pasojë e realizimit të praktikave bujqësore në miqësi me mjedisin. Studimi synon gjithashtu t'i lehtësojë prodhuesit duke iu treguar praktikën e certifikimit të produkteve bio të bimëve mjekësore dhe aromatike. Ky hulumtim mund t'i ndihmojë prodhuesit të identifikojnë mundësi të reja biznesi.
Fjalë kyçe: bimë mjekësore dhe aromatike, qëndrueshmëri, ekonomi rrethore, prodhim biologjik, certifikim.

BIOLOGICAL PRODUCTION OF MEDICINAL-AROMATIC PLANTS AND SUSTAINABILITY OF AGRICULTURAL FARMS

Abstract

The medicinal and aromatic plants (MAPs) sector is a rapidly growing sector influenced by the expansion of the cultivation of these plants. It has great development potential, generates stable employment and is an economic source for many families in rural areas of the country.

The increase in demand for medicinal and aromatic plants from the international market increases the pressure to intensify production, increasing the risk of overexploitation of these natural resources. Producers of medicinal and aromatic plants should focus on biological production. This is the best practice to have a sector with sustainable development. The literature on sustainable practices in the production of MAPs is scattered, therefore through this study we aim to provide an overview of agricultural practices in this sector. The release of the new EU regulation on biological production, very rigorous requirements from the international market require the implementation of cultivation and marketing techniques in accordance with them. The study method is based on the SWOT analysis of the sector, as well as recommending the best practices of the biological production of medicinal and aromatic plants. The circular economy is considered as one of the solutions to promote sustainability, as a result of the implementation of environmentally friendly agricultural practices. The study also aims to facilitate producers by showing you the practice of certification of organic products of medicinal and aromatic plants. This research can help manufacturers identify new business opportunities.

***Keywords**: medicinal and aromatic plants, durability, circular economy, biological production, certification.*

1. INTRODUCTION

The sector of medicinal and aromatic plants (MAP) has a great development potential, generates stable employment and is an economic source for many families in rural areas of the country. The

organic sector of agricultural production in Albania occupies a small percentage. The area of agricultural land certified as organic has had an increasing trend (Zhllima, 2020).

The demand for medicinal and aromatic plants is projected to grow annually by 10 to 12% (Chandra, and Sharma, V 2019). The high growth rates are related to the preference for natural products for health benefits, as they are considered safer and more cost-effective than synthetic pharmaceutical drugs (Bareetseng, 2022).

The increase in demand for medicinal and aromatic plants increases the pressure to intensify production, increasing the risk of overexploitation of natural resources.

About 95% of the production of aromatic medicinal plants is exported, representing almost 20% of the total agricultural exports of Albania. 70% of medicinal plant exports go to the Eurozone, while the rest, to the United States of America. The medicinal and aromatic plant sector generates around 46-55 million euros from export, listed as the second largest sector in agricultural export. Albania is part of the group of 25 leading exporters of aromatic medicinal plants in the world (AIDA, 2021).

"Organic Agriculture", which is defined by various words such as biological, ecological and bio, arose as an alternative method to overcome the negative effects of the increasing use of chemical fertilizers and pesticides on agricultural and human health and commercial problems.

Sustainable development brings the ideal harmony of simultaneous economic growth, social improvement and environmental protection.

Therefore, both consumers and companies should commit to sustainable practices (Marcelino et al, 2023). Therefore, both consumers and companies must commit to sustainable practices (Marcelino et al, 2023).

The development aims to maximize, simultaneously:

Objectives of the biological system (sustainable genetic diversity, biological productivity),

Economic objectives (satisfaction of basic needs, improvement of equity, increase of goods and useful services) and

Objectives of the social system (cultural diversity, institutional sustainability, social justice, participation).

Biological production of medicinal-aromatic plants is an important

factor accompanying the transition of conventional farmers (small or not) to organic farming or other good and sustainable agricultural practices.

Small farms from a problem in agricultural production can be transformed into good economic opportunities in the biological production of aromatic medicinal plants.

Even in the Albanian territory, there are many evidences of the modeling of the agricultural landscape, based on the criterion of establishing the relations of "symbiosis" between man and the land.

To introduce and implement the concept of sustainable agriculture, it is necessary to carry out a preliminary scientific-cultural operation, which consists in practicing ecological knowledge - i.e. the study of the system as a whole and not only of its parts in the practice of agriculture, interpreting above all the agricultural farm as an agroecosystem.

