

Economics of agriculture

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## CULTIVATION OF MEDICINAL HERBS AS SUCCESSFUL MODEL FOR DEVELOPMENT OF HILLY-MOUNTAINOUS REGIONS OF SERBIA

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### Abstract

*Thanks to the favourable climate, soil and unpolluted environment, Serbia is very suitable for intensive cultivation of medicinal herbs and has long tradition in this activity. Their production generates higher, faster and easier profit than any other agricultural crop. Relevance of issues relating to new resources of medicinal herbs imposes new obligations pertaining to finding of new possibilities of increased production of medicinal herbs in the World, in order to balance the relation between increasing demand for this valuable raw material and relatively limited supply on the market. Diversity of soil-climatic factors, as well as the production on various altitudes (even extremely high ones), are objective basis of successful plantation production of medicinal herbs in the Republic of Serbia. Despite the fact that cultivation of medicinal herbs is great investment since it generates several times greater income per hectare compared to corn or wheat, annually only between 1300 and 1800 ha of medicinal herbs are planted in Serbia. European market shows constant interest in high quality medicinal herbs originating from our territories, which would ensure to business operators in perspective significant financial results. Incentive measures of the Ministry of Agriculture, forestry and Water Management directed towards cultivation of medicinal herbs would significantly contribute to development of hilly-mountainous regions, as well as entire rural community of the Republic of Serbia (Ceranić, et al. 2005; Popović, 2008). Sustainable development of natural resources of medicinal and spice herbs is directly dependant on implementation and improvement of the legislation and standards which need to be harmonized with EU legislation and standards. Regardless of the great potentials of the herbal sector within the economical system of the country, many potential, especially in regard to export, higher stages of processing and cultivation of medicinal herbs (especially based on principles of organic production) have not been exploited.*

**Key words:** *medicinal herbs, export-import, development of hilly-mountainous regions.*

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## Introduction

Increase in interest for medicinal plants is a worldwide trend. In modern urban society, the accent is on industry, on technology of synthetic products, chemistry and on everything else that in uncontrolled conditions can be double-edged sword. It must be emphasized the importance of synthetic products, especially medicines, which have contributed to significant development of medicine. Modern medicine and pharmacology cannot be even imagined today without such a development. However, in the last couple of years, it is realized that, on the one side, the synthetic products are not omnipotent and that the use of these medicines is excessive, and on the other, the skill of treatment, which was developed for centuries and which became inseparable part of the cultural history of mankind, is neglected (*Kišgeci and Sekulović, 2000*).

Thanks to its geographical position, climate and soil, as well as a rich tradition, it can be said that Serbia is very suitable for collection and cultivation of medicinal, aromatic and spice plants. However, it can also be concluded that these potential opportunities are not used properly.

Sustainability of the sector of medicinal and spice herbs does not include only concern of the ability to renew natural populations, but rather a wide expending strategy which will ensure the position of the pickers as key, but marginalized social groups in the chain of trade and processing, and ensure implementation of standards and laws that have been harmonized with EU regulations. Domestic producers are mainly not present on the global market, they don't have stable production and supply, adequate equipment or necessary supporting document on the quality of product (*Ceranić, et al. 2005; Popović, 2008*).

## Results and Discussion

Medicinal and aromatic plants are an important natural resource. Today, about 35.000 species of these plants are in use, both in official as well as in traditional medicine, and most of them have local significance. There are over 700 species of medicinal and aromatic plants in very rich and very diverse flora of our country, 420 of them are officially registered (11% of total flora) and 279 is in trade system (*Dajić and Dražić, 2003*).

