

MARKETING ANALYSIS OF DRUGS FOR THE TREATMENT OF BACTERIAL VAGINOSIS

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Abstract

The article presents the results of the analysis of the market of drugs for the treatment of bacterial vaginosis (BV), registered in Ukraine as of December 1, 2021.

In the course of our study, it was found that the Ukrainian market of antimicrobial and antiseptic drugs for the treatment of BV is quite saturated with a range of drugs in this group - there are both classical antimicrobial therapies (metronidazole, clindamycin) and new local antimicrobial drugs with a broad spectrum of action (such as dequalinium chloride product Fluomizin) in various dosage forms. The market of probiotics in Ukraine is mainly represented by DS, which is 89.6% of the total range of probiotics. Capsules predominate among the dosage forms of medicinal products (45%), and powders for the preparation of suspensions (43%) predominate among the dosage forms of DS. Among Ukrainian probiotics, there are no medicinal products at all, and the number of probiotics in the form of vaginal suppositories accounts for only 2 names.

The market for probiotic-containing drugs is supplied by foreign pharmaceutical companies, which indicates the prospect of introducing domestic drugs into this market segment.

Keywords: *marketing analysis, products for the treatment of bacterial vaginosis, antimicrobials, probiotics, medicinal product, dietary supplements*

Introduction

Bacterial vaginosis (BV) refers to infectious diseases of the vagina caused by imbalances between the physiological microflora of the vagina and opportunistic microflora, which is normally found in the vagina in small quantities [1, 2]. It has been established that BV is not only a cause of unpleasant discharge, but also a risk factor, and sometimes one of the causes of severe pathology of the female genital organs and complications of pregnancy and childbirth [3, 4]. According to statistics, this pathology occurs in 10-30% of pregnant women and 24-40% of women with sexually transmitted diseases [5, 6]. Many studies indicate a high risk of BV complications [7-11]. Thus, the issue of effective therapy and prevention of BV recurrence remains relevant today. The traditional treatment regimen for BV is the administration of antibiotics such as omidazole, metronidazole, clindamycin [12, 13].

But it is known that 50-55% of women suffering from BV have intestinal dysbacteriosis, which indicates a single dysbiotic process in the body with a dominant manifestation in either the genital or digestive system [6, 14]. Thus, recent publications note that the priority in choosing drugs for the treatment of BV is the combination of antibiotics with probiotics [6, 8, 15]. A comprehensive study of the market for drugs for the treatment of BV, registered in Ukraine, turned out to be interesting. Some aspects of this issue were studied in the works of Ukrainian scientists [16-21]. The validity of our research is confirmed by the relevance of the topic, as well as the fact that due to the resistance of microorganisms to antibiotics there are constantly new drugs on the market that require a comprehensive analytical study.

The aim of the study is an analysis of the market of drugs for the treatment of BV, registered in Ukraine as of December 1, 2021.

Methods

Official sources of information on registered and approved medicinal products and dietary supplements in Ukraine were used as materials for the study. The analysis of the range of drugs was carried out as per the State Register of Medicinal Products of Ukraine and the International ATC

(Anatomical Therapeutic Chemical) Classification System, which were analyzed according to the following scheme: composition, dosage form, and manufacturer. The State Register of Medicinal Products of Ukraine [22], the Directory of Medicinal Products Compendium [23, 24], etc. were used as information sources. The objects of the study were drugs belonging to groups G01 "Gynecological antiinfectives and antiseptics", A07FA "Antidiarrheal microorganisms", G02CX "Other gynecologicals", as well as group 8.5 "Dietary supplements, which contribute to the normalization and maintenance of normal intestinal microflora.

In the course of the research the method of content analysis, methods of modern information retrieval, bibliographic, systematic and comparative analysis, logical, graphical, and generalization were used.

Results

Group "G01" is represented by antimicrobial and antiseptic drugs used in gynecology, and includes combined drugs containing glucocorticosteroids (GCS) "G01B" and antimicrobial or antiseptic drugs "G01A". Group "G01A" has 83 names and is represented by antibiotic groups of natamycin - "G01A A02", chloramphenicol - "G01A A05", clindamycin - "G01A A10", nystatin and their combinations - "G01A A51", "G01A A50", and also quinoline derivatives - "G01A C", imidazole - "G01A F", organic acids - "G01A D" and other antimicrobial and antiseptic agents - "G01A X". Group "G01B" includes 5 names of drugs related to antibiotics, sulfonamides or imidazole derivatives in combination with corticosteroids - "G01B A", "G01B E", "G01B F".

The largest share of drugs for the treatment of BV belongs to the imidazole derivatives group and is represented on the Ukrainian market by 28 drugs, which is 33.7% of the total range of antimicrobial and antiseptic drugs. The smallest share among these drugs are derivatives of organic acids - 1 name. Of the 88 drugs related to antibacterial and antiseptic drugs, as well as their combinations with corticosteroids, only 28 drugs are produced in Ukraine, which is 32%, other medicinal products are supplied to the domestic market by foreign manufacturers (Fig.1).

Among foreign manufacturers, the leader is India with 12 trade names and 13.6% of the market. The second place is occupied by Italy, which supplies 7 names of drugs - 7.9%, data from other countries are shown in Fig. 2.

