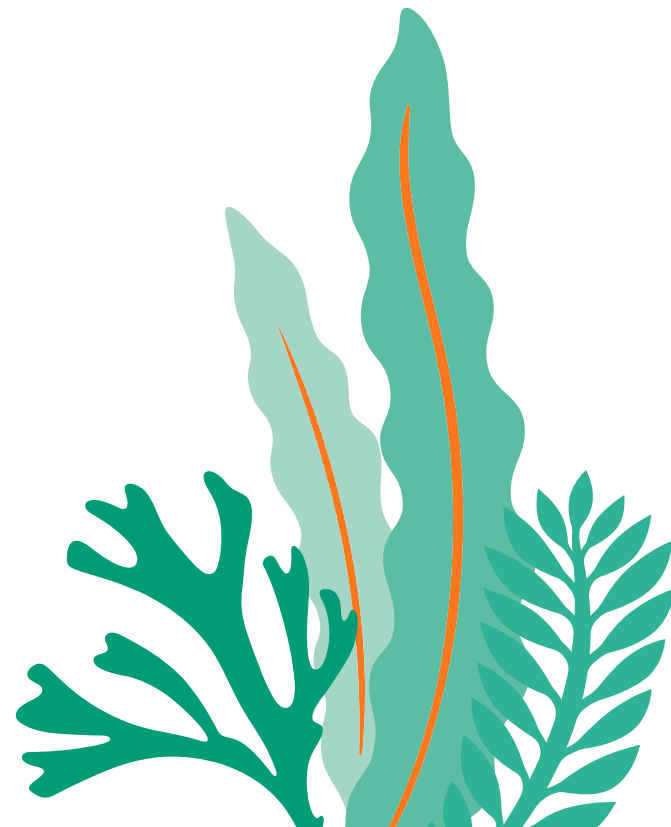


# KELP



# USEFUL PROPERTIES OF KELP

Kelp, or "seaweed", is a genus of brown seaweed.

Kelp thallus contains polysaccharides, mannitol, protein substances, vitamins, mineral salts, micronutrients. Kelp is rich in iodine in organic form, which has a positive effect on its absorption by the human body.

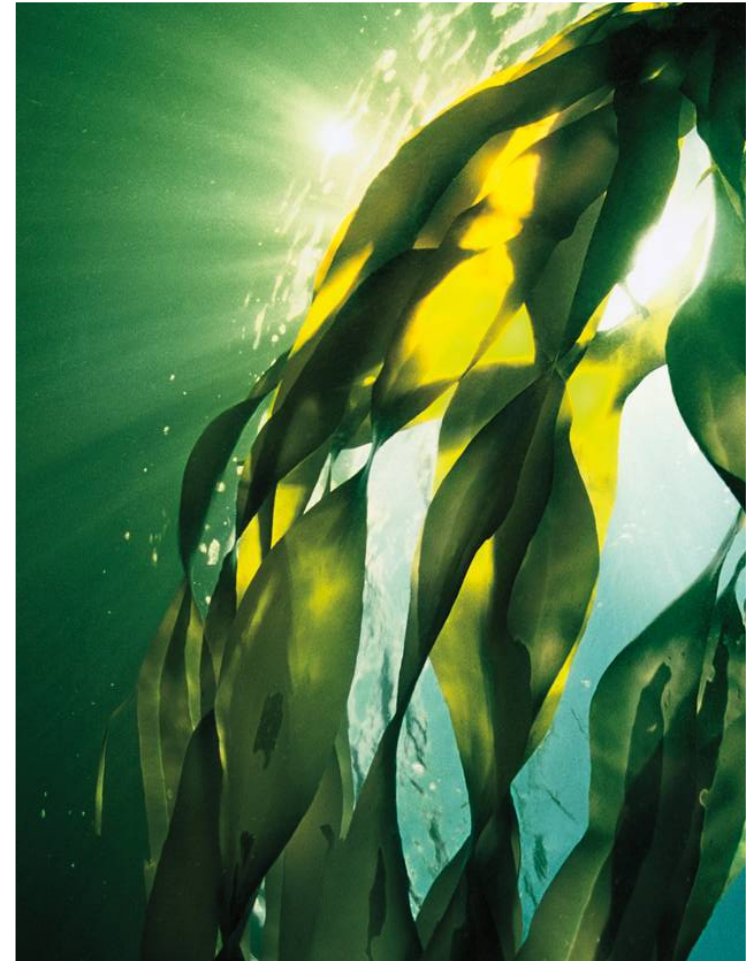
We only harvest two and three year old algae from the depths of the White Sea. Such kelp contains the maximum amount of nutrients.

