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REGULAR ARTICLE

The development capacity and dynamics of the medicinal herbs market in Ukraine

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ABSTRACT

Dynamics of development in the market of medicinal vegetative raw materials in Ukraine has been analyzed. Trends and regularities on the market of medicinal plants in Ukraine in the context of sustainable development have been identified. In the analysis of the medicinal plants market, the key development aspects of this type of products market have been established, among which the obvious growing demand for herbal products in recent years, that can be achieved through the use of wild and cultivated raw material. Methods of determination of the medicinal vegetative raw materials market capacity have been improved basing on a comparative analysis of the retail trade and consumer preferences obtained by the methods of marketing research. The novelty of the technique is that its application allows to determine the complex average annual and maximum future needs of specific types of medicinal plants with limited official statistics. As the result of the approbation of the method, the capacity of the medicinal plants domestic market of Ukraine has been calculated.

Keywords: Aromatic plants; Herbal medicine; Medicinal plants; Phytomedicine market

INTRODUCTION

Throughout its existence, humanity has used natural products with medicinal properties. The natural minerals, different parts of plant and animal organisms were the main sources of drugs (De Pasquale, 1984). As a result of the active development of organic chemistry were synthesized not only the substances – natural counterparts of drugs but other substances with medicinal properties. The reason for this was that chemical compounds easier to synthesize than distinguished from natural raw materials (Rates, 2001). Traditional medicine also recognizes the importance of the use of certain plants as therapeutic agents because their efficacy has been proven by a long history (Gilbert et al., 1997). More than 70,000 species of plants used in folk medicine (Farnsworth and Soejarto, 1991). Furthermore, now the medicinal plants are used as raw material for the production of perfume, food and alcoholic beverage industry. Big companies trade plant materials. Cunningham (1997) identifies three main levels of trade in medicinal plants. It occurs on three levels. There is a trade at the national level in the countries, trade across national borders within the continent, and a formal export trade. As show the investigations of the international panel of specialists, it is necessary to continue and integrated research on plant sources, conservation, bioactivity, analysis and marketing in examining future scenarios for application and sale of medicinal and aromatic plants. It is necessary to confirm the efficacy and safety in drug development and the need to recognize the societies who contributing to plant materials (Bogers et al., 2006).

Recently, the increase in demand for medicinal vegetative raw materials of domestic production has been observed in pharmaceutical industry of Ukraine part of pharmaceutical industry. Trends in the domestic market of medicinal plants indicate that it is quite promising. Ukraine has favorable conditions for growing medicinal plants – climate and soils. There are more than 200 different species of medicinal plants on its territory (Shvets, 2012). More than 45% of all medicinal products produced in Ukraine and 75% of domestic preparations for the treatment and prevention of cardiovascular diseases, liver diseases, gastrointestinal tract are produced using vegetable raw materials. The structure of the retail Ukrainian pharmaceutical market segment of medicinal plants preparations (which includes tinctures,

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balms, drops, tablets, ointments, harvests, teas) covers 8-9% in natural expression, and 4,3-4,4% (Semak *et al*., 2011).

The challenges of the modern market are that researches in this area belong to the Soviet period and mainly become obsolete. Thus, the urgent task is to determine the ability of the medicinal plants market and to analyze its development.

MATERIALS AND METHODS

Materials and reports of the State Statistics Service of Ukraine as well as analytical review of the medicinal plants market of the "Synerhiya" marketing company gives the preliminary information for the study. The percentage of customers ready to purchase this type of medicinal plants was determined by a survey, as well as through their own market research. Methodology by Doroshkevych adapted to the conditions of Ukraine and the medicinal plants market specifics were applied to assess a market capacity. Microsoft Excel tabular processor has been applied to create charts.

RESULTS AND DISCUSSION

Each year, the pharmaceutical companies increase incomes 20-25% due to extension of sales medicinal products from vegetable raw materials. It should be noted that the production volumes and the use of medicinal vegetative raw materials in Ukraine tend to increase since 2006 to 2013. The dynamics of the medicinal plants for domestic needs to export are shown in Fig. 1. Currently, the medicinal plant market in Ukraine is filled with products from Asia and Africa, and environmental safety of these products is doubtful as well as the quality of raw materials on its conformity to the European requirements.

