲

BioSuperfood and BioPreparation contain Omega 3, 6, 9, GLA and several more including some yet undocumented or undiscovered. Most of us think of fatty acids as oils coming from fish or seeds. You will be happy to learn that the formulas are a rich source and is especially high in GLA, which is a critical nutrient that is universally lacking in the American diet.



BSF contains Omega 3, 6, 9, GLA and many more fatty acids

The human body uses fatty acids from food for building tissues and for specialized functions such as the production of prostaglandins, localized tissue hormones. One major group of fatty acids is called essential fatty acids, which are polyunsaturated,

and include two major groups, omega-3 and omega-6 fatty acids. They are called "essential" because the body cannot make them but must get them from food.

The terms omega-3 and omega-6 actually designate two families of fatty acids; the former has the first double bond on the third carbon from the end of the fatty acid chain and the latter has the first double bond on the sixth carbon from the end of the fatty acid chain. The first fatty acid in the omega-6 family is called linoleic acid. It contains 18 carbons and has 2 double bonds.

Essential fatty acids (EFA) "the good fats that heal" are the fats you've been increasingly hearing about in recent years. Your body can't live without them. They're needed for a healthy heart, a healthy nervous system, a healthy immune system and especially a healthy brain (the human brain is around 80% fat).

The essential fatty acids sometimes called vitamin F, include linoleic, linolenic, arachidonic acid and many more. Some are used by the body to manufacture Prostaglandins, the hormonal regulators of blood pressure and capillary resilience.

The essential fatty acids are involved in respiration in all the cells, and are especially important to oxygen transport. They affect the health of the hair, skin and nails, and help break up cholesterol in the blood stream. They are not dangerous fat but are absolutely vital to health.

If you've read anything about low-carb dieting or the "Mediterranean Diet," you know that the consumption of healthy oils which contain these fatty acids produces astounding health benefits in the human body. Heart disease and various cardiovascular disorders respond quickly and positively. Brain function is improved, diabetes is brought under control, blood sugar is regulated, and cancer risk soon plummets.

Gamma linolenic acid (GLA) in BSF stimulates master hormones

Perhaps you've heard of GLA (gamma-linoleic acid) and DHA (docosahexaenoic acid). Human breast milk is high in GLA, probably due to the infant child's need for brain-building fats. And since many infants never gained the important nutritional benefits of their mothers' milk, they've been GLA-deficient for their entire lives. The American diet of processed foods contains virtually no GLA. And low-carb dieters aren't getting any either, unless they specifically supplement it.

GLA is not only known for regulating blood sugar and providing important nutrients to the brain; it also exhibits immune-boosting properties. In fact, according to Dr. Hass, author of *Staying Health With Nutrition*, GLA has been shown to be effective for the following health conditions:

- Cardiovascular disease - anti-inflammatory effect; reducing platelet aggregation, thereby reducing clotting; lowering blood pressure by decreasing vessel tone; cholesterol-lowering effect.
- Arthritis (rheumatoid arthritis and other inflammatory disorders) - anti-inflammatory effect; immune support; correcting possible EFA and GLA deficiency.
- Skin disorders (eczema, acne, dermatitis) - anti-inflammatory effect; EFA functions; immune support.
- Allergies, asthma - anti-inflammatory effect; EFA function; immune support.

- Multiple sclerosis - nerve conduction; correction of possible EFA and GLA deficiency; immune support; decreased platelet aggregation; balancing prostaglandins.

Essentially, GLA helps support the immune system through a variety of mechanisms, and its benefits go far beyond mere immune system function. Many studies on the health effects of GLA have been conducted, and they show stunning results for this beneficial nutrient. In fact, in the 1980s, GLA was studied more intensively than any other nutrient: About 200 clinical trials took place in university hospitals and medical schools throughout the world. One of these researcher, Dr. Horrobin states "that his studies have led him to believe that a lack of essential fatty acids could turn out to be one of the most common defects in human biochemistry and a significant factor in many diseases". Essential fatty acids are especially important in the function of nerve, muscle, and immune systems, for when people lack the proper balance, the neurological, endocrine, and immune systems are shown to be adversely affected.

