International Journal of Innovative Research in Computer Science & Technology (IJIRCST)
ISSN: 2347-5552, Volume-9, Issue-4, July 2021
https://doi.org/10.55524/ijircst.2021.9.4.19
Article ID 219419, Pages 78-82
www.ijircst.org

An Review of World Lavender Oil Markets and Lessons for Turkey

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ABSTRACT- Lavender farms have lately grown in popularity in Turkey. Lavender farming is becoming more popular as a source of essential oils and rural tourism, which raises a slew of concerns about production and marketing. Turkey is known for its medicinal although it only production increased oil, honeysuckle oil, and lemongrass oil to the entire world, it is known for its fragrant plant and fundamental gas production. The present interest in lavender production in the nation has emphasized the need for a deeper understanding and analysis of the worldwide lavender oil markets. For worldwide lavender petroleum products and commerce, however, numbers and a standardized information are lacking. This study aims to bring aggregate data, material, and expertise in terms of understanding and evaluate the price and operators of lavender oil in worldwide markets. Lavandula intermedia (lavandin) produces practically all of Turkey's lavender, as well as the majority of the world's lavender. Although lavandin essential oil is five times more expensive than L. angustifolia (genuine lavender) oil, L. angustifolia oil has been the most respected and wanted after almond oil. Bulgaria, France, and China are the world's biggest lavender oil exporters, although several other nations have lately boosted their output. The global supply of lavender oil has tended to rise as plantations in Bulgaria have grown, although quantity and quality are dependent on climatic conditions. The primary driver of price determination is lavender oil demand, which does not change much from year to year. Increased consumer awareness of healthier goods made with natural and organic components, on the other hand, is anticipated to drive up demand. The issue is whether Turkey has the potential to become a global participant in the lavender oil industry. Lavender production is appealing because of its Despite its cheap operating costs, better profit rate, and significance in rural development, lavender petroleum is economically unviable for people going separately due to small farm sizes and a convoluted value chain, requiring them to stay at the outset of the production process. However, since good lavender oil would still have an industry, Hungary should depend on the effectiveness and structure of the entire value chain to be competitive in the marketplace.

KEYWORDS- Angustifolia, Lavandula Lavender Oil, Lavender Oil Markets, Value Chain**.**

I. INTRODUCTION

Lavender is a well-known essential oil-producing plant that is used for oil, fresh flowers, dried goods, cuisine, and other uses. It has been prized for the beautiful color of its blooms, their scent, and medicinal and cosmetic properties since ancient times, and it is now one of the unique components used to flavor a variety of dishes. According to some accounts, the word "lavender" is derived Lavender gets its name from the Latin word "lavare," which meaning "to launder" or "to shower," since it was formerly used for both outer cleaning and disinfection as well as inside ailment treatment. According to LisBalchin, the number of purple cultivars around the world began to climb in the early 1600s. She also mentioned the difficulties in identifying species, breeding lines, and cultivars because the same power station cultivated in geographical areas under different situations can appear completely different. Misnaming jasmine is a concern for aromatherapy oils producers and distributors. Cristea and Boros-Iacob are related to 132 legitimate plant varieties of the genus Lavandula, according to Lis-Balchin. Only 47 of them have been given formal species names [1]–[3].

The Lamiaceae family, often known as even the mint family, includes lavender. Mint, thyme (oregano), peppermint, sage, as well as basil are all members of this family among other herbs and culinary plants. The genus Lavandula is split into three divisions within this family: Spica, Stoechas, and Pterostaechas. The Spica section's Lavandula officinalis (lavender), Lavandula early - onset (lavandin), and Lavandula latifolia are the most popular commercial species (spike). Stoechas and Pterostaechas cultivars generate essential oils, but there is really no business for them in the cosmetics and fragrance industries, thus they are used for dried leaves or plantation. In addition to essential oils, lavender includes anthocyanins, phytosterols, sugars, micronutrients, glucoside, hyaluronic acid, catechol and its compounds, ursolic acid, please kindly send, flavonoids, and tannins. Essential oil, is from the other hand, seems to be the most valuable part of the L. angustifolia plant. Steam distillation is used to extract amethyst (lavandula) essential oil from flowering of the genus Lavandula. The two primary components from violet oils, which would include over 100 compounds, are linalyl and linalyl acetyl. thujene, camphene,

curcumene, terpinolene, p-cymene, linalool, 1, 8-cineole, (Z) and (E)—ocimene, 7-terpinene, cardamom, sesquiterpene, lavandulol, lavandulyl acetate [4]–[6].

