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Economic Benefits of Implementing Apitherapy Technologies in Healthcare in Ukraine and the USA

Anatolii Olshanskyi, self-employed lawyer,
https://orcid.org/0009-0001-5270-4937

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Abstract: *The significant need for natural and environmentally friendly treatment and prevention methods of chronic diseases emphasises the importance of developing apitherapy technologies. In modern conditions, its potential remains underdeveloped, especially in the context of economic benefits and opportunities for integration into the medical systems of Ukraine and the United States. The purpose of the study is to determine the economic benefits of using apitherapy technologies in public health, in particular, in the prevention and treatment of chronic diseases, as well as to develop recommendations for improving the policy of supporting apitherapy in the field of healthcare and economy in Ukraine and the United States. Methods. The study uses an interdisciplinary approach that combines the analysis of literature sources, a comparative analysis of trends in the development of apitherapy in different countries, and an assessment of the economic benefits of its use. Results. The study found that using apitherapy has significant economic benefits, including reducing treatment costs, supporting local economies and stimulating the development of environmentally friendly businesses. It has been found that apitherapy can ensure the efficient use of natural resources, contribute*

to biodiversity conservation and meet the growing demand for natural therapies. The proposed recommendations for improving the policy of supporting apitherapy include integrating its technologies into the healthcare system, developing a regulatory framework, popularisation among the population, and financial support for the industry. Conclusions. The study results show that the introduction of apitherapy technologies can improve the population's quality of life, reduce healthcare costs and support sustainable economic development. Implementing the proposed recommendations will facilitate the integration of apitherapy into the medical and economic systems of Ukraine and the United States, making it possible to maximise its health and economic potential.

Keywords: *medical services, prevention methods, quality of life, entrepreneurship development, investment attraction.*

Економічні переваги впровадження технологій апітерапії в оздоровленні в Україні та США

Ольшанський Анатолій Іванович, самозайнятий адвокат
https://orcid.org/0009-0001-5270-4937

Анотація: *Значна потреба в натуральних та екологічно безпечних методах лікування й профілактики хронічних захворювань підкреслює важливість розвитку технологій апітерапії. У сучасних умовах її потенціал залишається недостатньо розкритим, особливо в контексті економічної вигоди та можливостей інтеграції в медичні системи України та США. Метою дослідження є визначення економічних переваг використання технологій апітерапії в оздоровленні населення, зокрема, у профілактиці й лікуванні хронічних захворювань, а також розробка рекомендацій для вдосконалення політики підтримки апітерапії у сфері охорони здоров'я та*

економіки в Україні та США. Методи. У роботі використано міждисциплінарний підхід, який поєднує аналіз літературних джерел, порівняльний аналіз тенденцій розвитку апітерапії в різних країнах, а також оцінку економічних переваг її використання. Результати. Дослідження виявило, що застосування апітерапії має суттєві економічні переваги, включаючи зниження витрат на лікування, підтримку локальних економік та стимулювання розвитку екологічно орієнтованого бізнесу. З'ясовано, що апітерапія здатна забезпечити ефективне використання природних ресурсів, сприяти збереженню біорізноманіття та задовольнити все вищий попит на натуральні методи лікування. Запропоновані рекомендації для вдосконалення політики підтримки апітерапії охоплюють інтеграцію її технологій у систему охорони здоров'я, розвиток нормативно-правової бази, популяризацію серед населення, а також фінансове забезпечення галузі. Висновки. Результати дослідження свідчать, що впровадження технологій апітерапії має потенціал для покращення якості життя населення, зниження витрат на охорону здоров'я та підтримки сталого економічного розвитку. Реалізація запропонованих рекомендацій сприятиме інтеграції апітерапії в медичні та економічні системи України та США, що дасть можливість максимально розкрити її оздоровчий та економічний потенціал.

