

## **Identification of Needs for Training in Phytotherapy in Bulgaria**

### **Introduction**

The needs of training in Phytotherapy can be determined by the characteristics of the target group, the resources of medicinal plants and the available training opportunities. The present report aims to provide information on the above factors for Bulgaria.

### **1. Description of the target group**

#### **1.1. Health status of the Bulgarian population**

##### **1.1.1. Socio-demographic characteristics**

The transition period for Bulgaria during the last decade was related with radical political and economical changes, progress in the democratic process and introducing of the market economy. The implementation of the reforms in all areas influenced the health status of the Bulgarian population. Bulgaria is entering the new millennium with the following demographic and health characteristics.

The population of Bulgaria decreases and reaches less than 8 millions in 2001. This decline results from emigration and changes in natural morbidity and mortality and the negative natural growth: -5.1 in urban and -11.5 in the rural areas. Macroeconomic performance has been worse than the average for the Central and Eastern Europe. According to the analyses of the World Bank over 12.8 % of the Bulgarian population is living in poverty (2001) - twice more than in 1995, with higher proportions among urban population, big households, people with low education, ethnical minorities and unemployed.

The proportion of aged persons (> 60 years) has grown fairly rapidly to reach 17.2% in urban and 31.8% in rural areas in year 2001. The last three decades Bulgaria show a steady decline in births, to roughly half of the previous birth rate (from 16.3 in 1970 to 7.9 per thousand in 1997). Average life expectancy in Bulgaria has also decreased during the observed period.

### 1.1.2. Disability and mortality by causes

The disability rates in Bulgaria is 5.7/1000 (2001). The top 10 disability groups, in descending order, that account for approximately 90% of the burden of disease among males and females in Bulgaria are presented in Table 1. Cardiovascular diseases and neuropsychiatric conditions account for the highest burden of disease, both among males and females. Because mortality from neuropsychiatric conditions is minor, disability in daily living comprises the bulk of their burden on the population's health [1].

**Table 1**

Ten leading disability groups as percentages of total DALYs for both sexes  
in Bulgaria (2002)

Rank	Males		Females	
	Disability groups	Total DALYs (%)	Disability groups	Total DALYs (%)
1	Cardiovascular diseases	36.1	Cardiovascular diseases	33.9
2	Neuropsychiatric conditions	16.8	Neuropsychiatric conditions	20.3
3	Malignant neoplasms	11.7	Malignant neoplasms	11.6
4	Unintentional injuries	8.1	Sense organ diseases	6.6
5	Digestive diseases	4.6	Musculoskeletal diseases	6.0
6	Sense organ diseases	4.1	Digestive diseases	3.2
7	Musculoskeletal diseases	3.2	Diabetes mellitus	2.8
8	Intentional injuries	3.1	Unintentional injuries	2.7
9	Respiratory diseases	2.6	Respiratory diseases	2.2
10	Diabetes mellitus	2.1	Genitourinary diseases	2.0

Source: Background data from WHO (2003c).

From 1970 to 1998 the total mortality in Bulgaria increases from 9.1 to 14.3 per 1000. The increase in mortality was observed for both sexes, with greater intensity among men. There has been a continuously increasing trend of reported mortality from non-communicable diseases. Nearly 90% of all elderly deaths in Bulgaria have been caused by four classes of diseases: class VII (cardiovascular disease, 67%), class II (neoplasms/cancer, 14%), class XVII (accidents and poisonings – the so-called 'external disease', 4%) and class VIII (diseases of the respiratory system, 3%) (Figure 1). Over nearly four decades, the share of cardiovascular deaths among all

