

Review

Historical overview of pharmaceutical education in Bulgaria

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A survey of the pharmaceutical education in Bulgaria is performed, analyzing written records of various origin and content. Written documents are reviewed separately in chronological order. They all seem to lend support to the conclusion that the development of pharmaceutical education is following the historical circumstances. Relatively strong is the impact of West-European pharmaceutical education traditions in the last decades, because of the uniting of Bulgaria to the European Union (EU), following of the EU directive 2005/36/EC on recognition of professional qualification and the Bologna declaration.

Key words: European Union, Bulgaria, pharmaceutical education.

INTRODUCTION

Bulgaria is a new member of the European Union (EU) since 2007. The country is situated in the Southern-East part of Europe. It borders Romania to the north, Serbia and Macedonia to the west, Greece and Turkey to the south, as well as the Black Sea to the east. According to the 2011 census, the population of Bulgaria is 7,364,570 people, down from a peak of 9 million inhabitants in 1989. The literacy rate is 98% as a percentage of people of ages 15 and above (World Bank, 2012). Education is one of the most powerful instruments for reducing poverty and inequality and it lays a foundation for sustained economic growth. The education of health professionals is a challenge in the current climate of shrinking all kind of budgets including educational, increasing morbidity, and specialization of patient care.

The economic, political and social changes in Bulgaria have an important impact on all aspects of the social life in the country as well as on the pharmaceutical activities and pharmaceutical education. Until 1989, the pharmaceutical system was centralized; community pharmacies, hospital pharmacies, wholesalers, pharmaceutical manufacturing and institutes were possession of the state. Pharmacy education has been traditionally oriented towards industry.

After the changes in 1989, the Bulgarian pharmaceutical system has turned to market-oriented. It has been going through privatization. The first Bulgarian law of the drugs and pharmacies in the human medicine was introduced in 1995 and it tried to harmonize the Bulgarian drug regulation with that of the EU. In 2007, new law of the drug products in the human medicine that is harmonized with the EU directives in this sphere was introduced. The new global tendencies in the development of pharmacy education that lead to emphasizing the patient's health and quality of life affect the development of the pharmaceutical education. All these circumstances, together with the increased interest in interdisciplinary and interprofessional education lead to the changes in the education of the pharmacists in Bulgaria (Shugars et al., 1991; Walker et al., 1998; Ryan and Hager, 2001).

BRIEF HISTORICAL OVERVIEW

After the liberation of Bulgaria from the Turkish invasion, during the period 1879 to 1941, only pharmaceutical assistants were graduating in Bulgaria. Their education was carried out in the pharmacies. After a defined probation, they had to cover a state examination. That type of pharmaceutical education was regulated through regulations: the assistant students have to be junior

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high school graduates and have to be fluent in French, German or Russian. First the education was for three years, but in 1982 it was decreased to 2 years (Dimitrova, 1999).

At that time, higher pharmaceutical education could only be achieved abroad in Austria, Germany, France, Switzerland, Romania, Russia, etc. In order to be legally qualified, the students had to qualify from pharmacy programme delivered by a higher education institution with duration of at least 3 years and after that, to pass a year probation in a pharmacy. After that, they had to cover state examinations (Dimitrova, 1999).

Historically, the first Pharmaceutical Faculty in Bulgaria was founded in 1942 as a Pharmaceutical Department at the Faculty of Natural Sciences and Mathematics, Sofia University. On 30 June 1951, with a State Decree No. 325, it was transformed into a separate Pharmaceutical Faculty at the newly established Medical Academy "Valcho Chervenkov" (Figure 1). The first dean of the Faculty of Pharmacy, Sofia, Professor Dimitar Dalev was elected on 10 July 1951 (Dimitrova, 1999; Bulgarian Central State Archive, 2012) (Figure 2). The total number of the educated students in 1951 was 362. There was only one doctoral position granted by that time and it was done on a competitive basis (Figure 3).

In 1995, the Medical Academy was renamed to Medical University with four faculties that include Medicinal, Dental medicine, Pharmaceutical and Faculty of Public Health. Until the establishment of the Pharmaceutical Faculty in Plovdiv (Medical University, Plovdiv) in 2003, the Pharmaceutical Faculty (Sofia) was the only place in Bulgaria that educates pharmacists (http://medun.consultcommerce.bg/?lang_id=1&prm=fac&subprm=farf). Later in 2008, a Faculty of Pharmacy was established at the Medical University, Varna (http://www.muvarna.bg/muVarna/index.php?option=com_content&view=article&id=206&Itemid=61).

