



AREAS OF APPLICATION OF PECTIN IN MEDICINE

Bobokulova Oygul

Shukrullayeva Dilnozn

Dilmurodova Fayoza

Feruza Toshpulatova Tashkent Medical Academy

Abstract:

The article provides information about the use of pectin substances in medicine as a therapeutic and prophylactic agent, about the radioprotective properties of pectin, about fruits in which pectin is naturally present.

Keywords: Pectin, medicine, radioprotective, healing, gelling.

Introduction

Currently, as in all countries, Uzbekistan has problems with ecology. Environmental degradation does not adversely affect humans. The problem of removing heavy and radioactive metals from the human body is relevant all over the world. This is due to the fact that the scope of application of ionizing radiation sources in industrial, agricultural, medical, scientific research is expanding, and the circle of people associated with them professionally is expanding. In this regard, it is necessary to use modern means of protecting people against radiation and a complex of sanitary and hygienic measures to ensure their safety. Due to the presence of components in this system of measures that have protective properties, preventive nutrition is important, which helps to remove heavy and radioactive metals from the body.

Pectin is a substance of natural origin that acts as a radioprotector and is recommended as an additive to give food detoxification properties. In addition, pectin can also be used as a medicine, as it has bactericidal activity, anti-viral action, adsorption capacity, among others.

Pectin is a natural polysaccharide starch found in the walls of plant cells. It is a major player in the food industry known for its ability to increase viscosity and bind water. Its versatility helps to prepare thickening syrups and jams, jellies and marmalades, while stabilizing yogurt in the dairy industry. However, the effectiveness of pectin depends on the exact proportions of sugar, acid and calcium, emphasizing the importance of following reliable recipes for optimal results.

In storage, two different forms of commercial pectin are used: fast and slow installation. Quickly adjusted pectin, which turns into jelly at high temperatures, is convenient for making jams and preserves. On the other hand, the slow-tuned pectin





is ideal for making jelly, ensuring that the jelly retains its structure during transportation, not completely located inside the container beforehand.

Pectin substances are used in medicine as a therapeutic and prophylactic agent, helping to remove heavy and radioactive metals from the body. The radioprotective properties of pectin are due to the presence of free carboxyl groups in its composition, which bind radionuclides in the intestine to form stable compounds that are not absorbed into the blood and are excreted from the body. In this context, low-esterified pectin has more pronounced radioprotective properties compared to high-esterified pectin.

An optimal dose of pectin has been established for people in contact with heavy metals under conditions of radioactive contamination. At least 16 g per day, while beet pectin is one of the pectins that has the ability to form the largest complex.

Pectin has a beneficial effect on cholesterol metabolism, is used in the Prevention of atherosclerosis, reduces the level of lipids and fatty acids in the blood, and is recommended for patients with impaired lipid metabolism (ischemia, obesity) as part of a vegetable and fruit diet. . Reducing cholesterol levels in a person's blood reduces the risk of heart disease

Pectin is widely used to improve the functioning of the gastrointestinal tract. Pectin regulates digestive processes because it reduces the calorie content of food, improves the motor function of the intestine and affects the absorption of fats, proteins, carbohydrates, mineral salts and vitamins. The ability of pectin to form a film and gel is used in the treatment of stomach and intestinal ulcers. Covering the walls of the stomach and intestines, pectin protects them from changes in secretion. Since pectin is a buffer, it stabilizes the pH of the gastrointestinal system.

Pectin has antiseptic properties. It has a strictly individual effect on bacteria, it has a slightly weaker antibacterial effect on non-spore-forming pathogens of food poisoning, dysentery bacteria, staphylococci, suppresses putrefactive processes and helps to treat the largest mucous membrane defects. A decrease in the methoxylation level of pectin leads to an increase in its antibacterial activity.

Pectin is important as a blood plasma substitute and hemostatic agent. Increases blood clotting in hemophilia. The hemostatic properties of pectin preparations are successfully used abroad for bleeding from the lungs, bleeding of the esophagus, stomach and intestines.

