



Onion onion (lat . *Állium cépa*)

Eliseeva Tatyana, editor-in-chief of the EdaPlus.info project

Alena Tarantul, nutritionist

E-mail: eliseeva.t@edaplus.info, tarantul.a@edaplus.info

Abstract. The article discusses the main properties of onions and its effect 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 onions in various types of medicine and the effectiveness of its use in various diseases are considered. The potentially adverse effects of onions on the human body under certain medical conditions and diseases are analyzed separately. The scientific foundations of diets with its use are considered.

Key words: onion, benefit, harm, beneficial properties, contraindications

Beneficial features

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

| Main substances (g / 100 g): | Onion [1] | Green onion [2] |
|------------------------------|------------|-----------------|
| Water | 89.11 | 92.32 |
| Carbohydrates | 9.34 | 5.74 |
| Squirrels | 1.1 | 0.97 |
| Alimentary fiber | 1.7 | 1.8 |
| Sugar | 4.24 | 3.91 |
| Fats | 0.1 | 0.47 |
| Calories (kcal) | 40 | 27 |
| Minerals (mg/100 g): | | |
| Potassium | 146 | 159 |
| Phosphorus | 29 | 25 |
| Calcium | 23 | 52 |
| Sodium | four | fifteen |
| Magnesium | ten | 16 |
| Iron | 0.21 | 0.51 |
| Zinc | 0.17 | 0.2 |
| Manganese | 0.129 | 0.15 |

| | | |
|-----------------------------|-------|-------|
| Copper | 0.039 | 0.031 |
| Vitamins (mg/100 g): | | |
| Vitamin C | 7.4 | 13.4 |
| Vitamin B6 | 0.12 | 0.088 |
| Vitamin PP | 0.116 | 0.33 |
| Vitamin B1 | 0.046 | 0.03 |
| Vitamin B2 | 0.027 | 0.026 |
| Vitamin E | 0.02 | 0.21 |

This table shows the chemical content of onions in comparison with their content in green onions. Comparison shows that with the general similarity of products, there are noticeable differences in some positions: for vitamin B6 - by 35-40%, for vitamin C - almost 2 times, for nicotinic acid (PP) - almost 3 times, and for vitamin E - 10 times. Onions and green onions differ (in favor of the latter) also in the content of sodium (4 times), calcium and iron (more than 2 times). However, even with its "arsenal" onions have a huge healing potential.

Onions are considered an excellent source of biotin (vitamin B7) and a relatively good source of vitamins B6, C, B1, folate (B9), copper manganese, phosphorus, potassium, and dietary fiber. A rich concentration of flavonoid polyphenols was found in onions. Lots of quercetin. Also, this vegetable crop contains a wide variety of allyl sulfides, including the four main diallyl sulfides (DMS, DDS, DTS, and DTTS), various sulfoxides. All this set determines the medicinal properties of onions.

Medicinal properties

The impact of onions on humans is very diverse, although the degree of severity of therapeutic effects is not always equally high. It is usually customary to talk about the following types of onion effects on the body:

- antimicrobial,
- antiparasitic (antihelminthic),
- antiscorbutic,
- wound healing,
- painkiller,
- anti-inflammatory,
- anti-sclerotic,
- antidiabetic,
- tuberculosis,
- antitumor.

The fact that phytoncides of onions and some other plants have a detrimental effect on bacteria - the causative agents of diphtheria, dysentery, tuberculosis, streptococci, as well as yeast fungi, was established back in the first half of the last century. Modern research shows new facets of using the medicinal properties of onions.

Thus, it is considered promising to develop and use onion preparations to improve the functioning of the heart muscle, smooth muscles, and secretory glands of the digestive system. There is also statistical evidence that the systematic use of onions in food can reduce the risk of certain cancers (breast cancer, bowel cancer).

Improves onions and brain function. It is assumed that sulfur compounds, entering the brain with blood, stimulate the performance of neurons, and also prevent damage to healthy cells. Red onions are especially rich in anti-inflammatory phytonutrients (such as quercetin). However, there are quite a lot of these substances in both white and yellow onions. There are conflicting data on the therapeutic properties of quercetin, but some studies suggest that quercetin stimulates mitochondrial biogenesis, which leads to an increase in the number of mitochondria in brain cells after traumatic brain injury [3]. Quercetin is also thought to be able to prevent spinal cord degeneration.

