



“The Role of Medicinal Plant ‘Saffron’ in Livelihood Improvement and a Potential Source of the Rural Economy of District Kishtwar in J&K UT”

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Abstract

Medicinal and aromatic plants (MAP)--based livelihood systems are frequently driven by market dynamics and/or directly tied to impoverished people's jobs and income. The main objective of the paper is to examine the various factors that contribute to falling saffron output and the economic sustainability of this cash crop in the Kishtwar District of Jammu area in the UT of Jammu & Kashmir. The legendary most expensive harvest of saffron, popularly known as Kumkum, is also a key cash crop in Jammu's isolated mountainous district of Kishtwar. Saffron cultivation is a cultural heritage that represents freshness and purity. Kishtwar's saffron production area is called locally as Mandal. Kishtwar saffron is of a higher standard than Pampore (Kashmir) saffron. Kishtwar has great potential for saffron production. Saffron is a condiment that is used for cultural and religious purposes. The saffron is one of the oldest commodities of Kishtwar district. The main marketing channels are brokers/local traders/cooperative societies etc. The research analyses that the absence of quality seeds, disease management pests, and trading facilities are the primary factors for the low productivity of saffron production in the Kishtwar district. It has been discussed in detail the various steps and strategies that should be taken at the grassroots level to increase the productivity of said cash crop so that the people can raise their additional source of income in rural areas. Saffron has a unique place among industrial and export products because of most of its economic and medicinal values. This article attempts to describe a brief history, qualities as well and ecosystem necessary for Saffron in Kishtwar. It also attempts to highlight the problems and difficulties faced by Saffron cultivation and its export in Kishtwar.

KEYWORDS: Medicinal Plant, Livelihood, Rural Economy, Commodities, Income, Saffron

INTRODUCTION:

The most expensive crop of saffron is referred to locally as "Kung in Kishtwar." After Kashmir, it is the second-most significant cash crop in the isolated mountain district of Kishtwar in the Jammu area. Kishtwar is commonly referred to as the "Land of Sapphire and Saffron" in popular culture. Although it is situated between 35 and 55 and 45 and 97 degrees longitudinally, the district's elevation ranges from 3000 to 15000 feet above sea level. It is the third-least populated district of J&K. Saffron is popularly known as Red Gold.

Crocus sativus, the saffron plant, is commonly grown in Kishtwar. It is Kishtwar's most expensive crop. In India, it is commonly referred to as "KESAR". Sanskrit refers to it as "Kum-Kum" or "Lohit," whereas Kishtwar refers to it as "KUNG." It is one of the naturally occurring, highly valuable food dyes. It is a Native crop of Kishtwar, saffron has several culinary and medicinal uses. Saffron blossoms are a representation of youth and purity. Saffron flowers serve a purpose and are significant. Kishtwar saffron is well known for its exquisite flavor, color, and medicinal qualities. It is a highly well-liked crop in the area and is regarded as the costliest crop for the local farmers. One of the oldest products in the Kishtwar district is saffron. The primary marketing channels include intermediaries, brokers, neighborhood merchants, cooperative groups, etc.

Saffron is known as "*Crocus Sativa*" in botanical terminology. 'Zafron' is its Persian name. It is made in Jammu & Kashmir, Iran, France, Sicily, and Spain. The saffron of Kishtwar district has greater quality compared to that from Pampore in Kashmir. Everything depends on the quality of the soil, the local climate, and the method used to harvest flowers, which involves removing the red and yellow carpels from the petals. During the time of bulb planting and blossoming, it needs moderate rain. Many problems impede the growth and success of J&K's saffron industry. The region's lack of adequate irrigation infrastructure is a huge concern because some of the main problems with saffron, such as its requirement for a precise amount of water for its growth {Taufique M et al,2017}

Only a small number of prominent villages, including Matta, Hidyat, Tund, Nagini, Bera-Bhatta, Begana, Hatta, Cherhar, Poochal, and Lach Daya Ram, cultivate the saffron with a high potential out of the 156 revenue villages in the Kishtwar district. In the Kishtwar area, saffron cultivation has taken up about 120 hectares of cultivated land.