Medicinal plants are very important commercial item, both in internal and in international trade. Trade circulation includes medicinal plants, either raw or dried, extracted medicinal ingredients as pharmaceutical raw material, but also as seed and planting material. Profitable production and export of medicinal plants and various extracts, pure compounds and essential oils, as well as completed (ready-made) remedies has commercial effects, but also represent a source of significant financial resources. Recently, demand for medicinal raw materials is growing rapidly, especially in the US, Canada and in the developed Western European countries. Serbia has a minor role in this type of activity in the European market, with only 0.43% of total imports

into the EU. The former enviably high level (in the period after the Second World War) of export of some medicinal plants (chamomile, sage) has drastically decreased. Extraordinary economic profit from the export of chamomile in former Yugoslavia, is now taken over by some neighboring countries. According to the Balkan Herbal Sector, Serbia was a major exporter of medicinal plants and their products. Namely, just twelve years ago, Serbia exported almost 40 thousand tons of medicinal plants and a large amount of essential oils. Now, this sector is quite neglected in Serbia, while in Bosnia and Croatia, it is developed, and former position of Serbia is now taken over by Bulgaria and Albania.

Thanks to favorable climate, soil and unpolluted environment, but also thanks to a long tradition, Serbia is very suitable for intensive cultivation of medicinal plants. Although the cultivation of medicinal plants is excellent investment – makes several times more income per hectare than corn or wheat – only between 1300 and 1900 hectares per year are planted in Serbia.

*Table 1. Area under cultivated industrial crops in the R. of Serbia*

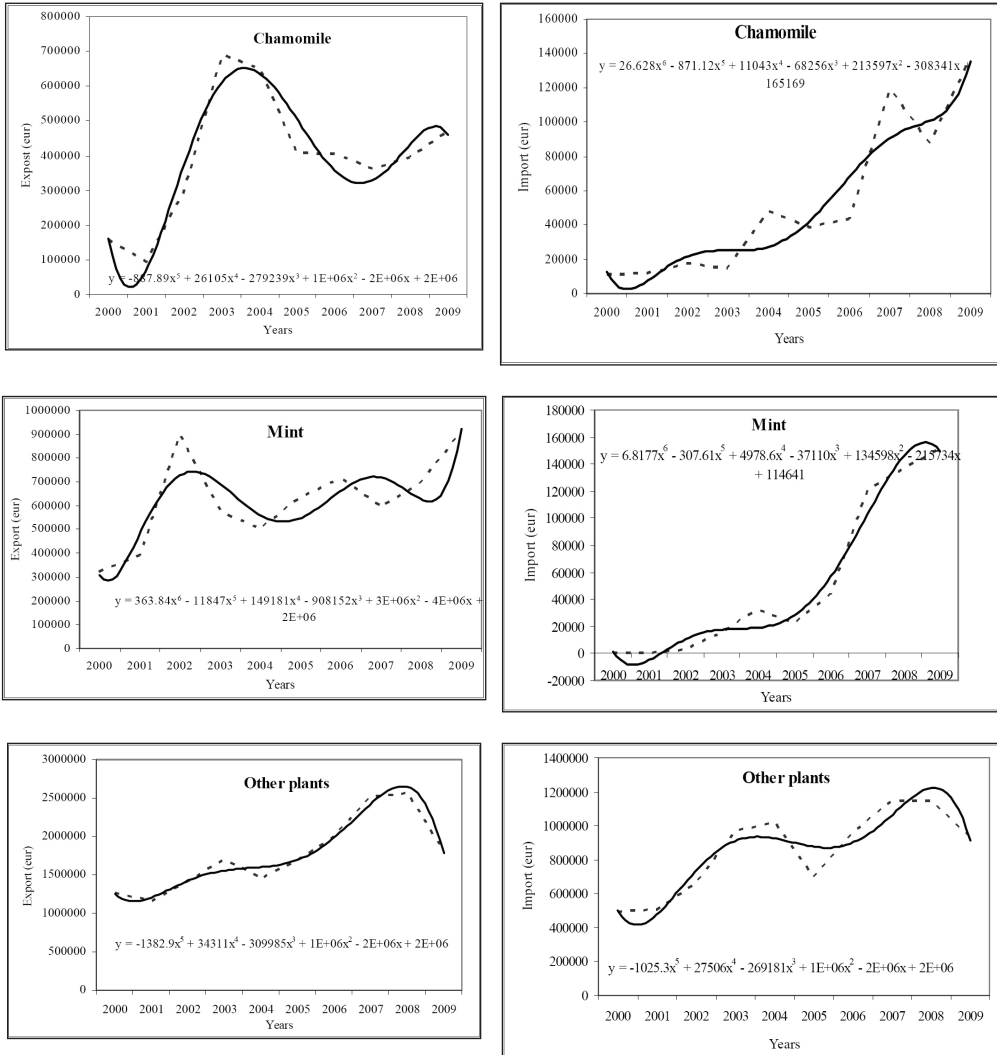
<b>Year</b>	<b>Area (ha)</b>	<b>B<sub>i</sub> (%) (2003=100)</b>
2003	1740	100.00
2004	1684	96.78
2005	1621	93.16
2006	1211	69.60
2007	1289	74.08
2008	1436	82.53
2009	1674	96.21

