



Exploring the Potential of Dragon Fruit Production in India: Increasing Awareness and Utilization of its Nutritional Benefits

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Abstract

India has undertaken attempts to encourage the development of dragon fruit in recent years after realising the potential of the fruit's production. It is an excellent supplement for those with diabetes, heart disease, and cancer because of its anti-inflammatory and anti-microbial characteristics. Better awareness of the possible health benefits of dragon fruit has led to an increase in interest in its production in India. The Indian government has put in place measures to assist farmers, including loans, incentives, and training to improve crops. Dragon fruit farming in India is hampered by issues such as restricted market access, inadequate infrastructure, and lack of resources for cultivation despite its considerable potential. More study is required to ascertain its production potential and increase public knowledge of its health advantages.

Introduction

Dragon fruit (or Pitaya) is a tropical fruit that is native to the Americas. Its scientific name is *Hylocereus undatus*, and it belongs to the *Cactaceae* family. It has a unique appearance, with its bright pink skin and green scales. India has stepped up efforts to promote and increase the cultivation of fruit in recent years as it has started to realize the potential of dragon fruit production. Numerous elements, including vitamins, minerals, antioxidants, dietary fibre, and vital fatty acids, are included in dragon fruit. The fruit also possesses anti-inflammatory and anti-microbial qualities, making it a viable supplement for those who suffer from diseases including diabetes, heart disease, and cancer. The growing interest in the production of dragon fruit in India is a result of greater knowledge of its possible health advantages. From Gujarat to Karnataka, many regions of the nation are home to dragon fruit farms. The Indian government has taken aggressive measures to promote the growth of dragon fruit by offering farmers loans and incentives as well as training to assist them in increasing harvests. To improve the availability and consumption of dragon fruit among school-age children, many states are also incorporating it into their school lunch programs. Dragon fruit cultivation in India has great potential, but there are still a lot of obstacles to overcome. These include a lack of understanding of the fruit's potential, restricted market access, and inadequate infrastructure and cultivation resources. As a result, more study is required to determine the potential for dragon fruit production in India, as well as to raise public awareness of and use for the fruit's health benefits.

Nutritional Value and Health Benefits

Dragon fruit is a tropical cactus that was once only produced in Central and South America but is now grown all over the world. Its flesh is white, pink, or red and is covered in delicious

black seeds. It has a vivid pink-red skin tone and green scales. A great source of many necessary vitamins and minerals is dragon fruit. Vitamin C, which helps strengthen immunity and protect against disease, is particularly abundant in it. Carotene and polyphenols, two additional antioxidants, that aid in preventing cell deterioration, are also present. Important minerals like calcium, magnesium, iron, and zinc are also present. Dietary fibre, which supports a healthy digestive system and may help lower cholesterol levels, is also abundant in dragon fruit. It also contains a lot of protein, which aids in the development and maintenance of bodily tissues. It is thought that dragon fruit has a variety of health advantages. It has long been used to heal digestive problems, strengthen the immune system, and lessen inflammation. Additionally, studies have revealed that it might serve as a defense against some forms of diabetes, heart disease, and cancer. The strong antioxidant content of dragon fruit is also suggested to contribute to its health advantages. These antioxidants can aid in defending the body against free radical deterioration, which can result in cellular harm and disease. Dragon fruit is also believed to have anti-aging properties, thanks to its high levels of vitamin C.

Propagation techniques

A tasty and unique tropical fruit, dragon fruit is well-liked throughout the world. Despite the fruit's increasing availability, many individuals still decide to grow their own dragon fruit in order to enjoy the delicacy at its freshest and most flavorful. Dragon fruit can be propagated in a variety of methods, and it is comparatively easy to do so.

Cuttings: The optimal time for cutting dragon fruit will depend on the local environment and the growing season. Generally, the best time to cut dragon fruit is during the warmer months of the growing season, when temperatures are higher and the plants are actively growing. In the cooler months, the plant is more dormant, and the likelihood of successful cutting is lower. The cutting must have at least two nodes and be several inches long. A rooting hormone should be applied to the cutting once it has been taken, and it should then be inserted into a container with a potting soil and sand mixture. The cutting can be put in the ground after a few weeks if given the right care and attention.

Seed: Additionally, effective for growing dragon fruit are seeds. The seeds need to soak for 24 hours in water before being used. After soaking the seeds, they should be put in well-draining soil and often watered. Patience is essential because it can take the seeds several weeks to sprout. The seedlings should be planted in well-drained soil that is enriched with organic matter. They should be provided with full sun and should be watered regularly. Once the plants reach a height of 15 cm, they can be transplanted into larger containers.

