

DETERMINATION OF THE QUANTITY OF VITAMINS CONTAINED IN GRAPES AND THE USE IN FOLK MEDICINE

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Abstract:

This article provides information on the preparation of molasses from grapes and the determination of its vitamin content, chemical composition and use in medicine

Keywords: grape fruit, grape molasses, vitamins E, A, PP, K, C and D, glucose, pectin, protein, carbohydrates.

INTRODUCTION: Today, in order to develop the technology of preparing new types of medicinal natural products from local natural fruits and dry fruits, in the process of wide-scale reforms carried out under the leadership of President Shavkat Mirziyoev Miromonovich, it is necessary to consistently develop science and technology and in the field of medical sciences (chemistry, biology, pharmaceuticals) increasing the number of finished products by getting ready-made products by directing young people doing scientific work to the production of their scientific works. It can satisfy the internal needs of our republic and create an opportunity to export to foreign countries. Also, if the production of products is launched and jobs are created, the number of unemployed will decrease and the price of products will be reduced, special attention is paid. The development of technologies for extracting molasses

from natural grape fruits, which are highly medicinal, and the development of production of ready-made products (goods) based on grape molasses, increasing the number of jobs, reducing the number of unemployed, and providing employment to the citizens of our nation is considered one of the urgent topics

THEORETICAL PART: Most types of natural grapes are grown in European countries and vary in taste and chemical composition depending on growing conditions. Vine is an ancient flowering or angiosperm plant belonging to the genus *Vitis* of the family Vitaceae Juss, which includes closely related species of the vine family. They differ from each other according to their morphological characters, biological characteristics and use. The appearance of the grape fruit is shown in Fig. 1.



Fig. 1. Grape fruit



Depending on the type of grapes, all vitamins of group B, vitamins E, A, RR, K, C and D are also sufficiently preserved. In addition, grapes also contain micro and macro elements such as iron, copper, potassium, calcium, magnesium, zinc, boron, vanadium, aluminum molybdenum, selenium, titanium, cobalt, radium, chlorine, silicon and sulfur. Grapes contain water, glucose, pectin, protein, carbohydrates, saturated and unsaturated fatty acids, essential oil, and dyes [1-2].

The development of folk medicine as a science is the reason for the high attention paid to the development of folk medicine in our country. The Association of Folk Medicine of Uzbekistan, the Academy of "Medicine" was established, and as a result of consistent efforts at the front, our country has accumulated a thousand years of experience in this regard, and today special attention is paid to the development of the field. There are 40 medical science systems worldwide, founded by scientists from Europe and the Americas. The 41st specialty is called "Folk Medicine". This science was created in Uzbekistan by Uzbek scientists in 2019, and the passport of the science was made by I.R. Askarov, chairman of the Academy of Medicine of Uzbekistan, inventor and rationalizer who served in Uzbekistan, doctor of chemical sciences, professor of the chemistry department of Andijan State University. [3-4].

Treatment with grape juice puts an end to loss of appetite. It is an effective remedy against insomnia, anemia, kidney diseases, neurosis and metabolic disorders. The most useful type of grape is black currant, which is recommended for people with anemia and depression. Even cancer patients are prescribed black grapes or raisins as an immune booster. The chemical composition of grape juice increases strength due to the presence of useful substances such as fructose, glucose, sucrose, raffinose, xylose. It is prescribed to eat grapes in diseases such as anemia, cardiovascular diseases, and chronic hepatitis. In addition, it is recommended to eat grapes in case of gastrointestinal tract, acute and chronic nephritis, neurosis. Those who have stones or sand in their kidneys will get rid of it if they constantly eat grapes and drink their juice. It is useful to drink grape juice against colds and asthma in the respiratory tract. Because he gets a cold. [5].

