INTERNATIONAL JOURNAL OF
INTEGRATIVE AND
MODERN MEDICINE

Study of Micronutrient Composition of the National Product Grape Gurob for Prevention of Micronutrient Insufficiency

Rustamova Khabiba Khasanovna
Teacher of the faculty pharmacology, Samarkand State Medical University

Rasulov Saidullo Kurbanovich
Associate Professor of the Department of Pediatrics, Samarkand Medical Institute, Doctor of Medical Sciences, 7003000 RUz. Samarkand, Amir-Temur str. 18. SamMU

Musayeva Nozima Bekkeldi kizi
Samarkand state medical university 304-group of medicine fakulty

Abstract: New methods of early diagnosis, nutritional support of macro- and micronutrient deficiencies have been developed using national food products with a high content of micronutrients (grape gurob) in prophylaxis in the “Mother-child” system. The determination of 23 macro- and microelements in the composition of the grape gurob was carried out by the neutron activation method, Nutritional and micronutrient support using little-studied and little-used national food products - grape gurob, containing a high concentration of micronutrients, should be recommended in order to optimize the growth and development of children and the micronutrient status of the body and its functions, accelerating the recovery processes and improving the quality of life in the "Mother-child" system.

Keywords: micronutrients, grape gurob, composition. deficit, correction, prevention.

The fight against micronutrient deficiency is one of the primary tasks of the Ministry of Health of the Republic of Uzbekistan (MHRUz), as evidenced by the adoption in 2010 of the Law of the Republic of Uzbekistan "On the prevention of micronutrient deficiency among the population", the Resolution of the Cabinet of Ministers (PCM) of the Republic of Uzbekistan " nutrition of the population of the Republic of Uzbekistan "No. 102 dated 25.04. 2015; No. 251 of August 29, 2015 "On approval of the concept and a set of measures to ensure healthy nutrition of the population of the Republic of Uzbekistan for the period 2015-2020", which states "conducting scientific research on micronutrient deficiencies", "priority fundamental research in the study of the causes of common diseases, related to nutrition, the study of the prevalence of micronutrient deficiencies, anemia, iodine deficiency, etc. ", order of the Ministry of Health of the Republic of Uzbekistan No. 352 dated 2.09.2015, order of the Ministry of Health of the Republic of Uzbekistan No. 421 of 02.11.2015 on the implementation of the above-mentioned PKMRUz.

The issues of clinical nutrition of nutritional support in the "Mother-Child" system include the problems of micronutrient deficiency in pregnant and lactating women: anemia, obesity, diabetes mellitus, cardiovascular risk, etc., in children - energy deficiency, rickets, anemia, food allergies and intolerances, often ill children, functional digestive disorders, etc.

Research on nutritional support in the "Mother-child" system, micronutrient deficiency with national products in Uzbekistan has not been conducted.

Purpose of the study. Development of new methods of nutritional support with national food products with a high content of macro- and microelements - grape gurob in order to correct and prevent micronutrient deficiencies in the "Mother-child" system.

Material and research methods.

The state and frequency of micronutrient deficiency was studied according to the algorithm of early diagnosis developed by us using a questionnaire and a comprehensive assessment of the health status of mothers and children in 500 mothers and 500 children.

Determination of macro- and microelements in the composition of food products rarely used by the local population - grape gurob, was carried out in the activation analysis laboratory of the Institute of Nuclear Physics of the Academy of Sciences of the Republic of Uzbekistan using the neutron activation method, A total of 23 different chemical elements included in the classification of Bogatov A.V. (2004) in the group of macroelements (calcium, magnesium, potassium, sodium, chlorine), biogenic essential microelements (iron, copper, zinc, manganese, chromium, selenium, molybdenum, iodine, cobalt), conditionally essential microelements (bromine, nickel, cadmium) , brain elements (gold, silver) and abiogenic neutral (rubidium, scandium, lantasium), as well as abiogenic toxic or aggressive (mercury, antimony), the physiological role of which has not been sufficiently studied, in the composition of a natural plant product - grape gurob.

