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HEALTH AND TREATMENT FACTORS OF USING PHYTOTHERAPY (LITERATURE REVIEW)

Actuality. Phytotherapy has gained considerable popularity in recent years. And although phytotherapeutic agents act more slowly and require a longer period of time for treatment, they have fewer contraindications and do not act as aggressively on internal organs (liver, kidneys, pancreas, etc.) as artificial chemical compounds, which are the basis of most medical preparations and drugs. Therefore, we consider the study of the conditions of use of phytoproducts (fruits, vegetables, herbs) that improve or worsen the consequences of their use together with other food components as health-healing factors of phytotherapy.

The purpose of the study is to analyze the health-healing factors (conditions of use) of phytoproducts, including vegetables, fruits, flower petals, herbs, trees and their juices.

Material and methods. Research of special literary sources that shed light on the comparative conditions of use of phytopreparations and phytoproducts used together with other food components by patients.

Research results. For phytotherapy drugs, as well as for medical drugs, doses and form of application (pills or sachets, suppositories, solutions of liquids, in ampoules or containers, oral or anal, intravenous, etc.), chemical composition of the drug, its effect and contraindications have been studied. As for vegetables, fruits, herbs, buds and flowers of plants, the health-healing factors are covered only sporadically in separate sources, while we use them almost every day, and non-observance of these factors can significantly harm the health of ordinary citizens. The use of phytoproducts has its own problems: not always the form of administration and the conditions of their use and quantity contribute to health, often they can be ineffective and even harmful due to non-observance of health and healing factors (conditions of use), overload the patient, counteract each other or be completely incompatible. Therefore, in the process of phytotherapy, the rehabilitator must know not only the side effects and contraindications to these means, but also what are the specific medical and health conditions (factors) of using phytoproducts and means, how they are combined and what is the sequence of using these means in rehabilitation, so that they complement and enhanced each other's effects and were compatible with other foods and treatments.

Conclusions. Methods and methods of stagnation of physiotherapy, dosage of stagnation, side effects, contraindications, possibility of intensive (one-hour) stagnation with one or more medications, temperature and seasonal characteristics of treatment, stasis of phytoproducts are also present at various stages of treatment and are presented in the range of health and treatment officials. In special sources, the effect on the body of phytopreparations, their side effects and contraindications, features of use at different stages of treatment, dosages and form of application, while phytoproducts that we use almost daily, are not sufficiently studied and mainly considered. Information about the health and medical factors of the use of phytoproducts is covered only sporadically in some sources, and in fact non-compliance with these factors can significantly harm the health of ordinary citizens.

Key words: phytotherapy, phytopreparations, phytoproducts, health-healing factors, means application.

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ОЗДОРОВЧО-ЛІКУВАЛЬНІ ЧИННИКИ ЗАСТОСУВАННЯ ЗАСОБІВ ФІТОТЕРАПІЇ (ОГЛЯД ЛІТЕРАТУРИ)

Актуальність. В останні роки фітотерапія набуває значної популярності. І хоча фітотерапевтичні засоби діють повільніше і потребують більш значного терміну для лікування, зате мають менше протипоказань і не діють так агресивно на внутрішні органи (печінку, нирки, підшлункову залозу тощо), як штучні хімічні сполуки, які закладені в основу більшості лікарських препаратів і ліків. Тому дослідження умов вживання фітопродуктів (фруктів, овочів, трав), які покращують або погіршують наслідки їх застосування, разом з іншими складниками їжі ми розглядаємо як оздоровчо-лікувальні чинники фітотерапії.

Мета дослідження – аналіз оздоровчо-лікувальних чинників (умов застосування) фітопродуктів, у числі яких – овочі, фрукти, пелюстки квітів, трав, дерев та їхні соки.

Матеріал і методи. Дослідження спеціальних літературних джерел, які висвітлюють порівняльні умови застосування фітопрепаратів та фітопродуктів, які вживають разом з іншими складниками їжі пацієнти.

