Ukrainian Scientific Medical Youth Journal
Issue 2 (154), 2025
Creative Commons «Attribution» 4.0

ISSN 2786-6661
eISSN 2786-667X

PHARMACY, INDUSTRIAL PHARMACY /
ФАРМАЦІЯ, ПРОМИСЛОВА ФАРМАЦІЯ

UDC: 615.1615.252:615.272+615.874.2
https://doi.org/10.32345/USMYJ.2(154).2025.152-162

Received: April 08, 2025
Accepted: May 12, 2025

Analysis of the assortment of medicines and dietary supplements that can reduce the risk of carbohydrate metabolism disorders

Oleksandra Kryshtal, Anastasiia Dub, Olena Pokotylo

Department of Pharmacy Management, Economics and Technology,
I. Horbachevsky Ternopil National Medical University, Ternopil, Ukraine.

Corresponding Author:

Anastasiia Dub

+380986313171

dub_aih@tdmu.edu.ua

Abstract: *more than 537 million adults were diagnosed with diabetes mellitus in 2021, and according to projections by the International Diabetes Federation, this number may rise to 783 million by 2045. Prevention and correction of carbohydrate metabolism disorders are gaining increased relevance within the framework of current approaches to the management and prevention of metabolic diseases, particularly through dietary modifications and the use of dietary supplements. The aim of the study was to systematize data on medicinal products and dietary supplements intended to reduce the risk of developing carbohydrate metabolism disorders, as represented on the contemporary pharmaceutical market of Ukraine. The research was based on data obtained from the State Register of Medicinal Products of Ukraine, the electronic reference system "Compendium", and the online resource tabletki.ua. As a result of the conducted study, it was determined that the total assortment of products potentially used for the prevention of carbohydrate metabolism disorders comprises 198 items, of which the majority are dietary supplements (82.32%), while medicinal products account for only 17.68%. This disproportionality may be attributed to the lower level of regulatory oversight regarding dietary supplements, their wide availability, simplified registration procedures, active marketing strategies, and high consumer demand. A significant proportion of both medicinal products and dietary supplements are of domestic origin (62.9% and 79.75%, respectively), reflecting the competitiveness of Ukrainian manufacturers. In the medicinal product segment, the leading manufacturer is PJSC "Liktravy", while in the dietary supplement segment, it is LLC "Klyuchi Zdorovia." Regarding dosage forms, medicinal products are predominantly represented by herbal raw materials, tablets, and infusion solutions, whereas dietary supplements are most frequently available as herbal raw materials, capsules, and tablets, meeting the needs of diverse consumer groups. An analysis of the ingredient composition revealed that medicinal products are primarily monocomponent (74.3%), consistent with the principles of evidence-based medicine, while dietary supplements often contain multicomponent formulations (47.2%) aimed at exerting complex effects on metabolic processes. An important prospective change in the market is expected following the adoption of the Law of Ukraine*

ISSN 2786-6661
eISSN 2786-667X

№ 4122-IX in 2024, which strengthens state control over the quality, safety, and circulation of dietary supplements, thus harmonizing national legislation with European Union standards. Nonetheless, further research is warranted to evaluate the physical and economic accessibility of such products to consumers, and their compliance with quality standards.

Keywords: Food Supplements; Pharmaceuticals; Glucose Metabolic Disorders; Market Research; Analysis.

Introduction

Carbohydrate metabolism disorders, particularly diabetes mellitus, rank among the most prevalent chronic metabolic conditions worldwide. According to the International Diabetes Federation [1], over 537 million adults were living with diabetes in 2021, and this number is projected to rise to 783 million by 2045. The majority of cases (over 90%) are attributable to type 2 diabetes mellitus, the development of which is largely influenced by lifestyle, dietary habits, and associated risk factors [2, 3].

Key risk factors for type 2 diabetes mellitus include overweight and obesity, physical inactivity, unbalanced diet, psycho-emotional stress, and metabolic syndrome, which comprises insulin resistance, dyslipidemia, and arterial hypertension [4, 5]. Of particular concern is the growing trend of early-onset diabetes, with impaired glucose homeostasis increasingly detected in young adults and even adolescents [2].

Despite significant advances in pharmacotherapy, scientific and clinical interest in preventive strategies for these conditions continues to grow. Modern approaches to diabetes prevention emphasize not only dietary modification but also lifestyle interventions. For instance, the adaptation of prevention programs for individuals with limited mobility, such as those with spinal cord injuries, has shown promising results in reducing the risk of developing type 2 diabetes mellitus [6]. Recent reviews underscore the crucial role of dietary factors in lowering the risk of diabetes and its associated complications [7, 8]. Specifically, plant-based diets, functional dietary supplements, and bioactive food components are recognized as powerful tools in the prevention of hyperglycemia, insulin resistance, and chronic inflammation [7, 9, 10].

Considerable attention has been directed toward phytochemicals–such as polyphenols, flavonoids, lignans, phytosterols, and anthocyanins–that have demonstrated the ability to regulate carbohydrate metabolism, enhance insulin sensitivity, inhibit α-glucosidase and α-amylase, and exhibit antioxidant and anti-inflammatory effects [3, 7]. Marine algae constituents such as alginates and fucoxanthin, found in Laminaria and Fucus species, also show potential metabolic benefits [11].

There is increasing demand for multicomponent functional supplements containing plant extracts, probiotics, trace elements (e.g., Cr, Zn, Mg), and vitamins D, B1, and B6, which can target various aspects of the pathogenesis of diabetes [12, 13]. Of particular interest is the potential of nutraceuticals derived from traditional medicine, such as Fu brick fermented tea [14] and konjac glucomannan [13].

Emerging research also highlights the role of chrononutrition–the synchronization of food intake with circadian rhythms–as an important strategy for correcting metabolic disorders [5]. Several studies [5, 8] indicate that caloric distribution throughout the day can significantly influence glycemic control, insulin levels, and related parameters.