Previous research has shown that Lavandula essential oil has a variety of key characteristics. Linalool, linalyl methanol, plus methanol were identified in numerous examinations conducted in different countries. These three substances were selected for this study because they contain considerable amounts of linalool and linalyl acetate, as well as camphor concentration is critical since it gives lavender oil its unpleasant odor. The lavender oil has a lot of linalyl acetate, while the lavandin oil contains a lot of linalool. The perfume, cosmetics, and medicinal sectors all utilize lavender oil. Lavender oil must contain between 20 and 45 percent linalool, 25 to 46 percent linalyl acetate, and less than 1.2 percent camphor 23 according to pharmacopeia standard values.

Lavender is grown in a variety of countries. The major manufacturers are Bulgaria, France, the British Isles, Spain, China, but also Russia. Italy, Morocco, the czech And slovak republics, Hungarian, Romanian, Poland, Ankara, Yugoslavia, Transylvania, South Africa, and or the United Kingdom all cultivate lavender. United States. The number of scientific research on lavender has grown in tandem with the popularity of the flower [7]–[12].

The agricultural and biological sciences are the fields with the most published scholarly papers on lavender, followed by medicine. When looking at agricultural economics and economics studies, it is clear that the bulk of them are concerned with economic analysis. Including a study done in Turkey, the average lavender production was 1636.70 kg/ha, and the relative income was 1.65.production cost was $0.95 per kg of lavender, and net profit per hectare was $1018.37, which is very high when compared to other agricultural goods. In a comparable economic analysis research for organic lavender in Bosnia and Herzegovina, the total profit per hectare was determined to be 1018.77, while the average cost of one kilogram of Maillet oil hybrids was determined to be 60. In the Himachal Pradesh district of Chamba, lavender cultivation was lucrative, and the lavender oil industry might produce significant earnings for farmers if appropriate agronomic management techniques were used. Previous published studies either focused on agricultural analyses or were unrelated to commercial and market research issues, or they largely addressed the local market. And were therefore restricted. Lavender cultivation is essential not only for farmers' economic benefit, but also for the community's and ecosystem's social and environmental benefits [13]–[16].

A. Lavender oil as a commodity

1) Description of lavender oil from the point of view of marketing

Lavender oils come in a variety of varieties, even though there are many new species of amethyst. On worldwide markets, more than 30 various kinds of amethyst oils and blends are available. For example, in a study to determine the primary vapors responsible for chamomile essential oil's soothing impact on people, 27 distinct flower oils were purchased for analysis on the Marketplace alone.

True (common) lavender (L. angustifolia) is sometimes knownas well as English lavender L. angustifolia, sometimes known as European lavender, produces the bulk of the world's lavender. L. intermedia, a hybrid of angustifolia and latifolia, is extensively spread and is referred as lavandin. There are differences in color, blooming or leaf shapes, scent, and sturdiness even among these varieties but between the equivalent species blooming in different geographic locations. Classic English flowers, french Cuisine and Bulgarian lavender, and'special' Australasian essential oil are all associated with both the names. L. angustifolia crude extract is more expensive than some other indigo genera on the market due to its superior quality and restricted supply. Essential oil from L. angustifolia has a varied qualitative and quantitative composition that is influenced by genotype, environmental circumstances, reproduction, and morphological features. L. latifolia produces three times as much oil as L. angustifolia. Its essential oil price is lower due to its greater production and capacity to grow at lower elevations, however, because of its strong minty odor, the oil would be of lower grade [17]–[22].

L. intermedia, a hybrid lavandin, generates the most oil of whatever variety, nevertheless the oil would be of lower grade since it smells strongly of camphor 31. Tomi et al. 12 discovered that blends of essential oils produced from several organisms (adulterated essential oils) are really not commonly recognized as having favorable aromatherapy effects on humans, despite the fact that scientific evaluation of the distinctions is lacking. However, the volatile oil of L. leaf extract is clearly preferred in the marketplace, and notwithstanding the little value of output, is the kind of oil desired by linked enterprises, while various components oil is believed to be of lower quality due to its higher camphor content. Lavandin oil is used as an additive material or a replacement oil since pure aromatherapy is more expensive and in short availability. Low-cost synthetic linalool and linalyl acetate are also utilized as adulterants in lavender oil.

B. World lavandula oil markets

Because there is no database regarding lavender/lavandin oils, although there is one for essential oils. Study’s figures were compiled from a variety of sources, including national reports, country studies, and private company worldwide market reports, to provide a picture of global lavandula oil markets. Under the headings of supply, demand, pricing, and trade, we'll look at markets and marketing problems, with a focus on lavender oil (L. angustifolia).