Результати дослідження. Для препаратів фітотерапії, як і для лікарських засобів, досліджено дози і форму застосування (пігулки або саше, свічі, розчини рідин, в ампулах або ємностях, оральна або анальна, внутрішньовенна тощо), хімічний склад препарату, його дію та протипоказання. Що ж стосується овочів, фруктів, трав, бруньок та квіток рослин, оздоровчо-лікувальні чинники висвітлюються лише епізодично в окремих джерелах, тоді як ми вживаємо їх майже щодня, і недотримання цих чинників може значно зашкодити здоров'ю пересічних громадян. Застосування фітопродуктів має свої проблеми: не завжди форма введення і умови їх застосування та кількість сприяють оздоровленню, нерідко вони можуть бути неефективними і навіть шкідливими через недотримання оздоровчо-лікувальних чинників (умов використання), перевантажувати пацієнта, протидіяти один одному або бути зовсім несумісними. Тому у процесі фітотерапії реабілітолог має знати не лише побічні дії та протипоказання до цих засобів, а й які саме лікувальні та оздоровчі умови (чинники) застосування фітопродуктів та засобів, як вони поєднуються і яка послідовність використання цих засобів у реабілітації, щоб вони доповнювали і підсилювали дію один одного і були сумісними з іншими продуктами їжі та методами лікування.

Висновок. Способи і умови застосування засобів фітотерапії, дози застосування, побічні дії, протипоказання, можливість сумісного (одночасного) застосування один з одним та з лікарськими препаратами, температурні та сезонні особливості вживання, застосування фітопродуктів натще та на різних етапах лікування пропонується виділяти як оздоровчо-лікувальні чинники, адже у спеціальних джерелах досліджена і переважно розглядається дія на організм саме фітопрепаратів, їхня побічна дія та протипоказання, особливості застосування на різних етапах лікування, дози і форма застосування, тоді як фітопродукти, які ми вживаємо майже щоденно, досліджено недостатньо. Інформація про оздоровчо-лікувальні чинники застосування фітопродуктів висвітлюється лише епізодично в окремих джерелах, але ж недотримання цих чинників може значно зашкодити здоров'ю пересічних громадян.

Ключові слова: фітотерапія, фітопрепарати, фітопродукти, оздоровчо-лікувальні чинники, засоби застосування.

Aktuality. In recent years, phytotherapy has gained significant popularity (Velya, 2023; Hutsol, 2023; Ilnytska, 2024; Kravchenko, Mishchenko, Levchenko, 2020). New drugs are being discovered, such as artemisinin, which was awarded the Nobel Prize in Physiology or Medicine (Xin-Zhuan Su, Louis H. Miller, 2019). And although phytotherapeutic agents act more slowly and require a longer period of time for treatment, they have fewer contraindications and do not act as aggressively on internal organs (liver, kidneys, pancreas, etc.) as artificial chemical compounds, which are the basis of most medical preparations and drugs (Garna, Vladimirova, Burd, 2016; Kobzar, 2007). The properties of plants that are characteristic of a particular area have been studied (Hulko, 2005; Kolesnyk, Kornievsky, Panasenko, 2013; Newmaster, Grguric, Shanmughanandhan, Ramalingam, Ragupathy, 2019). The use of phytopreparations and phytoproducts in cardiology has significant advantages (Kornievsky, Kraydashenko, Krasko, Boguslavskaya, Kornievskaya, 2017). Physiotherapy for patients with hypertension and cervical fibromyalgia is being studied (Kovaleva, 2022). The toxic properties of plants, mechanisms of bioactivation of plant components are highlighted and studied (Kornievskiy, 2012; Bo Wen, Peter Gorycki, 2019). Separate areas of phytoplant application are developing, for example in phytoremediation (Tsyt-syura, Skatula, Zabarna, Pelech, 2022).

Dosages and forms of administration, chemical composition of the drug, its action and contraindications have been studied for herbal medicine, as well as for medical drugs (Kovalenko, 2014; Benzel, Darmogray, Oliynyk, 2010; Aviva Romm, 2019; Bone, Mills, 2012). As for vegetables, fruits, herbs, buds and flowers of plants, the health-healing factors are highlighted only episodically in separate sources (Ikhlas et al, 2019; Heinrich, 2012; Shelton, 2009), while we use them almost daily and non-observance of these factors can significantly harm the health of ordinary citizens, especially women and children (Barues, Anderson, Phillipson, 2007; Ilnytska, 2024).