Ключові слова: *медичні послуги, методи профілактики, якість життя, розвиток підприємництва, залучення інвестицій.*

Problem statement. The modern world is facing numerous challenges in the field of healthcare, including rising healthcare costs, the spread of chronic diseases, and the need to find effective prevention methods. In this context, alternative and natural approaches to healthcare, such as apitherapy, are gaining in popularity. Apitherapy, based on using bee products for health improvement and treatment, shows significant potential as an effective and cost-efficient method.

At the same time, the introduction of apitherapy technologies in different countries, including Ukraine and the United States, has its own peculiarities due to cultural, economic, and regulatory factors. Historically, apitherapy has been a part of folk medicine in Ukraine, which creates favourable conditions for its integration into modern health practices. In the United States, where the healthcare and alternative medicine market is much more commercialised, interest in apitherapy is also growing, especially due to the growing demand for eco-friendly and natural therapies.

However, despite its high popularity, apitherapy's economic benefits remain insufficiently researched. The absence of a thorough analysis of the cost-effectiveness of apitherapy technologies creates barriers to the wider use of this method in the healthcare system and the private sector. In particular, it is important to assess the potential reduction in the cost of treating chronic diseases, improvement of patient's quality of life, and opportunities for developing entrepreneurship in the field of apitherapy.

The connection between this problem and important practical tasks lies in the need to address several important health and economic issues. Firstly, the introduction of apitherapy technologies helps to reduce the financial burden on the healthcare system by reducing the cost of treating chronic diseases and increasing the effectiveness of preventive measures. Second, the development of apitherapy opens up new opportunities for entrepreneurship, job creation and investment in the beekeeping industry and related technologies.

In addition, apitherapy meets the high demand for environmentally friendly and natural therapies, which is relevant for Ukraine and the United States. It also helps to strengthen the partnership between medical science and beekeeping, enabling the integration of traditional knowledge into modern medical practice.

Thus, the study of the economic benefits of apitherapy not only expands scientific horizons but also helps solve important practical problems, such as

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improving the population's quality of life, supporting sustainable rural development, and developing innovative healthcare solutions.

Analysis of the latest research and publications. Apitherapy as an area of alternative medicine is attracting more and more attention from scientists from different countries. The studies by N.D. Widjanarko, J.C. Subagya [1], Joshi R.C., Kafle L. [2] highlight the therapeutic potential of bee products such as honey, propolis, pollen, royal jelly and bee venom. In particular, the scientific works of R. A. Burdeinyi and D. M. Grinchenko [3] demonstrate apitherapy's effectiveness in treating inflammatory, cardiovascular, immune and chronic diseases. In addition, its positive impact on the psycho-emotional state and quality of life of patients was confirmed.

Medical research, including the work of W. A. Weis and N. Ripari [4], also emphasises the positive impact of apitherapy on the general condition of the body, including improving the functioning of the cardiovascular system, strengthening the immune system and normalising metabolic processes. In addition, several studies emphasise the role of apitherapy in disease prevention, making it an original method for improving public health.

In the context of economic research, a limited number of studies focus on assessing the cost and benefits of apitherapy. M. Shulgan points out that integrating bee products into healthcare systems can reduce the cost of pharmaceutical therapy and provide long-term economic benefits for patients [5]. As for international experience, studies by foreign scientists, including S. Trumbeckaite and J. Dauksiene, show that integrating apitherapy into comprehensive rehabilitation and prevention programmes significantly reduces the cost of healthcare services in the long term [6].

Identification of previously unresolved parts of the overall problem. At the same time, most scientific works focus on the medical aspects of apitherapy, while the economic aspects remain less explored. For example, no systematic

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comparative studies between Ukraine and the United States would consider cultural, socioeconomic, and regulatory differences. In addition, little attention has been paid to supporting small businesses in the field of apitherapy and its impact on rural development.

This article fills in the existing gaps by combining the analysis of medical and economic benefits of apitherapy. In particular, it aims to assess the cost-effectiveness of implementing apitherapy technologies and justify their feasibility in the healthcare practice of the two countries. Taking into account the existing limitations and needs of the modern healthcare system makes it possible to provide a new vision of the development of this area in both scientific and practical aspects.

