The medicinal properties of some garden plants of the legume family T.L. Kiseleva, Yu.A. Smirnova, E.V. Tsvetaeva, M.A. Dronova (NO "Professional Association of Natural Therapists", Moscow)

SUMMARY

The article presents materials on the medicinal use of some plants of the legume family - Fabaceae (Leguminosae), traditionally cultivated in central Russia. The correct use of these fruits in nutrition can provide real help in the treatment of patients with various diseases, as well as avoid complications from their use. For every plant: beans - Faba bona Medic. (Vicia faba L.), peas - Pisum sativum L., common beans - Phaseolus vulgaris L. and edible lentils (including cultural) - Lens culinaris Medic. (L. esculenta Moench) - provides information on the chemical composition and main types of action of biologically active substances contained in its fruits, ways of using for food and medical purposes and possible contraindications and restrictions on their use.

Key words: food plants, medicinal plants, beans, peasseed, common beans, food lentils, therapeutic effect, contraindications.

In a series of publications (Traditional medicine No. 1, 2, 3, 4 - 2008, No. 1, 2, 3 - 2009) materials on the medicinal use of food plants known in our country were presented. In this article, we bring to your attention data on some plants of the legume family - Fabaceae (Leguminosae), which are extremely popular in our country, are widely grown on personal plots in central Russia, or end up on the table of Russians from the trading network. More than 60 types of legumes belonging to 17 genera are cultivated in the world agricultural production. Various parts of these plants are used as components of salads, cereals, soups are cooked from them, they can serve as an important component of lean and medical nutrition. In the seeds, as well as in the vegetative organs of almost all members of the legume family, a much larger amount of nutritious and well-assimilated plant proteins is accumulated than in any other agricultural crops [8, 14]. Due to their nutritional value, legumes are globally recognized as part of the "healthy diet" and are at one of the leading places in the development of modern food technologies. It is now obvious that in the near future the human diet will be improved due to the wider use of foods rich in vegetable protein [3]. The high protein content is associated with some features of legumes: they are able to enter into symbiosis with nitrogen-fixing (assimilating free nitrogen from the air) nodule bacteria and use the nitrogen bound by them to create and accumulate protein substances [14]. At the same time, proteins of legumes

are characterized by the best amino acid composition among plant products, their digestibility is up to 80%. In addition, the seeds of plants of the legume family contain many valuable minerals: in terms of iron content (6–8 mg%), they occupy one of the first places among animals and plant products. Legumes are relatively high in fiber (5–10%), which complicates their culinary processing and lengthens the digestion time in the gastrointestinal tract.

Leguminous plants are attracting more and more attention of doctors, since they are sources of vitamins, in particular, groups B, A, E, D, alkaloids, lectins, phytosteroids, and minerals. Their invaluable role in the prevention of diabetes mellitus and in the nutrition of diabetic patients has been shown, and for some substances of seeds of legumes, hypocholesterolemic, anticarcinogenic and immunomodulatory types of action have been confirmed. In this article, we provide brief information about some legumes that are often eaten in central Russia. As usual, the plants are listed alphabetically. More complete information about each of the objects in terms of the botanical characteristics of plants, nonfood ways of their use is presented by us in the monograph "The medicinal properties of food plants" (Moscow: Publishing House of FNEC TMDL Roszdrav, 2008. - 533 p.).

BEANS

Faba bona Medic. (Vicia faba L.)

Fresh green beans (pods), fresh, dried and processed seeds (beans), dried grass (raw material unofficially in the Russian Federation) are used as a food product and for medicinal purposes.

The unripe seeds of beans contain: carbohydrates (50-60%) - mainly starch and 3-6% fiber; proteins (32–37%) and free amino acids; enzymes; organic acids; fats; vitamins: carotene, ascorbic acid, groups B, E; purines; minerals: potassium salts, phosphorus, etc. [6, 8, 9, 14, 15, 21].

In Central Europe, in the days before the spread of potatoes, legumes were the staple food for the population. Until now, this plant is very popular in the Mediterranean countries, where dishes from it are used as daily food. Beans have long been known in our country. Green beans ("pods") are used as vegetables, canned, boiled or stewed.





