

The medicinal properties of the fruits of domestic stone fruit crops  
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#### SUMMARY

The article summarizes information about the fruits of some stone fruits of the Rosaceae family that grow in Russia and are traditionally used in Russian and other national cuisines in the territory of the former USSR. 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 each plant: cultivated cherry plum (*Prunus cerasifera* Ehrh.), Common cherry (*Cerasus vulgaris* Mill.), Common peach (*Persica vulgaris* Mill.), Domestic plum (*Prunus domestica* L.) and sweet cherry (*Cerasus avium* (L.) Moench) provides information on the chemical composition and main types of action of biologically active substances contained in its fruits,

Key words: food plants, stone fruits, fruits, fruits, cherry plum, cherry, peach, plum, sweet cherry, contraindications for use.

The concept of "fruit" is so firmly embedded in the everyday lexicon that it is difficult to give it an exhaustive definition. We usually consider juicy, often sweet and fragrant fruits, compound fruits, false fruits of trees, shrubs and some herbaceous plants growing above the ground as fruit. In temperate countries, they ripen in summer and fall and are an essential part of a healthy diet. The peculiarity of these fruits is that they can and is useful to be eaten raw. At the same time, a native complex of biologically active substances, which has a high bioavailability and has a mild regulatory effect, enters the body into food.

The existing classifications of fruits, for example, their division into stone fruit, pome fruit, berry crops, are not botanically correct and are of practical importance from the point of view of the peculiarities of cultivation, collection and storage. Individual botanical families include the main percentage of plant species that give humans fruits in their usual sense. This publication is devoted to the so-called stone fruit crops belonging to the family Rosaceae (Rosaceae) and the most abundant in the diet residents of our country. Earlier we published an article dedicated to one of the representatives of stone fruit crops - common apricot (*Armeniaca vulgaris* Lam.) [eight].

Plants are listed alphabetically in this publication. 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" [11].

## CULTURAL CHARCOAL

*Prunus cerasifera* Ehrh.

The domestication of cherry plum took place long before our era. Cherry plum originated from the wild spreading plum (*Prunus divaricata* Ledeb.), widespread in the Caucasus, in Asia Minor and Central. Gradually, the cultivated cherry plum went far beyond the natural range of its wild-growing ancestor. It is currently cultivated in many countries; in Russia, the main area of cherry plum cultivation is Kuban. Adult cherry plum plants (aged 10 years or more) yield up to 80–110 kg, the best varieties yield up to 300 kg [4, 24].

Fresh, dried and processed fruits are used as food products and medicinal raw materials (raw materials are unofficially in the Russian Federation) [6].

The quantitative composition of biologically active substances in the pulp of fruits varies significantly depending on the variety and place of growth. Fresh cherry plum fruits contain [7, 9, 10, 12, 24]:

- carbohydrates: 2.0-14.0% sugars (fructose - 1.2-1.4%, glucose - up to 2%, sucrose - 0.9–6.0%), about 1% of pectin substances, 0.5% of fiber;
- organic acids (up to 4%), mainly malic and citric;
- vitamins: C (up to 14-17 mg%), B1, B2, carotene (0.16-2.80 mg%), PP;
- polyphenolic compounds: tannins, flavonoids, anthocyanins;
- nitrogenous substances;
- minerals: salts of potassium, calcium, magnesium, phosphorus, iron, etc. Depending on the ratio of sugars and acids, the fruits of different varieties of cherry plum have a sour or sweet-sour taste. They are almost never eaten fresh. Basically, cherry plum is used to make compote, preserves and jam, make marshmallows, marmalade, syrups, liqueurs; it is pickled and canned [9, 16].



Rice. 1. Cherry plum cultural (*Prunus cerasifera* Ehrh.); family of rosaceae -  
Rosaceae.

Due to the significant amount of pectin substances, cherry plum juice has a good gelling ability and forms a transparent golden jelly. Varieties with dark-colored fruits contain more pectin substances [9].

In Georgia, vitamin-rich plates are prepared from sun-dried cherry plum pulp, which are eaten with various dishes. They do not lose their taste and dietary qualities even during long-term storage, they serve as a preventive antiscorbutic agent. Traditional Caucasian unripe saucefruits ("tkemali") are used as a seasoning for various dishes, giving them a pleasant sour taste [9].