Ornidazole, metronidazole, and clindamycin, which have antianaerobic activity, are considered to be the antimicrobial drugs of choice for the treatment of BV [1, 6].

As mentioned earlier, probiotics are also an integral part of complex BV therapy. They should be used not only to correct the damaged vaginal flora but also to prevent these disorders after antibacterial therapy.

According to the State Register of Medicinal Products, only 15 probiotics have been registered in Ukraine, which belong to group A07FA "Antidiarrheal microorganisms" and group G02CX "Other gynecologicals". Data on these medicinal products are given in Table. 1.

After analyzing the data, we can conclude that powders for suspension are 2 drugs, capsules are 8 drugs, oral drops are 2 drugs, powder for oral solution - 1 drug, oral suspension - 3 names, and vaginal capsules - 2 names. The percentage data are shown in Fig. 3.

Among these drugs there are no domestic probiotics at all: 4 drugs are supplied by Germany (Merkle GmbH, Ardeypharm GmbH, SymbioPharm GmbH) and Canada (Lalman Health Solutions, Pharmasciences), 3 by Italy (Sanofi) and Slovenia (Lek Pharmaceutical company) 2 names come from France (Uniter Laboratory, Biocodex) and 1 drug each from India (Mepro Pharmaceuticals Private Limited) and Poland (Institute of Biotechnology of Serums and Vaccines Biomed SA). The percentage data are shown in Fig. 4.

Unlike oral probiotics, which pass through the digestive system with the colonization of the rectum and migration of probiotics from the anus to the vagina due to the anatomical proximity of the vagina and anus, vaginal probiotics due to topical application do not require this, which theoretically reduces the time of the effect onset, because bacteria themselves are not exposed to digestive juices [2, 6]. Among vaginal forms of probiotics, only 2 drugs have been registered in Ukraine - vaginal

capsules Vagilac and Bioselac, which are products of Poland and Canada (Table. 1).

The range of probiotics is much more represented by dietary supplements. According to the material of the Compendium [24], group 8.5 "Dietary supplements that help normalize and maintain normal intestinal microflora" as of September 1, 2021, includes 179 names of dietary supplements, among which a wide range of products from Ukrainian manufacturers such as "Farmak" - Lactiale, "Biopharma" - Biosporin, Kyiv Vitamin Plant - Bionorm, LLC "SPE Ariadna" - Babynorm and others. Switzerland, Denmark, the Netherlands, and Italy represent a significant share of probiotics on the Ukrainian market. Among the dietary supplements for maintaining the normal microflora of the vagina, there are 7 items. These dietary supplements are products of Italy, Switzerland, Ukraine, Croatia, and India (Table. 2). A total of 51 names of supplements were analyzed.

Of the 51 names of the studied range of dietary supplements, the largest number of probiotics (27 names) is represented by powders for the preparation of suspensions in sachets or vials, second place take capsules for oral use (20 names). The smallest group of probiotics is presented in the form of oral drops (7 names), 3 - in the form of vaginal capsules, 2 drugs in suspension form, 2 probiotics are available in the form of vaginal suppositories, and 1 item in tablets and lozenges. The percentage data are shown in Fig. 5.

The first place out of 51 names among the countries-manufacturers of dietary supplements with probiotics in terms of the number of products on the Ukrainian market is occupied by domestic manufacturers such as Ariadna, Elite-farm, Enzym, Steviasan, Godovichenko SO, Vivokaps, Prolisok, Biopharma. These manufacturers produce 19 names of probiotics, ie 37.25% of the studied supplements. The leader among them is LLC PP "Biopharma" - 47.3%. In second place is Switzerland (13.72%), all products of which belong to the manufacturer Delta Medical Promotions; in third place is Denmark with 5.88% (Pharma-Vinci A/S, Ferrosan A/S, Biocar Copenhagen A / S). 3.92% of supplements are supplied by India (Organosyn Life Sciences), Austria (Pfizer), Sweden (BioGaia), Bulgaria (Adipharm), Poland (Medana Pharma JSC, KomarkoSp. Zo.o.), Russia (Microgen, SPU, FSUE, Ferment), Canada

(Institut Rosell Inc), the Netherlands (Winclove BioIndustries B.V.) And 1.96% each - Korea (Ildong Pharmaceutic), United Kingdom (Lifeplan Products), Italy (NTC), Romania (TTC AesculapProd), France (Liocenter Laboratories), and Croatia ("Jadran" Galenska Laboratory) (Fig. 6).

Though we see from the presented diagram (Fig. 6) that the number of domestic supplements with probiotics on the Ukrainian market is greater than the number of additives of each country separately, but the total share of Ukrainian products is less than foreign, as seen in Fig. 7.

Discussion

As mentioned earlier, BV needs comprehensive treatment, so the objects of our study were selected antimicrobial and antiseptic drugs used in gynecology, as well as probiotics registered in Ukraine.

In the course of our study, it has been found that the Ukrainian market of antimicrobial and antiseptic drugs for the treatment of BV is quite saturated with drugs in this group - there are both classical antimicrobial therapies (metronidazole, clindamycin) and new local antimicrobial agents with a broad spectrum of action (such as Swiss-made dequalinium chloride product Fluomizin) in various dosage forms.