REVIEW OF LITERATURE:

Lafmejani and Eizadi, 2017. This study concentrated on rural employment, saffron production, and its contribution to rural household livelihood. The descriptive analytic approach was used exclusively in this study. According to the research study, saffron significantly improves the villagers' standard of living in the rural area, which encourages them to maintain their connections there as well.

GOLMOHAMMADI, 2019. The most expensive medicinal herb, according to this research paper, is saffron. The author concentrated on the characteristics of saffron, its function in a sustainable economy, and the livelihood of rural people, as well as its issues and production difficulties. The author attempts to introduce and describe a brief history of saffron, its qualities and ecosystem, its role in sustainable economy and livelihood of rural people in dried regions, and its problems and difficulties in production and export in Iran and South in this article based on his experiences, observations, and studies about this plant over the course of more than two decades.

Ganaie and Singh, "2019" This research paper's primary goal is to examine the saffron cultivation methods used in Jammu and Kashmir. It also emphasizes issues like the lack of irrigation infrastructure and the lack of appropriate markets, among others.

Ahmad and Karmakar, 2023 The role, importance, and value of medicinal plants in the treatment of serious illnesses for public health are examined in this study paper. This study concentrated on the idea that livelihoods based on medicinal plants are typically mediated by market demand and offer underprivileged rural inhabitants a great source of work and income.

OBJECTIVES OF THE STUDY:

1. To investigate saffron production, its significance for improving livelihoods, and its potential role in the district Kishtwar's rural economy.
2. To assess the role of saffron production and its economic importance within the Kishtwar area and the J&K economy.
3. To investigate the numerous issues and problems that the saffron industry has facilitated.
4. To review certain corrective initiatives and actions that the federal government and state governments have made to address associated concerns and difficulties.

RESEARCH METHODOLOGY:

The aim of the current study is to explore the medicinal plant saffron as a potential source of rural economy in the district of Kishtwar in the Indian state of Jammu and Kashmir. It also aims to explain the concept and history of saffron. The research is entirely descriptive in nature and is based on an analysis of previous studies. All of the pertinent information used in this research work was gathered from secondary sources, including e-journals, government publications, reviews of related literature, newspapers, government websites, and numerous other online resources etc.

HISTORICAL BACKGROUND:

The history of saffron growing in J&K may be traced back to Iran, which produces the most saffron in the world. The Arabic word "Zarparan," which meaning "flowers of golden petals," is the source of the English word "saffron. Different languages have names for this high-value exotic herb or spice, including English -saffron, Faris -zaafaran, French- safran, Greek and Roman- zafferano, Spanish- zafran, and Hindi- kesar. Kashmiri Kaung, Kishtwari-Kung, etc

The origin of saffron, which has been grown for more than three thousand years, can be found somewhere in the Middle East or in Asia Minor, according to historical and archaeological evidence. According to historical sources, the Persia emperor brought saffron to India from Iran when they invaded Kashmir in approximately 500 BC. The well-known Kashmiri historian and poet Kalhana wrote Rajatarangini in the 12th century, which provides evidence of its existence in Kashmir (Hussain et al. 2016). According to reports, Veghbhatta and Sustrata, who were physicians in the year 500 B.C., included saffron as a key component in their prescriptions. We discover references to this intriguingly odd herb, which has a delicate flavor and a variety of functions, in various ancient manuscripts. Bharprakash Nighantu, an Ayurvedic scripture, praises it. The Bible and classical Western texts both praise it. In general, it is unknown exactly how saffron is grown.

Geographical Profile and Area of Saffron Land (KISHTWAR) J&K, India

The most costly crop of saffron is referred to locally as "Kung in Kishtwar." After Kashmir, it is the most significant cash crop in the isolated mountain district of Kishtwar in the Jammu area. Kishtwar is referred to as the "Land of Sapphire and Saffron" in popular culture. Although it is situated between 35 and 55 and 45 and 97 degrees longitudinally, the district's elevation ranges from 3000 to 15000 feet above sea level. After Kargil and Leh, it is the third least inhabited district in Jammu and Kashmir out of 22; its area is 7737 square kilometers. Kishtwar has a vast scope and enough potential for the production of Saffron. Saffron cultivation as per village-wise details is given below These are locally known as Mandal.

