

Dragon Fruit: A Newly Emerged Fruit Crop

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Dragon fruit (*Hylocereus* spp) is regarded as the most exotic and recently introduced fruit crop brought to India. Cactoideae is a sub-family of the family Cactaceae, which includes this perennial climbing cactus. This plant, which only blooms at night and has a strong scent that usually lasts for one night, is also known by the names Pitaya, "The Scaly Fruit," Strawberry Pear, Honourable Queen, Jesus in the Cradle, Queen of Night, Belle of Night, and Night Blooming Cereus. In addition to being an ornamental plant, dragon fruit is widely recognised as a fruit crop. Evergreen climber that grows quickly; it needs vertical support to support its growth. With several branches, the stem resembles a succulent vine. With one to three spines or none at all, each segment has three to five wavy wings. Dragon fruit stems can climb and remain erect because their aerial roots adhere to the support. It is grown in tropical nations like Australia, Cambodia, China, Ecuador, Guatemala, Hawaii, Indonesia, Israel, Japan, Laos, Malaysia, Mexico, New Zealand, Nicaragua, Peru, Taiwan, Thailand, South-Western USA, and Vietnam. It originated in tropical and sub-tropical forest regions of Mexico and Central America.

The pitaya plant thrives in tropical dry climates with temperatures between 20° and 29°, while it can withstand temperatures as high as 40° and, for brief periods of time, as low as 10°. Above 40° C, the plants will suffer damage that will result in stem yellowing. The amount of rainfall needed to cultivate dragon fruit varies from 500 to 1500 mm annually. Areas with high rainfall are unsuitable for growing crops because of blossom and fruit drop caused by heavy rain. Growing dragon fruit is possible in a variety of well-drained soil types. But the best soil for this crop is one that is slightly acidic and rich in organic materials. As long as the soil has good drainage, dragon fruit may be cultivated in a variety of soil types. Through stem cutting, it is commercially propagated. The optimal pH range for soil planting and propagation is 5.5 to 7.0. The sandy loam soils provide ample aeration for the root zone of the cuttings because of their high porosity and enough drainage capacity. Failures were caused by improper propagation practices in black cotton soil. For this crop, soils with standing water must be avoided since

it promotes root and stem rotting. Because dragon fruit is either xerophytic or epiphytic and requires little water, it may be grown even on marginally degraded terrain.



It is a long-day plant that typically flowers in four to six flushes, occasionally up to seven, from April to November. However, it can occasionally continue to blossom into December. Anthesis follows the floral bud stage in around 30 days. Typically, bisexual flowers are open from 6:30 p.m. to 10:00 p.m. on the same day. If they aren't pollinated, they stay open until noon on the next day. The stigma is erect throughout flower opening and the receptive phase, but it bends downward following pollination. The likelihood of cross-pollination may rise when individuals exhibit synchronous blossoming. The blossoms of the dragon fruit are aromatic, nocturnal, hermaphrodite, and measure 25–30 cm in length and 15–17 cm in width. Nevertheless, several cultivars are self-compatible. Typically, flowers are bell-shaped and white in colour, with cream-coloured stamens and lobed stigmas. Its fruit is fleshy berry with leathery and scaled skin. There are many tasty, soft, small black seeds scattered throughout the fruit's edible white and crimson flesh which is 6–12 cm in length and 4–9 cm in thickness.

This fruit has an oblong to spherical form, and its skin is green scaly with red or yellow undertones.

Dragon fruit has recently been traded on the global market, where it is now Vietnam's most valuable fruit export, selling for more than durian fruit. The newest addition to India's superfruit lineup is dragon fruit. Considered a fruit crop for the future, the "Wondrous Fruit" of the twenty-first century is expected to revolutionize Indian horticulture. Farmers and private business owners from other nations brought dragon fruit to India. It is grown in Maharashtra, Gujarat, Manipur, Andhra Pradesh, Karnataka, and Tamil Nadu in India.

When consumed as fresh fruit, the fruit's luscious flesh has a moderately sweet taste akin to that of an unripe pear. Fruit may be processed to create a variety of value-added goods, such as juice, yoghurt, preserves, jams, jellies, ice cream, candied fruits, fruit bars, marmalade, and pastries. Fresh fruit has between 83% and 88% moisture content, 0.16 and 0.23 g protein, 0.21 and 0.61 g fat, and 0.70 and 0.90 percent fibre. In addition, 100 gram of fresh fruit pulp includes 6.30 to 8.80 mg of calcium, 30.20 to 36.10 mg of phosphorous, 0.50 to 0.65 mg of iron, and 8.00 to 9.00 mg of vitamin C. The red fruit flesh also contains a pigment known as betacyanin, which may contain up to 200 mg of fruit per 100 grams.

The nutraceutical, cosmeceutical, food processing, and health care sectors all place a high value on dragon fruit. Its ingestion boosts blood cells, strengthens immunity, aids in the treatment of respiratory illnesses, and promotes the healing of wounds. It is abundant in flavonoids, which help alleviate bleeding issues associated with vaginal

discharge and fight heart-related illnesses. Dragon fruit is full of vitamins B group (B1, B2, and B3), which have significant health advantages, and its high fibre content aids in digestion. Vitamin B1 contributes to the generation of more energy and aids in the digestion of carbohydrates; Vitamin B2 enhances and restores appetite; and Vitamin B3 is crucial in reducing low levels of bad cholesterol (LDL). Additionally beneficial for lowering blood sugar levels in Type-2 diabetics is dragon fruit. According to studies, diabetic individuals' blood sugar levels may be more easily controlled thanks to the glucose in fruit. Fruit has a high concentration of calcium and phosphorus, which support teeth and bones and are crucial for the development of new tissue. Several cosmetic items are made from the dried pulp and rind. The natural dye that is utilised as a natural colourant in the food sector comes from the fruit.

Harvesting dragon fruit occurs 28 to 30 days after flowering. Since dragon fruit is non climacteric, it needs to be picked when it is fully ripe. Dragon fruit is easily rotted because of the rapid colour changes caused by physical factors like sunshine and cutting, as well as biological factors like the presence of mushrooms. To preserve the freshness and shelf life of dragon fruit, post-harvest care is essential. The fruits are harvested using pruning shears, collected in plastic containers, and then sent to the packaging factory. Fruits that satisfy the buyer's quality standards are sorted, then packed and sent to the local market in fibreboard boxes or cartons. The fruit's relatively limited shelf life, even at low temperatures, becomes one of the main challenges to increasing its marketability after harvesting.

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