Algae more than other living creatures of the underwater kingdom, have the ability to extract from sea water and accumulate numerous useful substances. Thus, the concentration of magnesium in seaweed is 9-10 times higher than that in sea water, sulfur - 17 times, bromine - 13 times. One kilogram of kelp contains as much iodine as it is dissolved in 100,000 liters of sea water.

Laminaria is a multifaceted medicinal plant. With regular use in food, it helps to reduce blood cholesterol, restores the normal permeability of the walls of blood vessels. In addition, kelp has an antiviral effect, prevents the development of ulcerative lesions of the gastrointestinal tract, serves as an effective means of combating poisoning of the body with various pollutant substances from food, water and air.

Thus, the use of kelp directly in food and in the composition of dietary supplements is a good prevention of thyroid diseases, cardiovascular diseases, and environmentally dependent pathology. Algae as a powerful accumulator of all kinds of chemical elements should take a worthy place in medical practice.

Kelp is an object that allows you to fulfill the dream of Hippocrates: «Let thy food be thy medicine and medicine be thy food».



# EXTRACTION



Algae harvesters go to sea on special traditional Pomor boats – karbas. Algae are harvested manually from a depth of 5-6 meters.

Harvesters choose suitable plants, cut them with special braids, and then pull them out and hang them on the sides of the boat.



The length of the seaweed harvesting season off the coast of the Solovetsky Islands largely depends on weather conditions and lasts from three and a half to four months.

In addition to good weather, workers need to wait for the low tide hours at sea. The water level can change by three meters per day, at low tide the algae are easy to see, at high tide they are not visible.



Unlike the practice adopted in other countries, we only harvest wild algae, what nature itself provides.

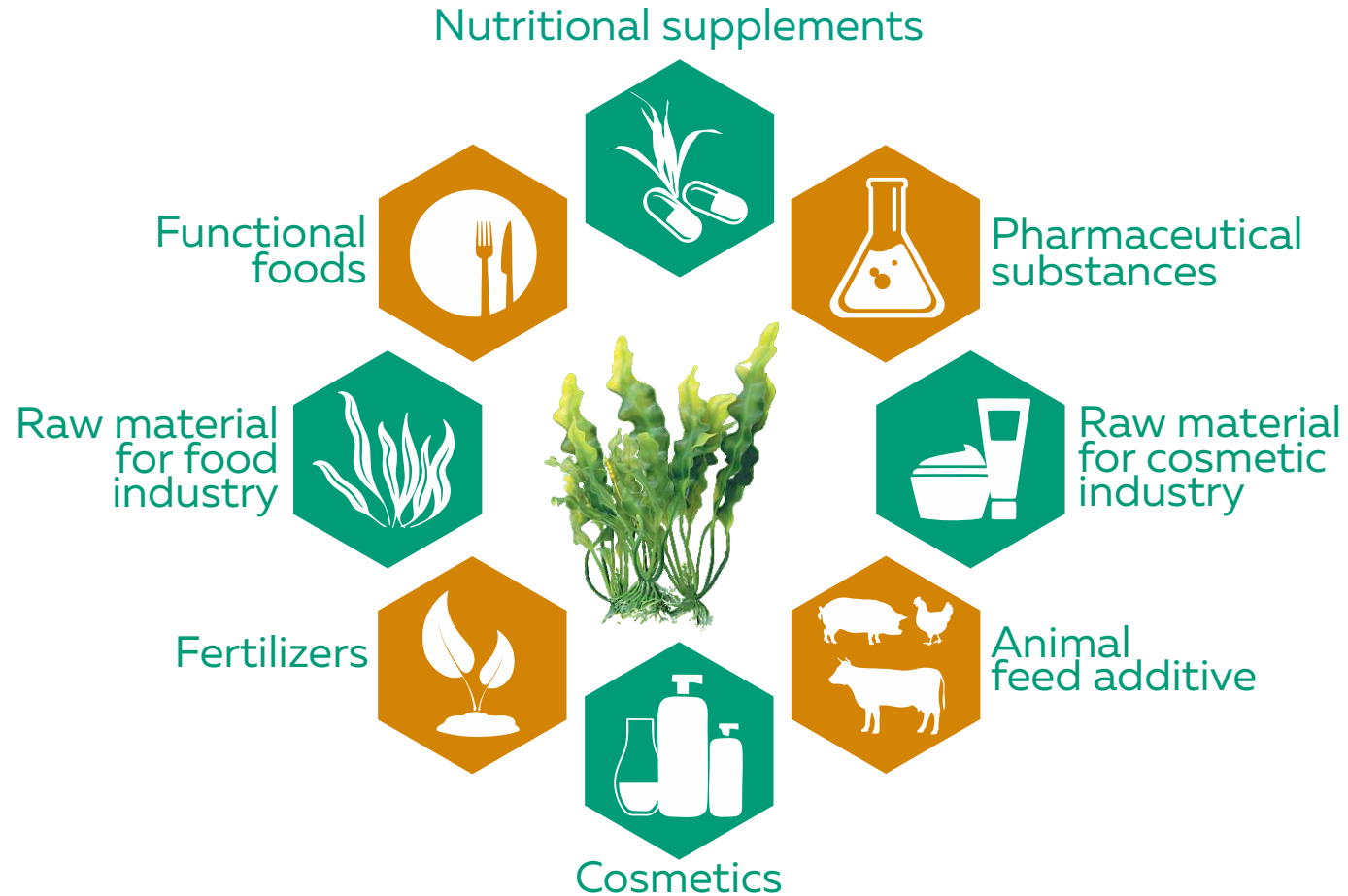
Our harvesting technology – manual collection method is completely safe for this algae and for nature.



