



Beetroot (lat. *Beta vulgaris*)

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Abstract. The article discusses the main properties of beets and its impact on the human body. A systematic review of modern specialized literature and relevant scientific data was carried out. The chemical composition and nutritional value of the product are indicated, the use of beets in various types of medicine and the effectiveness of its use in various diseases are considered. The potentially adverse effects of beets on the human body under certain medical conditions and diseases are analyzed separately. The scientific foundations of diets with its application are considered.

Keywords: beetroot , useful properties, potentially dangerous effects, side effects, contraindications, diets

Beneficial features

Table 1. Chemical composition of lemon (according to [Food+](#)).

Main substances (g / 100 g):	Raw beets [1]
Water	87.58
Carbohydrates	9.56
Squirrels	1.61
Fats	0.17
Calories (kcal)	43
Minerals (mg/100 g):	
Potassium	325
Calcium	16
Phosphorus	40
Magnesium	23
Sodium	78
Vitamins (mg/100 g):	
Vitamin B4	6
Vitamin C	4.9

Vitamin B3	0.334
Vitamin B5	0.155
Vitamin E	0.04

Table beets contain sugars (sucrose, glucose, fructose), organic acids (oxalic, malic, citric), pectins (1.2%), protein (1.7%), betaine, carotene (0.01 mg%), ascorbic acid (5-15 mg%), vitamin B1 (0.02 mg%), vitamin B2 (0.04 mg%), dyes and compounds of potassium (288 mg%), magnesium (40-45 mg%), iron (1400 mcg / 100 g), copper (140 mcg / 100 g), vanadium, boron, iodine, manganese, cobalt, lithium, molybdenum, rubidium , fluorine and zinc. ^[four]

It should be noted that the carbohydrates contained in root crops are represented by sucrose (99%), glucose and fructose (1%). In beet tops, the content of carbohydrates is lower (from 3 to 5%), and they are represented by 3/4 glucose and fructose. This is facilitated by the presence of **invertase** in beet leaves , an enzyme that breaks down sucrose into fructose and glucose. Root vegetables do not contain this enzyme. Therefore, patients with diabetes are advised to include in their diet not root vegetables, but directly tops, since more insulin is required for the absorption of sucrose. The sugar content in beet roots is 6.76 g%, and in leaves - 0.5 g%.

Table beet leaves have a great medicinal potential compared to root crops: beet leaves contain more vitamin C, thiamine (vitamin B1), riboflavin (vitamin B2), pyridoxine (vitamin B6), vitamin A, vitamin E, vitamin K. The content of minerals in beet leaves are also higher compared to root crops. Thus, the root part of the beet is significantly inferior to the tops in terms of the amount of biologically active substances contained. ^[5]

Medicinal properties

The therapeutic value of table beets is due to the presence in it of numerous physiologically active substances in quantities that have a therapeutic and prophylactic effect. Beetroot juice has antispasmodic, diuretic and anti -sclerotic properties. Beetroot juice stimulates hematopoiesis , gastric secretion and intestinal motility, inhibits the development of microorganisms in the intestines, promotes cholesterol excretion, strengthens capillary walls, weakens vascular spasms, inhibits tumor growth, improves metabolism, has a beneficial effect on the function of the gonads, positively affects vision. There is information about the anti-inflammatory and wound-healing effect of beet juice. The use of beet juice is advisable for spastic colitis, atherosclerosis, thyrotoxicosis, arrhythmias, hypertension, liver diseases, intestinal atony, chronic constipation. Raw and pickled beets are an effective treatment for scurvy. ^[four]

In medicine

The pharmaceutical industry produces the drug acidin - pepsin (*Acidin-pepsinum*), which improves digestion. The remedy is prescribed for dyspepsia, hypoacid (with low acidity) and anacid gastritis.

