

The healing properties of cereals

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SUMMARY

The article presents materials on the medicinal use of some grain plants. Rational use of cereal dishes in nutrition, which can be prepared from the fruits of these plants, can provide real help in treating patients with various diseases, as well as avoid complications from their use. For each plant - sowing buckwheat (*Fagopyrum sagittatum* Gilib. = *F. esculentum* Moench.), Sowing oats (*Avena sativa* L.), sowing millet (*Panicum miliaceum* L.), sowing rice (*Oryza sativa* L.) and common barley (*Hordeum vulgare* L.) - provides information on the chemical composition and main types of action of the biologically active substances contained in them, ways of using them for food and medical purposes, and possible contraindications and restrictions on their use.

Key words: food plants, medicinal plants, medicinal food, buckwheat, oats, millet, rice, barley, contraindications to use.

In a series of publications (Traditional medicine No. 1, 2, 3, 4, 2008; No. 1, 2, 2009) materials were presented on the use of a number of food plants popular in our country with medicinal properties. This article is devoted to grain plants, the use of which is traditional for the inhabitants of Russia.

From the point of view of various traditional medical systems of the world, proper and nutritious nutrition based on a balanced intake of the main groups of nutrients and energy substances (proteins, fats and carbohydrates), vitamins, trace elements and biologically active compounds of other classes occupies a leading place among the methods of prevention and treatment of various diseases.

In Russia, for a long time, the main part of the diet was cereals, bread, flour jelly and other products from the grain of cultivated plants. Nowadays, it is generally accepted to consider such food rich in carbohydrates, if not harmful, then definitely not very healthy. However, upon closer examination, it turns out that practically all cereal products, if used correctly, can be part of a dietary and even medical nutrition. Cereal dishes are a natural and tasty saturation of the body with fiber, amino acids and vitamins, which are in them in therapeutic doses.

Methods for preparing cereal dishes in traditional Russian cuisine

are quite diverse: the modes of heat treatment of cereals change, the basis of cereals can be milk, water, fruit and vegetable juices. The use of grain in whole, crushed, ground form, various "fillers" and additives allow not only to diversify the taste of dishes, but also to vary their therapeutic effect. Vegetable oils (sunflower, hemp, linseed, nut, poppy, etc.) and spices - most often onions and garlic, and in very large quantities, as well as parsley, anise, coriander, black pepper and cloves - were used with cereals. Some cereal dishes, on the contrary, were prepared sweet, it was customary to add dried apples, raisins, etc. to them. Recently, the so-called "muesli" - mixtures of pre-processed cereals with the addition of fruits and nuts that do not require a long time - have become popular as a component of diets. cooking, and the so-called "quick" porridge. Unfortunately, both those and others do not stand comparison with classic homemade cereals and other cereal dishes, either in terms of nutritional value, or in terms of therapeutic and prophylactic effect. In this article, we provide brief information about some cereal crops. Plants are listed alphabetically. More complete information about each of the objects in terms of the botanical characteristics of plants, non-food ways of their use is presented by us in the monograph "The medicinal properties of food plants" (Moscow: Publishing house FNEC TMPL Roszdrav, 2008, 533 p.). In this article, we provide brief information about some cereal crops. Plants are listed alphabetically. More complete information about each of the objects in terms of the botanical characteristics of plants, non-food ways of their use is presented by us in the monograph "The medicinal properties of food plants" (Moscow: Publishing house FNEC TMPL Roszdrav, 2008, 533 p.). In this article, we provide brief information about some cereal crops. Plants are listed alphabetically. More complete information about each of the objects in terms of the botanical characteristics of plants, non-food ways of their use is presented by us in the monograph "The medicinal properties of food plants" (Moscow: Publishing house FNEC TMPL Roszdrav, 2008, 533 p.).

Sowing buckthorn

Fagopyrum sagittatum Gilib. (*F. esculentum* Moench.)