Harvested seaweed, laid in the net using cranes are unloaded from karbas ashore and immediately hung on dryers, so called "veshala" in Russian.

The algae have time to dry out in about one day. The dried algae are sent for processing to the plant in Arkhangelsk.

# APPLICATION OF KELP



# LAMINAR DERIVATIVES

## Special kelp concentrate

Lipid-pigment concentrate of kelp. Contains many esters (bound acids and unsaponifiables). The content of lipids in CLO in terms of dry matter is not less than 40%. The composition of lipids: free fatty acids, phospholipids, triglycerides. The fatty acid composition is represented by oleic, palmitic, eicosapentaenoic, linoleic, myristic, arachidonic acids.

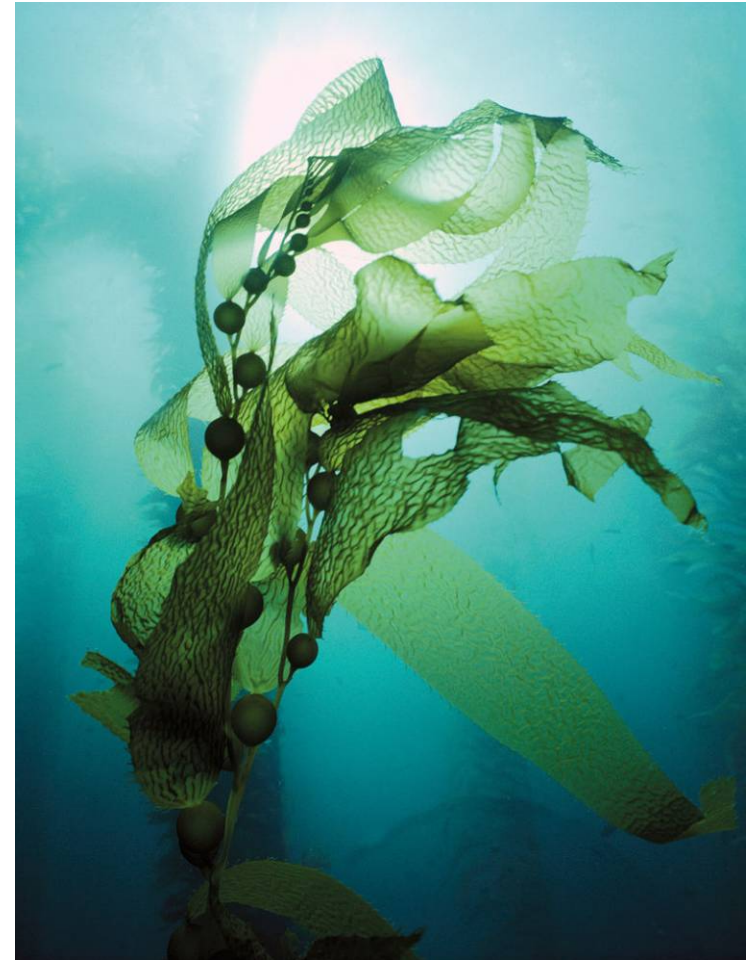
## Kelp extract

Kelp extract is a unique substance obtained from the kelp thallus, it is a dark brown liquid with a characteristic odor. The kelp extract has been used for medicinal purposes: in the form of inhalations and rinsing for diseases of the upper respiratory tract, for rubbing and eliminating pain. But it is especially widely used in cosmetology and in the composition of products for face, body, hair and oral cavity.