It is important to emphasize the growing role of dietary supplements (DS) in the prevention of diabetes mellitus. These products are widely available, have a favorable safety profile, and may be used at the pre-pharmacological stage. Their popularity among consumers has led to a significant increase in their availability, necessitating further investigation into their range, efficacy, and safety.

According to Ukrainian legislation, DS are defined as products that complement the diet and contain biologically active substances that contribute to the normalization of metabolic processes. They may be consumed individually or in combination with other food products. These are

ISSN 2786-6661
eISSN 2786-667X

concentrated sources of vitamins, minerals, or other substances with nutritional or physiological effects, and are marketed in measured forms such as capsules, lozenges, tablets, sachets, liquid ampoules, dropper bottles, or powders [15].

DS occupy an important niche in the prevention of diabetes mellitus and other carbohydrate metabolism disorders due to their accessibility, low risk profile, and utility during early stages of disease progression. This highlights the need for comprehensive analysis of their pharmaceutical market availability.

Despite the abundance of publications on diabetes prevention, there remains a lack of systematized information on the assortment of medicines and DS marketed for the regulation and maintenance of carbohydrate metabolism.

Aim

The aim of this study is to analyze the assortment of medicines and DS available on the current Ukrainian pharmaceutical market that may be used to reduce the risk of carbohydrate metabolism disorders.

Materials and methods

The study material was selected based on data from the State Register of Medicinal Products of Ukraine, specifically within the ATC classification groups A10X ("Other medicines used in diabetes") and A16AX01 ("Thioctic acid") [16], and the electronic reference "Compendium" (section 12.2 "DS for reducing the risk of carbohydrate metabolism disorders") [17]. Selection criteria included current registration status and availability on the pharmaceutical market, confirmed via the online platform tabletki.ua [18]. An own database was compiled to enable quantitative characterization of the identified products, including information on manufacturers, active components, and dosage forms.

Results and discussion

A total of 198 product names currently available on the Ukrainian pharmaceutical market as of January 1, 2025, were analyzed in the course of this study. These products are used for the prevention or correction of carbohydrate metabolism disorders and include both medicines and DS. The analysis revealed a significant predominance of DS, which account for 82.32% of the total assortment, while medicines represent only 17.68%.

The dominance of DS in the pharmaceutical market for carbohydrate metabolism disorder prevention is driven by several factors. Firstly, there is a growing public interest in preventive health strategies, particularly in light of the increasing prevalence of metabolic disorders. Secondly, DS benefit from a simplified market entry procedure: unlike medicines, they are not subject to a lengthy and complex state registration process involving mandatory clinical trials. This greatly facilitates their production, circulation, and promotion.

Another contributing factor is the active marketing of DS, which is primarily targeted at end-users. Their wide assortment, over-the-counter availability, and extensive promotional support–including advertisements and recommendations by influencers and pharmacy personnel–further contribute to their growing popularity.

However, this situation has raised concerns regarding the quality and safety of DS. Until recently, regulatory requirements for the manufacturing and distribution of DS in Ukraine remained insufficiently stringent. To address these regulatory gaps, the Law of Ukraine No. 4122-IX (draft law No. 11389) [15] was adopted in 2024 and is set to enter into force on September 27, 2025. The law introduces significant changes to the regulatory framework for DS, including:

- the definition of mechanisms for the introducing DS to the market;
- granting the Ministry of Health authority to establish a list of permitted substances and their maximum allowable doses;
- strengthening liability for market operators in cases of non-compliance with legislative requirements;
- clarification of the list of violations subject to financial penalties.

The adoption of this law is expected to promote harmonization with EU legislation and ensure an adequate level of consumer safety. Thus, the predominance of DS in the market structure can be explained by the previously lenient regulatory environment, high consumer demand, and the active commercialization of this segment.

An analysis of the country of medicines' origin showed that the majority–62.9%–are pro-

ISSN 2786-6661
eISSN 2786-667X

duced domestically in Ukraine, with the remaining 37.1% being imported (Fig. 1, A). In the case of DS, the market is even more oriented towards domestic production, with 79.75% of the assortment manufactured in Ukraine, compared to 20.25% imported (Fig. 1, B). This may indicate the high competitiveness of local manufacturers, driven by a favorable price-to-quality ratio and conducive production conditions. Additionally, in the context of economic instability, consumers tend to prefer lower-cost options, making domestic medicines and DS more attractive than their imported counterparts.

Among Ukrainian medicines' manufacturers, the leading position is held by PrJSC "Liktravy," with a 27.27% market share. This is followed by PrJSC Pharmaceutical Factory "Viola" (22.73%), and LLC "Novopharm-Biosynthesis" and JSC "Farmak" (18.18% each) (Fig. 2, A). These companies have a long-standing presence on the Ukrainian pharmaceutical market and are known for producing quality generic medicines.

In the domestic DS segment aimed at reducing the risk of carbohydrate metabolism disorders, there are 130 product names (Fig. 2, B). The leader is LLC "Klyuchi Zdorovia" with 21 product names (16.2% of the market), followed by LLC "Krasota ta Zdorovia" (9.2%) and PrJSC Pharmaceutical Factory "Viola" (8.5%). Other notable contributors include LLC "Pharmacom," LLC "Inneo Pharm," LLC "Steviasan," and LLC "Golden-Pharm," all of which maintain a consistent market presence. Additionally, several manufacturers such as LLC "Goodwill-Invest," PrJSC "Liktravy," and LLC "Phytobiotechnology" offer several product names. Smaller shares belong to