Dried buckwheat fruits are used as a food product and for medicinal purposes (raw materials are unofficially in the Russian Federation); for medicinal purposes - fresh and dried flowering shoots, flowers and leaves of the plant (as a source of the flavonoid glycoside rutin). Rutin is approved for medical use on the territory of the Russian Federation as an angioprotective agent [7, 17].

Buckwheat fruits contain [8, 14, 25]:

- from 8 to 20% of easily digestible protein substances with a high content amino acids such as lysine, arginine, tryptophan;
- carbohydrates: fiber, starch, sugar;
- fats;
- vitamins B1, B2, P, PP;
- flavonoids: rutin, etc.;
- organic acids: citric, malic, oxalic;
- minerals: salts of iron, calcium, phosphorus, etc.

Flowering shoots contain many polyphenolic compounds and their glycosides, which includes:

- flavonoids: up to 2.5% of the flavonol glycoside rutin, etc.;
- anthocyanins;
- oxycinnamic acids: chlorogenic;
- phenolic acids: gallic, protocatechuic, coffee.

Phagopyrin was isolated from flowers.



Rice. 1. Sowing buckwheat (*Fagopyrum sagittatum* Gilib. = *F. esculentum* Moench.), Fam. buckwheat - Polygonaceae

From buckwheat grain, cereal is obtained (kernel - whole grains, through - crushed, Smolensk - very finely crushed grains), which is eaten in the form of porridge. The groats are also ground into flour used in the confectionery industry and in home cooking for baking pancakes, pancakes, tortillas, cookies.

Buckwheat takes one of the first places among other cereal crops in terms of nutritional value, therapeutic, dietary and taste qualities. It is important that buckwheat fats are highly resistant to oxidation, due to which buckwheat can be stored for a long time without reducing its nutritional and taste qualities [11, 14, 21].

Proteins of buckwheat FRUIT by the amount of valuable amino acids are close to animal products and are easily absorbed by the body. Therefore, the so-called "buckwheat" (plant grains), which also contains a lot of calcium, iron, phosphorus, vitamins B1 and B2 and other vital biologically active substances, is a valuable dietary product [3, 4, 6, 8, 9, 11, 14, 19, 21, 24].

Porridge made from buckwheat is included in the menu of patients suffering from obesity, diabetes mellitus, iron deficiency anemia, disorders of the nervous system, diseases of the kidneys and the gastrointestinal tract, in general strengthening and many other diets. Regular

the use of buckwheat porridge lowers the level of cholesterol and total lipids in the blood to normal, prevents the development of atherosclerosis, prevents fatty degeneration of the liver.

The nucleus and prodel, which are rich in fiber, regulate intestinal motility, are useful for atony and stubborn, difficult to treat constipation. Smolensk groats have a more gentle effect on the gastrointestinal tract; it is recommended for patients suffering from gastric ulcer, gastritis, diseases of the intestines, liver and biliary tract.

In folk medicine, buckwheat flour is used externally in the form of a poultice and ointments for skin diseases [8, 9, 21].

Buckwheat runners, mown during flowering, are a raw material for the industrial production of the flavonoid rutin, which is an official drug. Rutin is prescribed for the treatment of vitamin deficiencies R and C; in diseases accompanied by impaired vascular permeability (hemorrhagic diathesis): hemorrhages in the retina, to prevent hemorrhages in certain infectious diseases (including measles, scarlet fever, typhus), septic endocarditis, capillarotoxicosis, rheumatoid urinary tractitis, rheumatoiditis, rheumatoiditis, hypertension and radiation diseases, as well as for the prevention and treatment of capillary lesions associated with the use of anticoagulants and salicylates [3, 4, 7, 8, 11, 17, 19, 21, 24].

Rutin passes from all parts of the plant not only into alcoholic, but also into water extracts, that is, into tea and infusion. Therefore, in traditional medicine, tea made from dried FLOWERS, leaves or buckwheat grass is recommended as a prophylactic agent for atherosclerosis, especially against a background of increased blood pressure and increased capillary fragility. Flower tea also prescribed for dry cough as an expectorant, mucolytic funds [3, 4, 8, 9, 11, 14, 21, 24].