"GLA has proven to be effective in the treatment of many serious diseases. Double-blind, placebo-controlled studies for atopic eczema demonstrate that GLA improves skin conditions, relieves itching, and reduces the amount of steroid medication required. In a large, placebo-controlled trial at Bristol University in England, both adults and children showed substantial improvements. In clinical trials for diabetes, GLA has reversed neurological damage and lowered plasma cholesterol and triglycerides. GLA has also been shown to be beneficial in the treatment of Sjogren's Syndrome."

- Innocent Casualties: The FDA's War Against Humanity by Elaine Feuer

Gamma linolenic acid (GLA) is a precursor for the body's prostaglandins, master hormones that control many body functions. The prostaglandin PGE1 is involved in many tasks including regulation of blood pressure, cholesterol synthesis, inflammation and cell proliferation.

Foods high in saturated fats, typical of the American diet, may block the beneficial work of essential fatty acids in the human body, leading to many disease conditions. Numerous studies have shown GLA deficiency may figure in degenerative diseases and other health problems. Clinical studies show dietary intake of GLA can help arthritis, heart disease, obesity, and zinc deficiency. Alcoholism, manic-depression, aging symptoms and schizophrenia also have been ascribed partially to GLA deficiency. A source of dietary GLA may help conditions of heart disease, premenstrual stress, obesity, arthritis and alcoholism. In Spain, the GLA in spirulina and evening primrose oil is prescribed for treatment of various chronic health problems.

The few known sources of GLA include the plant seed oils of evening primrose plant, black currant and borage seeds, fungal oils, certain algae and human milk.

But you can also get it from BioSuperfood or BioPreparation every day of your life!

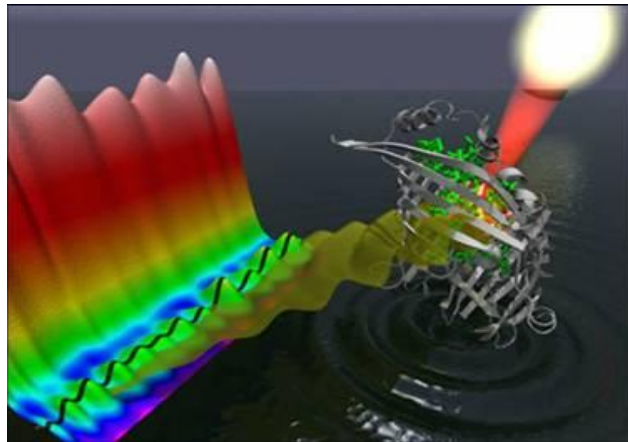
[Chlorophyll ▲](#)

Spirulina in the formulas is one of the richest sources of chlorophyll with a perfect balance of magnesium. All plants, algae, and cyanobacteria (blue-green algae) which photosynthesize, contain chlorophyll usually with the proper balance

levels of magnesium required for [photosynthesis](#).

Chlorophyll, the Sheppard of Light

Energy are vital forces we associate with light having to do with liberating the sun's forces from carbohydrates and lipids so we can use those forces to produce energy.



Certain microalgae like cyanobacteria in the form of spirulina are the only plants able to transfer sunlight energy into chemical energy **with near 100% efficiency**.

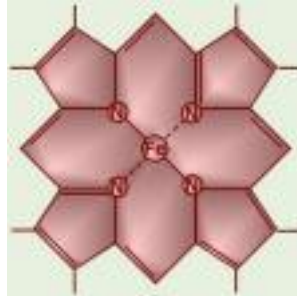
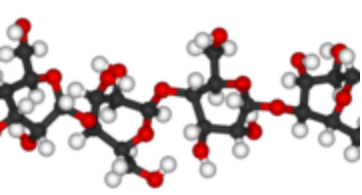
Energy from light is received somewhat directly as sunlight, but it is received in much greater amounts from our food. The chemical energy stored by photosynthesis in carbohydrates drives biochemical reactions in nearly all living organisms. Releasing the forces of light from food requires a balance disassembly of starches, sugars, and fats that are the bearers of light.