*Source: Republic Bureau of Statistics*

Areas under cultivated industrial crops in the Republic of Serbia (Table 1) are extremely small and on very low level. Only 1.700 hectares are planted with medicinal plants. Compared to the year 2003, the areas under these crops have decreased at an annual rate of about 1%. Thanks to the favorable climate and unpolluted land, as well as a long folk tradition in the cultivation and use of medicinal herbs, there are favorable conditions for the development of this activity, especially in hilly-mountainous regions.

Production of medicinal plants has been accompanied by many problems: lack of organization, program separation, lack of equipment, as well as technical staff, irrelevance of science and practice, limited number of cultivated species, very low yield, quality that is dissatisfactory, under-developed market – resulting in decline in production and in export of medicinal plants. The most exported plants are: mint, chamomile, maelissa officinalis, marshmallow, parsley, fennel.

Graph. 1. Trends export and import of medicinal plants in Republic of Serbia



**EXPORT**

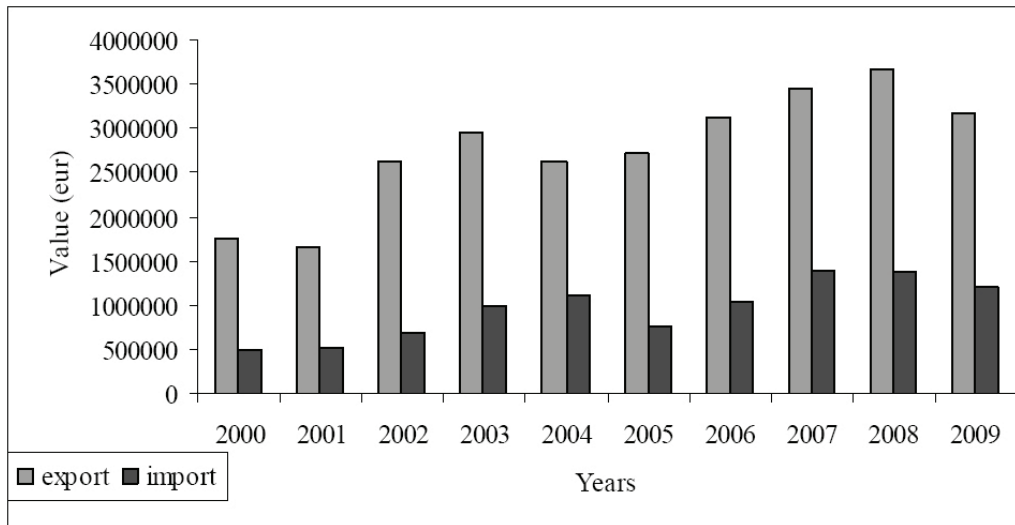
**IMPORT**

Serbia was one of the leading countries in the region in the export of medicinal plants, but now, there is not even ten percent of that former export. Currently, export of medicinal plants worth about 3.2 million euros. There are presently five large exporters in the country. Producers are limited by the law on control of plant exploitation which sets the quotas for certain specific plant species. This represents huge problem in export. Therefore, a group of producers has been founded in cooperation with USAID, in order to eliminate current confusion and legal barriers together with our Ministry of Agriculture, Forestry and Water Management. Also, serious problem derives from the EP 2010 (57) SI – 2 (100-107)