The balance of medicinal vegetative raw materials market and analysis of imported medicinal raw materials volume is complicated because of commodity nomenclature of foreign economic activity (according to the Ukrainian Classification of Goods for Foreign Economic Activity, medicinal plants are included into the several codes of goods). Fig. 2 shows the domestic market of medicinal vegetative raw materials in Ukraine (Synergy, 2015) based on data imports, exports and production.

Average annual import of medicinal plants in Ukraine is about 2 ths. tons of products (Fig. 3). The highest level of imports was recorded in 2008. In 2009, the volume of medicinal plants imports has decreased 0.67 ths. tons (1,38 mln. USD in monetary terms) and reached a level of 1.77 ths. tons of products in the amount of 4.4 million

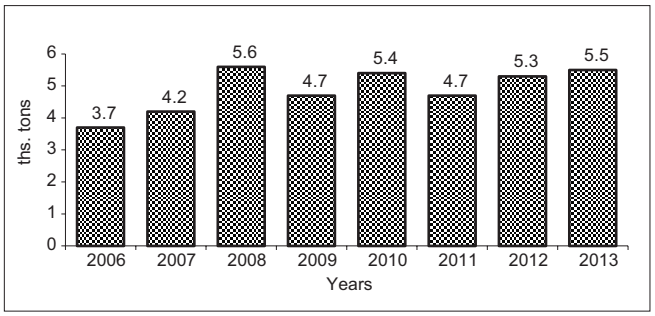

Fig 1. Dynamics of the medicinal plants collection in Ukraine during the 2006-2013, ths. tons (Synergy, 2015).

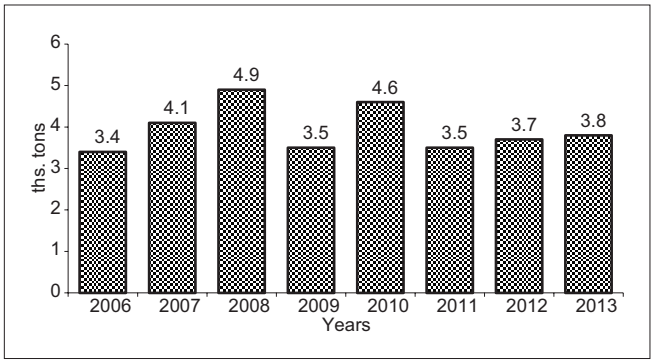

Fig 2. The scope of the internal medicinal vegetative raw materials market in Ukraine during the 2007-2013., ths. tons (Synergy, 2015).

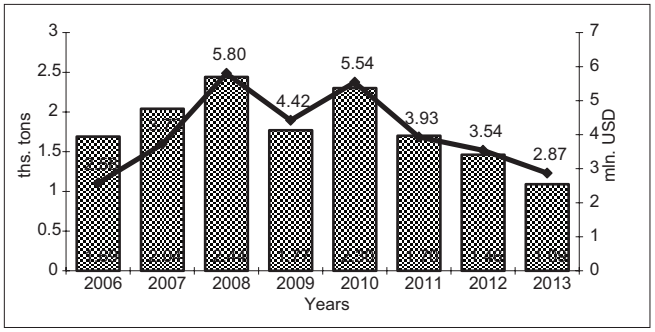

Fig 3. Dynamics of the medicinal plants import to Ukraine during the 2006-2013, ths. tons, million USD (Ukrstat.org).

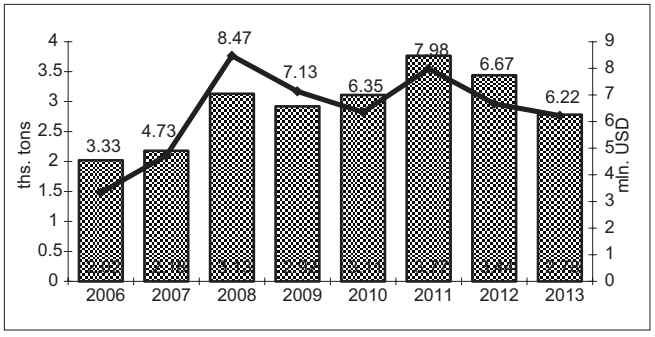

Fig 4. Dynamics of the medicinal plants export from Ukraine during the 2006-2013, ths. tons, million USD (Ukrstat.org).