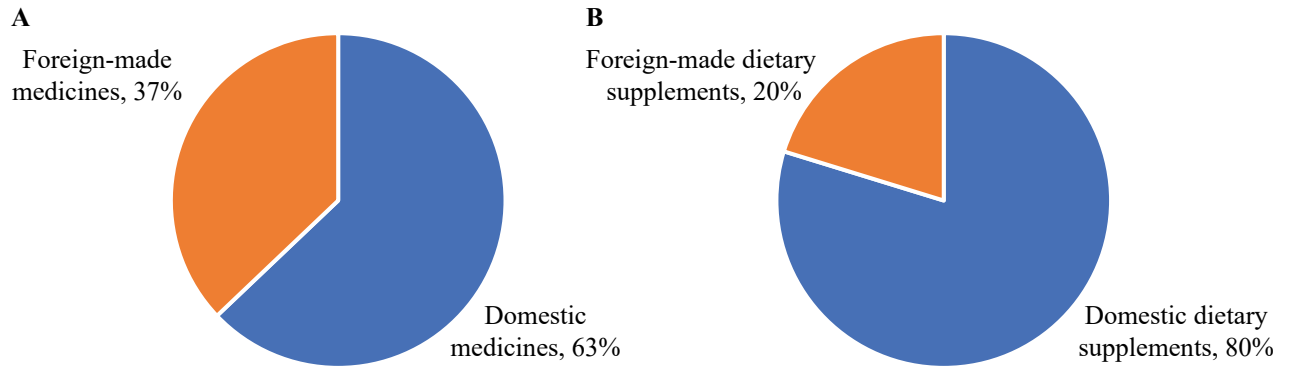

Fig. 1. Ratio of medicines (A) and dietary supplements (B) that can reduce the risk of carbohydrate metabolism disorders by manufacturer's origin

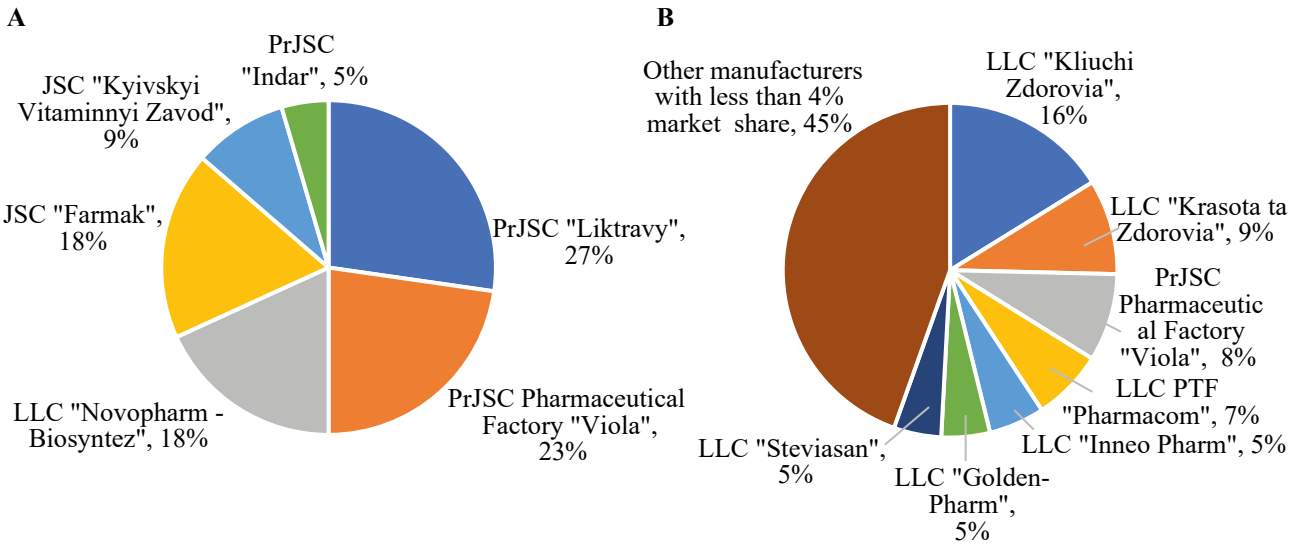

Fig. 2. The share of domestic manufacturers of drugs (A) and DS (B) that can reduce the risk of carbohydrate metabolism disorders represented in the Ukrainian pharmaceutical market

ISSN 2786-6661
eISSN 2786-667X

dozens of other companies, some of which have only one or two products in their portfolios. This market structure reflects high activity among domestic producers and ensures a wide range of options for consumers.

Thirteen imported medicines names are present on the market, primarily originating from Germany (76.9%), followed by Turkey (15.4%) and Romania (7.7%) (Fig. 3, A). Major suppliers include German companies Berlin-Chemie AG and Worwag Pharma GmbH & Co. KG (23.1% each), as well as Advance Pharma GmbH and MEDA Pharma GmbH & Co. KG (15.4% each).

The imported DS segment includes 33 product names (Fig. 3, B), with the majority manufactured in the United States (57.57%). Among American companies, Now Foods holds the largest share (21.21%), followed by Solgar, Natrol, and Country Life LLC (each 9.09%). Other U.S.-based brands include Haya Labs, Puritan's Pride, Nature's Way, and Quality Supplements and Vitamins (3.03% each). The German company Queisser Pharma represents 9.09% of this market segment, while Israeli manufacturers include BISCOL Co. Ltd (9.09%) and CuraLife Ltd (6.06%). Indian manufacturers such as Indian Herbs Specialities, Ananta Medicare, Biodeal Pharmaceuticals, and Charak Pharma each account for 3.03%. Other notable producers include Metagenics (Belgium, 3.03%) and Fito Pharma (Vietnam, 3.03%).