fact that producers receive no subsidies from the government, whereas in surrounding countries, people engaged in production of medicinal herbs have assistance and help from the government and therefore are more competitive on the market. So, growers and processors of medicinal herbs and teas rightfully expect from our Government equal treatment as other agricultural sectors, i.e. subsidies and incentives for production and export.

Significantly, higher share in the foreign trade of medicinal plants is refer to export and is nearly three times higher than import (Graph 2).

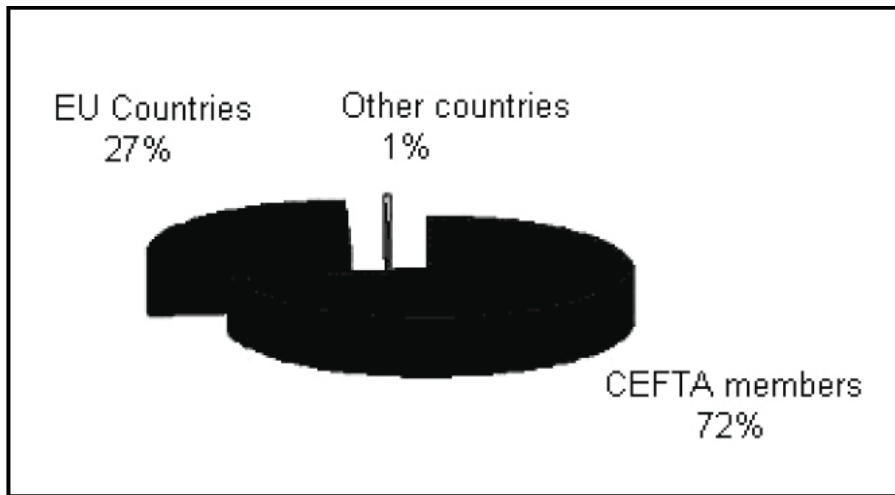
*Graph. 2. Value export and import of medicinal plants in R. of Serbia*



In the observed ten-year period, the export value of medicinal plants grew at an average annual rate of 6.8%. At the same time, the average export price increased for about 5% annually. This means that a high growth rate of export value is not only a consequence of increasing the export quantities, but also a consequence of increasing the export prices.

The target export market for Serbia is EU and CEFTA member countries. Great amounts are exported to Germany, but significant share in export belongs to the former Yugoslav republics: Bosnia and Herzegovina, Croatia, Macedonia and Montenegro (Graph 3).

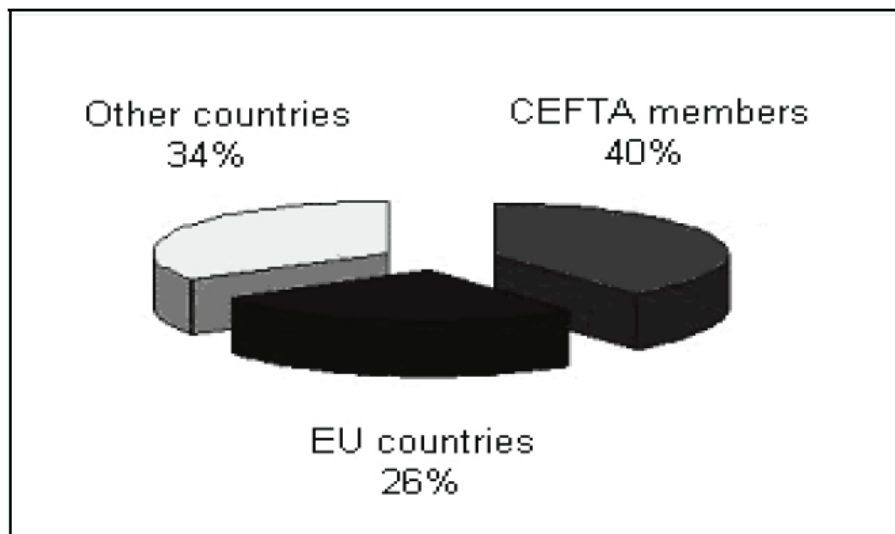
Graph. 3. The most important export markets of medicinal plants and teas