For safety for use by the population on the basis of the requirements of SanPIN grape gurob, studies were carried out: sanitary-bacteriological, radionuclide substances, pesticides and toxic elements in the laboratory of the sanitary-epidemiological service of the city of Samarkand. Sanitary and bacteriological research was carried out in accordance with the requirements of SanPiN No. 0366-19. Determination of radionuclide substances Cs-137, Sr-90 according to the requirements of SanPiN-0366-19 was carried out on the gamma-beta spectrometer MKS-AT-1315 + 20 ° C, 63% humidity. Toxic elements of STM and the content of pesticides were carried out at the request of SanPiN 0366-19.

Data on the composition and use of grape gurob in medicine are not highlighted in the literature. It should be noted that many people do not even know what grape gurob is, when, and how to use it, what are its beneficial properties and benefits, methods of application for nutritional and medicinal purposes.

The grape gurob is taken from Farsi, which means "Gura" - unripe, unripe, "about" - water. Grape gurob is mainly prepared by the local population of Samarkand, Kashkadarya and partly other regions of the republic where grapes are grown. Grape gurob is prepared from pure unripe green and any kind of vineyard, by squeezing the juice is obtained. The juice is passed through a sieve, sterilized by boiling for up to 3 minutes, then poured into a glass bottle, closed with a breathable sponge (people usually close the bottle with clay) and left in the sun for 2-3 months, then stored in the dark. Grape gurob is used to increase appetite and improve the digestion of food along with salads and in its pure form by teaspoon and tablespoon. Grape gurob is a transparent yellowish-brown juice, sour and refreshing taste.

During long storage (up to 2-3 years) grape gurob does not deteriorate, without changing its quality and biological qualities. During heat treatment, the vitamin composition decreases, the concentration of minerals remains. Based on this, we determined the amount of chemical elements in the composition of the grape gurob to develop possible methods for both preventive and therapeutic use in healthy and sick, as well as children in particular.

The results obtained and their discussion.

The results of a study on the state and frequency of micronutrient deficiency according to our comprehensive assessment of the mother's health with filling out a questionnaire showed that 67.9% suffered from anemia during pregnancy, 64.2% from toxicosis, 27.3% from threatened conditions, and increased blood pressure. - 25.5%, inflammatory diseases - 50.9%, chronic diseases - 19.4% of mothers, at the same time 57.6% of pregnant women used various medications, little use of grain and legumes - 61.2%. women who consume little vegetables, fruits and greens - 60%, milk and dairy products - 55.8%, meat and meat products - 60.6%, fish products - 75.6% of women. Frequently consumed artificial (navat, granulated sugar) sweets accounted for 85.7%, tea - 91-100% of mothers.

Insufficient social security of the family is considered - 44.2% of mothers, 52.1% of interviewed mothers have low knowledge of caring for a healthy and sick child.

The results of the study on the state and frequency of micronutrient deficiency according to the comprehensive assessment of the health status of children developed by us showed: 21.8% of children were born with a low cry, early introduction of complementary foods to children - 37%, often ill - 35.8%, functional intestinal disorders - 35, 7%, allergic rashes - 25.5%, signs of rickets - 52%, cracks in the corners of the mouth - 31.5%, gratuitous screaming - 32.7%, flinching - 34.5%, convulsions - 4.8%, signs of anemia - 13.9% of children. Violations of the rules of nutrition, care and hardening - from 40 to 50% of children. From the complex of examined children, a risk group for micronutrient deficiency was identified: low risk group - 57%, moderate risk group - 35% and high risk group - 8%.

Thus, in mothers and their infants, the group at high risk of developing micronutrient imbalances was the highest, which indicates a lack of knowledge of mothers on nutrition, healthy lifestyles, proper child care, and low medical culture. A comprehensive assessment of the mother's health status with the completion of the mother and child questionnaire is an effective and simple method in assessing the health status in the “Mother-child” system in primary health care. Based on the results obtained during the questionnaire survey, it is possible not only to assess the state of health of the mother and child, but also to carry out a plan of preventive measures, as well as further strengthening the health of the younger generation.

