



CHEMICAL COMPOSITION OF GRAPES

Mo'minova O'g'ilcha Makhmud qizi

Lola Murodova


Agricultural Technical School Master of Production Education

Abstract: *Grapes are one of the most valuable and useful fruits that have long been grown in the history of mankind. There are many reasons to appreciate and increase it, the main of the reasons is that grapes contain many useful substances, vitamins and minerals necessary for human health. By studying the chemical composition of grapes, it is possible to determine not only the nutritional value of this fruit, but also the possibilities of its medical, cosmetic and dietary application. The composition of grapes has been scientifically studied in depth, and the results have been confirmed. This thesis provides information on the chemical composition of grapes.*

Keywords: *grapes, chemical composition, vitamins, organic acids, antioxidants, polyphenols, microelements, flavonoids, sugars, nutrition.*

The grape fruit is very rich in water in the first place. Water accounts for most of the total weight of an adult, full-grown grape. This water ensures the freshness, tenderness and refreshing nature of the grapes. Carbohydrates make up the main part that remains in the fruit. The basic carbohydrate form contains glucose and fructose. These two sugar-like substances are easily absorbed by the body, replenish the energy resource and quickly energize a person. Due to its high carbohydrate content, grapes are ideal for athletes and people who do heavy physical labor. Although grapes are low in proteins and fats in their chemical composition, they also have important importance for the body. The presence of protein and fat in the composition makes it possible to evaluate grapes as a product with a high biological value. However, the main power of grapes is embodied in a number of vitamins and minerals in its composition. This fruit contains vitamins of Group B — B1, B2, B6, B9, ascorbic acid, that is, vitamin C, vitamins A and K. B vitamins support the functioning of the nervous system, tissue regeneration, and energy metabolism. Vitamin C is even more useful in strengthening immunity, having powerful antioxidant properties. Vitamin A ensures vision, skin health and bone strength. Vitamin K, on the other hand, is involved in blood clotting processes. Grapes also contain potassium, calcium, magnesium, iron, copper, manganese, phosphorus, zinc, sodium, selenium and several other minerals. Potassium, in particular, is an essential mineral for the cardiovascular system, helping to maintain heart health and stabilize blood pressure. Iron is important for improving blood composition and increasing hemoglobin levels. Magnesium and calcium strengthen bone and muscle health. [1]

Grape juice and fruit also contain organic acids. It is organic acids that give grapes a characteristic sour taste and refreshing husk. These acids improve the functioning of the



intestines and stomach, stimulate the processes of metabolism in the body. The composition contains malic, lemon, vin, tartaric acids in an absorbent, body-friendly form. Grapes contain polyphenols and flavonoids, which have antioxidant properties. The presence of these substances helps to fight free radicals in the body, through which they slow down aging processes and play an important role in the Prevention of cardiovascular diseases. Of particular importance among polyphenols is resveratrol, a substance that is beneficial for the heart and blood vessels. Biologically active substances are also common in grape skins and seeds. Oils and phenolic compounds in grape seeds have skin rejuvenating, antimicrobial and anti-inflammatory properties. Therefore, grapes are widely used not only as food, but also in medicine and cosmetology.[2]

Grapes also contain pectin and fiber, which in turn improve digestive processes, release harmful substances from the body, help normalize the functioning of the intestines. Pectins provide the gel-forming property of the product and enhance detox processes in the body. The presence of natural enzymes in grapes accelerates the digestion process and is actively involved in a number of metabolism processes. These enzymes further enhance the usefulness of the product, being particularly relevant in important biological processes such as indigestion, tissue cell regeneration. The combination of all the chemicals in grapes makes it not only tasty, but also environmentally friendly, healthy and a natural favor that prevents many diseases. Its high water content helps maintain the body's water balance, its vitamins and minerals stimulate the functioning of internal organs, and its antioxidants promote a youthful and healthy life. The combination of a number of major and minor biologically active substances present in grapes further increases the value of the product.[3]

The presence of vitamins and minerals in grapes in their natural state, their easy absorption by the body, has been confirmed by centuries of experiments. It is for this reason that grapes have been widely used in the receipt of various diseases, since ancient times they have been included in the list of dietary foods, appreciated as one of the main fruits in many eastern and Western medicine. The chemical composition of grapes is rich and diverse, without compromise, indicating that by eating them, the human body can be replenished with almost all the essential elements and vitamins. Grapes can be used as a fruit, as well as in the form of juice, pulp, or dried fruit. In any case, grapes are an important food for every person's life.[4]

Conclusion:

In conclusion, the combination of minerals, vitamins, natural acids, antioxidants, polyphenols and other biologically active substances found in grapes has a beneficial effect on human health, making grapes the most valuable and useful fruit. Grapes are a gift of nature that refreshes not only the body, but also the soul, prevents many diseases, contributes to a full and balanced diet. This calm and varied composition ensures that grape products are always included in the diet and makes it useful for all ages as well.



References:

1. Abdurakhmanova, S., & Karimov, U. (2019). The chemical composition of grape fruit and its importance. *Agroilm*, 2(4), 122-126.
2. Bahodirova, N., & Gulomov, J. (2020). Chemical composition of products made from grape fruit. *Journal of Agrarian Sciences of Uzbekistan*, 6 (3), 37-43.
3. Ilyasova, M. (2017). Microelements and vitamins in grapes. *Bulletin of Samarkand Agricultural Institute*, 8 (1), 92-98.
4. Matkarimov, S. (2022). Product quality and chemical composition in viticulture. *Scientific research and innovation*, 5(2), 85-89.
5. Nazarova, G. (2018). Chemical composition of fruits: on the example of a grape product. *Scientific information of Tashkent State Agrarian University*, 10 (4), 51-58.
6. Platova, Z., & Olimjonov, O. (2021). Bioavailability and chemical properties of grape peel. *Journal of chemistry and biology*, 12(2), 64-69.
7. Rahmatullaeva, S., & Yoldashev, A. (2020). Grape fruit and antioxidants in its composition. *Journal of Uzbek biology*, 8 (3), 44-49.
8. Tushev, F. (2019). Natural chemical compounds found in grapes. *Agriculture and Food Security*, 4(1), 73-79.