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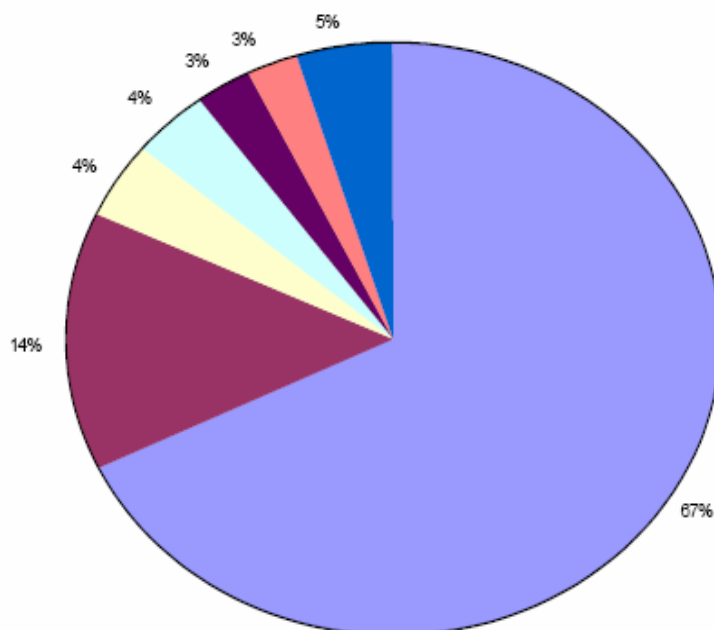
deaths has grown considerably. This growth has predominantly affected the rural population, in particular men.

Standardized death certification rates of cerebro-vascular diseases in Bulgaria in the age group 0-64 are about 6 times higher than in EU average. The rate of death certified ischemic heart diseases for both sexes are about two fold higher in Bulgaria than in EU average. The death rates of cancer of tracheas, bronchus and lung in the age group 0-64 have been increasing only about half as rapidly (since 1990) in Bulgarian males as in males in the Central and East European countries as a whole. Public health infrastructures for dealing with chronic diseases remain poorly developed.

*Figure 1. Elderly mortality by causes in 2002, per 100,000 of the population*

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Legend (according to the WHO's International Classification of Diseases or ICD – IX Revision):

- 67% – Cardiovascular disease
- 14% – Neoplasms
- 4% – Signs, symptoms and ill-defined conditions
- 4% – Accidents and poisonings (external causes)
- 3% – Diseases of the respiratory system
- 3% – Diseases of the digestive system
- 5% – Other

Source: WHO, "Health for All" statistical database (June 2002) (retrieved from [http://www.nsi.bg/Stat\\_e/Bulgaria-World/Health.htm](http://www.nsi.bg/Stat_e/Bulgaria-World/Health.htm)).

While non-communicable diseases became a social burden with their rapid increase in the past decades, there is a negative trend in the communicable diseases. The prevalence of some of the infectious diseases is insignificant (diphtheria, poliomyelitis, epidemic encephalitis, etc.), while others are eclipsing completely during the period considered (like measles), or strongly limited (rubella, mumps, influenza and infectious hepatitis). Still other diseases remain at a high level of frequency (chicken pox).

### **1.1.3. Main risk factors**

The top 10 risk factors with their relative contributions, in descending order, to the burden of disease in the male and female populations of Bulgaria are presented in Table 2. According to the DALYs, high blood pressure and tobacco place the greatest burden of disease on the Bulgarian

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male population and high blood pressure and high body mass index (BMI) place the greatest burden of disease on females.

**Table 2**

Ten leading risk factors as causes of disease burden measured in DALYs  
 in Bulgaria (2002)

Rank	Males		Females	
	Risk factors	Total DALYs (%)	Risk factors	Total DALYs (%)
1	High blood pressure	21.2	High blood pressure	19.5
2	Tobacco	20.1	High BMI	12.2
3	Alcohol	12.0	High cholesterol	7.2
4	High BMI	9.9	Physical inactivity	4.1
5	High cholesterol	9.3	Low fruit and vegetable intake	3.7
6	Low fruit and vegetable intake	4.9	Tobacco	3.0
7	Physical inactivity	4.5	Alcohol	2.9
8	Illicit drugs	2.4	Unsafe sex	2.6
9	Lead	1.7	Illicit drugs	1.0
10	Urban outdoor air pollution	1.0	Childhood sexual abuse	1.0

Source: Background data from WHO (2003c).

#### 1.1.4. Lifestyles

The economic crisis during the observed period influenced the lifestyle and lead to unhealthy diet, acute and chronic stress, adverse environmental situation, as well as deficiencies in the health care systems 2].

The most recent survey of self-assessed health in Bulgaria was carried out in 2001 together with the population census. The first and most important findings from this survey are that the subjective self-assessed health state of Bulgarians worsened in the period 1996-2001, for both men and women.