In folk medicine

- With iron deficiency anemia, a mixture of juices of beets, radishes and carrots (in proportions 1: 1: 1) is taken three times a day, in a tablespoon.
- With hypertension, vasospasm, as a mild laxative and sedative, take beet juice with honey (in proportions 1: 1) or a combination of beet juice and cranberries (2: 1).
- For hypertension, drink fresh beetroot juice for 4 days, three times a day, a single dose of 200 ml.
- As a laxative, beet juice is recommended on an empty stomach (100 ml), boiled beet salad. ^[four]

- With atherosclerosis, raw beetroot juice, aged in the refrigerator for at least 2 hours, take one third of a glass half an hour before a meal.
- With hypertension, traditional healers advise tinctures. Tincture 1: mix 400 ml of beet juice, 250 g of flower honey, juice of one lemon, 100 ml of cranberry juice, a glass of vodka. Take tincture in a tablespoon three times a day one hour before meals. **Tincture 2** : combine 200 ml of carrot and beetroot juice and 100 ml of cranberry juice with 100 ml of alcohol and a glass of honey. Infuse the mixture in a dark place for 3 days. Drink a tablespoon three times a day.
- For cholelithiasis, a folk remedy is useful: peel, cut and cook a few beetroots for a long time until the broth thickens, to the state of syrup. Take this drug for a quarter cup three times a day before meals. The dissolution of stones in the gallbladder with prolonged use of such a decoction occurs gradually and relatively painlessly.
- In the treatment of malignant tumors, a traditional medicine is used: beetroot juice should be drunk at 600 ml per day at regular intervals (a single dose of 100 ml). It is better to drink juice on an empty stomach a quarter of an hour before a meal, slightly preheated. A serving of juice is eaten with a small slice of bread, sauerkraut. ^[6]
- For the prevention and treatment of vitamin deficiencies, pour 2 cups of boiling water over 2 tablespoons of finely grated beets, rose hips and black currants (one tablespoon each). Let it brew for 3 hours, then strain and add 2 teaspoons of honey. Drink an infusion of 50 ml twice a day one hour before meals. The course is at least 2 weeks.
- For arthritis, prepare a decoction of 400 ml of water, grated beets and chopped burdock roots (one tablespoon each). Boil the composition on low heat for a quarter of an hour, then strain. Drink the drug in a tablespoon 4 times a day 60 minutes before meals. The course is at least a week.
- For chronic constipation, the composition is useful: grate a large root crop and mix with 2 tablespoons of olive oil and a teaspoon of honey. Take in small amounts before each meal. ^[7]

OUTSIDE:

- To heal wounds, apply fresh beets, grated. The mass is changed as soon as it begins to dry out, fix it on the damaged area with a beet leaf.
- With a runny nose, beetroot juice is used (juice squeezed from boiled beets is used: cotton swabs are moistened and put into the nostrils).
- Pieces of raw root crops relieve toothache: they must be kept in the mouth, pressing against the aching tooth. ^[four]
- With a sore throat, grate fresh beets on a fine grater and squeeze the juice. Pour a tablespoon of table vinegar into 200 ml of juice. Gargle with this composition up to 6 times a day.
- With red spiral lichen, grated raw red beets are applied to the affected area. Beet mass should be changed when dry .
- With dry skin of the hands, prone to cracks, a bath is useful: pour the tops from 3 medium-sized root crops and boil over low heat for a quarter of an hour. Add honey to a slightly cooled broth (at the rate of a tablespoon per liter of broth). Steam your hands for 10 minutes. Then wipe and grease with a nourishing cream.
- Another recipe softens the skin of the hands: boil half of the medium beets and finely grate. Pour beetroot grated mass with hot decoction of beet leaves and let it brew for a quarter of an hour. Then strain, pour in kefir (a glass of kefir per liter of infusion) and immerse your hands with the composition for 15 minutes. Rinse with warm water and lubricate your hands with cream.
- A bath will help soften hardened skin on the soles of the feet: a small amount of soda is added to a decoction of beets, boiled together with tops. Soar legs for a quarter of an hour. Then wipe dry and moisturize with foot cream.