Formulation of the article's objectives (definition of tasks). The article aims to analyse the economic benefits of introducing apitherapy technologies into the healthcare system of Ukraine and the USA.

Objectives of the article:

- to analyse the current status and trends in the development of apitherapy in Ukraine and the USA, in particular, to identify the main areas of research, implementation of innovative treatment methods and regulatory approaches;

- to determine the economic benefits of using apitherapy technologies in health improvement, in particular, in the prevention and treatment of chronic diseases;

- To propose recommendations for improving the policy of supporting apitherapy in the healthcare field and the economy of Ukraine and the United States.

Presentation of the main research material. ‘apitherapy’ comes from the Latin word ‘apis’, which means ‘bee’ [6]. The basis of this method is the use of bee products - honey, pollen, wax, royal jelly, propolis and bee venom - for the prevention and treatment of various diseases and for strengthening the immune system. Today, the concept of apitherapy has expanded significantly to include not only bee products, but also methods such as bee acupuncture, as well as the natural

properties of bees and apiaries to improve human health. According to S. El-Didamonia, S. Stangachiou, editor-in-chief of the International Federation of Beekeepers' Associations, defines apitherapy as “an art and science that combines treatment and holistic healing through the honeybee and its products, for the benefit of not only humans but all living beings” [7].

Beekeeping products have long been used as natural remedies for health and healing. In many countries, they are an integral part of traditional medicine. The history of apitherapy is more than 6,000 years old and dates back to the medicine of ancient Egypt. The ancient Greeks and Romans also actively used bee products for treatment. There are also references to the use of honey in traditional Chinese medicine: a famous ancient book found in Changsha (Hunan Province), dated to the third century BC, contains 52 recipes, two of which are related to bee products, including honey, for the treatment of diseases [6].

In recent decades, interest in the pharmacological properties of bee products has grown significantly, making it possible to identify their unique biological characteristics. Scientific research and clinical trials have confirmed that these natural substances can be effectively used to treat a wide range of diseases and help maintain health and restore the body's balance. In addition to their medicinal properties, bee products are widely used in the food, cosmetics and pharmaceutical industries. They are the basis for creating new products - from natural food supplements and creams to innovative medicines [8, p. 62-65]. Thus, honey, propolis, wax, royal jelly and other bee products are becoming indispensable in the search for effective, cost-effective and safe solutions for health and beauty.

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The history of apitherapy in the United States goes back about 100 years, and during this time, many prominent medical figures have turned to this practice. One such specialist was Bodog Beck, who started treating patients in New York City. Charles Martz, a beekeeper from Middlebury, Vermont, was the doctor's last student [7]. He was even called the 'King of Bee Venom Treatment', and today, he is a living witness to the use of this method. With more than 60 years of experience, C. Martz continues to actively use apitherapy, which is gaining popularity in the United States, thanks to research and development in this field.

The American Apitherapy Society (AAS) emphasises the importance of including bee products in the biomedical healthcare system as a component of comprehensive and complementary medicine [10, p. 4-6]. This position is based on the idea of a holistic approach to health, taking into account the relationship between humans and nature. It also recognises the important role of the honeybee in maintaining the ecosystem and human health. AAS proposes a worldview ecological paradigm that views health as a harmony between body, mind and spirit in social,

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cultural and environmental contexts. This approach aims to prevent disease, promote health and optimise well-being through the integration of apitherapy as part of a therapeutic system.

In Ukraine, scientists have also been actively researching the effectiveness of apitherapy. For more information, see Table 1.