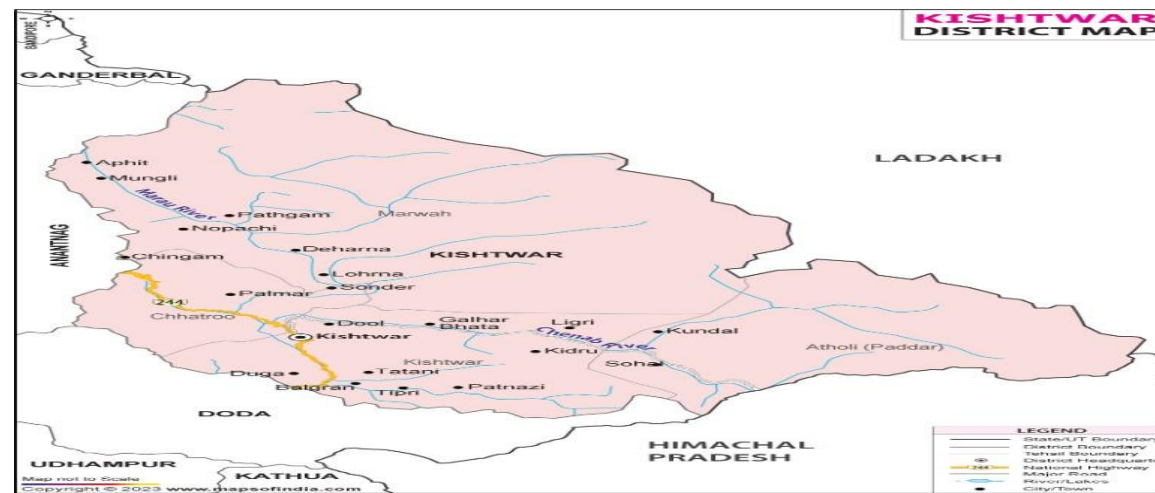


Fig:1 {Kishtwar District Map}

Table-1: Area of Saffron Land in Kishtwar district:

Name of the Village	Area in Hectares	Name of the Village	Area in Hectares
Poochhal	74.50	Matta	03.20
Sangram Bhatta	01.00	Hidyal	06.50
Cheerhar	01.45	Hudri	02.15
Dugga	00.50	Draba	01.05
Berwar	01.50	Archi	01.35
Hullar	02.00	Tund	03.50
Hatta	01.75	Lanyal	0.65
Sarkoot	00.10	Malipath	1.00
Bera-Bhatta	10.75	Bindraban	1.00
Begana	06.05		
Total			120 Hectares

Source: District Saffron Officer, Kishtwar

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Table-2 { Year-wise details of Production and Productivity of Saffron in J&K }

Year	Total Area	Rejuvenated cumulative Total Area Ha	Total Area under Traditional Method	Total Production Rejuvenated Area Mts	Total Production Inclusive from Non-Traditional Area Mts	Total Productivity kgs/ Ha
2019-2020	3715	2578.75	1136.25	12.95	15.12	4.07
2020-2021	3715	2598.75	1116.25	13.36	18.05	4.86
2021-2022	3715	2598.75	1116.25	11.2	15.035	4.04

Data.gov.in

Table-3: District wise Area sown under saffron crop 2020-2023 in UT of J&K

S. No	District	Dyes and tanning material including Saffron
1	Pulwama	2858
2	Budgam	153
3	Srinagar	188
4	Total in Kashmir Division	3199
	Kishtwar	191
	Total in Jammu Division	191
	Total in UT of J&K	3390

Source: Directorate of Economics Statistics UT

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Table-4: Physical Target and Achievement