For the purpose of nutritional support and correction of the deficiency of macronutrients, the macro- and microelement composition of national products rarely used by the population was studied (Table 1).

Table 1. Macronutrient content in vineyard food (µg /g)

Product	Ca	Na	Cl	Mg	K
Grape gurob (n=3)	2600-21120	44 - 11445	5500-12540	100-152570	31000-662770 (0,31%-6,6%)
Standard content in plants (Kist A.A., 1987)	12000	1500	2000	1200	15000

Table 1 shows that the content of organic calcium salt of high concentration is contained in the grape gurob - up to 21120 µg / g (2.1%), which is 2 times higher than standard samples; The above product, grape gurob, can be recommended as a prophylaxis and correction of calcium deficiency for lactating women and children over 1 year old in the form of complementary foods. With established hypocalcemia, calcium preparations are prescribed along with food.

The content of organic sodium and chlorine in high concentrations was revealed: grape gurob - from 11445 µg / g to 12540 µg / g, Grape gurob, as high in organic sodium and chlorine, is recommended for the prevention of sodium and chlorine deficiency from the risk group, as well as for sodium loss and chlorine with vomiting and diarrhea in various digestive disorders and diseases. With established signs of hyponatremia, the correction is carried out with sodium and chlorine preparations or ordinary table salt in the form of hypertonic solutions.

Potassium in the form of organic salt of high concentration is contained in grape gurob - 662770 (6.6%). Only grape gurob contains such a high potassium content, which can be recommended for lactating women and children with established signs of hypokalemia for correction and nutritional support for preventive and even curative purposes.

Magnesium in high concentration contains: grape gurob - from 100 to 152,570 µg / g. Grape gurob with a high magnesium content as a nutritional support can be recommended for children over 1 year old and lactating women with a risk of magnesium deficiency for prevention and correction, with established hypomagnesemia - with the inclusion of magnesium preparations.

From the group of essential trace elements, we studied the content of cobalt, manganese, chromium, selenium, molybdenum and iodine in the grape gurob grown in the Zarafshan Valley region (Table 2).

Table 2. The content of trace elements in the composition of grape gurob (µg / g)

Macro- and microelements	Grape gurob	Standard content in plants (Kist A.A., 1987)
Co	0,12-21,6	0,1
Mn	1000-1210	300
Se	0,01-0,1	0,5
I	0,1	0,1
Cr	2,6-10,4	1,3
Mo	0,54-55,6	0,5
Br	1-21,7	6
Ni	4,0	1
Au	0,048-0,057	0,02
Ag	0,01-0,17	0,15
Hg	0,42-0,07	0,01
Sc	0,004-0,05	0,01
Rb	5,3-46	20
Sb	0,13-1,06	0,02
La	0,1-0,005	0,6
U	0,77	
Lu	0,01	
Th	0,0034	
Hf	0,014	0,1
Ba	3,6-364	5

From table 2 it follows that cobalt in high concentration exists in the composition of grape gurob up to 21 µg / g (mg / l). Nutritional support from local flora is an important part of the prophylaxis in the “Mother-Child” system for people at risk of cobalt deficiency. With an established cobalt deficiency, preparations containing cobalt (vitamin B12) and its combined preparations (add, pikovit, komplivit, duovit, oligovit, etc.) are recommended.

Manganese in the highest concentration is found in grape gurob - from 1000 µg / g to 1210 µg / g. The above listed products should be recommended for manganese and iron deficiency. manganese is a synergist of iron and promotes its absorption from the intestines. Some authors (Rubenstein A.H. et al., 1962) have identified the relationship between manganese and impaired glucose metabolism in humans when studying a case of insulin insensitive diabetes. The administration of a manganese chloride solution to the patient led to a significant decrease in the concentration of glucose in the blood, up to hypoglycemia. Our preliminary data from practice indicate a positive effect of the use of grape gurob in diabetes mellitus, which is possibly associated with a high content of manganese. Scientific work is being carried out in this direction.