- Foot bath of beetroot leaves and nettle grass: take the components one by one, pour boiling water over it, let it brew. Keep your feet in the infusion for at least a quarter of an hour.
- Cracked heels are treated with the pulp of boiled beets. Grate the beets and add a little melted butter to it. Apply the mixture on the damaged part of the heels and hold for a quarter of an hour. Then rinse with warm water and rub well.
- With excessive sweating of the feet, a weak solution of potassium permanganate is prepared on the basis of a decoction of the leaves. The feet are immersed in a warm solution and take a bath for 10 minutes. Then rinse with hot water and wipe dry. ^[eight]
- With angina, grated beets and carrots (take a tablespoon), pour 200 water, boil for 5 minutes, then strain, add so much boiled water so that the initial volume is obtained, mix with a teaspoon of honey and gargle with this composition twice in knocks.
- For varicose veins, lotions are made with a decoction: boil beets, minced through a meat grinder, common oak bark and horse chestnut fruits (take a tablespoon of each ingredient) in 2 cups of water over low heat for 10 minutes. Let it brew for half an hour, strain. Moisten a clean cloth or gauze in a decoction and apply to the affected areas on the legs for a quarter of an hour. Lotions to do daily, once a day, for a week.
- With varicose veins, homemade tincture is also effective: grated beets, white acacia flowers and honey (only a tablespoon) are poured into a glass of vodka. Withstand tincture for 2 weeks in a dark place, sometimes shaking. After filtering and rubbing the legs every night before going to bed. The course of treatment is 7 days. ^[7]

in oriental medicine

Avicenna claimed that a decoction of beet leaves and beet juice heal cracks in the skin that appeared due to the cold. The healer attributed the ability to remove freckles to beet leaves. Avicenna used beetroot juice to treat warts, get rid of lice; a decoction of beets was used in therapeutic dressings applied to tumors; boiled beet tops healed burns. Avicenna described ear drops based on beetroot juice and a dandruff remedy.

Armenian scientist of the 15th century, healer Amirdovlat Amasiatsi attributed aphrodisiac properties to beets, the ability to heal tremors, epilepsy and neoplasms. ^[5]

In scientific research

At the beginning of the 20th century in Hungary, Dr. Sandor Ferenczi (a psychiatrist by profession and founder of the Hungarian Psychoanalytic Society) enthusiastically studied natural remedies that could be applied in the treatment of cancer. Ferenczi published the work "Red beetroot as an additional therapy in the treatment of patients with malignant tumors." The practical basis for the theory of the phenomenal healing properties of beetroot juice was the described cases of curing patients with cancer of the stomach, rectum, and bladder. Substances anthocyanins (among them betaine, from the group of polyphenols) are able to actively influence cancer cells. ^[9]

Beets can improve the professional performance of athletes: in 2012, a study conducted as part of the scientific activity « Journal of the Academy of Nutrition and Diabetics », showed an increase in running speed by 5% in the group of subjects in whose menu beets were included daily. In the last 1.8 km of the 5K marathon, the speed of these runners increased (compared to the so-called "placebo group"). ^[ten]

Antioxidant, anti-inflammatory, vascular-strengthening properties of beets and its components, the therapeutic effect of drinking beetroot juice are the object of research in modern medical works and articles (T. Clifford, G. Hovatson, D. West, E. Stevenson, R. Dominguez, E. Cuenca and etc.). ^[eleven]

Weight regulation

Beets are successfully used in dietary nutrition. The calorie content of 100 g of beets (raw root crop) is 43 kcal. In terms of iodine content, red beet occupies one of the leading positions among vegetables. This allows you to use beets for obesity, inhibition of pancreatic function - to activate metabolism.

Beetroot dietary dishes are included in the canonical nutrition systems of the American doctor W.-G. Heya ; Japanese scientist, Professor K. Nishi (aimed at general health improvement and weight loss).

In cooking

Table red beets are used to prepare traditional dishes: beetroot, borscht, vinaigrette. Beets are an indispensable ingredient in a variety of second courses, snacks and side dishes. Beets are marinated, stewed, stuffed (with meat, rice, mushrooms, cheese, vegetables) and baked in sour cream. Boiled beets are used in salads, for decorating appetizers and buffet menus.

Beetroot, combined with products of different categories, is good in all its flavor nuances: spicy Korean-style beetroot (with garlic, vinegar and spices), royal beetroot (with pickles), beetroot salad with prunes and nuts that has become a classic. Add raisins, apples to beets.

In cooking, both root crops and beet leaves - tops are used. It is used to prepare botvinya (cold kvass soup made from boiled and grated beet tops with the addition of sorrel and herbs), salads.

Recipe for beet tops salad: chop young beet leaves (60 g, about 2 handfuls), salt to taste. Prepare a dressing of lemon or cranberry juice (a tablespoon), vegetable oil (a teaspoon), chopped green onions and mustard to taste. Thoroughly mix the ingredients and season the salad.