The use of phytoremedies, herbs, vegetables, and fruits has its own problems: not always the form of invasion and the conditions of their use and quantity contribute to a faster recovery, often they can be ineffective and even harmful due to non-observance of health and healing factors (conditions) of use, overload the patient, counteract each other or be completely incompatible (Garnyk, Petrishcheva, Ignatova, 2019; Ikhlas A. Khan, Ehab, 2019; Heinrich, 2012). Therefore, in the process of phytotherapy, the rehabilitator should know not only the side effects and contraindications to these remedies, but also what are the specific medical and health conditions (factors) of the use of phytoproducts and remedies, how they

are combined, and what is the sequence of using natural ingredients in rehabilitation, so that they complement and enhanced the effect of each other and were compatible with other food products and treatment methods (Kornievsky, Panasenko, Kornievskaya, 2012; Konovalova, Mitchenko, Shuraeva, 2008; Bo Wen, Peter Gorycki, 2019). In most special sources on phytotherapy, these issues are covered only partially. Even in recent years, works have been published emphasizing that phytotherapy is a complex science and should include not only information about the plant, its chemical composition, medicinal products, methods of obtaining them, symptoms of the disease, diagnosis and methods of its treatment. Side effects and contraindications, or, for example, the specifics of the use of herbal preparations at various stages of treatment, are investigated in detail, which is very important (Garna, Vladimirova, Burd, 2016), however, this applies to herbal preparations, while the comprehensive coverage of health-healing factors in the use of herbal products is not given enough attention, although Herbert Shelton in the 50–60 of the last century made the first discoveries and emphasized the importance of researching this problem (Shelton, 2009).

The purpose of the study is to analyze the health-healing factors (conditions of use) of phytoproducts, including vegetables, fruits, petals of flowers, herbs and trees, etc.

Research materials and methods. Research of special literary sources that shed light on the comparative conditions of use of phytopreparations and phytoproducts used together with other food components by patients.

Research results and discussion. Phytotherapy is a method of treatment, in which the main drugs are herbal medicines and herbs, fruits and vegetables, which contain a complex of biologically active substances. The use of these various means and methods of phytotherapy should be aimed at achieving the maximum health and healing effect in the shortest possible time. However, the form of administration and the conditions of use, the amount, do not always contribute to faster recovery, often phyto-products can be ineffective and even harmful due to non-observance of health and healing factors (conditions) of use, overload the patient, counteract each other or be completely incompatible. Therefore, in the process of phytotherapy, the rehabilitator must know not only the contraindications and side effects of these phytoproducts, but also the exact therapeutic and health conditions (factors) of the use of phytoproducts, how they are combined, and what is the sequence of using these rehabilitation tools so that they complement and enhance the effect of one one and were compatible with other foods and treatments.

Let's consider table, which is compiled according to a scheme typical for most sources, where the effect of some vitamins and plants on the human body is presented.

The data presented in table show that the action of vitamins and plants is very important and useful, but the health-healing factors of their use are not indicated. Let's analyze what we mean by health and healing factors:

1. *The method and conditions of use* – there are very few publications in which form and how to take the above-mentioned vitamins and products, because they can be taken in the form of pills, dessert or oral drinks with food, and they can be administered in the form of solutions by the electrophoresis method. In the first case, the drug is distributed more or less evenly throughout the body, in the second case, it is concentrated in the area where it is most needed.

2. *Doses of use.* They are usually indicated on herbal preparations, but as for fruits and vegetables, the optimal dose of consumption is not always known to the average consumer, while an overabundance of them can provoke very unpleasant health problems. For example, carrots and oranges contain a lot of vitamin A, which in large quantities can have a negative effect on the liver, cause heartburn, contribute to impaired kidney function, so carrot-orange juice does not make sense for consumption, it does not meet the health and healing factors despite persistent advertising .

3. *Contraindications.* Different enzymes are needed to digest each type of food. Eating different foods at the same time reduces the efficiency of food processing, slows down digestion, causes putrefactive processes, the formation of gases, etc. Many herbal medicines have side

