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Biologically Active Dietary Supplements: Current Situation and Prospects for Tomorrow

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ABSTRACT

Today the fastest, most economical, and reasonable way of solving the problem of people's rational nutrition is the intake of biologically active dietary supplements. This paper deals with the main trends happening in the development of the dietary supplements market. It examines the global market of nutritional supplements as well as regional markets of the USA, Canada, Germany, Russia, etc. The nomenclature of the most popular dietary supplements has been analyzed. The authors have researched the dynamics of nutritional supplements sales in terms of volume and value, assessed the average price changes of the total market and the main price categories, established the prevailing trends and their causes. It has been demonstrated that the period under study is characterized by the steady increase of dietary supplements retail sales of 6 percent a year on average. By 2019 retail sales became 3.1 times as big as they were in 2015. This process can be explained by the fact that Russian and foreign companies started promoting their innovative brands and using new highly efficient manufacturing technologies at Russian enterprises.

Key words: *Dietary supplement classification and market, Sales volume and structure, Main manufacturers, Weighted average prices*

INTRODUCTION

Dietary supplements appeared in the Russian market of functional products not so long ago but they have become quite popular with a certain group of consumers. They are considered a convenient, effective, and safe product to maintain health and prevent various systematic diseases: cardiovascular, musculoskeletal, nervous, immune, and connective tissues disorders, etc [1-7]. Both the Russian Federation and other countries, in particular, demonstrate a perceptible dietary supplements range expansion and sales growth [8-14].

The role of Russia's pharmaceutical industry in maintaining and preserving people's health has greatly increased today [2, 15, 16]. It is explained by the deterioration of the epidemiological situation in the country due to the coronavirus disease. Alongside the drug market, the dietary supplements market is becoming increasingly important as in some cases the intake of supplements helps strengthen the immune system and provides preventive effects in fighting morbidity [17, 18]. Post – COVID conditions and complications being severe, the role of dietary supplements has significantly grown. The study of the supplements market development is especially topical under the condition of coronavirus pandemic.

MATERIALS AND METHODS

In this paper, we used the data provided in the report of DSM Group concerning the dietary supplements market development, which is part of Russia's pharmaceutical market, during the period from 2015 to 2019. The analysis of trends in the market included a wide range of methods and approaches, including generalization and data mining, general scientific analysis, and statistical methods.

RESULTS AND DISCUSSION

Consumer desire to stay active and healthy and to have high physical and cognitive performance triggers dietary supplements manufacturers to develop innovative technologies and formulations. Manufacturers cope with the problem of adjusting supplement formulations to consumer preferences, combining natural biologically active compounds and their blends of plant, animal, and mineral origin. Marketing research of December 2019 revealed that wholesale and retail chains of Yekaterinburg (Sverdlovsk oblast) sold more than 200 food supplement trademarks. Along with such well-known world manufacturers as Leovit nutrio, Nutrition, New Foods, and Art Life smaller enterprises also manufacture dietary supplements, e.g. Uralbiopharm (Public Joint Stock Company, Yekaterinburg), Pattra Organic Rus (Limited Liability Company, Chelyabinsk), and others.
The dynamics of dietary supplement retail sales in the Russian Federation over the 5 years from 2015 to 2019 are shown in **Figure 1.**

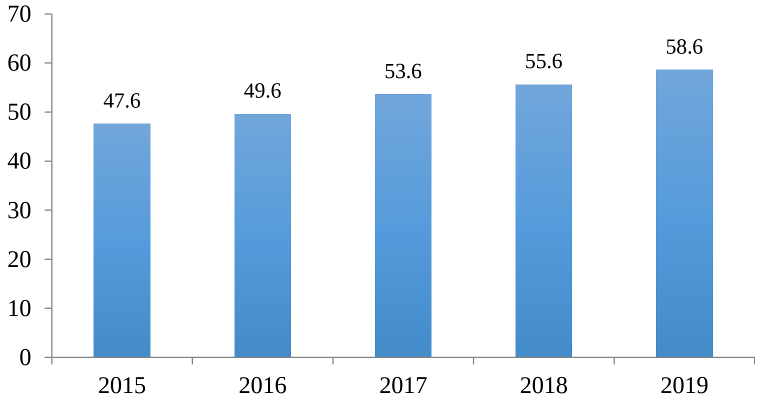

Figure 1. Dietary supplement retail sales in the Russian Federation, 2015-2019, billion rubles

It is worth noting that we can observe a steady growth of dietary supplements retail sales volume, which amounts to 6 percent a year on average. By 2019 retail sales were 3.1 times as big as they were in 2015.
A significant increase in supplements retail sales means that consumers started paying more attention to their health and proper nutrition. This trend is supposed to grow shortly.
It is interesting to note that Russia's market is dominated by functional products made in Russia. Domestic biologically active dietary supplements account for 56.2 % of the sales value and 82.4 % of the sales volume **(Figure 2)**.