The analysis of dosage forms reveals significant diversity to meet different consumer preferences. Among medicines (Fig. 4, A), the largest share consists of herbal raw materials (31.4%), including collections (25.7%) and shoots (5.7%). Tablets and infusion solutions each account for 25.7%, while injectable solutions are represented

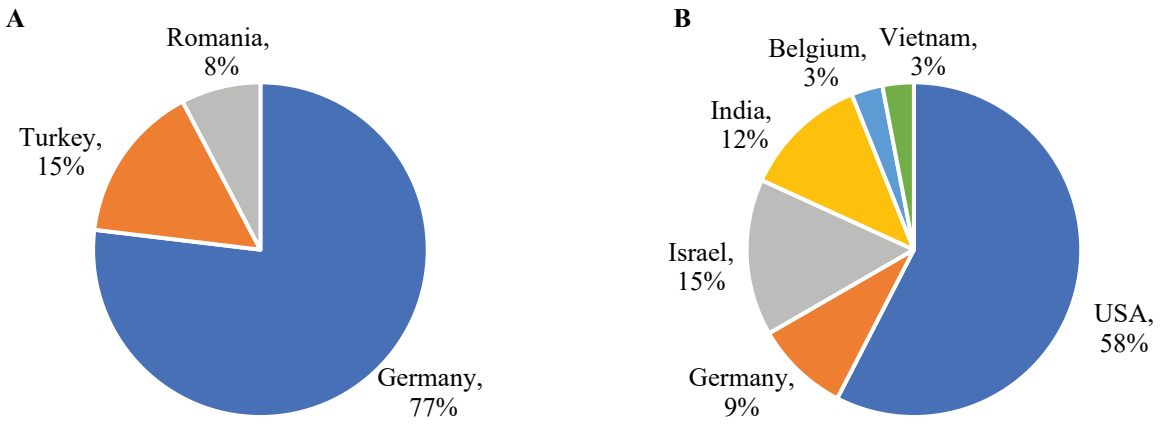

Fig. 3. The ratio of imported medicines (A) and DS (B) that can reduce the risk of carbohydrate metabolism disorders by country of origin

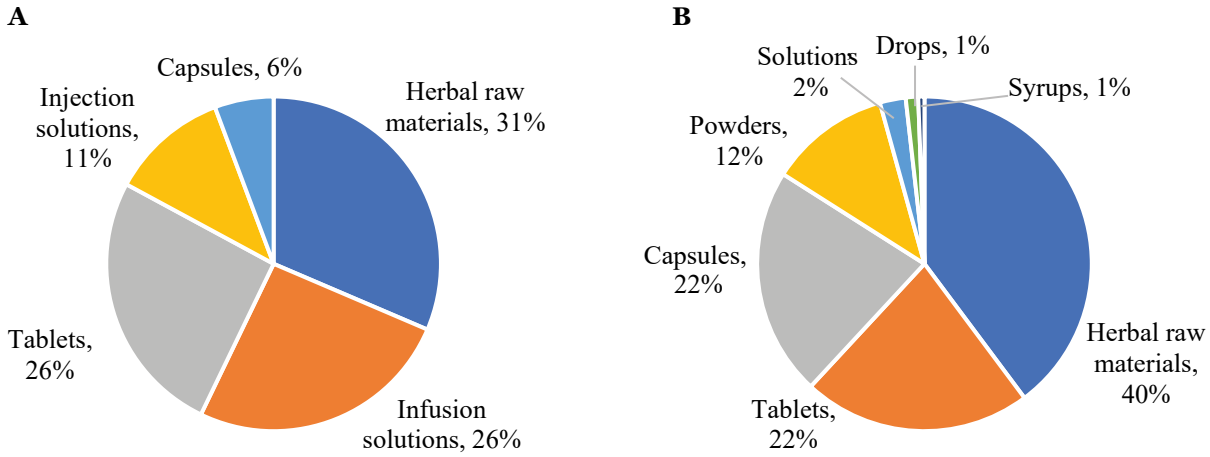

Fig. 4. The ratio of medicines (A) and DS (B) that can reduce the risk of carbohydrate metabolism disorders by dosage form

ISSN 2786-6661
eISSN 2786-667X

at 11.4%. Although capsules have a smaller share (5.7%), they still play a relevant role.

The variety of dosage forms in the DS segment is even more pronounced (Fig. 4, B). Herbal raw materials predominate, comprising 39.8% of the total assortment. Of these, herbal mixtures account for 25.2%, followed by leaves (7.9%), herbs (4.9%), fruits (1.2%), and shoots (0.6%). This structure reflects the continued popularity of phytotherapeutic approaches for preventing carbohydrate metabolism disorders. Tablets and capsules each represent 22.1% of the DS market, offering convenience and dosing accuracy for daily use. Powders account for 11.7%, solutions for 2.5%, drops for 1.2%, and syrups for 0.6%. This ratio allows for a personalized approach based on usage recommendations, convenience, storage, and other consumer needs.

An evaluation of the component composition of medicines and DS reveals considerable differences between the two categories. Among the 35 medicines (Fig. 5, A), 74.3% are monocomponent. This is attributable to the focus on a clearly defined mechanism of action, which enhances predictability of therapeutic outcomes and minimizes adverse effects. Multicomponent medicines, although fewer (25.7%), are used when a multifactorial influence on metabolic processes is required, especially to achieve synergistic effects.

The ratio of DS by the number of components (Fig. 5, B) differs significantly from medicines. Nearly half (47.2%) are multicomponent formulations, which is typical for this segment and reflects the popularity of complex products aimed at modulating carbohydrate metabolism, stabilizing blood glucose levels, enhancing insulin sensitivity, and supporting overall metabolic health. Mono-component DS account for 43.6% and typically contain a single active ingredient with proven efficacy, while dual-component products (9.2%) occupy an intermediate position, likely designed to combine complementary substances with similar mechanisms of action.

This ratio reflects fundamentally different formulation approaches: medicines are generally grounded in evidence-based medicine with an emphasis on safety and regulation, while DS are often designed for multifaceted action, rooted in phytotherapeutic traditions, consumer preference for “natural” remedies, and current marketing trends.