The education course is 5 years. The first and second year of the university studies are devoted mainly to Chemical Sciences, Mathematics, Botany and Medical Sciences. Years 3 and 4 focus on Pharmaceutical Technology, Pharmacology, Pharmacognosy, Pharmacoeconomics and Social Pharmacy, year 5 focuses on Pharmaceutical Care, Pharmacotherapy and Medical Sciences. A six months traineeship finishes on the 5th year together with preparation of a Master's thesis and the 4 state exams with which university studies typically end. Industrial Pharmacy and Clinical (hospital) Pharmacy are integrated disciplines at the Faculty of Pharmacy, Sofia, Bulgaria. All the graduated students obtain the degree "Master of Pharmacy". 100 to 120 Bulgarian and 25 to 30 foreign students are accepted for training every year.

In the beginning, during the school year 1942/1943, only two disciplines were taught, Pharmacognosy with Galenic Pharmacy and Pharmaceutical Chemistry. In 1947 a third discipline was established, the Galenic

Pharmacy course was separated thus forming three disciplines.

Nowadays, 6 departments in the Faculty of Pharmacy, Sofia are structured as: (A) Pharmaceutical Technology and Biopharmacy, (B) Pharmacognosy and Pharmaceutical Botany, (C) Pharmaceutical Chemistry, (E) Chemistry, (F) Pharmacology and Toxicology, and (G) Social Pharmacy.

CURRICULUM

Since 1989, many changes in the curriculum of the Faculty of Pharmacy, Sofia have been done in order to harmonize it with the curricula of the other pharmaceutical schools in the EU and to equalize the diplomas according to the EU directive 2005/36/EC on recognition of professional qualification and the Bologna declaration. The EU directives give the basic concept of pharmaceutical education. The educational programs are in accordance with the European standards. The training of the students comprises lectures, seminars and practical laboratory work. Figure 4 gives information about the hour's proportion between the different subject areas and proves the harmonization of the education.

Many new aspects and study areas have been introduced since 1989, such as Biopharmacy, Clinical Laboratory, Biology and many others. Especially in the curricula of the Department of Social Pharmacy, many new study areas such as: History of Pharmacy, Pharmacoeconomy, Social Pharmacy and Pharmaceutical Legislation and few free eligible disciplines like Pharmacoepidemiology, Pharmaceutical Marketing and Paediatric Drug forms have been introduced. The orientation of the pharmacist has changed from the product to the patient. The expansion of the role of the pharmacists received an important boost in 1990, when Helper and Strand coined the term pharmaceutical care (Hepler and Strand, 1990). Pharmaceutical care is the responsible provision of drug therapy for the purpose of achieving definite outcomes that improve the patient's quality of life (Hepler and Strand, 1990). In 2000, a new course in Pharmaceutical Care was introduced first as a free eligible subject and after that, two years later as a regular discipline. The lectures and seminars of this subject are delivered during the first semester of the fifth year of the studies. The lectures cover new communicational skills and brain storming sessions on different pharmacy practice cases. Table 1 lists the MSc Pharmacy Curriculum that was revised in 2007. A complete regular training course in English has been introduced since the academic year 2007/2008.