Table 1

Research by Ukrainian scientists on the content and effectiveness of apitherapy

Author (s)	Type of research	Year
I. F. Meshchyshen, V. M. Kushnir	According to the research and mathematical calculations, for the first time in the world, an approximate therapeutic dose of natural bee pollen was calculated - 250 mg/kg of body weight	1991
I. V. Pecheniuk	The effect of apitherapy on toxic hepatitis and erosive and ulcerative lesions of the gastroduodenal zone	1993
O. L. Kukharchuk, O. V. Pishak	The effect of apitherapy on adjuvant arthritis, rheumatoid arthritis	1995
B. P. Seniuk	The effect of apitherapy on peptic ulcer disease	1996
L. O. Voloshyna	Effect of apitherapy on chronic heart failure of ischemic genesis	1998
N. M. Malkovych	The effect of apitherapy on osteoarthritis	1998
T. M. Boichuk S. Ye. Deineka	The effect of apitherapy on toxic lesions of the body with various metal and organic toxicants	1996-1999
O. V. Yasinska	Effect of apitherapy on type II diabetes mellitus	1999
Y. B. Yashchenko	Apitherapy in the rehabilitation of children living in areas of environmental disadvantage and frequently ill	2000
O. S. Shpychak V. Ya. Stozhenko	Activities of the NGO “Ukrainian Association of Apitherapists”	2013
O. S. Shpychak	Doctoral dissertation on “Theoretical and experimental substantiation of the composition and development of technology of pharmaceuticals for use in sports medicine”	2016
R. I. Skrypnyk-Tykhonov	PhD thesis on “Development of composition and technology of solution for injections of bee venom”	2016
N. S. Bohdan	PhD thesis on “Creation and study of an anti-ulcer drug based on bee products”	2017
C. G. Bobro	PhD thesis on “Development of composition and technology of gel based on propolis and azelaic acid for the treatment of acne”	2017

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B. T. Kudryk	PhD thesis on "Development of composition and technology of immunomodulatory dosage form based on bee products"	2017
L. V. Konoshevych	PhD thesis on the topic "Theoretical rationale for improving the technology of propolis eye drops"	2018

Source: compiled by the author on the basis of [11; 12, p. 4-7].

Based on the physicochemical studies, methods for identifying and quantitatively analysing new pharmaceuticals were developed. These methods were validated, and their accuracy and reliability were confirmed. The studies also proved the drugs' stability and determined the optimal conditions and terms of their storage, which ensure the preservation of properties throughout the shelf life. This information is included in the draft quality control procedures. Physicochemical, pharmacotechnological, and biopharmaceutical studies of the trial samples were carried out. Preclinical pharmacological studies confirmed their specific activity and safety.

A number of medicinal products in various forms have been created on the basis of various API substances and bee products. Among the most used raw materials is propolis, on the basis of which various drugs have been developed [13, p. 7]. A significant number of medicinal products have been created on the basis of the phenolic hydrophobic preparation of propolis, which has been confirmed by 19 patients in Ukraine. According to the research of T. G. Yarnikh [14], the distribution of these drugs by dosage forms showed that most of the developments are ointments and gels (44%), solid forms (capsules, tablets, granules) account for 27%, aerosols - 19%, rectal suppositories - 7%, vaginal suppositories - 3%. In general, bee-based products show a high therapeutic potential, combining anti-inflammatory, antimicrobial, immunomodulatory and reparative properties. This makes them promising in both medical and veterinary practice, emphasising the importance of bee products in modern pharmacy.

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Another important achievement of modern apitherapy was the creation and implementation of the “bee treatment bed”, authored by an experienced Ukrainian apitherapist Anatolii Olshanskyi [15]. Its development successfully combines the uniqueness of the author's technology with international experience, becoming an effective tool for commercial recovery. The useful model proposed by A. Olshanskyi is based on a combination of the natural energy of the pyramidal structure and the bioenergy field of bee colonies. This approach provides a powerful healing effect, which is noticeable after the first sessions. Among the positive changes noted by patients are normalisation of blood pressure, disappearance of headaches, improvement of psycho-emotional state, reduction of pain in the musculoskeletal system and help in the fight against fungal and oncological diseases. A special feature of this technique is its ability to provide a harmonious effect on the human body. The biofield of bee colonies extends up to 40 cm, which allows you to get the maximum benefit from contact without the need for direct interaction. The pyramid concentrates energy, which has an antiseptic effect, reduces the growth of bacteria and promotes overall cleansing of the body.