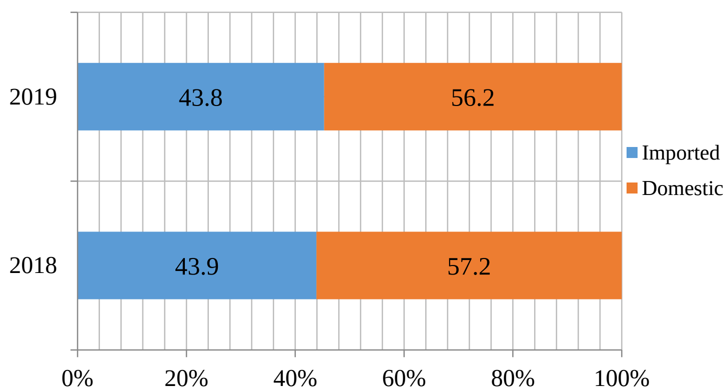

Figure 2. The ratio of imported and domestic dietary supplements in Russia's market in terms of value

The structure of the packaged dietary supplements market has changed in favor of Russian manufacturers. Thus in 2019, the increase compared to the previous period amounted to 0.9 % **(Figure 3)**.

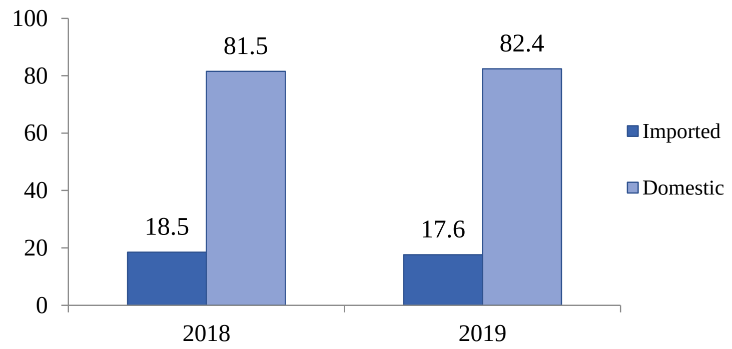

Figure 3. The ratio of imported and domestic dietary supplements in Russia's market in terms of volume

The share of imported supplements valued in rubles grew by 1.3 %, which can be explained by a more significant increase of the weighted average price (from 11.2 % to 24.3 %). Considering the absolute indicators, one can also observe the sales volume increase reached both by foreign companies (by 15.4 %) and by Russian companies (by 9.4 %).

The leading foreign manufacturers of dietary supplements are companies from Germany (31.6 %), the USA (20.2 %), and Canada (12.0%) **(Figure 4)**.

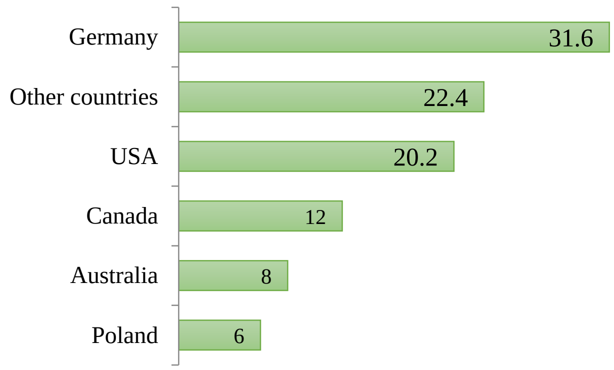

Figure 4. Distribution of supplements sales volume by the country of manufacturing in 2019, %

In Russia the leading German manufacturers are Queisser Pharma, which manufactures Doppelherz products, and AG Stada Arzneimittel, which manufactures Bactistatin and Vuka Vuka brands. One of the most well-known American manufacturers is Solgar Herb, the most popular brand being Solgar. Speaking about Canadian manufacturers, we should note such companies as Bausch Health (Naturino line) and Pharma-Med (Phytomucil).
In 2019 the maximum sales growth was demonstrated by a high-price segment (30.4 % growth) **(Figure 5)**.

