

## -Regarding Contents of Carbohydrate of SEAHERB FUCOIDAN and PURE SKIN and Its Physiological Function

### I Introduction

Observing the content of formation of marine plants, generally, the content of carbohydrate is high, and especially the blossom of algae, based on dried items, has a distinctive feature to contain up to about 67% of carbohydrate.(National Fisheries Promotion Board, 1989;Oishi, 1944; Cho, et al.,1955)

And, these multi-sugars of carbohydrate contained in the blossom of algae are mostly formed with Fucoidan(about 70–80%), Laminaran and Alginic acid (Nishide, 1981 ; Oishi, 1944; Kim, et al., 1955), and there is a difference in content of Fucoidan and alginic acid of the brown algae in accordance with by part and, harvest time and place.(10–30%)

It is well known that Fucoidan, Laminaran and Alginic Acid hardly absorbed by the body(7%) due to it's a giant molecule.

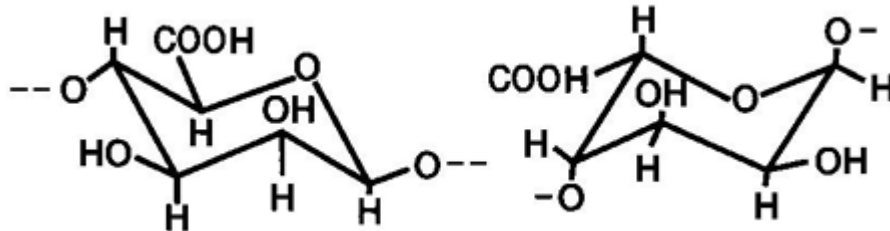
And, it is the situation that development of new extract processing method to increase absorption rate and producing products are keenly required.

Dong Oh International Co., Ltd., has developed the SEAHERB FUCOIDAN of the new extract processing form, called "low molecular weight compound technology, with increasing absorption rate up to 57%, with the raw material of the 15 species of seaweeds and herbs

Of this nutrition, regarding SEAHERB FUCOIDAN which is natural supplement, the writer would like to write its physiological function as follows:

### 2. PHYSIOLOGICAL FUNCTION OF ALGINIC ACID of SEAHERB FUCOIDAN

In order to study the fundamental knowledge on alginic acid, observing its structure, it is as Fig.2.



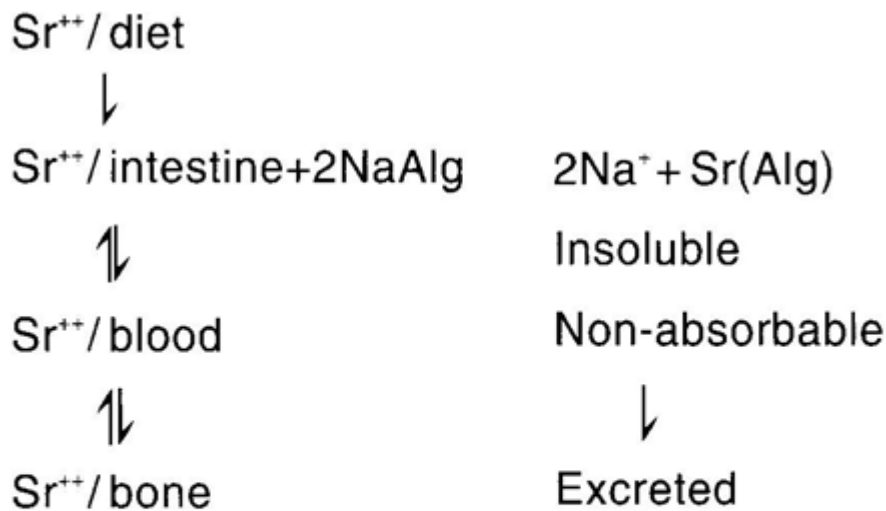
Poly D- mannuronic acid  $\beta$  - 1.4 guluronic acid

<Fig. 2> Structure of Alginic Acid

Alginic Acid is contained only in the seaweed, which exists as the cell wall or cell distance substance and differs in accordance with the kind of seaweed, but is contained up to about 20–50%, and compared with animals, it functions an important role to form physique.

a). Function of Heavy Metal Discharging Outside the Body

It is already well known that the seaweed plays a role to concentrate various metal ion etc., in the sea water by themselves. The fact that these seaweed absorb and discharge outside the body especially heavy metal, etc. from human body, is widely examined and recognized in the academic circle. This function is explained as Fig.3



Alg = alginate

<Fig. 3> The Reaction between Radio-active (sr) and Alginic Acid in the Human Body

Sr existing in diet or blood, and bone combined with NaAlg and Na is separated, and heavy metal combines with alginic acid, which is extracted outside the body as combined substance, which does not function. (Fumio Kasahara, et.al)

That is heavy metals, Cu, Pb, Co, and Zn are effected to be extracted outside the body by such principle.

On these days when the environmental pollution in our daily life has become very serious problem, if we take a little quantity of these substances from the air or diet, these will be accumulated in our body for a long time and we may face with difficulty before we knew it.

As explained as above, since alginic acid in most hardly absorbed by the body. Alginic acid inside of the SEAHERB FUCOIDAN can be absorbed by the body up to 57%. By using this low molecules alginic acid, Dong Oh international Co., Ltd., develop PURE SKIN which is skin care

products ,with moving through the skin rapidly. Main function of PURE SKIN is discharging heavy metal and toxin outside of the skin.