Dried grapes (raisins) are rich in glucose (65-80%), which is quickly absorbed by the body, and are high in calories. Due to the high content of resveratrol in grape skins and seeds, it has the power to fight cancer. Complicates the onset of breast cancer, colon and rectal cancer due to its anti-inflammatory properties heals you. Raisins are a very high-calorie product from a medical point of view, which is used for anemia, impotence, decreased immunity, and nervous

tension. Compared to freshly picked grapes, the healing properties of raisins are stronger. White grapes strengthen the nerve fibers and clean the intestines from toxins and infections, while black grapes are the most useful medicine for the nervous (impatient), that is, it calms the nerves and removes fatigue. [6-9].

The medicinal properties of grapes have been known for a long time. Ripe and raw grapes were used as a medicinal plant in Eastern medicine. They also used grape juice, vinegar, and leaf stalks. Abu Rayhan Beruni said that the water that flows when cutting the stem of a grape has many healing properties. Essential oil is also extracted from its stem. The famous physician Abu Ali ibn Sina writes about the properties of grapes: "Grapes that have been stored for a while will nourish and strengthen the body." A well-ripened grape is less harmful than an unripe one. Grapes themselves are more useful than their juice. Grapes and raisins are good for intestinal pain. Raisins are also good for kidneys and bladder. Grape stem water, wild grape fruit juice eliminates blood spitting. It is also useful for diarrhea and colon diseases. The water of the grape stem crushes stones, cures gout, cysts, and temiratkini.

DISCUSSION AND RESULTS

Nowadays, it is very difficult to find food without various chemical additives. In this regard, molasses is a product that our people have been making since ancient times. Molasses is also made by boiling the juice of mulberry, melon, watermelon and other wet fruits. Molasses is a French word for a dark brown liquid with a specific smell or sour liquid. This is considered as food. It is used in cooking in Canada and the United States. In some countries, the use of grape juice in the form of syrup is very popular. Molasses is very rich in carbohydrates. The composition of grape juice is more than 60% carbohydrate, 20-25% water. Grape molasses gives energy, stimulates appetite; increases blood, is of great benefit in pregnancy.

Especially in recent years, when the harms of sugar became known, its importance has increased. Two spoons of molasses consumed in the morning satisfy the body's daily need for calcium, iron, magnesium and other vitamins and give good results in anemia. Molasses is a type of dessert made from grape juice, made from white grape varieties. (Buvaki, Bayan Shirey, Soyaki, Nimrang, etc.).

The production method of grape molasses includes the following steps. To prepare gin, well-ripened heads of grapes are washed in cold water and crushed with a pestle. Then the grape juice (juice) is filtered. In order for the grape juice (juice) not to be spoiled (turbid), healthy, clean yellow gel soil is mixed

with the filtered grape juice, excess particles (dust, grape flesh) in the juice are added to the chukma, and the filtered grape juice is put into the reactor (cauldron) and heated on low heat 1- Boiling is continued for 2 hours at 80-90 oC until the color

becomes clear. It is stirred from time to time. The finished molasses will be dark red in color. Molasses prepared by this method does not change its chemical composition even when stored for a long time. Grape molasses has the following appearance (Fig. 2),



Figure 2. Appearance of grape juice and molasses.

Grape molasses is dark red in color and contains water-soluble vitamins. A number of vitamins have a controlling (regulatory) function, in particular, they adjust membrane permeability. Therefore, without vitamins, metabolic processes in the body are disrupted, and life cannot be normal.

Vitamins were first discovered in 1880 by N.I. Lunin. He came to the conclusion that in addition to proteins, carbohydrates, fats and mineral substances that provide normal life, there are also organic substances necessary for life. Vitamins are called substances necessary for life (vita means life, vitamin means life amines). Vitamins are small molecular organic compounds, which are extremely important in the life - activity, growth and reproduction of organisms.

Vitamins have the following properties: - they are not synthesized in the human body; - does not participate in the formation of structures; - when they are lacking in the body, the metabolism is disturbed and causes specific diseases; - vitamins consumed with food affect biochemical processes in the body as coenzymes.

Changes in the amount of vitamins in the body lead to the following conditions: 1. Avitaminosis - diseases caused by the lack of some vitamin in the body. 2. Hypovitaminosis - diseases caused by vitamin deficiency. 3. Hypervitaminosis - diseases caused by an excess of vitamins.