## Copper chlorophyll derivatives

Copper chlorophyll derivatives are cosmetic raw materials, fat-soluble kelp fraction. The permissible content in a perfumery and cosmetic product is up to 0.1%. Copper chlorophyll derivatives are added to toothpastes and mouthwashes, hair preparations, deodorants and creams.

A significant advantage of MPH from kelp over analogs from needles is: the absence of resin acids or their resins, a high content of carotenoids, sterols, fats, which additionally increases the cosmetic value and useful properties of the product.



## Mineral concentrate from kelp

It contains a wide range of minerals (including iodine, manganese, selenium, cobalt, silicon, sodium, calcium, bromine, jelly, magnesium, etc.). It is used in the production of medicinal cosmetics, toothpastes and oral care products, soaps, body care products.

## Alginates

Alginic acid is a high molecular weight polysaccharide consisting of long chains of polyuronic acids that form algal plant fibers. Many of the healing properties of seaweed are due to the presence of these particular polysaccharides. Currently, brown seaweed is the only source for obtaining alginic acid and its salts. Its content in the White Sea kelp is about 50-60%.

Alginates are highly soluble in water, form viscous solutions, which makes it possible to use them as thickeners, stabilizers and binders in the food industry and the production of pharmaceuticals. Alginic acid salts found the use in the textile, wine, perfumery and cosmetic industries. Salts of alginic acid are used as auxiliary elements in the composition of drugs and independent biologically active substances.

The most medically important properties of alginic acid are its viscosity and ability to swelling, and most importantly, ion exchange capacity. Alginates reduce the impact of harmful substances from food, water, inhalation or through the skin, binding radionuclides and heavy metal salts and removing them from the body. Alginates are indispensable for maintaining and restoring the tone of the immune system, are the most powerful sorbents of cholesterol and fatty acids, reduce the concentration of harmful substances in blood, prevent an increase in blood clotting and the formation of blood clots. Alginic acid, its sodium and calcium salts have the ability to stop bleeding. This has proven useful, in particular, in the treatment of gastrointestinal ulcers. The positive effect on the digestion process is associated with its sorbing effect of alginates.

## Mannit

Arkhangelsk seaweed plant is the only enterprise in Russia licensed to manufacture the strategically important pharmaceutical substance mannitol.

Mannitol is a hexahydric alcohol obtained from kelp by extraction. It is used in medicine - it serves as the main active substance of the drug "Mannitol". This medicine has a strong diuretic effect, promoting the rapid removal of excess fluid from the body and restoring the normal permeability of the vascular bed. "Mannitol" increases renal blood flow and therefore is indicated for diseases accompanied by congestion in the body. Mannitol is able to restore body functions in case of complications associated with the transfusion of incompatible blood.



# PRODUCTS

## Laminaria leaf



Raw materials for food industry

## Laminaria shredded



Raw materials for food industry

Functional foods

## Laminaria crushed



Raw materials for food industry

Functional foods

## Laminaria powder



Raw materials for food industry

Raw materials for production of dietary supplements

## Copper chlorophyll derivatives (paste)



Raw materials for cosmetic industry

Raw materials for production of dietary supplements

## Copper chlorophyll derivatives (oil solution)



Raw materials for cosmetic industry

Raw materials for production of dietary supplements

## Special kelp concentrate



Raw materials for cosmetic industry

Raw materials for production of dietary supplements

## Mineral concentrate



Raw materials for cosmetic industry



## Kelp petioles



Raw materials for food industry

Raw materials for production of  
medical products

## Kelp chips



Raw materials for food industry

Functional foods

## Kelp extract



Raw materials for cosmetic  
industry

Cosmetic product

## Kelp oil



Massage oil for SPA-salons

Cosmetic product

## Pharmaceutical mannitol



Pharmaceutical substance

## Mannitol for laboratory research



Pharmaceutical substance

## Food mannitol



Raw materials for food industry

Raw materials for cosmetic industry

## Mineral face scrub



Cosmetic product

Raw materials for cosmetic industry

## Sodium alginate pharmaceutical



Pharmaceutical substance

Raw materials for production of dietary supplements

Raw materials for production of medical products.

## Sodium alginate



Raw materials for food industry

Raw materials for the cosmetic industry

Raw materials for production of dietary supplements

Raw materials for production of medical products.

## Potassium alginate



Raw materials for food industry

Raw materials for production of dietary supplements

## Calcium alginate



Raw materials for food industry

Raw materials for production of dietary supplements

## Wrapping mask



Cosmetic product

## Micronized kelp mask



Cosmetic product

Raw materials for cosmetic industry

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