The market of probiotics in Ukraine is mainly represented by dietary supplements, which make 89.6% of the total range of probiotics. Among Ukrainian probiotics, there are no medicinal products at all, and the number of probiotics in the form of vaginal suppositories accounts for only 2 names. The market for probiotic-containing drugs is supplied by foreign pharmaceutical companies, which indicates the prospect of introducing domestic drugs into this market segment. It should also be noted that all drugs in the analyzed group, except Mutaflor, are dispensed over-the-counter [19].

Conclusions

1. The analysis of the market of drugs for the treatment of bacterial vaginosis and superinfections associated with BV pathogens was performed. It has been found that drugs for the treatment of BV, according to the international ATC classification, belong to group G01 "Gynecological anti-infectives

and antiseptics", as well as groups A07FA "Antidiarrheal microorganisms" and G02CX "Other gynecologicals" and group 8.5 "Dietary supplements that help normalize and maintain normal intestinal microflora."

2. It has been found that the Ukrainian market of antimicrobial and antiseptic drugs for the treatment of BV is quite saturated with drugs in this group - there are both classical antimicrobial therapies (metronidazole, clindamycin) and new local antimicrobial agents with a broad spectrum of action (such as Swiss-made dequalinium chloride product Fluomizin) in various dosage forms.

3. The market of probiotics in Ukraine is mainly represented by dietary supplements, which make 89.6% of the total range of probiotics. Of the 15 drugs from this group of drugs, 45% are available in capsule form. The market is provided by foreign manufacturers, and there are no medicinal products among Ukrainian probiotics. Analysis of the presentations of dietary supplements with probiotics has shown that the group is dominated by powders for the preparation of suspensions (43%). Ukraine does not have domestic drugs with lacto- and bifidobacteria, the main range of probiotics is represented by dietary supplements, among which there are almost no probiotics in the form of vaginal suppositories. Therefore, the development of vaginal suppositories with lacto- and bifidobacteria is an urgent issue for medicine and pharmacy.

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Table 1. Probiotics marketed as medicinal products

No.	Name	Dosage Form	The composition of the active substances	Manufacturer
1.	Hylac forte	Oral drops, 30 mL or 100 mL	100 mL of drops contain aqueous substrate of <i>Escherichia coli</i> - 24.9481 g, <i>Enterococcus faecalis</i> - 12.4741 g, <i>Lactobacillus acidophilus</i> - 12.4741 g, and <i>Lactobacillus helveticus</i> - 49.896 g	Merkle GmbH, Germany
2.	Mutaflor	Oral susp. 1 mL No.5, 25.	1 mL of the suspension contains a bacterial culture of <i>Escherichia coli</i> 1917 10^8 CFU	Ardeypharm GmbH, Germany
3.	Enterogermina forte	Oral susp., 5 mL No. 10, 20.	1 vial of 5 mL contains spores of multidrug-resistant strain <i>Bacillus clausii</i> 4×10^9	Sanofi S.p.A., Italy
4.	Pro-symbioflor	Oral drops 50 mL	1 mL contains: sterile bacterial lysate made from <i>Escherichia coli</i> bacteria $1.5-4.5 \times 10^7$ bacteria, <i>Enterococcus faecalis</i> bacteria $1.5-4.5 \times 10^7$ bacteria	SymbioPharm GmbH, Germany
5.	Enterogermina	Oral susp., 5 mL No. 10, 20	1 vial of 5 mL contains spores of multidrug-resistant strain <i>Bacillus clausii</i> – 2×10^9	Uniter Laboratories, France Sanofi S.p.A., Italy
6.	Enterogermina	Powder, sachet 2 g No. 10	Each 2 g sachet contains spores of multidrug-resistant strain <i>Bacillus clausii</i> 6×10^9	Sanofi S.p.A., Italy
7.	Linex	Caps. No. 32	1 capsule contains $\geq 4.5 \times 10^6$ CFU <i>Lactobacillus acidophilus</i> (sp. L. gasseri), $\geq 3.0 \times 10^6$ CFU of <i>Bifidobacterium infantis</i> , $\geq 4.5 \times 10^6$ CFU <i>Enterococcus faecium</i>	Lek Pharmaceutical Company d.d, Slovenia
8.	Linex baby	Powder, a sachet of 1.5 g No. 10 or 20.	1 sachet (1.5 g) of powder for oral suspension contains 1,000,000,000 CFU <i>Bifidobacterium animalis</i> subsp. <i>lactis</i>	Lek Pharmaceutical Company d.d. Slovenia Maripharm, (secondary packaging), Slovenia
9.	Linex forte	Caps. No.7	1 capsule contains a mixture of probiotics: <i>Lactobacillus acidophilus</i> - $\geq 1 \times 10^9$ CFU, <i>Bifidobacterium animalis</i> subsp. <i>lactis</i> - $\geq 1 \times 10^9$ CFU	Lek Pharmaceutical Company d.d, Slovenia
10.	Lacidofil	Caps. No. 10	1 capsule contains: $\geq 2 \times 10^9$ CFU of lyophilized bacteria <i>Lactobacillus rhamnosus</i> and <i>Lactobacillus helveticus</i>	Lalman Health Solutions Inc., Canada Takeda Pharma Sp. (primary and secondary packaging), Poland