So far, more than thirty vitamins have been identified, which are divided into three groups: divided into water-soluble, fat-soluble vitamins, and vitamin-like substances.

Water soluble vitamins include: Vitamin V₁, Vitamin V₂, Vitamin V₆, Vitamin V₁₂, Vitamin PP, Biotin, Vitamin N, Vitamin C, Vitamin P.

Fat-soluble vitamins include: Vitamin A, Vitamin D, Vitamin E, Vitamin K.

Water-soluble vitamins: vitamin V₁ - thiamine. is the first vitamin isolated in pure form.

Lack of vitamin V₁ - avitaminosis occurs in beriberi or polyneuritis. Vitamin V₁ causes carbohydrate metabolism disorders. Vitamin V₁ is a coenzyme of pyruvate decarboxylase. This vitamin is found in large quantities in eggs, meat, and peas. The daily requirement of the body is 1-3 mg.

Vitamin V₂ - (riboflavin). Riboflavin - has a yellow color. The lack of this vitamin leads to avitaminosis, colds of the mucous membrane of the oral cavity, impaired vision, and anemia. Riboflavin is a coenzyme of flavin enzymes. A person receives 65-70% of this vitamin through dairy, meat and bread products, 30-35% through vegetables and fruit products. Daily requirement - 2 mg.

Vitamin V₆ (pyridoxine). A lack of vitamin V₆ causes a violation of amino acid metabolism and leads to a skin disease called dermatitis. It also causes anemia and growth retardation. This vitamin is a coenzyme of enzymes that catalyze the reamination reaction of amino acids. Compounds with vitamin properties: pyridoxine, pyridoxal and pyridoxamine. Vitamin V₆ is mainly found in meat, fish, and cereal products. Adults need 2 mg of this vitamin. is

Vitamin PP (nicotinic acid). Nicotinic acid is important in metabolic processes in living organisms. It is a coenzyme of dehydrogenase enzymes that catalyze oxidation-reduction reactions, entering into NAD and NADF. It is a derivative of pyridine: nicotinic acid and nicotinamide.

Vitamin PP deficiency causes pellagra disease. The nervous system and digestive system are disturbed. Vitamin PP is found in cereals and vegetables. The daily requirement for an adult is 7 mg.

Vitamin C (ascorbic acid). Ascorbic acid is not synthesized in the body of humans, monkeys and guinea pigs, so they consume vitamin C with ready-made food. A lack of products rich in vitamin C in food can cause scurvy in humans and some animals. Milk causes bleeding, subcutaneous blood accumulation. If vitamin C is not taken into the body, it will lead to

death. Vitamin C increases the body's antioxidant capacity.

Ascorbic acid serves as an intermediate substance that transfers hydrogen in oxidation-reduction reactions in living organisms. Vitamin C is abundant in plums, plums, oranges, lemons, dill and other plants. The daily requirement of an adult is 0.2-1 g. is

Water-soluble vitamins in grape molasses were determined using high-performance liquid chromatography. 5-10 g of grape molasses is taken on an analytical scale and placed in a 300 ml flat flask. 50 ml of 40% ethanol solution is added to it. The mixture was heated under vigorous stirring for 1 h, equipped with a magnetic stirrer, reflux condenser, and then stirred at room temperature for 2 h. The mixture is cooled and filtered. 25 ml of 40 percent ethanol was added to the remaining part and re-extracted 2 times. The filtrates were combined and filled to the mark with 40% ethanol (5-10%) in a 100 ml volumetric flask. The resulting solution is centrifuged at 7000 rpm for 10 minutes. The resulting solution was taken from the top for analysis.

Working solutions of water-soluble vitamins with a concentration of 1 mg/ml were prepared. For this purpose, 50.0 mg of each vitamin standard is accurately drawn on an analytical balance and dissolved in 40 percent ethanol in a 50 mL volumetric flask and filled to the mark.

