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IMMUNOSTIMULATING PROPERTIES OF NATURAL CHEMICAL COMPOUNDS CONTAINED IN BARBERRY FRUITS

ИММУНОСТИМУЛИРУЮЩИЕ СВОЙСТВА ПРИРОДНЫХ ХИМИЧЕСКИХ СОЕДИНЕНИЙ, СОДЕРЖАЩИХСЯ В ПЛОДАХ БАРБАРИСА

ЗИРК МЕВАСИ ТАРКИБИДАГИ ТАБИИЙ БИРИКМАЛАРНИНГ ИММУНОСТИМУЛЯТОРЛИК ХОССАЛАРИ

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Annotatsiya

O'zbekiston Respublikasining tog' oldi hududlari, adirlar hamda bog'larida uchrovchi Qora zirk (Berberis oblonga Schneid) o'simligi mevasining kimyoviy tarkibini o'rganish va shu asosida undan yangi dorivor biologik faol qo'shimcha olish haqida. Avval o'simlik mevasini TN-300 rusumidagi vakuumli ekstraktor yordamida suv-etanol (70-30) eritmasi bilan past haroratda ekstraksiya qilindi. Dorivor o'simlik biologik faol moddalarga boy ekanligi ayniqsa bioflavanoidlar va organogen elementlar ko'p saqlaganligi bilan ahamiyatlidir. Odam organizmining immun tizimi uchun kerakli bo'lgan vitaminlar, mikro- hamda makrobiogen elementlarni saqlaganligi sababli immunostimulyatorlik hossaga egadir. O'simlik tarkibida antioksidant faollikka ega bo'lgan vitamin C kabi moddalar tutganligi sababli yuqori antioksidant ta'sirga ega bo'lgan tabiiy shifobahsh ozoq-ovqat qo'shilmalari olish mumkin.

Аннотация

Об изучении химического состава плодов растения Барбарис (Berberis oblonga Schneid), встречающихся в предгорьях, холмах и садах Республики Узбекистан, и на этой основе получить новую лекарственную биологически активную добавку. Предварительно плоды экстрагировали при пониженной температуре водно-этанольным раствором (70-30) с помощью вакуум-экстрактора типа ТН-300. Тот факт, что лекарственное растение богато биологически активными веществами, особенно важен, так как в нем сохраняется много биофлавоноидов и органогенных элементов. Обладает иммуностимулирующими свойствами за счет того, что в организме человека запасаются витамины, микро- и макробиогенные элементы, необходимые для иммунной системы. Благодаря тому, что растение содержит такие вещества, как витамин С, обладающие антиоксидантной активностью, возможно получение натуральных лечебных пищевых добавок, обладающих высоким антиоксидантным действием.

Abstract

This article is about the chemical composition of the fruit of the plant Berberis oblonga Schneid , found in the foothills, hills and gardens of the Republic of Uzbekistan, and on this basis to obtain a new medicinal biologically active supplement. First, the fruit was extracted at low temperature with a solution of water-ethanol (70-30) using a vacuum extractor type TN-300. The fact that the medicinal plant is rich in biologically active substances is especially important because it retains a lot of bioflavonoids and organogenic elements. It has immunostimulatory properties because it stores vitamins, micro-and macro-biogenic elements necessary for the human immune system. Due to the fact that the plant contains substances such as vitamin C, which have antioxidant activity, it is possible to obtain natural healing food supplements that have a high antioxidant effect.

Kalit so'zlar: ekstraktor, ekstragent, vakuum, immunostimulyator, gemopoez, vitamin S, flavonoid, alkaloid, berberin, makrofag, metabolit, oziq-ovqat qo'shilmalari.

Ключевые слова: экстрактор, экстрагент, вакуум, иммуностимулятор, кроветворение, витамин С, флавоноид, алкалоид, берберин, макрофаг, метаболит, пищевые добавки

Key words:extractor, extractant, vacuum, immunostimulant, hematopoiesis, vitamin C, flavonoid, alkaloid, berberine, macrophage, metabolite, food additives.

INTRODUCTION

As long as there is a history of people, there are also folk remedies. The effectiveness of natural medicines and nutritional supplements made from plant and animal organs is explained by their successful use and high biological activity, again less harmful to the body. At the same time, natural preparations have economic advantages, and the cost of herbal preparations is much lower than the cost of synthetic preparations. The incidence of infectious diseases in the population is associated with the immune system, and even in a healthy human body, immunity decreases due to various biological and social factors, as a result of which a person is easily infected with colds

and infectious diseases. Especially in cold winters, as a result of a slowdown in metabolism and, again, due to insufficient intake of nutrients in the body, the immune system weakens.