11.	Enterol 250	Powder, a sachet of 250 mg No. 10	1 sachet contains 250 mg of <i>saccharomyces boulardi</i>	Biocodex, France
12.	Enterol 250	Caps. 250 mg No. 10, 20, 30, 50	1 capsule contains 250 mg of <i>saccharomyces boulardi</i>	Biocodex, France
13.	Normagut	Caps. 250 mg No.10, 30	1 capsule contains 250 mg of lyophilized dry yeast <i>Saccharomyces boulardii</i> with a minimum of 10 ¹⁰ cells/g, including 221.25 mg of yeast and 28.75 mg of lactose monohydrate	Ardeypharm GmbH, Germany
14.	Lactovit forte	Caps. No. 30, 14.	1 capsule contains 1.5 mg of folic acid, 15 mcg of vitamin B12, Lactic Acid Bacillus 120 million spores	Mepro Pharmaceuticals Private Limited, India
15.	Yogurt	Caps. 2 billion active cells (CFU), No. 30, 75 in vials, No. 15 in blisters	1 capsule contains 2 billion active cells (colony-forming units (CFU)) <i>Lactobacillus acidophilus</i> , <i>Lactobacillus rhamnosus</i> , <i>Streptococcus salivarius</i> subsp. <i>thermophilus</i> , <i>Lactobacillus delbrueckii</i> subsp. <i>bulgaricus</i>	Pharmascience Inc. (bulk production, primary and secondary packaging, quality control, batch release), Canada
16.	Yogurt	capsules of 4 billion active cells (CFU), No. 30 in vials	1 capsule contains 2 billion active cells (colony-forming units (CFU)) of <i>Lactobacillus acidophilus</i> , <i>Lactobacillus rhamnosus</i> , <i>Streptococcus salivarius</i> subsp. <i>thermophilus</i> , <i>Lactobacillus delbrueckii</i> subsp. <i>bulgaricus</i>	Pharmascience Inc. (bulk production, primary packaging, quality control, batch release), Canada
17.	Vagilac	Vaginal caps. No. 10	1 capsule contains 4 billion active cells (CFU) of <i>Lactobacillus acidophilus</i> , <i>Lactobacillus rhamnosus</i> , <i>Streptococcus thermophilus</i> , <i>Lactobacillus delbrueckii</i> subsp. <i>bulgaricus</i>	Pharmascience Inc., Canada
18.	Bioselac	Vaginal caps. No. 10	1 capsule contains <i>Lactobacillus rhamnosus</i> $\geq 10^8$ CFU	Institute of Biotechnology of Serums and Vaccines Biomed SA, Poland

Table 2. The range of dietary supplements with probiotics for the treatment of BV

No	Name	Composition	Form of release	Manufacturer
1.	Bifidum-bacterin	Live Bifidobacterium bifidum - $\geq 1 \cdot 10^7$ CFU	Caps. No. 10	Biopharma, Ukraine
2.	Fermalac	Lyophilized bacteria Lactobacillus rhamnosus - 1.6×10^9 , yogurt culture: Streptococcus thermophilus - 0.2×10^9 and Lactobacillus delbrueckii subsp. Bulgaricus - 0.2×10^9	Vaginal caps., No. 10	Roselle Institute Inc., Canada
3.	Vagisan	Live Lactobacillus rhamnosus - 10 and Lactobacillus reuteri - 41 mg	Caps., No. 15	"Jadran" Galenska Laboratory dd, Croatia
4.	Spasmolac	10 billion living Lactobacillus plantarum	Caps., No. 20	Roselle Institute Inc. Canada
5.	Lactomun	Bifidobacterium bifidum, Bifidobacterium lactis, Lactococcus lactis $\geq 1.0 \times 10^9$ CFU/g	Powder, sachet 1.5 g; 3 g; No. 1, No. 14	Winclove Bio Industries BV, the Netherlands
6.	Lactobacterin	L. Plantarum or L. Fermentum $\geq 2 \cdot 10^9$ CFU of lactobacilli	Powder, vial No. 10,	Biopharma, Ukraine
7.	Lactobacterin dry	L. Plantarum or L. Fermentum $\geq 2 \cdot 10^9$ CFU	Powder, vials, 5 doses No. 10	Mikrogen, SPU, FDUP, Tomsk, Russian Federation
8.	Lactobacterin	L. Plantarum or L. Fermentum $\geq 2 \cdot 10^9$ CFU	Vag. supp. 1.2 g No. 10	Biopharma, Ukraine
9.	Colibacterin	Escherichia coli $\geq 6 \cdot 10^9$ live bacteria	Powder, 5 doses No. 10	Biopharma, Ukraine
10.	Bificol	$\geq 1 \cdot 10^7$ CFU of bifidobacteria and $\geq 1 \cdot 10^7$ CFU of Escherichia coli	Powder, 3 doses No. 10	Biopharma, Ukraine
11.	Acidolac	Lyophilized Lactobacillus acidophilus $\geq 1.95 \times 10^9$ CFU and Bifidobacterium $\geq 1.95 \times 10^9$ CFU	Powder, 3 g No. 10	Medana Pharma JSC, Poland
12.	Bifiform	Bifidobacterium longum - 10^7 CFU Enterococcus faecium - 10^7 CFU	Caps.No. 20, No. 30	Ferrosan A/S, Denmark
13.	Subalin	Live Bacillus subtilis $\geq 1 \cdot 10^9$	Powder, sachet No. 10	Biopharma, Ukraine
14.	Biosporin	Live Bacillus subtilis, Bacillus licheniformis $\geq 1.1 \cdot 10^9$	Powder, sachet No. 10	Biopharma, Ukraine
15.	Symbiter	Bifidobacteria, lactococci, lactobacilli, propionic acid - 1.0×10^8 , acetic acid bacteria - 1.0×10^6	Susp. vial. 10 mL	Prolisok OD, Company, LLC, Ukraine
16.	Lactogynol	Lyophilized culture of lactobacilli L	Vaginal caps., No. 14	SAC lyocenter. France
17.	Acylact	Live Lactobacillus acidophilus $\geq 10^7$	Vag. supp.	LLC "Ferment", Russia

