

Economic Impact of lavender plant farming in District Budgam of Jammu and Kashmir

Nargis Akhter Wani^{1,2*} Bhaskar Haribhau Jangale^{1,2,3}

1. Department of economics, AKI'S Poona college of Arts, Science and Commerce, Pune-411001

2. Department of economics, Savitribai Phule Pune University, Pune – 411 007

3. Daund Taluka Arts and Commerce college Daund, Pune

*Corresponding Author: Nargis Akhter Wani

ABSTRACT

India is home to a great variety of medicinally important plant species and in the overall world, among 12 mega-diversity countries, India ranked sixth. In the Indian System of Medicine such as Ayurveda, Siddha, Unani, Homeopathy, more than one and half million practitioners use medicinal plants in preventive, promotive, and curative applications. The global market for herbal products is continuously expanding and by the year 2050, it is expected to touch the mark of US\$ 5 trillion. Despite the richest source of many kinds of medicinal plants, India's share is only 0.5%. Improving the agricultural scenario should be given the topmost priority in order to ensure inclusive growth, food security to the public, and poverty reduction. This paper aims to analyze lavender plant farming in the district budgam of Jammu and Kashmir (J&K) by obtaining data mainly from the Statistical Abstract of J&K. In developing countries like India, the production of medicinal crops like Lavender is the soul of the whole structure of improving food security and the economy. This study proves that for the transition to sustainable agriculture lavender plant farming plays a pivotal role in medicine and economy.

KEYWORDS: Agriculture, Farming, Economy, Lavender, Medicinal plants

Date of Submission: 11-02-2021

Date of Acceptance: 26-02-2021

I. INTRODUCTION

Plants with medicinal properties have contributed to the traditionally effective therapies of various diseases (Mintah *et al.*, 2019). Due to the non-availability of literature, these traditional ways of curing disease have started to disappear with time. However, due to the various side effects and resistance for current drugs present in the market, the herbal medicine has regained the value and people have gain faith in them, which in turn contributed to the economy as well (Sofowora, A *et al.*, 2013). Medicinal plants are now contributing much to the ruler economy when compared to urban besides these medicinal plants is now one of the major contributors to the economic avenues to the farmers. Data provided by the World health organization (WHO) reveals that the present demand of medicinal plants is about \$14 billion per year and demand may go up to \$5 trillion in 2050 in India moreover trade will go up to \$1 billion per year (Sharma AB *et al.*, 2004; Joshi K *et al* 2004). Comparative analysis reveals that there are various advantages of farming the medicinal herbs as less land is needed and these plants can grow with minimum irrigation, fertilizers, and pesticides facility. Despite having a lot of advantages related to medicinal herb farming still, investment and the land used are very less. India is considered as medicinal plant hub as various medicinal plants are found in India, ample of them is found in Jammu and Kashmir (Kala, C.P *et al* 2006). Kashmir is the hub of medicinal plants and among medicinal plants, lavender is contributing much to the economy and medicinal perspective as well. Lavender (Lamiaceae family) plant parts are harvested and processed to obtain oil, dry flower, and other products (Khoury, M *et al* 2016). There are almost 20 species of lavender with hundreds of various genotypes based on morphology to essential oil chemical composition (Napoli, E *et al* 2020). For essential oil production, lavender cultivation has started from 16th century, but recently lavender cultivation was mounting due to its enormous medicinal values. Interestingly farmers from bhadrawah have started to give up the traditional farming of maize crops instead of this they are moving towards the cultivation of medicinal plants. Other hilly areas of Doda are exclusively cultivating more profitable aromatic lavender cultivation than traditional vegetables, thereby starting the purple revolution. Farmers are growing lavender under the Union government aroma mission, which helps them to become to increase the income of low scale farmers focusing on drug discovery from natural products. One of the prime institute CSIR IIM takes a big leap to carry out the aroma mission to provide information and raw material for aromatic crops and provide end to end technology. Lavender is now a native crop of Europe, which

was introduced by CSIR IIIM Jammu under the CSIR-Aroma mission in 2018 and revolutionized in Doda, Kishtwar, and Rajouri. It has been introduced in various districts of Kashmir including budget due to the availability of cold climate and favorable growth environment (Hakim, Z.Q *et al* 2018). There are about 450 types of lavender plants known which are characterized into 45 different species, some of well-known are ballerina, kew red, anoukh, bettes blue, impress purpleetc. The environmental condition of Kashmir is very much favorable for the cultivation for lavender and thus now a day's becoming a prospective crop for agriculture business in Kashmir. The objective of this study is to analyze the growth rate and the trend of lavender production in district budgam. This study will also cover the economic benefit of lavender medicinal plants and its impact on employment in district budgam.