According to traditional medicine, the infusion of FLOWERING BUCKET SHOOTS helps with leukemia; infusions of flowers and leaves of a plant (inside and outside) are used for skin cancer [1, 10, 18, 23].

The washed and dried fresh juicy LEAVES of buckwheat, folded leaf to leaf in a thick layer, are applied to purulent wounds and boils.

BUNCH HONEY possesses special healing properties. Usually it is dark yellow or dark brown in color, has a delicate taste and an unusually pleasant aroma, by which it is easy to distinguish it from other varieties. This honey is recommended for use in food for cardiovascular diseases and iron deficiency anemia [6].

However, ingestion of fresh leaves and flowers can be dangerous, as there is evidence of their toxicity. There is evidence in the literature that when animals eat large quantities of fresh and dried flowers of buckwheat, hay, seeds and even straw, a whole series of rather strange phenomena is observed, reminiscent of the effect produced by hemp on humans. Moreover, the seeds are the least dangerous, and when cooked, they generally lose these properties. The blooming tops are the most dangerous. The active compound that causes these phenomena has not yet been discovered and investigated [13,

fourteen]. Infusions and tinctures from the aboveground part of buckwheat are contraindicated in thrombophilia [24].

SEEDING OATS

Avena sativa L.

Dried oat seeds (grain) are used as a food product and for medicinal purposes; only for medicinal purposes - oat straw (stems remaining after threshing grain) (raw material is unofficial in the Russian Federation).

On the territory of Russia, the medical use of dried herb of sowing oats (mowed in the phase of milk ripeness) is allowed as a general tonic [7].

Oat grain contains [2, 11, 24]:

- carbohydrates: starch, mucus;
- proteins;
- free amino acids;
- fats, consisting mainly of unsaturated fatty acids;
- vitamins: group B;
- vitamin-like compound choline;
- sterols: sitosterol.

Found in oat grass:

- flavonoids: derivatives of apigenin, luteolin, triclin;
- polysaccharides, including avenarin, avenin, avenalin;
- vitamins: C, PP, folic acid, biotin (vitamin H);
- vitamin-like compound choline;
- organic acids: malic, citric, oxalic, aconitic;
- sterols: stigmasterol, sitosterol;
- steroid sponins;
- hypoxanthine, guanine;
- macro- and microelements: potassium, silicon, magnesium, phosphorus, iron, manganese, zinc, copper, etc.

Oat grain is used for the preparation of oatmeal, flakes, oatmeal (oat flour). Oatmeal porridge, soups, traditional Russian oatmeal jelly are widely used in baby and diet food.



Rice. 2. Sowing oats (*Avena sativa* L.), fam. cereals (bluegrass) - Poaceae (Gramineae)

The optimal percentage of carbohydrates, easily digestible fats, proteins and vitamins in GRAIN makes it possible to recommend it for asthenia, during the recovery period after severe infectious diseases, as well as for hepatitis, diabetes mellitus, gout, obesity, tuberculosis. The mucus contained in the seeds protects the mucous membrane of the gastrointestinal tract, and has an anti-inflammatory effect. Therefore, oat dishes are recommended for patients with diseases of the gastrointestinal tract (gastritis, enterocolitis, gastric ulcer and duodenal ulcer) [2, 11, 14, 24].

Oatmeal is included in the diet of cancer patients, especially with pathology of the digestive tract, during chemotherapy and in the postoperative period [12]. Oats should be included in the diets of patients with pathologynervous system, intestinal atony, heart rhythm disturbances, because a complex of B vitamins (especially B1) helps to improve the trophism of the nervous tissue.

Oats and their products are widely used internally and externally in dermatological practice to maintain normal skin condition. Due to the content of vitamin B3 and some other components in grains, positive results have been noted in the treatment of various dermatitis, including in children. It is especially interesting that none of the sources studied by us indicates contraindications to the use of oat grains.

