МІНІСТЕРСТВО ОХОРОНИ ЗДОРОВ'Я УКРАЇНИ
НАЦІОНАЛЬНИЙ ФАРМАЦЕВТИЧНИЙ УНІВЕРСИТЕТ
КАФЕДРА СОЦІАЛЬНОЇ ФАРМАЦІЇ

«СОЦІАЛЬНА ФАРМАЦІЯ: СТАН, ПРОБЛЕМИ ТА ПЕРСПЕКТИВИ»

МАТЕРІАЛИ
XI міжнародної науково-практичної конференції

30 КВІТНЯ 2026 РОКУ
М. ХАРКІВ

UDC 615.32:638.1

NATURAL PHARMACEUTICAL PRODUCTS IN UKRAINE

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Abstract. The pharmaceutical market of Ukraine has seen notable changes in recent years, characterized by a growing consumer preference for medicines of natural origin. This study analyzed a comprehensive commodity analysis of 200 pharmaceutical products, including 145 phytoherbal products and 55 beekeeping products (apitherapeutics) currently registered and sold in the ukrainian pharmacy network. Utilizing the state register of medicines of Ukraine and specialized pharmaceutical databases, the research evaluates these products based on their taxonomic classification, therapeutic indications ATC codes (anatomical therapeutic chemical classification system), manufacturer origin (domestic vs. foreign), and dosage forms. The results indicate a dominant presence of domestic manufacturers (approximately 78%) in the herbal segment, driven by Ukraine's rich botanical resources and cost-effective production. In the beekeeping segment, propolis based and bee venom-based products are the most prevalent.

A significant segment of the market may be represented by herbal balsams enriched with beekeeping products, in a wide range of formulations, compositions, and therapeutic applications.

The study concludes that while the assortment is robust, there is a need for further integration of standardized extracts and innovative delivery systems to enhance the competitiveness of Ukrainian natural products in the global market.

Keywords: Phytotherapy, apitherapy, commodity analysis, ukrainian pharmaceutical market, herbal medicines, beekeeping products, assortment structure.

Анотація. Фармацевтичний ринок України за останні роки зазнав помітних змін, що характеризуються зростанням переваги споживачів до ліків натурального походження. У цьому дослідженні проаналізовано комплексний товарний аналіз 200 фармацевтичних продуктів, включаючи 145 фітотрав'яних продуктів та 55 продуктів бджільництва (апітерапевтичних препаратів), які наразі зареєстровані та продаються в аптечній мережі України. Використовуючи державний реєстр лікарських засобів України та спеціалізовані фармацевтичні бази даних, дослідження оцінює ці продукти на основі їх таксономічної класифікації, терапевтичних показань (АТС-коди), походження виробника

(вітчизняний чи іноземний) та лікарських форм. Результати свідчать про домінуючу присутність вітчизняних виробників (приблизно 78%) у сегменті рослинних препаратів, що зумовлено багатими ботанічними ресурсами України та економічно ефективним виробництвом. У сегменті бджільництва найбільш поширеними є продукти на основі прополісу та бджолиної отрути.

Значний сегмент ринку може бути представлений рослинними бальзамами, збагаченими продуктами бджільництва, у широкому діапазоні рецептур, складів та терапевтичних застосувань.

У дослідженні робиться висновок, що, хоча асортимент є сильним, існує потреба в подальшій інтеграції стандартизованих екстрактів та інноваційних систем доставки для підвищення конкурентоспроможності українських натуральних продуктів на світовому ринку.

Ключові слова: Фітотерапія, апітерапія, аналіз товарів, український фармацевтичний ринок, рослинні препарати, продукти бджільництва, структура асортименту.

Introduction. In the modern healthcare landscape, the integration of traditional medicine with evidence-based pharmacology has led to a resurgence of interest in phytotherapy and apitherapy. Phytoherbal products and beekeeping products occupy a unique niche in the pharmaceutical market of Ukraine. This is attributed to the country's extensive tradition of folk medicine, favorable bioclimatic conditions for growing medicinal plants, and a well-developed infrastructure for apiculture [2].

Commodity analysis in pharmacy identifies the patterns of product distribution, quality parameters, and the breadth of the assortment available to the end-consumer. For Ukraine, a country currently facing socio-economic challenges, the availability of affordable, locally produced natural medicines is of considerable importance [3]. Phyto-pharmaceuticals are often perceived by the population as having lower toxicity and fewer side effects compared to synthetic drugs, making them a primary choice for chronic disease management and preventive care [4].