Fresh onion has an antithrombotic effect, but scientists have found that heat treatment deprives it of this property. In the experiment, quartered onions were steamed for 1, 3, 6, 10 and 15 minutes, and then its effect on the blood of 12 volunteers was tested. The antithrombotic effect disappeared between 3 and 6 minutes of steam exposure, and after 10 minutes, on the contrary, onion began to stimulate platelet activity [4]. At the same time, fresh and thermally untreated onions really thin the blood, prevent platelets from sticking together, normalize triglycerides and cholesterol, preventing the formation of atherosclerotic plaques, and improve the function of cell membranes in erythrocytes.

There are promising studies on the effects of fresh onions on the bacteria *Streptococcus sobrinus* and *Streptococcus mutans* (which lead to tooth damage), as well as *Porphyromonas gingivalis* and *Prevotella intermedia*, which provoke disease of the tissues surrounding the teeth.

Use in medicine

In classical medicine, since the middle of the 20th century, two onion preparations have been known:

"Allilchep" (Allicerum) is an alcohol extract, which belongs to the group of antimicrobial intestinal drugs. As indications, diarrhea that occurs with dysbacteriosis and colitis, hypercholesterolemia (increased levels of cholesterol in the blood), which is a risk factor for the development of atherosclerosis, is indicated. The drug is recommended to be taken orally three times a day, 15-20 drops for diarrhea (until the pathology is eliminated) and 20-30 drops for a hypolipidemic effect (long-term).

"Allilglycer" (Allilglycer) - an extract of onions mixed with sterile yellow-brown glycerin, which has a slight onion smell. The drug is used to treat trichomonas diseases (for example, vaginitis). To treat the disease, tampons are impregnated with Allylglycer and inserted into the vagina of patients for a period of 6 to 12 hours. The course of treatment is usually limited to 15-25 days.

Since the beginning of this century, homeopathic preparations in which onion tincture is diluted in potencies of 3 C, 6 C, 30 C, 50 C have gained particular popularity. , 30, 50. Also, with the help of homeopathic remedies, they try to treat severe purulent inflammation of the tissues of the fingers (panaritium), paralysis of the facial nerve, burns, hemorrhoids, inflammation of the mucosa of the Eustachian tube connecting the middle ear to the pharynx, etc. However, official science homeopathic remedies as therapeutic does not consider.

In folk medicine

In folk medicine, onions are one of the most popular products: they treat hypertension, atherosclerosis, diabetes, skin diseases, all kinds of cold symptoms (cough, runny nose, fever), eliminate problems with digestion and excretion systems, and with its help they fight sexual dysfunction and hemorrhoids.

Moreover, there are recipes similar to each other in folk medicine of various Western and Eastern countries: for example, mixtures of onion juice with honey are equally popular in Bulgaria and China.

So, cough in both traditions is eliminated with a "syrup" made from onion juice and sugar. The onion is peeled, cut in half, each half is sprinkled with sugar (1 tsp), and then, after an hour, the "syrup" formed on the surface is eaten. The procedure is repeated twice a day. A mixture of sugar and onion juice is also considered an effective diaphoretic. Steamed onion with sugar is prescribed for diseases of the gallbladder, liver.

Inside, onions and onion juice in various combinations are used for problems with the gastrointestinal tract (functional decrease in the tone of the intestinal walls, chronic constipation), colds, kidney stones, edema, increased pressure, menstrual irregularities. Moreover, in chronic diseases, it is often advised to simply introduce onion into the diet on an ongoing basis or regularly (daily) add a small amount of onion juice to food (from 1 tsp to 1-2 tbsp. L).

Onion phytoncides are actively used for local inhalations and general air purification from microbes. Often, chopped onions are simply laid out in plates around the room during periods of epidemics of viral diseases. The effectiveness of such methods among doctors is highly questionable. As a non-pharmacological alternative, it is proposed to simply ventilate the room, ensuring the movement of clean air.

With pneumonia, tonsillitis, acute inflammation of the upper respiratory tract, tuberculosis, inhalations are made with onions. To do this, it is convenient to use a teapot, which is first rinsed with boiling water, and then a third or a quarter is filled with finely chopped onion cubes. You can breathe fumes through the spout of the kettle (for 10 minutes 2-3 times a day).