An analysis of the component composition of medicines and DS used to reduce the risk of carbohydrate metabolism disorders identified dominant constituents, as presented in Fig. 6. Among the medicines available to consumers on the current pharmaceutical market within group A16AX01 *Thioctic acid*, the following brand names are represented: ‘Alpha-lipon’ (JSC ‘Kyivskyi Vitaminnyi Zavod’, Ukraine), ‘Berlithion’ (‘Berlin-Chemie’ AG, Germany), ‘Dialipon’ (JSC ‘Farmak’, Ukraine), ‘Espa-lipon’, ‘Espa-lipon Inject 600’ (‘Advance Pharma’ GmbH, Germany), ‘Lipothion’ (‘World Medicine’, Turkey), ‘Thiogamma’, ‘Thiogamma Turbo’ (‘Worwag Pharma’ GmbH & Co., Germany), ‘Thioctacid 600 HR’ (‘Meda Pharma’ GmbH & Co.

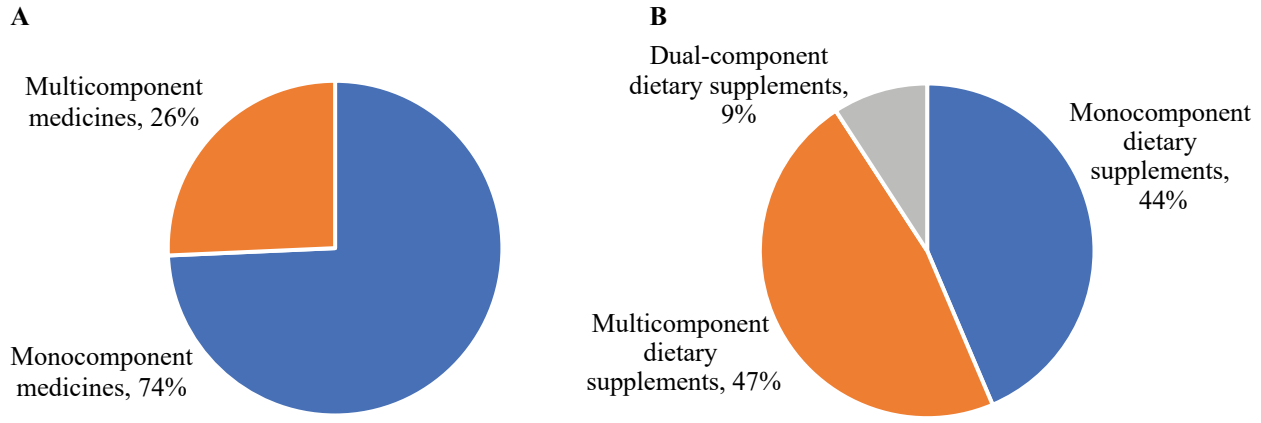

Fig. 5. The ratio of medicines (A) and DS (B) that can reduce the risk of carbohydrate metabolism disorders by number of components