In folk medicine, cherry plum fruits have established themselves as good therapeutic and dietary remedy for cough and diseases of the nasopharynx. They have an expectorant and anti-inflammatory effect. Ripe cherry plum fruits are recommended to be added to the diet for the elderly and children to increase appetite (have a sokogonny effect due to the presence of organic acids), improving general well-being, the activity of the gastrointestinal tract. The acidic fruits of cherry plum stimulate the secretion of gastric juice, they are successfully used in an acid conditions (30–40 minutes before meals or 1 hour after meals), hypotonic biliary dyskinesia [7, 10, 15, 24].

For coughs and throat diseases, infusions and decoctions of cherry plum fruits are used [nine]. An infusion of dried fruits is used as a mild laxative remedies for constipation [eleven].

Lotions from the juice of the fruit of a plant diluted with water with a small amount of camphor have a wound healing effect [7, 9]. A compress made from mashed cherry plum fruits relieves pain and has an anti-inflammatory effect in case of burns [7].

Due to the high content of organic acids, it is undesirable to use the acidic fruits of cherry plum in food for hyperacid gastritis, ulcerative diseases of the stomach and duodenum [eleven].

#### ORDINARY CHERRY

*Cerasus vulgaris* Mill.

Does not occur in the wild.

It is a natural hybrid of sweet cherry (*Cerasus avium* (L.) Moench) with steppe cherry (*Cerasus fruticosus* Wormow). Now the cherry is widely cultivated in all countries of the temperate zone of the northern hemisphere and in Australia. The largest areas of its plantings are located on the territory of the former USSR. The main part of industrial plantings is concentrated in Moscow, Vladimir, Kursk, Belgorod, Kharkov, Volgograd and other regions. The yield reaches 80 kg of fruits from one tree, the average - 21 centners / ha [4, 10].

Fresh,

dried and processed fruits, fresh and dried seeds, leaves and stalks (raw material unofficially in the Russian Federation) [6].

Cherry fruits contain [5, 9, 23, 24]:

- carbohydrates: sugars (up to 15%) (glucose, fructose, sucrose), inositol, pectin substances (11%);
- organic acids: mainly malic and citric;
- polyphenolic compounds: anthocyanins (chrysanthemum, mecocyanin, antirinin, cyanidin and its glycosides, peonidin), leukoanthocyanins, catechins; flavonols; tannins (0.24%);
- coumarins (0.6-3.4 mg% depending on the variety): herniarin; oxycoumarins (magaleboside, umbelliferone);
- vitamins: carotene (0.30-0.55 mg%), C (5-20 mg%, in some varieties - up to 50 mg%), B1 (0.3-0.5 mg%), B2 (up to 0.1 mg%), PP and folic acid;
- nitrogenous and dyes;
- minerals: a significant amount of copper, iron, magnesium, potassium, etc.



Rice. 2. Common cherry (*Cerasus vulgaris* Mill.); family of Rosaceae - Rosaceae.

The seeds contain: fatty oil (25–35%); nitrogen compound - amygdalin glycoside; essential oil (0.016%). The leaves were found to contain organic acids (citric), amygdalin glycoside, polyphenolic compounds: tannins, flavonoids (quercetin), coumarins. Cherries are eaten fresh, dried and canned. Berries are added to desserts, ice cream, cocktails; they are used to decorate culinary products. Jam, compotes, jelly, syrups, extracts, tinctures, liqueurs, wines, fruit drinks are prepared from the fruits; make filling for pies and dumplings. Cherry syrup is used in the medical industry to improve the taste of drugs [9, 22, 24].

Part                    multivitamin complex FRUIT includes carotene, ascorbic, folic acids, vitamins of group B. They are in optimal combination with a significant amount of vital trace elements in an easily assimilated form, in particular, iron and copper, which participate in the processes of hematopoiesis. Therefore, cherry fruits are especially beneficial with anemia [9, 11].

The amount of folic acid in freshly ripe cherries is low (from 0.05 to 0.15 mg%). However, if the cherries are left on the tree for another 10-15 days, the folic acid content rises to 0.4-0.5 mg%, ie. to therapeutic concentration [5].

As a thirst quencher and a multivitamin, berries, natural juice and fruit drink are used for feverish conditions [9]. The low glucose content in fruits allows their use in nutrition for diabetes mellitus [11].

Fruits and cherry juice increase appetite. Cherries are valued as a dietary product, very useful for gastritis with low acidity [23].

Directions for using cherries for constipation as a mild laxatives are associated with the stimulation of the secretory activity of the glands gastrointestinal tract, improving intestinal motility. At the same time, biologically active substances of pulp and cherry juice (organic acids and pectin substances) have a pronounced antiseptic effect - they suppress the development of pathogenic intestinal flora, inhibit the processes of fermentation and decay. In addition, the antiseptic and expectorant properties of fruits and juice are used in inflammatory diseases of the respiratory tract [1, 5, 9, 13, 17, 22-24].