Externally, onion juice is used in the form of compresses for abscesses, ulcers, dermatitis, burns and frostbite. Diluted (mixed with water), onion juice in folk medicine is used to treat cataracts, to improve visual acuity and simply to wash the eyes (in this case, a tear effect is used).

Decoctions and infusions

Due to the already strong action of pure freshly squeezed onion juice, water infusions, alcohol tinctures and onion decoctions are used less frequently in folk medicine than infusions of most other vegetables. In addition, during the temperature exposure, which inevitably occurs during the boiling process, a significant part of the useful components is lost. But in some cases, this method of therapy is recommended.

Infusion for type 2 diabetes . Crushed heads (3-4 medium or 2-3 large) are cut into small cubes, poured with boiled but cooled water (2 l) and loosely covered with a lid. In this form, the onion should be infused for about a day. After that, the solution is taken in a third cup (about 70 ml) 30-40 minutes before meals 3 times a day. The course of treatment lasts 3 weeks with a two-week break. In total, 10 cycles can be carried out before a longer break. Onions in the bank are updated every 5-7 days. And before the change of raw materials, at the moment when about 400 ml remains in the jar, chilled water is simply added to it.

Decoction in milk for bronchitis . Medium-sized onions (2 pcs.) Finely chopped and boiled in milk (250 ml) until boiling. After that, the broth is infused for another 3-4 hours, filtered and taken 1 tbsp. l. every 2 hours.

Onion decoction for sore throat . For the treatment of the throat, one medium finely chopped onion is boiled in a glass of water. In different recipes, water is either simply brought to a boil, or kept boiling over low heat for another 2-3 minutes. Gargle with warm decoction every hour.

In addition, those parts of the onion that cannot be used without additional processing are often boiled and infused. So, for example, a tincture of onion flowers, aged in sunflower oil, is recommended to drink for bronchitis, pneumonia, and also to be used externally in the form of compresses for eczema. A recipe for a decoction of onion husks is common, which is prescribed as an effective expectorant, prescribed for stomatitis, drunk for problems with blood vessels, diseases of the kidneys, bladder. Husk from one large onion is usually taken per liter of water for decoction.

in oriental medicine

In traditional Chinese medicine, onions are warm, spicy, bitter foods. On the Yin-Yang scale of foods from -3 (maximum Yin) to +3 (maximum Yang), onions have a value of +1, considered a very good, balanced vegetable. Introduced into therapeutic programs, it is able to tone the qi of the liver, kidneys, lungs, and move the blood of the urinary and gall bladders.

There are many Chinese recipes for using onion in blood cleansing procedures, reducing high fever, getting rid of colds and coughs, healing wounds and burns:

Purification of the blood . This procedure is based on the idea that all internal organs have projections on the feet of a person, and if you act on the nerve endings of the feet with the help of a healing bow, then the energy will spread through the meridians throughout the body. For ease of carrying out the procedure, onions are cut into large rings, these rings are applied to the feet and thick enough socks are put on top so that the onion does not move. With a bow in his socks, the patient sleeps until morning. But for complete cleansing of the blood, you need to repeat the procedure for a week.

Elimination of fever . The high temperature is brought down in a similar way, but a cloth napkin soaked in a mixture of grated onions and potatoes with the addition of lemon juice is applied to the feet. Additionally, a gauze pad moistened with a mixture of apple cider vinegar and water is placed on the forehead.

Removal of inflammation of the ear . Pain in the ears is also treated with a night procedure, only here the role of the medicine is played by the onion core, which is inserted into the ear hole until morning. Such therapy should relieve pain and, if necessary, soften earwax.

Lotions are applied with chopped white onions and for insect bites (after removing the sting, in case of a bee sting). And to get rid of purulent wounds, onion paste is prepared, which contains, in addition to grated onions, white wheat bread dipped in boiled milk.

In Tibetan medicine, onions (tsong) are considered pungent, spicy, salty, sweet, hot, and heavy. With its help, they correct violations of Wind and Mucus, improve sleep, eliminate digestive problems - in particular, disorders of absorption, assimilation of food, and removal of gases.

In scientific research

Scientists around the world are studying the ability of onions to resist oxidative stress, cancer, diseases of the cardiovascular system, and also explore a number of other therapeutic properties of this vegetable crop.