Fruit foods with the addition of pectin have a beneficial effect on the hematopoietic system and are recommended for preventive nutrition for workers working in conditions of increased background radiation.



Pectin is widely used as a wound healing agent. It is used in surgery to treat wounds and is recommended as a treatment for burns.

Positive use of pectin is known to treat patients with osteoarticular tuberculosis and polyarthritis. Due to its medicinal properties, pectin is the basis of preventive nutrition and therapeutic diets. For individuals in contact with toxic substances, the possibility of using it to obtain food was studied. On the basis of raw materials containing pectin, as well as semi - finished products with a high gelling ability, which are recommended for the creation of products for treatment and prophylaxis, were offered-pastes, purees.

Pectin is naturally present in a wide variety of fruits, especially those with a high content of citrus, apples and berries. Some fruits with a high pectin content:

Apples: especially those with a tart flavor, such as Granny Smith apples, are particularly rich in pectin on their skin and cores.

Citrus fruits: oranges, lemons, limes and grapefruits are all excellent sources of pectin, primarily in their peel and membranes.

Fruits: strawberries, blackberries, raspberries and blueberries contain medium to high levels of pectin, especially when they are not slightly ripe.

Pears: like apples, pears contain pectin, especially on the skin and cores.

Quince: these little-known fruits have a very high pectin content and are often used to make jams and jellies.

Guavas: ripe and unripe guavas are rich sources of pectin.

plums: especially unripe plums have a high pectin content.

Currants: black and red currants are high in pectin and are often used to make jams and jellies.

Gooseberries: these cake berries are rich in pectin and are often used in jams, jellies and desserts.

Prunes: especially unripe apricots have a high pectin content.

These fruits can be used in various culinary applications to naturally thicken food or as ingredients in jams, jellies and preserves. Including these fruits in your diet can also provide dietary fiber and other important nutrients.

As a gelling agent, pectin is used to make marmalade and jelly. It is also used in the production of pastille-marmalade products, candy caramels, Sweets, Candy fillings, Drage body and is added to chocolate to improve its properties.

Pectin is used for the production of puddings, mousses, marshmallows, jams, jams, fruit salads, drinks and candies. So, on the basis of pectins with an esterification rate of 45.5 and 33.2%, recipes have been developed for the configuration of apricots and



strawberries with a sugar content of 30-35%, pectin 1.1%, calcium chloride no more than 0.6%.

In the dairy industry, Apple pectins are used in the production of fruit masses for yogurt, milk sweets and other fermented milk products.

In the canning industry, pectin substances are used as emulsifiers and stabilizers in the production of tomato filling for canned fish, canned fruits and berries, soups, deep-cooled meat products, ready-made baby food.

Pectin is used for the production of highly prepared semi-finished products and ready-made culinary products. New types of food products with the addition of pectin have also been developed: cereals with mayonnaise, ice cream.

In conclusion, pectin is considered of great importance in medicine. It is also used as a wound healing agent, for the treatment of wounds in surgery, and as a treatment for burns, as a substitute for blood plasma and as a hemostatic agent, successfully used abroad for bleeding from the lungs, esophagus, stomach and intestines. Pectin is of great importance in human health.