Chlorophyll is the shepherd of light energy – in the central atom of the chlorophyll molecule is magnesium where the sun's light is gathered for releasing the sugars, starches, and fats from which we will eventually get our energy. Magnesium is omnipresent in the catabolic steps in which we disassemble sugars and fats in our metabolic fire : the Krebs (citric acid) cycle. **Thus, chlorophyll is at the center of the photosynthetic oxidation-reduction reaction between carbon dioxide and water.**

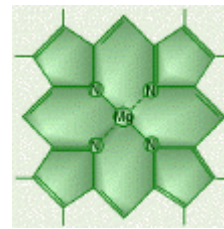
Chlorophyll and Blood Regeneration

Chlorophyll is sometimes called "green blood" because of its similarity to the hemoglobin molecule found in human blood cells. In fact, both are constructed of almost identical molecular structure called pyrrole rings, and both substances are chemically known as "porphyrin pigments" by scientists.

The difference is that chlorophyll contains a magnesium ion at its core, while hemoglobin contains an iron molecule. Magnesium imparts a green color to the chlorophyll molecule and is involved in synthesis of other materials, while iron gives hemoglobin a red coloration and changes the function of the porphyrin molecule to respiration and breakdown of materials. But perhaps the most interesting connection between green foods and blood is the similarity in the structures of the two colored pigments, heme and chlorophyll.



Heme Molecule in Blood



Chlorophyll Molecule

What's so good about the chlorophylls in BioSuperfood and BioPreparation?

Its most visible pigments are chlorophylls. There's nothing more supportive to cleansing than chlorophyll. And people who follow Western diets (high in processed foods and animal foods) are in desperate need of cleansing.

Beside energy and cleansing, there are many associated benefits to chlorophylls:

- Chlorophylls release ions when struck by the energy of sunlight. These free ions proceed to stimulate the biochemical reactions that form proteins, vitamins and sugars.
- It increases peristaltic action and thus relieves constipation, and also normalizes the secretion of digestive acids.
- It soothes the inflammation and reduces the excess pepsin secretion associated with gastric ulcers.
- It's also supports liver function so that your body can do a better job of eliminating toxins from your system.
- It is believed that if chlorophyll is ingested with sufficient iron,
- the magnesium can be displaced to yield a hemoglobin molecule.
- Experiments in Japan and Russia have demonstrated that algae has a marked
- Positive effect on leukemia and anemia, possibly due to the conversion of chlorophyll into hemoglobin.

Polysaccharides ▲

The algae found in the formulas have unique cell wall made of complex polysaccharides, which have been shown to stimulate interferon production and exhibit strong anti-tumor activity in a series of studies conducted over the last several decades.

Polysaccharides are relatively complex carbohydrates. They are polymers made up of many monosaccharides joined together by glycosidic bonds. Cell-surface polysaccharides as in microalgae like spirulina in BioSuperfood play diverse roles in the bacterial "lifestyle". They serve as a barrier between the cell wall and the environment, mediate host-pathogen interactions.

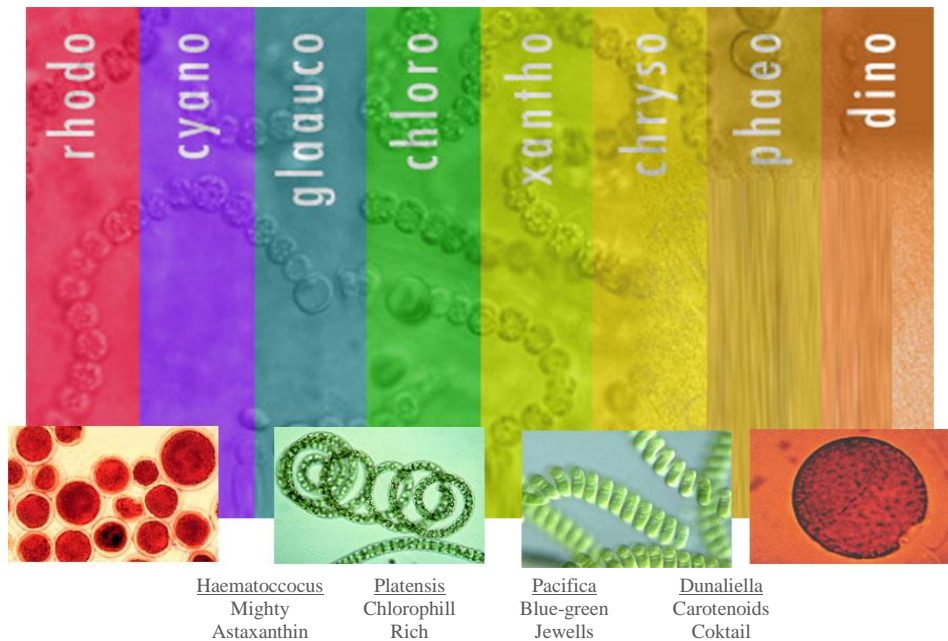
Studies on the consumption of food-grade microalgae have reported enhanced immune function in animals and humans.