How to cook beetroot?

- Beets are not recommended to be boiled in salt water - they will be tasteless and less nutritious. Before the end of cooking, you can add a piece of sugar.
- When storing beets in the air in a purified form, a significant amount of vitamin C is lost.
- Oven-baked beets are healthier and tastier than boiled beets and are recommended for salads and vinaigrettes.
- You need to cook beets so that the water covers the root crop by no more than one centimeter.
- Before you mix the vegetables for the vinaigrette, you need to separately season the beets with vegetable oil, mix thoroughly and only then add other ingredients, so the rest of the vegetables will retain their natural color.
- Beetroot in the microwave is a "faster" and more convenient option for cooking beets, since this vegetable needs to be cooked for a long time. In the microwave, washed and unpeeled beets, laid out in a baking sleeve with holes pierced in it, are cooked at a higher power for only about 10 minutes.
- In order for borscht to acquire a bright red beet color, the beets must be boiled whole, then grated, sprinkled with citric acid (on the tip of a knife) and granulated sugar, mix well and let stand. After that, put in borscht and let it boil once. ^[12]

Beverages

Cranberries, red currants, apples, honey are added to drinks based on beetroot juice. Prepared from beets and kvass. **To prepare beet kvass you will need:** 400 g of beets, 1.2 liters of water, sugar - to taste. Wash the beetroot, peel it, cut it into circles, put it in an enameled or glass pan, alternating layers of beetroot sliced into circles with beetroot cut into halves or quarters. Pour beets with chilled boiled

water, add sugar. Cover the pan with gauze and insist in a warm place for 5-6 days. To speed up the fermentation process, you can add a crust of rye bread. Then cool kvass and keep in the refrigerator. Use as an independent drink or for making cold summer soups, okroshka.

In cosmetology

In home cosmetics, fresh beet roots are used. Cosmetic recipes for any skin type:

To improve the complexion, wipe the neck and face with a slice of fresh beetroot, allow the juice to dry, then apply a thin layer of cream to the skin, gently tapping it with your fingertips.

Beetroot mask: grate raw beets on a fine grater and mix with sour cream (1:1), apply on face, let dry, rinse thoroughly with warm water.

Refreshing beetroot mask: grate fresh beets on a fine grater, mix the beetroot mass with sour cream and egg yolk (take a teaspoon in total). Apply to the face, keep the mask for half an hour and rinse with warm water. ^[12]

Beetroot lotions for different skin types

Lotion for dry skin (to prepare it, use water in which beets were boiled): mix half a glass of cooled beetroot broth with 100 ml of milk, one yolk and 3 tablespoons of medical alcohol diluted with water in proportions 1: 1. With the finished lotion, wipe the face with light movements using a cotton pad. Keep the lotion in the refrigerator for a short time.

Lotion for oily skin : prepare an infusion of beet tops and calendula flowers (take just one part each). Steam the plants with boiling water and let it brew. Add the juice of one lemon and 3 tablespoons of alcohol to the herbal infusion.

Lotions for normal skin

Option 1

Prepare an infusion of beet leaves, mint and chamomile herbs (1:1:1): pour boiling water and let it brew. Add 2 egg yolks and 3 tablespoons of vodka.

Option 2

Boil a quarter of one medium beet and grate it on a coarse grater. Steam the beet mass with 200 ml of a strong infusion of beet tops, cool and combine with 2 tablespoons of alcohol, a spoonful of honey and one yolk. ^[eight]

Beetroot water for hair: Rinsing the hair with beetroot water is used for dandruff. To prepare beetroot infusion, a three-liter container is filled with 1.5 liters of cold water. Raw beets chopped into slices are put into it in such an amount that the water level rises almost to the brim. Beetroot infusion is kept in a dark place for 6 days, until green mold appears on the surface. The water is carefully filtered and used to rinse the hair after washing, diluting the infusion with hot water. ^[12]

To cleanse the body

The liver and intestines clogged with toxins helps to cleanse beet kvass. Such cleaning is considered quite mild, it is relatively easily tolerated by the body. Beet or beet-bread kvass not only removes toxins, but also cracks down on pathogenic microorganisms in the intestines.