#### *Drug use*

One-third of those interviewed in 2001 had taken medicines prescribed by a medical doctor during the two weeks before the interview. The most commonly used medicines were those for high blood pressure (46.3%), analgesics (33.9%), antibiotics (24.3%), those associated with stomach

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problems (12.3%) and soporifics (11.5%). One in three persons had taken non-prescription drugs (34.0%). The most frequently used were analgesics (40.5%), cold and sore throat medicines (24.0%), vitamins and minerals (16.6%), those associated with stomach problems (7.4%) and antibiotics (5.9%).

### *Smoking*

A marked phenomenon in tobacco use in the 14-year period 1986-2001 has been the increasing share of women who smoke. The share of smoking women among the total number of women increased from 16.7% in 1986 to 23.8% in 1996, reaching 29.8% in 2001. Every second man was a smoker, among which the proportion of

### *Alcohol use*

The proportion of men using alcohol was high but unchanged over time (81.5% in 1996 and 81.4% in 2001). The proportion of women using alcohol rose sharply (from 49.9% in 1996 to 67.8% in 2001). The share of drinkers increased in all age groups, particular among young persons aged 15-24, where the increase was from 52% in 1996 to 70.0% in 2001 (see Table 13). The positive thing in this story is the observed decrease of the regular ('hard') alcohol consumers (using the equivalent of over 50 degrees ethyl alcohol daily on average). For men the figure slid from 26.5% in 1996 to 23.7% in 2001, and for women it nearly halved for the period under consideration. Among those consuming alcohol every day, 44% drank rakia (Bulgarian vodka), while 25% consumed wine and 23% beer.

### *Physical activity*

Over the period under review the level physical activity of Bulgarians declined, most typically for men than for women, and for persons living in urban regions than for those in rural areas (see Table 14). The decline is also marked for the younger age groups. Only the elderly aged 65 and over showed an increase in their level of physical activity. Long-term smokers was 49.0% in 1986, 49.2% in 1996 and 51.7% in 2001.

### ***Body mass index***

According to international practice, if one has a body mass index (BMI) rate of over 27 kg/m<sup>2</sup> s/he is considered as having an over-average weight. The number of adults in Bulgaria with over-average weight fell considerably in the period 1996-2001 (from 38.5% in 1996 to 32% in 2001 for men and from 39.5% to 30% for women). For men and women the average weight is respectively 76.6 kg and 65.2. The stature of the average man is 173.4 cm and that of the average woman is 162.6 cm.

#### ***1.1.5. Disease prevention***

The importance of disease prevention has shrunk in terms of the focus given by the population and the health care system in the country. According to survey data, one-third of the persons interviewed aged 7 and over have never had their blood pressure measured.

At present, the reforming health care system is renewing its efforts in preventative care, by initiating compulsory check-ups – even to the point of threatening sanctions (fines) if such care is not undertaken periodically.

#### **1.1.5. Health Care System**

During the past decade Bulgaria has undergone a serious health care reform – the national health care system has shifted to an insurance-based financing system. The main goals of the new reforms are to achieve the following: improved health-care access and quality; a change of emphasis from curative care to preventive and primary care; an improved working environment and remuneration for health professionals; and an improved and reconfigured infrastructure for health-care service provision.

The above goals were not successfully achieved in many aspects as at present, criticisms of the new health care system are more prominent than positive statements. The providers of the health care services are discontent: GPs because too much paperwork takes up their working time, and specialists because they are underpaid. Also dissatisfied are the consumers of the services: wealthy patients because they contribute much more to the NHIF but still pay additional money to visit private doctors or may have to experience the health care service like those who pay the least contribution; poor patients because they cannot afford any additional expenditures and have to rely on what is offered.

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The limitations of the public health-care system push people towards private health-care services (including all kinds of alternative health care), which has two consequences: on the one hand, it shifts pressure away from the NHIF; on the other hand, overall health-care expenditure increases. The percentage of GDP for health care in 2005 was 4.3 - the lowest one among the European countries. Due to the insufficient public sources for health care the cash payment (regulated and unregulated) increased and is 1/3 of the general health care expenditures. This becomes a burden for the access to health care services for the low income groups [2].