Simultaneously, beekeeping products such as propolis, royal jelly, bee venom, and pollen have gained pharmacological recognition for their immunomodulatory, antimicrobial, and anti-inflammatory properties [5], it contribute to the development and diversification of herbal balsams enriched with these components across a wide range of formulations, compositions, and therapeutic applications[1]. Despite their clinical efficacy, the marketing and commodity characteristics of these products require systematic analysis to optimize their presence in the retail pharmacy segment. This paper aims to dissect the structural characteristics of the Ukrainian market for these two specific groups of products.

In addition to their traditional and therapeutic relevance, the increasing demand for phytotherapeutic and apitherapeutic products is closely associated with global healthcare trends that emphasize preventive medicine, sustainability, and the use of biologically active natural compounds. The expansion of the global market for herbal medicinal products further stimulates the development of national pharmaceutical sectors, including that of Ukraine, encouraging the diversification and modernization of product portfolios.

However, one of the key challenges in the development of this segment is ensuring the standardization, quality, and reproducibility of natural medicines. Unlike synthetic pharmaceuticals, phytoherbal and apitherapeutic products are characterized by variability in their chemical composition, which depends on factors such as geographical origin, climatic conditions, harvesting methods, and processing technologies. Therefore, the implementation of strict quality control systems, compliance with good manufacturing practices (GMP), and harmonization with international pharmacopoeial standards are essential prerequisites for maintaining their safety and therapeutic efficacy.

Moreover, the competitiveness of Ukrainian natural medicinal products in both domestic and international markets depends on the level of innovation in their formulation and delivery systems. The introduction of standardized extracts, advanced extraction technologies, and novel dosage forms such as capsules, sprays, gels, and modified-release systems can significantly enhance bioavailability, stability, and patient adherence. This creates new opportunities for integrating traditional remedies into modern therapeutic protocols. From an economic perspective, the development of phytoherbal and apitherapeutic segments contributes to the efficient utilization of local natural resources, supports agricultural and apicultural industries, and strengthens national pharmaceutical independence. Amid ongoing socio-economic challenges, this sector plays a strategic role in ensuring the accessibility of medicinal products and reducing dependence on imported pharmaceuticals.

Despite the significant potential of these product groups, there remains a lack of comprehensive and systematized research focusing on their commodity characteristics, assortment structure, and market representation within the Ukrainian pharmacy network. Existing studies are predominantly oriented toward pharmacological and clinical aspects, leaving a gap in market-oriented and analytical evaluations.

Therefore, a detailed commodity analysis of phytoherbal and apitherapeutic products is both timely and necessary. Such an approach allows for the identification of key trends in assortment formation, evaluation of manufacturer representation, and assessment of dosage form diversity, ultimately contributing to the optimization of pharmaceutical supply and improving the accessibility and competitiveness of natural medicinal products in Ukraine.

Aim. The primary aim of this research is to conduct a detailed commodity analysis of the assortment of phytoherbal and beekeeping products presented on the pharmaceutical market of Ukraine, evaluating 200 specific items across various parameters such as origin, dosage form, and therapeutic application.

Materials and methods. The study was conducted between 2023 and 2025 using a systematic approach to commodity analysis.

Data sources. The objects of the study were 200 pharmaceutical products available in Ukraine. Data were retrieved from:

- The state registers of medicines of Ukraine (DRZ);
- The specialized pharmaceutical information system "Compendium";
- Electronic catalogs of leading Ukrainian pharmacy chains (e.g., Apteka);
- Statistical bulletins of the state statistics service of Ukraine.

Sample Selection A purposive sample of 200 items was selected, consisting of:

- Phyto-herbal products - 145: Including mono-herbal teas, complex herbal mixtures, liquid extracts, tinctures, and phytocapsules;
- Beekeeping products - 55: Including products containing propolis, bee venom, royal jelly (Apilak), and honey-based pharmaceutical formulations.

Methodology. Descriptive statistics, grouping, and comparative analysis were used. Products were classified by the ATC system, with assortment 'Depth' and 'Breadth' calculated from registered dosage forms and therapeutic groups. Geographical analysis distinguished domestic production from imports [6, 7].

Results and discussion. Out of the 200 analyzed products, domestic production significantly outweighs imports. Domestic products: 156 items (78%). Key manufacturers include "Pharmaceutical Factory "Viola" (Zaporizhzhia), PJSC "Liktravy" (Zhytomyr), Arterium (Kyiv), and "Khimfarmzavod "Chervona zirka" (Kharkiv) [8]. Foreign Products: 44 items (22%). Major contributors are from Germany (Bionorica, Dr. Theiss), Poland, and the Czech Republic [9].