18.	Ecofemin	Lactobacillus Acidophilus $\geq 1 \times 10^8$ CFU	Vaginal caps.,	Pharma Vinci, Denmark
19.	Active flora baby	Lactobacillus rhamnosus in 1 drop $\geq 1 \times 10^9$ CFU/g	Oral drops, vial 5 mL, No. 1	Komarko Sp., Poland.
20.	Biogaia protectis	Lactobacillus reuteri $\geq 10^8$ CFU, Lactobacillus $\geq 10^8$ CFU, Lactobacillus reuteri $\geq 10^8$ CFU	Tablets No. 20 drops, vial 5 mL, powder, sachet, No. 7	BioGaia, Sweden
21.	Brevelac	Lactobacillus spp., Bifidobacterium spp. $\geq 1.5 \cdot 10^9$ CFU; vitamin C - 50 mg; fructooligosaccharides - 39 mg; vitamin B2 - 0.6 mg; vitamin B6 - 0.6 mg; vitamin B1 - 0.5 mg;	Caps., No. 20	Adipharm, Bulgaria
22.	Boulardi max	Saccharomyces boulardii - 250 mg, $5 \cdot 10^9$ CFU, Lactobacillus rhamnosus - $1.5 \cdot 10^9$.	Caps. powder, sachet, No. 10	Delta Medical Promotions, Switzerland
23.	Demapro	Lactobacillus rhamnosus - $1.5 \cdot 10^9$ CFU, fructooligosaccharides - 190 mg.	Caps., No. 8, No. 30	Delta Medical Promotions, Switzerland
24.	Opefera	Live lyophilized Lactobacillus rhamnosus - $1.94 \cdot 10^9$ CFU, L. plantarum $0.2 \cdot 10^9$ CFU, Streptococcus thermophilus $0.5 \cdot 10^9$ CFU, Lactobacillus acidophilus $0.5 \cdot 10^9$ CFU, Bifidobacterium spp. - $0.24 \cdot 10^9$ CFU; Saccharomyces boulardii - 65 mg; dry extract of chamomile flowers - 50 mg; inulin - 200mg.	Caps. No. 20 caps. hard, vial No. 28	World Medicine Europe, Bulgaria
25.	Preema for children duo	Viable Lactobacillus rhamnosus - $0.5 \cdot 10^9$ CFU and Bifidobacterium breve $0.5 \cdot 10^9$ CFU	Drops 10 mL, powder. sachet, No. 10	Delta Medical Promotions, Switzerland
26.	Rotabiotic	Lactobacillus bulgaricus - $0.5 \cdot 10^9$ CFU, Streptococcus thermophilus - $0.8 \cdot 10^9$ CFU, Lactobacillus acidophilus $0.8 \cdot 10^9$ CFU, Bifidobacterium spp. - $0.4 \cdot 10^9$ CFU; inulin - 150 mg.	Caps. No. 20 caps. No. 25, vial	LLC PP "Biopharma" Ukraine
27.	Rotabiotic baby	Bacillus subtilis $1-10^9$	Powder, sachet, vial No. 10	LLC PP "Biopharma" Ukraine
28.	Subalin	Bacillus subtilis $1-10^9$	Powder, sachet, vial No. 10	LLC PP "Biopharma" Ukraine
29.	Turbiotic	Saccharomyces boulardii - $1.25 \cdot 10^9$ CFU, Lactobacillus rhamnosus - $3 \cdot 10^9$ CFU.	Powder, sachet No. 10 Caps. 400 mg, No. 15 drops 10 mL	Delta Medical Promotions, Switzerland