Selenium, as an essential trace element, is found in low concentration in grape gurob - less than 0.1 µg / g. For prophylactic purposes, nutritional support with products containing selenium and medicinal with selenium preparations for Keshan disease, complete parenteral nutrition, kwashiorkor, phenylketonuria and "maple syrup odor disease" leads to the normalization of biochemical parameters and a positive therapeutic effect. The data obtained by A.P. Avtsyn et al. (1991) testify to the direct damaging effect of selenium on human tumor cells. Based on these concepts, long-term use of grape gurob in the diet may be beneficial in the prevention of tumor diseases.

Iodine in grape gurob is available in low concentration - 0.1 μg / g. All this gives grounds for the fact that the Zarafshan valley is considered a biogeochemical zone for iodine deficiency, which should be taken into account when carrying out preventive measures.

Chromium is higher than standard samples from 2.6 μg / g to 10.4 μg / g contained in the grape gurob. In the bloodstream, chromium specifically binds to transferrin, which serves as a carrier of not only iron, but also chromium. It is well studied that chromium is able to enhance the action of insulin in all metabolic processes regulated by this hormone. The demand for chrome varies. within the range of 50-200 mcg per day. At the same time, the conventional diet contains 33-125 mcg of chromium. Refined sugar and bread made from highly refined wheat flour (2.7 μmol / kg) are especially poor in chromium. If we take into account that sugar, in addition, increases the loss of chromium from the body, then it is quite possible to assume that there is a significant deficiency of this element in the "Mother-child" system. Based on the data obtained, the introduction of grape gurob into the diet of a nursing mother and child reduces the risk of developing a chromium deficiency.

Molybdenum in high concentration was found in grape gurob up to 56 μg / g. The biological role of molybdenosis and molybdenum deficiency has not been studied.

Of the conditionally essential microelements, we investigated bromine and nickel in the composition of vineyard products within the limits of standard samples. In relation to these elements, nutritional support of deficiency states requires further development.

Brain elements in the body are presumably involved in the conduction of impulses from the mammalian brain; the functional role of these elements in the body of children remains unexplored, perhaps they are involved in metabolic processes in the body. We studied gold and silver from the brain elements in food products. In the studied products, gold and silver are contained in very low concentrations and below standard samples - from 0.002 μg / g to 0.17 μg / g

Abiogenic elements took their place in the metabolism of animals due to their weak reactivity, despite their widespread occurrence in the lithosphere, they participated in the metabolism of marine forms of organisms, which determined their further competition in the metabolism of terrestrial species (leading to pathology). Of the abiogenic elements, we have studied rubidium, scandium and barium. So, rubidium in high concentration from 5 μg / g to 46 μg / g is contained in vineyard products - grape gurob. Due to the fact that rubidium of the highest concentration is contained in healthy foods, it can be considered closer to essential trace elements. Barium from 3.6 μg / g to 364 μg / g is present in the composition of grape gurob, barium deficiency in children has not been studied, acute and chronic baritosis in case of poisoning is the most studied. Scandium exists in very low amounts in food - from 0.001 μg / g to 0.01 μg / g, obviously, it does not play a significant role.

We have studied mercury from aggressive toxic elements in food products. In the studied products, the mercury content ranges from 0.07 μg / g to 0.42 μg / g. This indicates the harmlessness of food products of the local flora for the body of the mother and child. The clinical picture of methylmercury poisoning is the most studied.

Consequently, the analysis of abiogenic and toxic elements in the composition of food products - grape gurob grown in the Zarafshan valley region revealed very low values of the content of these elements, which indicates safety for mother and child.

