

THE DETOXIFICATION, IMMUNOSTIMULATION AND HEALING PROPERTY OF CHLORELLA

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Summary

Chlorella is a small green one-celled algae which has lived in fresh water for over 2.5 billion years. First discovered in the late 1800s by a Dutch biologist, it contains over 50% protein and the highest concentration of chlorophyll and nucleic acids (RNA and DNA) of any known plant. Non-toxic, it is an ideal food as well as a natural medicine. Clinical studies and medical researches showed that:

1. Chlorella can detoxify toxins such as lead, mercury, cadmium, arsenic, pesticides, uranium, insecticides, P.C.B. etc. from the human body.
2. Chlorella stimulates the immune system:
Chlorella stimulates the production of interferons, macrophages and T cells, thus functioning as an immune stimulant.
3. Chlorella has a wide range of healing properties such as: wound healing, treating pancreatitis, pyorrhea (bleeding of the gums and loose teeth), P.M.S., arthritis, atherosclerosis, high blood pressure, constipation, chronic fatigue syndrome, cancer, heart diseases and many other common and rare diseases.

This paper summarizes the major studies and researches conducted on chlorella, as well as my 14 years of clinical observation. The chlorella's tonification effect on the xue (blood), jing (essence), chi (qi, vital energy), and shen (spirit) is also explained according to the traditional Chinese medicine.

Note:

1. A Chinese version of this article is at the Chinese section of this congress hand book.
2. There are over 800 studies on chlorella. It has received a lot of attention in the

scientific and medical community recently due to its immunostimulation effect.

The Researches, Studies & Observation

1. Detoxification Properties of Chlorella

There are many researches and studies showing that chlorella has the capabilities to detoxify the body. The following are some of the major reports:

a) A research was done in which rats were separated into two groups. The studied group were fed with chlorella that was mixed with cadmium. The control group were fed with cadmium without chlorella. The basis of this experiment was to determine if the cadmium would be absorbed by the chlorella. In the group that was given cadmium without chlorella for 10 days, growth retardation was noted, while normal growth was noted in the studied group. Cadmium levels in blood were determined. This showed that the cadmium that was mixed with the chlorella was not absorbed into the rats body. ³

b) Dr. Ichimure reported that when his patients suffering from cadmium poisoning consumed 8 grams of chlorella per day, for 12 days, cadmium in the excretions of the patients increased 3 times over the baseline. After 24 days of taking chlorella, the cadmium in the urine had increased 7 times over the baseline, and the pain from the cadmium poisoning of the patients was markedly reduced. ¹

c) Dr. Uda of the Kitakyushu City Institute for Environmental Pollution Research in Japan gave daily doses of 4 to 6 grams of chlorella for one year to 30 patients who suffered from PCB (Polychlorbiphenyl) exposure. The resulting outcomes were: reduced fatigue, better digestion, and normal bowel movements.¹

d) Dr. Pore of the School of Medicine, West Virginia University, conducted a chlorella detoxification study: chlorella were fed to rats with chlordecone poisoning (a very harmful chlorinated hydrocarbon insecticide). He found that the chlorella bound with the ingested chlordecone which passed through the gastrointestinal tract and was eliminated from the rats. ¹

e) Chlorella's ability to detoxify was shown in another study: a culture of brewer's yeast was given a lethal dose of highly toxic poisons containing PCB, mercury, copper, and cadmium. When chlorella extract was added to this mixture, the brewer's yeast remained alive; the control group without added chlorella were all killed by the poisons. ²

f) Other studies have shown that chlorella cell walls absorb and attach to uranium 5, lead 6, and arsenic poison 13, and subsequently eliminating them from the body.

g) Laboratory studies showed that the cell wall, sporopollenin¹ (a carotene-like polymer), and chlorophyll of chlorella were accountable for chlorella's detoxifying properties. ^{1,2,7,13} This characteristic of absorbing toxic substances from its surroundings and eliminating them from the body is an extremely important discovery. These toxins such as heavy metals, radio active materials, hydrocarbon pesticides and insecticides may be found in our water, air, and food chain. This in turn creates diseases, including cancers, allergies, skin problems, neurological disorders, etc. Chlorella, a natural substance, has the characteristics to treat these toxin related problems.