With diseases of the kidneys, bladder, urolithiasis, this cleaning method is contraindicated.

Dangerous properties of beets and contraindications

It is contraindicated to use beets in large quantities for nephrolithiasis (primarily with oxaluria) and other metabolic disorders. ^[four]

Beets contain a lot of sugar and excessive consumption of them in raw form can provoke an increase in blood sugar levels. Beets for type 2 diabetes are allowed boiled in quantities agreed with the attending physician.

Treatment with fresh juice from raw beets is contraindicated in gastritis with high acidity (hyperacid gastritis), low blood pressure, glomerulonephritis , diarrhea, nephrotic syndrome, osteoporosis, inflammatory processes in the gastrointestinal tract (acute stage), chronic renal failure and nephrolithiasis, ulcer stomach and duodenum (in the acute stage).

It is highly undesirable to take beetroot juice freshly squeezed , therapy with only settled juice (which has been kept for at least 3 hours) is advisable. Fresh beetroot juice can cause vasospasm, sharply lower blood pressure, with accompanying symptoms in the form of mild nausea and general weakness. ^[7]

Excessive consumption of beets is contraindicated in patients suffering from hemochromatosis and Wilson's disease (this is due to the possible accumulation of copper and iron in the body). ^[fourteen]

Interesting Facts

- Beet seeds retain their ability to germinate for 6-10 years.
- Hippocrates described at least 10 recipes for the use of table beets in folk medicine.
- For the first time the term “ Beta rubra ” (“red beetroot”) appears in the 3rd c. BC. in the texts of Priscian .
- The rounded form of the root crop, which is known to the modern consumer, did not always have beets: up to the 16-17th centuries, elongated and thin beets were grown in Europe, which rather resembled large carrots.
- In some cultures, there is a belief that a man and a woman who taste a piece of one cooked root vegetable in the form of a dish will surely fall in love with each other.
- Beets can rightly be called a winning vegetable. After they learned how to preserve it in Russia, ferment it in brine - harvest it for future use, gradually and confidently, beets displaced their main competitors in the south and in the middle lane: turnips, turnips and rutabaga.
- Botvinya is one of the most expensive, festive and "complicated" first cold dishes in the history of Russian cuisine, although a simpler and cheaper version of this soup is common in modern cooking. Traditionally, the so-called “full” botvinya included 3 obligatory components: 1) directly botvinya (soup), 2) boiled red fish (sturgeon, salmon or stellate sturgeon), which was served separately with the soup, 3) crushed ice in a separate container.
- Beetroot is one of the symbolic products accompanying the Jewish holiday Rosh Hashanah . Eating a small amount of it at the festive table, they say traditional prayer words in which they ask to save in the future from any opponents to the cause or thoughts.
- In Australia, pickled beets are added to hamburgers. ^[13]

Selection and storage

When buying, you need to choose round or flat-round dark-colored root crops: they are more juicy and superior in taste to elongated beets. A fresh healthy root crop is hard, dense, weighty, with maroon, red or white-red flesh. For borscht, dark red beets are preferable, lighter beets are put in vinaigrette, any salad is used for salad, and it is better to ferment burgundy beets. Ripe root crops have a thin tail, while unripe ones have a thick tail.

Root crops without tops are stored in plastic bags in special compartments of a household refrigerator. On a larger scale, beets are stored in boxes or directly on the floor in basements, covered with sand.

Beet roots are best preserved at an air humidity of 80% and a temperature of 2-3 degrees Celsius (in bags made of very dense polyethylene). If the beets are stored in wooden crates, the humidity should be 90% and the storage temperature between 0 and 1 degrees. In the cellars, root crops can be laid out in the form of a round pyramid, pouring sand over each layer. Do not store beets mixed with other vegetables (potatoes are an exception), this leads to mold. ^[eight]

Beet is a world-famous vegetable, industrial and fodder crop, which is also a low-calorie product that stands out among other vegetable plants with a high level of sugars contained in it and a relatively high level of carbohydrates. Beets are rich in antioxidants, have exceptional nutritional value and, due to their properties, are invaluable in terms of medical and dietary nutrition.

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[An extended HTML version of the article](#) is available on the edaplus.info website.

Beet - useful properties, composition and contraindications

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