To determine the suitability for use according to the requirements of SanPIN, radionuclides, bacteriological studies, toxic substances and pesticides in the composition of grape gurob were examined. According to the results of the research, the sanitary-epidemiological laboratory gives the following conclusion:

1. Grape gurob according to the results of studies of Cs-137, Sr-90 radionuclides within the recommended norm and fully meets the requirements of SanPiN No. 0366-19 No. 3, clause 44.
2. Conclusion of SanPiN No. 0366-19: date of capture 08.01.2020 Grape gurob - common microbes MAFAM CFU 1.0 GOST 10444.15-94 -4.6x10 \ 2 (norm - 5x10 \ 3); BGKP GOST 31747-2012 -

not identified; Pathogenic flora pathogens incl. Salmonella in 25.0 GOST 31659-2012 - not detected; Mushrooms CFU in 1.0 GOST 10444.2-2013 - not detected.

3. Grape gurob to meet the requirements of SanPiN the content of toxic elements, private labels, pesticides: SanPiN 0366-19 GOST 26929-94 GOST 26927-26130-26334-86 conclusion: Grape gurob - meets the requirements of SanPiN 0366-19 (protocol No. 0211-12 / 03 1-2 2020 January 15).

Thus, nutritional and micronutrient support with the use of little-studied and little-used national food products - grape gurob, containing a high concentration of micronutrients, should be recommended in order to optimize the growth and development of children and the micronutrient status of the body and its functions, accelerate recovery processes and improve the quality of life in the system. "Mother-child".

Literature:

1. Rustamova, X. X. (2022, November). ANEMIYA BILAN OG ‘RIGAN BOLALARDA MALTOFER PREPARATIDAN FOYDALANISH SAMARADORLIGI. In *INTERNATIONAL CONFERENCE DEDICATED TO THE ROLE AND IMPORTANCE OF INNOVATIVE EDUCATION IN THE 21ST CENTURY* (Vol. 1, No. 7, pp. 152-154).
2. K. Rasulov, Kh. Kh. Rustamova, Z. A. Djuraeva DEPENDENCE OF MICROELEMENTS IN BREAST MILK ON THE HEALTH OFA NURSING WOMAN DOCTOR‟S HERALD № 1 (102)2022 yil http://doi.org/10.38095/2181-466X-20221021 ISSN 2181-466X EDITORIAL COLLEGE: Main editor: J. A. Rizaev.
3. Rasulov Saydullo Kurbanovich,Rustamova Kh. Kh, Narmetova S. Ya Clinical and Pharmacological Importance of Micronutrients for Pregnant Women and Newborns International Journal on Integrated Education (IJIE) ISSN: 2620-3502 Table of Content - Volume 5 | No 12 (Dec 2022) 278-280 стр
4. Avtsyn A.P., Zhavoronkov F.F., Rish M.A., Strochkova L.S. Human microelementosis. Moscow. 1991.
5. WHO. Feeding and nutrition of infants and young children. // Guidelines for the WHO European Region with a particular focus on the republics of the former Soviet Union. //WHO. European Series - 2001. Denmark. - 369 p.
6. Igamberdieva P.K., Usmanov R.D., Danilova E.A. Investigation of the macro- and microelement composition of medicinal plants in southern Fergana and the prospects for their use in the treatment of diseases. Pharmaceutical journal. 2015. No. 3. P. 7−11.
7. Qurbonovich, R. S., Hasanovna¹, R. H., Abdullayevna¹, A. G., & Salomovna¹, S. F. (2022). Mikronutriyentlar yetishmovchiligi profilaktikasida milliy tabiiy mahsulot–uzum g ‘o ‘robida mikronutriyentlar tarkibini o ‘rganish. *Илм-фан ва инновацион ривожланиш/Наука и инновационное развитие*, *5*(4), 97-105.
8. Rustamova, X. X. (2022, November). ANEMIYA BILAN OG ‘RIGAN BOLALARDA MALTOFER PREPARATIDAN FOYDALANISH SAMARADORLIGI. In *INTERNATIONAL CONFERENCE DEDICATED TO THE ROLE AND IMPORTANCE OF INNOVATIVE EDUCATION IN THE 21ST CENTURY* (Vol. 1, No. 7, pp. 152-154).
9. Xasanovna, R. X., & O’G’Li, F. J. Z. (2023). Mikronutrient muvozanatining buzilishi. *Ta’lim fidoyilari*, *16*, 68-75.
10. Халимбетов, Ю. М., Ибрагимова, Э. Ф., Арслонова, Р. Р., Рустамова, Х. Х., & Наимова, З. С. (2020). Формирование молодежи в Узбекистане как научно управляемый процесс. *Наука и образование сегодня*, (2 (49)), 57-59.