In 2015, all UN countries adopted the 2030 Agenda for Sustainable Development, which includes 17 SDGs (Sustainable Development Goal), 169 target indicators and 232 indicators.

Goal 12. Ensure sustainable consumption and production patterns

12.2 By 2030, achieve the sustainable management and efficient use of natural resources

12.4 By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment.

Referring to the Sustainable Development Goals in agriculture, the use of sustainable practices can reduce energy consumption by reducing negative environmental impacts (Freitas et al, 2021). Sustainable practices, such as biological production, can result in economic benefits through circular economy strategies (Braga, 2021).

Sustainable practices in the biological production of medicinal and aromatic plants (Medicinal and Aromatic Plants MAP) necessary for producer farmers and for collectors and exporters are scattered in the literature, this paper aims to provide solutions in this direction. This scientific work aims to make a contribution to the field of sustainable agriculture of biological production of medicinal and aromatic plants. Based on the existing scientific knowledge and the principles of the circular economy, we aim to implement the best practices of biological

production of BMA, safe markets for them, higher income for farmers and business of this sector and environmental protection.
The best practices are presented based on the proposals published by the World Health Organization (World Health Organization, 2003) (for medicinal plants), the European Plant Breeders' Association (EUROPAM, 2022), the new EU Organic Regulation (Reg. (EU) 2018/848, Reg. (EU) 2021/1698)
During the last years, the market and demands for medicinal and aromatic plants have changed a lot, focusing on their organic production.
Demands from foreign companies are increasing in terms of organic and certified products. Large international companies are increasingly looking for raw organic ingredients for the production of their medicines or food and beverages.
The purpose of the study is to provide expertise related to:

- ✓ The standard of organic products of medicinal and aromatic plants.
- ✓ Selection and selection of improved varieties.
- ✓ Drawing up the nutritional balance of plants without the use of chemical fertilizers.
- ✓ Designing and following biological plant protection schemes by eliminating the use of
- ✓ fungicides and herbicides.
- ✓ Techniques of biological warfare against weeds by eliminating the use of herbicides.
- ✓ Standardization of certification and labeling of organic products of medicinal and aromatic
- ✓ plants produced.

2. MATERIAL AND METHOD

The main research methods used in this study are quantitative and qualitative methods, combining primary and secondary data. The sector of production of medicinal and aromatic plants is subject to SWOT analysis. It is an audit analysis used to identify the strengths and weaknesses of this sector. SWOT is short for: Strengths, Weaknesses, Opportunites and Threats.
Primary data
They consisted in the application of interviews with farmers of the

production of medicinal and aromatic plants (MAP), production and commercial entities, in order to identify the cooperation and problems faced by actors in a supply chain. Comparing the competitiveness of conventional producers and those who implement biological production practices.

Secondary data consisting

Official data, provided by INSTAT, FAOSTAT, Ministry of Agriculture and Rural Development Albania.

Legislation:

LAW No. 106/2016, For biological production, labeling of biological products and their control.

Rregullore (BE) 2018/848 e Parlamentit Evropian dhe të Këshillit e datës 30 maj 2018. Për prodhimin organik dhe etiketimin e produkteve organike dhe shfuqizimin e Rregullores së Këshillit (KE) Nr 834/2007.

REGULATION (EU) 2018/848 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 30 May 2018. On organic production and labelling of organic products and repealing Council Regulation (EC) No 834/2007.

3. RESULTS AND DISCUSSIONS

The current agricultural and livestock systems have shown serious problems in relation to the domestic and foreign markets. Consumer demand is increasing in terms of biological products. It reflects not only commercial stability but also favorable prices for producers as well as environmental protection. Current agricultural systems are based on low levels of inputs (related to the economic level of farms). But this production can never be described as biological production. To be such, it must be based on the law on biological production and the new EU Regulation.

SWOT analysis of the production sector of medicinal and aromatic plants. SWOT is an acronym for: Strengths, Weaknesses, Opportunities and Threats.