Italian scientists have extracted and analyzed the composition of phenolic compounds (anthocyanins and flavonols) found in onions and their ability to combat oxidative stress in the human body. For the study, 2 varieties of onions were selected: Koper (common) and Tropea (red). Quercetin, kaempferol, isorhamnetin, cyanidin were found among the most significant components. The scientists found that the use of onion phenolic extracts reduced the oxidation of low-density lipoproteins ("bad

cholesterol”) and protected red blood cells from damage caused by oxidative stress. An increase in glutathione levels by 15-22% was also recorded. But, in general, onion extracts of both varieties demonstrated protective functions [5].

In yet another study, scientists examined the effect of onion peel extract on cells subject to oxidative stress. The experiment was carried out on yeast that was exposed to the heavy metal cadmium. As a result, in the yeast cells to which the onion extract was added, a lower amount of free radicals, a lower level of lipid oxidation, and a high content of glutathione were recorded. Also, this sample was distinguished by the activity of antioxidant enzymes. The degree of influence of the extract depended on the dose [6].

Due to the presence of flavonoids in its composition, onion extract has anti-cancer potential. To test its therapeutic effect, scientists took pathogenic cells of the large intestine (colorectal adenocarcinoma) and five varieties of onions grown in Ontario (Canada). Their effectiveness was determined in comparison with extracts of pure flavonoids (quercetin, kaempferol, myricetin). It turned out that they are in no way inferior to the latter. Varieties Stanley and Fortress cause the strongest cytotoxic effect (cell necrosis). In turn, the same variety Stanley, together with Lasalle, significantly reduced the migration activity of cells. As a result, all extracts were beneficial in the fight against colon cancer, but the most effective was the onion extract of the Stanley variety [7].

Regular consumption of onions and garlic has been linked to a reduced risk of breast cancer. Scientists have suggested that the low incidence of breast cancer in Puerto Rican women is due to the fact that their diet contains sofrito (a sauce with onions and garlic in the composition, which in Puerto Rico is added to almost all side dishes, as well as soups). This was confirmed by a 6-year study in which 314 women with breast cancer and 346 healthy women took part. The conclusions were made on the basis of observations of them, their diet and the study of the questionnaires that they filled out [8].

In folk medicine, onions and garlic have been used as antimicrobials for a long time, but now there is scientific evidence of their effectiveness. Alcohol, ethyl-acetate and acetone extracts of onion and garlic were separately combined with common antibiotics chloramphenicol and streptomycin and their antibacterial activity was tested on 15 bacteria. A tangible synergistic effect was achieved from the combination of onion ethyl acetate extract and chloramphenicol, which successfully fought against *Staphylococcus aureus* and micrococci [9].

Scientists have also found that, due to the high content of flavonols (mainly quercetin and quercetin glycosides) in onions, an alcoholic extract based on it has anticoagulant (blood thinning) and antioxidant properties. The researchers concluded that onions should be included in the diet to prevent thrombosis and cardiovascular diseases, as well as diseases associated with oxidative stress [10]. And American scientists have found that the antithrombotic properties of onions depend on the content of sulfur in it. Moreover, the more it is, the more pronounced the effect becomes [11].

Weight regulation

Onions are often used in weight loss programs. Doctors began to prescribe this vegetable in the fight against obesity back in the days of the “father of European medicine” Hippocrates, who lived in 460-370. BC e. Onions contain only 35-45 kcal. In addition, its components, to a greater or lesser extent, provide indirect assistance in getting rid of extra pounds:

- fiber increases the period of satiety, and, accordingly, helps to reduce the number of meals without loss of efficiency,
- vitamin B6 suppresses appetite by participating in the control of blood sugar levels,
- potassium is responsible for water and electrolyte metabolism,

- copper speeds up carbohydrate metabolism, as do some other substances in onions that provide metabolism.

However, it is difficult to live even one week solely on an onion diet, therefore, in the most popular weight loss menus, onion rather becomes an addition to the main dishes of chicken, veal, boiled fish, but its share increases compared to the usual diet. The exception is onion soup, which, wanting to lose weight faster, overweight people completely switch to for 5-7 days,

As part of a dietary (non-classical) version of the soup for 2 liters of water, it is taken: onions (6 pcs.), White cabbage (0.5 heads), sweet pepper (100 g), tomato (3 pcs.), Medium-sized carrots and celery (1 pc.). The soup is cooked before the ingredients are boiled. Salt is added to taste before serving.