The effectiveness of the method is confirmed by numerous practical results. Patients who undergo a course of 10 or more sessions report a significant improvement in their physical and psychological condition, restoration of strength and increased vitality. In addition, the technology takes into account not only the benefits for humans, but also creates favourable conditions for bee colonies, contributing to their productivity and health. The patent for this utility model was granted not only in Ukraine but also in Germany, which demonstrates its high innovation potential and compliance with international standards. The inventor of the technology has repeatedly presented his invention at international exhibitions, including in Nuremberg and Frankfurt am Main. During these events, a number of promising joint projects were discussed with interested entrepreneurs, which opens up new opportunities for the development of the technology in the European market.

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The peculiarity of this methodology is its versatility and the possibility of implementation in various fields. The author sees the prospect of using the model in hospitals, sanatoriums, health resorts and eco-hotels. This approach ensures a balanced effect of natural factors on the human body, helps to restore the nervous system and reduce the negative impact of chemicals.

In general, the Pyramid Therapy Bed technology not only opens up new opportunities for health improvement, but also promotes natural therapies that are effective, affordable and environmentally friendly. The further development of this technology will allow its use to be expanded internationally and will help improve the quality of life for many people.

The Law of Ukraine "On Beekeeping", in particular, Article 21 "Treatment and Prevention of Diseases with the Help of Beekeeping Products (Apitherapy)", provides for the use of medicines made on the basis of bee products for the prevention and treatment of diseases in humans and animals [16]. However, the content of this provision is much narrower than the real possibilities and needs of modern approaches to apitherapy [17, p. 141]. It is advisable to provide for the use of the products themselves in their natural form, as well as the unique physical and energy properties of bee colonies.

The results of the study confirm that the introduction of apitherapy technologies in health improvement has significant economic potential. First, bee products are affordable natural remedies that are highly effective in the prevention and treatment of many diseases. Unlike complex synthetic drugs, their production is less costly, which makes it possible to significantly reduce the financial burden on the healthcare system. This is especially true for the prevention of chronic diseases that require long-term treatment.

Secondly, the development of apitherapy directly stimulates beekeeping as an industry, contributing to job creation in rural areas. Increasing the income of beekeepers has a positive impact on the economic situation of communities,

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reducing unemployment. In addition, beekeeping has an important environmental impact, as bee activity contributes to plant pollination and biodiversity conservation. This makes the industry not only economically viable but also environmentally necessary. Thirdly, apitherapy can be a cost-effective alternative or complement to traditional treatments. Natural products can reduce the cost of expensive pharmaceuticals and invasive medical procedures. For example, apitherapy courses focused on disease prevention and recovery are often less expensive than traditional treatments while providing a long-lasting positive effect. Fourthly, there is a growing trend towards natural, environmentally friendly and safe treatments in the modern world. This is helping to expand the market for bee products, creating new opportunities for the pharmaceutical and cosmetic industries. Apitherapy products are becoming an important part of the natural medicine and wellness markets, which helps to attract investment and develop new business areas. Based on the analysis and considering the current trends in the development of apitherapy, recommendations have been formulated to support and integrate this industry into the healthcare and economic systems of Ukraine and the United States (Fig. 1).