## **2. Medicinal Plants in Bulgaria**

### **2.1 Resources of medicinal plants in Bulgaria**

The medicinal plants of Bulgaria have long provided efficient remedies for many diseases. Many provide substances that are of great practical value to man and that cannot be replaced with synthetic substitutes.

According to the classification scheme of the World Health Organization, adopted in 1978 in Geneva, medicinal plants comprise three groups: 1) plants that are used directly for treatment; 2) plants that are used to produce galenical preparations (including home preparations); and 3) plants that serve as the raw material for commercial processing of pure substances for remedies or for the production of biologically active products that are processed into medicines.

In Bulgaria, an average of 6,000 tons of herbs are gathered annually, most of which represents natural plant resources. The increased interest in, and constantly expanding use of, the medicinal plants clearly raises questions about the state and capacity of their populations and of the phytocenoses in which they occur. In most European countries, the reserves of these natural resources are highly depleted or the collecting of herbs from their natural habitats is unprofitable. Needs are met either by the cultivation of medicinal plants or through import, mainly from the Balkan countries - which accounts for the increased interest in Bulgaria as a source of herbs. In addition, these herbs have been used more widely in phytotherapy and in folk medicine over the last several years in Bulgaria. At present, about 15% of the herbs sold are used to answer domestic needs. As a result of this and other anthropogenic factors, reserves of rare valuable



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medicinal plants have either been strongly reduced or destroyed. There is even a real danger that some species in Bulgaria's plant genetic fund will go completely extinct [3]

## **2.2. Characteristics of the Medicinal Plants**

It is difficult to state with precision the total number of plants that are used as medicinals in Bulgaria. By summarizing data from folk medicine and from phytochemical, pharmacological, and therapeutic research, some authors have determined that 750 (21%) of the 3567 species of vascular plants known in our flora are used for medicinal purposes. According to other sources, the number ranges between 250 and 300 species and is determined by the needs of phytotherapy, of the export trade, and of the pharmaceutical industry.

According to the list of the cooperative enterprise "Bilkocoop" and of the National Pharmaceutic Administration, which monopolized, until recently, the trade in medicinal plants, the number of herbs included in this list is 336, taken from 248 species. Of these, 244 are vascular seed plants and 207 (85%) belong to our wild flora; 37 (15%) are introduced species and are grown in the country as edible, economic, and ornamental plants. A few of the wild plants are not gathered from their natural habitats (for either protective or economic reasons), but are cultivated instead.

In systematic terms, the wild medicinal plants belong to 68 families. Outstanding because of their high numbers are Asteraceae (27 species), Lamiaceae (14), Rosaceae (15), Apiaceae (13), and Fabaceae (8). Other important families, represented by fewer species, are Liliaceae (6); Boraginaceae, Ranunculaceae, and Solanaceae (5 each); Rubiaceae, Papaveraceae, and Brassicaceae (4 each), and a great number of families containing 1-3 species.

## **2.3. Biological Type and Propagation**

Forty-nine percent of the medicinal plants are perennial herbaceous plants. Annual species are the second most common biological type (19%), followed by shrubs (15%) and trees (11%). Biennial species comprise the smallest group (6%); some of these, depending on ecological conditions, may also be annuals or perennials. The high percentage of perennials allows for the use of several active components from one plant.

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Medicinal plants propagate mainly through seeds and spores, but a vast number of the perennials (over 72%) also reproduce vegetatively. This gives them a number of advantages when compared to other plants in terms of their preservation and restoration. Despite these advantages, however, this group is the most threatened. The reserves of many of these plants within the country are limited and many are characterized by critical declines in the number of individuals in their populations.

#### **2.4. Distribution**

Based on their distribution in Bulgaria, the wild medicinal plants can be divided into three groups . Group I, which includes widespread species (found in 7 to 20 floristic regions), contains 85% of those listed. Group II includes those which are found in 4 to 6 floristic regions, usually under specific ecological conditions, and contains 10% of the species. Plants in Group III (only 5% of the species) occupy local ecological niches in 1 to 3 floristic regions.