With high blood pressure, a decrease in the elasticity of blood vessels can lead to rupture and hemorrhage, including in the heart muscle, cerebral cortex and other organs. Polyphenolic compounds in fruits are quite active and effective

vaso-strengthening substances- anthocyanins, catechins, leucoanthocyanins, flavonols with P-vitamin activity. Therefore, cherries are very useful for hypertension and increased capillary fragility [11].

High blood clotting and a tendency to form blood clots are additional risk factors for cardiovascular disease. Coumarins, which are found in significant quantities in the fruits of some varieties of cherries, reduce blood clotting. Therefore, it is useful to eat cherries with an increase in blood clotting, fragility capillaries, for the prevention of heart attacks and strokes [9, 23].

With regular inclusion in the diet of berries, there is a moderate diuretic effect, while reducing the likelihood of developing edema. All this makes cherry fruits indispensable in the dietary nutrition of cardiac patients [5, 13, 15, 17, 22, 23].

Cherry fruits, syrup and juice from them, as well as a decoction of FRUITS contribute to the elimination of calculi with urolithiasis. In the folk medicine fresh cherry juice is recommended to drink daily throughout

seasons for some types of urolithiasis, gout, atherosclerosis [1, 5, 13, 15, 17, 22-24].

According to some reports, cherries have a calming effect on the nervous system and prevent seizures. In the 19th century, doctors prescribed a decoction of the fruit to patients for mental illness and epilepsy. It is likely that such use of cherries is to a certain extent justified: vitamins B1 and B2 were found in the fruits, which are used in the complex treatment of functional disorders of the central nervous system [9, 11].

According to American scientists, cherry fruits have pain relieving action. About Eating 20 sour berries a day can help relieve joint pain associated with arthritis and gout [23].

SEEDS, which are in the cherry pits, are poisonous (contain the glycoside amygdalin), but in small quantities in folk medicine they were recommended for gout and urolithiasis [11].

Cherry LEAVES are used for pickling and pickling cucumbers and other vegetables. Fresh crushed leaves containing a lot of tannins are considered a good hemostatic agent [11]. Sour cherry fruits are contraindicated in patients with hyperacid gastritis, stomach ulcers and 12- duodenal ulcer in the stage of exacerbation [23].

Poisoning may occur if a large quantity of pitted cherries or cherry jam cooked with pits has been stored for a long time. Cherry seeds contain the glycoside amygdalin (up to 0.85%), which decomposes in the intestine under the influence of intestinal bacteria with the formation of hydrocyanic acid and can cause poisoning [22, 23].

## PEACH REGULAR

*Persica vulgaris* Mill.

Currently, peaches are grown in all countries where climatic conditions allow it. In Russia, culture is possible in the North Caucasus and the Lower Volga region. By the nature of the fruit, real peaches are distinguished (the fruits are pubescent, the flesh is separated from the stone), pavia (the fruits are pubescent, the pulp is not separated from the stone), nectarines (the fruits are not pubescent, the pulp is separated from the stone), brunions (the fruits are not pubescent, the pulp is not separated from the stone) [4, 7, 21].

Fresh and processed fruits are used as food products and medicinal raw materials (raw materials are unofficially in the Russian Federation) [6].

The fruit pulp contains [1, 7, 9, 12, 17, 19]:

- carbohydrates: sugars (5-15%), sucrose and glucose prevail; pectin substances (0.6-1.3%), fiber (0.9%);
- organic acids (up to 0.8%): malic, citric, tartaric, cinchona, salicylic, chlorogenic;
- essential oil;
- vitamins: carotenoids (carotene - up to 2.85 mg%, and in varieties with yellow pulp - up to 5.5 mg%, cryptoxanthin, zeaxanthin), E (up to 8 mg%), groups B, C, folic acid (0.2-0.4 mg%), PP;

- flavonoids: catechins, leucoanthocyanins, etc. (up to 310 mg%);
- minerals: a lot of potassium salts (300-350 mg%) and iron, copper, manganese, strontium, etc.

Seed kernels contain up to 57% fatty oil; phytosterols (sitosterol), cyanogenic glycoside amygdalin; bitter almond essential oil.

Delicate aroma, juicy sweet pulp make peach one of the most attractive fruits. It is eaten raw, canned, jam is made from it, juices and compotes are prepared. The dietary and medicinal properties of this fruit are also high. Due to the significant amount of potassium, peaches and juice prepared from them are included in the diet of patients with cardiovascular diseases. Polyphenolic compounds of FRUIT have P-vitamin activity, which helps to improve the condition of the vascular wall [9, 12, 19].



