



# Kelp (Laminaria)

## Product Images

## Short Description

Kelp (Laminaria)

## Description

### Specification & Spread

Laminaria thalli – thalli laminariae

Sugary laminaria — laminaria saccharina (L.) Lam.

Japanese laminaria — laminaria japonica aresch.

Laminarian family — laminariaceae

Other Names: tangle. Brown sea laminaria, the thallus (thallus) of which consists of a plate, «stock» and rhizoids.

The plate is belt-shaped, green-brown, lanceolate or linear, 2-6 m long (sometimes up to 12 m), 10-35 cm wide, half the width of the plate is occupied by the median strip delimited by longitudinal folds. Below the plate goes into the «stock» - the stem of 3-70 cm long and ends with root-shaped formations - rhizoids, by which the plant is attached to the stony ground. The whole plant is permeated with mucous passages and lacunae. The reproduced by spores, after the formation of the dispute, laminaria dies.

Laminaria life expectancy is from 2 to 4 years depending on climatic conditions.

The spore receptacles (sporangia) ripen from July to October. From the spores microscopic female or male outgrowths form, forming gamete cells.

From the egg cell after fertilization, a spore-bearing plant arises - laminaria.

The preparation of thalli of other species is allowed (palmatisected sea tangle - *L. digitata* (L.) Edmon.).

Spreading. Japanese laminaria grows along the shores of the Sea of Japan and the Sea of Okhotsk; in the White, Barents and Kara Seas sugary laminaria and palmatisected sea tangle grow.

Habitat. It forms extensive thickets in the coastal zones of the seas and oceans in places with constant movement of water, on the open coast. It grows on stones, rocks, at a depth of 2 to 25 (35) m. Thick and extensive underwater «algal forests» are formed at a depth of 4-10 m.

## Composition

The chemical composition of laminaria

In thalli of laminaria there are contained:

- polysaccharides (alginic acid, laminarin, mannitol, fucoidin),
- iodides (2.7-3%),
- vitamins (B1, B2, B12, A, C, D, E, carotenoids),
- salts of potassium, sodium, magnesium, bromine, cobalt, iron, manganese, compounds of sulfur and phosphorus,
- nitrogen-containing substances
- proteins (5-10%),
- carbohydrates (13-21%),
- fats (1-3%).

The main substance is alginic acid polysaccharide, the content of which reaches 30% of the dry mass of algae.

## Harvesting and storage of raw materials

Harvesting. The best time for harvesting is from June to September. The thalli are thrown to the shore after a storm, or from boats, is harvested by winding on special poles. Sometimes it uses special braids. The raw materials are used fresh and dried in the sun. The pharmacy enters laminaria in packs and crushed into a coarse powder.

Security measures. The thickets are restored after 2 years. The zoning blanks are recommended.

Storage. It is stored in a dry place.

### External signs of raw materials

#### **Whole raw materials**

Japanese laminaria thalli are dense, leathery, ribbon-like plates, folded along the length, without trunks or pieces of plates not less than 15 cm long, not less than 7 cm wide. Plates thickness not less than 0.03 cm; edges of the plates are solid, wavy. Thalli of sugary laminaria are dense, leathery, wrinkled leaf-shaped plates without stems or pieces of them not less than 10 cm long, not less than 5 cm wide. The plates thickness is not less than 0.03 cm. The edges of the plates are wavy. The presence of plates with gaps along the edges and middle is allowed. The colour of whole thalli from light olive to dark olive or greenish brown, red brown, sometimes greenish black; outside the thallus is covered with a white coating of salts.

The smell is peculiar.

The taste is salty.

#### **Shredded raw materials**

The stripes of thalli is 0.2-0.4 cm wide, not less than 0.03 cm thick.

The colour is from light olive to dark olive, greenish-brown, red-brown, sometimes greenish-black; outside the strip of thalli is covered with a white coating of salts.

The smell is peculiar.

The taste is salty.

#### **Milled raw materials**

The pieces of thalli of various shapes are passing through a sieve with holes of 3 mm in diameter.

The colour is dark grey with a greenish tint.

The smell is peculiar.

The taste is salty.

## Properties and application

Pharmacotherapeutic group. Laxative. Source of iodine.

### The pharmacological properties of laminaria

The therapeutic effect of laminaria is due, primarily, to the presence of organic iodine compounds in it. Iodine improves protein assimilation, absorption of phosphorus, calcium and iron, activates a number of enzymes. Under the influence of iodine, blood viscosity decreases, the vascular tone and blood pressure decrease. Laminaria helps to reduce cholesterol in the blood plasma, retards the development of atherosclerosis.

The halide group of elements (chlorine, iodine, bromine) has a disinfecting effect.

Iodine seaweed has a regulating effect on the menstrual cycle, the ovaries and the thyroid gland, and the effect of seaweed is more effective compared to inorganic iodine preparations.

Polysaccharides have hydrophilicity and adsorption capacity, absorb various endogenous and exogenous toxins from the intestine.

Powder of laminaria containing polysaccharides swells in the gastrointestinal tract, increases in volume and causes relaxation.

### Application of laminaria

Laminaria is prescribed:

- with atherosclerosis,
- in the treatment and prevention of endemic goiter.

The products are prepared with the addition of laminaria in doses corresponding to the daily need for iodine (200 µg/day) are recommended for use in areas that are endemic to goiter.

Laminaria is recommended as a mild laxative for chronic atonic constipation. Its effect is similar to the physiological laxative effect of fruits and vegetables.

Laminaria has a pronounced siccogenic property, being an irritant of gastric secretion.

The positive effect of laminaria in inflammatory diseases of the light-perceiving apparatus of the eye (improvement of visual acuity, expansion of the visual field and partial restoration of color sensation) was noted.

When prescribing laminaria for therapeutic and prophylactic purposes, take into account the physiological need of the body for iodine and do not exceed it.

### Contraindications

Contraindications to the use of seaweed are nephritis, hemorrhagic diathesis, urticaria, furunculosis and other diseases for which iodine preparations are not indicated.

With prolonged use of seaweed and increased sensitivity to iodine, phenomena of iodism are possible.