The Oat GRASS approved for medical use is especially rich in active ingredients in the phenophase of milk maturity. Water and alcohol

extracts from the herb have a general tonic effect, during the course of treatment they increase physical performance and endurance, increase motor activity, exhibit stress-protective and antihypoxic properties. They are prescribed for asthenia, during the period of convalescence after infectious and other diseases, as well as during work associated with great physical and mental stress. The herb infusion is used for the prevention and in the complex treatment of atherosclerosis [7, 15, 24].

OAT STRAW and groats in folk medicine think antineoplastic agents [12].

A decoction of grains with honey is taken for hyperthyroidism, including thyrotoxicosis, a decoction of oat straw is taken as a hypoglycemic agent [19, 24].

Obviously, water and alcohol extracts from oat grass, which have a pronounced tonic effect, are contraindicated in acute cardiac and renal failure [7, 17].

PROSO SOWING

Panicum miliaceum L.

Dried millet seeds are used as a food product and for medicinal purposes (raw materials are unofficial in the Russian Federation). Millet seeds (millet) contain [5, 14]:

- carbohydrates: starch, sugar, a lot of fiber;
- proteins;
- free amino acids;
- fats;
- vitamins: P (bioflavonoids), PP, pantothenic acid, carotene;
- minerals: a lot of potassium, copper, nickel, manganese, zinc, etc.



Rice. 3. Seeding millet (*Panicum miliaceum* L.), fam. cereals (bluegrass) - Poaceae (Gramineae)

The groats obtained from millet caryopses (for this they destroy the flower scales and separate them from the caryopses) is called "millet". Loose millet porridge is widely known and is a traditional dish of Russian cuisine. The protein content in millet is the same as in corn and semolina; in amino acid composition, it is inferior to buckwheat proteins. Millet compares favorably with oat, barley and buckwheat with a high fiber content. However, in medical nutrition, this cereal is rarely used, because the fats in it are oxidized rather quickly and millet acquires a bitter taste.

Millet porridge is sometimes included in food for diseases of the heartvascular system, which is associated with the high content of potassium in cereals, which has great importance for the activity of the heart muscle [5, 11, 14].

Millet is used in a diet for violations of liver function due to its lipotropic effect, as well as for anemia in order to stimulate hematopoiesis. In traditional medicine recipes, millet porridge is referred to as a product that helps with night blindness, since it contains a lot of provitamin A. In case of anemia, it is recommended to add pumpkin to the porridge [5, 11, 14].

Millet is not recommended to be included in the diet of patients with duodenal ulcer due to the presence of a large amount of fiber. The use of millet in the diet of such patients is possible only in the form of flour [11].

SEED RICE

Oryza sativa L.

Dried seeds (grain) of sowing rice are used as a food product and for medicinal purposes (raw materials are unofficially in the Russian Federation). Rice seeds are one of the official sources of starch production [7].

Rice grain contains [8]:

- carbohydrates: starch, mucus, etc.;
- proteins;
- free amino acids;
- fats;
- vitamins: mainly group B (B1, B2, B6, pantothenic acid), E, biotin (vitamin H), F;
- minerals: potassium, iron, etc.

For human nutrition, rice is of great importance. In many densely populated areas of the globe, it is the main, and sometimes the only food product and, therefore, finds a wide variety of applications [20].



Rice. 4. Sowing rice (*Oryza sativa* L.), fam. Cereals (bluegrass) - Poaceae (Gramineae)

From processed rice grains - rice groats - many different dishes are prepared, often with the addition of spices and herbs: porridge, pilaf, casseroles, soups, etc. In the East, rice is considered an indispensable attribute of every day of life, every meal. It is known that the consumption of rice in Asia is about 150 kg per person per year [5, 8, 11, 20].