Rice. 3. Common peach (*Persica vulgaris* Mill.); family of rosaceae - Rosaceae.

Organic acids and essential oil of the pulp of the fruit increase the secretion of the digestive glands and help to improve digestion, with regular use, the fruit prevents the appearance of constipation, so it is useful to use them as a dessert after meals [11, 18]. The alkaline reaction of fruit juice contributes to the maintenance of acid-base balance in the human body [18].

Due to the presence of easily digestible iron, peaches and peach juice are indispensable in the diet for iron deficiency anemia [11]. The complex of vitamins and trace elements contained in fruits improves the general condition of the body and increases resistance to colds [1, 3, 12, 17–20].

The fruits are recommended for atherosclerosis, gout, rheumatism, liver and kidney diseases (mild diuretic) [11]. Fatty OILS obtained from the seeds of peach and apricot are collectively known as “peach oil” [6, 14]. Peach oil is highly prized in the pharmaceutical industry. It serves as a solvent for some injectable medicines. It is also used for the preparation of liquid ointments, externally - for the treatment of conjunctivitis and otitis media, tk. it has an emollient action, in cosmetology - masks for dry skin of the face, improves the condition of dry and aging skin [11].

Due to the high quantitative content of sugars, the use of ripe fruits and peach juice is contraindicated in patients with diabetes mellitus [9].

Peach seeds, like apricot seeds, contain the cyanogenic glycoside amygdalin, the hydrolysis of which produces hydrocyanic acid. However, they are practically not eaten (the seed coat is very hard), so the danger of poisoning is minimal [19].

## PLUM HOME

*Prunus domestica* L.

Plum is currently grown all over the world. More than 200 varieties have been bred, combined into groups that are considered as subspecies *Prunus domestica* L. These are egg plum, Hungarian, rennloode, mirabelle, etc. In Russia, plum is cultivated everywhere to the south of the taiga zone [4, 7].

Fresh, dried and processed fruits are used as food products and medicinal raw materials (raw materials are unofficially in the Russian Federation) [6].

Fresh plums contain [4, 7, 9, 12, 23]:

- carbohydrates: 9-17% sugars (fructose, glucose, sucrose), polysaccharides arabin, galactan, pectins (0.4-1.8%), fiber;

- proteins and free amino acids;

- vitamins: carotene, B1, B2 (0.1-0.3 mg%), PP, folic acid, C (5-15 mg%), E;

- organic acids (on average 1–2%): malic acid prevails, there are lemon, cinchona, wine, salicylic, fumaric, coffee, benzoic, etc.;

- polyphenolic compounds: tannins (about 1%); flavonoids, anthocyanins, phenolic acids;

- minerals: potassium, sodium, phosphorus, aluminum, cobalt, iron, manganese, etc.





Rice. 4. Homemade plum (*Prunus domestica* L.); family of Rosaceae - Rosaceae.

Dried plums (prunes) are rich in potassium salts (up to 860 mg%), magnesium (102 mg%) and phosphorus (83 mg%). They contain phenolic acids: vanilla, coffee, ferulic.

The seeds contain up to 42% fatty oil. Plums are eaten raw and canned; they are used for making jams, compotes, jam, confiture, marmalade, juices and liqueurs (plumyanki). In addition, they are dried and used to make sauces for chicken and game. The nutritional value of the fruit largely depends on the variety [10, 16].

Traditionally, all varieties of PLUM are used as a lightlaxative. The best effect is obtained when usingprunes - dried fruits of varieties, united in the group "Hungarian". Prunes enhance intestinal motility [9, 23]. To achieve a mild laxative effect, it is usually sufficient to eat 10–12 fresh plums [9] or prunes [9, 23] in the evening. In addition, prunes are beneficial for diseases of the gallbladder and kidneys [9, 23].

An interesting feature of plums, which makes them an irreplaceable food and dietary culture, is their unique ability to store vitamin B2 (riboflavin). The content of free riboflavin in some varieties of plum reaches 0.25–0.32 mg%, and in other horticultural crops, with the exception of pomegranate, it usually does not exceed 0.1 mg%. Therefore, plums can be successfully used to treat the corresponding hypovitaminosis. Due to the pronounced deficiency of B vitamins and magnesium in various diseases of the nervous

drain systems must be included in the diet in case of problemsneurological [eleven].

Vitamin B2 regulates the body's carbohydrate metabolism, so varieties of plums with a low sugar content are very useful in diabetes mellitus [11].