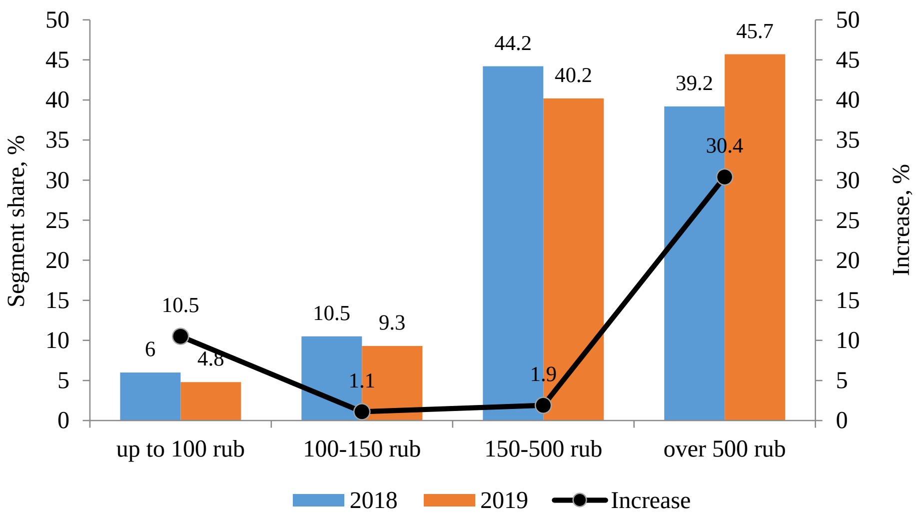

Figure 5. Supplements distribution by price segments

The analysis of the dietary supplements market structure by price segments shows a bigger growth of supplements priced over 500 rubles per package. The share of this price category increased by 6.4 % in terms of value and by 2.4 % in terms of physical sales. However, supplements in the price segment from 150 to 500 rubles also have a significant share (40.2 %) in the market. Inexpensive products remain more popular with consumers despite changes in the market structure.

The analysis resulted in the conclusion that the existing classifications for assessing the biologically active supplements market may need improvement as supplements that are used to prevent various disorders and maintain body functions belong to different classifier sections. A dietary supplement classifier has been developed. It takes into account modern market conditions and includes 17 groups with their subgroups. **Table 1** presents the structure and distribution of the supplement according to the classifier.

Table 1. Dietary supplements classification by DSM Group

Supplement group	Group	Sales volume, mm rubles. (September 2019)	Increase, %	Share, %
To affect the whole body	1 [V]	13 454.0	13.5	30.4
To support digestive system	2 [A]	9 370.3	8.8	21.1
To improve reproductive system	3 [G]	4 587.3	1.7	10.4
To support central nervous system	4 [N]	4 485.5	21.2	10.1
To support cardio-vascular system	5 [C]	1 931.4	5.6	4.4
To improve skeletal system	6 [M]	1 855.0	44.5	4.2
To lose weight and detox body	7 [W]	1 752.3	–4.1	4.0
To improve skin and hair condition	8 [D]	1 388.8	18.8	3.1
To affect sense organs	9 [S]	1 264.9	11.3	2.9
To improve respiratory system	10 [R]	1 115.1	8.9	2.5
To improve circulatory system	11 [B]	1 035.1	18.0	2.3
To counteract poisoning and intoxication	12 [T]	573.4	27.0	1.3
To affect urinary system	13 [U]	546.2	6.9	1.2
To support endocrine glands functioning	14 [H]	472.9	19.3	1.1
To support immune system functioning	15 [I]	364.5	42.8	0.8
To prevent oncological disorders(except tumors of reproductive system) and provide dietary therapy	16 [O]	68.6	−0.3	0.2
To counteract viral, bacterial and fungal infections	17 [J]	43.3	–18.0	0.1

The data in **Table 1** proves that dietary supplements affecting the whole body (group V) are most popular with consumers with a share of 30.4 %. In 2019 the sales volume increase in this group was 13.5 %. The leading trademarks in this group are Solgar (12.8 %, manufactured by Solgar Vitamin) and Femibion (7.8 %, manufactured by Merck Selbstmedikation).

The sales volume of A group supplements (affecting the digestive system) grew to 21.1 %, the increase being 8.8 %. The high-demand products in this group are Phytolax (14.7 %, manufactured by a Russian company Evalar) and Maxilac (9.4 % manufactured by OBL Pharm). An average price of a package in this group is 295 rubles.

The third position is occupied by group G, supplements improving the reproductive system, with a share of 10.4 % and an increase of 1.7%. The most popular products in this group are Vuka Vuka (5.5 %, manufactured by a foreign company Stada) and Indinol (4.5 %, manufactured by MiraxBioPharma).