30.	Activit probioticM	L. Acidophilus 7.7×10^8 CFU, L. Casei and L. Rhamnosus 6×10^8 CFU, L. Bulgaricus 4.5×10^8 CFU, s. Thermophilus 6×10^8 CFU	Powder, sachet No. 20	T.T Aesculap Prod, Romania
31.	Apibact 1.5%	Live bifidobacteria - 1.0×10^{11} , lactobacilli - 1.0×10^{10} , propionic acid bacteria - 1.0×10^{10} , lactococci - 5.0×10^9 , streptococci - 3.0×10^9 , acetic acid bacteria - 1.0×10^5 , propolis extract - 1.5%.	Powder, sachet No. 10	Prolisok OD, Ukraine
32.	Ayusak	Saccharomyces boulardii - 5 billion, vitamin B2 - 1.4 mg	Powder, sachet No. 10	NTC, Italy
33.	Bactovit	Lactococcus lactis CFU/g - 1×10^{10} , Bifidobacterium bifidum CFU/g - 1×10^{10} ; vitamin B5 - 3.4 mg, vitamin B12 0.1% - 1 mg, vitamin B1 - 0.5 mg, vitamin B6 - 0.65 mg, vitamin B2 - 0.65 mg;	Caps., No. 20	Lifeplan Products, United Kingdom
34.	Bactosila	Lactitol, dry stevia extract	Powder, vial 80 g	Steviasan, Ukraine
35.	Babynorm	Bifidobacterium; lactulose; polygalacturonic acid (pectin), lactose	Caps. No. 10	Ariadne, Ukraine
36.	Biogaia ORS	Lactobacillus reuteri 1×10^9 CFU	Powder, sachet No. 7, drops, 5mL, lozenges No. 30	BioGaia, Sweden
37.	Biolact	Lactobacillus acidophilus, Bifidobacterium longum, and Enterococcus faecium- 3×10^9	Powder, sachet No. 10	Ildong Pharmaceutical, Co., Ltd., South Korea
38.	Biosimia	Fructose, maltodextrin, Lactobacillus, Bifidobacterium	Powder, vial 0.3 g No. 10	Enzym, Ukraine
39.	Bifilact extra	Bifidobacterium and Lactobacillus -50 million CFU/g	Caps. No. 30.	Ariadne, Ukraine
40.	Biform baby	Bifidobacterium lactis - 1×10^9 CFU Streptococcus thermophilus - 1×10^8	Drops, vial 6.9 mL	Pfizer, Austria
41.	Biform	Bifidobacterium longum - $\geq 10^7$ bacterial cells; Enterococcus faecium - $\geq 10^7$ bacterial cells	Caps. No. 20	Pfizer, Austria
42.	Bififormula	Lactobacilli (Lactobacillus acidophilus) - 25×10^8 , Bifidobacteria (Bifidobacteria longum) - 10×10^8 .	Caps. 0.5 g No. 30	Elit-Farm (Ukraine)
43.	Boulardi	Saccharomyces boulardii - 250 mg, 5×10^9 CFU, Lactobacillus rhamnosus- 1.5×10^9 CFU	Caps. No. 10	Delta Medical Promotions, Switzerland

44.	Vivocaps 16	Bifidobacterium spp, Lactobacillus spp, Streptococcus thermophilus	Caps. No. 16	Godovichenko S.O. (Ukraine)
45.	Duopik	Lactobacillus spp, Bifidobacterium bifidum, Bifidobacterium adolescentis, - 10^{10} CFU / g, vitamins: ascorbic acid (vitamin C) - 7.5 mg, B1 - 0.15 mg	Powder, 1.5 g No. 10 sachets	Ariadne, Ukraine
46.	Latium	Bifidobacterium spp /, Enterococcus faecium. Lactobacillus spp. - 1.0×10^9 CFU/g.	Powder, sachet 1.5 g No. 14	Winklow Bio Industries BV for "Pro-Pharma UA, Ltd.", Netherlands/Ukraine
47.	Optilact	Lactobacillus rhamnosus - $1.25 \cdot 10^8$, Lactobacillus reuteri - $1.25 \cdot 10^8$, vitamin D3 - 400 IU	Powder, sachet No. 10 drops, vial 7.5 mL	Biocar Copenhagen A/S for "Pharmastart, Ltd.", Denmark/Ukraine
48.	Preema	1×10^9 CFU Lactobacillus Rhamnosus	Powder, sachet 2.8 g No. 10	Delta Medical Promotions, Switzerland
49.	Probiz	Lactobacillus rhamnosus - 0.5×10^9 CFU; Bifidobacterium breve - 0.5×10^9 CFU.	Caps. No. 30. powder.vial, No. 5	Organosyn Life Sciences (India)
50.	Probeez femina	Lactobacillus spp, Bifidobacterium bifidum - 1.0×10^9 CFU	Caps. No. 30.	Organosyn Life Sciences (India)
51.	Ecobiol	25 billion live Lactobacillus plantarum and 25 billion Bifidobacterium breve.	Caps. No. 20	Delta Medical Promotions, Switzerland

Figure 1. The share of domestic and foreign drugs for the treatment of BV in the pharmaceutical market of Ukraine