11. Матьякубова, Ф. Э., Рустамова, Х. Х., & Муродова, У. Р. (2020). ПАТОГЕНЕТИЧЕСКИЕ АСПЕКТЫ ТЕРАПИИ ХРОНИЧЕСКОГО ВИРУСНОГО ГЕПАТИТА В. *Достижения науки и образования*, (17 (71)), 86-91.
12. Расулов, С. К., Ипалетова, Л. И., Рустамова, Х. Х., & Ахмедова, Г. А. (2022). МИКРОНУТРИЕНТНАЯ НЕДОСТАТОЧНОСТЬ В СИСТЕМЕ «МАТЬ-РЕБЕНОК»: РАННЯЯ ДИАГНОСТИКА И ПЕРСПЕКТИВЫ ПРОФИЛАКТИКИ НАЦИОНАЛЬНЫМИ ФАРМАКОНУТРИЕНТНЫМИ ПРОДУКТАМИ. *ЖУРНАЛ ГЕПАТО-ГАСТРОЭНТЕРОЛОГИЧЕСКИХ ИССЛЕДОВАНИЙ*, (SI-2).
13. Рустамова, Х. Х. (2023). КЛИНИКО-ФАРМОКОЛОГИЧЕСКИЕ ОСОБЕННОСТИ ИБУФАСТА И СРАВНЕНИЕ С ДРУГИМИ АНАЛЬГЕЗИРУЮЩЕЕ ПРЕПАРАТАМИ ПРИ МИГРЕНИ. *FORMATION OF PSYCHOLOGY AND PEDAGOGY AS INTERDISCIPLINARY SCIENCES*, *2*(15), 84-87.
14. Расулов, С. К., Ахмедова, Г. А., & Рустамова, Х. Х. (2021). Нутрициональная поддержка и коррекция дефицита меди у детей из группы риска. *Илм-фан ва инновацион ривожланиш/Наука и инновационное развитие*, *4*(1), 23-29.
15. Xasanovna, R. X., & O'G'Li, F. J. Z. (2023). Mikronutrient muvozanatining buzilishi. *Ta'lim fidoyilari*, *16*, 68-75.
16. Murodovna, J. D., Bakhodirovna, S. D., & Yangiboyevna, N. S. (2022). Learning Liquid Medicine Forms and Writing Prescriptions for Medical School Students. *Central Asian Journal of Medical and Natural Science*, *3*(5), 72-76.
17. Murodovna, J. D., & Sabina, D. (2023). Breast Milk and Its Importance For the Child. *American Journal of Language, Literacy and Learning in STEM Education (2993-2769)*, *1*(6), 261-264.
18. Sabina, D., & Murodovna, J. D. (2023). The Use of Glucocorticosteroids in the Treatment of Borderline Neurodermitis. *American Journal of Science on Integration and Human Development (2993-2750)*, *1*(6), 64-69.
19. Jalilova, D. M., & Istamova, S. N. (2023). Allergic Rhinitis and its Treatment. *Central Asian Journal of Medical and Natural Science*, *4*(6), 576-579.
20. Istamova, S. N. (2024). Rehabilitation Measures in Rheumatoid Arthritis Disease. *American Journal of Pediatric Medicine and Health Sciences (2993-2149)*, *2*(2), 440-443.
21. Jalilova, D. M., & Djorayeva, S. Z. (2024). The Use of Natural Remedies in the Treatment of Kidney Stone Classicism. *Best Journal of Innovation in Science, Research and Development*, *3*(3), 943-946.