S. No	District	Target {In ha}	Ach.ending 03/2018 {In ha}	Ach.During 2018-19 {In ha}	Cumulative Ach.as on 2018-19 {In ha}
1	Pulwama	3200	1847	72	1919
2	Budgam	300	328	328
3	Srinagar	165	16.71	2.29	165
4	Kishtwar	50	50	50
	Total	3715	2387.71	74.29	2462

Source: National Mission on Saffron in J&K UT

Table-5: {Area under saffron in J&K -2010}

District	Area under Saffron {ha}	% of Total Area
Pulwama	3200	84.54
Budgam	300	7.92
Srinagar	165	4.35
Kishtwar	120	3.17
Total	3785	100

Source- Directorate of Agriculture J&K

SAFFRON CULTIVATION AND PROCESSING:

Saffron is grown in the Karawas of Mandal area in the Kishtwar district of the J&K UT as well as wherever else that has loamy or alluvial soil since it is excellent for saffron growth. Saffron is a perennial crop that blooms in the autumn. After sowing, it lasts for roughly 10-15 years. One year must pass after planning to start growing saffron before planting the corms, according to a new grower. Farmers must set up their land for maximum growth, which necessitates a significant investment and labor-intensive process. In order to prepare the soil for corn planting, the plot of land should be plowed twice or three times. To ensure that the soil retains moisture before saffron corms, land should first be planted with oil seeds or another crop. Considering that it will encourage the growth of the saffron flower in the upcoming years. Before saffron cultivation, a significant amount of organic green manure is applied after the plowing process. No organic manure should be used after the corm-sowing process is complete since doing so will harm both the corm and bloom production.

STEPS [Saffron production in the district follows the same steps for saffron growing as other saffron-producing regions]

- I. **Collection of corms:** Saffron seeds are called Guli in the local language and are an almost golden tint. Before planting, the exterior loose scales are removed. More productive and capable of their greatest amount of flowering are corms weighing more than 8g.
- II. **Plantation of corms:** The months of July, August, and September are the months for corn planting. Saffron cultivation areas are made soft and planted with corms between the end of August and September. Once planted, corms are kept in the field for three to four years to generate daughter corms that carry on the production cycle. The first year of plantation is referred to as Nauyal in Kishtwari, and currently the yield of the flowers that produce saffron is quite low. The second year's plantation is known as Raswar, which has a medium level of productivity. If the cultivated ground is suitable for the corms (sustainability), the third year's plantation period, known as Poshwar, has the highest yield
- III. **Rainfall/Irrigation:** Saffron is displeased Rainfall typically comes later in the fall, late in the winter, and late in the spring. Therefore, as the corms began to sprout leaves, pre-flowering irrigation of no more than 100 mm should be sufficient. Saffron crops are sun-loving plants, therefore farmers prefer to grow them in arid, open fields rather than in the shadow because they completely depend on the rain for a good flush of flowers. Delayed rainfall reduces crop productivity. There is no artificial irrigation source nearby.

- IV. **Picking of Flowers:** Flowers must be collected before the sun rises since they blossom every year from October to November. Flower picking demands expertise. Flowers begin to blossom and begin pluding once the sun rises.
- V. **Separation of Stigma:** After the flowers are picked, the farmers cover them with a cotton blanket for one or sometimes two days so that the stigma may be easily separated. However, if the flowers don't open on schedule, the entire crop production suffers, making those blooms useless. by preserving the crimson stigma, also known as turla in the local language, before allowing it to dry in the sun. It is a nurturing process that takes a long time.
- VI. **Saffron season:** Farmers dry saffron in the shade, which takes between 27 and 53 hours on a bright day. When it rains, saffron growers use heaters to dry the spice, which lowers its quality and changes its color.