ISSN 2786-6661
eISSN 2786-667X

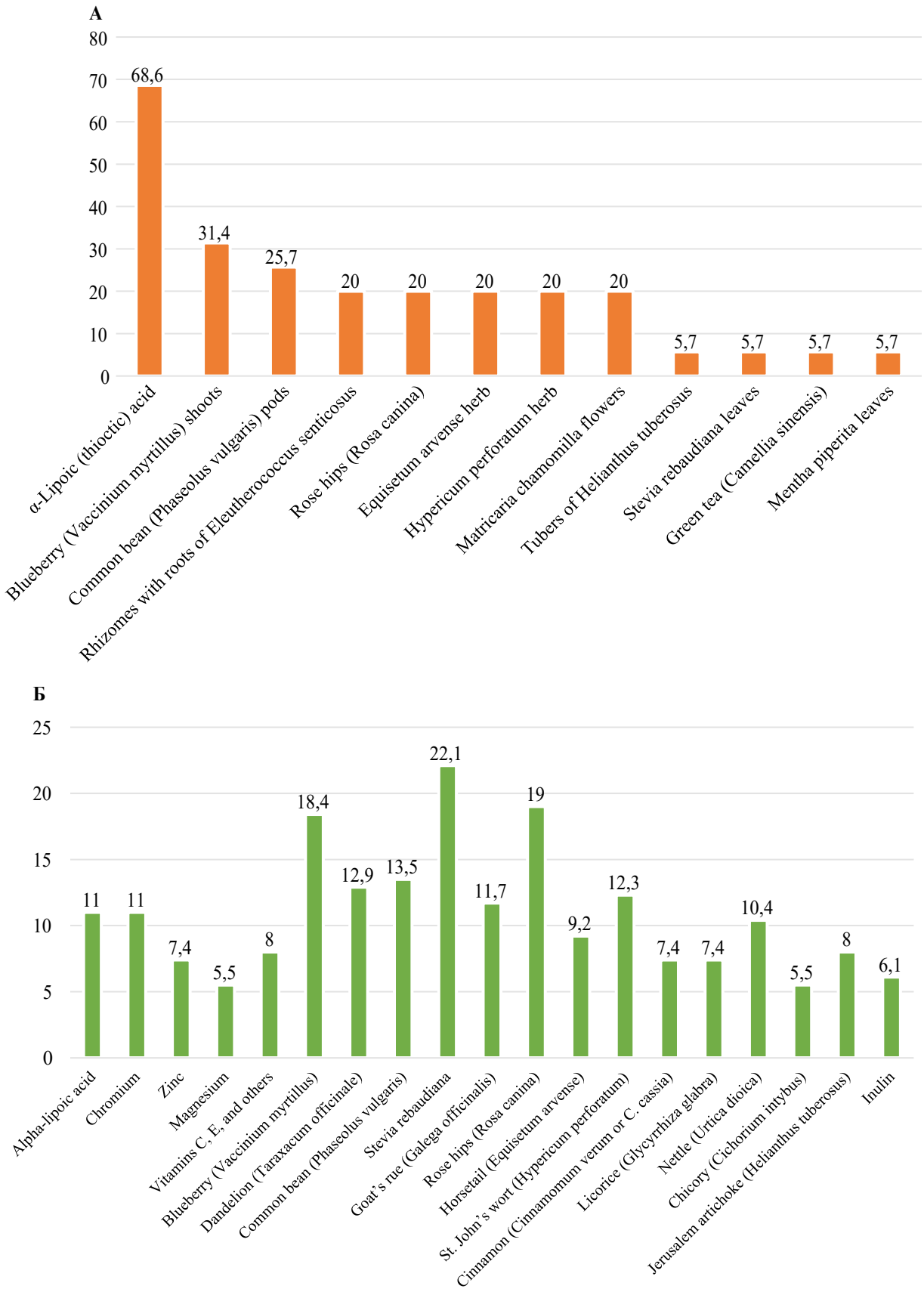

Fig. 6. The ratio of medicines (A) and DS (B) that can reduce the risk of carbohydrate metabolism disorders by by component composition

ISSN 2786-6661
eISSN 2786-667X

KG., Germany), 'Thioctodar' (PrJSC 'INDAR', Ukraine), 'Thiocton' (S.C. Rompharm Company S.R.L., Romania), 'Thio-lipon-Novopharm', 'Thio-lipon-Novopharm Turbo' (LLC 'Novopharm-Biosyntez', Ukraine), 'Pharmalipon', and 'Pharmalipon Turbo' (LLC 'Novopharm-Biosyntez', Ukraine), which are classified as prescription medicines. Group A10X (*Other drugs used in diabetes*) includes a rather limited assortment comprising herbal raw materials and herbal mixtures, in particular: 'Chornytsi pahony' (PrJSC 'Liktravy', Ukraine), as well as the mixtures 'Arfazetyn' (PrJSC Pharmaceutical Factory 'Viola', Ukraine) and 'Sadifit' (PrJSC 'Liktravy', Ukraine). Common components of both mixtures are blueberry shoots and bean pods. In addition to these, 'Arfazetyn' contains rhizomes with roots of *Eleutherococcus senticosus*, rose hips, *Equisetum arvense* herb, *Hypericum perforatum* herb, and *Matricaria chamomilla* flowers; whereas 'Sadifit' includes tubers of *Helianthus tuberosus*, *Stevia rebaudiana* leaves, green tea, and *Mentha piperita* leaves (Fig. 6A).

The components included in DS (Fig. 6B), used to reduce the risk of carbohydrate metabolism disorders, are predominantly of plant origin, along with vitamins and minerals. The most frequently encountered substances in DS are raw materials or extracts of Stevia rebaudiana, found in 22.1% of all product names, *Rosa canina* (19.0%), *Vaccinium myrtillus* (18.4%), *Phaseolus vulgaris* (13.5%), *Taraxacum officinale* (12.9%), *Hypericum perforatum* (12.3%), *Galega officinalis* (11.7%), and *Urtica dioica* (10.4%). Less frequently, *Equisetum arvense* (9.2%), *Helianthus tuberosus* (8.0%), *Cinnamomum spp.* (7.4%), *Glycyrrhiza glabra* (7.4%), *Cichorium intybus* (5.5%), and others are used. Among the vitamins and minerals, the most commonly included in DS are alpha-lipoic (thioctic) acid (11.0%), chromium (11.0%), zinc (7.4%), magnesium (5.5%), selenium (3.7%), as well as vitamins (8.0%)–primarily C, E, B7, and others.

Recent reviews highlight several key mechanisms through which microelements, vitamins, and phytocomponents may support glucose homeostasis: insulin modulation (enhancement of insulin secretion by β-cells and/or increased tissue sensitivity to insulin), inhibition of digestive enzymes (slowing carbohydrate breakdown via inhibition of α-glucosidase and α-amylase), and antioxidant protection (neutralization of free radicals that damage β-cells and the endothelium) [2–3, 5, 7]. These mechanisms are often combined in phytocomplexes to provide a multitargeted approach to carbohydrate metabolism disorders.

Alpha-lipoic (thioctic) acid is recognized as a potent antioxidant with the potential to improve insulin sensitivity; chromium enhances insulin action at the level of receptors and metabolic pathways; zinc acts as a cofactor in the formation of insulin-containing granules within β-cells; selenium is a component of glutathione peroxidase, which maintains antioxidant defense in β-cells; magnesium supports the function of GLUT4-dependent pathways necessary for cellular glucose uptake; and ascorbic acid (vitamin C) and tocopherol (vitamin E) contribute to antioxidant status and improve microcirculation in blood vessels [4–5, 7, 10].

Regarding plant components, modern scientific publications frequently mention their use in the prevention and treatment of carbohydrate metabolism disorders. In particular, *Phaseolus vulgaris* (common bean), *Trigonella foenum-graecum* (fenugreek), *Zea mays* (corn), and others inhibit α-glucosidase in vitro, reducing postprandial glucose peaks; *Matricaria chamomilla* (chamomile) and *Hypericum perforatum* (St. John's wort) exhibit anti-inflammatory activity, protecting the intestinal mucosa and reducing insulin resistance; *Galega officinalis* (goat's rue), which contains guanidine derivatives that stimulate β-cells, lowers fasting blood glucose; *Eleutherococcus senticosus* (Siberian ginseng) improves glycemic control by modulating cortisol and insulin pathways; *Taraxacum officinale* (dandelion) and *Equisetum arvense* (horsetail), as sources of prebiotics, slow carbohydrate transit and shift the microbiota towards metabolically beneficial strains; *Urtica dioica* (nettle) and *Cichorium intybus* (chicory) contain polysaccharides that have a prebiotic effect and contribute to improved glycemic control; *Helianthus tuberosus* (Jerusalem artichoke) and *Inula helenium* (elecampane), rich in inulin, improve insulin sensitivity and reduce oxidative stress [2-4, 7, 9, 13-14].