- Dietary spirulina has been shown to exhibit chemopreventive and antiviral effects in humans. The active component for these effects has been investigated; it appears that several types of polysaccharides exhibit biological activity.
- Calcium spirulan inhibits replication of several enveloped viruses. These include herpes simplex, cytomegalovirus, mumps and measles viruses, influenza A virus, and HIV-1.
- Another polysaccharide found in spirulina, immunlina, has been shown to activate monocytes and macrophages
- Spirulina polysaccharides are clinically observed to provide immune system modulation and reduction of blood sugar level to normal.
- Scientists also found that spirulina's polysaccharide acts similarly to Phycocyanin, a highly potent agent that activates the immune system. It improves the immune system's ability to detect and destroy foreign microbes or eliminate toxins. It also enhances T-cells and improves Thymus gland function. Also observed were increased antibody levels and normalization of other cellular functions.
- Calcium spirulina, from a blue-green algae spirulina enveloped virus replication, - Hayashi et al. 1996. Pub. In Journal of Natural Products, Vol. 59, p. 83-87. Japan.

Phytonutrients ▲

The formulas with its mix of blue-green, brown and red microalgae contain thousands of phytochemicals and colorful pigments making up the entire color spectrum found in nature from blue to green and red.

We know today that the principal nutrients for prevention of cancers are found in colorful fruits and vegetables (American Cancer Society). Those nutrients are the mixed of phytonutrients such as antioxidants, carotenoids, chlorophylls and other compounds found in those fruits and vegetables.



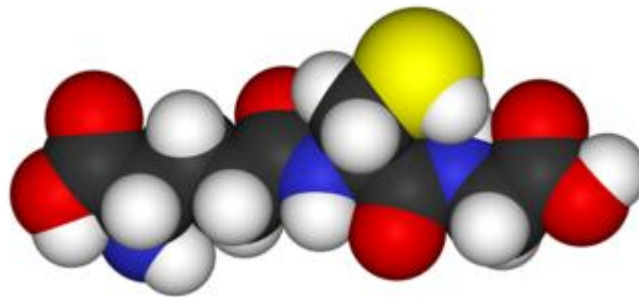
There is abundant evidence from epidemiological studies that the phytochemicals in fruits and vegetables can significantly reduce the risk of cancer, probably due to polyphenol antioxidant and anti-inflammatory effects.

Phytochemicals have been used as drugs for millennia. For example, Hippocrates in 400 BC used to prescribe willow tree leaves to abate fever. Salicin as in Aspirin, with potent anti-inflammatory and pain-relieving properties, was originally extracted from the White Willow Tree.

In summary BioSuperfood and BioPreparation contain a large array of pigments and carotenes like beta carotene, alpha-carotene, astaxanthin, lutein, lycopene, quercetin, phycocyanine, phycobilins, b cryptoxanthin and several others that offers powerful immunity and toxin shield against continuous pollution, toxins and stress.