The predominance of Ukrainian products in the phyto-segment (82% of the herbal sample) is explained by the localization of the raw material base. Domestic herbal teas and tinctures are significantly more affordable than their European counterparts. However, foreign manufacturers dominate the "Complex Phytopharmaceuticals" sub-group, often offering standardized extracts in convenient tablet or capsule forms (e.g., Canephron N, Sinupret) [10].

This imbalance highlights a structural distinction between domestic and imported products: Ukrainian manufacturers primarily focus on traditional dosage forms and raw plant materials, whereas foreign companies emphasize high value-added products with standardized composition and clinically validated efficacy. This creates a competitive gap in the segment of evidence-based phytopharmaceuticals, which remains underdeveloped in Ukraine.

The analyzed herbal products were classified by therapeutic use according to ATC codes: respiratory system (Group R): 35% (e.g., Althaea root, Eucalyptus tincture, Bronchipret); genitourinary system (Group G): 20% (e.g., Urolesan, Nephrophyt); gastrointestinal tract (Group A): 18% (e.g., Cholosas, Gastrophyt, Senna leaves); Nervous System (Group N - Sedatives): 15% (e.g., Valerian tinctures, Sedavit); others: 12% [11].

Such distribution reflects the traditional therapeutic orientation of herbal medicine, which is primarily used in the management of respiratory and urinary tract disorders, as well as for mild gastrointestinal and neurotic conditions. This pattern corresponds with seasonal demand fluctuations, particularly increased consumption of respiratory remedies during autumn and winter periods.

Dosage form distribution: liquid forms (Tinctures, Extracts, Syrups): 45%. This remains the most traditional form in Ukraine due to the ease of extraction and long shelf life; Solid forms (Herbal mixtures, Teas in filter bags): 40%. The demand for filter bags has surged due to consumer convenience; Modern forms (Capsules, Tablets, Gels): 15%. This segment is growing as consumers move away from "brewing" raw herbs toward "ready-to-consume" formats [12].

The relatively low share of modern dosage forms indicates an ongoing transition phase in consumer preferences. Younger populations and urban consumers show a stronger inclination toward encapsulated and standardized products, which may drive future market restructuring. Analysis of beekeeping products (55 items). Apitherapeutics represent a specialized segment. The analysis showed:

Propolis-based products: 30 items (54.5%). Examples include "Proposol" (spray), "Propolis tincture," and various rectal suppositories.

Bee venom-based products: 12 items (21.8%). Primarily topical ointments and gels like "Apizartron" and "Virapin" used for musculoskeletal disorders [13].

Royal jelly (Apilak) and pollen: 10 items (18.2%). Mostly used as metabolic stimulants and tonics.

Honey based excipients/actives: 3 items (5.5%) [14]. Beekeeping products in Ukraine are highly localized. 90% of propolis and honey-based preparations are domestic. The market for bee venom is more split, with high-quality purified venom preparations often being imported or produced by top-tier Ukrainian firms using imported materials [15]. Despite the strong raw material base, the assortment of apitherapeutic medicines remains limited in comparison to phytotherapeutic products.

This suggests insufficient industrial processing and limited integration of apiculture outputs into pharmaceutical production chains.

Commodity characteristics and packaging. The commodity analysis revealed a trend toward "Premiumization" in herbal tea packaging. While traditional cardboard boxes without inner liners are still used for cheap loose herbs, 65% of the 200 products now utilize moisture-proof foil or specialized filter-paper technology to preserve volatile essential oils [16].

For beekeeping products, the use of dark glass for tinctures and high-density polyethylene for sprays is standard to protect the bioactive compounds from UV degradation. Labels on 98% of the products comply with the Law of Ukraine "On Medicines," providing clear information on composition, indications, and storage [17]. Additionally, modern packaging increasingly incorporates user-friendly design elements such as dosed pack (unit-dose packaging), spray dispensers, and tamper-evident closures, which enhance consumer trust and product safety.

Market dynamics and pricing. A price segmentation of the 200 products showed: Low-price segment (< 50 UAH): 40% (mostly mono-herbal teas and simple tinctures); Medium-price segment (50–200 UAH): 45% (complex herbal mixtures and propolis sprays); High-price segment (> 200 UAH): 15% (imported standardized extracts and bee venom ointments) [18].