SWOT analysis table

	Positives	Negative
	(S)The Strengths sides	(W) The weak sides
Internal	Long experience and expertise	Short experience in the

	in collection, cultivation and marketing of medicinal and aromatic plants. Soil and climatic conditions to improve this sector of medicinal and aromatic plants. The salaries of experts are lower compared to other European countries. Good reputation with the high features of Albanian medicinal and aromatic plants. Investments made in modern drying facilities. Efforts made to preserve medicinal plants, drugs and spices. Consolidation of large exporters and increased investment on their part. Large areas available for the cultivation of medicinal and aromatic plants.	biological production of medicinal and aromatic plants (MAP). Incomplete recognition of the new EU regulation for organic production. Little awareness and information on aspects of organic farming, as well as economic, social and environmental benefits. Small size of farms, parcelization (small plots), lack of horizontal and vertical cooperation.
	(O) Opportunities	(T) Threats
External	Albania's geographical position against potential European markets Growing international demand for wild and cultivated medicinal and aromatic plants. Most consumers are willing to pay more for organic products. Programs for financial support from the Albanian Government for this sector are increasing. Programs for financial support from the EU for this sector are	Strong competition from international chains for the biological production of medicinal and aromatic plants. Strong requirements for the certification of biological production of medicinal and aromatic plants. Lack of cooperation between institutional links in the sector.

	increasing.	

Based on LAW No. 106/2016, On biological production, labeling of biological products and their control and Regulation (EU) 2018/848 of the European Parliament and of the Council of May 30, 2018, For organic production and labeling of organic products, we are presenting the methodology that must be followed by producers, collectors and exporters of biological production of medicinal and aromatic plants.
On-farm production of MAP should include standardized practices to ensure high-quality production.
Organic production is a general system of farm management and food production that combines the best practices of environmental and climate action, a high level of biodiversity, conservation of natural resources using natural substances and processes.
Organic production is an overall system of farm management and food production that combines best environmental and climate action practices, a high level of biodiversity, the preservation of natural resources using natural substances and processes.
The new organic regulation for EU member countries was approved on 01.01.2022, while for operators in countries outside the EU there will be an interim deadline until 31.12.2024 to move to certification according to the new regulation. The new regulation aims to guarantee fair competition for producers, prevent fraud and increase consumer confidence in organic products.
What are the main changes in the new regulation?

- In addition to countries with trade agreements, the new regulation is also mandatory for countries outside the EU.
- An operator or a group of operators cannot be certified by more than one control body regarding activities for the same product category (e.g. production/processing).
- The new regulation is more specific and gives more importance to the duty of certified operators to take preventive measures at every stage of production, preparation and distribution to avoid contamination and mixing with unauthorized products or substances.
- Operators must have a system of self-control (e.g. quality management system). Control bodies must check the system of certified operators and evaluate its efficiency.

The first principle of organic production is minimal mechanical tillage (i.e. zero tillage). Applying a "no-till" system where appropriate reduces erosion and maintains soil organic matter.

The second principle is the use of green manure, cultivating indigenous plants without the use of synthetic fertilizers. Then these plants are mowed and left on the surface of the earth. Plant cover contributes to the increase of organic matter in the soil and the improvement of physical, mechanical, chemical and biological qualities. Short-term green manure crops and legumes should be used.

The third principle of organic farming is the implementation of agricultural rotation. Through it, the "biological relaxation of the soil", the biological reduction of weeds, the prevention of diseases and pests is realized.

- ✓ **Choosing the cultivation area**

External environmental conditions should be taken into a consideration when choosing a planting site by evaluating ecological and geographical differences.

Soil, air or water contamination by harmful chemicals must be assessed in advance through relevant analyses. The impact of previous land uses on the growing area should be assessed, including the planting of previous crops and any application of fertilizers and plant protection products.

- ✓ **Seeds and other plant reproductive materials**

Planting material (including seeds and vegetative additional material) must be of organic origin, in case of their absence at the operator's place, the control body can give approval for the use of conventional seeds (as before, approval must be obtained before planting).

- ✓ **Planing up the nutritional balance of plants without the use of chemical fertilizers.**

In all cases, soil fertility should be maintained by applying livestock manure or organic matter, both preferably composted, from organic production.

Fertilizers and various soil nutrients can only be used if plant nutrient requirements cannot be completed by soil, crop rotation, application of livestock manure or organic matter.

The permitted substances are listed in Reg. (EU) 2021/1165, Annex II.

- ✓ **Irrigation and Drainage**

rrigation should be carried out according to the needs of plants, periods

of plant growth and development, climatic conditions and soil moisture. Water used for irrigation must comply with regional/national quality standards. The farmer must pay attention to the quality of the irrigation water.

