

Alginate acid - description, benefits, effect on the body and the best sources

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Abstract. It is a viscous polysaccharide, very beneficial for human health. The acid is often called “algal acid,” thereby revealing its origin.

Alginate acid is found naturally in green, brown and red algae. Alginate acid is very widely used in the food industry, medicine, pharmaceuticals and cosmetology.

Key words: Alginate acid, general characteristics, daily requirement, digestibility, beneficial properties, signs of deficiency, signs of excess

This is interesting!

Residents of Japan are leaders in eating seaweed. The total amount of marine vegetation they consume amounts to more than 20 species! The kombu group of seaweeds is used for Japanese kashi broth, wakame for soups, hijiki for tofu and rice; nori – for sushi, rice balls, cakes and noodles.

Foods rich in alginate acid:

- Sea kale (kelp, Japanese, palmate)
- Spirulina [1]
- Red caviar (algin)
- Ice cream
- Jelly candies
- Purpuru or nori (seaweed for sushi)
- Agar-agar
- Marmalade
- Yogurt [2]
- Marshmallow
- Ulva lettuce
- Molecular cuisine dishes
- Souffle
- Baby formula
- Bird's milk candies

General characteristics of alginate acid

Today, alginate acid is industrially obtained from Japanese kelp. The peculiarity of alginate acid is that it adsorbs water very well [2], that is, one part of the acid can absorb up to 300 parts of water.

Alginate acid is designated E400 on food labels, and the food additive agar-agar can be found under the number E406.

Alginates (that is, salts of alginic acid) on the packaging of our products are designated as additives E401, E402, E404, and are also widely used in industry, medicine and cosmetology.

Alginic acid is used in the food industry as a thickener for desserts, sauces, ice cream, and imitation red caviar. Alginic acid retains moisture in baked goods.

Daily requirement for alginic acid

Alginic acid, once in the human body, performs many different functions, but is absorbed by the body. Therefore, we can say that a person does not have a daily need for this substance.

The need for alginic acid decreases with:

- avitaminosis (suppresses the absorption of certain nutrients);
- oncological diseases;
- pregnancy [3];
- tendency to digestive disorders;
- liver dysfunction [4];
- allergic reactions to this substance;
- disruption of the thyroid gland [5].

The need for alginic acid increases:

- with immunodeficiency;
- atherosclerosis;
- increased levels of heavy metals in the body;
- excessive exposure of the body;
- problematic skin;
- loss of tone;
- dermatosis;
- rosacea;
- hyperpigmentation;
- cellulite [6];
- intoxication of the body;
- diseases of the heart or blood vessels.

Alginic acid digestibility

The body does not absorb either the substance itself or alginate derivatives. Without causing any harm, they are simply eliminated from the body, mainly through the intestines.

Beneficial properties of alginic acid and its effect on the body

Alginic acid and its derivatives are very widely used in medicine. Its ability to swell in water and create gels is indispensable in the production of drugs.

In the production of medicines, such gels are used as disintegrants, due to which they are absorbed into the body much faster and more efficiently.

Today, more than 20% of medicines contain alginic acid. It is also indispensable in the production of capsules.

The substance is used for selective solubility of medications (for example, if the tablet must enter the intestines). In dentistry, alginates are used to make impressions for the manufacture of dentures.

Main properties of alginic acid:

- stimulates phagocytosis, thereby enhancing the antimicrobial, antiviral and antifungal activity of cells;
- binds excess immunoglobulins E, due to which allergies develop [7], etc.;
- promotes the synthesis of immunoglobulins A (antibodies), which increases the body's resistance to microbes;
- anticoagulant;
- antioxidant [8];
- reduces blood pressure;
- reduces the level of bad cholesterol [9];
- helps reduce spasms;
- removes harmful radionuclides and heavy metals;
- reduces intoxication of the body.

Interaction with other elements:

Alginic acid is insoluble in water [10] and in almost all organic solvents. At the same time, it has very good absorbency: it can absorb water in a ratio of 1/300.

Alginic acid derivatives, alginates, behave completely differently when interacting with other substances. Therefore, they are used to create solutions and stabilizers (in the food industry or pharmaceuticals).

Scientists suggest that alginic acid impairs the absorption of certain vitamins. Scientific research is currently underway in this direction.

Signs of excess alginic acid in the body:

- nausea;
- indigestion;
- allergic reactions (itching, redness of the skin).

Factors influencing the amount of alginic acid in the body

Alginic acid is not produced in the body; it can enter our body only with food, dietary supplements or medications.

Alginic acid for beauty and health

Alginate masks are becoming very popular in cosmetology. Their properties make it possible to care for skin [11] of any type and restore it.

Such masks do not disturb the skin texture, since they do not need to be washed off or peeled off - they are removed in a single layer. They are used not only for the face, but also in the fight against cellulite, as well as to detoxify the body [12].

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Received 02.07.2019

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cosmetology. This is interesting! The people of Japan are the leaders in eating algae. The total amount of sea vegetation consumed by them is more than 20 species! The kombu group of algae is used for Japanese kashi broth, wakame for soups, hijiki for tofu and rice, nori for sushi, rice balls, cakes and noodles.