The iron content in plum fruits is comparable to cherries, therefore it is used in the diet for iron deficiency anemia [1, 3-5, 7, 10, 12, 23]. PRUNE, rich in potassium and magnesium salts, promotes the elimination of sodium and water salts from the body, which is important for people with high blood pressure and other diseases of the cardiovascular system [nine].

Fresh fruits that stimulate motility and secretion of the gastrointestinal tract are contraindicated in case of increased acidity of gastric juice. Eating fresh plums in young children can cause upsetgastrointestinal tract (flatulence, rumbling, diarrhea, stomach pain). Vin these cases, children should be given dill water [11].

The high sucrose content limits the possibility of eating sweet plums for obesity and diabetes mellitus [23]. The presence of benzoic acid in fruits, which reduces the buffer capacity of the blood, indicates the need for careful inclusion of plums in the diet of patients with long-termongoing inflammatory diseases [4, 12].

## CHERRIES

*Cerasus avium* (L.) Moench

In the wild, sweet cherry grows in southern Europe, the Caucasus, and Asia Minor. Currently, it is grown in many countries of the Northern Hemisphere. Fruit yield - 45-105 kg / ha [4].

The fruits contain [2, 7, 9, 12, 19, 20, 23]:

- carbohydrates: sugars (some varieties - up to 18%, mainly glucose, less fructose), pectin (up to 0.7%), fiber;
- organic acids (0.4-0.6%): malic, citric, succinic;
- vitamins: carotene, C, P, PP, B1, B6, B9, E, K;
- polyphenolic compounds: flavonoids, isoflavonoids; tanning substances (0.2%);
- coumarins and oxycoumarins;
- essential oils;
- minerals: iron salts, iodine, etc.



Rice. 5. Sweet cherry (*Cerasus avium* (L.) Moench); Rosaceae family - Rosaceae.

Cherry fruits are eaten mostly fresh as a dessert. They are juicy, sweet, with a delicate aroma, but a little more bland in comparison with cherries, because contain less organic acids. They are used to make compote, preserves, marmalade, confiture, make juice, wine and other alcoholic beverages. The fruits can be frozen and dried.

For medicinal purposes, fresh and dried fruits containing delicate fiber are used as a mild laxative for atonic and spastic constipation, spastic colitis, especially in old age [9, 23].

Since fruits are low in organic acids, when eaten there is no stimulation of gastric secretion. Therefore, cherries can be entered into a diet for hyperacid gastritis, gastric ulcer and duodenal ulcer, reflux esophagitis; at the same time, heartburn is not observed in patients [23]. The effectiveness of its appointment in iron deficiency anemia is due to the high content of iron and a complex of vitamins in fruits [11].

Cherry varieties with dark red fruits contain significantly more P-active substances and ascorbic acid in comparison with yellow-fruited varieties. Therefore, dark red fruits are useful in a diet for hypertensive disease and atherosclerosis (the therapeutic effect is observed when taking about 300 g of berries per day) [23].

Such biologically active compounds as coumarins and oxycoumarins, present in sweet cherry fruits, normalize blood clotting and prevent the formation of blood clots [23].

There is information about the presence in fruits of compounds with hormone-like activity. They have a mild anabolic effect, stimulate growth and development. From this point of view, cherries can be very

useful in the nutrition of children [11].

In European folk medicine, cherries have long been used for arthritis.(during the season it is recommended to eat 0.5 kg of berries per day). Long-term use of fruits has a positive effect on the activity of the urinary system: pain during urination decreases, the frequency of nighttime urge to urinate with cystitis decreases. The high content of iodine in fruits determines the advisability of its use in food for diseases of the thyroid gland [11].

In traditional medicine, not only berries are used for medicinal purposes, but also the leaves and flowers of the plant. Juice and compote from cherry fruits, infusions of leaves and flowers are effective as an expectorant for bronchitis, as a thirst quencher, antipyretic, tonic and tonic for colds [11]. When eating a large amount of cherries, a feeling of heaviness in the stomach, increased gas formation in the intestines may appear. Cherry fruits should not be washed down with cold water, because diarrhea may occur [11].

### Conclusion

The fruits of the described stone fruit crops, which in the summer months form the basis of the fruit diet of the inhabitants of our country, are sources of vitamins, polyphenolic compounds with pronounced antioxidant and antihypoxant activity, as well as pectins and other substances that have a detoxifying effect on the body. 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.

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Smirnova, M.A. Dronova // Traditional medicine. - 2010. - No. 2 (21). - S.46-53.

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