Pillar Planting Technique in Dragon Fruit Cultivation: It is a climbing plant that can reach up to 10 meters and possess a large, fleshy stem. The pillar planting technique is an effective method of cultivation for dragon fruit. The pillar planting technique involves using pillars or posts placed around the perimeter of the field to support the stems of the dragon fruit plants. The pillars are made from durable materials such as concrete, steel, and bamboo, and should be placed in the ground at least 1.5 meters apart. The stems of the dragon fruit plants are then tied to the pillars with a rope or wire. This technique provides adequate support for the dragon fruit plants and allows them to reach their full potential. The pillar planting technique has several benefits. It increases the crop yield as the plants can grow to their full height without being damaged by the wind or other external factors.



Current Market Situation in India

Due to its health benefits and growing consumer awareness, dragon fruit is in high demand in India. In India, a large number of farmers are engaged in commercial dragon fruit cultivation. The demand for dragon fruit is growing, and the market scenario for the fruit is very favourable right now in India. In India, the states of Maharashtra, Karnataka, Madhya Pradesh, Odisha, Gujarat, and Andhra Pradesh are the top dragon fruit producers. The majority of India's dragon fruit is produced and exported from these states. The USA, UK, Australia, Japan, and other nations receive the bulk of the exports of the fruits. As more people become aware of the fruit's health advantages, the market for dragon fruit in India is anticipated to expand further in the upcoming years. The government is making efforts to encourage the growth of the dragon fruit industry in India. This entails giving farmers incentives, establishing training facilities for farmers, and creating market connections. In India, the cost of dragon fruit varies according to the fruit's season, location, and quality. In India, 1kg of dragon fruit costs between 150 and 200 rupees on average. In the upcoming years, it is anticipated that the price would rise much more. Overall, the Indian dragon fruit market is in a very advantageous position right now, and demand is growing. The dragon fruit market in India is expanding thanks to government initiatives, growing consumer awareness, and its health benefits.

Diseases and pest observed in nursery

Waterlogging in polythene bags or any kind of injury to the cuttings can lead to the cuttings getting infected by soft yellow stem rot disease. In this disease, the green stem starts turning yellow at the base of the cuttings and then progresses towards the stem tip. Eventually, the infected stem becomes spoiled and fails to grow. To prevent this, avoid waterlogging, use a sterilized knife to detach cuttings from the mother plants, avoid any kind of injury at the base of the cuttings, and ensure sufficient callusing to prevent infection by soft yellow stem rot.



Strategies to Enhance Yield and Popularity

The unusual and tasty dragon fruit, often referred to as pitaya or pitahaya, is growing in popularity in India. It is a fruit that is rich in nutrients and has a variety of health advantages. Its manufacture and sales are still somewhat restricted in India. To increase the production and ubiquity of dragon fruit in India, a variety of tactics might be used.

- 1. Raise Awareness:** Raising consumer awareness is crucial when launching a new product, as with any other. This can be accomplished using a variety of marketing strategies, including print and television ads, social media campaigns, and public events. Moreover, educating people about the health advantages of dragon fruit can encourage them to try it.
- 2. Provide Adequate Support:** Appropriate assistance must be given to farmers in India in order for them to grow dragon fruit. Access to high-quality planting materials, advice from technical experts, and financial support are all part of this. The government should also offer incentives to farmers who want to grow dragon fruit, such as tax breaks or subsidies.
- 3. Encourage processing:** Making goods like juices, jams, and jellies from dragon fruit can assist to add value to them and boost demand for them. The essential assistance, including funding, technical advice, and access to contemporary processing technologies, should be made available to processors.
- 4. Improve Distribution Channels:** Dragon fruit needs to be distributed through a number of outlets, including supermarkets, online retailers, and farmers' markets. This will guarantee that it is simple for customers to access. Offering discounts and promotions can also aid in boosting sales.

5. Explore Export Markets: The ability to export dragon fruit to other nations may help to boost demand for the fruit in India. The required help, such as market data, technical advice, and financial support, should be given to exporters.

India may grow to be a significant producer and exporter of dragon fruit on the world market by putting these methods into practice. This will contribute to economic growth and job possibilities. It will also aid in increasing dragon fruit's acceptance and availability in India.

Conclusion

Despite being a fruit that is widely consumed and farmed in India, dragon fruit nevertheless has a low yield. The tactics that can be employed to maximize India's potential with the dragon fruit were the main topic of this essay. Improvements in crop management enhanced marketing and promotion activities, and investments in R&D are some of the strategies addressed. The paper also gave a general summary of the qualities of dragon fruit, its nutritional content and health advantages, and the state of the Indian market at the time.