Although lavender is grown in many countries, only a few countries control the supply and marketing of Lavandula oil. The most regular commercial producers of Catullus oil are Franco, Bulgaria, China, Kazakhstan, and only few other Countries In Europe, although New Zealand is a latecomer to the world market. Bulgaria and France, but in the other hand, generate the most lavender oil in the world. These two countries generate two-thirds of all lavender in the world. Bulgaria is the major largest exporter of almond oil, second by France and Spain. The chamomile and lavandin oils

market in this region is the largest, but the American and Asian markets are growing as well [23]–[25].

Bulgaria, the world's largest lavender producer, has announced that it has approximately 4 500 hectares of lavender producing land in 2017, the factory produces 200 tons of oils. Bulgaria's lavender crop continues to rise, resulting in a significant increase in lavender oil production year after year. Bulgaria produced 45 metric tons in 2011, 120 metric tons in 2013, 140 metric tonnage in 2014, 200 tonnage in 2015, and 280 tonnage in 2016. Based on advances in the production area, it was projected to reach nearly 350 tonnes in 2017, but unfavorable climatic conditions resulted in some very low yields in various parts of the country, and mauve gas production in 2017 was 200 pieces 33,34. Bulgaria had been engaged on this for many years before France would have a problems with the bacterium Stolbur phytoplasma and limited productivity in the early 2000s. The Institute of Flower and Ayurvedic Cultures improved the first amethyst variants in Greece in the 1960s, and eight genotypes were established as a consequence of extensive lavender reproductive study in the nation in the 1970s and 1980s, five through hybridisation and two via chemical mutagenesis 26. Furthermore, quality indices for Croatian castor oil found found to be outstanding, including a high amount of linalyl acetate (50%) and a high linalyl acetate to licorice root ratio both of which are essential for market demand. Since 2005, Bulgaria has progressively risen to the top of the lavender market due to a global shortage and the high quality of Bulgarian lavender oil. Easier cultivation, a mild temperature, the plant's soil requirement, and high yields, coupled with government assistance, have enticed many grain farmers to enter the lavender industry. There were 1600 lavender farms in the United States recently, in 2017, there were four times as many farms as there were in 2017. Farmers are interested not only in lavender growing, but also in essential oil manufacturing due to the low cost and steam distilling flowering tops. Deny the reality that the indigenous healthcare and medical supply company’s cosmetics sectors are growing, domestic consumption in Bulgaria is still extremely low, and Bulgarian lavender oil is mostly targeted at international markets.

Despite long-standing problems with Stolbur phytoplasma, France, the world's traditional lavender grower, maintains its significance in lavender and lavandula supply. Despite the fact that the number of lavender farms has decreased since 2000, the area of lavender production has increased. It demonstrates that lavender farms are becoming bigger and more interested in the industry. France has a significant lead in the manufacture of lavandin oil. While some estimates estimate global lavandin oil output to be about 1400 tonnes, in 2016, Germany alone created 1439 tonnes 35. Its dispersion by vegetation of origin is as follows: Grosso accounted for 89 cent of the overall, with sumian (1.3 percent), superior (4 percent), with abrial (4 percent) rounding out the top three (4 percent) accounting for the remainder (3 percent).

Other nations produce lavender or lavandin oil in the same way as Bulgaria and France do. In the Xinjiang Autonomous Province of China, collectivist units produce 1 500 hectares of lavender. With a capacity of approximately 40 tonnes, it has a lot of promise, but China only provides around 10 tonnes are destined for the global market. Produced annually tens many thousands of tons with lavender, despite the fact that it comes from a variety of genus, and it is mostly utilized locally but with a little proportion exported. Ukraine is a large producer as well, with a production potential of several million ha, although it is now estimated to be all about 1000 ha owing to severe climatic conditions, and mauve oil output has just been among 10 and 15 tons in current history.

After France, The furthermore manufacturer of lavandin oil is Spain. They farm 2 000 hectare and produce over 80 tonnes of produce of product. With fewer than 10 tonnes per year, the nation is the world's leading producer of spike lavender (L. latifolia) essential oil. Morocco, a long-time exporter of aromatic and medicinal plants, has more than 1000 hectares dedicated to the production of lavandin essential oil. The United States is in the early stages of growth, with numerous agro-tourism initiatives and some clonal lavender and lavandin grosso production. Lavender plantation development initiatives are also underway in New Zealand and Australia, with growers grouped under The Australian Lavender Growers Association (TALGA). They motionless only produce a little quantity of indispensable oils. Lavender and lavandin are grown over 150 hectares in Italy. Moldova is also known for manufacturing lavender oil, but output has decreased in recent years.