It should be noted that 14 groups of dietary supplements show positive dynamics of sales. The maximum growth rate is as follows:

- group M – supplements that are taken by people with skeletal system disorders (growth of 44.5 % compared to 2018): sales of a dietary supplement Detrimax as a source of Vitamin D rose by 34.5 %;
- group I – supplements that support the immune system functioning (growth of 23.5 %): the growth is driven by multivitamin supplements Echinacea BioCore Complex (+56 %) and Supradyn (+44.9 %);
- group T – supplements to counteract poisoning and intoxication (growth of 27.0 %): enterosorbent Alphasorb demonstrated positive dynamics (53.9 %).

Consumer high demand, as well as the rational product offer provided by manufacturers, resulted in a sales volume increase.

CONCLUSION

The results of the analysis of the dietary supplements market illustrate a retail sales increase from 2014 to 2019. Russian and foreign companies promoting their trademarks and applying new highly efficient manufacturing technologies at Russia's enterprises play an important part in this process.
The growing demand for functional dietary supplements is determined by consumer preferences.

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REFERENCES

1. Kivela JM. Effects of nutritional supplements and dietary interventions on cardiovascular outcomes. Ann Int Med. 2020;172:73-4.
2. Knopf H, Sarganas G, Grams D. Application of medicines and nutritional supplements in childhood and adolescence in Germany. Bundesgesundheitsblatt Gesundheitsforschung Gesundheitsschutz. 2019;62(10):1215-24.
3. Tokhiriyon B, Poznyakovsky VM, Andrievskikh S. Biologically active complex for multifactorial support of the central nervous system: new composition, efficacy. Carpath J Food Sci Technol. 2020;12(1):52-60.
4. Tokhiriyon B, Poznyakovsky VM, Beliaev NM. Biologically active complex for functional support of connective tissue: Scientific substantiation, clinical evidence. Int J Pharm Res Allied Sci. 2019;8(10):115-22.
5. Tokhiriyon B, Poznyakovsky VM. Full-scale testing of functional product in patients with vegetative-vascular dysfunction and chronic cerebrovascular disorder. Int J Pharm Res Allied Sci. 2019;8(3):91-7.
6. Shukla UN, Mishra ML. Biofortification: Golden way to save life from micronutrient deficiency. Indian J Agricu Rev. 2018;39(5):202-9.
7. Biloklytska G, Viala S, Koval A. Marketing research on dietary supplements for periodontitis in patient diabetes. Ann Dent Spec. 2020;8(2):67-78.
8. Borzova M. Dietary supplement roadmap and market: forecasts and risks. Remedium. J Russ's market drugs med equipment. 2018;11:22-4.
9. Nikolaeva MA, Kleschevsky Yu N, Ryazanova OA. Situation in dietary supplement market: problems and forecasts. Innov Food Prod Technol Commod Expert. 2017;1(42):97-106.
10. Sigova AS. Dietary supplement market and development trends: young scientist. 2020;307(17):373-5.
11. Utebaeva AA, Burmasova MA, Sysoeva MA. Prospects for bifidobacteria use in functional foods and medicines. Proc Univ. Appl Chem Biol. 2016;6(19):100-9.
12. Jum TA, Ksenz MV, Zadneprovskaya EL. Economic and organizational aspects of functional foods development and marketing. Sustain Econ. 2018;4(36):154-7.
13. Desquilbet MS, Maigne E, Monier-Dilhan S. Organic food retailing and the conventionalisation debate. Ecol Econ. 2018;150:194-203.
14. Fulgoni VL, Keast DR, Bailey RL. Foods, fortificants, and supplements: where do Americans get their nutrients. J Nutr. 2011;141(10):1847-54.
15. Karamnova NS. Use of functional food products in the prevention of chronic non-infectious diseases. CardioSomatics. 2017;8(1):39.
16. Moiseenko MS, Mukatova MD. Food products of functional orientation and their purpose. Bull Astrakhan State Tech Univ. Ser: Fish. 2019;(1):145-52.
17. Atia A. Physician trends of drug prescription in Libya: A pharmacoepidemiological study. Pharmacophore. 2019;10(3):33-8.
18. Saptarini NM, Hadisoebroto G, Wibowo MS, Gusdinar T. Effect of drug treatment on serum Cartilage Oligomeric Matrix Protein Levels in patients of Rheumatoid Arthritis and Knee Osteoarthritis in Bandung, Indonesia. J Adv Pharm Educ Res. 2020;10(2):41-5.