In cooking

Onions in cooking are used in raw, boiled, fried, browned pickled and salted forms. Although, in order to preserve all the useful properties, a minimum thermal effect is recommended. Onions can be both a flavoring seasoning for the main dish (and it is combined with meat, and fish, and rice, and potatoes, and flour products, and cottage cheese, and other vegetables), and the basis of the recipe. Many national cuisines have their own "signature" culinary products, in which onions can be called a key ingredient: French onion soup, British onion pie, Russian onion tyurya, etc.

There are some culinary tricks that will allow you to cook this product (or a dish based on it) as tasty as possible:

If you add a little granulated sugar to the oil during the frying process, the onions will brown better.

So that the chopped onion does not burn during sautéing, before sending it to the pan, you should roll the "straw" in flour. Then it will just take on a reddish tint.

Onions can be added to minced meat not only to improve the taste, but also to extend the shelf life of the meat part.

To get rid of onion bitterness when making salads, raw onions are scalded a little with boiling water, and hands and a knife are smeared with wet salt.

Smell and tears - two "sins" of onions

"Difficulties" with onions begin at the cooking stage - the irritating effect of sulfuric acid almost always provokes tears, which makes slicing onions a common problem. In order not to cry during this process, it is necessary to understand the mechanism of the formation of an irritating factor and use effective eye protection techniques.

Bulb cells contain enzymes and amino acids that do not interact until the septa are damaged. When cut, they begin to mix with the formation of 1-sulfinylpropane, a substance that causes lacrimation by irritating the mucous membranes. As a result of the dissolution of the vapors of this substance in the lacrimal glands, sulfuric acid arises. It is not enough to cause serious damage, but enough to make tears flow.

It follows from this that the less bulb cells are damaged, the less lachrymator (tear provoker) will eventually appear, which means that if you use a very thin and sharp knife blade when chopping, you will have to cry less often. It is believed that this is one of the secrets of professional chefs who boast that they do not cry when cutting onions. In addition, professionals work very quickly, and, therefore, they expose the mucous membrane of the eye to irritating fumes for less time.

Since onion tears occur as a result of a chemical reaction, the effect of the lachrymator can be reduced by slowing it down. The easiest way to do this is to cool the onion in the refrigerator for 20-30 minutes before cutting.

Another way to avoid tears is to constantly rinse the lachrymator off the knife (by slicing under a thin stream of water) or blow the fumes of 1-sulfinylpropane to the side. This is the basis of the popular advice - to whistle when chopping onions. The air blown out during the whistle will not allow dangerous vapors to enter the mucous membrane of the eye in full.

And Japanese breeders generally radically decided to rid the world of the tearful onion problem. In 2016, the British tabloid The Daily Mirror reported that after 20 years of experimentation with onion cells, specialists from Japan managed to develop a variety that almost does not emit tear fumes. The variety was named "Smiling Ball". It was reported that its sweetish taste resembles an apple. A package of two onions in the same 2016 appeared on the shelves of the country at a price of 450 yen, which at that time was about 4.3 dollars.

It turned out to be more difficult to cope with another "sin" of onions - with its sulfuric smell. Numerous recommendations for its elimination by rinsing the mouth do not radically solve the problem, because the source of the smell is not in the mouth, but in the lungs. When chewing onions, amino acids, mixing with enzymes, are converted into odorous disulfides, which penetrate the intestinal walls into the blood and are carried by it throughout the body, entering the lungs and from there with each exhalation into the environment.

But rinsing your mouth still reduces the intensity of odors. Green tea, lemon water, milk are well suited for this. You can chew parsley, other vegetables and fruits, or use special means that interrupt the smell (peppermint infusion, chewing gum, etc.).

In cosmetology

In the care of the skin and hair, various properties of onions and their husks are used:

Getting rid of dandruff and hair strengthening . To improve the condition of the hair, onion juice (4 parts) is mixed with a decoction of burdock roots (6 parts) and cognac (1 part). Some recipes use cologne instead of cognac. The resulting mixture is rubbed into the scalp 1.5-2 hours before washing. Sometimes the head is covered with a film cap. Pure onion juice to eliminate hair loss is rubbed into the skin 2-3 times a week. Strengthen hair also with onion peel. A decoction of yellow onion husks also helps to give the hair a golden hue.

Whitening effect . To make freckles less noticeable, onion juice (1 tsp) is added to the infusion of calendula flowers. To do this, flowers (1 tsp) are poured with boiling water (100 ml) and infused for 40 minutes, after which onion juice is added to the cooled infusion. The face should be wiped several times a day (2-4 times) until the pigmentation becomes less noticeable. Used in home cosmetology for these purposes and pure onion juice.