References

1. Beteva E.A., Kochetkova A.A., Gernet M.V. Pektin, uning modifikatsiyasi va oziq-ovqat sanoatida qo'llanilishi // AgroNIITEIPP. Ser. 17. Qandolat sanoati. - 1992. - Nashr. 4. - No 1. - 32 b.
2. Sheluxina N.P. Pektin texnologiyasining ilmiy asoslari. - Frunze: Ilim, 1988. - 168 b.
3. Baltaga S.V. Oziq-ovqat pektinining yangi manbai sifatida em-xashak tarvuzini biokimyoviy o'rganish: Muallif referati. dis. ...kand. biol. Sci. - Kishinyov, 1960. - 12 b.
4. Sapozhnikova E.V. Pektik moddalar va pektolitik fermentlar. - M.: SSSR Fanlar akademiyasining nashriyoti, 1971. - 137 b.
5. Sheluxina N.P., Ashubaeva Z.D., Aimuhamedova G.B. Pektik moddalar, ularning ayrim xossalari va hosilalari. - Frunze: Ilim, 1970. - 71 b.
6. Pektin. Ishlab chiqarish va qo'llash / N.S. Karpovich, L.V. Donchenko, V.V. Nelina va boshqalar - Kiev: Hosillar, 1989 yil.- 88 b.
7. Sheidon Reiser. Insonning balandligi bilan bog'liq bo'lgan dietali pektinlarning metabolik ta'siri // Oziq-ovqat texnologiyasi. - 1987. - 41. - No 2. - B. 91-99.
8. Skurixin I.M., Shaternikov B.A. Qanday qilib to'g'ri ovqatlanish kerak. - M: Agropromizdat, 1985. - 239 b.
9. Aymuxamedova G.B., Alieva D.E., Sheluxina N.P. Pektinli sorbentlarning xossalari va qo'llanilishi. - Frunze: Ilim, 1984. - 131 b.





10. Granchev D. Mamlakatimizda ishlab chiqarilgan Vidove pektin - xususiyatlari va sanoat qo'llanilishi // Konservasi sanoati. - 1981. - No 11. - B. 25-28.
11. Zaiko G.M., Gaivoronskaya I.A., Xadkevich V.A. Meva, sabzavotlar va ularni qayta ishlangan mahsulotlarda pektin miqdori // Izv. universitetlar Oziq-ovqat texnologiyasi. - 1988. - No 5. - B. 94.
12. Buzina G.V., Parfenenko V.V. Bendery konserva uyushmasi tomonidan ishlab chiqarilgan olma pektinining qandolat sanoatida qo'llanilishi // Nonvoy va qandolatchi, sanoat. - 1973. - No 9. - B. 13-14.
13. Konservasi zavodi uchun mo'ljallangan uyda to'ldirishda ishlab chiqarish jarayonida har qanday emulsifikatorlar va stabilizatorlardan foydalanish imkoniyati / S. Stamov, M. Chaneva, Chr. Krachanov, A. Bratanov // Ribno stopanstvo. -- 1972.
14. Самигова, Н. Р., Мирсагатова, М. Р., & Нигматуллаева, Д. Ж. (2018). Экологические последствия урбанизации и индустриализации современности. In ДОСТИЖЕНИЯ ВУЗОВСКОЙ НАУКИ 2018 (pp. 249-252).
15. Самигова, Н. Р. (2016). Исследования влияния производственного шума на слуховой анализатор работников объединения «Махсустрас». Молодой учёный, 8, 20.
16. Самигова, Н. Р., & Мирсагатова, М. Р. (2017). Изучение динамики изменений в функциональном состоянии сердечно-сосудистой системы рабочих мебельного производства. Молодой ученый, (50), 126-129.
17. Зуфаров, П. С., Пулатова, Н. И., Мусаева, Л. Ж., & Авазова, Г. Н. (2023). Содержание нерастворимого слизистого геля в желудочном соке у больных язвенной болезнью двенадцатиперстной кишки при применении стандартных схем квадритерапии (Doctoral dissertation, Ўзбекистон, Тошкент).
18. Karimov, M. M., Zufarov, P. S., Go'zal, N. S., Pulatova, N. I., & Aripdjanova, S. S. (2022). Ulinastatin in the conservative therapy of chronic pancreatitis. Central Asian Journal of Medicine, (3), 54-61.
19. Зуфаров, П. С., Якубов, А. В., & Салаева, Д. Т. (2009). СРАВНИТЕЛЬНАЯ ОЦЕНКА ЭФФЕКТИВНОСТИ ОМЕПРАЗОЛА И ПАНТОПРАЗОЛА ПРИ ЛЕЧЕНИИ ГАСТРОПАТИИ, ВЫЗВАННОЙ НЕСТЕРОИДНЫМИ ПРОТИВОВОСПАЛИТЕЛЬНЫМИ СРЕДСТВАМИ У БОЛЬНЫХ РЕВМАТОИДНЫМ АРТРИТОМ. Лікарська справа, (3/4), 44-49.
20. Karimov, M. M., Zufarov, P. S., Yakubov, A. V., & Pulatova, N. I. (2022). Nospetsifik yarali kolitli bemorlar xususiyatlari (Doctoral dissertation, Toshkent).