Developing an organisational and legal framework for regulating apitherapy	- introduce quality standards for bee products for their use in medical practice; - create a register of certified apitherapy specialists and requirements for their professional training
Integrating apitherapy into the healthcare system	- include apitherapy in the list of prevention and rehabilitation methods supported by government programmes; - develop specialised training programmes for medical staff on the use of apitherapy in clinical practice
Stimulating scientific research in the field of apitherapy	- Develop cooperation between scientific institutions in Ukraine and the United States to conduct joint research on the efficacy and safety of apitherapeutic methods; - to promote the publication of research results on the impact of apitherapy on health in reputable international scientific journals to strengthen the credibility of this method

Business support and marketing of apitherapy	- create state programmes to support start-ups in the field of apitherapy, in particular those that implement innovative solutions; - organise educational events and marketing campaigns to promote apitherapy among the population

Figure 1. Recommendations for improving apitherapy support policies in the healthcare and economic sectors in Ukraine and the USA

Source: author's own development

Thus, the implementation of the proposed recommendations will facilitate the integration of apitherapy into formal medicine, its economic development, and its widespread use for prevention and treatment, which will have a positive impact on healthcare and the environmental and economic situation in both countries.

Conclusions. The study has shown that apitherapy is gaining popularity due to its effectiveness, naturalness, and safety. In Ukraine, apitherapy is developing mainly through private initiatives and alternative medicine, while in the United States, its integration into the medical system is taking place through the use of natural products in prevention and treatment. Both countries show considerable interest in research and implementation of apitherapy technologies, opening up international cooperation prospects.

An analysis of economic aspects has shown that apitherapy contributes to the efficient use of natural resources and can be a cost-effective alternative to expensive medicines and procedures. Its implementation reduces treatment costs, especially in the prevention of chronic diseases. In addition, the development of apitherapy stimulates economic growth in the beekeeping sector, supports local economies, creates new jobs and promotes environmental development.

The proposed recommendations cover the following key aspects: development of an organisational and legal framework, integration of apitherapy into the healthcare system, financial support for the industry, stimulation of scientific

research, promotion of apitherapy among the population, development of entrepreneurship and international cooperation. Implementing these measures will help increase confidence in apitherapy, expand its use in medicine and the economy, and improve the population's quality of life.

Further research efforts should be directed to developing educational programmes aimed at promoting apitherapy among the public, doctors, and entrepreneurs in order to increase the level of trust in alternative medicine.

List of references

1. Utilization of apitherapy in allergic asthma: A systematic review of clinical and preclinical studies / N. D. Widjanarko et al. *Tzu Chi Medical Journal*. 2024. URL: https://doi.org/10.4103/tcmj.tcmj_233_23 (date of access: 10.10.2024).

2. Joshi R. C., Kafle L. Apitherapy: An Overview. Journal of Applied Zoological Researches. 2023. Vol. 2. P. 1–734. https://doi.org/10.376787636. URL: https://www.researchgate.net/publication/376787636_Apitherapy_An_Overview (date of access: 10.10.2024).

3. Бурдейний Р. А., Грінченко Д. М., Северин Р. В., Домашич К. А. Сучасні підходи щодо використання апітерапії у ветеринарній медицині та ефективність порівняльних схем застосування естракту трутневого розплоду при щепленні курчат проти ньюкаслської хвороби. *Ветеринарна медицина*. 2024. Вип. 110. С. 245–248. DOI: 10.36016/VM-2024-110-39

4. An overview about apitherapy and its clinical applications / W. A. Weis et al. *Phytomedicine Plus*. 2022. Vol. 2, no. 2. P. 100239. URL: https://doi.org/10.1016/j.phyplu.2022.100239 (date of access: 10.10.2024).

5. Шульган М. Класифікація продукції бджільництва для потреб бухгалтерського обліку. *Економіка та суспільство*. 2023. № 50. URL: https://doi.org/10.32782/2524-0072/2023-50-34 (дата звернення: 10.10.2024).

6. Knowledge, Attitudes, and Usage of Apitherapy for Disease Prevention and Treatment among Undergraduate Pharmacy Students in Lithuania / S. Trumbeckaite et al. *Evidence-Based Complementary and Alternative Medicine*. 2015. Vol. 2015. P. 1–9. URL: https://doi.org/10.1155/2015/172502 (date of access: 10.10.2024).