Source: Custom administration

At the same time, unevenness with an upward tendency can be noticed in trends of imported medicinal plants. In fact, in year 2009, both, the value and the quantity of import increased twice as compared with year 2000. The average annual growth rate of import was 10.22%. There is a significantly larger amount of imports of medicinal and aromatic plants in the last few years. The countries that are important for Serbia for import of medicinal plants are Croatia, Egypt, Austria and others (Graph. 4), and in the case of EU countries, that are Slovenia, the Netherlands and Germany.

Graph 4. Origin of imported medicinal plants



Source: Custom administration

According to the ongoing principles of organic agriculture throughout the world, production of medicinal and aromatic plants in our country, has its future especially in mountainous areas, which are on the one side completely ecologically acceptable for this type of activity, and on the other side, these are economically undeveloped areas with a large number of unemployed. Processing and growing medicinal plants is just a way to win foreign markets, but the main role should be given to small and medium-sized enterprises as carriers of development of this sector of the economy.

In order to support the production of herbs in hilly-mountainous regions, it is necessary to ensure adequate prerequisites which will stimulate the development of this sector of economy. First, it is necessary to provide institutional conditions through appropriate state institutions. Legislation is an important prerequisite because it should provide such conditions that will enable economic entity businesses to operate in a regulated and secure legal environment.

An important prerequisite for the development of this sector of the economy is ensuring sufficient funds, where both the state and the banks should have an unavoidable role.

Great importance is given to the effective program of quality system that will be available to all who are interested in a successful business.

## Conclusions

Medicinal plants are part of tradition and culture in the Republic of Serbia. Thanks to favorable climate, soil and unpolluted environment, Serbia is very suitable for intensive cultivation of medicinal plants. Production of medicinal plants makes bigger, faster and easier profit than other agriculture production. The main role in the sustainable development of medicinal and aromatic plants sector certainly belongs to plantation way of growing plants that are significant, either in terms of nature conservation, either in terms of demand (thus reducing pressure on natural population). Growing medicinal plants, if organized in appropriate circumstances, can achieve optimal yield, in total plant mass, but also in quantities of medicinal substances. Therefore, this way of growing often has an advantage over traditional collection of plant materials in their habitats. That is primarily because of preserving endemic and endangered species from extinction, and because of the fact that this way of growing can ensure predictable, clean, acceptable and quality medicinal plants raw materials, which are indispensable for industrial production of medicines or cosmetics and chemical products. Plantation growing can produce species that are non-native to our region, and thereby can reduce the import of raw materials. Soil, climate and plant species selection and also, adequate growing technology, can provide raw materials that are better and uniform quality compared to the raw materials that are collected in nature. Therefore, hilly-mountainous region has a special place as habitat and location for organization of future production.

This branch of agriculture needs incentives in order to improve and increase the production, even though it realizes surplus. This activity, in spite of series of problems

in business operation, realizes annual trade surplus of over million US\$. Since 2009 begins the creation of Free Trading Zone between Serbia and EU countries. According to the Agreement on Stabilization and Association, our market of agricultural products will be gradually opened for import from EU over a period of six years. In regard to medicinal herbs and teas, the Agreement stipulates mutual abolition of customs tariffs on the day the Agreement on Stabilization and Associations comes to effect, which is huge incentive for future production and export of herbs.

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