The seeds can be eaten fresh, for this the beans are harvested in a state of "milky ripeness". Ripe dried seeds are used boiled; flour from them is mixed with wheat during baking. Beans are highly nutritious due to the presence of carbohydrates (starch) and protein substances. The content of plant proteins in unripe beans is higher than in peas and beans. That is why beans are indispensable in the diet of vegetarians [9, 14, 15, 18, 21].

The SEEDS, along with proteins and free amino acids, contain vitamins, numerous macro- and microelements, therefore they are useful for exhaustion, purulent-destructive processes in the lungs,tuberculosis. The energy value of beans is largely related to the highthe content of phosphorus (an important component of the main energy compound in human cells - ATP) in an assimilable form [19].

Plant seeds are introduced into the diet of the dietary table for diseasesliver, kidney and intestines. They are useful for senile atonic constipation, since the seeds contain a lot of fiber, which enhances intestinal motility.

Fiber and phytin improve the elimination of toxicsubstances, including salts of heavy metals. Therefore, people living in

ecologically unfavorable areas, it is especially recommended to include them in your diet.

The seeds contain substances that have a hypoglycemic effect; therefore, they are recommended to be consumed in the early stages of diabetes mellitus [12]. In folk medicine, mashed boiled beans or a decoction of them are used as an astringent and anti-inflammatory agent for diarrhea [13, 17]. A decoction of HERBS and SEEDS in many countries is considered a good diureticmeans.

Boiled in milk, mashed or pounded seeds or flour from them, mixed with honey, is applied to boils to accelerate their maturation and healing [6, 8, 9, 13, 14, 21].

However, beans contain a significant amount of purine compounds, so they are contraindicated for gout, urolithiasis, presenceurate in urine, pyelonephritis. It is not recommended to use seeds for acute diseases of the gastrointestinal tract, since seeds cause an increasegas formation in the intestine. It is undesirable to use beans in large quantities in the diet in case of circulatory insufficiency [6, 12, 13, 21].

SEEDING PEAS

Pisum sativum L.

Fresh, dried and processed seeds are used as a food product and medicinal raw material (raw materials are unofficially in the Russian Federation). In fresh green pea seeds contain: carbohydrates: starch, sugars, fiber;free amino acids; a protein containing the amino acids tyrosine, cystine, methionine, lysine, tryptophan, glutamic acid, etc .; vitamins: B1, B2, B6, C, PP, folic acid, carotene, E; vitamin-like compounds: choline, inositol; fats; phospholipids: lecithin; substances with insulin-like action (glycokinins); minerals: iron, iodine, potassium, phosphorus, manganese, cobalt, silicon, etc. Dried seeds contain from 25 to 60% starch and 20– 35% protein [5, 7, 14, 15, 19, 21].





In all countries located in zones with a temperate climate, seed peas - the most important leguminous culture for human nutrition. In Russia, peas have been and remain the main legume crop. Young peas are eaten fresh during the period of the highest sugar content, and the seeds have a delicate mealy pulp. Sometimes young peas (beans) are eaten whole, together with the valves [5, 14]. The seeds of vegetable varieties of peas are canned and also kept fresh frozen. In addition, peas are dried and cooked in the form of soups, mashed potatoes and cereals. Boiled peas have a good taste, the seeds are rich in protein, which contains essential amino acids. In the East, pea flour is mixed with flour from cereal grains and bread is baked [5, 14, 15]. Pea SEEDS are traditionally used in diabetic cuisine. Its use is especially useful in the initial stages of diabetes mellitus, sinceit contains substances that have an insulin-like effect andlowering blood glucose levels. It is also important that the seeds contain mainly fructose sugars, which the body absorbs without the participation of insulin.

It has now been shown that in addition to vitamins, mineral salts and fiber, pea seeds contain free amino acids and protein substances with a high concentration of essential amino acids that are closest to animal proteins in chemical composition and physiological properties. Therefore, products prepared on the basis of peas are considered useful for anemia, exhaustion,muscular dystrophy and loss of strength, constipation and a number of internal diseasesorgans [5, 7, 15, 21].