High quality starch is obtained from grain, which is used in the pharmaceutical industry as a filler in the manufacture of tablets and dragees [7]. Rice protein has good nutritional qualities and contains essential amino acids (valine, lysine, methionine). Due to its high energy value and easy digestibility, rice dishes are especially useful for children and weakened people. Rice is considered a cleansing and metabolism-normalizing food product. The method is also widely known treatment of gout, osteochondrosis, arthritis, rheumatism with a diet based on the use of unpolished rice for cooking.

In China, rice bran is used to treat beriberi disease (vitamin B1 deficiency). The seeds of the plant themselves do not have an astringent effect, but mucous decoctions from them and rice starch inhibit intestinal motility, therefore they are given for gastrointestinal disorders accompanied by diarrhea. Because of this property, you should not eat rice porridge for constipation [5, 8, 11].

In domestic traditional medicine, slimy rice broth finds use in diseases of the upper respiratory tract as an emollient and anti-inflammatory agent [5, 11].

STANDARD BARLEY

Hordeum vulgare L.

Dried barley seeds are used as a food product and for medicinal purposes, and green shoots of a plant are used as a medicinal product (raw materials are unofficial in the Russian Federation).

Mature grains contain [5, 8, 22, 24]:

- carbohydrates, including fiber and starch;
- proteins;
- fats;
- vitamins: groups B, E, A;
- enzymes.

In green shoots of barley, the following were found [22, 24]:

- carbohydrates: sugars, fiber;
- proteins;
- vitamins: β -carotene, C, E, K1, B12;
- enzymes;
- chlorophyll;

- minerals: iron, calcium, copper, manganese, zinc, etc. Barley grains, peeled from the husk, are processed into cereals - barley and pearl barley, as well as flour. A coffee surrogate or additives to natural coffee, some types of kvass are prepared from the beans. Barley flour (up to 25%) is added to rye and wheat flour when baking various types of bread (bread is not baked from pure rye flour - it crumbles and quickly becomes stale) [8, 20].



Rice. 5. Common barley (*Hordeum vulgare* L.), fam. cereals (bluegrass) -
Poaceae (Gramineae)

BARLEY Porridge and SOUPS are indicated for overweight persons. The expediency of their use is determined by the high content of fiber, which is practically not absorbed, but serves as a natural stimulator of intestinal motility, enhancing its peristalsis.

Barley diets are effective for pyoderma, psoriasis and eczema due to the presence of fat-soluble vitamins in the grain: carotenoids and tocopherol in an easily assimilated form in an optimal ratio. For many skin diseases, treatment is supplemented by the external application of a decoction of grain in the form of baths [2, 5, 8, 24].

BARLEY COFFEE with chicory is used in the medical nutrition of patients with diabetes mellitus [19, 24].

In traditional medicine, decoctions of coarsely ground BARLEY FLOUR used as an expectorant, emollient and anti-inflammatory remedy for colds.

According to the literature data, in the experiment, alcoholic extracts from barley seeds inhibit the growth and development of tumors. A slimy decoction of barley grains is used as an enveloping and anti-inflammatory agent for gastritis with high acidity, chronic colitis and other diseases of the gastrointestinal tract [2, 5, 24].

A decoction of barley is especially useful after suffering heavy

diseases: due to the high content of B vitamins, it possesses fortifying effect and has a beneficial effect on the functional state of the nervous system.

Aqueous infusion of BARLEY MALT also has a softening, enveloping and anti-inflammatory effect and tones up the nervous system. The malt drink is used for gastritis, hemorrhoids, cystitis, urethritis and urolithiasis. In folk medicine, YOUNG RUNS of barley, as well as the shoots of sowing oats, are considered high-vitamin, stimulating and tonic [5, 8, 24].

There are some negative consequences of eating barley. Barley contributes to an increase in gas formation in the intestines, so it is undesirable to eat dishes from it with a tendency to flatulence. Barley and its processed products, when eaten in large quantities, somewhat weaken the libido [16].

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