Fig 2: Land Preparation for Cultivation {22-08-2023}

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Fig 3: Ploughing and Sowing {22-08-2023}



Fig 4: Saffron Field with Bloom



Fig 5: Flowers and Stigma After Harvesting



ECONOMIC SIGNIFICANCE:

Saffron cultivation and processing open up a variety of job options, particularly for the women of the Kishtwar area who do 80% of the labour-intensive tasks like harvesting, refining, and packing. Saffron is one of the most valuable and irreplaceable medicinal, resistant, and cash plants that can be found dried all over the world. Saffron demands special attention for removing its issues in production, export, and merchandising due to its many distinctive traits and uses as well as the significant contribution it makes to the economy of farmers in the Kishtwar district.

It can give people work and stop them from leaving rural areas for cities and other metropolitan places. When compared to other agricultural goods, it can produce a spectacular income for farmers as well as the nation. Saffron plays a significant role in the economy, healthcare, the creation of jobs, and the food industry.

USES:

In terms of quality, smell, and utility, the saffron from this location is superior to that from other locations. Saffron is a spice that Hindus in India use to make medication, cook vegetables, and apply a mark (Tilak) to their foreheads. Its scent and color are regarded as lucky in this nation. It has a mild flavor. It tastes bitter when a little more of it is squashed between the teeth. A nutritious tonic can be made from two or three carpels (stigmas) crushed and combined with milk. It is excitable, sedative, curative, and digestible. It is the priciest seasoning. Kishtwar is the only Saffron-developing district in the province of Jammu. Saffron offers significant medical benefits and has improved growers' financial circumstances. The maintenance of all such saffron fields requires a lot of labor. Saffron is a spice with a distinctive flavor and scent. It offers a number of health advantages because of its antioxidant concentration. It has gastrointestinal, soporific, stimulating, and therapeutic properties. Many foods use saffron as a healthy spice component. It has long been essential to weddings and celebrations as a condiment. It is frequently utilized in religious rituals because it is referred to as God's spice. Women who are responsible for caring for their family employ medicinal herbs in the home, while medicine men or tribal shamans and practitioners of classical, traditional medical systems like Ayurveda use them in the community. Saffron is utilized in the food, pharmaceutical, cosmetic, and perfume sectors in addition to in textile colors.

CHALLENGES {The factors which are responsible for low productivity of saffron production in the Kishtwar district}

- Poor Quality of Corms:** Farmers typically use low standard corms that do not have the ability to produce flowers in the first year. The best quality of corms weigh above 8gm and are larger than 2.5cmd in diameter and only produce flowers in the first year, but they are available at very high rates that a small farmer is unable to afford. They use seed that is of inferior quality, reducing crop productivity.
- Lack of suitable irrigation infrastructure:** The primary causes of the drop in saffron production are irregular rainfall and drought-like conditions. Since the production of saffron directly correlates with rainfall. It needs timely rain, and while the crop is young, it needs water for optimum productivity, so artificial irrigation must be provided in the field. However, in fact, farmers in the district of Kishtwar do not have access to appropriate irrigation.

3. **Technological Gap:** Although the current era is one that is characterized by technology, saffron is still grown using traditional methods. The most recent technology is also needed in this area to increase production and yield. The nations where saffron is grown are experts in using technical tools for sowing, harvesting, and particularly for the post-harvesting phase. The farmers in this area continue to cultivate using the ancient methods because they fear that if they employ current technology tools improperly, their output would suffer. It is regarded as the primary reason for the decline in agricultural productivity.
4. **Absence of trained labor:** Development and recovery are accelerated by skill levels. Since saffron is a labour-intensive crop, its expansion requires highly specialized labor. From the time of planting until recycling, it requires careful observation. When more labor is needed for the sources harvesting and post harvesting processes during the production of saffron, the labor that is available is typically inexperienced labor. Usually, family members used to engage in saffron framing practices, but if more labor is needed at that time, it will be inexperienced labor. They damage the farming while they are working, which lowers crop output even more.
5. **Lack of interest.** Despite being a cash crop, the current generation is exhibiting the least interest in saffron production because it requires a lot of labor, takes a long time, and lacks sufficient knowledge among experts. Due to a lack of funding and a low return on investment in light of the high cost of labor in Kishtwar, only small manufacturers using family labor who can make this product at a reasonable opportunity cost are interested.
6. **Insufficient investment:** Land is one of the fixed costs associated with production. It is not possible to enhance saffron production in Kashmir Valley through further investment because the area that is available is fully exploited. But fortunately, the district of Kishtwar has a sufficient amount of land appropriate for saffron growth. However, because to a lack of funding, the locals are unable to fully exploit it for the production of saffron for a variety of reasons, including
7. **Inadequate marketing resources.** As previously mentioned, farmers encountered numerous difficulties while growing saffron, but they did not make the highest degree of profit necessary to enhance their standard of living. Most commonly, farmers do not receive fair prices for their products due to a lack of authorized market facilities. Farmers occasionally sold their finished goods at extremely low prices as a result of the existence of numerous middlemen. The majority of the proceeds from sales go to middlemen and marketing firms, and since farmers only receive a small profit from the sale of saffron, growers have little incentive to cultivate this golden spice instead choosing to focus on growing other crops instead.
8. **Other Difficulties:** unable to obtain quality fertilizer, Expensive corns are of high grade, a higher cost of labor, Absence of government assistance, etc.If these conditions continue in the same manner the cultivation of saffron will get vanished very soon.