IMPACT

Since the changes in 1989 in Bulgaria, the changes in the

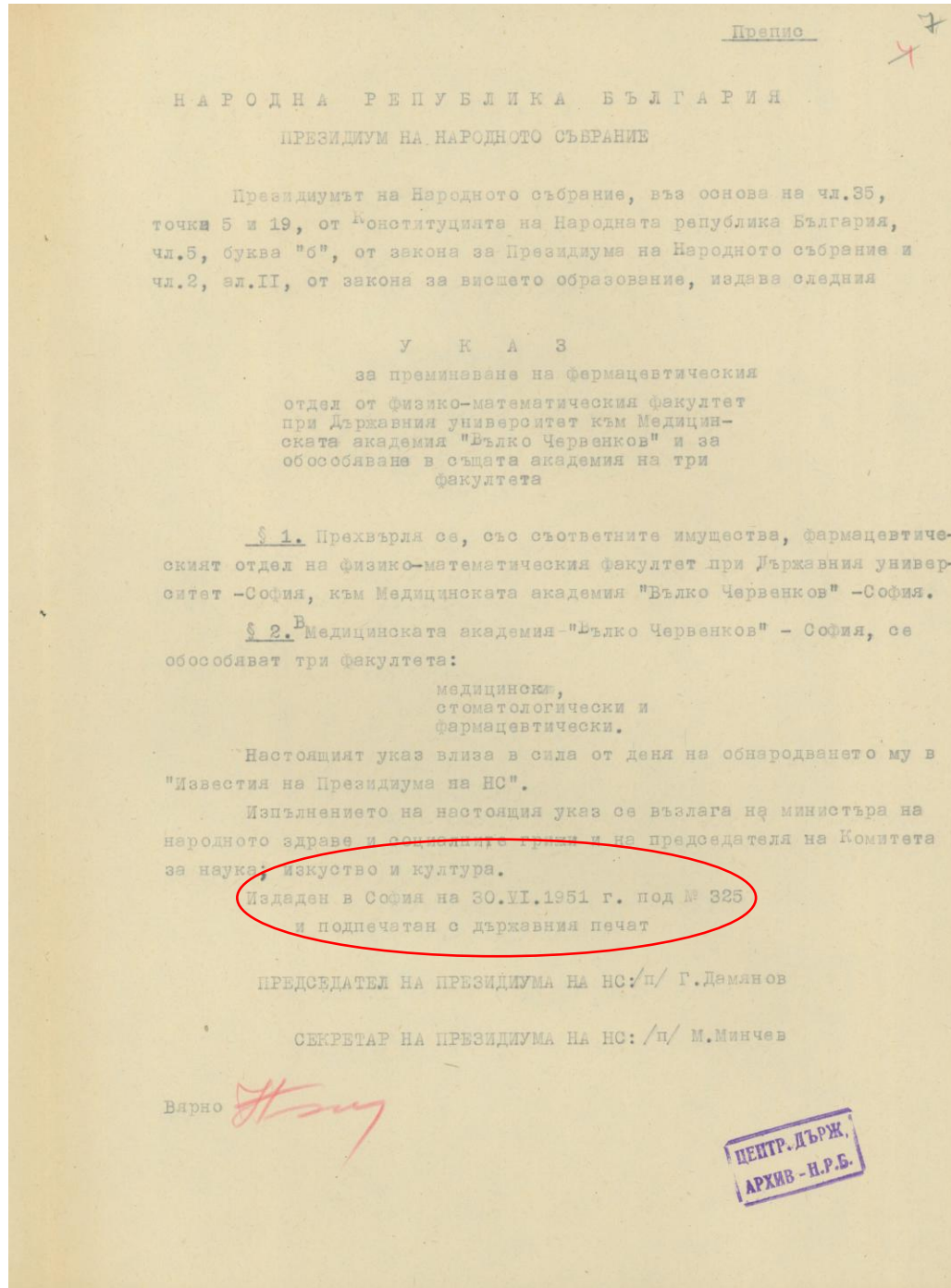


Figure 1. Copy from State Decree for the transfer of the Pharmaceutical Department of the Faculty of Natural Sciences and Mathematics, Sofia University to the Medical Academy "Valcho Chervenkov." Source: Bulgarian Central State Archive (2012).

pharmaceutical education were mandatory in order to preserve the traditions of the profession and to develop modern pharmaceutical specialists. The introduction of the new specialties in the training course such as Clinical Pharmacy, Pharmacoepidemiology and Pharmaceutical Care improves the quality of the services and guarantees a good level of patient care both in community and

hospital pharmacies conditions. On the other hand the course of Pharmacoeconomy gives a possibility for training of highly qualified pharmacists that participate in the process of decision taking of all aspects of pharmaceutical management: from production planning to reimbursement and pricing of the drugs. The impact of all these educational changes are still in process of

Учреждение МЕДИЦИНСКА АКАДЕМИЯ "ВЪЛКО ЧЕР" 141

А К Т

за встъпване в длъжност

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щия акт в два екземпляра, в уверение на това, че (име и презиме)

ПРОФ. Д-Р ДИМИТЪР ДАЛЕВ

назначен (или пренестен) от МИНИСТЕРСТВО НА НАРОДНОТО

ЗДРАВЕ (лицето, което го назначава или пренества)

с ЗАПОВЕД № 2003 от 9. VII. 1951 г.

за (наименование на длъжността) ДЕКАН В ФАРМАЦЕВ-

ТИЧНИЯ ИНСТИТУТ, встъпил в изпълнение на длъжността си

гр. София, 10 юли 1951 г.

ПРЕКТОР: Проф. Д-р И. Маршал

Началник на учреждениято:

Встъпил в длъжност: Проф. Д-р Д. Далева

Присъствувал: [signature]

гп ВЕРНО,

на Александровски болница

СЕКРЕТАР: [signature]

Ф-308/1, 1951 - ИДБД - Държ. архив, "България" 1 бл. 81 бл. 1294-ТД-1481

Figure 2. Copy from Public Act for entering his duties of the first Dean of the Faculty of Pharmacy, Sofia, Professor Dimitar Dalev.
Source: Bulgarian Central State Archive (2012).

VI. СТУДЕНТИ И АСПИРАНТИ.

При Фармацевтическия факултет има само едно място за аспирант, което предстои да бъде попълнено.

Броят на студентите фармацевти в края на учебната година е 362 разпределени, както следва:

I курс -88, II-ри курс -86, III-ти курс -100, IV-ти курс -88.