Taking into account these problems, the goal was set to use black barberry (Berberis oblonga Schneid) to create natural therapeutic food supplements based on local medicinal plants, since this plant is rich in biologically active substances and retains substances that stimulate hematopoiesis in the body.

LITERATURE ANALYSIS

The barberry is red when ripe and darkens after drying, we also call it black barberry on the slopes of the foothills of Arlanbob in neighboring Kyrgyzstan. Due to the fact that this plant contains chemicals that stimulate the immune system, it is used among the population as a remedy for infectious diseases and a blood thinner.

Influenza is the general name for acute respiratory diseases, which include a number of viral infectious diseases, such as influenza, whooping cough, influenza. Since viruses are constantly evolving and changing, the body is not able to develop permanent immunity to them [1].

In infectious diseases, there is a hypothesis that plant extracts of an immunostimulating (adptogenic) nature affect the most important enzymatic system in the human body, activating the energy supply of the body's defense reaction by accelerating the processes of enzyme biosynthesis. This hypothesis has now been proven in vivo [2].

In addition, a number of scientists of the republic, including Ph.D., Professor I.R. Askarov and his students, created a number of immunostimulating food additives based on local medicinal plants.

There are natural and artificial forms of immunity, which are active (active) and passive (inactive).Natural active immunity is formed when a person experiences the disease, while natural passive immunity is passed on to the placenta during the mother's womb or through breast milk after birth [3].

Throughout human life, the immune system constantly fights against the opposite sex, and some types of synthetic drugs taken during illness weaken our immune system (immunodepressants). When our immune system is weakened, we need to take immunostimulants.

RESULTS AND DISCUSSION

First, dried barberry fruits were extracted under vacuum conditions, i.e. at low pressure and low temperature, using a vacuum extractor type TN-300. The following image (made in the Republic of China) shows the same vacuum extractor and its components:

Picture. Vacuum extractor TN-300

A- extractor, B- consentrator, C- collector

As one of the directions of research, extraction was carried out again using different proportions of water and ethyl alcohol in water to find the most optimal extractant. It was determined by iodometry that the extraction of ethanol-water (in the ratio of 70-30) for 12 hours contained the highest amount of biologically active substances, the highest content of vitamin C.All parts of the plant contain alkaloids, and the main part of the sum of isolated alkaloids is berberine. Its alkaloid-rich organs, roots and bark are [4].

KIMYO

Barberry is very rich in biologically active substances, the main biologically active substances are carotenoids, flavonoids, anthocyanins, ascorbic acid, organic acids, vitamins and carbohydrates. Due to the presence of large amounts of organic acids, the fruit has a sour taste, for example, malic acid itself contains up to 7% more citric and ascorbic acid, as well as up to 5% of carbohydrates and other organogenic elements.

The following table shows the chemical composition of 100g of black barberry dried fruit [5]:

Type of Barberry	Vitamin C %	Flovanoids%		Carotene mg %	Organic acids%
		Routine	Quartzetin		
Black Barberry	0,12	0,21	0,78	1,9	17

The ascorbic acid in barberry, as shown in the table above, cannot be produced by the body on its own, but must be absorbed by the outside world. It has strong antioxidant properties.It neutralizes foreign microorganisms that enter the body, ie viruses, bacteria, parasites, and stimulates the motile cells of our immune system called macrophages.As a result, the activity of immune cells (macrophages) increases. Macrophages contain iodine microorganisms and then neutralize them, in general, in this way the immune system performs its function.

This means that proteins are needed for the immune system to function properly, and coenzymes (process accelerators) must be formed for protein biosynthesis to take place, and some types of coenzymes are synthesized by the body from vitamins in medicinal plants such as barberry.

CONCLUSION

As a result of the research of scientists around the world, at a time when synthetic drugs are being replaced by natural drugs in all areas of medicine, it is appropriate to use natural medicinal barberry in order to strengthen immunity. This is because such a conclusion can be made based on the chemical composition of the medicinal barberry plant.Keeping in mind that the human body cannot synthesize certain types of vitamins on its own, this plant contains vitamins C, vitamin R and B, and these vitamins not only metabolite and also stimulate the immune system in the biochemical processes that take place in the body.

Biologically active substances such as flavonoids and carotene in black barberry (Berberis oblonga) have immunostimulatory properties. This plant is rich in macro- and micronutrients, which led to the invention of new natural drugs and new medicinal supplements.

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