A mask of onion juice (50 ml), olive oil (75 ml), honey (10 g), egg yolk (1 pc.), Apple cider vinegar (25 ml), half an apple and vitamin C (5 ml ampoule) is also popular. . All these components are mixed, whipped and applied to areas of skin with freckles for 15 minutes.

Rejuvenating effect . Onion juice (1 tsp), mixed with honey (2 tbsp. L) and applied in the form of a mushy mask for 15-20 minutes, will help to tighten the skin and remove fine wrinkles. This mask also helps to moisturize the skin of the face.

In addition, onion masks in combination with lemon juice are used to remove oily sheen, purulent lesions and lichen are treated with freshly squeezed juice, and hardened calluses are softened with infusion of husks.

Dangerous properties and contraindications

The dangerous properties of onions are associated primarily with the ability of onion juice to irritate the mucous membrane of the stomach and intestines. The abundant use of both the onion itself and its juice is contraindicated for people with problems of the gastrointestinal tract and digestive system - patients with stomach and duodenal ulcers, gastritis, pancreatitis.

Among the contraindications are diseases of the excretory system, liver, kidneys. You should also consult a doctor before adding onions to food if you have problems with the respiratory system, diagnosing bronchial asthma.

Onions are also harmful to people with certain cardiovascular diseases: ischemic disease, rhythm disturbances, high blood pressure and heart disease. Individual intolerance and allergies also become a contraindication for the introduction of onions into the diet. Be especially careful when adding onions to children's food.

Onions are a direct threat to pets. It exhibits toxicity to cats and dogs in any form: raw, fried, dried, boiled. Due to the organic sulfoxides contained in onions, which break down into various sulfur compounds when chewed, red blood cells begin to break down, which can potentially lead to anemia. Structural changes in the blood of cats begin after eating 5 g of onion per 1 kg of body weight. In dogs, this threshold is higher - 15-30 g per 1 kg of weight.

The animals themselves may readily find and eat the bulbs without apparent harm, but this does not mean that the accumulation of toxins will not eventually lead to poisoning. Often, dogs brought to the dacha and released into the garden begin to slowly dig up and eat up the bulbs, and the owner does not even know about it. Symptoms of "overeating" onions usually appear after a few days. Poisoning is accompanied by vomiting, diarrhea, loss of appetite, increased breathing and heart rate, the color of the mucous membranes becomes noticeably paler.

The literature also describes an indirect danger that is not directly related to the use of onions. The fact is that sometimes unsprouted bulbs of garden plants of the lily and amaryllis families (daffodils, amaryllis) are sometimes mistaken for an edible vegetable crop, which poses a certain threat, since they can cause alkaloid poisoning. Narcissus bulbs, for example, are rich in lycorine, which stimulates the gag reflex.

Selection and storage

When choosing onions, preference should be given to dense clean heads, without damage, holes and stains.

The sweetness-bitterness of a vegetable depends not only on the variety, but also on the length of daylight hours at the place of cultivation (southern onions are considered sweeter), the mineral content of the soil, the mildness of the climate, the abundance of precipitation, etc. For example, with a large amount of annual precipitation, the soil is actively washed out sulfur, which creates the preconditions for the cultivation of a sweeter vegetable. However, in general it is believed that white varieties have a stronger aroma and are better suited for filling pies, red and purple ones have a sweet taste and

combine well in salads and marinades, and Spanish soft and sweet onions with yellow-brown husks are better suited for sautéing. .

Suppliers sometimes irradiate bulbs to prevent germination. If you fundamentally want to avoid buying irradiated vegetables, you should focus on the products of farms that, even in the process of growing, use technologies that reduce the likelihood of bulb germination during storage: reduce the intensity of irrigation during the ripening period; planted on high beds so that excess moisture in case of precipitation is concentrated in the aisles, regulate soil salinity, etc.

The most proven way to store onions at home is in a “pigtail” bundle suspended in a room at room temperature (18-24 C) away from sources of heat and bright light. The husk (outer protective shell) does not need to be removed. Such a basketry is decorative, the bulbs in it are well ventilated, while they are easy to separate one by one from the common bunch. Sometimes, in order to ensure air circulation, the onion is placed in a wire hanging basket or a box with a perforated bottom.