Peas contain vitamin-like compounds inositol and choline, which are active anti-atherosclerotic substances, which can be used for the prevention and complex treatment of atherosclerosis. Glutamic acid found in seeds also helps to prevent atherosclerosis of cerebral vessels.

Glutamic acid belongs to the so-called neurotransmitter amino acids that stimulate the transmission of excitation in the synapses of the central nervous system. Therefore, it is advisable to include peas in the diet of patients with symptoms of exhaustion, depression in reactive states, psychosis, epilepsy.

In folk medicine, a decoction of pea seeds is taken as a diuretican agent that helps dissolve kidney stones. Pea flourused externally for the preparation of poultices for furunculosis. Decoctions from the aerial part of the plant or fruit valves are used to treat weeping skin rashes. Gruel from unripe (green) pea seeds in pure form and mixed with egg white or gruel from pea flour is recommended to be applied topically to treat bruises and bruises [5, 7, 9, 12, 13, 15, 18, 19].

There is evidence that when ingested in large quantities, even in practically healthy people, peas cause bloating and flatulence. Moreover, it is undesirable to eat it in case of acute diseases of the stomach and intestines, a tendency to increased gas production. Adding a decoction of seeds or fresh dill to the diet prevents or reduces this negative effect. Also, you shouldn't drink cold water after eating peas. Peas are undesirable to use in significant quantities whengout and urolithiasis due to the high content of purines in the seeds [6, 13, 15].

BEANS

Phaseolus vulgaris L.

Fresh and dried seeds, fresh and processed unripe pods are used as a food product and medicinal raw material (raw materials are unofficial in the Russian Federation). Dried shutters of fruits of varieties with pale yellow and yellow color of beans are allowed for medical use on the territory of Russia [4, 20].



Rice. 3. Common beans -Phaseolus vulgaris L .; legume family -Fabaceae.

Dried seeds contain: proteins (24-30%) and free amino acids; carbohydrates: sugars, polysaccharides (inulin, starch); vitamins: C, carotene, B1, B2, B6, E, PP, pantothenic, folic acid; enzymes; organic acids: malic, citric, malonic, etc.; phytosterols: β and γ -sitosterol, sitosterones, stigmasterol; vitamin-like compounds: choline, betaine; polyphenolic compounds; minerals, incl. a lot of potassium and iodine. In green beans, the ratio of sodium to potassium is close to optimal (1: 150). In the shells of bean fruits, the following were found: flavonoids; phytosterols; triterpene glycosides; the vitamin-like compound choline; proteins and free amino acids [2, 5, 6, 10, 12, 22].

Bean beans contain substances that reduce blood glucose and have insulinlike activity: the amino acid arginine, biguanidine-like substances, etc. [12].

Boiled or stewed ripe bean seeds, as well as unripe pods are used as a side dish for meat or as an independent vegetable dish, for making soups, mashed potatoes, canned food, etc. Unripe pods are frozen and canned. Unripe seeds are eaten fresh. In many Asian countries they growPhaseolus aureus Roxb. (golden beans, or mung bean), byits properties are similar to ordinary beans. Mash is now on sale in Russia. V food is used by its ripe boiled seeds, and flour is indispensable for the preparation of traditional national Chinese and Indian dishes [5, 14].

Beans are a high-protein food crop. Its vegetable proteins are similar in composition to animals and are easily digested. Nutritious meals made from ripe beans are recommended in the diet for anemia, tuberculosis, purulent-destructive diseases of the lungs, injuries of the musculoskeletal system. BEAN SEEDS contain enzymes that enhance the secretiongastric juice. Therefore, mashed potatoes from them are successfully used to treatgastritis with low acidity.

The presence of vitamins, especially vitamin E, make beans indispensable for middle-aged and older people. With its regular use (both in the form of various dishes and externally - in the form of cosmetic masks from boiled seeds), the skin of the face becomes smooth and elastic, fine wrinkles are smoothed out [6].