Table

The effect of some vitamins and plants on the human body

Vitamins and some plants	Impact on the body
Vitamin A	Normalizes the permeability of small capillaries.
Vitamin B1	Strengthens the heart muscle. Prevents the occurrence heart attack.
Vitamin B2	Increases the amount of oxygen in the blood.
Vitamin B3	Dilates blood vessels, lowers pressure immediately after taking.
Vitamin B12	Vitamin B12 improves blood clotting.
Vitamin C	Strengthens and tones the walls of blood vessels. reduces the probability development of atherosclerosis and hypertensive crisis.
Vitamin D	Strengthens immunity, protection against bacteria, viruses, infections, eases the severity of the transfer of any diseases, reduces the risk of respiratory infection, regulates production cytokines and can limit the threat of viral diseases such as the flu.
Vitamin D3	Stimulates the work of various organs and systems of the human body, including the immune, nervous, musculoskeletal, cardiovascular, endocrine systems, helps restore strength, healthy sleep and improve mood, etc.
Vitamin E	Vitamin E is an antidepressant, protects skin and eye cells from degeneration and damage.
Vitamin K (parsley, spinach, cabbage, rose hip)	Helps to strengthen capillaries and stop bleeding. The need increases with hepatitis, liver cirrhosis, intestinal disorders, gallstone disease, bleeding, as well as with long-term use of antibiotics.
Hypericum perforatum	Reduces spasms of the intestines and bile ducts, normalizes the excretory function of the gastric glands, expands blood vessels, increases blood circulation, has an anti-inflammatory effect on the mucous membranes of the digestive tract, an astringent and bacteriostatic effect. The use of St. John's wort is indicated and gives a good therapeutic effect for dyskinesia of the biliary tract, hepatitis, stagnation of bile in the gallbladder, cholecystitis, gallstone disease (in the initial stage), hypoacid gastritis, flatulence, acute and chronic colitis, simple and bloody diarrhea and hemorrhoids . As a diuretic, St. John's wort is used for kidney stone disease (in the initial stage) and when the filtration capacity of the kidneys is reduced.
Crataegus oxycantha	It has a cardiotonic, antispasmodic, hypotensive, sedative and desensitizing effect. Increases the force of heart contractions, regulates blood pressure (increased – lowers, decreased – increases), reduces excitability of the nervous system.
Comarum palustre	Stimulates collagen synthesis, improves cell regeneration, preventing the destruction of joint tissue; prevents inflammatory processes in the joints, normalizes metabolism in joints and around joint tissues; stimulates blood microcirculation, prevents the deposition of salts.
Leonurus cardiaca	It has antispasmodic, sedative and hypotensive properties, slows the heart rate, increases the force of heart contractions, has a weak diuretic effect, regulates the menstrual cycle and the functions of the digestive system. It is used for cardiosclerosis, increased blood pressure, angina pectoris, myocarditis, cardioneurosis, excessive nervous excitability, especially when it is associated with menopause in women and prostate hypertrophy in men, in case of psychasthenia and neurasthenia, accompanied by insomnia, a feeling of tension and increased reactivity, and with vegetoneurosis.

effects that are unknown to consumers. Often, information about precautions, side effects and interactions with conventional medicines is not indicated on the packaging of herbal medicines and on the inserts contained in the package. Many herbal preparations are not licensed and do not meet any safety and quality standards, and are sold under the guise of food supplements. Only 13 percent of peer-reviewed drugs had instructions, and only 3 of these had sufficient information on safe use (Raynor, Dickinson, Knapp, Long, Nicolson, 2011, pp. 94–95).

Phytoproducts have even more contraindications unknown to ordinary citizens, for example, parsley has an excellent antispasmodic, diuretic and choleretic effect, dissolves sand and stones in the urinary tract, successfully copes with edema of cardiac origin, eliminates inflammatory processes in the urinary bladder, increases the tone of the uterus. But the use of parsley is contraindicated in acute cystitis, pyelonephritis and gout, as well as during pregnancy, as the plant has abortifacient properties.

It is contraindicated to eat food rich in proteins (proteins) together with starchy foods, as the stomach secretes acid that destroys amylase, which is contained in saliva, and the breakdown of starch occurs precisely under the influence of the amylase enzyme, that is, proteins and starch cannot be processed into one and the same at the same time, as well as meat and potatoes, moreover, starch is incompatible with acid-rich foods. Incompatible proteins with acidic fruits or tomatoes, as pepsin is destroyed under the influence of most acids, including fruit acids. It is undesirable to combine fats with proteins, which interfere with the secretion of gastric juice and interfere with the digestion of proteins. Also, when sugar and starch enter the body at the same time, then sugar will be processed first, which has the property of fermenting in the stomach, thereby producing an enzyme that destroys amylase in saliva, which is necessary for starch processing. It is not advisable to mix sugar with proteins. Sugar will interfere with the secretion of gastric juice, thereby interfering with the digestion of proteins. Sugar is digested only after the proteins have been digested, waiting for its turn, the sugar will begin to ferment (Shelton, 2009).