USD. 2011 and 2012 showed a decrease in imports of medicinal plants. 1.09 ths. tons of medicinal plants in the

amount of 2.87 million USD was imported into Ukraine in 2013.

Average annual exports of medicinal plants of Ukraine are about 3 ths. tons of products (Fig. 4). The highest level of exports was recorded in 2008 . In 2009 the volume of the medicinal plants exported has decreased by 0.21 ths. tons (to 1.34 million USD in monetary terms) and reached a level of 2.92 ths. tons of products in the amount of 7.1 million USD. During 2013 Ukraine has exported 2.78 ths. tons of medicinal plants in the amount of 6.2 USD (Mirzoeva, 2013).

Thus, for the definition of market capacity under these conditions is essential to evaluate the potential and the real market volume of the medicinal vegetative raw materials implementation. Market capacity is the maximum possible amount of goods that can be realized on a particular market during certain period of time. In practice, the calculation of the actual market capacity is a bit difficult because of the complex determination of total revenue from the sale of observed goods. Theoretically, the desired amount is equal to the demand and can be determined on the basis of statistical data. In the absence of official statistics publication on those goods of interest, special calculation methods are used.

According to the methodology of I.N. Darashkevych (2013), we suggest to determine the capacity of market of medicinal vegetative raw materials based on the comparison of data on production, retail and consumer preferences with the assessment of the projected capacity (Fig. 5).

The methodology for assessing the medicinal vegetative raw materials market capacity, which can be developed using the suggested formulas from analysis of data on