Antioxidants ▲

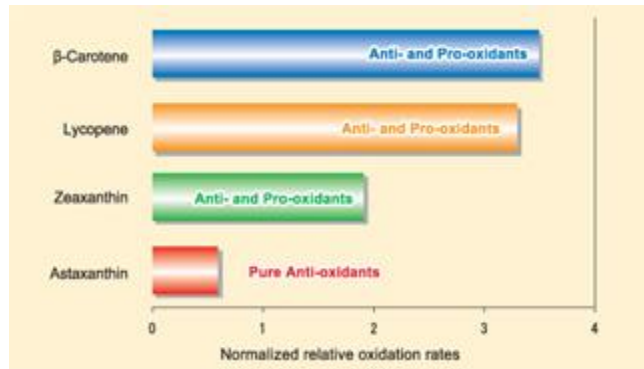
BioSuperfood and BioPreparation contain extraordinary antioxidant compounds and especially some like alpha-carotene and beta-carotene known as "pro-pro vitamin A" for their capacity to not only traverse cell membrane but to span across the cell membrane.



Antioxidant slow down or prevent oxidation of other molecules

An Antioxidant is a molecule capable of slowing or preventing the oxidation of other molecules. Oxidation is a chemical reaction that transfers electrons from a substance to an oxidizing agent. Oxidation reactions can produce free radicals, which start chain reactions that damage cells. Antioxidants terminate these chain reactions by removing free radical intermediates, and inhibit other oxidation reactions by being oxidized themselves.

Its also known today that the orange and red pigments have the most antioxidative and protection powers due to their molecular shape and properties. For example, beta carotene, the orange pigments of carrots or the red lycopene of tomatoes have molecular shapes allowing them to easily travel across the blood brain barrier, even across the blood iris barrier, hence the popular saying "you've never seen a rabbit wearing glasses". **The formulas contain high level of astaxanthin, the star of antioxidants** Astaxanthin is a pigment of the carotenoid complex present in large amount in the microalgae Haematococcus pluvialis. It is an oxygenated pigment called a xanthophyll. Its unique molecular structure gives it a superior antioxidant capacity.



H.D.Martin, et al.: Chemistry of carotenoid oxidation and free radical reactions, Pure Appl. Chem., 1991; 71(12), 2253-2262.

Astaxanthin is most effective against Lipoperoxidation in membrane models

Find next benefits of Astaxanthin:

- 10 to 40 times more effective as an antioxidant than beta-carotene
- 500 to 1000 times more effective in inhibiting lipid peroxidation as an antioxidant than Vitamin E
- has greater anti-inflammatory capability than Vitamin E
- has almost 4 times the antioxidant capacity of lutein
- offers superior protection against UVA and UVB light-induced oxidative stress more stable in scavenging and quenching than b-carotene canthaxanthin and zeaxanthin
- highly potent in enhancing T1 and T2 cancer killing helper cells production
- more effective than lycopene and lutein in enhancing liver microsome detoxification activity
- enhances the actions of Vitamins C and E in the body
- enhances the release of retinol (Vitamin A) from the liver

[Click here for detailed research on astaxanthin](#)

[Carotenoids ▲](#)

BioSuperfood and BioPreparation contain an extraordinary number of yellow/orange pigments called carotenoids. Carotenoids are organic pigments that are naturally occurring in plants and some other photosynthetic organisms like algae, some types of fungus and some bacteria. There are over 600 known carotenoids; they are split into two classes, xanthophylls and carotenes. They absorb blue light.



The orange ring surrounding Grand Prismatic Spring is due to carotenoid molecules, produced by algae and bacteria.

Until late in the 20th Century, the functions of these carotenoids were discussed only in terms of their potential vitamin A activity. But since it has been discovered that certain members of the carotenoid family, approximately 50 carotenoids of the known 600, are called "pro vitamin A" compounds because the body can convert them into retinol, an active form of vitamin A.

BioSuperfood and BioPreparation contain many of these yellow/orange pigments from which pro and pro-pro-vitamin A can be made. Here is a partial list:

- Alpha-carotene
- Beta-carotene
- Phycocyanin
- Xanthophyllis
- Cryptoxanthin
- Echinenone
- Zeaxanthin
- Lutein
- Licopene
- Astaxanthin
- Etc

The extraordinary amounts of carotenoids and several lesser pigments such as phycoerythrin, tetrapyrrole, and phytonadione found in BioSuperfood are not just the "color" of living organisms, but are used to carry on metabolic processes throughout the body. Without them, enzymatic reactions would be reduced until cellular disintegration occurred.