For arthrosis, a chronic disease of the joints, which occurs in old age and tends to worsen over the years, an irreplaceable herbal remedy is «Comarum palustre». With age, the human body produces less and less collagen – the building material for cartilage tissue and joints, ligaments weaken, and useful micronutrients are absorbed worse. Heredity and past injuries are also important. This leads to thinning, deformation and destruction of cartilage. Arthrosis is manifested by pain and reduced joint mobility. «Comarum palustre» stimulates collagen

synthesis, improves cell regeneration, preventing the destruction of joint tissue; prevents inflammatory processes in the joints, normalizes metabolism in the joints and surrounding joint tissues; stimulates blood microcirculation, prevents salt deposition. Regular use of preparations from «Comarum palustre» helps to avoid the occurrence of arthrosis or to overcome the disease even in old age. But there are also contraindications for its use – individual intolerance of the plant and low blood pressure in the patient, hypotension, epilepsy, neurological diseases, bradycardia (Grodzinsky, 1992; Tsitsyura, Shkatula, Zabarna, Peleh, 2022; Volodina, Korotkevich, Romanyuk, Galkin, Kolybo, Komisarenko, 2017).

4. Compatibility (simultaneity) of use with hospital drugs. It is not always possible to use food products at the same time as taking medical drugs, as the action of these drugs can be blocked by chemical compounds containing some vegetables and fruits, especially citrus fruits, dairy and smoked products, etc. For example, you cannot combine taking grapefruits and cough medicine. This also applies to the combination of medical drugs with lime and pomelo. These fruits block the production of an enzyme that processes statins and other drugs, such as the cough medicine dextromethorphan. As a result, the drug accumulates in the blood, which can lead to unwanted side effects. In the case of a combination of citrus fruits with dextromethorphan, hallucinations and drowsiness may appear, and with statins – serious muscle damage. The effect of these fruits lasts a little more than a day, so you should take them and the medicine with an interval of at least 24 hours.

Phyto products or fruits containing ascorbic acid increase the absorption of iron from meat food, which is usually absorbed by 20–50%, while dairy products reduce this absorption of iron, especially against the background of chronic inflammation. At the same time, these drugs and apple, orange, or grapefruit juice should not be consumed at the same time as hay fever medications, as these juices inhibit the peptide that transports the medication from the intestine into the bloodstream. As a result, the effectiveness of the drug decreases by 70 percent, which will make its use ineffective. Also, these juices should not be consumed while taking the antibiotic ciprofloxacin, thyroid medications, or allergy and asthma medications. The interval between taking the above medicines and juices should be at least 4 hours.

Barberry is used to thin the blood, because it contains a lot of vitamin K. Foods such as broccoli or leafy greens also have a large amount of vitamin K, which plays a key role in blood clotting, and its reduction will have a bad effect on its density. But here another prob-

lem arises. Cinnamon contains the substance Coumarin, which, like the drug Varvarin, thins the blood. Taking both of these substances can cause serious liver damage. If you take Varvarin but can't live without a cup of aromatic coffee with cinnamon, you should switch to a high-quality Ceylon variety of cinnamon (Kornievsky, Kornievskaya, Kulichenko, Panchenko, 2021).

There are incompatible products that contain incompatible ingredients in food and drinks and can provoke indigestion and the related symptoms of discomfort and fatigue, and this is in the mildest case, so it is better to avoid them. For example, the combination of coffee and milk is undesirable, since the tannins contained in coffee have a "binding" effect and prevent the protein contained in milk from being absorbed. The combination of coffee tannins and milk protein casein forms a substance that is poorly absorbed and therefore remains in the stomach for a long time. In the long term, this can seriously undermine health and even provoke stomach cancer.

5. Temperature features of use. Honey and hot tea or other hot liquid are also undesirable to combine, although they are individually beneficial for health. When honey is heated to 60 degrees, it synthesizes substances that can affect the body like real toxins that accumulate in it, destroy the integrity of cells and create an additional burden on the liver. It is more effective to consume honey in a bite with warm liquids – water, tea or milk (Jarvys, 1981; Kravchenko, Mishchenko, Levchenko, 2020).