- ✓ **Designing and following biological plant protection schemes by eliminating the use of fungicides and herbicides.**

More emphasis is placed on "preventive measures". Cultivation will include the principle of plant conservation with preventive measures, in particular the selection of suitable species, resistant varieties to pests and diseases, crop rotation, mechanical and physical methods and biological control. Only if the preventive measures are not sufficient to protect the plants, then the permitted substances listed in Reg. (EU) 2021/1165, Annex I, are alowed to use.

- ✓ **Harvesting of Medicinal and Aromatic Plants.**

Three factors must be considered when harvesting: the amount to be harvested, the time of harvesting and the harvesting equipment. Harvesting time depends on the part of the plant to be used. Information on the appropriate timing of collection is available in major studies and reference books. The best harvesting time should be determined according to the quality and quantity of bioactive components and not according to the total vegetative yield of the target parts of the medicinal plant. Harvest date has a significant impact on the content of volatile compounds and can be optimized to obtain a higher concentration of essential oils.

Harvesting should be done when the plants are of the best possible quality, according to the different uses.

Plants should be harvested in the best conditions avoiding wet soil, dew, rain or high humidity. The harvested plant should not come into direct contact with the soil. During harvesting, care should be taken not to mix MAP with the accompanying herbs of these plants.

Equipment used for harvesting must be kept clean and in perfect working order.

Harvested plants should be collected and transported immediately in dry and clean conditions.

- ✓ **Transition period for the production of organic products**

When the entire agricultural farm or its parts are intended to produce organic products, they must go through a transition period during which they are managed according to the rules of organic production,

but cannot produce organic products. Products should be allowed to be placed on the market as organic products only after the transition period has passed.

- ✓ **Standardization of certification and labeling of organic products of medicinal and aromatic plants produced.**

Organic production is reliable only if it is accompanied by effective verification and controls in all its stages of production, processing and distribution.

Operators to ensure compliance with the organic production regulation must implement some specific requirements.

- The request of the operator to the competent authorities of the system of certification of organic production and labeling of organic products.

The transparency of the certification system should be ensured by requiring member states to make public the lists of operators who have notified their activities, and any fees that may be collected in connection with the checks carried out to verify compliance with the rules governing organic production.

Organic production is subject to official controls in accordance with Regulation (EU) to verify compliance with the rules for organic production and labeling of organic products.

4. CONCLUSIONS

The increase in demand for medicinal and aromatic plants (MAP) from the international market increases the pressure to intensify production, increasing the risk of overexploitation of these natural resources. Producers of medicinal and aromatic plants (MAP) should focus on biological production. This is the best practice to have a sector with sustainable development in economic, social and environmental terms. This study aims to standardize the agricultural practices of cultivation, harvesting, certification of medicinal and aromatic plants (MAP). The research facilitates the improvement of sustainable performance in the MAP sector, towards organic production based on the EU Organic Regulation (Reg. (EU) 2018/848, Reg. (EU) 2021/1698).

The research gives a special help to the new operators of the production and marketing of medicinal and aromatic plants.

The study also aims to facilitate producers by showing you the practice of certification of organic products of medicinal and aromatic plants (MAP). This research can help manufacturers identify new business

opportunities.

Conflicts of Interest

The authors declare no conflict of interest.

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II- SHKENCA EDUKIMI

EMBRACING AI IN FOREIGN LANGUAGE LEARNING: THE UNIVERSITY STUDENTS' PERSPECTIVE

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Abstract
Artificial intelligence (AI) has become an inevitable part of contemporary learning practices. Learners have at their disposal various tools developed on the principles of AI that provide them with personalized language learning experiences. This may apply to the acquisition of new words and their combinations into longer syntactic structures, or to mastering grammar rules and their practical use in various settings and speech situations, accompanied by relevant, real-time feedback. When used wisely, AI tools maytransform the learning process into a motivating experience, accessible to various categories of learners of different backgrounds, from all over the world.

The aim of the paper at hand is twofold – to analyse university students' attitudes towards and experiences with AI tools in learning a foreign language, and to identify their perspective on the issues and potential risks that arise from the use of AI in higher education. For the purposes of this study, we conducted an online survey targeting learners of different foreign languages at different higher education institutions in RN Macedonia. The qualitative and quantitative analysis of the results obtained reveals that while language students are definitely starting to make use of AI tools to improve