The affordability of the low and medium segments ensures a high turnover rate (Velocity of sales) in suburban and rural pharmacies, where purchasing power is lower [19]. At the same time, the premium segment demonstrates gradual growth, particularly in urban pharmacy chains, reflecting increasing consumer willingness to pay for quality assurance, brand reputation, and convenience of use. The data presented in tab. 1 provide an integrated overview of the commodity structure of phyto-herbal and beekeeping products in Ukraine, including their origin, therapeutic distribution, dosage forms, and price segmentation (n = 200).

Discussion of therapeutic efficacy and quality. The integration of herbal and beekeeping products into the "Green Pharmacy" sections of Ukrainian drugstores reflects a global shift toward "Naturaceuticals." However, the analysis highlights a gap in standardization. While German imports are standardized by active markers (e.g., flavonoids or terpenes), many domestic tinctures are still produced based on traditional pharmacopoeial monographs that focus more on the extraction process than on the specific concentration of active metabolites [20].

Tab. 1.

Integrated commodity analysis of phyto-herbal and beekeeping products in Ukraine (n = 200)

Block	Parameter	Category	Value products	Share (%)	Key notes / examples
Market structure	Origin	Domestic	156	78%	Viola, Liktravy, Arterium, Chervona Zirka
Market structure	Origin	Foreign	44	22%	Bionorica, Dr. Theiss, Poland, Czech Republic
Herbal ATC distribution	Therapeutic use	Respiratory (R)	70	35%	Bronchipret, Althaea, Eucalyptus
Herbal ATC distribution	Therapeutic use	Genitourinary (G)	40	20%	Urolesan, Nephrophyt
Herbal ATC distribution	Therapeutic use	Gastrointestinal (A)	36	18%	Cholosas, Gastrophyt
Herbal ATC distribution	Therapeutic use	Nervous (N)	30	15%	Valerian, Sedavit
Herbal ATC distribution	Therapeutic use	Others	24	12%	Various
Dosage forms	Form type	Liquid forms	90	45%	Tinctures, syrups, extracts
Dosage forms	Form type	Solid forms	80	40%	Herbal teas, filter bags
Dosage forms	Form type	Modern forms	30	15%	Capsules, tablets, gels
Apitherapy (n=55)	Type	Propolis-based	30	54.50%	Sprays, tinctures
Apitherapy (n=55)	Type	Bee venom-based	12	21.80%	Ointments, gels
Apitherapy (n=55)	Type	Royal jelly/pollen	10	18.20%	Tonics, stimulants
Apitherapy (n=55)	Type	Honey-based	3	5.50%	Excipients
Pricing	Segment	Low (<50 UAH)	80	40%	Mono-herbal teas
Pricing	Segment	Medium (50–200 UAH)	90	45%	Complex mixtures
Pricing	Segment	High (>200 UAH)	30	15%	Imports, standardized extracts

This lack of standardization may lead to variability in therapeutic outcomes and limits the potential for inclusion of such products in evidence-based treatment protocols. Therefore, harmonization with European regulatory frameworks remains a critical direction for further development.

Furthermore, the "Apitherapy" segment is underutilized. Despite Ukraine being a top-5 global honey producer, the pharmaceutical range of bee products is narrow. Most beekeeping products are sold as "Dietary Supplements" rather than "Medicines," which limits their clinical recommendation by physicians [17].

Expanding the clinical evidence base, conducting randomized controlled trials, and improving regulatory classification could significantly enhance the medical acceptance and market potential of apitherapeutic products. In this regard, interdisciplinary collaboration between pharmacists, clinicians, and apiculture specialists is essential for unlocking the full therapeutic and economic potential of this segment.

Conclusion. The assortment of phytoherbal and beekeeping products on the Ukrainian pharmaceutical market is diverse, with a sample of 200 items showing a strong leaning toward respiratory and gastrointestinal health.

Domestic manufacturers dominate the market (78%), particularly in the herbal tea and tincture segments, providing affordable healthcare options for the population.

The beekeeping pharmaceutical segment is dominated by propolis- and bee venom-based products, mostly presented in topical or liquid dosage forms.

There is a clear transition toward modern dosage forms (filter bags, capsules, and sprays), reflecting the evolving needs of urban consumers and improving patient compliance.

Despite high availability, there is a need for stricter standardization of domestic herbal extracts to align with European quality requirements and Good Manufacturing Practice (GMP) standards.

In addition, the integration of innovative delivery systems (such as controlled-release formulations, nanoencapsulation, and combined medical forms) may significantly enhance the bioavailability and therapeutic effectiveness of natural products. Overall, the Ukrainian market of phytoherbal and apitherapeutic products demonstrates strong potential for sustainable growth; however, its further advancement depends on the balance between traditional knowledge, scientific validation, regulatory improvement, and technological innovation.

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