#### b) Decreasing the Value of Cholesterol

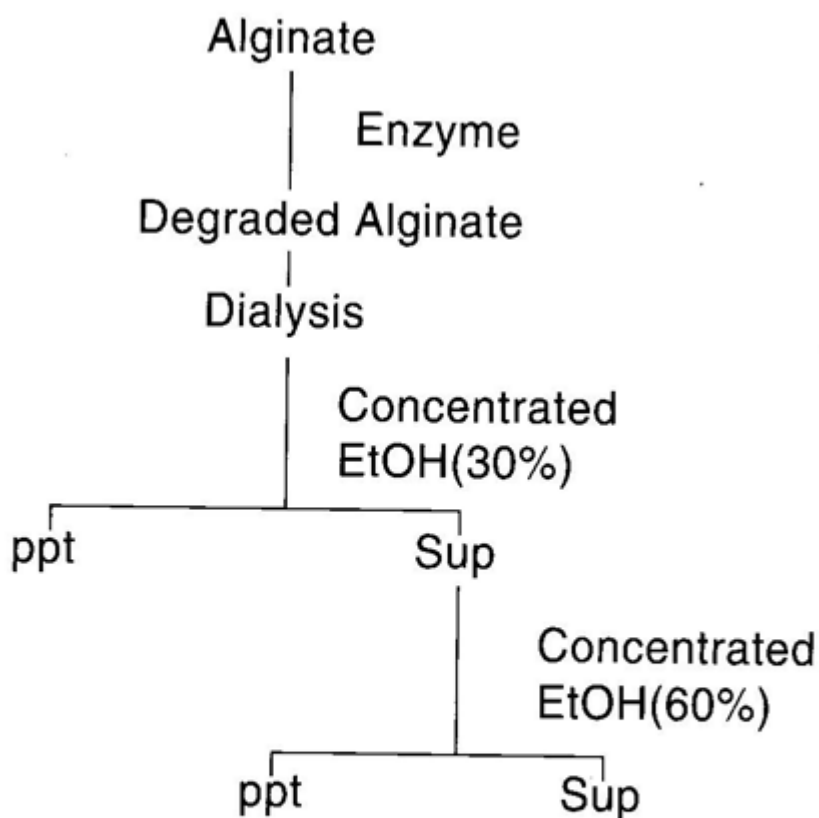
It has been well known that the seaweed is the ageless food since old times, and as a result of experiment by Suzuki, et. al., that by adding 5% of alginic acid to the extremely inferior feed adding 0.25% of bile acid to the food containing 1% of cholesterol, let white mouse take it, and, obtained the effect to control increase of serum cholesterol and cholesterol in the blood plasma. Beside this, many other research have been reported, so it is well known fact that alginic acid has an effect to prevent artery hardness.

#### c). Function of Intestinal Orders

There is nothing more important than smooth absorption of nutritive elements by smooth excretion among various functions of human body. This alginic acid is the sticky component, and it demonstrates concrete effect of internal orders by such nature as hydration, maintaining water, lubrication and formation. Especially, it has an excellent effect for constipation.

When alginic acid is degraded by enzyme and concentrated, a portion becomes ppt and a portion makes heavy metal and other undesirable

things to suspended condition of their activities in the intestines and to discharge outside the human body. That is, this function is to discharge heavy metal and other undesirable things existing inside the stomach and intestines as scale condition outside the human body by the function of alginic acid and enzyme.



<Fig. 4> Degradation of Alginic Acid by Enzyme

Therefore, it has a great effect for the health of the stomach and intestine, and especially for constipation. And if you take it steadily, it will improve digestion and absorption, and accordingly, all physical organs become healthy and has excellent function for prevention of geriatric diseases. Although we think to cure only a special portion of our body, it is thought that by making our stomach and intestines healthy first of all, and by

helping to supply nutritive substance to other organs, the balance of whole body can be maintained.

#### d) The Diet Nature

Because of shorted calorie in our modern life, if we take much quantify of meats, fat and other alien substances are absorbed, and if you take this for a long time to prevent satiation, by digesting and absorbing in balance, so by removing unnecessary fat and energy source, it is well known as food of diet nature.

### 3. Carcinogenesis Restraint Effect by Fucoidan Component Contained SEAHERB FUCOIDAN

Especially a great quantity of fucoidan is contained in blossom of algae of SEAHERB FUCOIDAN, for which a steady study has been continued. As a result of giving cancer-causing materials to the experimental mice, which were divided into two groups, and let one group drank water containing U-Fucoidan for 52 weeks continuously, and the result was confirmed that the group drank U-Fucoidan water increased about 30% of surviving percentage and reduced about 10% of carcinogenesis percentage compared with the comparative group.

#### 4. RESULT SUMMARY

The Nutritions of the SEAHERB FUCOIDAN is greatly used in our dietary life, and it is a very good supplement because a great quantity of Fucoidan and alginic acid is contained in the SEAHERB FUCOIDAN, which functions to absorb and discharge outside our body heavy metal and other undesirable things.

As the contents of fucoidan and alginic acid in the seaweed differs in accordance with the producing season, place and by part. It is possible to choose the season, place and by part having the greatest content of Fucoidan and alginic acid.

These Nutrition are enhanced by our patent extracting technology called “Low Molecular weight compound technology” which has the possibility of the function of discharging heavy metal outside of the body, the function of decreasing the value of cholesterol, function of intestinal orders, and the nature of diet.

Furthermore, Dong Oh International co., ltd adjusts extracting technology for developing PURE SKIN ,which is skin care products, for discharging toxin and heavy metals outside skin and providing vitality of skin.

The SEAHERB FUCOIDAN, which is processed to 100% natural pill type without adding any artificial preservatives, color and corn in the sealed bottle package and can be carried to take at any time, is expected to greatly contribute to the health of the people.

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