7. Bee products: An Overview of Sources, Biological Activities and Advanced approaches Used in Apitherapy Application. / S. E. El-Didamony et al. *Biotechnology Reports*. 2024. P. e00862. URL: https://doi.org/10.1016/j.btre.2024.e00862 (date of access: 10.10.2025).

8. Малахов В.О., Макєєва М.А., Кошелєва Г.М., Федоренко Н.О. Використання методу апітерапії в реабілітації хворих. *Фізична реабілітація та рекреаційно-оздоровчі технології.* 2016. № 1. С. 61-65. URL: https://journals.uran.ua/frir_journal/article/view/102345/pdf_100 (дата звернення: 08.10.2024).

9. An overview about apitherapy and its clinical applications / W. A. Weis et al. *Phytomedicine Plus*. 2022. Vol. 2, no. 2. P. 100239. URL: https://doi.org/10.1016/j.phyplu.2022.100239 (date of access: 10.10.2024).

10. Kochan A. Evidence-based apitherapy. Journal of the American apitherapy society. 2014. Vol. 4. P. 1-11. URL: https://apitherapy.org/wp-content/uploads/2019/09/October-December2014.pdf (date of access: 10.10.2024).

11. Досягнення вчених Буковинського державного медичного університету в дослідженні проблем фітотерапії, апітерапії, оздоровчого харчування / О. І. Волошин, Т. М. Бойчук, О. І. Іващук, І. Ф. Мещишен. *Буковинський медичний вісник.* 2014. Т. 18, № 1. С. 206-210. URL: http://nbuv.gov.ua/UJRN/bumv_2014_18_1_56 (дата звернення: 10.10.2024).

12. Шпичак О.С. Підсумки організаційної та наукової діяльності громадської організації «Всеукраїнська асоціація апітерапевтів» за період 2013-2019 років. *Сучасні досягнення та перспективи розвитку апітерапії в*

Україні: матеріали Всеукраїнської науково-практичної конференції з міжнародною участю (25 січня 2020 р., м. Харків). / за редакцією академіка УАН О. С. Шпичака. Харків: Вид-во «Оригінал», 2020. С. 3-9. URL: https://inorgchem.nuph.edu.ua/wp-content/uploads/2020/02/API-2020-Book.pdf (дата звернення: 10.10.2024).

13. Антимікробна активність продуктів бджільництва: сьогодення та перспективи їх включення до апіфітокомплексів / Г. І. Давидова та ін. *Бджільництво України*. 2023. № 10. С. 6–14. URL: https://doi.org/10.46913/beekeepingjournal.2022.10.01 (дата звернення: 10.10.2024).

14. Ярних Т.Г. Патентовані лікарські препарати на основі продуктів бджільництва. *Управління, економіка та забезпечення якості в фармації.* 2020. № 1 (61). С. 22-32. DOI: https://doi.org/10.24959/uekj.20.1

15. Бережанський І. Бджолине лікувальне ліжко в піраміді: авторська методика оздоровлення Ольшанського. ТСН - вебсайт. 24.11.24. URL: https://tsn.ua/other/bdzholine-likuvalne-lizhko-v-piramidi-avtorska-metodika-ozdorovlennya-olshanskogo-2708838.html (дата звернення: 10.10.2024).

16. Про бджільництво: Закон України від 22.02.2000 р. № 1492-III. URL: https://zakon.rada.gov.ua/laws/show/1492-14#Text (дата звернення: 10.10.2024).

17. Аніщенко М.А. Вдосконалення правовового регулювання апітерапії як виду діяльності в сфері охорони здоров'я. *Актуальні питання сучасної медицини і фармації*: тези доп. Всеукр. наук.-практ. конф. (до 50-річчя заснування ЗДМУ). 18-25 квітня 2018 р., 30 травня 2018 р. Запоріжжя, 2018. С. 141. URL: http://dspace.zsmu.edu.ua/handle/123456789/9720 (дата звернення: 10.10.2024).