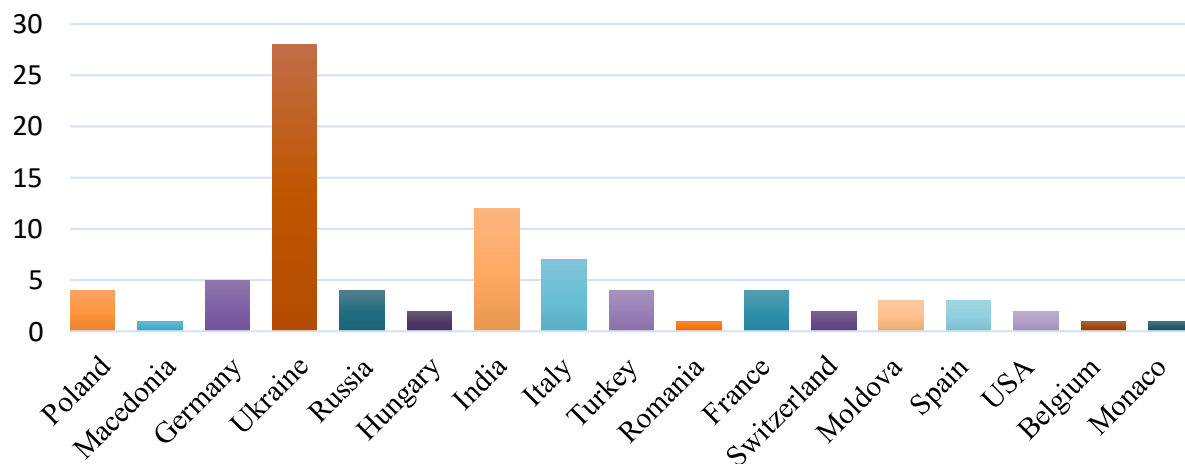
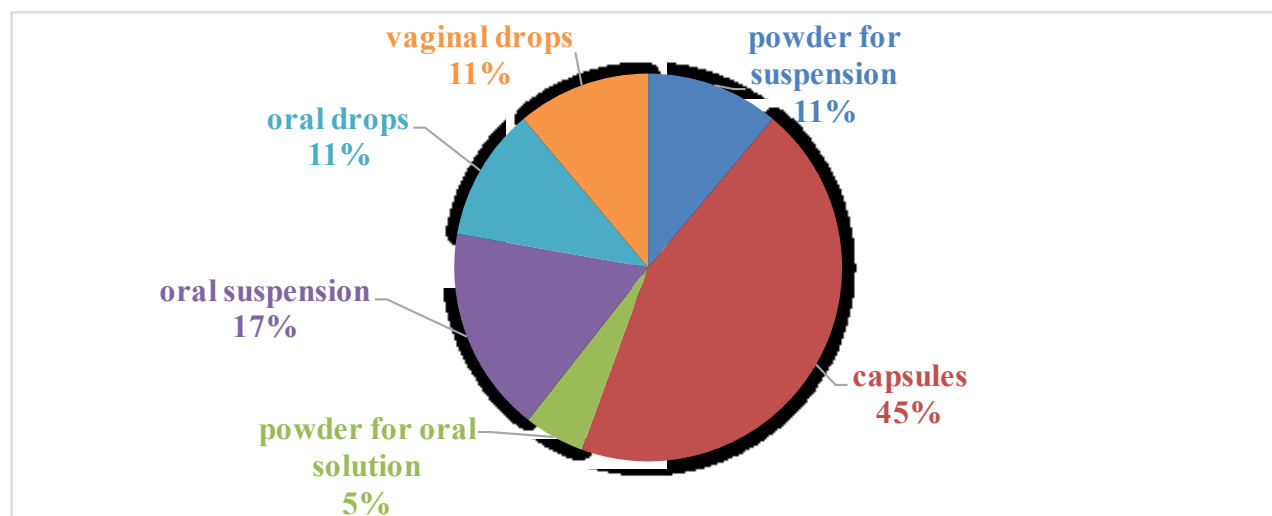
Figure 2. Analysis of the market of antimicrobial drugs for the treatment of BV by manufacturing countries**Figure 3.** Dosage forms of probiotics used for the treatment of BV, registered in the pharmaceutical market of Ukraine

Figure 4. Countries that supply probiotics for the treatment of BV, registered on the pharmaceutical market of Ukraine

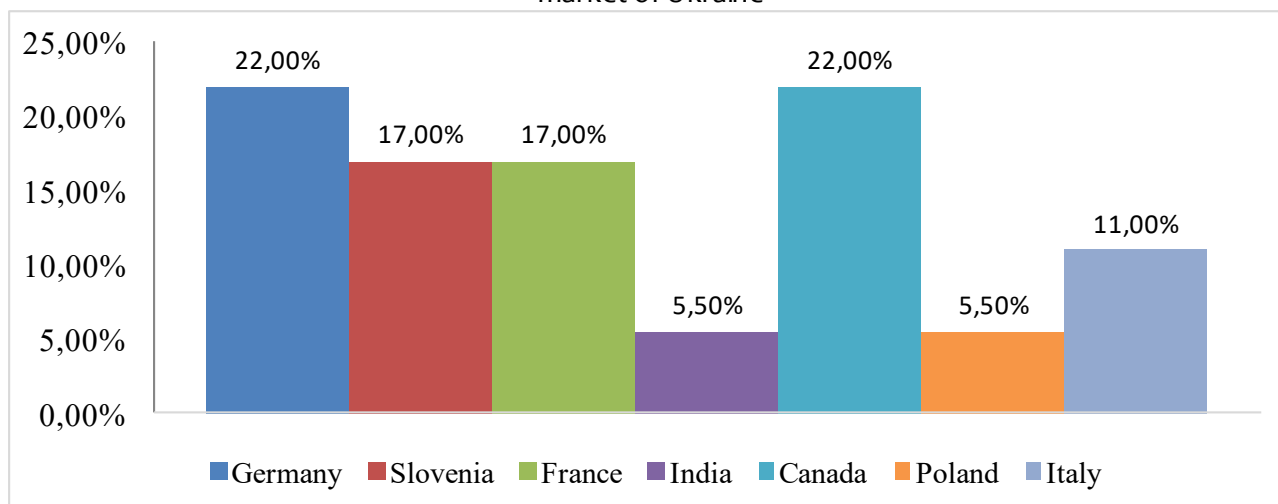


Figure 5. The range of pharmaceutical forms of dietary supplements with lacto- and bifidobacteria