Phosphorous, acetate buffer systems and acetonitrile were used as eluents in the literature for the determination of water-soluble vitamins by USSX. We used an acetate buffer system and acetonitrile. Chromatography conditions:-Chromatograph Agilent-1200 (equipped with an autodoser);-Column Exlipse XDB C 18 (obraschenno-faznyy), 5 μ m, 4.6 x150mm; - Diode matrix detector (DAD), 250 nm identified; -Flow rate 1ml/min; - Eluent acetate buffer: acetonitrile: 0-5 min 96:4, 6-8 min 90:10, 9-15 min 80:20, 15-17 min 96:4, thermostat temperature 25 $^{\circ}$ C, -5 μ l injected amount. First, a working standard solution was prepared in the chromatograph, then a solution prepared from grape molasses was introduced, and the amount of vitamins was determined by comparison. (Figure 3)

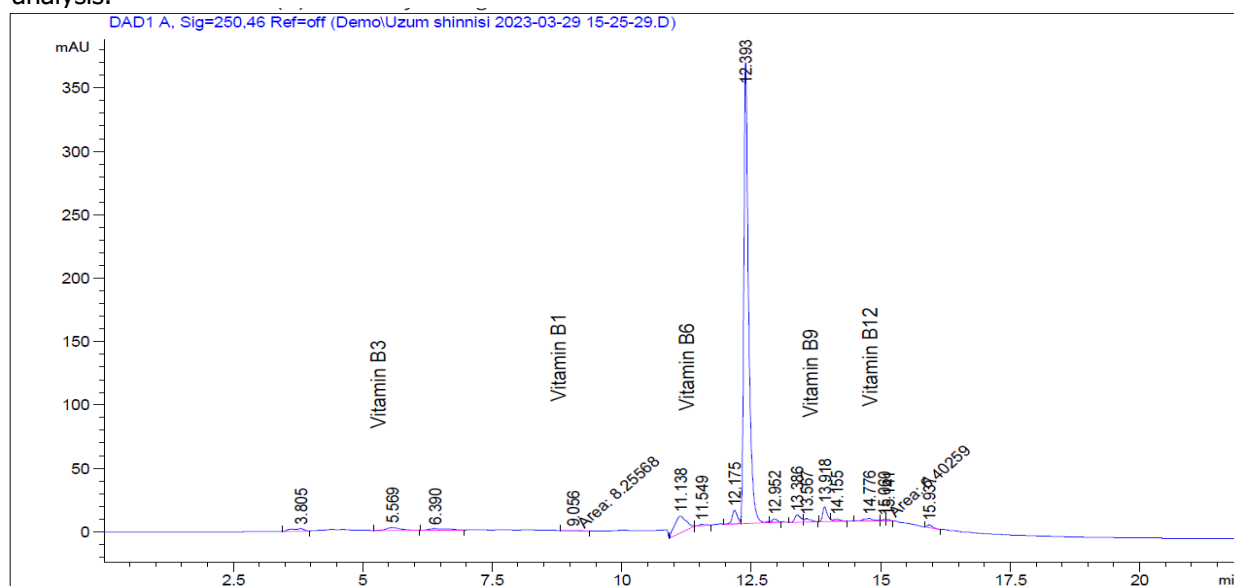


Figure 3. To determine the amount of vitamins in grape molasses, a solution prepared from grape molasses is chromatographed Afia

Chromatographies show that $V_2=0.194487$ mg., $V_6=0.194487$ mg., $V_9=3.666393$ mg., (RR) $V_3=0.063445$ mg. in grape molasses. was found to exist. The amount of vitamins in molasses was determined based on the results of the scientific work. Molasses is rich in vitamins and is used in medicine to give energy, increase appetite, increase blood flow, and treat anemia.

CONCLUSION:

Molasses prepared by this method does not change its chemical composition even when stored for a long time. It was also found that molasses contains vitamins $V_2=0.194487$ mg., $V_6=0.194487$ mg., $V_9=3.666393$ mg., (RR) $V_3=0.063445$ mg.



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