II. AREA OF STUDY

The area of study is district budgam in Jammu and Kashmir (Indian administrated union territory) and is situated in the central part of Kashmir valley, which is 5.7 miles from the summer capital of Jammu and Kashmir. Therefore, budgam district is said to be the closest district of Srinagar capital. It consists of eight blocks: Chadoora, Beerwah, Khan Sahib, Magma, Narbal, B.K.Pora, Khag, and Budgam. It is further subdivided into seven tehsils. Geographically, the district is located between 34° 42'-34° 50' N latitude and 74° 24'-74° 54' E longitude. Budgam district topography is mixed with the plain and mountainous areas, which has temperate type climate in plains and heavy snowfall in mountainous areas, especially in winter. The southern part is hilly. It has been estimated that the total rainfall in the district is 586 mm. The total geographical area of Budgam district is 1371 square kilometer, which accounts state area 0.61 percent and supports 7.53 lakh people, which has a population density of 542 inhabitants per square kilometer. The sex ratio of district budgam is 874 for every 1000 males and the literacy rate of 58.89%. Budgam farmers are known for the cultivation of vegetables like potatoes, cabbage, onion, etc. More than 70% of the population of this district is dependent upon agriculture for their livelihood. Considering the topography, agro-climatic and physical conditions of Budgam district the aromatic crops are introduced in agriculture to put wasteland and rain-fed areas under cultivation and in turn improvement in the socio-economic status of small and marginal farmers.

III. METHODOLOGY

This study is based on the data collected from the Economic Survey Publication of J&K 2017. Cropping patterns and production data were collected from the directorate of economics and statistics, the government of Jammu, and Kashmir. To find out the area and production of lavender we use different statistical tools like mean, standard deviation, and coefficient of variation. We also collected data from the research laboratory (CSIR-IIIM canal road Jammu), national and international journals, and magazines for this study.

IV. RESULTS AND DISCUSSIONS

The developing trend of medicinal plant farming suggests an increasing growth of medicinal plants as well as employment in budgam district. The rapid change in growing medicinal plants is bound to develop various drugs against different diseases (Harvey, A.L 2008). The resistance developed against various drugs is a major concern for the world health organization. Therefore, medicinal plant farming is important for the discovery of novel drugs. Medicinal plants can grow on barren or infertile lands where agriculture is not possible. The topography, agro-climatic and physical conditions were suitable for growing medicinal plants in district budgam. Taken to these points together agriculture department has introduced the aromatic crops in district budgam. Various aromatic crops, which include lavender as well as rosemary, were also introduced in budgam district. The idea behind the cultivation of these plants was to put wasteland and rain-fed areas under cultivation and in turn improvement in the socio-economic status of small and marginal farmers. In Budgam district 2964 kanals of hilly, uncultivated land is being brought under cultivation of different aromatic cash crops. In Kashmir, Lavender is the next crop, which comes to mind after Saffron. Lavender (*LavendulaAngustifolia*)- a medically important plant thrives in rainfed conditions and majorly comes from degraded lands. Being planted across slopes, prevent soil erosion and produces purple flowers to the tune of 50-60 quintals of herb/ha. Lavender can bear moderate frost and drought and the production of lavender oil is negatively impacted in high temperatures. The preferable conditions for good lavender production include rainfall between 300mm to 1400 mm per year, good sunlight, and sandy/sandy loam/gravelly soil with a pH between 5.8 and 8.3. In Budgam district lavender cultivation was introduced in the year 2008, which was further increasing slowly throughout the district. According to the economic survey of Jammu and Kashmir the area covered under the cultivation of lavender farming in 2012-13 in district budgam was 400 kanals in which the production of the oil was 30 liters. In 2013-14, the cultivation area was doubled as that of the previous year and the oil production was 60 liters. Moreover, the increasing trend of lavender plant farming was increased and the production of oil was also consistently increased (Table 1). The total percentage of lavender plant farming as well as oil production was significantly increased from 2012-2018 (Figures 1 and 2).