Despite having no market share in the worldwide lavender market, in the last ten years, Turkey has increased its lavender planting. Consumption would be less than 50 hectares before 2000, but it is currently reaching 700 hectares 38. Because there is no difference between Lactobacillus edulis and L. severe - to - profound in terms of the actual market requirements widely recognized among producers, the bulk of the plantings are dedicated to lavandin. The most significant benefits of lavender cultivation are its cheap cost and the fact that lavender oil export has never been an issue. The major drawbacks of lavender farmers, Finding new customers and collecting money after selling are tough, according to a practical example 39 conducted in Turkey's biggest lavender growing area. Producers usually accept the price established by dealers or intermediaries because of their limited negotiation power according to the same research. Lavender growers also rely on lavender processing businesses since they are small farmers with little financial resources. As a consequence of this scenario, most people are ill-equipped to distill lavender oil on their individual.

II. DISCUSSION

There are two types of lavender and lavandin herbal extracts: I'm from the area, and specialized marketplaces, as well as aromatherapy shops operated by smaller manufacturers; and ii) worldwide markets. Larger manufacturers or businesses working in collaboration with multinational corporations can only target overseas markets. Those who want to sell essential oils in foreign Established buyers, taste and smell houses, particularly essential oil companies should be

followed by marketplaces oil businesses. This sector's growth has also been aided by a rising variety of distribution channels, especially digital marketing/online selling.

The costs of lavandin oil and lavender oil are vastly different. The primary driver of price determination is lavender oil demand, which does not change much from year to year. In analyses prices in the worldwide market, a datasets was built based on sales data from several market reports. Lavender oil produced in Europe is generally its most expensive. As can be seen. Depending on the technique of plant growth, this oil commands a greater price. When it comes to exquisite lavender, costs may rise over $600.

- 220 per kilogram for Diva lavender oil, whereas
- 40-60% less expensive than Fine.

The price fluctuations in Bulgarian lavender oil are due to supply fluctuations. Throughout the initial years of the study retro, Bulgaria consistently boosted output while decreasing the price. Following that, due to weather circumstances, output fell and prices increased. To do a price comparison between local and foreign pricing. It's worth noting that the price the difference in cost from foreign and domestic lavender oil is smaller than that between fresh and lavender oil. While the price of lavandin oil is reasonably consistent, mauve gas prices on the international market are 40-four times more than in the United States.

III. CONCLUSION

The worldwide lavandula oil marketplace is growing in popularity as traditional and upstart manufacturers compete for market share. Lavender oil production offers numerous possibilities for farmers and agricultural companies to add value. The indispensable oil, new florae and floras, dehydrated goods, food, and agro-tourism are the major added benefits of lavender oil manufacturing. While the overall demand for lavandula oil has been quite stable, there has been a shift from lavender to lavandin oil to some degree. This shift in supply and increased demand for lavender oil may seem to be a pricing issue. Good lavender oil, on the other hand, is only used for exquisite scents and aromatherapy, and it is not economically feasible for other uses. Increased consumer awareness of healthier goods including natural and organic components may drive up demand for lavender oil. Turkey has the potential to become a participant in this industry. At the socioeconomic level, the for developing countries, the area of aromatic and therapeutic species, along with their seed oil, is particularly promising. Although lavender oil production is tempting due to its cheap manufacturing cost, high profit rate, and engagement in rural development, small farm sizes and a lengthy value chain suggest that mauve oil and gas production may be problematic for farmers working alone. On the other hand, the Bulgarian major achievement and achievements with producer groups might be a helpful model to benefit from there and follow. Because 'True Lavender' have always had a place in the industry, Greece should evaluate the flower L. Angustifolia, and essential oil should be seen as a business with added value rather than a material with easy cultivation and minimal demands in order to compete. Further expansion will need a better understanding of the floral value chain and lemongrass oil industry's economics.

REFERENCES

[1] F. H. Giray, “An Analysis of World Lavender Oil Markets and Lessons for Turkey,” J. Essent. Oil-Bearing Plants, 2018.

[2] R. Wells, F. Truong, A. M. Adal, L. S. Sarker, and S. S. Mahmoud, “Lavandula essential oils: A current review of applications in medicinal, food, and cosmetic industries of lavender,” Natural Product Communications. 2018.