21. Karimov, M. M., Zufarov, P. S., Pulatova, D. B., Musaeva, L. J., & Aripdjanova, N. I. P. S. S. (2021). Functional dyspepsy: current aspects of diagnostics and treatment.
22. Саидова, Ш. А., Якубов, А. В., Зуфаров, П. С., Пулатова, Н. И., & Пулатова, Д. Б. (2024). ВЫБОР АНТАГОНИСТОВ МИНЕРАЛОКОРТИКОИДНЫХ РЕЦЕПТОРОВ ПРИ РАЗЛИЧНЫХ ПАТОЛОГИЯХ.
23. Акбарова, Д. С., Комолова, Ф. Д., Якубов, А. В., Зуфаров, П. С., Мусаева, Л. Ж., & Абдусаматова, Д. З. (2024). СРАВНИТЕЛЬНОЕ ИЗУЧЕНИЕ ЭФФЕКТИВНОСТИ И БЕЗОПАСНОСТИ ОТЕЧЕСТВЕННОГО ПРЕПАРАТА ЛЕВОФЛОКСАЦИНА РЕМОФЛОКС® НЕО У БОЛЬНЫХ С ВНЕБОЛЬНИЧНОЙ ПНЕВМОНИЕЙ.
24. Musayeva, L. J., Yakubov, A. V., Pulatova, N. I., Zufarov, P. S., Akbarova, D. S., & Abdusamatova, D. Z. (2023). WOMEN'S HEALTH AND DIFFICULTIES IN PREGNANCY. *Science and Society*, 1(1), 78-85.
25. Каримов, М. М., Зуфаров, П. С., Собирова, Г. Н., Каримова, Д. К., & Хайруллаева, С. С. (2023). Комбинированная терапия гастроэзофагеальной рефлюксной болезни при коморбидности с функциональной диспепсией. *Экспериментальная и клиническая гастроэнтерология*, (3), 41-45.
26. Karimov, M. M., Zufarov, P. S., & Sobirova, G. N. (2023). Evaluation of the Effectiveness of Eradication Therapy Based on Potassium-Competitive Acid Blockers in Patients with Helicobacter Pylori Associated Chronic Gastritis. *Journal of Coastal Life Medicine*, 11, 1481-1483.
27. Zufarov, P., Karimov, M., & Sayfiyeva, N. (2023). EVALUATION OF THE EFFECTIVENESS OF GASTRITIS IN THE TREATMENT OF FUNCTIONAL DYSPEPSIA. *Евразийский журнал медицинских и естественных наук*, 3(1 Part 1), 116-121.
28. Zufarov, P., Karimov, M., & Abdumajidova, N. (2023). CORRECTION OF PSYCHOEMOTIONAL STATUS IN GASTROESOPHAGEAL REFLUX DISEASE. *Евразийский журнал академических исследований*, 3(1 Part 3), 67-72.
29. Каримов, М. М., Рустамова, М. Т., Собирова, Г. Н., Зуфаров, П. С., & Хайруллаева, С. С. (2023). Оценка эффективности К-КБК вонопропранола в комплексе эрадикационной терапии у больных с хроническими Нр-ассоциированными гастритами. *Экспериментальная и клиническая гастроэнтерология*, (12 (220)), 54-58.