ISSN 2786-6661
eISSN 2786-667X

Among spices and natural sweeteners commonly used in dietary supplements, *Zingiber officinale* (ginger), *Cinnamomum spp.* (cinnamon), *Curcuma longa* (turmeric), *Stevia rebaudiana* (stevia), and *Glycyrrhiza glabra* (licorice) are capable of inhibiting enzymes, enhancing insulin sensitivity, and exhibiting anti-inflammatory activity [3, 7, 9-10]. The combination of minerals, vitamins, and phytocomponents in rationally formulated compositions allows for targeted effects on all key links in carbohydrate metabolism disorders.

Conclusions

Within the framework of the conducted study, a comprehensive analysis of the assortment of medicines and dietary supplements, that can reduce the risk of carbohydrate metabolism disorders, available on the pharmaceutical market of Ukraine as of January 1, 2025, was performed.

The results revealed a predominance of DS (82.32%) on the Ukrainian pharmaceutical market. This can be attributed to the relative ease of the registration procedure, aggressive marketing strategies, and increasing consumer demand for preventive healthcare products. The adoption of Law of Ukraine No. 4122-IX in 2024 has the potential to alter this landscape by strengthening the requirements for the quality, safety, and circulation of DS, which represents a crucial step toward harmonization with European Union legislation.

It was established that both medicines and dietary supplements are predominantly domestically produced (62.9% and 79.75%, respectively), which indicates the high competitiveness of Ukrainian manufacturers. In the medicines segment, PJSC “Liktravy” leads the market, whereas in the DS segment, LLC “Kliuchi Zdorovia” holds the leading position.

The dosage form distribution was analyzed, showing that among medicines, herbal raw materials, tablets, and infusion solutions are the most common, while among DS, herbal raw materials, capsules, and tablets prevail. This corresponds to the needs of various consumer groups. The composition of medicines is mostly monocomponent (74.3%), aligning with the principles of evidence-based medicine. In contrast, DS tend to feature multicomponent formulations (47.2%), aimed at exerting a complex effect on metabolic processes.

The practical value of the study lies in the possibility of using the obtained data to form substantiated recommendations for the selection of preventive agents in patients at risk of carbohydrate metabolism disorders, as well as for further monitoring of changes in the range of products in the context of legislative reforms. Healthcare professionals should recommend, for the prevention of carbohydrate metabolism disorders, registered agents that contain components with proven efficacy and safety, in addition to balanced nutrition and physical activity. Consumers should select a convenient dosage form, optimal price category, and manufacturer, and strictly adhere to the recommendations for their use.

At the same time, several issues require further investigation. In particular, the assessment of the physical and economic accessibility of medicines and dietary supplements for consumers, as well as the evaluation of adherence to quality standards in the production and distribution cycle, remains relevant.

Financing

This study did not receive external funding.

Conflict of interests

No conflict of interests.

Consent to publication

All authors have got consent to publication of this article.

ORCID ID and authors contribution

0009-0003-7382-0093 (A, B, C, D) Oleksandra Kryshtal

0000-0002-6945-2422 (A, B, C, D, E, F) Anastasiia Dub

0000-0003-3671-9212 (A, D, E, F) Olena Pokotylo

A – Research concept and design, B – Data collection and analysis, C – Responsibility for statistical analysis, D – Writing the article, E – Critical review, F – Final approval of the article