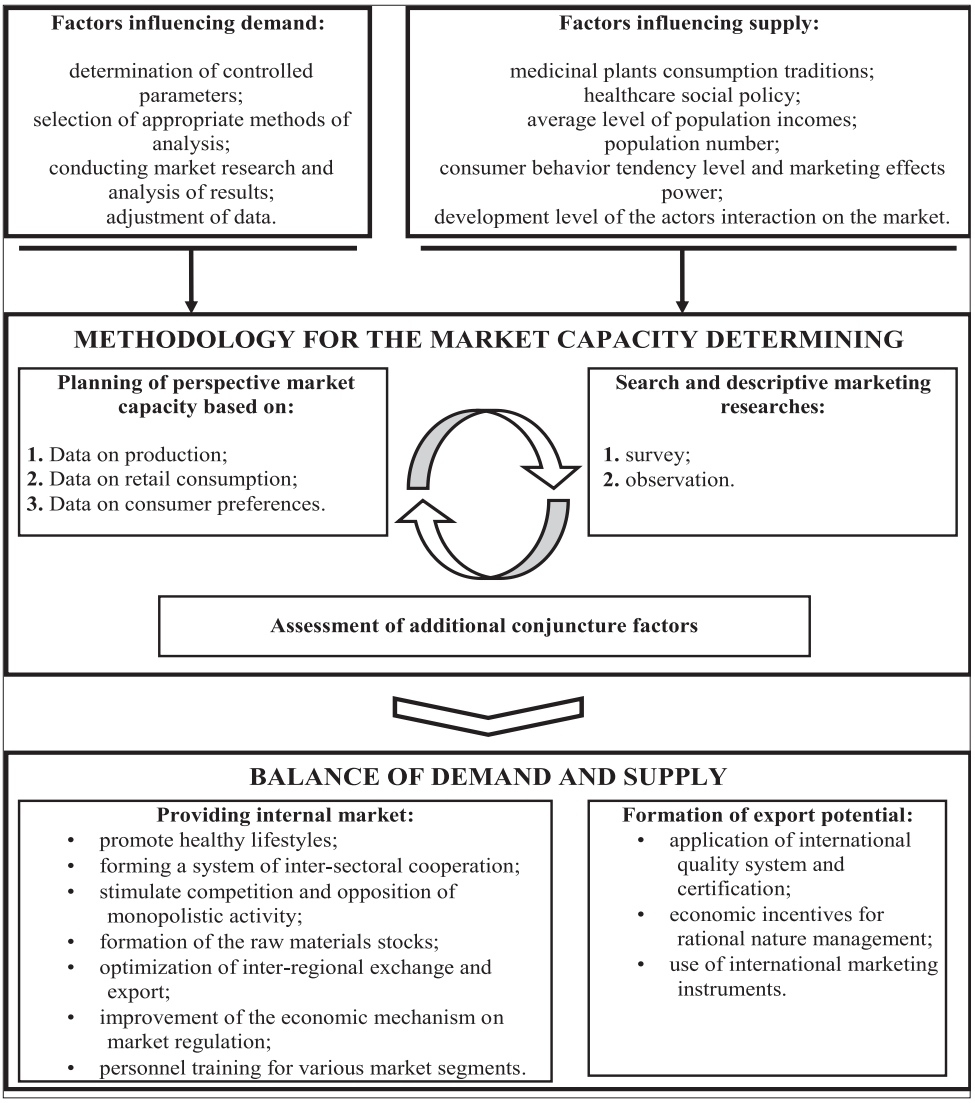

Fig 5. Structural and functional scheme of methodology for assessing the medicinal vegetative raw materials market capacity.

retail sales in pharmacy network (Formula 1) and data on consumer preferences received basing on market research (formula 2).

$$E_{qi} = \frac{E_{mpm} \times K_i \times m_i \times K_{ai}}{P_i} \quad (1)$$

Where: E_{qi} – Sales of the i medicinal vegetative raw materials;
E_{mpm} – Medicinal vegetative raw materials market volume as a whole;
K_i – Share of the i medicinal vegetative raw materials in the structure of sales pharmacy;
K_{ai} – Factor considering the use of the i medicinal vegetative raw materials in medical harvesting (average for all kinds adopted at the level of 1,32);
P_i – The average price of one retail sale package of the i medicinal vegetative raw materials;
m_i – Average weight of raw materials in the package of the i medicinal vegetative raw materials.

$$Q = (N \times K_a \times F_a) + (N \times K_c \times F_c) \quad (2)$$

Where: Q – Market capacity;
N – The number of potential customers;
K_a – Percentage of active buyers willing to purchase this type of medicinal vegetative raw materials;
F_a – Average annual use of medicinal vegetative raw materials by active consumers;
K_c – Percentage of casual buyers willing to buy the medicinal vegetative raw materials;
F_c – Average annual use of medicinal vegetative raw materials by casual consumers.

The main advantage of the proposed method is the use of data on primary marketing research during the calculations when don't exist official statistics on sale volumes of medicinal vegetative raw materials. Approbation of the given methods has shown that the average amount of the country's demand in medicinal vegetative raw materials, calculated on the basis of data on retail sales is about 4.1 ths. tons, and the maximum (prospective) demand, determined on the basis of data on consumer preferences – more than 6 ths. tons of vegetable raw materials. It should be noted that in sustainable development of the medicinal vegetative raw materials market, the actual consumption of medicinal plants in the future will be, according to our forecasts, between these limits. Growth of consumption within these limits to the greater importance is the result of active marketing impact on consumers, which are: the dissemination of information about the positive properties of plants, expanding the range in the network, cutting of prices, recommendations of doctors and pharmacists, etc.

Thus, total calculated medicinal vegetative raw materials domestic market capacity for the period of 2016-2020 in all areas of use is in the range of 5-7 ths. tons. Comparing the data of domestic demand for medicinal plants with the possible harvesting and production, it can be affirmed that Ukraine has enough medicinal vegetative raw materials to create sustainable export potential for non-less than 4 ths. tons. Considering weighted average price for realization of medicinal vegetative raw materials 2.25 US dollars per 1 kg, the export value of this volume allows to additionally receive annually more than 9 million US dollars of currency earnings.

CONCLUSIONS

During the analysis of the medicinal plants market, key aspects of market products development of this type were established, among which the obvious growing demand for herbal products in recent years, that can be achieved by the use of wild and cultivated raw material. In terms of sustainable development, when the policy of import substitution is necessary, employment increase and organization of ecologically safe production of medicinal vegetative raw materials is one of the key factors that determine the effective development of the industry.

Methods for determination of the medicinal vegetative raw materials market capacity, based on a comparative analysis of the retail trade and consumer preferences obtained by the methods of marketing research have been improved. The novelty of the technique is its application allows to determine the complex average annual and maximum future demand of specific types of medicinal plants with limited official statistics. As the result of the approbation of the method, the capacity of the medicinal plants domestic market of Ukraine has been calculated.

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