RECOMMENDED SUGGESTION:

- I. To increase the revenue and employment of farmers in the Kishtwar area, it is necessary to develop special policies to support saffron cultivation.
- II. A Geographic Indication (GI) label has been given to saffron farmed in J&K, making Kashmir the only location in the world to produce GI-tagged saffron. Like that, Kishtwar saffron should also be evaluated for geographic indication tagging in order for it to become well-known.
- III. To boost the output and productivity of saffron in the Kishtwar area, strong ties between farmers, extension agents, and scientists are required.
- IV. In order to meet the rising demand for this exotic herb, there is a need to revitalize both the saffron-producing region and its production process.
- V. A suitable setup should exist for accurate diagnosis of the various illnesses that affect saffron plants. so that the harmful infections can be easily controlled as soon as possible. Pesticides and fungicides of various types should be accessible to growers in order to manage the disease.
- VI. Agriculture officials must provide adequate training facilities and support for saffron growers so that educated youth would be drawn to this prized crop.
- VII. Many public sector nurseries should be built in order to increase the production of high-quality saffron corms.
- VIII. Saffron growers must adhere to tight guidelines on safe practices during the post-harvesting process and saffron drying in order to increase yield.
- IX. Traditional post-harvesting procedures have a significant impact on how well saffron is produced. Modern, inventive techniques should be used to replace these customs, such as collecting flowers at the correct moment, quickly separating the stigma from the bloom, and then drying the flowers.
- X. More Saffron parks, marketing hubs, automatic weather stations in the designated areas, as well as saffron auctions online, should be established.
- XI. The Department of Agriculture should inform farmers about crop insurance programs such the NCIP, WBNCIS, Rashtriya Fasal Bima Karyakram, PMFBY, etc.
- XII. To prevent adulteration, the government should create and advertise a special brand for saffron.
- XIII. Saffron cultivation in these regions completely depends on rainfall and requires irrigation. Construction of bore wells and pumps is necessary to address irrigation issues and ensure that crops receive water on schedule. Groundwater storage facilities should also be set up for agricultural purposes.

CONCLUSION:

Saffron has a significant role in the long-term growth of the regions where it is grown, making it the most expensive therapeutic food product. Even though saffron has been grown in Kishtwar from the beginning of time, only a few specific regions of the town are currently producing the crop, despite the fact that other districts have favorable geographical circumstances. This indicates that the local population has little interest in cultivating the crop. The government's cooperation is also urgently needed to prevent the extinction of this crop. Saffron has considerable economic potential and is a profitable crop. However, difficulties and disadvantages seem to be hindering its expansion and sustainability. In order to overcome these problems and guarantee the saffron industry's prosperity, government support is frequently essential. Other diverse causes, such as insufficient land usage, a lack of irrigation systems, a lack of product branding, a lack of knowledge of programming and policy-making, a lack of trade and marketing facilities, etc., are also discussed in this article.