In this form, the vegetable crop can be stored for about 8-9 months, provided that the rotting bulbs are removed from the bunch in a timely manner. Sweet varieties are stored less - up to 4-5 months.

It happens that to save space, onions are stacked together with other vegetables, such as potatoes. You don't need to do this. Due to the onion moisture, the potatoes will begin to deteriorate much faster, in addition, the rot also spreads to the onion heads.

It is also undesirable to put onions in the refrigerator for long-term storage - at low temperatures, the onions soften. But if the onion is already chopped, then it can and should be sent to the refrigerator for 2-3 days, wrapped in a bag to prevent moisture loss and placed in a glass jar under the lid so that all other products in the refrigerator are not saturated with onion smell. The need to store already chopped onions in the refrigerator is associated with the danger of an increase in the number of dangerous bacteria (for example, strains of *E. coli*).

Literature

1. US National Nutrient Database, <https://fdc.nal.usda.gov/fdc-app.html#/food-details/170000/nutrients>
2. US National Nutrient Database, <https://fdc.nal.usda.gov/fdc-app.html#/food-details/170006/nutrients>
3. Xiang Li, Handong Wang, Yongyue Gao, Liwen Li, Chao Tang. Protective Effects of Quercetin on Mitochondrial Biogenesis in Experimental Traumatic Brain Injury via the Nrf2 Signaling Pathway // PloS One. - 2016. - T . 11, no . 10. - S. e0164237. — ISSN 1932-6203. doi:10.1371 / journal.pone.0164237
4. Hansen EA, Folts JD, Goldman IL Steam-cooking rapidly destroys and reverses onion-induced antiplatelet activity. Nutr J. 2012 Sep 20;11:76 . doi: 10.1186/1475-2891-11-76.
5. Tedesco I., Carbone V., Spagnuolo C., Minasi P., Russo GL Identification and Quantification of Flavonoids from Two Southern Italian Cultivars of *Allium cepa* L., Tropea (Red Onion) and Montoro (Copper Onion), and Their Capacity to Protect Human Erythrocytes from Oxidative Stress. J Agric Food Chem. 2015 Jun 3;63(21):5229-38. doi: 10.1021/acs.jafc.5b01206.
6. Piechowiak T., Balawejder M.. Onion skin extract as a protective agent against oxidative stress in *Saccharomyces cerevisiae* induced by cadmium. J Food Biochem. 2019 Jul;43(7):e 12872. doi: 10.1111/jfbc.12872.
7. Murayyan AI, Manohar CM, Hayward G., Neethirajan S. Antiproliferative activity of Ontario grown onions against colorectal adenocarcinoma cells. Food Res Int. Jun 2017 ;96: 12-18. doi: 10.1016/j.foodres.2017.03.017.

8. Gauri Desai, Michelle Schelske-Santos, Cruz M. Nazario, Rosa V. Rosario-Rosado, Imar Mansilla-Rivera, Farah Ramírez-Marrero, Jing Nie, Ajay A. Myneni, Zuo-Feng Zhang, Jo L. Freudenheim, Lina Mu . Onion and Garlic Intake and Breast Cancer, a Case-Control Study in Puerto Rico. Nutrition and Cancer, 2019; 1 DOI: 10.1080/01635581.2019.1651349
9. Mahomoodally F., Ramcharun S., Zengin G. Onion and Garlic Extracts Potentiate the Efficacy of Conventional Antibiotics against Standard and Clinical Bacterial Isolates. Curr Top Med Chem. 2018;18(9):787-796. doi: 10.2174/1568026618666180604083313.
10. Ko EY, Nile SH, Jung YS, Keum YS Antioxidant and antiplatelet potential of different methanol fractions and flavonols extracted from onion (*Allium cepa* L.). 3 Biotech. Mar 2018;8(3):155. doi: 10.1007/s13205-018-1184-4.
11. Goldman IL, Kopelberg M., Debaene JE, Schwartz BS Antiplatelet activity in onion (*Allium cepa*) is sulfur dependent. Thromb haemost. 1996 Sep;76(3):450-2.

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Bulb onions - useful properties, composition and contraindications

Eliseeva Tatyana, editor-in-chief of the project EdaPlus.info

Alena Tarantul, nutritionist

E-mail: eliseeva.t@edaplus.info, tarantul.a@edaplus.info

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