ISSN 2786-6661
eISSN 2786-667X

REFERENCES

1. International Diabetes Federation. IDF diabetes atlas - 10th edition. Available from: http://www.diabetesatlas.org
2. Lu X, Xie Q, Pan X, Zhang R, Zhang X, Peng G, et al. Type 2 diabetes mellitus in adults: pathogenesis, prevention and therapy. Signal Transduct Target Ther. 2024;9(1):262. https://doi.org/10.1038/s41392-024-01951-9
3. Mohajan D, Mohajan HK. Alpha-Glucosidase Inhibitors (AGIs): A New Class of Oral Medication for Treatment of Type 2 Diabetes Patients. J Innov Med Res. 2024;3(4):1–6. https://doi.org/10.56397/JIMR/2024.12.01
4. Verma MK, Tripathi M, Singh BK. Dietary determinants of metabolic syndrome: focus on the obesity and metabolic dysfunction-associated steatotic liver disease (MASLD). In: Metabolic Syndrome–Lifestyle and Biological Risk Factors. IntechOpen; 2024.
5. Mentzelou M, Papadopoulou SK, Psara E, Voulgaridou G, Pavlidou E, Androutsos O, Giaginis C. Chrononutrition in the prevention and management of metabolic disorders: A literature review. Nutrients. 2024;16(5):722. https://doi.org/10.3390/nu16050722
6. Bigford GE, Lehmann DA, Betancourt LF, Maher JL, Mendez AJ, Nash MS. Modification of the Diabetes Prevention Program Lifestyle Intervention in Persons with Spinal Cord Injury. J Spine Res Surg. 2024;6(1):10–26502. https://doi.org/10.26502/fjsrs0070
7. Ansari P, Khan JT, Chowdhury S, Reberio AD, Kumar S, Seidel V, et al. Plant-based diets and phytochemicals in the management of diabetes mellitus and prevention of its complications: A review. Nutrients. 2024;16(21):3709. https://doi.org/10.3390/nu16213709
8. Muszalska A, Wiecanowska J, Michałowska J, Pastusiak-Zgolińska KM, Polok I, Łompieś K, Bogdański P. The Role of the Planetary Diet in Managing Metabolic Syndrome and Cardiovascular Disease: A Narrative Review. Nutrients. 2025;17(5):862. https://doi.org/10.3390/nu17050862
9. Yılmaz B, Sırbu A, Altıntaş Başar HB, Goksen G, Chabı IB, Kumagai H, Ozogul F. Potential roles of cereal bioactive compounds in the prevention and treatment of type 2 diabetes: A review of the current knowledge. Crit Rev Food Sci Nutr. 2025;65(7):1326–43. https://doi.org/10.1080/10408398.2023.2292790
10. Pathan AS, Ahire MR, Diwane SA, Jain PG, Pandagale PM, Ahire ED. Functional Foods in Prevention of Diabetes Mellitus. In: Applications of Functional Foods in Disease Prevention. Apple Academic Press; 2024. p. 139–64.
11. Cotas J, Lomartire S, Pereira L, Valado A, Marques JC, Gonçalves AM. Seaweeds as nutraceutical elements and drugs for diabetes mellitus: future perspectives. Mar Drugs. 2024;22(4):168. https://doi.org/10.3390/md22040168
12. Tu Z, Yang J, Fan C. The role of different nutrients in the prevention and treatment of cardiovascular diseases. Front Immunol. 2024;15:1393378. https://doi.org/10.3389/fimmu.2024.1393378
13. Jian X, Jian S, Deng B. Konjac Glucomannan: A functional food additive for preventing metabolic syndrome. J Funct Foods. 2024;115:106108. https://doi.org/10.1016/j.jff.2024.106108
14. Li H, Dai W, Zhang X, Lu J, Song F, Li H. Chemical components of Fu brick tea and its potential preventive effects on metabolic syndrome. Food Sci Nutr. 2024;12(1):35–47. https://doi.org/10.1002/fsn3.3771
15. Zakon Ukrainy "Pro vnesennia zmin do deiakykh zakoniv Ukrainy shchodo udoskonalennia rehuliuvannia vyrobnytstva ta obihu dietetychnykh dobavok, vrehuliuvannia inshykh pytan u sferi okhorony zdorovia" vid 5 hrudnia 2024 roku № 4122-IX [Internet]. Available from: https://zakon.rada.gov.ua/laws/show/4122-20
16. Derzhavnyi reiestr likarskykh zasobiv Ukrainy [Internet]. Available from: https://www.drlz.com.ua/
17. Kompendium: 12.2 Dietetychni dobavky, shcho znyzhuiut ryzyk porushen vuhlevodnoho obminu [Internet]. Available from: https://compendium.ua/
18. Tabletki.ua [Internet]. Available from: https://tabletki.ua/

Аналіз асортименту лікарських засобів та дієтичних добавок, що знижують ризик порушень вуглеводного обміну

Олександра Кришталь, Анастасія Дуб, Олена Покотило

Кафедра управління та економіки фармації з технологією ліків,
Тернопільський національний медичний університет імені І. Я. Горбачевського
Міністерства охорони здоров'я України, м. Тернопіль, Україна.

Corresponding Author:

Anastasiia Dub

ISSN 2786-6661
eISSN 2786-667X

+380986313171

dub_aih@tdmu.edu.ua

Анотація: *понад 537 мільйонів дорослих мали діагноз цукровий діабет у 2021 році, і ця кількість, за прогнозами експертів Міжнародної діабетичної федерації, може зрости до 783 мільйонів до 2045 року. Профілактика та корекція вуглеводного обміну набувають особливої актуальності в контексті сучасних підходів до лікування та запобігання метаболічних захворювань, зокрема через зміни дієти та використання дієтичних добавок. Метою дослідження є систематизація даних про лікарські засоби та дієтичні добавки, що застосовуються для зниження ризику розвитку порушень вуглеводного обміну, які представлені на сучасному фармацевтичному ринку України. Матеріалами дослідження слугували дані з Державного реєстру лікарських засобів України, електронного довідника «Компендіум» та онлайн-ресурсу tabletki.ua. У результаті проведеного аналізу встановлено, що асортимент продукції, що потенційно може бути використана для профілактики порушень вуглеводного обміну, становить 198 позицій, з яких більшість припадає на дієтичні добавки (82,32%), тоді як лікарські засоби становлять 17,68%. Такий дисбаланс пояснюється низьким рівнем нормативного регулювання щодо обігу дієтичних добавок, їх широкою доступністю, спрощеною процедурою реєстрації, активним маркетингом і високим попитом серед населення. Значну частину як лікарських засобів, так і дієтичних добавок складають продукти вітчизняного виробництва (62,9% та 79,75% відповідно), що свідчить про достатню конкурентоспроможність українських виробників. У сегменті лікарських засобів лідером є ПрАТ «Ліктрави», а серед дієтичних добавок – ТОВ «Ключі Здоров'я». Щодо форм випуску, то серед лікарських засобів домінує рослинна сировина, таблетки та розчини для інфузій, а серед дієтичних добавок – рослинна сировина, капсули та таблетки, що дозволяє задовольнити потреби різних груп споживачів. У процесі аналізу компонентного складу встановлено, що лікарські засоби здебільшого мають моно-компонентний склад (74,3%), тоді як дієтичні добавки часто поєднують кілька біоактивних компонентів (47,2%), що може забезпечувати комплексну дію на метаболічні процеси. Важливою перспективою є зміни, що можуть відбутися на ринку внаслідок прийняття Закону України №4122-IX у 2024 році, який передбачає посилення державного контролю над якістю, безпечністю та обігом дієтичних добавок, що наближує вітчизняне законодавство до норм Європейського Союзу. Разом з тим, актуальними залишаються питання оцінки фізичної та економічної доступності таких засобів споживачам, їх відповідності стандартам якості.*

Ключові слова: дієтичні добавки, порушення вуглеводного обміну, дослідження ринку, лікарські засоби