Table 6: Increased Lavender cultivation in Budgam district:

Year	Area (Kanals)	Production of Oil (Lt)
2012-13	400	30
2013-14	800	90
2014-15	1000	150
2015-16	1500	400
2016-17	1680	450
2017-18	1800	600

Source: Economic survey J&K

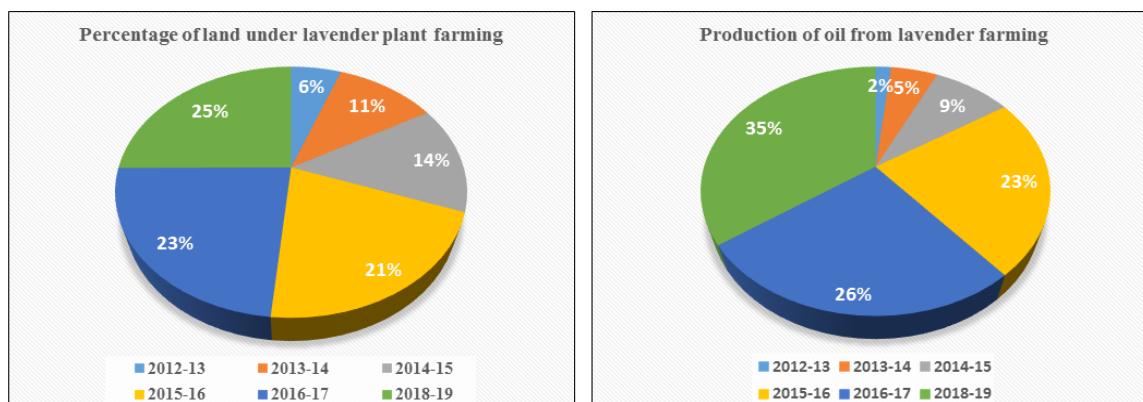


Figure 1 and 2: Lavender plant farming and oil production from 2012 to 2019.

The major component of lavender oil from Kashmir is linalyl acetate and linalool which constitutes about 44 and 25% respectively. Lavender from Kashmir valley has its international as well as domestic markets because of its apparent internal standard. Dihydro linalool and dihydrolinalyl acetate is not found in pure lavender oils and hence their presence in oil produced from Kashmir proves that the natural lavender oil produced itself is adulterated. The compound linalool present in the Kashmiri lavender oil is known for its relaxing and soothing properties. The normal lavender oil has an undesirable medicinal odor due to Camphor. The Kashmiri Lavender oil has a sweet refreshing aroma as it has the lowest concentration of camphor when compared to French/Hungarian lavender oils.

Lavender production increases employment and reduces poverty in budgam. With the growing popularity of natural products and healthcare, the demand for lavender herb has increased and is further increasing in Europe, China, Japan, and North America. By creating jobs, this industry is contributing to reducing unemployment and poverty. In budgam lavender herb is a farm and processed into beneficial products like essential oil for trade. Almost double the quantity of lavender oil is produced in Kashmir from the last some years. One of the major causes of poverty in budgam is unemployment. With increased global usage and lavender products trade, there is the continuous growth of the lavender industry in the Kashmir region. Many foreign countries like France, Singapore, USA source Kashmiri lavender products. In budgam every year land for the cultivation of lavender and essential oil distilleries is increased because of jobs increased and unemployment is reduced. Lavender plant farming in budgam district has shown a significant increase in employment from the year 2012-2018. According to the economic survey J&K, it was estimated that the employment was increased by 20% until 2018. Apart from farming and production, lavender industries also provide jobs and income in tourism. There exist customized travel packages for visitors interested in lavender production or experiencing labor fields. There was the Annual Lavender Festival, which includes ceremonies, feasting, observing vast lavender fields, and production facilities. These tourisms provide income directly to those working in the lavender industries and indirectly to those working in hotels, transportation, local food businesses, and guides.