Figure 3. Copy from the Dean's report at the end of the first Faculty of Pharmacy year.
Source: Bulgarian Central State Archive (2012).

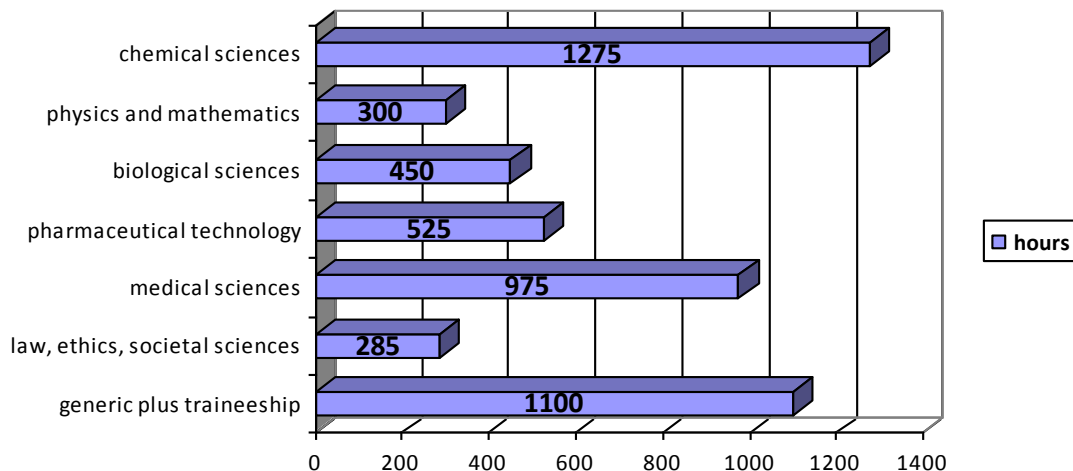


Figure 4. Students' hours by subject area
Source: http://www.pharmine.org/losse_paginas/Country_Profiles/Bulgaria_2012).

Table 1. Outline of the MSc Pharmacy Degree Curriculum in Sofia, Bulgaria.

Course title	Hours of study		Credits
	Theory	Laboratory	
Year 1			
Higher Mathematics	30	30	4
Molecular Biology	30	30	4
History of Pharmacy	30	-	2
Inorganic Chemistry	45	75	8
Physics and Biophysics	60	30	6
Latin	-	60	4
Foreign Language	-	60	4
Sport	-	120	8
Statistics in Pharmacy	15	30	3
Human Anatomy	30	15	3
Year 2			
Human Physiology	60	30	6
Pathoanatomy	15	15	2
Information Technologies	-	30	2
Pathophysiology	30	30	4
Analytical Chemistry	60	120	12
Organic Chemistry	60	120	12
Microbiology and Virology	60	60	8
Year 3			
Physical Chemistry	30	60	6
Botany	60	60	8
Medical Devices	-	30	2
Biochemistry	45	45	6
Pharmaceutical Chemistry	90	135	15
Pharmaceutical Technology Part I	60	150	14
Clinical Chemistry	15	45	4

Table 1. Contd.

Course title	Hours of study		Credits
	Theory	Laboratory	
Year 4			
Pharmacognosy part I	60	150	14
Pharmacology	60	120	12
Social pharmacy and Pharmaceutical Legislation	60	90	10
Hygiene and Ecology	30	15	3
Pharmaceutical Technology Part II	60	165	15
Pharmaceutical Analysis	60	165	15
Pharmacoeconomics	30	45	5
Toxicology	30	60	6
Medical Genetics	15	15	2
Year 5			
Pharmacotherapy	60	90	10
Pharmacognosy, Part II	30	60	6
Biopharmacy and Pharmacokinetics	30	90	8
Bromatology	30	30	4
Pharmaceutical Care	30	45	5
Free elective subjects	30	30	4

Syllabus framed in 2011/2012.

assessment, but the first evaluations are positive, rated both by the pharmaceutical society (Bulgarian pharmaceutical days, 2012 overview) and by the nation (many pharmacists are involved in health state commissions).

Conclusions

Pharmaceutical education in Bulgaria started 70 years ago with the foundation of two departments, Pharmacognosy with Galenic Pharmacy and Pharmaceutical Chemistry. Now, there are 6 separate departments in the Faculty of Pharmacy, Medical University, Sofia. The education curriculum is covering the requirements of the EU directives for harmonization of the education. The new changes in the education lead to changes in the way of thinking of the pharmacists, to improvement of the quality of the pharmaceutical activities in the pharmacy, and to improvement of the communication gap between the patient and the health care providers. The experience of the first Faculty of Pharmacy, Sofia marks the path for development of the newly established Faculties of Pharmacy in Plovdiv and Varna.

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