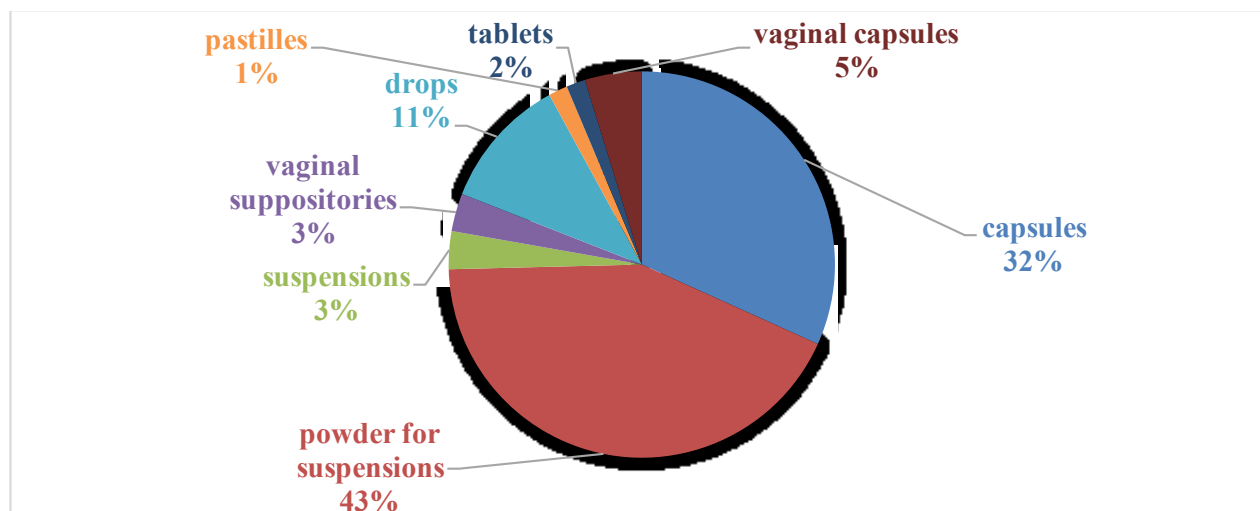
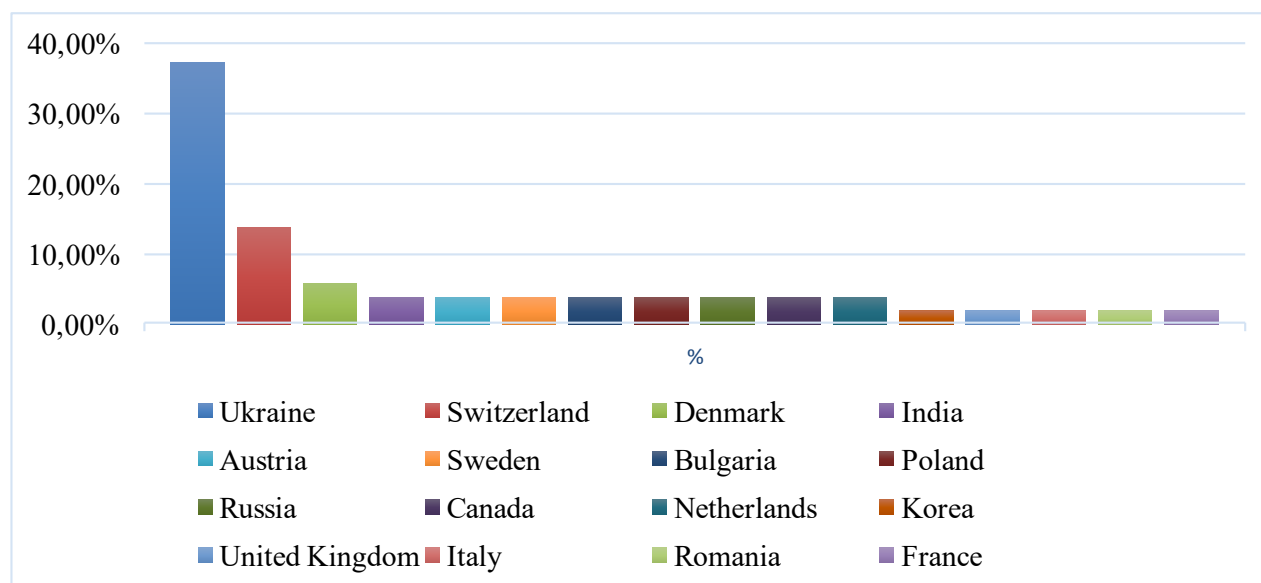


Figure 6. Analysis of the market of dietary supplements with probiotics by country of origin**Figure 7.** The share of domestic products in the Ukrainian market of dietary supplements with probiotics