6. Eating phytoproducts on an empty stomach. The incompatibility of eating some fruits on an empty stomach has been established, for example, sweets and pears can have a negative effect on the body. Crude fiber, with which pears of any variety are saturated, is useful for the intestine, but before that it needs to be filled with other food, therefore, as a dessert, pears in limited quantities are very useful, but on an empty stomach they are very difficult for the stomach and can even harm and injure its mucous membrane. Also, once in the stomach, sweet fruits provoke the release of insulin. For the pancreas, this is an extreme irritant, which requires it to engage in an emergency action to neutralize insulin from a state of complete rest. Regular consumption of sweet fruits in large quantities can lead to digestive disorders, and if too much sweets are consumed on an empty stomach, there is a risk of diabetes.

Bananas are rich in magnesium and useful for the body, but it is not recommended to use them on an empty stomach, as magnesium is absorbed very quickly, and it is a significant threat to the heart muscle.

Green vegetables on an empty stomach are not recommended to be consumed raw as salads, as they are digested very slowly, and with insufficient amount of gastric juice – even more slowly, and until the body

begins to digest the acids that are part of the vegetables, conditions are created for the occurrence of heartburn.

7. Peculiarities of seasonal food consumption. In the cold season, food should be warming, rich in nutrients and oily to give energy and strengthen immunity. In the summer, it is necessary to consume an increased amount of liquid, for example, okroshka, kvass, cooling drinks, but they should not contain sugar and undesirable emulsifiers. There are well-known examples of seasonal fluctuations in the efficiency of plants. In particular, adaptogens (ginseng, leuzea, eleutherococcus, golden root, etc.) are not recommended to be prescribed in summer, in hot weather, glucocorticoids are more effective in spring, and sleeping pills – in autumn and winter.

8. Features of use at different stages of the disease. In the initial stages of the disease (development of clinical signs), herbal remedies can be essential, able to prevent the further development of the disease or reduce its manifestations. At the stage of the active phase of the disease, the use of modern potent drugs is more effective. Phytopreparations can serve as means of additional therapy to reduce toxicity and the risk of complications, increase the effectiveness of the main treatment, and correct impaired body functions. At the stage of recovery, complex herbal remedies should increasingly replace synthetic ones, replacing them completely at the end of treatment. The leading role is played by complex herbal preparations at the stage of relapse treatment, at the stage of rehabilitation. Advantages: low toxicity, low risk of complications, the possibility of long-term use in chronic diseases, where herbal remedies can be used as a supportive therapy between courses of the main treatment (Garna, Vladimirova, Burd, 2016; Arkhy-pova, Deriabin, Trokhymchuk, Starosyla, Atamaniuk, Zavelevich, Vialykh, Rybalko, Galkin, 2023).

9. Features of application for different population groups. The age of the patient, gender, genetic factors, the state of the body at that moment, and biorhythms are essential for predicting the result of the pharmacological effect on the body. The use of phytoproducts and phytopreparations in women and children was studied, and it was established that they have significant features (Illytska, 2024; Kravchenko, Mishchenko, Levchenko, 2020).

As can be seen from the presented materials, it seemed that known products change their effect depending on their interaction with each other and even on the temperature of the substance during use. Also, the effect of some vitamins on the human body, presented in Table 1, has been studied, but how they interact with each other, their complex action and compatibility, the sequence of use requires additional research.

In our further work, we plan to investigate the methods of introduction of phytopreparations by means of electrophoresis and their interaction with electrostimulation and electromassage.

Conclusions

1. By health-healing factors, we understand the conditions of use of phytotherapy products, namely: the method and conditions of use, doses of use, side effects, contraindications, the possibility of compatible (simultaneous) use with each other and with hospital drugs, temperature and seasonal features of use, the use of phytoproducts on an empty stomach, in different population groups and at different stages of treatment.

2. The influence of herbal preparations on the body, their side effects and contraindications, their

use at different stages of treatment, doses and forms of administration are studied and considered in detail in special sources. As for phytoproducts, the health-healing factors of their use are highlighted only sporadically in separate sources, while we use them almost daily, and non-observance of these factors can significantly harm the health of ordinary citizens.

3. The interaction of phytoproducts, vegetables, and fruits with means of physical therapy (performed factors), especially such as electrophoresis, electrostimulation and electromassage, infrared irradiation, which requires additional research, is insufficiently studied.

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Contribution of the authors:

Vykhliaiev Yu.M. – idea, research design, text writing, conclusions, correction of the article;

Dudorova L.Yu. – collection and analysis of literature, statistical data processing, abstracts, summaries;

Petsenko N.I. – participation in writing the article, translation;

Chernovsky S.M. – data collection and analysis, participation in writing the article.

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