The altitudinal distribution of the wild medicinal plants is rather irregular. This reflects the variety of ecological conditions resulting from differences in elevation, the character of the rock substrate and topography, and (last but not least) anthropogenic influences. The highest proportion of species (92%) are found in the belts of the xerothermic oak woods, mesophilic and xeromesophilic oak and yoke-elm, and beech and coniferous woodlands. The remaining 8% are found in open woodlands and other vegetation types in the high mountains . Forty percent of the discussed plants are edificators and dominants in the natural phytocenoses in our country. Many of the medicinal plants (22%) are weeds and ruderal species which grow mainly in the low-lands and in the mountains up to 1500 m above sea level.

#### **2.5. Cultivation**

Thirty-eight species of Bulgarian wild medicinal plants are cultivated. Twenty-four are used mainly as ornamental species for landscaping and town gardening and only secondarily as a source of active medicinal agents. The other 14 cultivated species are used in accordance with their medicinal functions. As far as the latter are concerned, the problems connected with cultivation have been solved to a great extent. Preparation and selection techniques have been developed, as a result of which plants that are highly productive and rich in biologically active substances have been obtained. The cultivated species include: *Leucojum aestivum*, *Artemisia santonicum*,

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*Glaucium flavum, Rosa canina, Ruta graveolens, Verbascum pseudonobile, Atropa belladonna, Valeriana officinalis.* Despite this success, the active components of many of these species are still gathered in their natural habitats. Some are exported in high-tonnage volumes and are of basic importance to export trade.

### **3. Training in Phytotherapy**

The training in phytotherapy in Bulgaria is provided as a part of the university course in pharmacy for the medical students. The graduate medical specialists have opportunity to attend the courses and seminars in phytotherapy organised by the Health Prevention Department at the National Center of Public Health. Only a few Bulgarian Universities (The New Bulgarian University, University of Forestry) who have centers for professional training provide courses in phytotherapy for non-medical specialists. Some private organisations practicing alternative medicine provide information about phytotherapy on internet and organise private courses but the training programs are not systematic and incomplete.

A study on assessment of patient and pharmacists attitudes in Bulgaria regarding herbal medicinal products concluded that the scientists and regulatory agencies should expand their efforts in providing appropriate and reliable information on phytotherapy to the society and professionals [4].

The study aimed at analysing patients and pharmacists attitudes regarding herbal medicinal products (HMP) in Bulgaria and focus on two main questions: why patients or pharmacists prefer or do not prefer HMP; what are the main sources of information for patient and pharmacists. It revealed that HMP are preferred more in aging patients groups suffering from chronic diseases or careful to their healthy condition. In case of acute diseases patients are more disposed to buy modern medicine. In general pharmacists in Bulgaria also recommend HMP for chronic diseases or in case of light disorders. Availability and reliability of information for HMP is insufficient for patients and pharmacists as well. They need more independent sources of information especially for newly registered HMP with herbs from different geographic origins.

The results from a study of pharmacists, participating in the qualification courses of the PharmAssist Programme, organized by the Union of pharmacists and the company

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GlaxoSmithKline in 2004 reveals that the pharmacists need to update their knowledge in phytotherapy and herbal medicines as the interest from the patients is very high and they lack systematic information. The same study reveals also the preferred structure and form of the training course:

- the course should be organized at least twice a year;
- training should be organized on a module principle , lasting preferably for one two consequent days ;
- there should be time after each lecture for questions and class discussion
- the lectures should be oriented towards the practice;
- the preparatory materials should be preliminary given to the participants;
- there should be formed discussion groups on practical cases;
- the training should be conducted in informal atmosphere;

## **Conclusion**

Without a healthy population, Bulgaria cannot move forward and the region as a whole runs the risk of being a burden rather than contributing member of Europe. A healthy, well-educated population is a prerequisite for economic growth, both in terms of their ability to contribute as a productive work force and by reducing the drain on resources incurred by paying for health care for those suffering from avoidable illnesses.

Bulgaria is a country with traditions in phytotherapy and rich of medicinal plants resources. Together with this the population lacks knowledge and skills how to use the natural resources in order to achieve better health. In this respect the training in phytotherapy should not be a privilege only to the medical specialists but also to other health professionals and the layer public interested in health prevention.

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