Beans are rich in potassium and other minerals; they are used in dietary nutrition for atherosclerosis and cardiac arrhythmias [22]. The seeds contain a lot of iodine, which is necessary for the normal functioning of the thyroid gland. The use of GREEN Pods and SEEDS of beans in food contributes to the normalization of metabolism, weight loss. This effect is also associated with the presence of betaine, choline, amino acids tyrosine, leucine, lysine, tryptophan in fruits, which regulate metabolism and protein synthesis. Bean flour made from roasted and crushed seeds hasanti-inflammatory effect. It is used externally in folk medicine.for the treatment of bedsores, purulent wounds, diaper rash in children.

Bean FRUITS have long been used in medical practice as a remedy. Their teas are known as a mild diuretic, preventing the formation of kidney stones and making them easier to pass. The diuretic effect is clinically confirmed. In folk medicine, "tea" (infusion) from bean flaps is used for urinary retention, edema, rheumatism, gout, eczema (neurodermatitis) and other skin diseases [9, 15].

Some substances contained in the bean shells (triterpene glycosides, etc.) contribute to the normalization of metabolism. It is knowncholeretic effect of a decoction of beans, which is used incomplex treatment of biliary dyskinesias.

Due to the content of substances with insulin-like activity (for example, the amino acids arginine, biguanine-like or insulin-like substances), decoctions and extracts from bean leafs significantly reduce blood glucose levels. In clinical studies, the drop in glucose levels after a course of treatment reached 30–40%. This type of medicinal plant material is widely used for mild and moderate forms of diabetes mellitus.Type II. The shells of fruits of varieties with pale yellow and yellow beans are included inthe composition of the antidiabetic collection "Arfazetin". The most effective is the use of beans in combination with blueberry leaves [1, 2, 5, 8, 12, 16–19, 22].

It is known that the seeds of some plant varieties (usually with bright

flowers) are slightly poisonous in their raw state. Beans, like other legumes, take a long time to digest, increasing the formation of gases in the intestines. Therefore, its excessive use leads to flatulence, sleep disturbance. Beans are contraindicated inpeptic ulcer and 12 duodenal ulcer in the acute stage [5, 6, 13].

FOOD LENTILS (C. CULTURAL)

Lens culinaris Medic. (L. esculenta Moench)

For food and medical purposes, dried and processed seeds, fresh and dried grass, flowers, roots are used (raw materials are unofficial in the Russian Federation). Vlentil seeds contain: protein (on average 30.4%) and free amino acids; fat; carbohydrates: fiber, starch; mineral substances [5].

A nutritious soup (lentil stew) is prepared from mature lentil seeds, sometimes they are stewed and used as a side dish. In southern countries and the East, lentil flour and flour obtained from the seeds of other legumes are mixed with flour from which bread is baked, and young lentils (beans) are sometimes eaten as vegetables. In terms of protein content, the seeds of the plant are superior to peas, chickpeas, ranch and beans. Large-seed lentils are especially appreciated [5, 11, 14].



Rice. 4. Edible lentils (including cultural) -Lens culinaris Medic. (L. esculenta Moench);

legume family - Fabaceae.

For many centuries, the SEEDS of this plant in various countries were considered a universal medicine for all diseases, endowed them with supernatural properties. Seeds rubbed with water were prescribed for kidney diseases, cystitis as an anti-inflammatory and diuretic, to stimulate lactation in nursing mothers.

Poultices were made from FLOWERS to accelerate the consolidation of bone fragments in fractures, steamed HERB or flour from seeds was applied to festering, difficult-to-heal wounds and to joints in case of rheumatism.

Fresh juice from the herb was given for diseases of the gastrointestinalpath, and water decoctions of ROOTS - in case of metabolic disorders, anemias, diseases of the nervous system.

By modern standards, the medicinal properties attributed to lentils are greatly exaggerated. But even today, dishes made from it, rich in proteins, starch and other useful substances, can have a beneficial effect, especially on patients who have had severe and long-term illnesses [5, 11, 14]. However, lentils, like other legumes, have some restrictions on their use: it takes a long time to digest and increases the formation of gases in the intestines.

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