2. Immunostimulation Property of Chlorella

There are many researches and studies showing that chlorella has the capability to stimulate the immune system. The following are some of the major reports:

a) At the Department of the Immunology, Medical Institute of Bioregulation, Kyushu University, Japan, Chlorella Growth Factor (CGF, a hot water extract of chlorella that contains nucleic acid derivatives, amino acids, peptides, proteins, vitamins, sugars, etc.) was injected into mice that were then inoculated with cancer cells. It showed that the CGF stimulated polymorphonuclear leukocytes (a type of white blood cell) to attack the cancer cells, prolonging the lives of the mice as compared to the controlled group of mice that had not received CGF. ⁹

b) An experiment showed that ingesting chlorella stimulated macrophage, interferon, and T cell production, resulting in anti-tumor, anti-bacteria and anti-viral effects. ^{1,7,12,17}

c) Researchers at Kanazawa Medical University (Japan) and Taipei Medical University (R.O.C.) conducted experiments and found that the anti-tumor effect of chlorella enhanced the hosts' macrophage activity and cytotoxic activity of non-adherent lymphocytes. This was similar to some bacteria (such as Mycobacterium and Corynebacterium) which enhanced the immune response in the hosts'. This was clinically used for anti cancer treatment. Chlorella did not have any toxicity to cultures of spleen cells or tumor cells in vitro (test tube) and to mice in vivo (in the body). This study was presented at the Third International Congress of Developmental and Comparative Immunology, Reims, France. ⁸

d) Japanese doctors discovered that if chlorella was given to cancer patients prior to their radiation and chemotherapy, their white blood cell count would not

drop as low, and it would normalize again more quickly than usual.⁷

e) An experiment was done on 971 sailors of the Japanese Navy while sailing from Tokyo to New Zealand over a period of 95 days. The study group that took 2 grams of chlorella per day had an occurrence of 26.5% fewer colds, compared to the control group that did not take chlorella.¹⁰ Chlorella reduces the occurrence of colds because it stimulates the body to produce more interferons to fight the viruses.^{1,7}

3. **The Healing Properties of Chlorella**

Chlorella contains a broad range of vitamins (including Vitamin A, C, E, Beta Carotene, B1, B2, B6, B12, etc.), minerals (including calcium, phosphorus, magnesium, iron, zinc, iodine, etc.), and nutrients (such as amino acids, proteins, fat, carbohydrates, etc.). It also contains the highest concentration of chlorophyll and nucleic acids (RNA and DNA) of any known plant. Chlorella contains healing nutrients such as: vitamin A, C, E and beta carotene which are anti oxidants which can prevent cancer and heart diseases, etc., chlorophyll, chlorella cell walls, and CGF are proven as mentioned above. The wide spectrum of nutrients of chlorella helps us prevent and treat a wide spectrum of diseases caused by nutrient deficiencies. This is a very common problem due to the food processing and handling that may destroy nutrients in our food.

Being present for over 2.5 billion years, chlorella has incredible strength of chi (qi, vital energy) for survival. Under fertile growing conditions and strong sunlight, each chlorella cell divides into four new cells within one day. Each new cell contains life supporting elements so that it can survive by itself and continuously divides into four new cells daily. This characteristic in chlorella and its components thus provide very unusual healing properties.

The size of chlorella is similar to human red blood cells. The molecular structure of the chlorophyll in chlorella is very similar to the hemoglobin in red blood cells. The main difference is that hemoglobin is centered with an iron atom instead of a magnesium atom, as in the chlorophyll molecule. Chlorophyll has been used in treating anemia successfully. Dr. Bernard Jensen reported that he used liquid chlorophyll to help raise his patients red blood cell count as much as 400,000 in three weeks. ⁷

The Law of “like cures like” or “using the similar form to tonify the similar form” of the Traditional Chinese Medicine (TCM) applies to chlorella also:

1. The cell wall of the chlorella protects itself from its environment. It also helps detoxify us, protecting our cellular health.
2. The CGF has the characteristic of “jing” (reproductive essence, important substance of an organism) and chi (qi, vital energy) in TCM because it

has the incredible qi to reproduce itself continuously. It strengthens our body and immune system (wei chi, the protective chi) and sexual energy (to be explained later).