The cultivation of lavender is very cost-effective as it yields revenue immediately. On the other hand, the cultivation of traditional crops fetches only 10%-20% of the consumer price. Lavender production gives better returns when compared with traditional crops. This herb gives 50-60Kg of oil/ha valued at Rs 2 lakh at the present rate of Rs.4000/Kg of oil. Mountain slopes are used by other countries like France, Bulgaria for lavender production. In Kashmir under mountain slopes, vast land is available where only a few plants grow, the Rockoff from these slopes make them more infertile. The gestation period of traditional crops is 10-15 years but in the case of lavender gestation period is only three years and remains productive for 20 years. The occurrence of disease in these crops is comparatively much less than traditional crops because of their hardy nature and also grows well in normal natural conditions thus resulting in high return with low input cost. The requirement of watch and ward is also minimal as they are not damaged by wild animals. Per hectare return of lavender crop is

much higher than the traditional crops. In Kashmir, we can safely produce at least 200-300 tons of Lavender oil valued at 90-135 crores annually which is sufficient to meet the domestic needs of the country. With the utilization in food flavoring, aroma, and the cosmetic industry, their production is more remunerative as compared to other crops grown in the area.

V. CONCLUSION

Medicinal plants are used for medicinal purposes from prehistoric times. Hundreds of compounds are synthesized by plants that provide defense against diseases, insects, fungi, and herbivorous mammals. Lavender which is one of the most important plants now a day, cultivation and processing for essential oil was quite successful. Lavender oil is used in medicines, cosmetics, and aromatherapy. Up to now, very few studies have been carried out to document the medicinal as well as economic benefits of lavender in budgam district of Kashmir because of being remote. Lavender plants grow on barren rocks or infertile soil which has impacted the economy and employment generation in district budgam.

REFERENCES

- [1]. Mintah, S.O., Asafo-Agyei, T., Archer, M.A., Junior, P.A.A., Boamah, D., Kumadoh, D., Appiah, A., Ocloo, A., Boakye, Y.D. and Agyare, C., 2019. Medicinal plants for treatment of prevalent diseases. In *Pharmacognosy-Medicinal Plants*. IntechOpen.
- [2]. Sofowora, A., Ogunbodede, E. and Onayade, A., 2013. The role and place of medicinal plants in the strategies for disease prevention. *African Journal of Traditional, Complementary and Alternative Medicines*, 10(5), pp.210-229.
- [3]. Sharma, A.B., 2004. Global medicinal plants demand may touch \$5 trillion by 2050. *Indian Express*, 29.
- [4]. Joshi, K., Chavan, P., Warude, D. and Patwardhan, B., 2004. Molecular markers in herbal drug technology. *Current science*, pp.159-165.
- [5]. Kala, C.P., Dhyani, P.P. and Sajwan, B.S., 2006. Developing the medicinal plants sector in northern India: challenges and opportunities. *Journal of Ethnobiology and Ethnomedicine*, 2(1), p.32.
- [6]. Khoury, M., Stien, D., Eparvier, V., Ouaini, N. and El Beyrouthy, M., 2016. Report on the medicinal use of eleven Lamiaceae species in Lebanon and rationalization of their antimicrobial potential by examination of the chemical composition and antimicrobial activity of their essential oils. *Evidence-Based Complementary and Alternative Medicine*, 2016.
- [7]. Napoli, E., Siracusa, L. and Ruberto, G., 2020. New Tricks for Old Guys: Recent Developments in the Chemistry, Biochemistry, Applications and Exploitation of Selected Species from the Lamiaceae Family. *Chemistry & Biodiversity*, 17(3), p.e1900677.
- [8]. Hakim, Z.Q., Beig, G., Reka, S., Romshoo, S.A. and Rashid, I., 2018. Winter Burst of Pristine Kashmir Valley Air. *Scientific reports*, 8(1), pp.1-7.
- [9]. Harvey, A.L., 2008. Natural products in drug discovery. *Drug discovery today*, 13(19-20), pp.894-901.

Nargis Akhter Wani, et. al. "Impact of lavender plant farming in district budgam of Kashmir valley." *IOSR Journal of Humanities and Social Science (IOSR-JHSS)*, 26(02), 2021, pp. 51-54.