

TIENS Chitosan Capsules

I. Relevant fundamental knowledge

□Relevant Story□Human began the research on chitosan many years ago. It is recorded in *Compendium of Materia Medica* that crab shell has the functions of removing blood stasis and food stagnancy. The word "crab" itself in Chinese means "an antidotic insect". In the early 19th century, Burano, a French scholar first found chitosan in mushroom. From then on, the human began the long-time research and application of chitosan.

Chitosan, which is also called chitin and chitosamine, is abundant in shrimps, crabs, insects and stalks and leaves of plants. In nature the production of chitosan is only inferior to that of cellulose. The estimated synthetic quantity of it in marine organisms is more than one billion tons. When chitosan was first discovered a century ago chitosan it was first regarded as waste because it is insoluble in water, dilute acid, dilute base and other organic solvent. Additionally, the cost of development is much higher than developing and using cellulose.

With the development of science and technology, it is found that chitosan has many characteristics different from cellulose. It is the only edible animal fiber containing positive ions in the world for the moment and the 6th vital factor except for protein, sugar, fat, vitamin and mineral substances. In addition, it is the only high molecule substance with positive charge in nature. Once it comes into human body, it will catch the electronegative fatty acids, cover them, and prevent them from absorbing by intestinal tract and discharge them out.

Its fibers constantly stimulate peristalsis of digestive tract, and make food pass through digestive tract fast. Therefore, it is concerned with the concept of "safe weight reduction". Additional, its fibers can combine with fat and cholesterol so as to avoid the absorbance of them into blood.

Extracted and purified chitosan can activate human cells, regulate autonomic nerve system and hormone secretion, and promote the healthy functions of the human body. Scientific experimentation has proven by that chitosan can inhibit the absorption of cholesterol in the

small intestine, so as to lower the concentration of cholesterol in serum and deter the depositing of cholesterol in the liver thus preventing the condition of having a fatty liver. In addition, chitosan can reduce the absorption of chlorine ions by human body, stimulate angiectasis and lower blood pressure.

II. Main ingredients and efficacies of the product

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1. Main ingredients of the product:

Chitosan is the food fiber contained in the shells of crustacean, such as shrimps and crabs. Chitosan have many functions beneficial for human body, and can lower cholesterol, prevent arteriosclerosis, strengthen liver function, prevent heart disease, eliminate heavy metals in human body, and discharge them from human body.

2. Efficacy of the product:

Chitosan has wide field of application, and is completely different from common nutritional health products. For human body, it has 5 major functions: strengthening immunity, inhibiting senescence, preventing diseases, accelerating the recovery of diseases and regulating the physiologic activities of human body.

- 1) Enhancing immunity and preventing various diseases.
- 2) Lowering blood pressure, removing adverse lipids in blood, and preventing cardiovascular diseases.
- 3) Improving liver functions.
- 4) Improving digestion functions.
- 5) Eliminating the adverse effects of harmful heavy metals on health.

The deacetylating degree of TIENS Chitosan Capsules is as high as 85%. This product has high purity and stable quality, is a good functional health food for modern people, and has been sold to Russia, South Africa and United States. TIENS Chitosan Capsules are the products after a series of processing on chitosan using modern biotechnology, which can slowdown senescence, activate human cells, enhance immunity, coordinate visceral organ functions,

protect liver, disintoxicate toxic substances, and clear away in vivo "waste", so it is favored by the people. The effect of chitosan on the physiological functions of human body mainly depends on the actions of chitosamine. Its preventive and therapeutic actions on diseases are briefly described below:

- A. Inhibiting tumor: Chitosan can enhance cell-mediated immunity, activate lymphocytes, increase the pH value in body fluid, create a basic environment, strengthen the attacking capacity of lymphocytes to cancer cells, and improve the functions of killing cancer cells. It has been found in anti-tumor research that chitosan has inhibiting effects on cancer cells, and can activate the immunity of human body, induce the production of T cells in pancreas. The fearfulness of cancer is its metastasis, and the control actions of chitosan on metastasis has been confirmed by various methods used by biomedical scientists of each country, and success has been obtained in clinical trials. Chitosan has the characteristic of adherence to the endothelial cell surface adhesion molecules and can block the adherence of tumor cells to blood vessel endothelial cells. It can effectively prevent the infiltration of cancer tissues into periphery tissues.
- B. Lowering blood fat: Chitosan can inhibit the digestion and absorption of lipids, absorb cholesterol, discharge cholesterol from human body, and stimulate the transformation of cholesterol so as to prevent and improve cardiovascular and cerebrovascular diseases.
- C. Lowering blood pressure and preventing arteriosclerosis: It has been shown by functional test that chitosan can reduce serum total cholesterol and triglyceride. The cardiovascular protective factor, "high density lipoprotein" can bind with chlorine ion, discharge it from human body, and prevent various diseases caused by hypertension. Chitosan can reduce the absorption of chlorine ions by human body, form cation radical with positive charge under the actions of gastric acid, binds with chlorine ion so as to reduce the concentration of chlorine ion in blood, enhance angiectasis and lower blood pressure. Then, it can avoid the adherence of cholesterol to vessel wall and prevent arteriosclerosis.

- D. Strengthening the functions of liver: Chitosan can absorb endotoxin, inhibit the absorption of cholesterol in small intestine, so as to lower the concentration of cholesterol in serum and avoid the deposit of cholesterol in liver, and reduce the adverse cholesterol in liver. When you feel discomfort in liver, the liver is often seriously impaired. However, chitosan can inhibit the increase of serum cholesterol and prevent fatty liver.
- E. Preventing and curing diabetes and lowering blood sugar: The basic pathological change of diabetes is the metabolic disorder caused by the absolute or relative hyposecretion of insulin. When human body is of basic body constitution, the utilization ratio of insulin can be increased. The acidification of body fluid caused by the organic acids produced from in vivo lipodieresis in diabetics can be regulated, chitosan can be used to increase the pH value in human body, the secretion of insulin, and the utilization ratio of insulin, lower blood sugar, and prevent and improve diabetes. Chitosan has strong absorptivity, occupies some volume in intestinal tract, and can reduce the absorption of saccharides, lower and postpone the peak value of blood sugar so as to prevent and cure diabetes.
- F. It can absorb and discharge heavy metal. The chitosan with positive ion can absorb and discharge heavy metals, and reduce the accumulation of heavy metals, balance the electrolytes in vivo so as to maintain health.
- G. Improving digestion functions: Chitosan can enhance the functions of beneficial bacteria of fighting against harmful bacteria, stimulate the multiplication of beneficial bacteria in stomach and intestine, improve the functions of stomach and intestine, and make human body effectively absorb nutrition.
- H. TIENS Chitosan Capsules will surely contribute much more to human by activating human cells, enhancing immunity, postponing senescence, coordinating visceral organs, protecting liver and disintoxicating toxic substances.

III. Target customers and edible method

1. Target customers:

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Chitosan is indicated for persons of various ages, especially for children and middle-aged and old people. It can activate cells, eliminate fatigue, and postpone senescence.

Persons with poor body constitution and low immunity and easy to catch cold

Middle-aged and old people

Diabetics

Persons often feeling tired with strenuous working rhythm

Persons with hyperlipemia and cardiovascular diseases

Persons with low liver function

Persons with irregular diet engaged in busy work

Persons with stomach and intestine diseases and poor digestion functions

2. Edible method:

2 capsules each time, twice a day. Take it with warm boiled water.

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