3. The nutritional content of chlorella allows it to sustain independent life, as well to help maintain ours. It contains all the necessary nutrients for us to live a healthy life.
4. There is similarity between the size of the chlorella and our red blood cell, and the function and structure of chlorophyll and our hemoglobin. These two are vital to the life of the organism to which they belong. In clinical uses, chlorella tonifies our blood.
5. The high DNA and RNA content of chlorella can be the building blocks for our DNA and RNA (all living things are made up of the same basic chemical building blocks). We are able to utilize these nucleic acids for cell rejuvenation. Dr. Benjamin Frank used high DNA and RNA foods to assist his patients in restoring youthful energy and appearance. He also discovered that health problems such as arthritis, emphysema, heart disease, deteriorating vision, memory loss and depression simply disappeared with the intake of these foods. ^{13,14}

The following are major reports about the healing properties and benefits of chlorella₁₈ : allergies, asthma, emphysema, cold, flu, arthritis, wound healing, pancreatitis, pyorrhea (bleeding of the gums and loose teeth), P.M.S., cancer, detoxification, liver toxicity, alcohol hangover prevention, bowel toxicity, constipation, anti-viral, ulcers, skin problems, atherosclerosis, cholesterol problems, high blood pressure, heart disease, diabetes, epstein-Barr virus syndrome (characterized by repeated infections, allergies, and exhaustion, similar to chronic fatigue syndrome), candida yeast connected problems, obesity, gout, herpes simplex, depression, AIDS, fibrous cysts, seizures, hypoglycemia, body odors, burns, hormone imbalance, stress, eczema, jet lag, sciatica, withdrawal from drug addiction, etc.

Chlorella neutralizes the acidic body into slightly alkaline. According to the research of a Japanese doctor, consuming meats and rich foods, stress and pollution cause the body to become acidic, thus allowing diseases to occur. When a human body ages, it fails to retain water, potassium, and sodium as efficiently as before, therefore causing the body to become acidic also. Taking chlorella can neutralize the body to a slightly alkaline form, because chlorella is known as the most alkaline food and has the ability to balance the pH of the body. He advised his patients to use chlorella as an anti aging food as well as to treat many different diseases.¹⁸

My Clinical Observation

Clinically, I use chlorella as a nutritional supplement, in addition to the T.C.M. treatments such as acupuncture and herbal treatment. I find chlorella has amazing effects on some patients and ailments listed above. For example, the patients' energy levels increase, high blood pressure normalizes, sugar cravings subside, cancers disappear and the number of colds and flu decrease, etc. However, some patients may not seem to experience a huge difference in their symptoms after taking chlorella due to their individual unique problems (For example, the complexity of their sickness). Chlorella is not a drug, therefore it may not clear up certain symptoms as drugs do. But by taking chlorella continuously, they will gain long term benefits, without the side effects of drugs.

Many supplements on the market may contain synthetic chemicals (i.e. most vitamin C in the supplement form is artificial, which does not have the bio-energy ((chi, Qi)) as in the vitamin C of chlorella). Other green products like spirulina, wheat grass or barley green, lack chlorella cell wall and CGF, therefore is different than chlorella.

Considering that we may knowingly or unknowingly ingest food or water containing pesticides, insecticides, heavy metals, radio active materials, synthetic chemicals in terms of artificial food additives (such as flavorings, colorings and preservatives). We also may breathe in pollutants from the polluted environment which are known to cause diseases. It would seem logical for us to take chlorella as a preventive medicine to detoxify our body every day, also to rejuvenate (to repair and rebuild our RNA and DNA), to improve our immune system, and to heal our body before any symptoms of diseases show up. This is one of the best methods of prevention as we always emphasize in TCM, also one of the best examples of "letting food be your medicine."

My Further Clinical Observations

Recently, some patients have experienced the clearing up of their "foggy mind". Others reported their mind was more relaxed and felt better. This means chlorella also helps the spirit (shen). Some who have taken chlorella on a long term basis claim that their sexual energy is enhanced which is another sign of how the jing (reproductive essence) of chlorella enhances the jing of humans, according to the TCM explanation.

Conclusion

Chlorella is a natural wholesome food. From the nutritional point of view, it has a wide spectrum of nutrients that can cure a wide spectrum of diseases related to nutrient deficiencies. From a medical point of view, it is proven that chlorella detoxifies and improves the functioning of the immune system. From the clinical point of view,

chlorella has been reported to cure many common and rare diseases. From the TCM point of view, chlorella helps tonify the xue (blood), jing (essence), chi (qi, vital energy), and shen (spirit). These are essential to maintain a healthy body. It can be used as a preventive medicine, a body normalizer, a healing and rejuvenating food.

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