REFERENCES:

1. Ahuja Ram {2001} Research Methods, New Delhi, Rawat Publication
2. Golmohammadi F. 2019. Saffron as a main cash, medical and resistive plant for sustainable economy and livelihood of rural people in dried regions of Iran. *BSJ Agri*, 2(3): 156-163.
3. Ahmad, S.R. & Karmakar, S. (2023). The Role of Medicinal Plants in Drug Discovery across the World, *Ind. J. Pure App. Biosci.* 11(2), 30-41. doi: <http://dx.doi.org/10.18782/2582-2845.8995>.
4. Daawar B G, Yadvinder S. cultivation Practices and Waning Production of Saffron in Jammu and Kashmir. *AgriRES and Tech: Open Access J.* 2019, 20{3}556130.
5. Lafmejani, S. A, and Ali Eizadi. Analysis of the role of strategic products in sustainable rural livelihoods {case study, saffron production in the Roshtkhar rural district}. *Saffron agronomy and technology*, 5{3}.
6. Mission on Saffron in Jammu and Kashmir, UT, India.
7. Directorate of Economics and Statistics {Planning and Development and Monitoring Department {Digest of Statistics, 2022-2023} 46 Edition, Government of Jammu and Kashmir.
8. Economic survey Jammu and Kashmir Government (2021-2022)
9. Kumar, V., Nirbhavane, S., & Parihar, N. S. (2019). Scope of mechanical harvesting of Saffron for economic development of farmers in Kashmir Region of Jammu & Kashmir, India.
10. District Census Handbook-Kishtwar (2011) Census of India 2011, Jammu & Kashmir, Village and Town Directory, Directorate of Census Operations Jammu & Kashmir, Series-02 Part XII-A, https://censusindia.gov.in/2011census/dchb/0118_PART_B_DCHB_KISHTWAR.pdf, Accessed on 26 January 2022.
11. District Census Handbook-Kishtwar (2011) Census of India 2011, Jammu & Kashmir, Village and Town Directory, Directorate of Census Operations Jammu & Kashmir, Series-02 Part XII-A, https://censusindia.gov.in/2011census/dchb/DCHB_A/01/0118_PART_ADCHB_KISHTWAR.pdf, Accessed on 29 January 2022.
12. District Survey Report (2019) District Kishtwar of Jammu and Kashmir. <https://cdn.s3waas.gov.in/s317d63b1625c816c22647a73e1482372b/uploads/2019/01/2019011446.pdf>, Accessed on 20 January 2022.
13. Government of Jammu and Kashmir (2022) District Kishtwar. About District, Jammu and Kashmir, Developed and hosted by National Informatics Centre, Ministry of Electronics & Information Technology, Government of India, <https://kishtwar.nic.in/>, Accessed on 22 February 2022
14. Taufique, M. Khurshed, V. and Wani, S. 2017. Saffron Production in Jammu and Kashmir: Problems and Prospects, *IJSRD - International Journal for Scientific Research & Development*, 5(4), pp. 2321-0613
15. Bashir MIR Audil and Asad Aasifa {2023} The Production and Problems of Saffron Industry in Jammu and Kashmir- A Brief Analysis, Volume 3, Issue 4, Jul.-Aug., 2023, pp: 574-579
16. Mzabri Ibtissam, Addi Mohamed and Berrichi Abdelbasset {2019} Traditional and Modern Uses of Saffron (*Crocus Sativus*).
17. Ali A Hakim I.A. {2017} An overview of the production and trade Mechanism of Saffron in Kashmir valley {India}: Issues and Challenges. *Pacific Business Review International*, vol-10{2}, pp,97-106
18. Brief Industrial Profile of Kishtwar Distt. Carried out by MSME-Development Institute {Ministry of MSME.Govt. of India,}. www.msmedijammu.gov.in
19. Jagat Ram Aryan and Reshmu Devi {1970} Agro Botany of Saffron Aryan Publication Saffron Bhavan, Matta, Kishtwar, Jammu and Kashmir State, India