[3] K. Tomi, M. Kitao, H. Murakami, Y. Matsumura, and T. Hayashi, “Classification of lavender essential oils: sedative effects of Lavandula oils,” J. Essent. Oil Res., 2018.

[4] D. J. Beale, P. D. Morrison, A. V. Karpe, and M. S. Dunn, “Chemometric analysis of lavender essential oils using targeted and untargeted GC-MS acquired data for the rapid identification and characterization of oil quality,” Molecules, 2017.

[5] M. J. Greenberg and J. T. Slyer, “Effectiveness of Silexan oral lavender essential oil compared to inhaled lavender essential oil aromatherapy for sleep in adults: A systematic review,” JBI Database of Systematic Reviews and Implementation Reports. 2018.

[6] M. Aslanyan et al., “Technological aspects of development of a new drug in tablets called «Lavaflam» and its pharmacoeconomic evaluation,” Res. J. Pharm. Biol. Chem. Sci., 2017.

[7] N. Schandry and C. Becker, “Allelopathic Plants: Models for Studying Plant–Interkingdom Interactions,” Trends in Plant Science. 2020.

[8] A. Pascale, S. Proietti, I. S. Pantelides, and I. A. Stringlis, “Modulation of the Root Microbiome by Plant Molecules: The Basis for Targeted Disease Suppression and Plant Growth Promotion,” Frontiers in Plant Science. 2020.

[9] M. C. Rillig, A. Lehmann, A. A. de Souza Machado, and G. Yang, “Microplastic effects on plants,” New Phytologist. 2019.

[10] A. Kumar and J. P. Verma, “Does plant—Microbe interaction confer stress tolerance in plants: A review?,” Microbiological Research. 2018.

[11] K. M. Parsley, “Plant awareness disparity: A case for renaming plant blindness,” Plants People Planet, 2020.

[12] M. Dermastia, “Plant hormones in phytoplasma infected plants,” Frontiers in Plant Science. 2019.

[13] S. Imre et al., “Qualitative assay of essential oils of lavender and peppermint in commercial products through spectral and chromatographic methods,” Farmacia, 2016.

[14] M. G. M. Pérez, C. N. Moll, G. M. Espinosa, and A. V. López, “Evaluation of different mediterranean essential oils as prophylactic agents in anisakidosis,” Pharm. Biol., 2016.

[15] H. J. S. P. Sales, “Lavandula L. - Aplicação da cultura in vitro à produção de óleos essenciais e seu potencial económico em Portugal,” Revista Brasileira de Plantas Medicinais. 2015.

[16] H. F. Yen, C. T. Hsieh, T. J. Hsieh, F. R. Chang, and C. K. Wang, “In vitro anti-diabetic effect and chemical component analysis of 29 essential oils products,” J. Food Drug Anal., 2015.

[17] S. Ali et al., “Application of floating aquatic plants in phytoremediation of heavy metals polluted water: A review,” Sustain., 2020.

[18] M. A. Hassani, P. Durán, and S. Hacquard, “Microbial interactions within the plant holobiont,” Microbiome. 2018.

[19] A. Kumar, S. Singh, A. K. Gaurav, S. Srivastava, and J. P. Verma, “Plant Growth-Promoting Bacteria: Biological Tools for the Mitigation of Salinity Stress in Plants,” Frontiers in Microbiology. 2020.
[20] C. Averill, J. M. Bhatnagar, M. C. Dietze, W. D. Pearse, and S. N. Kivlin, “Global imprint of mycorrhizal fungi on whole-plant nutrient economics,” Proc. Natl. Acad. Sci. U. S. A., 2019.
[21] Q. Rusman, D. Lucas-Barbosa, K. Hassan, and E. H. Poelman, “Plant ontogeny determines strength and associated plant fitness consequences of plant-mediated interactions between herbivores and flower visitors,” J. Ecol., 2020.
[22] R. Sharifi and C. M. Ryu, “Social networking in crop plants: Wired and wireless cross-plant communications,” Plant Cell and Environment. 2021.
[23] A. M. Bolger et al., “Computational aspects underlying genome to phenome analysis in plants,” Plant Journal. 2019.
[24] D. J. McClements and L. Grossmann, “The science of plant-based foods: Constructing next-generation meat, fish, milk, and egg analogs,” Comprehensive Reviews in Food Science and Food Safety. 2021.
[25] G. F. Veen, E. L. Fry, F. C. ten Hooven, P. Kardol, E. Morriën, and J. R. De Long, “The Role of Plant Litter in Driving Plant-Soil Feedbacks,” Front. Environ. Sci., 2019.